

DESIGN STANDARDS

September 2010

OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST
CITY OF OKLAHOMA CITY
OKLAHOMA CITY PUBLIC SCHOOLS



DESIGN STANDARDS

September 2010

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- A. The following document is to be used in the development of the bidding documents for all Oklahoma City Metropolitan Area Public School and School District projects. Included in the document are the general requirements that are to be followed by architects and contractors working on each project.
- B. The general conditions provided in this document are not to be modified without the written consent of the OCMAPS Project Manager. The document is periodically updated, and each Architect must coordinate with the OCMAPS Project Manager to ensure the latest version is being utilized on the project.
- C. Do not indicate, either on the plans or in the specs, that providing a particular item or task is the responsibility of the owner without first obtaining approval of the School District.

Specifications for

Project SCHOOL

Architect

OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

in conjunction with



**Independent School District No. 89
of Oklahoma County, Oklahoma**

and



The City of Oklahoma City

September 2010

**THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST
APPROVAL SHEET**

(Insert Project Number)
(Insert Project Description)

Prepared by

(Insert name, address and phone number of Architect)

Architect

Recommended for Approval

Eric J. Wenger, P.E.
Program Manager

Dennis Clowers, P.E., Director
Public Works/City Engineer

RECOMMENDED FOR APPROVAL by the Trustees of the Oklahoma City Metropolitan Area Public Schools Trust this _____ day of _____, 20__.

ATTEST:

Secretary

Chairman

CONCURRED by the Council of the City of Oklahoma City this ____ day of _____, 20____.

ATTEST:

City Clerk

Mayor

APPROVED by the Board of Education of Independent School District No. 89 of Oklahoma County, Oklahoma this _____ day of _____, 20____.

ATTEST:

Clerk

Chairman

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THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

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THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

NOTICE TO BIDDERS

Notice is hereby given that the Oklahoma City Metropolitan Area Public Schools Trust (“OCMAPS Trust”), as project manager, will receive and open sealed bids for the construction of an Independent School District No. 89 of Oklahoma County, Oklahoma (“School District”) Bond Project:

(Project number and name)

in the office of the City Clerk, 2nd Floor, Municipal Building, 200 N. Walker, Oklahoma City, Oklahoma 73102, until ____**(time)**____ **(a.m./p.m.)** on the ____**(day)**____ day of ____**(month)**____, 20__**(year)**__. Bids shall be opened at the above stated time for receipt of bids or as soon thereafter as practicable.

Bids shall be made in accordance with this Notice to Bidders and the bidding documents which are on file and available for examination and may be obtained from the office of the City Clerk upon a deposit of \$____**(dollar amount)**__ per set.

(Supplemental Plan Deposit Paragraph – For Large Projects)

Deposits for bidding documents shall be presented to the City Clerk in the form of two (2) separate checks, each equal to one-half of the total deposit. Deposits will be retained by the City Clerk; however, one-half of the deposit will be refunded upon return of the bidding documents for up to two (2) complete sets of bidding documents within twenty-eight (28) days of the opening of bids.

Bidders shall be pre-qualified in accordance with the City of Oklahoma City Ordinance No. 20,815.

Pre-Bid Conference: A **(insert the word “mandatory” if applicable)** pre-bid conference will be held ____**(month)** ____**(day)** __, 20__**(year)**__ at ____**(time)** __ **(a.m./p.m.)** in the office of the OCMAPS Trust, 420 West Main, Suite 400, Oklahoma City, Oklahoma 73102.

Additional information is contained in the Bidding Documents. Bidders must carefully read the Bidding Documents, and all addenda, if any, and the City of Oklahoma City’s “Standard Specifications for the Construction of Public Improvements” prior to bidding this project.

(SEAL)

Frances Kersey, Secretary

Reviewed for form and legality.

Assistant Municipal Counselor

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THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

INSTRUCTIONS TO BIDDERS

ARTICLE 1 – IN GENERAL

1.1 BIDDING DOCUMENTS; DEFINITIONS

1.1.1 The Bidding Documents consist of the Bid Documents and the Contract Documents.

The Bid Documents consist of: Notice to Bidders; Instructions to Bidders; List of Documents Required for this Bid; Signature Requirements for Bidding Documents; Bid Package Cover Sheet; Bid Form including Bid Form with Alternates and/or Detailed or Unit Price Bid Form, if included in the documents; Non-Collusion Affidavit; Business Relationship Affidavit; Local Business Utilization Affidavit; any other documents listed in the List of Documents Required for this Bid; and any Addenda issued prior to the bid date.

The “Contract Documents” consist of: Contract; Performance Bond; Statutory Bond; Maintenance Bond; Contractor Identification Numbers; Certificate of Nondiscrimination; Special Provisions; Special Provisions – Technical; Drawings; Plans; Specifications; Defect Bond, if required; other documents provided in the Contract Documents or required to be submitted with the Contract; and all Addenda issued prior to the bid date. Any Amendments and/or Change Orders issued after the award of Contract shall be a part of the Contract Documents upon their approval by the School District.

1.1.2 The Definitions set forth in Part 1 of the City’s “Standard Specifications for Construction of Public Improvements,” and in the Bid Documents, are applicable to the Bidding Documents.

1.1.2.a Acceptance. Shall mean the formal, recorded acceptance of the project by the OCMAPS Trust and School District.

1.1.2.b Addenda. Written or graphic instruments issued by the Program Manager and the City Engineer prior to the bid date, which modify or interpret the bidding documents by additions, deletions, clarifications or corrections.

1.1.2.c Alternate Bid (or Alternate). An amount stated in the bid to be added to or deducted from the amount of the base bid if the corresponding change in the work, as described in the bidding documents, is accepted.

1.1.2.d Architect. That person or firm under contract with the School District to prepare the plans and specifications for and supervise the construction of the work.

1.1.2.e Base Bid. The sum stated in the bid for which the Bidder offers to perform the work described in the bidding documents as the base, to which work may be added or from which work may be deleted, for sums stated in alternate bids.

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- 1.1.2.f Bid. A complete and properly signed proposal to perform the work for the sums stated therein, submitted in accordance with the Bidding Documents. A submission shall not be considered a bid if it is untimely. A submission by a proposed Contractor or Bidder who is not prequalified shall not be considered a bid unless prequalification is specifically waived in the Bidding Documents.
- 1.1.2.g Bid Date and Bid Time. The date and time for the receipt of bids as provided in the Notice to Bidders.
- 1.1.2.h Bid Security. That security submitted with the bid which shall be in the form of a certified check, cashier's check or bid bond equal to five percent (5%) of the bid or of an irrevocable letter of credit in the amount of five percent (5%) of the bid and issued in accordance with the provisions of the Public Competitive Bidding Act of 1974, as amended (61 Okla. Stat. 1991, §107). The calculation of the amount of the bid security shall be as provided in section 4.2.1 of these Instructions to Bidders.
- 1.1.2.i City of Oklahoma City. The City of Oklahoma City, Oklahoma, a municipal corporation, and the duly authorized officers or agents of the City of Oklahoma City.
- 1.1.2.j Claim. A written demand by one of the parties seeking adjustment or interpretation of contract terms, payment of money or extension of time with respect to the terms of the contract. Claims must be made by written notice. The responsibility to substantiate claims shall rest with the party making the claim.
- 1.1.2.k Completed. Shall mean that the work shall have been constructed in accordance with the plans and specifications and other bidding documents and is fully completed, the final inspection(s) have been made, and any corrections made to the satisfaction of the Program Manager and City Engineer.
- 1.1.2.l Contract Documents. The Contract Documents represent the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Parties shall not be bound by or be liable for any statement, representation, promise, inducement or understanding of any kind or nature not set forth herein. No changes, amendments or modifications of any of the terms or conditions of the Contract shall be valid unless reduced to writing and signed by both Parties. Except as otherwise provided, nothing contained in the Contract Documents shall be construed to create any contractual relationship between: a) the Architect and the Contractor; b) the City or the Architect and a subcontractor or sub-subcontractor; c) the Project Site Representative and the Contractor; or d) any persons or entities other than the OCMAPS Trust, School District or City and the Contractor. This Contract shall be construed in accordance with the laws of the State of Oklahoma. In any action initiated by one party against the other, venue shall lie in Oklahoma County, Oklahoma.
- 1.1.2.m Contractor. The construction company that is contracted by the OCMAPS Trust or School District to erect, build or supply materials for the projects or other related Program requirements.

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- 1.1.2.n Director of Public Works/City Engineer. The administrative officer of the City in charge of engineering, construction and maintenance contracts in public right-of-ways and design and construction of City capital improvement projects.
- 1.1.2.o Drawings. The graphic and pictorial portions of the Contract Documents, wherever located and whenever issued by the OCMAPS Trust, School District or City, showing the design, location and dimensions of the work, generally including plans, elevations, sections, details and diagrams.
- 1.1.2.p Local Business Utilization Program. A program to encourage participation of local architects, engineers, contractors and suppliers, minority and otherwise, in the development and construction of the projects.
- 1.1.2.q OCMAPS Program. The capital improvement, transportation, technology and equipment projects including all administrative services and management for design and construction funded by the City's limited-term excise tax and the School District General Obligation Bond funds.
- 1.1.2.r OCMAPS Trust. The Oklahoma City Metropolitan Area Public Schools Trust, a public trust, and its appointed staff.
- 1.1.2.s Prequalification or Prequalified. Shall mean that prior to the bid date the Bidder is listed by the Contractor's prequalification board as prequalified for the type or types of work required for the project.
- 1.1.2.t Product Data. Illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the work.
- 1.1.2.u Program Consultant. The planning, design and program management firm engaged by the OCMAPS Trust to assist in the development and implementation of the capital improvement and equipment purchase projects funded by the City's limited-term excise tax and the School District's General Obligation Bond funds.
- 1.1.2.v Program Manager. The manager of the Program assigned by the City Manager/General Manager of the OCMAPS Trust.
- 1.1.2.w Project. The total construction of which the work performed under the Contract Documents may be the whole or a part and which may include construction by the OCMAPS Trust, School District or City or by separate contractors.
- 1.1.2.x Project Site Representative. A representative employed by the City to perform construction inspection for the project.

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- 1.1.2.y Samples. Physical examples that illustrate materials, equipment or workmanship and establish standards by which the work will be judged.
- 1.1.2.z School District. Independent School District No. 89 of Oklahoma County, Oklahoma, a public school district also known as the Oklahoma City Public Schools, and its appointed staff, and owner of the public school facilities.
- 1.1.2.aa Shop Drawings. Drawings, diagrams, schedules and other data specifically prepared for the work by the Contractor or a subcontractor, sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the work.
- 1.1.2.bb Student Safety Plan. The plan developed to implement necessary safety precautions required for access onto school sites, and including standards for the safety of students during the design and construction of a project.
- 1.1.2.cc Substantial Completion. Substantial completion means completion of the project allowing the occupancy permit for the building to be obtained by the Contractor and for the facility to be utilized for its intended use as defined by the OCMAPS Trust, School District or City.
- 1.1.2.dd Trust Staff, Trust Representative, City Staff or City Representative. Administrative managers and employees of the City under the supervision of the City Manager/General Manager of the OCMAPS Trust.
- 1.1.2.ee Unit Price. An amount stated in the bid as a price per unit of measurement for materials, equipment or services or a portion of the work as described in the bidding documents.
- 1.1.2.ff Work. The work for the project shall include the entire project as it is defined in the bidding documents.

1.2 CONFIDENTIALITY

- 1.2.1 No Bidder shall divulge the sealed contents of a bid to any person whomsoever, except those having a partnership or other financial interest with the Bidder in said bid, until after the sealed Bids have been opened. A violation on the part of the Bidder shall make void any Contract made by the Bidder with the School District based upon such bid.

1.3 PREQUALIFICATION AND LICENSES

- 1.3.1 Specific procedures for prequalification are established in the City's "Standard Specifications for the Construction of Public Improvements." Application for prequalification must be made to the Contractor's Prequalification Board and the required information provided to the Board. Unless prequalification is specifically waived in the Bidding Documents for the project or by formal OCMAPS Trust or School District action, all Bidders must be listed by the Contractor's Prequalification Board as "pre-qualified" for the type or types of work before the bid date. In the event prequalification is waived, or in

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addition to prequalification, the Bidder may be required to present other evidence of qualification as required in the Bidding Documents.

1.3.2 Bidder's shall be Pre-qualified for the specific type or types of construction, as provided in the Bidding Documents and the City's "Standard Specifications for the Construction of Public Improvements." Unless prequalification is specifically waived in the Special Provisions for the project, the City Clerk will return the submission of any proposed Contractor or Bidder who is not listed, at the time for receipt of Bids, as Pre-qualified for the type or types of work required for the project and such submission will not be considered by the OCMAPS Trust or School District.

1.3.3 The prequalification requirements for the project are set forth in the Special Provisions of the Bidding Documents.

1.3.4 Regardless of whether or not prequalification is required, any proposed Contractor or Bidder must have obtained any license or licenses required by the City which is/are necessary to the accomplishment of the work. Such license(s) must have been obtained prior to the submission of a bid on the project. Failure to possess the necessary license(s) is reason for a recommendation to the OCMAPS Trust or School District that a Contract not be awarded.

1.4 SALES TAX

1.4.1 Sales to public school districts and their contractors are exempt from sales taxes on the sale of tangible personal property or services per 68 O.S. §1356. All bids made for the School District projects shall be assumed to have been made based on such statutory exemption as effective on the bid date.

1.4.2 Any interpretation of or procedure for the sales tax exemption must be sought from the Oklahoma Tax Commission or the Bidder's legal counsel.

1.5 CONTRACT

1.5.1 The awarding of a Contract upon a successful bid shall give the Bidder no right to action or claim against the OCMAPS Trust or School District upon such Contract until the same shall have been reduced to writing and duly signed by the contracting parties.

1.6 STANDARD SPECIFICATIONS

1.6.1 The City of Oklahoma City's "Standard Specifications for the Construction of Public Improvements," as adopted by the City Council, shall govern all aspects of bidding for and construction of the project. Exceptions to the "Standard Specifications" will be set forth in these Instructions to Bidders or in the Special Provisions and/or the Special Provisions – Technical. The Special Provisions shall prevail over any conflicting statement in the Standard Specifications. The "Standard Specifications" are available for review or purchase in the office of the City Clerk.

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ARTICLE 2 – BIDDER’S REPRESENTATIONS

- 2.1 The Bidder by making a bid represents that:
 - 2.1.1 The Bidder has read carefully and understands the Bidding Documents and has visited the site and become familiar with local conditions under which the work is to be performed and has informed himself by independent research of the difficulties to be encountered and personally judged the accessibility of the work and all attending circumstances affecting the cost of doing the work and of the time required for its completion and has correlated the Bidder’s personal observations with the requirements of the Bidding Documents and the bid is made in accordance therewith.
 - 2.1.2 The Bidder has read and understands the Bidding Documents to the extent that such documentation relates to the work for which the bid is submitted and for other portions of the work, if any, being bid concurrently or presently under construction.
 - 2.1.3 The bid is based upon the materials, equipment, systems or services required by the Bidding Documents without exception.

ARTICLE 3 – BIDDING DOCUMENTS

- 3.1 COPIES
 - 3.1.1 Bidders may obtain complete Bidding Documents from the office of the City Clerk, 2nd Floor, 200 N. Walker, Oklahoma City, OK 73102, or as designated in the Notice to Bidders, for the deposit sum stated therein. The deposit may be refunded to Bidders upon return of the Bidding Documents in good condition and within twenty-eight (28) days after bids are opened. The cost of replacement of missing or damaged documents will be deducted from the deposit, provided however, the successful Bidder may retain the Bidding Documents and it’s deposit will be refunded.
 - 3.1.2 Bidders shall use complete sets of Bidding Documents in preparing Bids; neither the OCMAPS Trust or School District nor the Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS
 - 3.2.1 The Bidder shall carefully study and compare the plans with the specifications, Bid Form and other Bidding Documents. The Bidder shall compare the project to be bid with other work being bid concurrently or presently under construction to the extent that it relates to the work for which the bid is submitted. The Bidder shall examine the site and local conditions. The Bidder shall at once report to the Program Manager or the Architect any errors,

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inconsistencies or ambiguities discovered. All requests for interpretation of the Bidding Documents must be made to the Program Manager and to the Architect.

3.2.2 Addendum Required. The Bidding Documents represent all the information the OCMAPS Trust and School District will provide. Interpretations and corrections of and/or changes to the Bidding Documents will be made only by addendum. Such addenda shall be issued by the Program Manager and City Engineer or the Architect and shall have been recommended by the Program Manager and City Engineer and approved or ratified by the School District. Interpretations and/or changes made in any other manner will not be binding upon the OCMAPS Trust or School District and Bidders shall not rely upon them.

3.3 SUBSTITUTIONS

3.3.1 The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution.

3.3.2 Pre-Bid Consideration; Addendum required. No substitution will be considered prior to the receipt of bids unless a written request for approval has been received by the Program Manager or Architect/Engineer within seven (7) days prior to the bid date. Such requests shall include the name of the material, product, or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, products, equipment or other portions of the work, including changes in the work of other contracts that incorporation of the proposed substitution would require, shall be included in the request. The burden of proof of the merit of the proposed substitution is upon the proposer.

3.3.3 If a proposed substitution is approved prior to bid date, such approval will be set forth in an addendum issued by the Program Manager and the City Engineer and approved or ratified by the School District. Bidders shall not rely upon approvals made in any other manner.

3.3.4 Post-Contract Consideration. Substitutions may be considered after the award of Contract unless specifically prohibited in the Bidding Documents. However, any Bidder basing a bid on a substitution not approved by pre-bid addendum does so at the risk of being required to provide the materials designated in the Bidding Documents.

3.4 ADDENDA DELIVERY AND RECEIPT

3.4.1 The Program Manger and the City Engineer may issue addenda as may be necessary in the best interest of the OCMAPS Trust and the School District. Addenda may amend the date and/or time for receipt of bids or any specification, item, document or requirement in the Bidding Documents. Addenda will be mailed, faxed, emailed or delivered only to those potential Bidders who have signed the Bidding Document Receipt List for the project, which is maintained in the office of the City Clerk.

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- 3.4.2 Copies of addenda will be made available for inspection in the office of the City Clerk, 2nd Floor, 200 N. Walker, Oklahoma City, OK 73102.
- 3.4.3 The following shall be considered proof that Bidder received an addendum:
- a) Mailed Addendum: The Bidder's signature or Bidder's representative's signature on the Certified Mail Return Receipt.
 - b) Hand Delivered or Picked-Up Addendum: The Bidder's or Bidder's representative's signature on the Addendum Received Signature List.
 - c) Faxed Addendum: The OCMAPS Trust's or the Architect's Fax Confirmation Sheet.
 - d) Emailed Addendum: The OCMAPS Trust's or the Architect's email delivery receipt confirmation.

It shall be the obligation of the Bidder to ascertain from the office of the City Clerk, within two (2) working days prior to the bid date, whether Bidder has received all addenda.

3.5 MANDATORY PRE-BID CONFERENCE

- 3.5.1 The OCMAPS Trust and School District requires all prospective Bidders to attend a Pre-Bid Conference as a prequalification requirement to be eligible to submit a sealed bid. Attendance is a prequalification requirement for this project. The Contractor who plans to submit a bid must attend this conference. Failure to attend this conference will cause the City Clerk to return the Bidder's submission unopened. The purpose of the conference is to discuss the plans and specifications.

NOTE: The Pre-Bid Conference will begin at the designated time; a sign-in sheet will be passed to all attendees; only full-time employees of the prospective Bidder's company will be considered as eligible representatives for attendance; and, five minutes after the meeting is called to order, the sign-in sheet will be closed. Late arrivals will not be allowed to sign in. The official timekeeper for closing the sign-in sheet shall be the Architect or staff member chairing the Pre-Bid Conference.

In the case of a joint venture, an eligible representative from each of the participating organizations in the joint venture must be in attendance. Sub-contractors are not required to attend.

The following will not be eligible to bid on the project: (1) prospective Bidders leaving the meeting prior to adjournment of the Pre-Bid Conference; (2) prospective Bidders whose names have been placed on the sign-in sheet, but were not in attendance; or, (3) anyone arriving at the Pre-Bid Conference after the sign-in sheet has been closed.

Prospective Bidders leaving the conference prior to adjournment, or whose name has been placed on the sign-in sheet but was not in attendance, or anyone arriving at the Pre-Bid Conference after the sign-in sheet has been closed, will not be eligible to bid on the project.

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- 3.5.2 Provision for Interpreters. In compliance with the provisions of the Americans with Disabilities Act, upon twenty-four (24) hours notice to the Program Manager, a sign language interpreter will be provided for the Pre-Bid Conference.

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ARTICLE 4 – BIDDING PROCEDURES

4.1 FORM AND STYLE OF BIDS

4.1.1 Bids shall be submitted on the Bid Form(s) in the Bidding Documents or photocopies thereof.

4.1.2 All forms must be signed and all affidavits sworn to and notarized. All blanks on the Bid Forms and affidavits shall be filled in by typewriter or legibly printed in ink.

4.1.3 All prices shall be distinctly legible. Where so indicated by the makeup of the Bid Form, sums shall be expressed in both words and figures, and in case of any discrepancy between the two, the amount written in words shall govern.

4.1.4 Where a detailed or unit price Bid Form for the submission of unit prices is provided in the Bidding Documents, the Bidder will complete the detailed Bid Form and then enter the total amount of the bid on the Bid Form and the total amount shall be based upon the unit prices. In cases of conflict between words and numerals, the words shall govern. In cases of conflict between the amount on the Bid Form and the amount on the detailed Bid Form, the amount on the detailed Bid Form will govern.

Instructions and an example of a properly completed detailed Bid Form are provided in Appendix I to these Instructions to Bidders.

Unless otherwise provided in the Special Provisions, where unit prices are bid, partial payments and final claims will be based on actual quantities used. Any substantial change(s) in quantities required to complete the work will require a Contract amendment, which will be based on the unit prices bid.

4.1.5 Erasures and/or corrections must be initialed by the signer of the bid. A bid with erasures and/or corrections, which are not initialed shall be considered to be irregular.

4.1.6 Each and every required document must be submitted with the bid and must be signed in ink by the person with the authority to so execute the document and must be properly attested to or witnessed in accordance with the Signature Requirements for Bid Documents.

4.2 BID SECURITY

4.2.1 Each bid shall be accompanied by a Bid Security, in the form of a cashier's check, a certified check, or a surety bond, in the amount of five percent (5%) of the amount of the bid. The Bid Security shall be in favor of the **“Independent School District No. 89 of Oklahoma County.”** For the purposes of this section, bid shall mean the highest combination of the base bid plus alternate bids. The Bid Security is a pledge that the Bidder will enter into a Contract with the School District on the terms stated in the bid and will furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds

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as required and/or the required certificates of insurance and other required documents, the amount of the Bid Security shall be forfeited to the School District as liquidated damages, not as a penalty.

- 4.2.2 The School District has the right to retain the Bid Securities of Bidders until either (a) the Contract and bonds and other required documents have been executed or submitted by the successful Bidder, or (b) the specified time to award bids has elapsed so that bids may be withdrawn in accordance with State law, or (c) all bids have been rejected, or (d) another Bidder has been determined to be the successful Bidder.

4.3 SUBMISSION OF BIDS

- 4.3.1 The Bid Form and affidavits, the Bid Security and any other documents required to be submitted with the bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the City Clerk and shall be marked “SEALED BID FOR PROJECT (insert project number)” and shall state the Bidder’s name and address and, if applicable, the designated portion of the work for which the bid is submitted.

If the bid is sent by mail, the sealed envelope, marked as described above, shall be enclosed in a separate mailing envelope with the notation “SEALED BID ENCLOSED” on the face thereof.

- 4.3.2 All bids timely received shall be considered by the OCMAPS Trust and School District prior to a Contract being awarded. Bids shall be deposited at the office of the City Clerk, 200 N. Walker Avenue, Oklahoma City, Oklahoma 73102, not more than 96 hours, excluding Saturdays, Sundays, and holidays, prior to the bid date and bid time. All bids received before more than 96 hours before the bid date and bid time, as well as bids received after the time set for opening of bids, will not be considered and will be returned unopened.

Bids must be received by the bid date and bid time. Bids received after the time and date for receipt of bids will be returned unopened.

- 4.3.3 The Bidder shall assume full responsibility for timely delivery of the bid to the designated location.
- 4.3.4 Oral, telephonic, faxed, or telegraphic submissions are invalid bids and will not receive consideration.
- 4.3.5 The bid affidavits must be properly completed, signed, sworn to, and notarized and submitted with the bid on the forms provided in the Bidding Documents, or photocopies thereof, and in the sealed envelope.

The required affidavits are:

1. Non-Collusion Affidavit
2. Business Relationship Affidavit
3. Such other Affidavits as may be required by law

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4.4 BIDS NOT TO BE MODIFIED OR WITHDRAWN

- 4.4.1 No sealed bid shall be altered, changed, executed or otherwise revised in any manner by any Bidder after it has been tendered to the City Clerk; nor may bids, once submitted to the City Clerk, be withdrawn.

ARTICLE 5 – CONSIDERATION OF BIDS

5.1 OPENING OF BIDS; TIME FOR CONSIDERATION

- 5.1.1 Bids properly submitted and timely received will be opened publicly and will be read aloud in the presence of the City Clerk, the City Auditor and the Purchasing Agent or their designees at the time stated in the Notice to Bidders. Opened bids will remain on file in the office of the City Clerk for at least forty-eight (48) hours before a Contract is entered into. A tabulation of bid information may be made available to the Bidders within a reasonable time.
- 5.1.2 The award of Contract shall be made within thirty (30) days after the opening of bids unless the School District, by formal recorded action and for good cause shown, provides for a reasonable extension of that period, or unless otherwise specifically stated in the Bidding Documents. The extension shall be for no more than fifteen (15) days where only state and local funds are involved or for no more than ninety (90) days where federal funds are involved.

5.2 REJECTION OF BIDS

- 5.2.1 The bids will be considered by the OCMAPS Trust and School District. The OCMAPS Trust and School District shall have the right to reject any or all bids. The OCMAPS Trust and School District reserve the right to waive immaterial defects and irregularities.

5.3 ACCEPTANCE OF BID AND AWARD OF CONTRACT

- 5.3.1 It is the intent of the OCMAPS Trust and School District to award a Contract to the lowest and best Bidder provided the bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the Architect's estimate or the funds available. The OCMAPS Trust and School District shall have the right to waive immaterial defects or irregularities in a bid received and to accept the bid, which, in the OCMAPS Trust's and School District's judgment, is in its best interests.
- 5.3.2 The OCMAPS Trust and School District shall have the right to accept alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest and best Bidder on the basis of the sum of the base bid and alternates accepted.

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- 5.3.3 Should a Bidder who is awarded a Contract upon a bid fail to execute and provide the Contract and bonds or to provide the required certificates of insurance and/or any other required documents, the OCMAPS Trust and School District reserves the right to offer the Contract to the Bidder deemed to be the next lowest and best Bidder.

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ARTICLE 6 – CONTRACT AND BONDS

6.1 BOND AND INSURANCE REQUIREMENTS

- 6.1.1 The Program Manager will provide the successful Bidder four (4) complete sets of the Contract Documents (Contracts, bond forms, insurance certificates, Contractor Identification Number form, etc.). The Successful Bidder will execute all four (4) sets of the Contract Documents with original signatures on each, and return the Contract Documents and executed insurance certificates to the Program Manager within seven (7) calendar days following notification of award or intent to award Contract, unless that time is extended by the Program Manager and City Engineer. Prior to the project bid opening date, all Bidders should make arrangements with their respective insurance and bonding company(s) to complete (or be prepared to immediately complete) all required insurance and bond documents in the event of selection as lowest and best Bidder for the project and in order to meet the seven (7) calendar day Contract document return deadline.
- 6.1.2 The Successful Bidder shall at its own cost provide the following bonds on the forms, or photocopies thereof, provided. The properly executed bonds shall be provided by the successful Bidder with the Contract within seven (7) calendar days following the School District's notification of its intent to award Contract, unless additional time is granted by the School District. No work order shall be issued until the required Contract, bonds and insurance have been obtained by the Successful Bidder, provided to the Program Manager, and approved by the OCMAPS Trust and School District. The bonds are: Performance Bond, Statutory Bond, Maintenance Bond, and, when required, Defect Bond for any Successful Bidder who doesn't meet the requirements in item (d) below. The bonds are generally described as follows:
- a) Performance Bond, which guarantees completion of the project intended in the Bidding Documents and the Contractor's full and faithful execution of the work and performance of the Contract and for the protection of the School District and all property owners against any damage by reason of acts or omissions of the Contractor or the improper execution of the work or the use of inferior, non-compliant defective materials or equipment. The Performance Bond shall be made in favor of the School District.
 - b) Statutory Bond, which guarantees the Contractor will make payment for all labor, materials and equipment used in or for the project and/or for the performance or provision of the work. The Statutory Bond shall be made in favor of the State of Oklahoma.
 - c) Maintenance Bond, which guarantees the maintenance in good condition of the workmanship and materials and the operation of the project as intended in the Bidding Documents for a specified period after the completion and acceptance of the project by the School District. The term of the Maintenance Bond is provided in the Special Provisions of the Bidding Documents. For the first year of the term, the Maintenance Bond will be in the amount equal to one hundred percent (100%) of the Contract

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amount and for each additional year remaining in an amount equal to fifteen percent (15%) of the Contract amount. Unless otherwise provided in the Special Provisions, the term of the Maintenance Bond shall be as follows:

2 Years: All buildings, park projects and traffic control projects.

5 Years: All streets, bridges and all portions of water, sanitary sewer and storm drainage projects that are placed under streets, and all roofing.

The Maintenance Bond shall be made in favor of the School District.

- d) Defect Bond, which guarantees the Successful Bidder will provide a properly executed defect maintenance bond provided by a surety authorized to do business in the State of Oklahoma if the successful Bidder has not complied with provision 1, 2, 3, or 4 below:
1. The successful Bidder has not shown proof of his intentions to perform and maintain for the specified period of maintenance bond tenure, by establishing within a forty (40) mile radius of the office of the City of Oklahoma City, 420 W. Main Street, Oklahoma City, Oklahoma, a business address (as defined in the Oklahoma City Municipal Code) with a telephone (staffed by competent employees approved by the Program Manager and City Engineer under who supervision the work will be performed), and a yard (as defined in the Oklahoma City Municipal Code) equipped with sufficient necessary equipment available 24 hours-a-day to perform and maintain all classes and subclasses of work for which the successful Bidder is pre-qualified to bid. This office and yard as equipped shall have been established prior to the time the applicant submits his application for qualification; or
 2. Successful Bidder opting to have the School District retain a sum equal to 15% of the total Contract amount for the extent of the maintenance period (said funds may be used by the School District to insure compliance with the maintenance obligations of the School District); or
 3. Successful Bidder opting to provide a properly executed Defect Bond on a form provided by the OCMAPS Trust and issued by a surety authorized to do business in the State of Oklahoma; or
 4. Contractor acting in a joint venture with a pre-qualified person which meets the requirements of City Council Resolution of May 27, 1997 pertaining to prequalification.

The Defect Bond guarantees the Contractor shall timely repair any defect and maintain or provide for the timely maintenance of any repair on the project for a specified term.

The term of the Defect Bond shall be as provided in the Special Provisions and in an amount equal to one hundred percent (100%) of the Contract amount. The Defect Bond shall be made in favor of the School District.

6.1.3 The cost of such bonds shall be included in the amount of the bid.

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6.1.4 The OCMAPS Trust and the School District may, by formal action, reject/not accept any bond if the surety issuing the bond is: (1) now in default or delinquent on any demand on any bond; (2) is an adverse party to the OCMAPS Trust, School District, City or any of the City's participating public trusts in any litigation involving bonds issued in favor of the OCMAPS Trust, School District, City or any of the City's participating public trusts; or, (3) is not licensed or otherwise permitted to do business in the State of Oklahoma.

6.1.5 The Successful Bidder must provide certificates of insurance in the forms and amounts required in the Special Provisions.

6.2 TIME OF DELIVERY CONTRACTS, BONDS AND INSURANCE

6.2.1 The Bidder shall deliver the required Contract and bonds, together with the certificates of insurance as required in the Special Provisions, to the Program Manager no later than seven (7) calendar days following notification of intent to award Contract, unless that time is extended by the Program Manager and City Engineer.

6.2.2 **The date blanks on the Bonds shall be left blank. The dates will be inserted by the School District upon approval of the Contract and Bonds by the School District.**

6.2.3 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

The provisions for the competitive bidding of OCMAPS Trust and School District projects and the form of and requirements for the Bidding Documents are governed by the Charter and Ordinances of the City of Oklahoma City, the Oklahoma Competitive Bidding Act, the City of Oklahoma City's "Standard Specifications for the Construction of Public Improvements," Resolution #93-01 of June 22, 1993, and other adopted policies of the OCMAPS Trust and School District.

THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

APPENDIX I - INSTRUCTIONS TO BIDDERS

INSTRUCTIONS FOR COMPLETION OF THE DETAILED BID FORM

Detailed Bid Forms are included in the Bidding Documents when projects are bid all or partially on a unit cost basis. Where a Detailed Bid Form is provided, Bidder is to enter the cost per unit in words and in numerals and then enter the total cost of the item (unit cost times estimated quantity) in the right hand column under "Item Total."

The total of the Item Total Column should be entered at the bottom of the Detailed Bid Form and on the "Amount Bid" line on the Bid Form. Bidders should check to insure that the total of the Detailed Bid Form is entered correctly on the Bid Form. In cases of conflict between words and numerals, the words will govern. In cases of conflict between the amount on the Bid Form and the amount on the Detailed Bid Form, the amount on the Detailed Bid Form will govern.

There may be a Detailed Bid Form for one or more of any alternate. If a Detailed Bid Form is provided for an alternate, it should be completed in the same manner as the form for the Base Bid.

An example of a correctly completed Detailed Bid Form is provided below.

DETAILED BID FORM ITEMS
(PROJECT NO.)

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Unit</u>	<u>Item</u>	<u>Unit Price</u>	<u>Item Total</u>	
1.	45	S.Y.	6" P.C. Concrete			
	<u>Fifteen and no/100</u> (Dollars per unit written)			Dollars	\$ <u>15.00</u>	\$ <u>675.00</u>
2.	70	L.F.	6" Integral Curb			
	<u>One and 50/100</u> (Dollars per unit written)			Dollars	\$ <u>1.50</u>	\$ <u>105.00</u>
3.	56	L.F.	6" Curb Removal			
	<u>Two and 13/100</u> (Dollars per unit written)			Dollars	\$ <u>2.13</u>	\$ <u>119.28</u>
4.	45	L.F.	24" R.C.P.			
	<u>Thirty and no/100</u> (Dollars per unit written)			Dollars	\$ <u>30.00</u>	\$ <u>1,350.00</u>
					TOTAL	\$ <u>2,249.28</u>

THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

SPECIAL PROVISIONS

(Insert Project Number and Name)

These special provisions are included in and are a part of the bidding documents for this project.

1. Standard Specifications for the Construction of Public Improvements. The City's "Standard Specifications for the Construction of Public Improvements," as most recently amended, is included by reference in these Bidding Documents in its entirety as though fully set forth herein. The provisions of the "Standard Specifications of the Construction of Public Improvements" are applicable to and binding upon this project unless and except where superseded by a provision(s) of the Instructions to Bidders or the Special Provisions for this project. The Special Provisions shall prevail over any conflicting statement in or requirement of the Instructions to Bidders or the Standard Specifications. Copies of the "Standard Specifications for the Construction of Public Improvements" may be obtained from the City Clerk at the cost established by ordinance.
2. Nondiscrimination. Neither the Contractor nor any subcontractors employed on this project may discriminate against any employee or applicant for employment because of race, religion, creed, sex, color, national origin, ancestry, age or disability as defined by the Americans with Disabilities Act. A certificate of nondiscrimination must be properly signed and submitted with the contract. The requirements of the certificate must be included in any subcontract connected with the performance of the contract. The Contract may be canceled by the School District for noncompliance with the provisions of the certificate and the Contractor may be declared to be ineligible for further contracts until satisfactory proof of intent to comply shall be made by the Contractor and/or any subcontractors.

Copies of the "Notice of Equal Employment Opportunity" poster issued by the City Clerk will be given to the Contractor at the pre-work conference. The poster must be exhibited in a central and public location at the place of business by the Contractor and each subcontractor while the Contractor and any subcontractors are performing work on the project.

3. Sales Tax Exemption. Title 68 Oklahoma Statutes, Section 1356, exempts sales to public school districts and its Contractors from all sales tax on the sale of tangible personal property or services. All bids for School District projects shall be assumed to have been made based on such statutory exemption as effective on the bid date.
4. Permits or Licenses. The Contractor must, at its own cost, secure all permits and licenses and pay all fees required by City ordinance or state statute and give all notices necessary and incidental to the lawful prosecution of the work.

The Contractor shall secure and pay for all necessary and required permits and licenses including, but not limited to, building permit(s) and for all other permits and for all other

fees, charges, taxes, licenses and inspections necessary for proper execution and completion of the work which are secured after execution of the Contract and which are legally required when bids are received. The Contractor shall secure and pay for all certificates of inspection and of occupancy that may be required by authorities having jurisdiction over work. No claims for delay may be made with reference to this paragraph.

(Optional – This item is for larger projects with large fees for building permits.)

The building permit for this project will not exceed \$_____. This amount does not include any other permits that may be required for the project.

5. Laws to be Observed. The Contractor shall at all times observe and comply with all federal and state laws and regulations and all City Ordinances, School District requirements, codes and regulations which in any manner affect the conduct of the work and shall observe and shall comply with all orders and decrees which exist at the present or which may be enacted later, of bodies or tribunals having jurisdiction or authority over the work and no plea of misunderstanding or ignorance thereof will be considered.

If the Contractor performs work knowing it to be contrary to laws, statutes, ordinances, building codes and rules and regulations without such notice to the Program Manager and Architect, the Contractor shall assume full responsibility for such work and shall bear the attributable costs.

6. Safety. The Contractor shall be solely responsible for and shall establish and implement safety measures, policies and standards conforming to those required or recommended by governmental and quasi-governmental authorities including, but not limited to, the requirements of the United States Occupational Safety and Health Act.
7. Contract. The Contractor will enter into the Contract with the School District and properly submit the executed Contract and the required bonds, documents, and certificates of insurance within seven (7) calendar days following the OCMAPS Trust's and School District's notification of its intent to award Contract. With the Contract, the Contractor will submit a properly signed Certificate of Nondiscrimination and a completed Contractor Identification Numbers form that provides the information required. No work shall be commenced until the written Contract has been executed and the required bonds and insurance have been provided and a work order has been issued by the Program Manager and City Engineer.
8. Amendments and Change Orders. The provisions of the Contract may be amended or changed only by an amendment or a change order approved by the OCMAPS Trust and School District. As used herein, the terms amendment and change order shall have the following meanings:
 - A. "Amendment" shall mean a modification to a construction contract which was bid on a unit price basis and which modifies the quantity of an item or items based on the unit price stated in the bid. No amendment shall be effective until it has been

approved by the OCMAPS Trust and School District. (Amendments are not subject to the percent of contract cost limits set in the Oklahoma Competitive Bidding Act, 61 O.S. (1991) Section 121.)

- B. “Change Order” shall mean a modification of a lump sum contract or a contract bid on a unit price basis where a unit price has not been established for a particular item or items of work. The change order may authorize an addition, deletion or revision in the work or an adjustment of the contract price or the contract time. However, the cumulative amount of change orders shall not exceed the limit established by State law. No change order shall be come effective until it has first been approved by the OCMAPS Trust and School District.
9. Pre-Work Conference. The OCMAPS Trust shall hold a pre-work conference. The Contractor or its designee must attend the conference. The Contractor’s superintendent and subcontractors may attend. The Program Manager and City Engineer or their designees, the Architect, any consultant for the project and a representative of the City’s Inspection Services office will attend for the City. The conference will be at a time and place established by the Program Manager and City Engineer.
10. Contractor’s Responsibility for the Work. Until formal written acceptance by the OCMAPS Trust and School District, the work shall be under the charge and care of the Contractor. The Contractor shall take every necessary precaution to prevent injury or damage to the work or any part thereof by the action of the elements or any other cause whatsoever, whether arising from the execution or non-execution of the work. The Contractor shall at its expense rebuild, repair, restore, and make good all injuries or damage to any portion of the work occasioned by any of the forgoing causes before formal acceptance of the work by the OCMAPS Trust and School District.
11. Inspection. The Program Manager and City Engineer, their representatives and the Architect shall at all times have access to the work. The Contractor will provide proper and safe access for inspection. The OCMAPS Trust and School District may maintain inspectors on the job site for the purpose of inspecting materials, workmanship and conditions of work and equipment. The Contractor shall notify the City Inspector twenty-four (24) hours prior to pouring concrete and at any other times required in the Special Provisions. The Contractor shall notify the City Inspector twenty-four (24) hours prior to performing work relating to exposing, supporting, adjusting, connecting or relocating waterlines. The phone number for Field Services is (405) 297-3571. The Field Services office is open between 8:00 a.m. and 5:00 p.m., Monday through Friday.

In addition to the above inspections, the Contractor shall provide proper and safe access for all inspections required by City ordinances and technical codes and any other inspections required by federal or state laws or regulations.

It is the Contractor's responsibility to arrange for and have conducted any and all inspections required by the City's building, plumbing, electrical, mechanical, fire and zoning codes and to comply with all the provisions of said codes.

12. Testing. The Program Manager and City Engineer will provide a test schedule as recommended by the Architect for the work and shall designate which samples must be taken or tests be conducted and which must be taken or conducted in the presence of an inspector. The Program Manager and City Engineer may require such additional tests as he deems necessary to the proper construction of the project. All tests will be made in accordance with the appropriate specifications. The Contractor shall provide such facilities as the Program Manager and City Engineer or its representatives may require for collecting and forwarding samples. All tests shall be made at a laboratory designated by the Program Manager and City Engineer.
 - A. All costs of tests on materials that meet specifications shall be at the expense of the School District.
 - B. All costs of tests that fail to meet the specifications shall be at the expense of the Contractor and said costs shall be deducted from final pay applications.
13. Payment and Retainage. Partial payments shall be made based on the work completed. Up to ten percent (10%) of the partial payments shall be held as retainage. At the time the Contractor has completed in excess of fifty percent (50%) of the total contract amount, the retainage may be reduced to five percent (5%) of the amount earned to date if the OCMAPS Trust and School District determine that satisfactory progress is being made.

Applications for payment shall be made upon the forms provided by the OCMAPS Trust or photocopies thereof and such forms must be properly completed, signed and notarized. Applications for payments shall have attached thereto the Contractor's invoice and other supporting detail. The Contractor must supply invoices for any stored materials for which payment is claimed.

The Contractor will submit two (2) original copies of applications for payment to the Architect for all construction completed through the end of the previous billing period, including stored materials. The Contractor will submit, not more than once (1) per month, the application for payment on the uniform claim voucher and invoice for construction services form provided by the OCMAPS Trust.

14. Closing a Street. Streets or lanes of streets in the construction zone may be closed only upon the prior approval of the City Engineer or their designees. Should a street closing be approved, the Contractor is responsible for notifying the following at least twenty-four (24) hours in advance of the closing. Notification by fax is preferred.

Department	Fax No.	Telephone No.
Inspection Services	297-3491	297-3571
Traffic Engineer	297-3365	297-2531
Police Support Services	297-1718	297-1283
Fire Department	297-3329	297-3314
Emergency Operations Center	424-1609	297-2255

15. Detours. The City Engineer shall first approve all detour routes while streets are closed during construction. The Contractor must sign and maintain all detour routes, and the signs and devices must be in conformance with the requirements of the “Manual on Uniform Traffic Devices.”
16. Barricades and Warning Signs. Where work is carried on in, or adjacent to, any street, alley or public place, the Contractor shall, at its own expense, furnish, erect and maintain such barricades, fences, lights, warning signs and danger signals and shall provide such watchmen and take such other precautionary measures for the protection of persons or property and of the work as may be necessary. In addition, a sufficient number of barricades shall be erected to keep pedestrians and vehicles from entering on or into any work zone(s). From sunset to sunrise, the Contractor shall furnish and maintain at least one light on each barricade. All devices shall be in conformance with the “Manual on Uniform Traffic Devices.” The Contractor shall provide an after-hours phone number to the City’s Emergency Operations Center and to the Inspection Services office to be used for notification to the Contractor of the need to repair signs, barricades or other warning or control devices. Failure to comply with these requirements may result in the issuance of a stop work order to remain in effect until the deficiencies are corrected. The issuance of a stop work order shall not act to defer or suspend the counting of the working days for the project.
17. Final Clean Up. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall clean and remove from the site of the work surplus and discarded materials, temporary structures, barricades and other warning devices, stumps and portions of trees and debris of any kind. The Contractor shall leave the site or the work in a neat and orderly condition. Waste materials removed from the site of the work must be disposed of at locations satisfactory to the Program Manager and City Engineer and which are in compliance with federal, state and City requirements.
18. Insurance and Indemnity.
- A. The Contractor assumes all risks incident to, or in connection with, its purpose to be conducted under or pursuant to the Contract, and to the extent allowed by law shall

indemnify, defend and save harmless the City, OCMAPS Trust and School District from damages, losses or injuries of whatever nature or kind to persons or property arising, directly or indirectly, out of the Contractor's operations or arising from acts or omissions of its agents, employees or subcontractors. The Contractor to the extent allowed by law shall indemnify, defend and save harmless the City, OCMAPS Trust and School District from any penalties for violation of any law, ordinance or regulation affecting or having application to said operations, acts and omissions, or resulting from the carelessness, negligence or improper conduct of the Contractor or any of its agents, employees or subcontractors, and from the negligence of the City, OCMAPS Trust and School District or its employees in connection with the work or work site. The presence of, or inspections by, employees or other representatives of the City, OCMAPS Trust and School District shall in no manner diminish or affect the duties, obligations or responsibilities of the Contractor. The obligations imposed by this paragraph shall not be limited or extinguished by any obligation to provide insurance or by the provision of insurance.

- B. During the entire term of the Contract, the Contractor shall provide, pay for, and maintain with insurance companies satisfactory to the City, OCMAPS Trust and School District and admitted to do business in Oklahoma, the following types of casualty and liability insurance.
- (i) **Worker's Compensation.** The Contractor shall maintain, during the term of the Contract, Worker's Compensation Insurance as prescribed by the laws of the State of Oklahoma, and Employer's Liability Insurance for all of its employees employed at the site of the project. If any work is subcontracted, the Contractor shall require the subcontractor similarly to provide Worker's Compensation and Employer's Liability Insurance for all the subcontractor's employees, unless such employees are covered by the insurance purchased by the Contractor. In the event any class of employees engaged in work performed under the Contract or at the site of the project is not protected under such insurance heretofore mentioned, the Contractor shall provide or shall cause each subcontractor to provide adequate insurance for the protection of the employees not otherwise protected.
 - (ii) **Commercial General Liability.** Contractor shall carry a policy of commercial general liability insurance. If the Contractor's Commercial General Liability coverage is written in a "claims-made" form, Contractor shall also provide tail coverage that extends a minimum of two (2) years from the expiration of this Contract.
 - (iii) **Automobile Liability Insurance.** The Contractor shall maintain insurance coverage as to the ownership, maintenance, and use of all owned, non-owned, leased or hired vehicles.
- C. Required insurance shall be carried and maintained throughout the term of this Contract, and certificates of insurance shall contain a statement by the insurer to the

effect that the policy may not be canceled, fail to be renewed, nor the limits decreased without thirty (30) days prior written notice to the City, OCMAPS Trust and School District. The insurance coverage and limits required must be evidenced by properly executed certificates of insurance showing the project number and description as indicated in the Contract. The certificate must be signed by an authorized representative of the insurance companies shown in the certificate. No work or occupancy of the premises shall commence at the site unless and until the required certificates of insurance are in effect and the written Notice to Proceed is issued to the Contractor by the City, OCMAPS Trust and School District. Certificates shall be standard industry forms, such as ACORD, or in the form included in these specifications.

- D. The amount of each liability insurance coverage shall not be less than a minimum liability limit in the greater of the following amounts: (i) \$1,000,000; or (ii) the minimum amount required by the Contractor's prequalification classification. All liability and property policies as to which the City, OCMAPS Trust and School District are not named insureds shall to the extent allowed by law provide by endorsement or appropriate coverage language that the City, OCMAPS Trust and School District are additional insureds. The required policies of insurance shall be construed in accordance with the laws of the State of Oklahoma.
- E. No less than thirty (30) days prior written notice by registered or certified mail shall be given to the City, OCMAPS Trust and School District of any cancellation, intent not to renew, or reduction in the policies' coverage except in the application of the aggregate limits provisions. In the event of a reduction in any aggregate limit, the Contractor shall take immediate steps to have the full amount of the limits appearing on the certificate reinstated. If at any time the City, OCMAPS Trust or School District requests a written statement from the insurance company(s) as to any impairments to the aggregate limit, the Contractor hereby agrees to promptly authorize and have delivered to the City, OCMAPS Trust and School District such statement. The Contractor shall cover any impairment when known to it. The Contractor authorizes the City, OCMAPS Trust and School District to confirm all information so furnished, as to Contractor's compliance with its bonds and insurance requirements, with the Contractor's insurance agents, brokers, surety and insurance carriers. All insurance coverage of the Contractor shall be primary to any insurance or self-insurance program carried by the City, OCMAPS Trust and School District.
- F. Any deductibles or self-insured retentions in excess of \$10,000, or any other risk-management scheme other than a fully insured program of commercial general liability and automobile liability insurance, must be declared by the Contractor and be approved in advance by the City, OCMAPS Trust and School District. At the option of the City, OCMAPS Trust and School District, the Contractor shall require the insurer to reduce or eliminate such deductibles or self-insured retentions with respect to the City, OCMAPS Trust and School District, or the Contractor shall procure a bond guaranteeing payment of the losses and related investigations, claims administration and defense expenses not otherwise covered by Contractor's insurance because of

deductibles or self-insurance retentions.

- G. All insurance policies shall be issued by companies licensed in Oklahoma with an A.M. Best rating of A- VII or better. Certified, true and exact copies of all insurance policies required shall be provided by the Contractor to the City, OCMAPS Trust and School District, on a timely basis, if requested by the City, OCMAPS Trust and School District. In addition, each insurer who issues a certificate of insurance to the City, OCMAPS Trust and School District is obligated to provide a copy of the policy to the City, OCMAPS Trust and School District upon request.
- H. (DELETE THIS PARAGRAPH IF NOT APPLICABLE TO THE PROJECT) Builder's Risk Insurance (all risk coverage for building or facility construction and renovation projects). The Contractor shall procure and shall maintain, during the term of the Contract, builder's risk insurance (broad form coverage, including theft, fire coverage on building construction or renovation) on one hundred percent (100%) of the construction cost. Such insurance shall remain in effect until 11:59 p.m. on the date of final formal acceptance of the entire project, whether or not the project is substantially completed or whether or not the building or some part thereof is occupied in any manner prior to final acceptance of the project by formal action of the City Council, OCMAPS Trust and School District. The Contractor shall be named as insured and the City, OCMAPS Trust and School District (as their interests may appear) shall be named as additional insureds. The coverage shall provide protection for the Contractor, the City, OCMAPS Trust and School District, respectively, against property damage and damage claims which may arise from activities, omissions or operations under the Contract, whether such activities, omissions or operations are caused by an insured or by anyone directly or indirectly employed by an insured and, also, against any of the special hazards which may be encountered in the performance of the Contract. Neither the Contractor nor any of its consultants, employees, or agents shall commit any act, operation or omission, which would vitiate or impair the insurance coverage hereunder. The coverage shall include all stored materials, supplies and equipment when stored off site.
19. Bonds. As required by and in accordance with the Bidding Documents, the Contractor shall furnish bonds. The bonds must be submitted on the forms, or photocopies thereof, provided in the bidding documents. All bonds must be provided by a surety authorized to do business in the State of Oklahoma. The bonds are Performance Bond, Statutory Bond, Maintenance Bond and Defect Bond, and are particularly described in the Instructions to Bidders.
- A. Performance Bond. A properly executed Performance Bond in favor of the School District on the form provided in the Bidding Documents must be submitted with the Contract. Generally, the Performance Bond shall guarantee the Contractor's full and faithful execution of the work and performance of the Contract and provide for the protection of the OCMAPS Trust or School District and all property owners against any damage by reason of acts or omissions of the Contractor or the improper execution of the work or the use of inferior materials.

- B. Statutory Bond. A properly executed Statutory Bond on the form provided in the Bidding Documents must be submitted with the Contract. The Statutory Bond shall provide that the Contractor will make payment for all labor, materials and equipment used in the construction of the project. The Statutory Bond shall be made in favor of the State of Oklahoma.

(Select one of the two Maintenance Bond options below, delete these instructions, the parenthetical notes, the option note used, and all Bold commands).

(Option #1)

- C. Maintenance Bond. A properly executed Maintenance Bond on the form provided in the Bidding Documents must be submitted with the contract. The Maintenance Bond shall be in favor of the School District and shall be for a period of two (2) years. The bond for the first year will be in an amount equal to one hundred percent (100%) of the contract amount and each additional year's coverage shall be in an amount equal to fifteen percent (15%) of the contract amount.

(Option #2)

- C. Maintenance Bond. A properly executed Maintenance Bond on the form provided in the Bidding Documents must be submitted with the contract. The Maintenance Bond shall be in favor of the School District and shall be for a period of two (2) year(s) for the building portion of the project and five (5) years for all portions of water, sanitary sewer and storm drainage placed under streets, all related paving work, and all roofing. The bond for the first year will be in an amount equal to one hundred percent (100%) of the contract amount and each additional year's coverage shall be in an amount equal to fifteen percent (15%) of the contract amount.
- D. Defect Bond. A properly executed Defect Bond on the form provided in the Bidding Documents must be submitted with the Contract. The Defect Bond shall be in favor of the School District and shall be for a period of five (5) years. The bond for the first year will be in an amount equal to one hundred percent (100%) of the Contract amount and each additional year's coverage shall be in an amount equal to fifteen percent (15%) of the Contract amount.
20. Time of Completion. Work on this project shall commence within ten (10) calendar days from the date on which the work order is issued and completed on or before (**insert number of days**) working days from the commencement thereof. The rate of progress shall be such that the whole work will be performed and the premises be cleaned within the time stated herein and in accordance with the Contract, plans, specifications and other pertinent Bidding Documents unless an extension of time be made in the manner herein after specified.
21. Extension of Time of Completion. The Contractor may be entitled to an extension in time only when: a) The claim for such extension is submitted to the Program Manager and City Engineer in writing by the Contractor within seven (7) days from and after the time when the

alleged cause of delay occurred which was beyond the Contractor's control; and b) Then only when such claim is approved by the Program Manager and City Engineer. In adjusting the time for completion of the project, all strikes, lockouts, unusual delays in transportation or any condition over which the Contractor has no control unless and except delays by a subcontractor deemed to be within the control of the Contractor and any suspensions of activities ordered by the Program Manager and City Engineer for causes not the fault of the Contractor shall be excluded from the computation of the Contract time for the completion of the work.

If the satisfactory execution and completion of the Contract should require work or materials in greater amount or quantities than those set forth in the contract, then the Contract time may be increased by the Program Manager and City Engineer. No allowance shall be made for delays or suspensions of the prosecution of the work due to the fault of the Contractor.

If the Contractor wishes to make a claim for an increase in the Contract time, written notice as provided herein shall be given. The Contractor's claim shall include an estimate of cost and of probable effect of delay on progress of the work. In the case of a continuing delay, only one claim is necessary.

If adverse weather conditions are the basis for a claim for additional time, such claim shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated, and that weather conditions had an adverse effect on the construction activities occurring on the critical path of the construction schedule.

22. Verification and Inspection of Payroll Records. The Contractor shall keep records, permits and inspection of records, and certify and provide copies of payroll records and contracts and subcontracts. Example forms are available from the OCMAPS Trust for the convenience of the Contractor.

The Contractor shall submit certified payroll information to the OCMAPS Trust. Receipt of the certified payroll information shall be a pre-condition for the School District to process the final pay application or claim voucher. The OCMAPS Trust may submit a copy of such certified payroll information to the Oklahoma State Department of Labor and the Employment Standards Administration of the United States Department of Labor.

23. **(Select and insert here the appropriate of the following four options. Delete these instructions and all parenthetical notes, the bold command and the statements not used. For assistance in selection of option, contact Steve Gravlin, Public Works Prequalification Administrator, at 297-2494.)**

(Option #1)

Prequalification Required. Contractor must be listed by the Contractor's Prequalification Board as "Pre-qualified in the area of _____" under

the provisions of the Contractor's Prequalification Resolution of May 27, 1997 and Ordinance No. 20,815.

(Option #2)

Prequalification and Additional Submissions Required. The contractor must be listed by the Contractor's Prequalification Board as "Pre-qualified in the area of ___ (Insert prequalification area) ___" under the provisions of the Contractor's Prequalification Resolution of May 27, 1997 and Ordinance No. 20,815.

And, in addition to the required prequalification, Contractor is required to submit other evidence of knowledge and experience relating to Contractor's ability to perform the work required for this project. The Special Questionnaire is included in the Bidding Documents and must be properly completed and submitted with the bid. Failure to properly complete the form may be cause for the bid to be recommended for rejection.

(Option #3)

Prequalification Not Required. Prequalification is not required for this project.

(Option #4)

Prequalification Waived in Favor of Other Submissions. The requirements of the Contractor's Prequalification Resolution of May 27, 1997, are waived (for the purpose of bidding only) for this project. All other requirements of the prequalification ordinance (working in a public right-of-way) are not waived. In lieu of prequalification, Contractor is required to submit other evidence of knowledge and experience relating to Contractor's ability to perform the work required for this project. The Special Questionnaire form is included in the Bidding Documents and must be properly completed and submitted with the bid. Failure to properly complete the form may be cause for the bid to be recommended for rejection.

24. **Small and Disadvantaged Local Business Subcontracting Program.** The City of Oklahoma City and OCMAPS Trust have adopted a program to encourage and promote the use of small and disadvantaged local businesses as subcontractors on public construction contracts as set forth in the Oklahoma Public Competitive Bidding Act. The successful bidder must provide a small and disadvantaged local business subcontracting plan setting forth the Contractor's efforts and strategies to provide and extend opportunities for small and disadvantaged local business participation in the performance of subcontracts on the project. The Contractor's plan must be submitted to the Program Manager before a notice to proceed with work will be issued. The plan must set forth the Contractor's outreach efforts and internal efforts. The Contractor must create and maintain records demonstrating its efforts and the success of its efforts. The Contractor must provide a report on the progress and success of its small and disadvantaged local business subcontracting plan to the Program Manager as a condition precedent to final payment and release of retainage. The project will neither be deemed substantially complete nor be accepted for final payment until the Contractor submits a report on the progress and success of its small and disadvantaged local business subcontracting plan, provided, however, on emergency projects, the public construction

contractor may be permitted to submit its small and disadvantaged local business subcontracting plan after the issuance of the notice to proceed.

The plan must also be performed by the Contractor throughout the Contract period. Reports of local business participation will be filed during the construction process with each monthly claim for compensation on forms provided by the OCMAPS Trust. The reports shall list any changes, additions, or deletions to subcontractors and actual Contract amounts.

25. Intent of the Contract. The intent of the Contract is to include all items necessary for the proper execution and completion of the work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results.
26. Organization of the Specifications. Organization of the specifications into divisions, sections and articles, and arrangement of drawings does not control the Contractor in dividing the work among subcontractors or in establishing the extent of work to be performed by any trade.
27. Reference to Drawings. The Contractor and all subcontractors shall refer to all of the drawings, including those showing primarily the work of the mechanical, electrical and other specialized trades, and to all of the sections of the specifications, and shall perform all work reasonably inferable therefrom as being necessary to produce the indicated results.
28. Meaning of Words. Unless otherwise stated in the Contract Documents, words that have well known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.
29. Ownership of Documents. All drawings, specifications and other documents thereof furnished by the Architect, OCMAPS Trust or School District are and shall remain the property of the Architect, OCMAPS Trust or School District.
30. Required Information or Services. Information or services required of the Program Manager and City Engineer hereunder shall be furnished by the Program Manager and City Engineer with reasonable promptness after receipt from the Contractor of a written request for such information or services.
31. Copies of Plans and Specifications. The Contractor will be furnished, free of charge, ten (10) copies of the plans and specifications. The Contractor will pay all costs associated with the reproduction, postage and handling for any additional sets.
32. Default of Work. If the Contractor defaults or neglects to carry out the work in accordance with the Contract Documents and fails within a seven (7) day period after receipt of written notice from the Program Manager and City Engineer to begin and prosecute correction of

such default or neglect with diligence and promptness, the OCMAPS Trust and School District may, without prejudice to other remedies the OCMAPS Trust and School District may have, correct such deficiencies. In such case an appropriate change order shall be issued deducting from any payments then, or thereafter, due the Contractor the cost of correcting such deficiencies, including compensation for the Architect's additional services and expenses made necessary by such default, neglect or failure. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the School District.

33. Review of Contract Documents. Prior to starting the work, and continuing throughout the Contract period, the Contractor shall carefully study and compare the Contract Documents with each other and with the information furnished by the OCMAPS Trust and shall at once report to the Architect, by written request for information ("RFI") and submit copies to the Program Manager and City Engineer, any error, inconsistency or omission the Contractor may discover. Any necessary change shall be ordered as provided in the Contract Documents. If the Contractor proceeds with the work without such notice to the Architect, having discovered such errors, inconsistencies or omissions, or if by reasonable study of the Contract Documents the Contractor should have discovered such, the Contractor shall bear all costs arising therefrom.
34. Field Measurements. The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Program Manager, City Engineer and Architect at once.
35. Performance of Work. The Contractor shall perform the work in accordance with the Contract Documents and submittals approved pursuant to this article.
36. Supervision of Work. The Contractor shall supervise and direct the work, using the industry's highest standards and satisfactory to the Program Manager, City Engineer and Architect. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the work under the Contract.

All work by the Contractor shall be performed in a good workmanlike manner, satisfactory to the Program Manager, the City Engineer and the Architect. The Contractor shall provide adequate supervision and quality control inspections to assure competent performance of the work, in compliance with the bidding documents.

37. Acts and Omissions. The Contractor shall be responsible to the OCMAPS Trust and School District for the acts and omissions of all entities or persons performing or supplying the work under this Contract.

38. Obligations. The Contractor shall not be relieved of any obligations to perform the work in accordance with the Contract Documents or by tests, inspections or approvals required or performed by persons other than the Contractor.
39. Contractor's Inspection of Work. The Contractor shall be responsible for inspection of portions of work already performed under this Contract to determine that such portions are in proper condition to accommodate subsequent work.
40. Payment of Materials and Services. Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the work, whether temporary or permanent and whether or not incorporated or to be incorporated in the work. The word "provide" shall mean furnish and install complete, including connections, unless otherwise specified.
41. Materials and Equipment. The Contractor warrants that the materials and equipment furnished under the Contract will be new and of recent manufacture unless otherwise specified, and that all work will be performed in accordance with the industry's highest standards, free from faults and defects, and in conformance with the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective.
42. Furnished Materials. The Contractor shall be responsible for determining that all materials furnished for the work meet all requirements of the Contract Documents. The Program Manager, City Engineer and Architect may require the Contractor to produce reasonable evidence that any material meets such requirements, such as certified reports of past tests by qualified testing laboratories, reports of studies by qualified experts or other evidence which, in the opinion of the Program Manager, City Engineer or Architect, would lead to a reasonable certainty that any material used, or proposed to be used, in the work meets the requirements of the Contract Documents. All such information shall be furnished at the Contractor's expense. This provision does not require the Contractor to pay for periodic testing of different batches of the same material, unless such testing is specifically required by the Contract Documents to be performed at the Contractor's expense.
43. Manufacturer's Names. In all cases in which a manufacturer's name, trade name or other proprietary designation is used in connection with materials or articles to be furnished under this contract, and where the phrase "or equal" is used after such name, the Contractor shall furnish the product of the named manufacturer(s) without substitution, unless a written request for a substitution has been submitted by the Contractor and approved in writing by the Architect.
44. Warranty of Materials. The warranty provided in this article shall be in addition to and not in limitation of any other warranty required by the Contract Documents or otherwise prescribed by law.

45. Delivery of Warranties. The Contractor shall procure and deliver to the Program Manager, prior to final payment, all special warranties required by the Contract Documents. Delivery by the Contractor shall constitute the Contractor's guarantee to the School District that the warranty will be performed in accordance with its terms and conditions.
46. Warranties Herein. The warranties set out herein are not in lieu of any other warranties, expressed or implied, including any implied warranty of merchantability or fitness for a particular purpose.
47. Variance in Contract Documents. It is the Contractor's responsibility to construct the project in accordance with applicable statutes, laws, ordinances, building codes, and rules and regulations. However, if the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Program Manager, City Engineer and Architect in writing, and necessary changes shall be accomplished by appropriate modification.
48. Contract Time. The Contractor's plea that insufficient Contract time was specified shall not be a valid reason for extensions of the Contract time.
49. Project Management. The Contractor shall begin certain management or construction activities upon notice to proceed within the time limits prescribed in the Contract Documents. The Contractor shall employ competent, full-time project management sufficient to provide competent supervision of the construction work of its own forces and that of its subcontractors as well as management of the Contract requirements, as is acceptable to the Program Manager and City Engineer.

(Select and insert here the appropriate of the following two options. Delete these instructions and all parenthetical notes, the bold command and the statements not used.)

(Option #1 – for projects of \$5 million and over)

The management personnel assigned to this project shall consist of at least one (1) project manager, one (1) project superintendent and any other necessary representatives who shall be in attendance at the project site full time during the progress of the completion of the whole work. The Contractor shall, at all times when work is in progress, be represented either in person or by another designated, qualified representative who is duly authorized to receive, act upon information and execute orders of the Program Manager, City Engineer or Architect.

(Option #2 – for projects under \$5 million)

The management personnel assigned to this project shall consist of one (1) project superintendent and any other necessary representatives who shall be in attendance at the project site full time during the progress of the completion of the whole work. The Contractor shall, at all times when work is in progress, be represented either in person

or by another designated, qualified representative who is duly authorized to receive, act upon information and execute orders of the Program Manager, City Engineer or Architect.

It is agreed and understood that, if requested in writing by the Program Manager and City Engineer, the Contractor shall replace any member of the management personnel assigned to the project, meeting the required qualifications within three (3) days of the receipt of the request if the member is found to be unsatisfactory to the Program Manager and City Engineer for whatever reason. Should the Program Manager and City Engineer find any person(s) employed on the work to be incompetent, unfit or otherwise objectionable, the Contractor shall immediately cause the employee to be dismissed and said employee shall not be re-employed on this work without written consent of the Program Manager and City Engineer.

50. Cooperation. The Contractor shall cooperate fully with the Program Manager, City Engineer, City, School District and Architect, the materials testing laboratory and the Program Consultant during construction. The site must remain open and available to all of those parties at all times. The Contractor will cooperate fully with all governmental regulatory agencies as required for agencies to perform their mandated tasks.
51. Verification of Shop Drawings. By approving and submitting shop drawings, product data, samples and similar submittals, the Contractor thereby represents that the Contractor has determined and verified all dimensions, quantities, field dimensions, relations to existing work, coordination with work to be installed later, coordination with information on previously accepted shop drawings, product data, samples, or similar submittals and verification of compliance with all the requirements of the Contract Documents. The accuracy of all such information is the responsibility of the Contractor. In reviewing shop drawings, product data, samples and similar submittals, the Architect shall be entitled to rely upon the Contractor's representation that such information is correct and accurate.
52. Responsibility and Shop Drawings. The Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of shop drawings, product data, samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for error or omissions in shop drawings, product data, samples or similar submittals by the Architect's approval thereof.
53. Resubmittal of Shop Drawings. The Contractor shall direct specific attention, in writing or on resubmitted shop drawings, product data, samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. Unless such written notice has been given, the Architect's approval of a resubmitted shop drawing, product data, sample, or similar submittal shall not constitute approval of any changes not requested on the prior submittal.

54. Informational Submittals. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents.
55. Copy of Shop Drawings. The Contractor shall keep one (1) clean copy of each submittal brochure and each shop drawing, bearing the Architect's review stamp, at the job site.
56. Dimensions. The Architect's review is only for conformance with the design concept of the project and compliance with the information given in the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information processes or to techniques of construction, and for coordination of the work of all trades.
57. Submittal Compliance. It is the Contractor's responsibility to prove that products, materials, shop drawings, samples and submittals comply with Contract Documents in every respect and that any substitutions, variations, deviations or modifications to exactly what is specified will, in fact, work well in coordination and harmony, and will serve the intended purpose.

The Contractor shall submit shop drawings, project data, samples or similar information required by the Contract Documents, or subsequently by the Architect as covered by modifications, with reasonable promptness and in orderly sequence to cause no delay in the work or the work of any other Contractor.

58. Receipt of Submittals. Submittal, requisitions, requests for interpretation, shop drawings and other items received by the Architect, shall be considered received on the first calendar day which follows submission. Timing requirements referred to throughout the document are referred to as calendar days.

The Contractor shall allow up to fourteen (14) calendar days for review of shop drawings. In the event a shop drawing is submitted out of sequence (or before review can be completed because necessary supporting or supplemental shop drawings and details have not been submitted, reviewed and approved), the Architect may return the out of sequence submitted shop drawings unaddressed, or the Architect may hold the out of sequence submittal until the supplemental or supporting submittals have been reviewed and approved. If the out of sequence submittal is held by the Architect and not returned to the Contractor, the submittal shall not be considered submitted, initializing the fourteen (14) calendar day review period until the supplemental or supporting submittals have been submitted and approved.

59. Architect's Date Stamp. The Architect's date stamp of receipt shall evidence date of receipt. The date indicated on the Architect's transmittal letter or transmittal form shall be considered as date returned to Contractor.
60. Right of Possession. The right of possession of the premises and the improvements made thereon by the Contractor shall remain at all times the right of the OCMAPS Trust and School District. The Contractor's right of entry and use thereof arises solely from the

permission granted by the OCMAPS Trust and School District under the Contract Documents.

The Contractor shall confine the Contractor's apparatus, the storage of materials and the operations of the Contractor's workmen to limits indicated by law, ordinances, the Contract Documents and permits and/or directions of the Program Manager, City Engineer or Architect, and shall not unreasonably encumber the premises with the Contractor's materials. The Program Manager, City Engineer, City or School District are not to be liable for the conditions of the premises, and the Contractor shall indemnify the OCMAPS Trust and School District for any losses occurred thereon pursuant to the indemnification paragraph herein.

61. Arrangement of Materials. The Contractor shall arrange and maintain materials in an orderly manner with use of unencumbered walks, drives, roads and entrances; store, place and handle material and equipment which has been delivered to the site so as to preclude inclusion of foreign substances or cause of discoloration; store materials neatly and compactly and protect the public from injury with barricades; protect material as required to prevent damage; and move material, sheds or storage platforms when required, at no additional cost to the OCMAPS Trust, the School District or the City.

The OCMAPS Trust and School District assume no responsibility for materials stored in buildings or on the site, and the Contractor assumes full responsibility for any damage to such stored materials. The Contractor shall repair areas used for placing of sheds, offices and storage.

62. Fit of Parts. The Contractor shall be responsible for cutting, fitting or patching required to complete the work or to make its parts fit together properly.
63. Damage. The Contractor shall not damage or endanger a portion of the work or fully or partially completed construction of the OCMAPS Trust or School District or separate Contractors by cutting, patching or otherwise altering such construction, or by excavation, except upon written consent of the Program Manager and City Engineer and of such separate Contractor. The Contractor shall not cut or otherwise alter such construction of the separate Contractor except upon written consent of the Program Manager and City Engineer and of such separate Contractor. The Contractor may not unreasonably withhold from the Program Manager and City Engineer or a separate Contractor the Contractor's consent to cutting or otherwise altering the work.
64. Waste Materials. The Contractor, at all times, shall keep the premises free from all accumulation of waste materials or rubbish caused by its operation. At the completion of the work the Contractor shall remove all its waste materials and rubbish from and about the project as well as all tools, construction equipment, machinery and surplus materials, and shall clean all glass surfaces and leave the work room clean or its equivalent, except as otherwise specified. If the Contractor fails to clean up, the OCMAPS Trust and School

District may do so and the cost thereof shall be charged to the Contractor as provided in the general conditions.

65. Royalties and License Fees. The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of patent rights and shall hold the OCMAPS Trust, School District, City and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a patent, the Contractor shall be responsible for such loss.
66. Administration by Architect. The Architect shall provide administration of the Contract during construction and until final payment is made to the Contractor. The Architect will have authority to act on behalf of the OCMAPS Trust and School District only to the extent provided in the Contract Documents, unless otherwise modified by written instrument.
67. Site Visit by Architect. The Architect will visit the site at intervals appropriate to the stage of construction to observe the work and become familiar with the progress and quality of the work. The Architect will keep the OCMAPS Trust and School District informed of progress of the work and will endeavor to guard the OCMAPS Trust and School District against defects and deficiencies of the work.
68. Copy of Contract Documents. The Contractor shall maintain a copy of all Contract Documents and other pertinent documents in an orderly manner. The documents include drawings, specifications, addenda, request for information, architectural supplemental information, declaration of discrepancies and nonconformance reports, approved shop drawings, approved submittals, approved samples, correspondence, approved schedules, construction change orders, amendments, logs, meeting minutes and a Contractor directory.

The Contract Documents, provided by the Architect, establish the standard(s) by which the Contractor shall evaluate the status and quality of the construction of the project.

69. Request for Information (“RFI”). The standard format to be used by the Contractor to raise questions and receive responses to construction issues from the Architect will be by RFI. The Architect along with the Program Manager and City Engineer will resolve all issues concerning the interpretation of the Contract Documents. The Contractor will submit all questions concerning the Contract Documents to the Architect using the RFI format. The standard RFI form shall be the only method used in the exchange of questions and answers between the Architect and the Contractor. The Contractor will use the RFI to address all questions dealing with information, coordination, conflicts, interpretations and Contract administration issues. The Contractor will submit the RFI after making thorough examination of the documents to insure that the information requested is not included in the Contract Documents. The Contractor will note “critical” on the RFI if it affects the project schedule. Subcontractors and suppliers may not submit RFI’s directly to the Architect. RFI’s initiated by subcontractors and suppliers must be submitted by the Contractor. The

Contractor will transmit the RFI to the Architect without delay. The Contractor shall distribute all RFI responses to its subcontractors and suppliers and the Contractor will maintain a RFI log which will describe the request, the RFI number, the date transmitted and identify any RFI determined to be critical.

70. Architect's Supplemental Information ("ASI"). The standard format to be used by the Architect to issue additional project information to the Contractor will be the ASI. The Architect may not resolve issues in the field directly with the Contractor. The Architect does not have the authority to issue change orders or Contract amendments. The two (2) different cases for ASI's are detailed below:

- A. The procedure for an ASI that does not require a change in the scope of work or impact cost of construction or extend the Contract time is as follows:

If an ASI does not require a change in the scope of work or impact cost of construction or extend the Contract time, the Contractor may make such changes only when reviewed by the Program Manager and City Engineer and approved in writing by the Architect. The Contractor will utilize the RFI process to address these changes.

- B. The procedure for an ASI that requires a change in scope of work or impacts the cost of construction or extends the Contract time is as follows:

If an ASI requires a change in the scope of work, impacts the cost of construction or extends the Contract time, it may only be authorized by a change order or Contract amendment that has been approved by the OCMAPS Trust and School District.

The Architect will transmit any ASI to the Contractor with simultaneous copies to the Program Manager, City Engineer and Program Consultant. If the ASI does not require a change order or Contract amendment, the Contractor shall so state in writing on the ASI that the performance of the ASI will not increase the cost of the project.

71. Time Limits on Claims. The parties agree to the following limitations: Claims by either party must be made within fourteen (14) days after occurrence of the event giving rise to such claim or within fourteen (14) days after the claimant first discovers, or reasonably should have discovered, the condition giving rise to the claim, whichever is later. Nevertheless, no claim submitted more than twenty-eight (28) days after the occurrence of the event giving rise to the claim may be considered or acted upon. Claims must be made by written notice. An additional claim made after the initial claim has been implemented by a change order will not be considered unless submitted in a timely manner, as specified above.
72. Continuing Contract Performance. Pending final resolution of a claim, the Contractor shall proceed diligently with performance of the Contract and the OCMAPS Trust and School District shall continue to make payments in accordance with the Contract Documents.

73. Waiver of Claims: Final Payment. The making of final payment shall constitute a waiver of claims against the OCMAPS Trust and School District.
74. Claims for Concealed or Unknown Conditions. If conditions are encountered at the site which are: a) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents; or b) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for the Contract Documents, then notice by the observing party shall be given to the other party promptly before conditions are disturbed and in no event later than fourteen (14) days after first observance of the conditions. The Architect, Program Manager and City Engineer will promptly investigate such conditions and to determine if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the work. The Architect will prepare any change orders and Contract amendments for the OCMAPS Trust's and School District's consideration.
75. Injury Damage to Person or Property. If either party to the Contract has notice of injury to person or property, arising under this Contract, that party shall give written notice of the alleged injury or damage to the other party within a reasonable time not exceeding fourteen (14) days after first observance. The notice shall provide sufficient detail to enable the Parties to investigate the matter.
76. Resolution of Claims and Disputes.
- A. The Architect will review claims and take one or more of the following preliminary actions within seven (7) days of receipt of a claim: 1) request additional supporting data from the claimant, 2) submit a schedule to the parties indicating when the Architect expects to take action, 3) recommend rejection of the claim in whole or in part, stating reasons for its recommendation, 4) recommend approval of the claim by the other party, or 5) suggest a compromise.
 - B. If a claim has been resolved, the Architect will prepare or obtain appropriate documentation.
 - C. If a claim has not been resolved, the party making the claim shall, within seven (7) days after the Architect's preliminary response, take one or more of the following actions: 1) submit additional supporting data requested by the Architect, 2) modify the initial claim, or 3) notify the Architect that the initial claim stands.
 - D. If a claim has not been resolved after consideration of the foregoing and of further evidence presented by the parties or recommended by the Architect, upon the OCMAPS Trust's and School District's sole determination, the parties will submit the claim to the alternate dispute process ("ADR"). If there is a surety and there appears to be a possibility of a Contractor's default, the OCMAPS Trust and School District

may, but is not obligated to notify the surety and request the surety's assistance in resolving the controversy.

77. Subcontract Agreement. Each subcontract agreement for a portion of the work is assigned by the Contractor to the School District provided that:
 - A. Assignment is effective only after termination of the Contract by the School District for cause pursuant to the Contract and only for those subcontract agreements which the School District accepts by notifying the subcontractor in writing; and
 - B. Assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the contract.
78. City Construction. The OCMAPS Trust, School District and City reserve the right to perform construction or operations related to the work with the OCMAPS Trust's, School District's and City's own forces and other Contractors, and to award separate contracts in connection with other portions of the work or other construction or operations on the site under conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation.
79. Separate Contracts. When separate contracts are awarded for different or additional portions of the work or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate contractor agreement.
80. Coordination of Activities. The Program Manager and City Engineer shall provide for coordination of the activities of the OCMAPS Trust's, School District's and City's own forces and of each separate Contractor with the work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate Contractors and the Program Manager and City Engineer in reviewing their construction schedules when directed to do so. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate Contractors and the OCMAPS Trust and School District until subsequently revised.
81. Subcontractors. The Contractor shall afford the OCMAPS Trust, School District, City and separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.
82. Construction. If part of the Contractor's work depends for proper execution or results upon construction or operations by the OCMAPS Trust, School District or a separate contractor, the Contractor shall, prior to proceeding with that portion of the work, promptly report to the Program Manager, City Engineer and Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results.

Failure of the Contractor so to report shall constitute an acknowledgment that the OCMAPS Trust's, School District's, City's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's work, except as to defects not then reasonably discoverable.

83. Liquidated Damages. Liquidated damages are for failure to complete work on time. The time for completion of the work is of the essence in this Contract.

The following liquidated damage schedule corresponds to the completion schedule the Contractor is to follow. The liquidated damage schedule is as follows:

(Insert liquidated damage schedule.)

The sum of money thus deducted for each delay, failure or non-completion is not to be considered as a penalty but shall be deemed, taken and treated as reasonable liquidated damages since it would be impracticable and extremely difficult to fix the actual damages caused by such delay.

84. Rework Items List. The Contractor will include all work on a list that does not comply with the Contract Documents, identifying items that need to be reworked, the date the item was discovered and date item was corrected. The list will be updated monthly by the Contractor and will include items requiring work identified by the OCMAPS Trust, School District or Architect. The list shall be maintained by the Contractor.
85. Punch List. The Contractor will be responsible for the generation of both the preliminary and final punch list documents. The Contractor will identify the date of issue, the project and Contract numbers and Contractor's name, will describe in detail, in numerical order, items of work that require repair or correction in order to conform with the Contract Documents. A corrected column will be used for a date and initial by the Architect to record verification of the correction. There will be two (2) separate punch lists that include a preliminary punch list and a final punch list. The preliminary punch list will be generated and corrected, after review by the Architect. Once the preliminary punch list items have been corrected by the Contractor, the Contractor will submit a final punch list for review by the Architect and the Program Consultant. The final punch list must be completed by the Contractor before the OCMAPS Trust and School District may accept the project and authorize the issuance of the certificate of final completion. A copy of the final punch list signed by the Contractor, Architect, Program Manager and City Engineer will be attached to the certificate of final completion for the OCMAPS Trust's or School District's consideration of execution of the certificate.
86. Record ("As-Built") Drawings and Certificate of Accuracy. The record drawings are to be submitted at the completion of the construction for the project. The Contractor shall attest to the daily maintenance of the record drawings and their accuracy.

87. Project Site Representative. The Project Site Representative for the project will perform inspection and observation of the work. The Project Site Representative will in no way interpret the Contract Documents.
88. Construction Stakes and Survey. The Architect shall furnish the Contractor with permanent horizontal and vertical alignment points for field control throughout the project limits. Permanent benchmarks shall be provided within two hundred (200) feet of the beginning and end of the work.

The Contractor shall provide all other horizontal or vertical controls not specifically noted, but required for proper completion of the work. The Contractor shall furnish staking unless otherwise provided in the Special Provisions.

- A. Construction staking shall consist of furnishing, placing and maintaining construction stakes or marks as necessary to establish lines and grades required for completion of the work.
- B. Field control shall be provided by the Architect prior to the work commencing. The Contractor shall exercise care in the preservation of previously placed stakes and bench marks and shall have them reset at the Contractor's expense when damaged, lost, displaced or removed.
- C. The Contractor shall use personnel and equipment suitable for all construction staking required. The Contractor shall provide all necessary stakes such as: offset, reference point, slope, pavement, curb line and grading stakes. Stakes for bridges, sewers, water lines, drainage facilities, gutter line, culverts, and other structures shall be provided to ensure correct layout of the work. Stakes for line and grade shall be adequate to maintain the required tolerances for the work. The station number and distance from the centerline of construction shall be marked on all grade stakes.
- D. When grading quantities are to be paid by field measure, the Contractor shall furnish both original and final cross section field notes. Field notes shall be the basis of partial payments for work completed. Final field measured quantities shall be paid according to survey field notes. Where discrepancies occur, the decision of the Program Manager and City Engineer is final.
- E. The Contractor shall furnish the original survey records to the Program Manager and City Engineer for permanent files. These records shall be furnished as completed during the progress of the work. Records shall be maintained in permanently bound field books and/or level books and formatted in a manner commonly accepted by the surveying profession or digital files acceptable to the Program Manager and City Engineer.
- F. The Contractor shall, upon request by the Program Manager and City Engineer, provide daily survey notes and cut sheets to assist the Program Manager and City

Engineer in checking correctness of the construction staking. When significant errors occur, the Contractor shall re-survey to the satisfaction of the Program Manager and City Engineer. The Contractor shall provide, at the Contractor's expense, proper and safe access for checking the construction staking. Any inspection or verification by the Program Manager and City Engineer shall not relieve the Contractor of responsibility for the correctness of the total work to be performed.

- G. The Contractor shall notify the Program Manager and City Engineer when plan errors require deviations from the specified elevations or horizontal locations.
- H. Measurement for construction staking shall be based on estimated work completed.
- I. Payment for construction staking shall be lump sum, which shall be full compensation for furnishing all materials, equipment, labor and incidentals necessary to complete the work as specified.

89. Construction Schedule. The Contractor shall perform construction scheduling and phasing/sequencing required to perform of the work as indicated in the Contract Documents. The Contractor shall develop the construction schedule for the project in order to establish a chronological and logical order for the scheduling of construction and related activities. The schedule shall graphically illustrate a series of activities including project start, description of project activities, relationships and time required for completion. The maximum duration for any single activity shall not exceed fourteen (14) days.

The schedule will establish the critical path for completion of the project from the Notice to Proceed through Final Acceptance of the work. All schedules will use the critical path method ("CPM") using retained logic for the planning, scheduling and reporting the progress of the work. The Contractor shall provide a preliminary schedule and a final schedule of the project for review by the Architect and Program Manager.

- A. Preliminary Construction Schedule. Within fourteen (14) calendar days following the Pre-Work meeting, the Contractor shall submit the preliminary construction schedule indicating a comprehensive overview of the project including all major activities necessary to complete the work. The Contractor shall re-submit the preliminary construction schedule within fourteen (14) days of receipt of review comments by the Architect and Program Manager. The Architect and Program Manager will consider acceptance of the preliminary construction schedule once all comments have been incorporated by the Contractor.
- B. Final Construction Schedule. Within thirty (30) days of acceptance of the preliminary construction schedule, the Contractor shall submit a final construction schedule for review. The Contractor shall re-submit the final construction schedule within fourteen (14) days of receipt of review comments by the Architect and Program Manager. The Architect and Program Manager will consider acceptance of the final construction schedule once the Contractor has incorporated all comments.

The schedule shall be updated monthly and submitted with each request for payment. Failure to submit the monthly updated schedule may cause delay in the processing of the monthly request for payment.

Based on Oklahoma City climatological data, the number of lost days a contractor should expect during an average year for exterior weather sensitive activities has been determined. The figures are based on the number of days each month that receive precipitation greater than ½ inch and/or snowfall over one inch. No days have been included for drying time.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Lost Days	2	2	2	2	3	3	2	2	3	2	2	2

The lost weather days should be included in the construction schedule for the normal five-day work week (excluding weekends and holidays) for the duration of the project. Weather days exceeding lost days may be submitted for approval to the Program Manager and City Engineer, which may extend the completion time for the project.

Schedule float is defined as the amount of time an activity can slip past its duration without delaying the overall project is not owned by the Contractor. Use of float by the OCMAPS Trust, City, School District or any other parties shall not be deemed as justification for an extension of time on the project or cause delay to the Contractor in completing the work.

90. Schedule of Values. The Contractor will create a schedule of values for the project. The schedule of values shall conform the activities included in the construction schedule. The schedule of values shall be updated monthly and included as a part of the monthly request for payment.

All monthly progress payments submitted without an approved preliminary or final construction schedule will be reviewed individually for consideration for payment. The OCMAPS Trust reserves the right to suspend payment to the Contractor if the preliminary or final construction schedule do not meet the requirements of the Contract Documents.

91. Conformance to Schedule. The Contractor shall conform to all submitted and accepted construction schedules. In the event that a construction schedule has not accepted by the Architect and Program Manager, the most recently submitted or accepted schedule shall be utilized in planning work activities. The OCMAPS Trust, City or School District shall not be responsible for any delays to work or changes to schedule in the absence of an accepted schedule.

In the event that the Contractor is not able to conform to the latest submitted or accepted schedule, a recovery schedule shall be developed and submitted with the next monthly schedule update. The recovery schedule shall be considered a revision to the schedule that must be approved by the Architect and Program Manager. The recovery schedule must show

completion of the project within the time allowed on the project unless the Program Manager and the City Engineer grant an extension of time.

92. Project Close-Out. Prior to issuance of a Certificate of Substantial Completion by the Architect, the Contractor shall deliver to the Program Manager and City Engineer via the Architect three (3) copies of a neatly bound Operations and Maintenance manual organized in a manner corresponding to the division within the specifications and containing the following information:
- A. A directory containing the firm name of each subcontractor and material supplier on the project, subcontractor's address, telephone number, and representative to contact for repair and/or maintenance.
 - B. A copy of the Architect's color and finish schedule with any subsequent revisions duly noted.
 - C. Guarantees, warranties and/or operating instructions for materials, equipment, or installations as required by other divisions of the specifications.
93. Construction Sign. The Contractor shall provide, erect and maintain a construction sign as a part of the project. The construction sign shall be 4' x 8' and be mounted on no less than 5/8" thick exterior grade plywood on 4"x4" wood members set firmly into the ground. The bottom of the sign shall be no less than 24" from the ground, and all framing and screws shall be painted the same color as the sign background.

The artwork for the construction sign is a multi-color design to be provided by the OCMAPS Office. The Contractor shall contract with a professional sign company, and final artwork and sign location shall be submitted by the Contractor for review and approval prior to installation.

94. Contract Management. The OCMAPS Trust shall serve as project manager and contract administrator for this project. The OCMAPS Trust shall assist the School District with construction contracts and other documents required for the administration and successful completion of the project as identified in the Bond Projects Management Agreement between the OCMAPS Trust and the School District dated June 17, 2002. The project management and contract administration services may be performed by the OCMAPS Trust, Program Consultant or Trust and City staff engaged by the Trust. The OCMAPS Trust is the sole legal entity in providing instructions and direction to the Contractor in services, construction or any other contracts relating to the project.

THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

SPECIAL PROVISIONS – TECHNICAL

(Insert project number and name)

These Special Provisions – Technical are included in and are a part of the Bidding Documents for this project.

LIST OF CONTRACT DOCUMENTS

The successful Bidder, as Contractor, is responsible for the proper completion and submission of the documents listed below within seven (7) calendar days following the OCMAPS Trust's and School District's notification of its intent to award Contract, unless that time is extended by the Program Manager and City Engineer.

All forms must have the original ink signature of a person authorized to bind the Contractor. All documents must be attested to or notarized as required by the Signature Requirements for Bidding Documents.

All bonds must be issued by a surety licensed to do business in the State of Oklahoma and meeting the requirements of the Oklahoma Competitive Bidding Act (Title 61 O.S. 1991, §113).

REQUIRED CONTRACT DOCUMENTS

- Contract
- Statutory Bond in the amount of the Contract
- Performance Bond in the amount of the Contract
- Maintenance Bond in the amount of the Contract and for the term required in the Special Provisions
- Defect Bond, if required by the Contractor's Prequalification Resolution
- Certificate of Nondiscrimination
- *Small and Disadvantaged Local Business Subcontracting Plan & Affidavit
- Certificates of Insurance in the types and amounts required in the Special Provisions, including:
 - Workers' compensation
 - Public liability and property damage
 - Builder's risk
- Contractor's Identification Numbers as required by the Commissioner of Labor
 - Submit the identification numbers on the form provided herein
- Any other documents required in the Bidding Documents

*A notice to proceed will not be issued by the Program Manager and City Engineer until the Small and Disadvantaged Local Business Subcontract Plan & Affidavit is received by the Program Manager. Subsequent to completion of project final inspection, neither project final acceptance nor payment of final claim will be initiated until the Small and Disadvantaged Local Business Subcontracting Plan Close Out Report is received.

Forms to be Used. The Contractor shall use only the forms provided in the Bidding Documents or photocopies thereof and shall make no changes or alterations in the documents other than to add signature lines for joint ventures or limited liability companies in accordance with the instructions in the Signature Requirements for Bidding Documents.

All documents will be submitted to the Program Manager, 420 West Main, Suite 400, Oklahoma City, Oklahoma 73102, unless otherwise provided in the Bidding Documents.

CONTRACT

THIS CONTRACT AND AGREEMENT, made and entered into this _____ day of _____, 20____, by and between the Independent School District No. 89 of Oklahoma County, Oklahoma, hereinafter termed "School District" and _____, party of the second part, hereinafter termed "Contractor."

WITNESSETH:

WHEREAS, the School District has caused to be prepared in accordance with law, certain specifications, and other Bidding Documents for the work hereinafter described and has approved and adopted all of said Bidding Documents, and has caused Solicitation for Bids to be given and advertised as required by law, and has received sealed proposals for the furnishing of all labor and materials for:

_____ as outlined and set out in the Bidding Documents and in accordance with the terms and provisions of said contract; and

WHEREAS, Contractor, in response to said Solicitation for Bids, published in The Journal Record, _____, has submitted to the City Clerk in the manner and at the time specified, a sealed proposal in accordance with the terms of this contract; and

WHEREAS, the City Clerk in the manner provided by law has publicly opened, examined and canvassed the proposals submitted and the School District has determined and declared the above named Contractor to be the lowest responsible Bidder on the above described project and has duly awarded this contract to said Contractor for the sum named in the proposal, to wit:

_____.

NOW, THEREFORE, for and in consideration of the mutual agreements and covenants herein contained, the parties to this contract have agreed and hereby agree as follows:

1. The Contractor shall, in a good and first-class workmanlike manner, at its own cost and expense, furnish all labor, materials, tools and equipment required to perform and complete said work in strict accordance with the contract and plans adopted and approved by the School District, all of which documents are on file in the office of the City Clerk and are made a part of this Contract as fully as if the same were herein set out at length, with the following additions and/or exceptions: (if none, so state) None.

2. The School District shall make payments to the Contractor in the following manner: On or about the first day of each month, the Contractor will make accurate estimates of the value, based on contract prices of work done and materials incorporated in the work and of materials

suitably stored at the site thereof during the preceding calendar month. The Contractor shall furnish to the Program Manager such detailed information as he may request to aid him as a guide in the preparation of monthly estimates.

Each monthly estimate for payment must contain or have attached an affidavit as required by 74 O.S. § 85.22 and 74 O.S. § 3109.

3. On completion of the work, but prior to the acceptance thereof by the OCMAPS Trust and School District, it shall be the duty of the Program Manager and City Engineer to determine that said work has been completely and fully performed in accordance with said Contract Documents, and upon making such determination, said officials shall make final certificate to the OCMAPS Trust and School District. The Contractor shall furnish proof that all claims and obligations incurred in connection with the performance of said work have been fully paid and settled; said information shall be in the form of an affidavit, which shall bear the approval of the surety on the contract bonds for payment of the final estimate to the Contractor; thereupon, the final estimate (including retainages) will be approved and paid and the same shall be in full for all claims of every kind and description said Contractor may have by reason of having entered into or arising out of this Contract.

4. The sworn and notarized statement below must be signed and notarized before this contract will become effective.

IN WITNESS WHEREOF, the Parties hereto have caused this instrument to be executed in four (4) duplicate originals, the day and year first above written.

ATTEST:

Contractor

(Witness - Secretary)

(Individual - President)

STATE OF _____)
) §
COUNTY OF _____)

_____, of lawful age, being first duly sworn, on oath says that he/she is the agent authorized by Contractor to submit the above Contract to Independent School District No. 89 of Oklahoma County, Oklahoma. Affiant further states that Contractor has not paid, given or donated or agreed to pay, give, or donate to any officer or employee of Independent School District

No. 89 of Oklahoma County, Oklahoma any money or other thing of value, either directly or indirectly, in the procuring of this contract.

Affiant

Subscribed and sworn to before me this _____ day of _____, 20____.

Notary Public

My Commission Expires:

My Commission Number: _____

RECOMMENDED FOR APPROVAL by the Oklahoma City Metropolitan Area Public Schools Trust this ____ day of _____, 20____.

ATTEST:

Secretary

Chairman

CONCURRED by the Council of The City of Oklahoma City this _____ day of _____, 20____.

ATTEST:

City Clerk

Mayor

REVIEWED for form and legality.

Assistant Municipal Counselor

APPROVED by the Independent School District No. 89 of Oklahoma County, Oklahoma and SIGNED by the Chairman the date and year first written above.

ATTEST:

Clerk

Chairman

STATUTORY BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Contractor, and _____, as Surety, are held and firmly bound unto the State of Oklahoma in the full and just sum of such sum being equal to 100% of _____ the contract price for the payment of which, well and truly to be made, we, and each of us, bind ourselves, our heirs, executors and assigns, themselves, and its successors and assigns, jointly and severally, firmly by these presents.

The conditions of this obligation are such, that whereas, the above Bonded Contractor, _____, is the lowest and best Bidder for the making of the following Trust work and improvement: _____

_____ and has entered into a certain written contract with the Independent School District No. 89 of Oklahoma County, Oklahoma on the _____ day of _____, 20____, for the erection and construction of said work and improvement, in exact accordance with the bid of said Contractor, and according to certain plans and specifications theretofore made, adopted and placed on file in the office of the City Clerk.

NOW, THEREFORE, if said Contractor shall fail or neglect to pay all indebtedness incurred by said Contractor or subcontractor of said Contractor who perform work in the performance of said contract, and such repairs to and rental of machinery and equipment as may be furnished by a subcontractor to the person or persons contracting with the School District, within thirty (30) days after the same becomes due and payable, the person, firm or corporation entitled thereto may sue and recover on this bond, the amount so due and unpaid.

It is further expressly agreed and understood by the parties hereto that no changes or alterations in said contract and no deviations from the plan or mode of procedure herein fixed shall have the effect of releasing the sureties, or any of them, for the obligations of this bond.

IN WITNESS WHEREOF, the said Contractor has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly authorized officers; and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact, duly authorized so to do, the day and year first above written.

Executed this _____ day of _____, 20____ by the Contractor.

ATTEST:

Contractor

(Witness - Secretary)

(Authorized Officer)

Executed this _____ day of _____, 20____ by the Surety.

ATTEST:

Surety (Name of company)

(Witness - Secretary)

(Attorney-in-Fact)

RECOMMENDED FOR APPROVAL by the Oklahoma City Metropolitan Area Public Schools Trust this ___ day of _____, 20__.

ATTEST:

Secretary

Chairman

CONCURRED by the Council of The City of Oklahoma City this _____ day of _____, 20__.

ATTEST:

City Clerk

Mayor

REVIEWED for form and legality.

Assistant Municipal Counselor

APPROVED by the Independent School District No. 89 of Oklahoma County, Oklahoma this _____ day of _____, 20__.

ATTEST:

Clerk

Chairman

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That We, _____, as Contractor, and _____, as Surety, are held and firmly bound unto the Independent School District No. 89 of Oklahoma County, Oklahoma, hereinafter called "School District," in the full and just sum of _____, such sum being equal to 100% of the Contract price for the payment of which, well and truly to be made, we, and each of us, bind ourselves, our heirs, executors and assigns, themselves, and its successors and assigns, jointly and severally, firmly by these presents.

The conditions of this obligation are such, that whereas, said Contractor is the lowest and best Bidder for the making of the following School District work and improvement:

_____ has entered into a certain written contract with the Independent School District No. 89 of Oklahoma County, Oklahoma on the _____ day of _____, 20____, for the erection and construction of said work and improvement all in compliance with the plans and specifications therefore, made a part of said contract and on file in the office of the City Clerk of the City of Oklahoma City, and said contract is hereby made a part and parcel of this bond as if literally written herein.

NOW, THEREFORE, if the said _____, as Contractor, shall fully and faithfully execute the work and perform said contract according to its terms, conditions, and covenants, and in exact accordance with the bid of said Contractor, and according to certain plans and specifications heretofore made, adopted, and placed on file in the office of the City Clerk, as set out in the specifications herein, and shall promptly pay or cause to be paid, all labor, material and/or repairs and all bids for labor performed on said work, whether by subcontract or otherwise, and shall protect and save harmless the School District and all interested property owners against all claims, demands, causes of action, losses or damage, and expense to life or property suffered or sustained by any person, firm, or corporation by reason of negligence of the Contractor or his or its agents, servants, or employees in the construction of said work, or by or in consequence of any improper execution of the work or act of omission or use of inferior materials by said Contractor, or his or its agents, servants, or employees, and shall protect and save the School District harmless from all suits and claims of infringement or alleged infringement of patent rights or processes, then this obligation shall be void; otherwise, this obligation shall remain in full force and effect.

IT IS FURTHER EXPRESSLY AGREED AND UNDERSTOOD by the Parties hereto that no changes or alterations in said contract and no deviations from the plan or mode of procedure

herein fixed shall have the effect of releasing the sureties, or any of them, from the obligations of this bond.

IN WITNESS WHEREOF, the said Contractor has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly authorized officer, and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact, duly authorized so to do, the day and year first above written.

Executed this _____ day of _____, 20____ by the Contractor.

ATTEST:

Contractor

(Witness - Secretary)

(Authorized Officer)

Executed this _____ day of _____, 20____ by the Surety.

ATTEST:

Surety (Name of company)

(Witness - Secretary)

(Attorney-in-Fact)

RECOMMENDED FOR APPROVAL by the Oklahoma City Metropolitan Area Public Schools Trust this ___ day of _____, 20__.

ATTEST:

Secretary

Chairman

CONCURRED by the Council of The City of Oklahoma City this _____ day of _____, 20__.

ATTEST:

City Clerk

Mayor

REVIEWED for form and legality.

Assistant Municipal Counselor

APPROVED by the Independent School District No. 89, Oklahoma County, Oklahoma
this ___ day of _____, 20__.

ATTEST:

Clerk

Chairman

MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That We, _____, as Contractor, and _____, as Surety, are held and firmly bound unto the Independent School District No. 89 of Oklahoma County, Oklahoma, hereinafter called "School District," in the full and just sum of _____, such sum being equal to the contract price for a period of one (1) years and thereafter, for a period of one (1) years for the building and four (4) years for all portions of water, sanitary sewer and storm drainage placed under streets, and all roofing, for the sum of _____, such sum being not less than 15% of the contract price, for the payment of which, well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, and assigns, themselves, and its successors and assigns, joint and severally, firmly by these presents.

The conditions of this obligation are such that whereas, said Contractor has by a certain contract between _____ and the School District, dated this _____ day of _____, 20____, agreed to construct: _____ all in compliance with the plans and specifications therefore, made a part of said contract and on file in the office of the City Clerk; and to maintain the said improvement in the amounts set forth above against any failure due to workmanship or material for a period of two (2) years for the building and four (4) years for all portions of water, sanitary sewer and storm drainage placed under streets, and all roofing, from the date of acceptance of the project by the School District.

NOW, THEREFORE, if said Contractor shall pay or cause to be paid to the School District, all damage, loss, and expense which may result by reason of defective materials and/or workmanship in connection with said work occurring within a period of two (2) years for the building and four (4) years for all portions of water, sanitary sewer and storm drainage placed under streets, and all roofing, for all projects from and after acceptance of said project by the School District, then this obligation shall be null and void, otherwise to be and remain in full force and effect.

It is further agreed that if the said Contractor or Surety herein shall fail to maintain said improvements against any failure due to defective workmanship and/or material for a period of two (2) years for the building and four (4) years for all portions of water, sanitary sewer and storm drainage placed under streets, and all roofing, and at any time repairs shall be necessary that the cost of making said repairs shall be determined by the School District, or some person or persons

designated by them to ascertain the same, and if, upon thirty (30) days notice, the said amount ascertained shall not be paid by the Contractor or Surety herein, or if the necessary repairs are not made, the said amount shall become due upon the expiration of thirty (30) days and suit may be maintained to recover the amount so determined in any Court of competent jurisdiction. And that the amount so determined shall be conclusive upon the parties as to the amount due on this bond for the repair or repairs included therein, and that the cost of all repairs shall be so determined from time to time during the life of this bond as the condition of the improvements may require.

It is further expressly agreed and understood by the parties hereto that no changes or alterations in said contract and no deviations from the plan or mode of procedure herein fixed shall have the effect of releasing the sureties, or any of them, from the obligations of this bond.

IN WITNESS WHEREOF, the said Contractor has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly authorized officers; and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact, duly authorized so to do, the day and year first above written.

Executed this _____ day of _____, 20____ by the Contractor.

ATTEST:

Contractor

(Witness - Secretary)

(Authorized Officer)

Executed this _____ day of _____, 20____ by the Surety.

ATTEST:

Surety (Name of company)

(Witness - Secretary)

(Attorney-in-Fact)

RECOMMENDED FOR APPROVAL by the Oklahoma City Metropolitan Area Public Schools Trust this ___ day of _____, 20__.

ATTEST:

Secretary

Chairman

CONCURRED by the Council of The City of Oklahoma City this _____ day of _____, 20__.

ATTEST:

City Clerk

Mayor

REVIEWED for form and legality.

Assistant Municipal Counselor

APPROVED by the Independent School District No. 89, Oklahoma County, Oklahoma this _____ day of _____, 20__.

ATTEST:

Clerk

Chairman

DEFECT BOND

We, _____, as Contractor, and _____, as Surety, a corporation organized under the laws of the State of _____, and authorized to transact business in the State of Oklahoma, are held and firmly bound unto Independent School District No. 89 of Oklahoma County, Oklahoma in the amount of _____, said sum being equal to one hundred percent (100%) of the contract price as provided herein for a period of _____ year(s). We, as Contractor and Surety, bind ourselves and each of us, our heirs, executors, administrators, trustees, successors and assigns, jointly and severally.

WHEREAS, the Contractor entered into a written contract with Independent School District No. 89 of Oklahoma County, Oklahoma to perform and provide work and construct or create or repair the project, to wit: Project No. _____, generally described as _____ all in compliance with the Bidding Documents for said project.

NOW, THEREFORE, should the Contractor, during the term of this Defect Bond, timely and expeditiously repair or replace, or cause to be repaired or replaced, any defective, inferior or non-compliant workmanship, work and material regarding or relating to the project, and should the Surety, at the end of the term of this Defect Bond, pay, or cause to be paid, to Independent School District No. 89 of Oklahoma County, Oklahoma all damages, losses, costs and expenses which directly or indirectly may result from: (1) the untimely repair or replacement of inferior, non-compliant or defective materials, work and workmanship in connection with said project; (2) the failure to timely and expeditiously maintain, repair or replace same; and (3) the cost and expense incurred by Independent School District No. 89 of Oklahoma County, Oklahoma to have any defective, inferior or non-compliant work, material or workmanship repaired, replaced or maintained, timely and expeditiously, by the School District and/or third parties, then this Defect Bond shall terminate at the end of the term provided in the Standard Provisions; otherwise, this Defect Bond shall remain in effect.

The term of this Defect Bond shall commence upon the formal final acceptance of the entire project by Independent School District No. 89 of Oklahoma County, Oklahoma as fully and totally complete and shall run for (1) the total number of years as provided in the Standard Provisions for this project (“term of years”); or (2) until all repairs and replacement of defective, inferior or non-

compliant materials, work or workmanship, occurring or discovered prior to the termination of this Defect Bond have been completed and all sums due from the Surety and the Contractor therefore have been paid, whichever is later.

Executed this _____ day of _____, 20____ by the Contractor.

ATTEST:

Contractor

(Witness - Secretary)

(Authorized Officer)

Executed this _____ day of _____, 20____ by the Surety.

ATTEST:

Surety (Name of company)

(Witness - Secretary)

(Attorney-in-Fact)

RECOMMENDED FOR APPROVAL by the Oklahoma City Metropolitan Area Public Schools Trust this ___ day of _____, 20____.

ATTEST:

Secretary

Chairman

CONCURRED by the Council of The City of Oklahoma City this _____ day of _____, 20____.

ATTEST:

City Clerk

Mayor

REVIEWED for form and legality.

Assistant Municipal Counselor

APPROVED by the Independent School District No. 89 of Oklahoma County, Oklahoma this ___ day of _____, 20____.

ATTEST:

Clerk

Chairman

THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

CERTIFICATE OF NONDISCRIMINATION

In connection with the performance under the Contract, the Contractor agrees as follows:

- A. The Contractor agrees not to discriminate against any employee or applicant for employment because of race, creed, sex, color, national origin, ancestry, age or disability as defined by the Americans with Disabilities Act of 1990, Sec. 3(2). Contractor shall take affirmative action to ensure that employees are treated without regard to their race, creed, sex, color, national origin, ancestry, age or disability, as defined by the Americans with Disabilities Act of 1990, Sec. 3(2). Such actions shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruiting or recruitment, advertising, layoff or termination, rate of pay or other forms of compensation and selection for training, including apprenticeship. The Contractor and Subcontractors shall agree to post in a conspicuous place, available to employees and applicants for employment, notices to be provided by the City Clerk of the City of Oklahoma City setting forth the provisions of this Section.
- B. In the event of the Contractor's noncompliance with this Nondiscrimination Certificate, the contract may be canceled, terminated or suspended by the Oklahoma City Metropolitan Area Public Schools Trust or Independent School District No. 89, Oklahoma County, Oklahoma. The Contractor may be declared by the Oklahoma City Metropolitan Area Public Schools Trust or Independent School District No. 89, Oklahoma County, Oklahoma ineligible for further contracts until satisfactory proof of intent to comply shall be made by the Contractor and/or Subcontractors.
- C. The Contractor agrees to include the requirements of this Nondiscrimination Certificate in any subcontracts connected with the performance of this Contract.

I have read the above and agree to abide by these requirements:

This form must be fully completed and signed by the Contractor or Contractor's Authorized Agent.

Name of Individual, Partnership, Limited Liability
Company, or Corporation hereinafter called Bidder

Signature of Bidder or Authorized Agent

Type or print name and title of person who signed above

This Certificate is required by Oklahoma City Municipal Code, Chapter 25, Article III § 25-41, as incorporated by reference in the City of Oklahoma City's "Standard Specifications for the Construction of Public Improvements" or otherwise in the Bidding Documents.

THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

PUBLIC CONSTRUCTION PROJECT SUBCONTRACTING PLAN & AFFIDAVIT

The following Affidavit must be submitted by the successful Bidder, or Bidder’s Authorized Agent. A notice to proceed will not be issued by the Program Manager and City Engineer until the affidavit is received.

The undersigned, of lawful age, being first duly sworn on oath, affirms and states that the successful Bidder has the authority to execute this Public Construction Project Subcontracting Plan. The successful Bidder further states that they understand the resolution creating the Small, Disadvantaged, Minority and Woman-owned Subcontracting Program adopted by the Council of the City of Oklahoma City on June 3, 2008 and OCMAPS Trust on January 6, 2009.

I. Public Construction Project Subcontracting Plan

A. Outreach – In the space provided below describe in detail your company’s efforts regarding outreach to small, minority, disadvantaged and women owned businesses in an effort to utilize their services in conjunction with Project Number _____.

B. Internal Efforts – In the space provided below describe in detail any initiatives in place within your company directed at establishing policies and procedures to ensure that small, minority, disadvantaged and women owned businesses are made aware of and given the opportunity to submit bids for sub-contracting on publicly funded projects.

A notice to proceed for the project listed above will not be issued by the Program Manager and City Engineer until this document is completed and returned to the OCMAPS Project Office. The document must be completed and signed by the Contractor, and notarized, dated and completed by the Notary Public.

ISSUE DATE: _____

**THE OCMAPS TRUST
CERTIFICATE OF INSURANCE**

PROJECT NUMBER: _____

PRODUCER	NOTE: THIS CERTIFICATE CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER, NOR DOES IT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY POLICIES BELOW, EXCEPT AS SHOWN BELOW.
	COMPANIES AFFORDING COVERAGE
ADDRESS	COMPANY A LETTER
	COMPANY B LETTER
INSURED	COMPANY C LETTER
	COMPANY D LETTER
ADDRESS	COMPANY E LETTER

COVERAGES: THIS IS TO CERTIFY THAT THE INSURANCE POLICIES LISTED BELOW HAVE BEEN ISSUED TO THE INSURED, FOR THE POLICY PERIOD INDICATED HEREIN. THE POLICIES SHOWN IN THIS CERTIFICATE ARE DEEMED PRIMARY TO ANY INSURANCE CARRIED BY THE INSURED FOR THE SPECIFIC LOCATION, PROJECT OR EVENT.

TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE	POLICY EXPIRATION DATE	LIMITS	
GENERAL LIABILITY _____ COMMERCIAL GENERAL LIABILITY _____ OCCURRENCE CLAIMS MADE AND TAIL COVERAGE				GENERAL AGGREGATE	
				BODILY INJURY (Per Person)	
				PROPERTY DAMAGE (Per Accident)	
				EACH OCCURRENCE	
AUTOMOBILE LIABILITY _____ ANY AUTO _____ ALL OWNED AUTOS _____ SCHEDULED AUTOS _____ HIRED AUTOS _____ NON-OWNED AUTOS				COMBINED SINGLE LIMIT	
				BODILY INJURY (Per Person)	
				BODILY INJURY (Per Accident)	
				PROPERTY DAMAGE	
WORKER'S COMPENSATION AND EMPLOYER LIABILITY Standard Compliance for the State of Oklahoma				EACH ACCIDENT	
				DISEASE - POLICY LIMIT	
				DISEASE - EACH EMPLOYEE	
VALUABLE PAPERS INSURANCE (If required by Contract)					
OWNER & CONTRACTOR PROTECTIVE LIABILITY				AGGREGATE	
OTHER (If required by Contract)					

DESCRIPTION OF OPERATIONS/VEHICLES/SPECIAL ITEMS
 THE OCMAPS TRUST, THE CITY OF OKLAHOMA CITY AND THE INDEPENDENT SCHOOL DISTRICT NO. 89 ARE ADDITIONAL INSURED, WITH RESPECT TO LIABILITY, ARISING OUT OF THE PROJECT OR EVENT. THE OCMAPS TRUST AND THE CITY OF OKLAHOMA CITY ARE LOSS PAYEES ON VALUABLE PAPERS INSURANCE.

CERTIFICATE HOLDER(S) The Oklahoma City Metropolitan Area Public Schools Trust (OCMAPS) 420 W. Main St., Suite 400 Oklahoma City, OK 73102	CANCELLATION IT IS AGREED THAT NONE OF THESE POLICIES WILL BE CANCELLED OR CHANGED EXCEPT IN THE APPLICATION OF THE AGGREGATE LIABILITY LIMIT PROVISIONS, SO AS TO AFFECT THE INSURANCE DESCRIBED IN THIS CERTIFICATE UNTIL AFTER 30 DAYS PRIOR WRITTEN NOTICE OF SUCH CANCELLATION OR REDUCTION IN COVERAGES AND 10 DAYS WRITTEN NOTICE OF CANCELLATION FOR NONPAYMENT OF PREMIUM HAS BEEN DELIVERED TO THE CERTIFICATED HOLDER.
	AUTHORIZED REPRESENTATIVE SIGNATURE
	TELEPHONE NUMBER ()

CONTRACTOR IDENTIFICATION NUMBERS

This form is to be completed and submitted with the Contract.

Project number and description:

Name of Contractor:

The Contractor provides the following identification numbers:

Oklahoma Tax Commission _____

Oklahoma Employment Security Commission _____

Internal Revenue Service _____

Social Security Administration _____

The Contractor is reminded that no Contractor or subcontractor may be employed on this project who is listed by the Commissioner of Labor as ineligible to bid on or be awarded a Contract. A list of ineligible Contractors may be obtained from the Commissioner of Labor.



The City of OKLAHOMA CITY

VENDOR REGISTRATION / W-9 FORM
***** SUBSTITUTE W-9 *****

Federal Taxpayer Identification Number (FIN): (AKA EMPLOYER IDENTIFICATION NUMBER -EIN)

Grid for Federal Taxpayer Identification Number (FIN)

OR Social Security Number: (IF INDIVIDUAL OR SOLE PROPRIETORSHIP)

Grid for Social Security Number

PRINT HERE: NAME OF BUSINESS OR OWNER, IF SOLE PROPRIETOR/INDIVIDUALLY OWNED:

CHECK ALL THAT APPLY:

- SOLE PROPRIETOR/INDIVIDUALLY OWNED.
PARTNERSHIP
LIMITED LIABILITY COMPANY (LLC)
CORPORATION
NON-PROFIT (PER IRS 501C3 REGS.)
GOVERNMENT

CERTIFICATION: UNDER PENALTY OF PERJURY, I CERTIFY THAT:
(1) The number shown on this form is my correct taxpayer identification number...
(2) I am not subject to backup withholding because...
(3) The payee is a U.S. person (including a U.S. resident alien).

SIGN HERE: DATE:

INSTRUCTIONS: You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return.

*****VENDOR REGISTRATION FORM*****

CHECK ALL THAT APPLY:

- NEW VENDOR
ADDRESS CHANGE
ADDRESS ADDITION
FEDERAL I.D. NO. CHG.
MISCELLANEOUS
AFRICAN AMERICAN
ALASKAN NATIVE
ASIAN AMERICAN
HISPANIC AMERICAN
NATIVE AMERICAN
WOMAN-OWNED
ATTORNEY
MEDICAL SVCS TO CITY
MINORITY
SMALL
SCHOOL/UNIVERSITY
TRUST
DEALER
FACTORY REP
RETAILER
MANUFACTURER
IN-STATE/LOCAL
DISABILITY

PURCHASE/ORDER ADDRESS:

PAYMENT/REMITTANCE ADDRESS

Form for PURCHASE/ORDER ADDRESS with fields for Name, Company Name, Street, City, Contact Person, etc.

Form for PAYMENT/REMITTANCE ADDRESS with fields for Name, Company Name, Street, City, Contact Person, etc.

I certify that the information supplied herein is correct and that neither the applicant nor any person (or concern) in any connection with the applicant as a principal or officer is now debarred or otherwise declared ineligible by any public agency from bidding or furnishing materials, supplies or services, to any other public agency thereof.

Return to: Procurement Services
405-297-2741 Fax 405-297-2142
100 N. Walker, Ste 100
Oklahoma City, OK 73102

SIGNATURE OF PERSON AUTHORIZED TO SIGN DATE SIGNED

NAME & TITLE OF PERSON SIGNING

AGREEMENT AND WAIVER OF LIEN

WHEREAS, _____ has been Contractor to furnish work, services, equipment, and material for Project _____, situated at _____, and owned by Independent School District No. 89 of Oklahoma County, Oklahoma (hereinafter referred to as "School District"); and

WHEREAS, the undersigned agrees to waive all liens which the undersigned has or might have by reason of material or equipment furnished, or work or services performed, for or in the installation, construction, reconstruction or remodeling of said project or property; and

WHEREAS, as a condition of the release and final payment under this contract, the undersigned agrees to protect, indemnify, and hold harmless the School District and its agents, against all liens, which have been or may be filed by any individual or entity which performed as subcontractor to _____ and all liens which have been or may be filed by any individual or entity which provided services, equipment, and/or material to _____ and/or the subcontractors of _____, in conjunction with the installation, construction, reconstruction or remodeling of said project or property.

NOW, the undersigned, upon receipt of monies remaining due under the terms of the contract, does hereby release and forever quit claim unto the said School District and its successors and assigns, all manner of claims, liens and demands whatsoever, which the undersigned now has or might or could have on or against the said project or property, for work or services done, or for equipment or materials furnished, for installing, constructing, reconstructing or remodeling same; so that the School District and its successors and assigns, shall and may have, hold and enjoy the said project and property, freed and discharged from all liens, claims and demands whatsoever.

Contractor

Authorized Officer

Typed/printed name and title of Authorized Officer

STATE OF _____)
) ss.
COUNTY OF _____)

Signed and sworn to before me this _____ day of _____, 20_____.

My Commission expires _____

Notary Public

My Commission No. _____

The Surety hereby approves the release of the retainage and the full and final payment under the above referenced Contract this ___ day of _____, 20__.

By _____
As _____
For _____

STATE OF _____)
) ss.
COUNTY OF _____)

Signed and sworn to before me this _____ day of _____, 20__.

My Commission expires _____

Notary Public

My Commission No. _____

THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

NOTICE OF EQUAL EMPLOYMENT OPPORTUNITY

This Contractor or subcontractor for a public improvement project of the School District has agreed not to discriminate against any employee or applicant for employment because of race, creed, sex, color, national origin, ancestry, age, or disability.

An individual with a disability is defined by the Americans with Disabilities Act as an individual:

- a) with a physical or mental impairment that substantially limits one or more of the major life activities of that individual; or
- b) with a record of impairment; or
- c) regarded as having such an impairment.

The Contractor or subcontractor has also agreed to take affirmative action to insure that employees are treated without regard to their race, creed, sex, color, national origin, ancestry, age, or disability as defined by the Americans with Disabilities Act. Such actions include but are not limited to employment, upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rate of pay or other forms of compensation and selection.

The Contractor or Subcontractor has agreed to post this notice in a conspicuous place, available to employees and applicants for employment.

Violations of this agreement should be reported to the City of Oklahoma City, Affirmative Action Office, Personnel Department, (405) 297-2588.

This notice shall remain posted while the Contractor or subcontractor is performing work under contract with the School District.

Issued by the City Clerk. (Oklahoma City Municipal Code § 25-41)

THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

LIST OF DOCUMENTS REQUIRED FOR THIS BID

Project number: **(Insert project number)**

Description: **(Insert project description)**

The Bidder is responsible for reviewing this list of required documents and any requirements of the Standard Specifications, Special Provisions and/or Special Provisions – Technical, and assuring that each and every required document is properly completed, signed, and submitted with the bid. Forms and affidavits should be completed and submitted in accordance with provisions of the Signature Requirements for Bidding Documents. Bids not submitted in accordance with these requirements will be recommended for rejection.

DOCUMENTS REQUIRED FOR THIS BID

Bid Form
Detailed Bid Form (if provided in the bidding documents)
Bid Form with Alternates (if provided in the bidding documents)
Anticollusion or Noncollusion Affidavit
Business Relationship Affidavit
Bid Security
Tobacco-Free Notice
Sex Offenders or Mary Rippy Violent Crime Offenders Registration
(Insert any other required forms)

For the purpose of determining that a bid is properly submitted, the Bidder should submit the properly completed and executed documents listed on this page. The Bidder should also review the Standard Specifications, Special Provisions and/or Special Provisions – Technical for any other required documents. Failure to submit a required document may be cause for rejection of the bid. However, the OCMAPS Trust and School District reserve the right to require timely submission of document(s) required in the Special Provisions.

Forms Not in Packet. If an item is listed on this page or in the special provisions and the form is not included in this packet, it is the Bidder's responsibility to obtain the form from the office of the City Clerk for the City of Oklahoma City or such other office noted in the Notice to Bidders.

Forms to be Used. The Bidder shall use the forms in this bid package or shall photocopy the forms and complete them. No alterations can be made to the forms except to add additional signature lines as required. Any other alteration or amendment of these forms may invalidate the bid.

THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

SIGNATURE REQUIREMENTS FOR BIDDING DOCUMENTS

All Bid Documents and Contract Documents must be signed in ink by a person having the legal authority to bind the Bidder/Contractor and be completed in accordance with the rules listed below.

PART I. A. INSTRUCTIONS FOR SUBMISSION OF THE BID DOCUMENTS

- (1) All documents shown on the List of Documents Required for this bid or in the Standard Specifications, Special Provisions or Special Provisions – Technical, must be completed and submitted as provided herein.
- (2) The name of the individual, limited liability company, partnership, corporation or joint venture submitting the bid must be typed or legibly printed in the space provided. The Bid Documents must be signed in ink in accordance with the requirements of Part I. B. herein. The name and title of each person who signed the Bidding Documents must be typed or legibly printed on the line below the signature line.
- (3) All blank spaces in the Bid Documents which require the provision of any information or any statement from the Bidder must be filled in.
- (4) All affidavits must be signed and notarized. The notary must legibly: enter the date; enter the name of the person(s) sworn; sign as notary public; provide the date of commission expiration and commission number; and may impress his/her notary seal or stamp.
- (5) The Bid Bond must be submitted in the sealed envelope with the bid.
- (6) The Bid Form, affidavits and bid security, and any other required documents, must be enclosed in a sealed envelope. Place the name of the Bidder and the words “Sealed Bid for Project (**insert project number**)” on the envelope.

PART I. B. AUTHORIZED SIGNATURE AND MINIMUM REQUIREMENTS FOR BID DOCUMENTS

- (1) Bids Submitted by a Corporation: Bid Documents must have the original ink signature of the president or vice president of the corporation, or comply with Part I. B. (6).
- (2) Bids Submitted by a Sole Proprietorship or Individual: Bid Documents must have the original ink signature of the owner or individual, or comply with Part I. B. (6).
- (3) Bids Submitted by a Partnership: Bid Documents must have the original ink signature of a general partner, or comply with Part I. B. (6).
- (4) Bids Submitted as a Joint Venture: If two or more parties submit a joint bid, the Bid Documents must have the original ink signatures of the appropriate representatives of each/all Parties. Such Bidders should alter all documents, but only to provide signature lines (name of Bidder, signature line, and name and title line) to meet this requirement, or comply with Part

I. B. (6). Where notarization is required on the forms, each signature must be properly notarized.

- (5) Bids Submitted by a Limited Liability Company: Bid Documents must have the original ink signature of an authorized agent having authority to bind the limited liability company, or comply with Part I. B. (6). Such bids must be accompanied by the documentation required in Part II. B. (5) below.
- (6) Signature Requirements for Bidder's Authorized Agent: Some businesses may delegate the authority to sign the Bid Documents to an authorized agent. In such cases, all documents requiring signature must have the original ink signature of the authorized agent. Attached to the Bid Documents must be the documentation required in Part II. B. (6) below.
- (7) Additional Documentation: Additional documentation of signature and authority may be required on any authority issue or Contract issue.

PART II. A. INSTRUCTIONS FOR SUBMISSION OF THE CONTRACT DOCUMENTS

- (1) All documents listed on the "List of Contract Documents" must be submitted within seven (7) calendar days following the OCMAPS Trust's and School District's notification of its intent to award Contract, unless that time is extended by the Program Manager and City Engineer (if the Bidder shows delays in returning the Contract are beyond the Bidder's control).
- (2) The Contract and other forms must be signed and, if so provided on the form, notarized. Where notarization is required, the notary must legibly: enter the date; enter the name of the person(s) sworn; sign as notary public; provide the date of commission expiration and commission number; and may impress his/her notary seal or stamp.
- (3) Type or legibly print the name of the individual, limited liability company, partnership, corporation or joint venture awarded the Contract on the line provided for this information. The name and title of each person who signed the Contract Documents must be typed or legibly printed on the line below the signature line.

PART II. B. MINIMUM SIGNATURE REQUIREMENTS FOR SUBMISSION OF THE CONTRACT AND BONDS

- (1) Contracts Submitted by a Corporation: Contract Documents must have the original ink signature of the president or vice president of the corporation. That signature must be witnessed by the corporate secretary or assistant corporate secretary, and the firm's corporate seal, if any, must be affixed in accordance with 18 O.S. (1991) § 1016. Should the corporation not have a seal or should the seal not be available, then the person signing must demonstrate authority to bind the corporation, as set forth in Paragraph II. B. (6) below. The name and title of each person who signed the Contract or bond must be typed or legibly printed on the line below the signature line.
- (2) Contracts Submitted by a Sole Proprietorship or Individual: Contract Documents must have the original ink signature of the owner or individual, respectively, on the signature line, or

comply with Part II. B. (6). The name and title of each person who signed the Contract or bond must be typed or legibly printed on the line below the signature line.

- (3) Contracts Submitted by a Partnership: The Contract Documents must have the original ink signature of a general partner on the signature line, or comply with Part II. B. (6). The name and title of each person who signed the Contract or bond must be typed or legibly printed on the line below the signature line.
- (4) Contracts Submitted by a Joint Venture: If two or more parties submit a joint bid, the Contract Documents must be signed in ink by the appropriate representatives of each/all parties. Any of the parties which are corporations must have the appropriate signature(s) and attestation(s) as provided above, or comply with Part II. B.(6). The Contract Documents should be altered, but only to add the signature lines (name of Contractor, signature line, name and title line, and attestation line) to meet this requirement. The name and title of each person who signed the Contract or bond must be typed or legibly printed on the line below the signature line.
- (5) Contracts Submitted by a Limited Liability Company: The Contract Documents must have the original ink signature of an authorized agent having authority to sign contracts and bonds and to bind the limited liability company. Attached to the Contract Documents, signed by the authorized agent, must be a properly executed copy of the articles of organization; the operating agreement; and any bylaws, resolution or other document of the authorizing entity, specifically providing the authorized agent with the authority to execute the Contract Documents on behalf of and binding the authorizing entity. All documents designating and authorizing the agent to bind the limited liability company must be notarized by a notary public who will complete the required information and may affix his/her notary seal or stamp. The name and title of each person who signed the Contract Documents must be typed or legibly printed on the line below the signature line. Additional pages may be added, but each signature must be properly notarized.
- (6) Signature Requirements for Bidder's Authorized Agent: Some businesses may delegate the authority to sign the Contract Documents to an authorized agent. In such cases, all Contract Documents requiring signature must have the original ink signature of the authorized agent. Attached to the Contract Documents, signed by the authorized agent, must be a properly executed power of attorney or other document of the authorizing entity, specifically providing the "authorized" agent with the authority to execute the Contract Documents on behalf of and binding the authorizing entity. Each signature on the authorizing documents must be notarized by a notary public who will complete the required information and may affix his/her notary seal or stamp. The name and title of each person who signed the Contract, bond, or any authorizing document must be typed or printed on the line below the signature line. Additional pages may be added, but all signatures must be properly notarized.
- (7) Additional Documentation: Additional documentation may be required.

BID PACKAGE COVER SHEET

THE FOLLOWING PAGES CONSTITUTE THE BID PACKAGE FOR THIS PROJECT

Bidders should consult the List of Documents Required for This Bid and the Standard Specifications, Special Provisions and/or Special Provisions – Technical of the Bidding Documents to assure that all of the required documents are submitted with the bid.

Bidders should consult the Instructions to Bidders and the Signature Requirements for Bidding Documents for the requirements for the submission of Bid Documents.

The following pages should be removed from the project manual and used to submit the bid. However, submission of a bid on photocopies made from these pages will not invalidate the bid.

*All bid submissions should be typewritten
or legibly printed in ink.*

Original ink signatures are required.

THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

BID FORM

*This bid will not be considered unless this form has been fully completed
and signed by the Bidder or the Bidder's authorized agent*

Project number: **(Insert project number)**
Description: **(Insert project description)**
Name of Bidder
Address

To the City Clerk of the City of Oklahoma City:

The undersigned, as or on behalf of Bidder, declares: That the Bidder prepared this bid and, before preparing the bid, carefully read and examined the Bidding Documents and any other documentation or information. Bidder is familiar with and able to comply with all the provisions of the Bidding Documents. The Bidder agrees that if this bid is accepted, the Bidder will enter into the Contract with the School District and properly submit the required bonds, documents, and insurance within seven (7) calendar days following the OCMAPS Trust's and School District's notification of its intent to award Contract, unless such time is extended by the Program Manager and City Engineer. The Bidder hereby agrees to commence work within ten (10) calendar days after the work order is issued by the Program Manager and City Engineer and to complete the work within the number of working days or by the calendar date specified in the Special Provisions of the Bidding Documents. The Bidder encloses the Bid Security as required in the Bidding Documents. The Non-Collusion Affidavit, in its entirety, is incorporated herein by reference.

BASE BID:

_____ (\$ _____)

ADD ALTERNATE NO. 1
(Description)

_____ (\$ _____)

ADD ALTERNATE NO. 2
(Description)

_____ (\$ _____)

ADD ALTERNATE NO. 3
(Description)

_____ (\$ _____)

ADD ALTERNATE NO. 4

Unit Price Items

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>Unit</u>	<u>Item</u>	<u>Unit Price</u>	<u>Item Total</u>
1.	(45)	(S.Y.)	(6" P.C. Concrete)		
				Dollars	\$ _____
(Dollars per unit written)					\$ _____
2.	(70)	(L.F.)	(6" Integral Curb)		
				Dollars	\$ _____
(Dollars per unit written)					\$ _____
				TOTAL	\$ _____

The total of all unit price items constitutes the amount bid on that alternate.

TOTAL BID (BASE BID PLUS ALL ALTERNATES):

_____ (\$ _____)

Name of individual, partnership, limited liability company, or corporation, herein called "Bidder"

Signature of Bidder or Bidder's authorized agent

Type or legibly print name and title of person who signed above

Original ink signature required.

THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

NON-COLLUSION AFFIDAVIT

The following Affidavit is submitted by the Bidder, or Bidder's Authorized Agent:

The undersigned of lawful age, being first duly sworn on oath, affirms and says:

1. The undersigned is the Bidder or the duly authorized agent of the Bidder submitting this competitive bid and has the lawful authority to execute this Affidavit and the attached Bid.

For the purpose of certifying the facts pertaining to the existence of collusion among bidders and between bidders and City or Trust officials or employees, as well as facts pertaining to the giving or offering of things of value to government personnel in return for special consideration in the letting of any contract pursuant to the Bid to which this statement is attached:

2. The undersigned is fully aware of the facts and circumstances surrounding the making of the Bid to which this statement is attached and has been personally and directly involved in the proceedings leading to the submission of such Bid; and

3. Neither the Bidder nor anyone subject to the Bidder's direction or control has been a party:

- a. to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding;
- b. to any collusion with any City or Trust official, agent or employee as to quantity, quality or price in the prospective contract, or as to any other terms of such prospective contract; nor
- c. in any discussion between bidders and any City or Trust official, agent or employee concerning exchange of money or other thing of value for special consideration in the letting of a contract.

4. The undersigned certifies, if awarded this contract, whether competitively bid or not, neither the Bidder nor anyone subject to Bidder's direction or control has paid, given, or donated or agreed to pay, give or donate to any officer or employee of the City or Trust any money or other thing of value, either directly or indirectly, in procuring this contract.

This bid will not be considered unless this form has been fully completed and signed and certified by the Bidder.

Certified this _____ day of _____, 20____.

Name of Individual, Partnership, Limited Liability Company, or Corporation hereinafter called Bidder

Signature of Bidder or Bidder's Authorized Agent

Type or print name and title of person who signed above

THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

BUSINESS RELATIONSHIP AFFIDAVIT

The undersigned as Bidder or Bidder’s Authorized Agent, being of lawful age and being first duly sworn on oath, hereby swears, affirms and states that the undersigned has thoroughly read and understands the provisions and terms of this Business Relationship Affidavit and is fully knowledgeable of Bidder's and its officers’ and directors’ business relationships and associations and hereby affirmatively so states that as a part of this Bid.

The undersigned as Bidder or Bidder’s Authorized Agent further swears, affirms, and states that the Bidder does not have any partnership, joint venture, or other business relationship presently in effect or which existed within one (1) year prior to the date of this sworn statement and has not had any such relationship with the architect, the engineer, or any other party to this project **except, if any, as stated on the lines below.**

The undersigned as Bidder or as Bidder’s Authorized Agent further swears, affirms, and states that no officer or director of the Bidder has a partnership, joint venture, or other business relationship presently in effect and no officer or director of the Bidder has had any such relationship within one (1) year prior to the date of this sworn statement with any officer or director of the architectural or engineering firm or other party to this project **except, if any, as stated on the lines below.**

If Bidder or any of its officers or directors has or within the one (1) year prior to the date of this statement has had any such relationships, the Bidder or Bidder’s Authorized Agent must state the names of all persons having such business relationships and the positions they hold or held with the Bidder and/or their respective companies or firms **on the lines provided below:**

(THE BIDDER MUST STATE ANY BUSINESS RELATIONSHIP MEETING THE ABOVE DESCRIPTION ON THE LINES ABOVE, IF NO DISCLOSURE IS MADE ON THE ABOVE LINES THEN BIDDER WILL BE IRREFUTABLY DEEMED TO HAVE STATED AND SWORN UNDER PENALTY OF LAW THAT BIDDER AND ITS OFFICERS OR DIRECTORS HAS NO SUCH RELATIONSHIPS.)

This bid will not be considered unless this form has been fully signed by the Bidder, and notarized, dated and completed by the Notary Public.

STATE OF _____)
) ss.
COUNTY OF _____)

The undersigned, as Bidder or Bidder’s Authorized Agent, hereby expressly adopts and affirmatively incorporates herein by reference the above recitation as the sworn statement of the Bidder and the signatory.

Name of Individual, Partnership, Limited Liability
Company, or Corporation herein called Bidder

Signature of Bidder or Bidder’s Authorized Agent

Type or print name and title of person who signed above

Signed and sworn to or affirmed before me on this _____ day of _____, 20____, by the above named Bidder or Bidder's Authorized Agent.

My Commission expires _____

Notary Public

My Commission number _____

THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

TOBACCO-FREE NOTICE

Bidder must sign an Affidavit as follows:

**AFFIDAVIT
AND
DECLARATION OF BIDDER**

COUNTY OF _____)
) SS.
STATE OF _____)

Affiant, _____, being first sworn upon oath, state:

1. That I am the _____ of _____
(title) (company)
(hereinafter "Bidder").
2. I declare that no employee working on the premises under the authority of the Bidder will be permitted to use tobacco products in school facilities and on school property. The Bidder and its sub-contractors and suppliers, their agents or employees, and any other persons performing any work on behalf of the Bidder, will not use tobacco products on school property.
3. The Bidder agrees to prominently display a Notice stating that school property is a tobacco-free site.

FURTHER AFFIANT SAYETH NOT.

DATED this __ day of _____, 20__.

Bidder or Authorized Agent

This instrument was acknowledged before me on the _____ day of _____, 20__.

Notary Public

My Commission Expires/My Commission No.: _____

THE OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

**SEX OFFENDERS OR MARY RIPPY
VIOLENT CRIME OFFENDERS REGISTRATION**

Bidder must sign an Affidavit pursuant to the Oklahoma Sex Offenders Registration Act (57 O.S. §581 *et seq.*) or the Mary Rippy Violent Crime Offenders Registration Act (57 O.S. §591 *et seq.*) as follows:

**AFFIDAVIT
AND
DECLARATION OF BIDDER**

COUNTY OF _____)
) SS.
STATE OF _____)

Affiant, _____, being first sworn upon oath, state:

1. That I am the _____ of _____
(title) (company)
(hereinafter "Bidder").

2. That pursuant to the Oklahoma Sex Offenders Registration Act, 57 O.S. §581 *et seq.* or the Mary Rippy Violent Crime Offenders Registration Act, 57 O.S. §591 *et seq.*, I declare that no employee working on the premises under the authority of the (Architect, Successful Bidder, Contractor, Vendor) is currently registered under the provisions of the Oklahoma Sex Offenders Registration Act or the Mary Rippy Violent Crime Offenders Registration Act. That neither the (Architect, Successful Bidder, Contractor, Vendor) nor any of its sub-contractors or suppliers, their agents or employees, or any other persons performing any work on behalf of the (Architect, Successful Bidder, Contractor, Vendor) is in violation of the provisions of 70 O.S. §6-101.48 and 57 O.S. §589.

3. I will require any person, as described in Paragraph 2 above, who is or becomes registered under the provisions of the Act to immediately depart from the project premises and not to re-enter the premises.

FURTHER AFFIANT SAYETH NOT.

DATED this _____ day of _____, 20____.

Bidder or Authorized Agent

This instrument was acknowledged before me on the _____ day of _____, 20____.

Notary Public

My Commission Expires/My Commission No.: _____

RIGHT OF ENTRY
PROJECT NO. _____

WHEREAS, the Oklahoma City Metropolitan Area Public Schools Trust (OCMAPS Trust) and Independent School District No. 89, Oklahoma County, Oklahoma (School District) have agreed that the OCMAPS Trust will provide that certain construction/renovation will take place on a certain parcel of land and improvements thereon, situated at _____ (Address) _____, said parcel identified as _____ (Name of school) _____; and

WHEREAS, the OCMAPS Trust and School District understand certain inspections, evaluations and surveys must be performed and completed prior to the commencement of construction/renovation; and

WHEREAS, the OCMAPS Trust and School District understand upon the commencement of construction/renovation various contractors, sub-contractors and their employees must have access to the parcel to complete the improvements; and

WHEREAS, the OCMAPS Trust, its consultants, architects, engineers, employees and contractors must have access to the referenced property for the necessary preparations and completion of the improvements in the least intrusive and disruptive manner practical.

THEREFORE, School District, the property owner, hereby grants the OCMAPS Trust, its consultants, architects, engineers, employees and contractors and School District's contractors the right to enter upon the property for the purpose of inspecting, evaluating and improving said parcel in accordance with the conditions of this Contract.

ACCEPTED by the Contractor this _____ day of _____, 20____.

President

This instrument was acknowledged before me on the _____ day of _____, 20____.

Notary Public

My Commission Expires: _____

My Commission No. _____

Dated this _____ day of _____, 20____.

Clerk

Chairman

**PLANS AND SPECIFICATIONS
TO BE SUPPLIED BY THE ARCHITECT**

A. PURPOSE

1. These guidelines are developed to assist architects in preparing Construction Documents (plans and specifications) that will support continuous operations in the school facilities while construction and renovation take place under the OCMAPS Program; and, to assist contractors, architects and project managers in developing and implementing summer plans so that the school facility can be properly readied for school operations at the start of a new school year.

B. GENERAL

1. These Guidelines:
 - a. Apply to all OCMAPS expansion, renovation or new school projects, at all school sites, buildings and temporary facilities.
 - b. Must be followed in pre-planning all renovation/construction work so that:
 - i. Construction phasing is identified and pre-approved by the School District before bid documents are released;
 - ii. All School District operations are properly supported with facilities ready for operations based on operating schedules identified by the School District;
 - iii. Summer construction/renovation work is completed and contractor activity is suspended in areas needed for school operations in time to properly prepare the facilities for school operations once again;
 - iv. No additional costs are incurred by the School District or OCMAPS project in order to prepare facilities to resume operations;
 - v. Student/staff safety is maintained at all times;
 - vi. Adequate time is allowed for School District efforts required to prepare renovated or new school spaces or buildings for occupancy and operations based on schedules set by the School District.
2. Architects are responsible for developing construction phasing plans that will support the needs of continuous operations during the school year; and, for resuming operations after a summer break. Phasing plans must be pre-approved by the School District and be included in the original bid documents.
3. Architects shall develop a clear set of written and graphic documents to describe their proposed phasing plans; and, present the proposed phasing plans to a joint meeting of the School District staff, to include the school Principal and Regional Director and all OCMAPS project management staff.
4. The proposed plans should be presented for discussion and review at the 60% complete CD design phase, or at such time that the design team has identified the full scope of renovation/construction work and can confirm that all construction issues/challenges have been identified and incorporated into the design documents.
5. The School District shall have final say in determining acceptable plans and alternatives.

C. SCHOOL READINESS CRITERIA

1. Based on the school calendar adopted by the School District each year, the following allowances shall be provided for proper facility readiness work:

Summer Time (Between School Years):

Renovation Projects:

1. **Teacher Prep Time:** At least two days (at least one of which shall be a weekday) shall be allowed prior to the official date teachers report back under contract for classroom readiness work by school staff.
2. **Building Prep Time:** A proper period of time shall be allowed to prepare floors for resumed operations. This time allowance shall begin after new flooring has had adequate time to cure, without any detrimental affect to the warranties required from the contractor under the OCMAPS Program. The amount of time needed for floor preparation can generally be computed as follows:
 - a. 1 – 8 average elementary sized classrooms:
3 days preparation time
 - b. Additional Units of 1-8 classrooms:
add 1 day for preparation
 - c. No more than one day of the preparation period may be on a weekend.
3. **Moving Period:** A proper period of time shall be allowed for moving FFE back into spaces vacated for renovation work. The amount of time needed for moving FFE can generally be computed as follows:
 - a. 1 – 6 average elementary sized classrooms:
2 days moving time
 - b. Additional Units of 1-6 classrooms:
add 1 day for moving
 - c. No more than one day of the moving period may be on a weekend.
4. None of the required time periods shall run concurrently – all schedules shall be sequential unless pre-approved by the School District.
5. The beginning of this process shall be after punch lists are developed, but may be concurrent with completion of punch list work. If continued punch list work is required, no contractor work may be executed unless the times and spaces are pre-approved by the School District custodial staff. Failure to follow this requirement may require repeated cleaning of spaces, and such costs shall be reimbursed to the School District.
6. It is preferred that all contractor work cease in the spaces being prepared for school until the readiness process is completed and school is back in operation. This will prevent confusion and wasted efforts on the part of all parties. Contractors should make every effort to move to other areas of the facility, to maintain renovation operations and the overall contract schedule. The phasing plan developed by the architect should accommodate this requirement so that the contractor will not face any unexpected down time; however, in the interests of the School District, students and staff, the School District reserves the right to require the contractor to cease operations in order to properly prepare the facilities for school use.
7. **I.T. / Network / Computer Systems Prep Time:** If building utilities or network systems have been interrupted, disconnected, or replaced in the renovation work, the following notices will be given to the School District:
 - a. **Utility Service interruptions/connections/replacement:** A minimum of four (4) weeks time shall be allowed for utility connections prior to the opening/use of the building.
 - b. **MDF / IDF Rooms:** Shall be 100% complete, including all contractor punch list work, no less than two (2) weeks prior to the opening/use of the building. The School District I.T. Department will have sole access to these spaces at that time.

- c. The School District requires at least two (2) weeks time to re-set PC's and desktop computers that might have been moved or relocated during the renovation work. This two week period shall be scheduled after Substantial Completion, and prior to the opening/use of the building.

New Construction / New School Projects:

Start:

1. Teacher Prep Time: At least two (2) weeks shall be allowed prior to the official date teachers report back under contract for classroom readiness work by school staff.
2. Building Prep Time: A proper period of time shall be allowed to prepare floors for occupancy. This time allowance shall begin after new flooring has had adequate time to cure, without any detrimental affect to the warranties required from the contractor under the OCMAPS Program. The amount of time needed for floor preparation can generally be computed as follows:
 - a. 1 – 8 average elementary sized classrooms:
3 days preparation time
 - b. Additional Units of 1-8 classrooms:
add 1 day for preparation
 - c. No more than one day of the preparation period may be on a weekend.
3. Moving Period: A proper period of time shall be allowed for moving FFE into spaces prior to occupancy. The amount of time needed for moving FFE can generally be computed as follows:
 - a. 1 – 6 average elementary sized classrooms:
2 days moving time
 - b. Additional Units of 1-6 classrooms:
add 1 day for moving
 - c. No more than one day of the moving period may be on a weekend.
 - d. This period shall be used by the School District to move relocated FFE and by the OCMAPS Trust to have new FFE delivered and set up.
4. None of the required time periods shall run concurrently – all schedules shall be sequential unless pre-approved by the School District.
5. The beginning of this process shall be after punch lists are developed, but may be concurrent with completion of punch list work. If continued punch list work is required, no contractor work may be executed unless the times and spaces are pre-approved by the School District custodial staff.
6. It is preferred that all contractor work cease in the spaces being prepared for school until the readiness process is completed and school is in operation. In the interests of the School District, students and staff, the School District reserves the right to require the contractor to cease operations in order to properly prepare the facilities for school use.
7. I.T. / Network / Computer Systems Prep Time:
 - a. Utility Service Connections: A minimum of four (4) weeks time shall be allowed for utility connections prior to the opening/use of the building.
 - b. MDF / IDF Rooms: Shall be 100% complete, including all contractor punch list work, no less than two (2) weeks prior to the opening/use of the building. The School District I.T. staff will have sole access to these spaces at that time.
 - c. The School District requires at least two (2) weeks time to place PC's and desktop computers into service. This two (2) week period shall be scheduled after Substantial Completion, and prior to the opening/use of the building.

During the School Year while School is in Session:

Renovation Projects:

1. Use the same planning/scheduling guidelines as listed for summer time renovation projects.

New Construction / New School Projects:

1. Use the same planning/scheduling guidelines as listed for summer time new construction or new school projects.

A. GENERAL

1. WORK SEQUENCE

- a. Require the Contractor to coordinate the schedule and operations with the OCMAPS Program Manager and the Program Consultant. There shall be no shutdown of electricity, water, sanitary/storm sewers, or heat during the life of the project unless approved in writing by the OCMAPS Program Manager. The Contractor will be responsible for providing temporary air conditioning or heating for those areas which are scheduled to be occupied for school use and the Contractor has demolished the existing air conditioning or heating system. Maintain minimum corridor temperature at 68°F during heating season.
- b. Commencement of each phase of work in existing classrooms shall not occur until sufficient materials and equipment are available for the particular phase, and sufficient numbers of workmen are available to execute the work in the time period indicated.

B. EXECUTION

1. CONTRACTOR'S USE OF PREMISES

- a. The Architect, with the OCMAPS Program Manager, and the I-89 School District will establish an area to which the Contractor will limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.
 - 1) Allow for I-89 School District occupancy of site and use by the public.
 - 2) Keep driveways and entrances serving premises clear and available to I-89 School District, I-89 School District's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a) Require the contractor to schedule deliveries to minimize use of driveways and entrances. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- b. Contractor shall coordinate use of premises under direction of OCMAPS Program Manager.
 - 1) The possession and/or use of drugs and alcohol are strictly prohibited on school property.
 - 2) Smoking, use of improper language, fraternization by Contractor's employees with students and staff is also prohibited.
- c. Radio/music devices may only be used with earphones.
- d. Specify the Contractor shall move any stored products, under Contractor's control, which interfere with operations of the I-89 School District.
- e. Contractor shall limit his use of the existing building for work and for storage to allow for:
 - 1) I-89 School District Occupancy
 - 2) Public Use
- f. Specify the Contractor shall, at his option, obtain and pay for the use of additional storage or work areas needed for operations.

2. WORK IN, OR ADJACENT TO, EXISTING OR OCCUPIED AREAS

- a. Contractor shall:
 - 1) Maintain the existing building in a secure, weather tight condition.
 - 2) Repair damage to existing structures, equipment or furnishings resulting from Contractor's use of premises.
 - 3) Not store construction materials in a corridor at any time, nor shall any materials be stored in such a manner as to restrict emergency egress, both inside and outside the building.

- 4) Maintain all existing exit lights and exit ways operational. Egress shall be by means of hard surfaced, non-slip walkways, ramps or other platforms, along with temporary handrail, barricade or canopies as required.
- 5) Not be allowed in the corridor of the existing building during school hours. A minimum clear corridor width of 72" shall be maintained at all corridors for safe egress. No such work such as welding or soldering, which is considered hazardous to the building occupants, shall take place during school hours.
- 6) Not work shall be allowed in a corridor adjacent to the school-aged childcare rooms between the hours of 7:15 a.m. and 6:15 p.m.
- 7) Not do any work involving; cutting, demolition, patching, ladders, scaffolding, or construction materials in any corridor in the building between the hours of 6:00 a.m. to 30 minutes after the release of the school children.
- 8) Only work in corridors when the students and teachers are not in the building.
- 9) Take all necessary safety precautions to clearly delineate the construction areas with cones or other devices, and to isolate the area with temporary ribbon fences.
- 10) Immediately clean and remove construction debris from any work area in an occupied area once the work is completed or halted for a significant period of time.
- 11) The School District will be responsible for carefully moving and repositioning all loose furniture, loose equipment and all other loose objects, which obstruct proper performance or work in existing spaces. The general contractor shall be responsible for providing adequate (preferably four weeks) notice to the School District when items need moving. The general contractor shall protect furniture and equipment from construction debris and dust at all times without exception.
- 12) Dust and mop corridors every morning before teachers arrive. Dust and mop any areas made dirty by construction operations on a daily basis.
 - a) No pneumatic, gas powered or other noise producing construction equipment shall be allowed in an occupied area during school hours.
 - b) No loud construction noise is allowed during school hours.
 - c) No hoisting shall be allowed over the school building during normal school
 - d) Specify doors to construction areas must be locked. Temporary doors to construction areas must have closers on them.
 - e) Specify fire extinguishers are required in all construction areas.
 - f) Wherever temporary partitions are required, they will be dust proof partitions form floor to underside of deck with a self-closing, lockable door.
 - g) If existing window and/or doors are removed and new windows/doors are not installed, the Contractor must provide a secure plywood covering over the window or door openings. No wall openings (no matter how small) shall be left uncovered after completion of the work shift.
 - h) Specify all temporary storage areas and or trailers shall be fenced in by 6' high construction fence.
 - i) All Pressure Reducing Valves (PRV) shall be fully operational at all times. Do not demo any existing PRV's until replacement are on-site with new wiring ready for connection.

- j) All temporary wiring shall be approved by city inspectors, prior to installation
 - k) Where the sequence of work requires work to be continuously performed in existing corridor ceiling spaces (after school hours only), tie all light fixtures at each corner to existing joists above, tie all smoke detection devices as close to the ceiling as possible, and secure all security, P/A telephone or other wiring which is not in conduit.
 - l) Where existing V.A.T. (vinyl asbestos tile) and other asbestos containing materials must be removed to facilitate the new work, removal and disposal of the asbestos containing materials shall be detailed in the Architect's design documents and included in the Contractor's bid. Unforeseen conditions shall be addressed separately.
 - m) All painting performed by spray application shall be done only when the building is unoccupied. Only low Volatile Organic Compound (VOC) paints shall be used.
 - n) Specify use of school supplies or school equipment by contractor is prohibited.
 - o) Specify contractor shall postpone or reschedule work to a later shift whenever such work would disrupt or interfere with student testing, such as SAT (Scholastic Aptitude Test) or SOL (Standards of Learning) Tests. Contractor shall coordinate with school staff for actual dates and times of testing.
- 13) Do not start demolition until the materials required to renew a room are on the project site.
 - 14) Perform existing building survey before work commences
 - 15) Do not remove existing cable TV wiring or sound wiring etc. until new is in place and operational.
 - 16) Do not locate a masonry saw near any window or door openings or near a fresh air intake. Locate masonry saws in fences in staging areas ONLY.
 - 17) Do not perform any work during the school day, which could cause the fire alarm to be inadvertently activated.
 - 18) The general contractor shall change mechanical equipment filters often during construction and just prior to the School District taking occupancy of the spaces. The School District will not take occupancy of any areas unless the entire heating, ventilation, exhaust system and air conditioning system operational.
 - a) Change filters on a regular basis as they become dirty during construction and prior to the School District occupying spaces. Do not occupy any area unless the entire heating, ventilation, and air conditioning system is operational, (exhaust systems, etc.)
 - b) During the semester when school is out, the HVAC system at any given school may be turned off unless a request is made by the contractor to leave it operational. The School District will decide based on the scope of work whether or not to grant this request. The units are best left off during periods of construction which generate large amounts of dust. Damage to HVAC units as a result of construction are the responsibility of the contractor.
 - 19) Install proper temporary lighting for all phases of construction.
 - 20) Do not place roofing tanker trucks near windows or fresh air intakes.

3. I-89 SCHOOL DISTRICT OCCUPANCY
 - a. The Contractor shall schedule his operations for the completion of all portions of the work with the I-89 School District. The I-89 School District shall take occupancy upon substantial completion of the entire work. Coordinate the work sequence in the existing building to minimize disruption.
 - b. Require the Contractor to permit the I-89 School District to use and occupy portions or units of the project before formal acceptance of the total project by the I-89 School District.
 - 1) I-89 School District shall secure written consent of the Contractor
 - 2) I-89 School District shall secure endorsement from the insurance carrier and consent of the surety to permit occupancy of the building or to use of the project during the remaining period of construction.
 - 3) Architect will prepare a Certificate of Substantial Completion for each specific portion of the work to be occupied before I-89 School District occupancy.
 - 4) The contractor shall obtain a Certificate of Occupancy from authorities having jurisdiction before I-89 School District occupancy.
 - 5) Before partial occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, I-89 School District will provide, operate, and maintain mechanical and electrical systems serving occupied portions of building.
 - c. I-89 School District will occupy the existing premises during the normal 10-month school year for the conduct of his normal operations. Contractor shall work with the I-89 School District's representative in all construction operations to minimize conflict and to facilitate continued I-89 School District usage and perform the Work so as not to interfere with I-89 School District's operations.
4. SPECIAL REQUIREMENTS
 - a. Specify the Contractor provide and maintain an adequate number of hand fire extinguishers at convenient and appropriate locations during construction, avoid all accumulations of flammable debris by removing rubbish promptly take all other precautions necessary to prevent fire supervise closely the storage of paint materials and other combustible products.
 - b. Existing fire alarm and detection system must remain operable at all times during construction.
 - c. Require the Contractor comply with all applicable laws, ordinances, rules, regulations and orders of governing authorities having jurisdiction for the safety of persons and property to protect them from damage, injury or loss and erect and maintain, as required by conditions and progress of the work, all necessary safeguards for safety and protection, including fences, railings, barricades, lighting, posting of danger signs and other warnings against hazards. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Project. All scaffolds shall be built in accordance with all requirements of local, state and Federal laws and regulations.
 - d. Require the Contractor supply identification badges that shall be worn by all tradesmen working on this project. No employees of the Contractor, subcontractors or sub-contractors, material suppliers or other persons associated with the project shall enter the existing school without an approved identification badge. Failure to comply with this requirement will be cause for immediate and permanent removal of the employee(s) in question from this and any other school building. Contractor shall maintain an identification badge log and record each badge number and to whom it was given and when.
 - 1) Badges shall be a minimum 2" x 3 1/2".

- 2) Badges shall be visible at all times.
- e. During a renovation project should it be necessary to relocate an existing room function (e.g. move an administrative office to a different location) it will be the contractor's responsibility to provide the necessary phone, electrical, data and other utility lines as required to the temporary space. The district will, however, at their discretion, take the responsibility of disconnecting, moving and reconnecting the district's equipment including copy machines, computers, network equipment (not black boxes), phones and intercom control panels.
 - 1) Annexes, Demountables and Other Out-Buildings:
All lines (including utility lines) feeding the annexes, demountables and other out-buildings need to remain operational as long as they are being occupied or used by the school. Should these lines need to be cut or relocated during construction, it will be the contractor's responsibility to see that service is restored.
 - 2) Fire Alarm / Security Systems:
During construction, regardless of whether the school is occupied or not, if either of these systems is taken off line by the contractor, he will be responsible for implementing other means for providing fire and security for the building.
 - 3) Data, Phone, Intercom Systems:
These systems may be taken off line at times when the school is unoccupied. However, these systems should be operational at all times when the school is occupied unless special arrangements have been made with the district.
 - 4) Telephone Line Service:
Once a final location has been established for the land line phone service entrance (demarc location), the district will arrange for phone service to be brought to that location. The Contractor may be responsible for providing the conduit for this service. The Contractor will be responsible for all wiring from the demarc location to the wall outlets in each room.
- f. New equipment / systems training should be provided to the owner before the project is closed out. The contractor shall prepare and maintain a list of these training sessions.
- g. As a project enters the final completion phase there are multiple inspection occurring; Interior, exterior, landscaping, mechanical, electrical, I.T., etc. The contractor shall keep a master list of all the dates of these inspections, who attended and the current status of inspection results.

A. GENERAL

1. SUMMARY

- a. This section includes procedural requirements for cutting and patching.

2. QUALITY ASSURANCE

- a. Specify Contractor shall not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- b. Specify Contractor shall not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operating elements include the following:
- 1) Air or smoke barriers.
 - 2) Fire-protection systems.
 - 3) Control systems.
 - 4) Communication systems.
 - 5) Electrical wiring systems.
- c. Specify Contractor shall not cut and patch the following elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
- 1) Water, moisture, or vapor barriers.
 - 2) Membranes and flashings.
 - 3) Equipment supports.
 - 4) Piping, ductwork, vessels, and equipment.
 - 5) Noise- and vibration-control elements and systems.
- d. Specify Contractor shall not cut and patch construction in a manner that results in visual evidence of cutting and patching, nor cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities.

B. PRODUCTS

1. MATERIALS

- a. Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
- 1) If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

C. EXECUTION

1. PREPARATION

- a. Require the Contractor to:
- 1) Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
 - 2) Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
 - 3) Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to minimize interruption of services to occupied areas.

2. PERFORMANCE

- a. Require the Contractor cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction.
- b. Require the Contractor patch construction by filling, repairing, refinishing, and closing up with seams that are as invisible as possible.
- c. Specify the Contractor shall follow these patch procedures:
 - 1) Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 - 2) Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - 3) Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - 4) Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 - 5) Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform ceiling.
 - 6) Patch components in a manner that restores exterior building enclosure to a weathertight condition.

A. GENERAL

1. SUMMARY
 - a. This section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1) Construction layout.
 - 2) Field engineering and surveying.
 - 3) Coordination of I-89 School District-installed products.
2. SUBMITTALS
 - a. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.
 - b. Certified Surveys: Submit two (2) copies signed by land surveyor.
 - c. Final Property Survey: Submit four (4) copies showing the Work performed and record survey data.
3. QUALITY ASSURANCE
 - a. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where the project is located and who is experienced in providing land-surveying services of the kind indicated.

B. EXECUTION

1. EXAMINATION
 - a. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the work.
 - 1) Verify the location and points of connection of utility service.
 - b. The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
 - 1) Before construction, require the contractor verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
 - 2) Furnish location data for work related to project that must be performed by public utilities serving project site.
2. PREPARATION
 - a. Existing Utility Information: Furnish information to local utility, OCMAPS Program Manager if it is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
 - b. Existing Utility Interruptions: Specify the Contractor shall not interrupt utilities serving facilities occupied by I-89 School District or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1) Notify Architect, OCMAPS Program Manager, and the I-89 School District not less than two (2) days in advance of proposed utility interruptions.
 - 2) Do not proceed with utility interruptions without Architect's and I-89 School District's written permission.
3. CONSTRUCTION LAYOUT
 - a. General: Engage a land surveyor to lay out the work using accepted surveying practices.
 - 1) Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.

- 2) Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
4. **FIELD ENGINEERING**
 - a. **Benchmarks:** Establish and maintain a minimum of two (2) permanent benchmarks on project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1) Record benchmark locations, with horizontal and vertical data, on project documents.
 - b. **Certified Survey:** On completion of foundation walls, major site improvements, and other work requiring field-engineering services, require Contractor to prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
 - c. **Field Property Survey:** Require the Contractor to prepare a final property survey showing significant features (real property) for project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of project are accurately positioned as shown on the survey.
 - 1) Boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point shall be shown.
 - 3) At substantial completion, the Contractor shall have the final property survey recorded by or with authorities having jurisdiction as the official "property survey".
5. **I-89 SCHOOL DISTRICT-INSTALLED PRODUCTS**
 - a. Specify the Contractor shall provide access to project site for I-89 School District's construction forces.
 - b. Require the Contractor to coordinate construction and operations of the work with work performed by I-89 School District's construction forces.

A. GENERAL

1. DESCRIPTION

a. This section establishes the standard required mounting heights for the types of equipment and accessories normally associated with the scope of school construction. The Architect shall coordinate the standards listed herein with the Construction Drawings and other specifications sections of the construction documents to determine applicability of the standards to equipment and accessories specified for the work, and the suitability of mounting height dimensions to the building occupants, where more than one dimension is listed for a particular item or accessory.

2. QUALITY ASSURANCE

a. Specify the Contractor shall be responsible for ensuring that the trades associated with the installation of the equipment and accessories referenced herein are familiar with these standards as they relate to the work of each trade.

b. Products (Not Used)

c. Execution (Not Used)

3. EQUIPMENT MOUNTING HEIGHTS

a. Oklahoma City Public Schools standard for equipment installation heights:

1) LAVATORIES: (Measured from floor to top of rim)

- | | | |
|----|-----------------------------------|---|
| a) | Grades PS (Preschool) | =27" |
| | K,1,2,3,4,5,6 | =27" |
| | Accessible | =30"(24"clear knee space) |
| b) | Grades 7,8,9,10,11,12, and Adults | =31" |
| | Accessible | =32"(29"clear knee space at rim by 8" deep, minimum, 27" clear to bottom of bowl) |

2) URINALS: (Measured from floor to top of rim)

- | | | |
|----|-----------------------------------|--|
| a) | Grades PS,K,1,2,3,4,5,6 and | =17" (centerline of flush valve) |
| | Accessible | =11.5" from top of urinal |
| b) | Grades 7,8,9,10,11,12, and Adults | =24" (centerline of flush valve 11.5" from top urinal) |
| | Accessible | =17" (rim height A.F.F.) |

3) WATER CLOSETS: (Measured from floor to top of rim)

- | | | |
|----|-----------------------------------|---|
| a) | Grades PS,K,1,2,3,4,5,6 | =15" (centerline of flush valve 26"A.F.F.) |
| | Accessible | =15" |
| b) | Grades 7,8,9,10,11,12, and Adults | =15" (centerline of flush valve 29" A.F.F.) |
| | Accessible | =18" |

4) DRINKING FOUNTAINS, EWC's: (Measured from floor to spout)

- | | | |
|----|-----------------------------------|-----------------------------|
| a) | Grades PS,K,1,2,3,4,5,6 | =28" |
| | Accessible | =30"(24" clear knee space) |
| b) | Grades 7,8,9,10,11,12, and Adults | =42" |
| | Accessible | =36" (27" clear knee space) |

- 5) **SHOWER HEADS:** (Measured from floor to head)
- a) All Grades - Boys =72"
 - b) All Grades - Girls =66"
 - c) Adults =72"
- 6) **COMPUTER COUNTERS:** (Measured from floor to top)
- a) Grades PS,K,1,2,3 =24"
 - b) Grades 4,5,6 =27"
 - c) Grades 7,8,9,10,11,12, and Adults =28"
- 7) **COUNTERTOPS:** (Base cabinets with or without sinks measured from floor to top)
- a) Grades PS, K, 1, 2, 3 =24"
 - b) Grades 4, 5, 6 =27"
 - c) Accessible (Grades PS, K, 1, 2, 3, 4, 5, 6) serving classroom toilets =30" (24" clear knee space)
 - d) Grades 7,8,9,10,11,12, and Adults=36"
Accessible =34"
- 8) **ACCESSIBLE GRAB BARS:** (Measured from floor to center line of bar)
- a) Grades PS,K,1,2,3,4,5,6 =27"
 - b) Grades 7,8,9,10,11,12, and Adults =36"
- 9) **HANDRAILS:** (Measured from ramp or stair nosing to top of gripping surface)
- a) All grades and adults (including adult accessible) =34"
 - b) Grades PS,1,2,3,4,5,6 (child accessible) =25"
- 10) **PAPER TOWEL DISPENSERS:** (Measured from floor to towel slot)
- a) All Grades and Adults =40" maximum
- 11) **TOILET PAPER HOLDERS:** (Measured from floor to centerline of roll)
- a) All Grades and Adults =20"
- 12) **WARM AIR HAIR DRYERS:** (Measured from floor to centerline of push button switch)
- a) All Grades and Adults =40"
- 13) **SOAP DISPENSERS:** (Measured from floor to bottom of dispenser)
- a) Grades PS,K,1,2,3,4,5,6 =36"
 - b) Grades 7,8,9,10,11,12, and Adults =40"

- 14) **FEMININE NAPKIN DISPENSERS:** (Measured from floor to coin slot)
- a) Grades 7,8,9,10,11,12, and Adults =40"
- 15) **FEMININE NAPKIN DISPOSAL:** (Measured from floor to top of unit)
- a) Grades 7,8,9,10,11,12, and Adults =34"
- 16) **MIRRORS:** (Measured from floor to bottom of mirror)
- a) Grades PS,K,1,2,3,4,5,6 =30"
 - b) Grades 7,8,9,10,11,12, and Adults =40"
- 17) **FIRE EXTINGUISHERS:** (Measured from floor to top of cabinet)
- a) All Grades and Adults =56"
- 18) **PENCIL SHARPENER BLOCKS:** (Measured from floor to top of 8" x 8" wood block)
- a) Grades PS,K,1,2,3 =32"
 - b) Grades 4,5,6 =38"
 - c) Grades 7,8,9,10,11,12 =42"
- 19) **CORRIDOR TACK STRIPS:**
- a) (2) strips - 6'-8" A.F.F. and 4'-8" A.F.F.
 - b) Stop strips 36" from door/window frames
 - c) Maximum strip length 25'. Provide 10' break between strips.
- 20) **CHALKBOARDS & TACKBOARDS:** (Measured from floor to bottom of board)
- a) Grades PS,K,1,2,3 =24"
 - b) Grades 4,5,6 =28"
 - c) Grades 7,8,9,10,11,12, and Adults =36"
- 21) **T.V./V.C.R. YOKE ASSEMBLIES:**
(Measured from floor to bottom of VCR shelf)
- a) Elementary and Middle Schools =72" A.F.F.; 18" from face of front wall, 24" from face of side wall from center line of yoke support pipe
 - b) High Schools =72" A.F.F.; 24" from face of front wall, 30" from face of side wall from center line of yoke support pipe

- 22) **MAP SUPPORT BLOCKS:** (Measured from floor to top of block)
- a) All Grades and Adults =8'-4"
- 23) **DOOR HARDWARE:** (Measured from floor to centerline of hardware)
- b) Grades PS,K,1,2,3,4,5,6
- (i). Push Plates =42"
(ii). Pull Handles =42"
(iii). Levers =36"
(iv). Panic Exit =36" centerline of push bar
- c) Grades 7,8,9,10,11,12, and Adults
- (i) Push Plates =50"
(ii) Pull Handles =42"
(iii) Levers =36"
(iv) Panic Exit =40" centerline of push bar
- 24) **THERMOSTATS & CCMS SENSORS:** (Measured from floor to centerline of box)
- a) All Occupied Spaces =5'-6" A.F.F.
- 25) **CONV. RECEPTACLES:** (Measured from floor to bottom of box)
- a) General Areas =1'-4" A.F.F.
b) Special Areas =As required/check with Owner
- 26) **CLOCK OUTLETS:**
- a) General Areas =6" from ceiling to top of box
b) Special Areas =As required/check with Owner
- 27) **LIGHT SWITCHES:** (Measured from floor to top of box)
- a) All Areas =4'-0" A.F.F.
- 28) **FIRE ALARM PULL SWITCHES:** (Measured from floor to top of box)
- a) All Areas =4'-0" A.F.F.
- 29) **FIRE ALARM BELLS/HORNS:** (Measured from floor to top of box)
- a) All Areas =6'-8" A.F.F.

- 30) **INTERCOM SPEAKERS:**
- a) General Areas =Flush with ceiling
 - b) Special Areas =As required/check with Owner
- 31) **TELECOMMUNICATIONS:**
(Measured from floor to bottom of box) =1'-4" A.F.F.
- 32) **SOUND SYSTEM CALL SWITCHES:**
(Measured from floor to top of box) =4'-0" A.F.F.
- 33) **SMOKE/HEAT DETECTOR:**
- a) General Areas =Ceiling
 - b) Special Areas =As required/check with Owner
- 34) **LIBRARY SHELVING:** (Measured from floor to top)
- a) Grades PS,K,1,2,3,4,5,6
 - i. check-out desk =32" H
 - ii. easy books 14" deep =42" H (max.)
 - iii. reference 12" deep =36" H
 - iv. free standing 10" deep =48" H, wall shelving 10" deep, 72" H
 - b) Grades 7,8,9,10,11,12 and Adults
 - i. check-out desk =39" H
 - ii. reference 12" deep =42" H
 - iii. free standing 10" deep =84" H
 - iv. wall shelving 10" deep =84" H
- 35) **KITCHEN SERVING LINES:**
- a) Level Floor (Measured from floor to top of unit) =34"
 - b) Stepped Floor (Measured from lowest floor to top of unit) =36"

A. GENERAL

1. SUMMARY

- a. This section includes administrative provisions for coordinating construction operations on project including, but not limited to, the following:
- 1) Administrative and supervisory personnel.
 - 2) Project meetings.
 - 3) Pre-installation conference.
 - 4) Weekly progress meetings.

2. ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- a. In addition to the project superintendent, the Contractor shall provide other administrative and supervisory personnel as required for proper performance of the work.
- b. Within ten (10) days of starting construction operations, require the Contractor to submit a list of principal staff assignments, including superintendent and other personnel in attendance at project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to project.
- 1) Specify the Contractor to post copies of list in project meeting room, in temporary field office, and by each temporary telephone.

3. PROJECT MEETINGS

- a. Specify the Contractor shall schedule and conduct meetings and conferences at project site, unless otherwise indicated. The Contractor shall:
- 1) Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify the OCMAPS Program Manager, the Program Consultant, the I-89 School District and Architect of scheduled meeting dates and times.
 - 2) Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3) Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including OCMAPS Program Manager, the Program Consultant, the I-89 School District and Architect, within five (5) days of the meeting.
- b. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to OCMAPS Program Manager, Program Consultant, the I-89 School District, and Architect, but no later than fifteen (15) days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
- 1) Attendees: Authorized representatives of OCMAPS Program Manager, Program Consultant, the I-89 School District, Architect, and their consultants; Contractor and its superintendent; major subcontractors; shall attend the conference. Manufacturers; suppliers; and other concerned parties may attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the work.
 - 2) Agenda: Discuss items of significance that could affect progress, including the following:
 - a) Tentative construction schedule.
 - b) Phasing.
 - c) Critical work sequencing.
 - d) Designation of responsible personnel.
 - e) Procedures for processing field decisions and change orders.
 - f) Procedures for processing Applications for Payment.

- g) Distribution of the Contract Documents.
 - h) Submittal procedures.
 - i) Preparation of Record Documents.
 - j) Use of the premises.
 - k) Responsibility for temporary facilities and controls.
 - l) Parking availability.
 - m) Office, work, and storage areas.
 - n) Equipment deliveries and priorities.
 - o) First aid.
 - p) Student safety plan.
 - q) Security.
 - r) Progress cleaning.
 - s) Working hours.
- c. Preinstallation Conferences: Require the Contractor to conduct a preinstallation conference at project site before each construction activity that requires coordination with other construction.
- 1) Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect and Program Consultant of scheduled meeting dates.
 - 2) Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a) Contract Documents.
 - b) Options.
 - c) Related change orders.
 - d) Purchases.
 - e) Deliveries.
 - f) Submittals.
 - g) Review of mockups.
 - h) Possible conflicts.
 - i) Compatibility problems.
 - j) Time schedules.
 - k) Weather limitations.
 - l) Manufacturer's written recommendations.
 - m) Warranty requirements.
 - n) Compatibility of materials.
 - o) Acceptability of substrates.
 - p) Temporary facilities and controls.
 - q) Space and access limitations.
 - r) Regulations of authorities having jurisdiction.
 - s) Testing and inspecting requirements.
 - t) Required performance results.
 - u) Protection of construction and personnel.
 - 3) The Contractor shall record significant conference discussions, agreements, and disagreements.
 - 4) Specify the Contractor shall not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- d. Weekly Progress Meetings: Specify the Contractor shall conduct progress meetings at weekly intervals.
- 1) Attendees: In addition to representatives of the OCMAPS Program Manager, the Program Consultant, the I-89 School District, and Architect,

each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the work.

- 2) Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of project.
 - a) Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the contract time.
 - b) Review present and future needs of each entity present, including the following:
 - (1) Interface requirements.
 - (2) Sequence of operations.
 - (3) Status of submittals.
 - (4) Deliveries.
 - (5) Off-site fabrication.
 - (6) Access.
 - (7) Site utilization.
 - (8) Temporary facilities and controls.
 - (9) Work hours.
 - (10) Hazards and risks.
 - (11) Progress cleaning.
 - (12) Quality and work standards.
 - (13) Change orders.
 - (14) Documentation of information for payment requests.
- 3) Reporting: The Contractor shall distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
 - a) Schedule Updating: The Contractor shall revise Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

A. GENERAL

1. DESCRIPTION
 - a. Submittals: General term including samples, shop drawings and product data, as applicable and as defined by the bidding documents.
 - b. General Provisions:
 - 1) Provisions in this section are mandatory procedures for review, approval and submitting samples, shop drawings and product data in accordance with the General Conditions.
 - 2) Submittals which are received directly from sources other than through the Contractor's office will be returned to the Contractor "without action".
 - 3) Job delays occasioned by requirement of re-submission of samples, shop drawings and product data not in accord with Contract Documents and/or submittals sequenced contrary to the agreed schedule are Contractor's responsibility, and will not be considered valid justification for extension of contract time or increase in the contract sum.
2. SAMPLE PREPARATION
 - a. Require samples in sizes, shape and finish in accord with provisions of individual specification sections.
 - b. Samples are not to be confused with full size, on-the-site "Mock-Ups" called for in some specification sections.
 - c. Samples shall be submitted for the Architect's selection and approval in accordance with the Contractor's submittal schedule or sooner as needed to maintain construction progress. Approvals and color selections will not be made unilaterally where samples or selections of adjacent materials must be made for the purpose of aesthetics. The OCMAPS Program Manger will approve all colors before the Architect can take action.
3. SHOP DRAWING PREPARATION
 - a. Shop drawings shall conform to the following requirements:
 - 1) Sheets numbered consecutively.
 - 2) Working and erection dimensions and relationships to adjacent work Indicate.
 - 3) Show arrangements and sectional views, where applicable.
 - 4) Indicate material, gauges, thicknesses, finishes and characteristics.
 - 5) Indicate anchoring and fastening details, including information for making connections to adjacent work.
 - 6) Drawings provided are reproducible by normal blue printing; original and prints legible
 - 7) Indicate working and erection dimensions and relationships to adjacent work. Concurrent submittals of different aspects of work may be required by the Architect as deemed necessary to demonstrate Contractor's ability to understand these relationships and coordinate the Work.
 - 8) Provide 6" x 6" clean space in the lower right hand area for entry of approval stamps.
 - 9) Cross-reference drawing details and specification paragraphs applicable to the submittal data.
4. PRODUCT DATA PREPARATION
 - a. Product data shall include product manufacturer's standard printed material, dated, with product description and installation instructions indicated. Data not related to this project shall be deleted or marked "VOID" as applicable.
 - b. Shop Drawings shall include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. The following information shall be included:

- 1) Dimensions.
- 2) Identification of products and materials included by sheet and detail number.
- 3) Compliance with specified standards.
- 4) Notation of coordination requirements.
- 5) Notation of dimensions established by field measurement.
 - a) Submit one correctable, translucent, reproducible print and two blue- or black-line prints for the Architect's review. The Architect will return the reproducible print. The contractor shall make blue-line or black-line prints from the reproducible as followed:
 - (i) 1 set will be returned to the Architect.
 - (ii) 1 set shall be kept at the Contractor's field office as a "Record Document."
 - (iii) 1 set shall be submitted to the OCMAPS Program Manager.
 - (iv) The Contractor shall maintain one set of complete and approved submittals for transmittal to the School District upon completion of the project.
 - (v) The Contractor shall print additional sets as required for the Contractor's own use.
 - c. Printed material shall be:
 - 1) Legible.
 - 2) Sized no larger than 8-1/2" x 11", suitable for opaque reproduction.
 - 3) Stamped (either on a clean-area space or the reverse side) with the Contractor's approval action.
 - d. All submitted data shall bear the Contractor's approval action stamp plus his review notes, comments, and corrections as required.
5. CONTRACTOR'S REVIEW
 - a. Require the Contractor to review submittals and stamp with approval prior to submission to the Architect; Contractor's stamp shall bear the Contractor's name, the word "Approved", the signed initials of the approving agent, and the date of his approval action. By so noting, specify the Contractor indicates that he has reviewed and approves the materials, equipment, quantities and dimensions represented by the particular submittal.
 - b. Where work is indicated "By others", specify Contractor shall indicate responsibility for providing and coordinating such work.
 - c. Specify submissions made without Contractor's approval indicated thereon will be returned without being reviewed for compliance with this requirement.
 - d. Require the contractor to date each submittal and indicate name of Project, Architect, Contractor, and Subcontractor, as applicable, description or name of equipment, material or product and identify location at which it is to be used in the Work, and cross-reference to specific drawing and specification references.
 - e. Specify the Contractor accompany submittal with transmittal letter containing project name, Contractor's name, number of samples or drawings, titles and other pertinent data. Transmittal shall outline deviations, if any, in submittals from requirements of Final Plans and Specifications.
6. ARCHITECT'S REVIEW AND APPROVAL
 - a. Architect's Review will be in accordance with the General Conditions.
7. RESUBMISSION
 - a. Require the Contractor to make corrections and changes indicated for unapproved submissions and resubmit in same manner as specified above, until Architect's approval is obtained.
 - b. Specify in resubmission transmittal, the Contractor shall direct specific attention to revisions other than corrections requested by Architect on previous submissions, if any.

- c. Contractor shall be responsible for bearing all costs associated with the review and approval process of resubmitted (and/or substituted) submittal data.

8. SCHEDULE OF SUBMITTALS

- a. Specify the Contractor shall, within ten (10) calendar days following award of the Contract, submit his proposed schedule of submittals to the Architect for review.
- b. The purpose of the schedule shall be to:
 - 1) Demonstrate that all submittals, shop drawings, data, samples and mock-ups required for the work are addressed by the Contractor.
 - 2) Demonstrate consistency with the Contractor's proposed Construction Schedule.
 - 3) Assist the Architect in scheduling timely review/approval action of submittals.
- c. Specify the schedule shall contain the description of the submitted item, the proposed date of submittal and the proposed date of requested return by the Architect.
- d. After the Architect's receipt of the Contractor's submittal schedule, the Architect and the Contractor shall jointly review the schedule and mutually agree to acceptability or necessary modifications.

9. SUBMITTAL PROCEDURES

- a. The Contractor shall submit all interior color selection requirements at one time in one package.
- b. Specify Contractor shall submit all exterior color selection requirements at one time, in one package.
- c. To avoid the need to delay installation as a result of the time required to process submittals, specify Contractor allow sufficient time for submittal review, including time for resubmittals. Specifications shall direct contractor utilize a minimum time requirement as follows:
 - (1) Allow two (2) weeks for initial review. Allow additional time if the Architect must delay processing to permit coordination with subsequent submittals.
 - (2) Allow four (4) weeks for review and approval of the interior and exterior color selection submittal packages. The Contractor may request that the Architect approve the materials and the manufacturers before the final color selections are made.
 - (3) If an intermediate submittal is necessary, process the same as the initial submittal.
 - (4) Allow two (2) weeks for reprocessing each submittal.
- d. Specify no extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.
- e. Specify all submittals that are provided to the Architect for review should be "clean" (with minimal mark-ups by the Contractor) and if the Contractor has a substantial amount of mark-ups as a result of his/her review of the submittal, the submittal shall be returned to the sub-contractor for correction and resubmittal.

A. GENERAL

1. DESCRIPTION

- a. An independent testing laboratory will be provided by the OCMAPS Trust or the I-89 School District or their representative to inspect and test the materials of construction as hereinafter specified for quality assurance of the project and to perform such other specialized technical services as may be required by the OCMAPS Trust or the I-89 School District or their representative.
- b. The Contractor will pay for testing and retesting of materials that do not comply with the requirements of the Contract Documents.
- c. Tests and inspections shall be conducted in accordance with specified requirements, and if not specified, in accordance with the applicable standards of the American Society for Testing and Materials (ASTM) or other recognized and accepted authorities in the field.

2. AUTHORITIES AND DUTIES OF THE TESTING LABORATORY

- a. The Testing Laboratory shall attend pre-construction conferences with the Architect, OCMAPS Program Manager, the Contractor, and material suppliers, to coordinate materials inspection and testing requirements with the planned construction schedule. The Testing Laboratory will participate in such conferences throughout the course of the project.
- b. The Testing Laboratory will be responsible for outlining a written detailed quality assurance testing program and in consultation with the OCMAPS Program Manager and the Architect. The testing program will contain an outline of inspections and tests to be performed with reference to applicable sections of the specifications or drawings and a list of personnel assigned to each portion of the work. Such testing program will be submitted to the OCMAPS Program Manager and the Architect.
- c. The Testing Laboratory will notify the Architect and Contractor of observed irregularities and deficiencies of the work and other conditions not in compliance with the requirements of the Contract Documents.
- d. All reports shall contain at least the following information:
 - 1) Project Name
 - 2) Date report issued.
 - 3) Testing Laboratory name and address.
 - 4) Name and signature of inspector.
 - 5) Date of inspection and sampling.
 - 6) Date of Test.
 - 7) Identification of product and Specification section.
 - 8) Location in the project.
 - 9) Identification of inspection or test.
 - 10) Record of weather conditions and temperature (if applicable).
 - 11) Results of test regarding compliance with Contract Documents.
- e. The Testing Laboratory will send certified copies of test and inspection reports to the following parties:
 - 1) Two (2) copies to the OCMAPS Program Manager or his representative.
 - 2) Two (2) copies to the Program Consultant.
 - 3) Two (2) copies to the Contractor.
 - 4) One (2) copies to the Architect.

3. CONTRACTOR'S RESPONSIBILITY

- a. Specify the Contractor shall have the following responsibilities:
 - 1) Cooperate with the Testing Laboratory personnel, provide access to the work, and to manufacturer's operations.
 - 2) Provide to the Testing Laboratory representative, samples of materials proposed for use in the work in quantities sufficient for accurate testing as specified.

- 3) Furnish casual labor, equipment, and facilities as required for sampling and testing by the Testing Laboratory and otherwise facilitate all required inspections and tests.
 - 4) Be responsible for notifying the Testing Laboratory sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.
 - 5) Pay for any additional inspections, sampling, testing, and re-testing as required when initial tests indicate work does not comply with the requirements of the Contract Documents.
 - 6) Furnish and pay for the following items:
 - a) Soil survey of the location of borrow soil materials, samples of existing soil materials, and delivery to the Testing Laboratory.
 - b) Samples of concrete aggregates and delivery to the Testing Laboratory.
 - c) Concrete coring, tests of below-strength concrete, and load tests, if ordered by the OCMAPS Program Manager, Architect, and/or Engineer.
 - d) Certification of reinforcing steel mill order.
 - e) Certification of structural steel mill order.
 - f) Certification of Portland cement.
 - g) Certification of welders.
 - h) Tests, samples, and mock-ups of substitute material where the substitution is requested by the Contractor, and the tests are necessary in the opinion of the OCMAPS Program Manager, Architect, or Engineer to establish equality with specified items.
 - i) Any other tests when such costs are required by the Contract Documents to be paid by the Contractor.
 - 7) Be responsible for notifying the OCMAPS Program Manager, the Program Consultant, the Architect, the Engineer, and the Testing Laboratory when the source of any material is changed after the original tests or inspections have been made.
- b. If in the opinion of the OCMAPS Program Manager, the Architect or Engineer, any of the work of the Contractor is not satisfactory, the Contractor shall make all tests that the OCMAPS Program Manager, Architect or Engineer deem advisable to determine its proper construction.

A. **GENERAL**

1. SPECIAL INSPECTIONS

- a. Each facility shall be designed and constructed in compliance with most currently adopted edition of the International Building Code. Chapter 17, Structural Tests and Inspections; Section 1704, Special Inspections requires that a special inspector inspect certain elements of the work. The OCMAPS Trust will employ and pay for the services of independent individuals and/or firm, to perform special inspections of the on-site project inspections in compliance with the code.
- b. Require the Contractor coordinate and provide all necessary assistance to the special inspector in compliance with the inspection requirements of the code. Specify the Contractor will notify the special inspector, a minimum of forty-eight (48) hours prior to inspection of those elements of work specified by the code.

2. BUILDING PERMIT REQUIREMENTS

- a. The Architect will submit a statement of special inspections required with the application for construction permit. The statement shall include a complete list of materials and work requiring special inspection, and the approved agencies and/or firms intended to be retained for conducting the special construction inspections. The Contractor must provide a list of all fabricator's independent quality control agencies to incorporate into the submissions to the code official, Architect and to the OCMAPS Program Manager.

3. REPORT REQUIREMENTS BY THE SPECIAL INSPECTOR

- a. Special inspectors will record and maintain records of all inspections. Reports shall be furnished to the code official, the OCMAPS Program Manager and the Architect.
- b. The special inspector will provide to the Contractor, code official, Architect and the OCMAPS Program Manager a report of all items found not to be in compliance to the code and contract documents. A final report of inspections documenting completion of all required special inspections and correction of any discrepancies noted in the inspections shall be submitted to the code official, the OCMAPS Program Manager and the Architect prior to the issuance of a Certificate of Occupancy. Section 1704.1.2 outlines the records responsibility of the code official.

4. REQUIRED INSPECTION

- a. Inspection of the contractor's fabricator(s):
 - 1) Fabrication of structural load bearing members and assemblies performed on the premises of a fabricator's shop shall have special inspection (see exceptions).
 - 2) The special inspector will verify that the contractor's fabricator maintains detailed fabrication and quality control procedures that provide a basis for inspection control of the workmanship and the contractor's fabricator ability to gain compliance with the contract documents and referenced standards. The inspection will be examining the items for completeness and adequacy relative to the code requirements for the contractor's fabricator scope of work.
- b. Exceptions to a special inspector at a fabrication shop:
 - 1) Special inspections are not required when the Contractor's fabricator has contracted an approved independent inspection or quality control agency to conduct periodic in-plant inspections at the fabricator's plant. Frequency of the inspection will assure that the contractor's fabricator conformance to the requirements of the inspection agency's approved quality control program. This program must be submitted to the special inspector for review.

- 2) The Contractor's steel fabricator must submit a detailed procedure to the approved special inspector and code official for material control which demonstrates the fabricator's ability to maintain suitable records and procedures, such that, at any time during the fabrication process, the material specification, grade and mill test reports for the main stress-carrying elements and bolts can be determined. The steel products should not be incorporated into the work until acceptance of submitted procedure.
- c. Exceptions to steel fabrication: Special inspection of steel fabrication process is not required when the contractor's fabricator does not perform the following:
 - 1) Welding.
 - 2) Thermal cutting.
 - 3) Heating operation of any kind as part of the fabrication process.
- d. Inspections during construction:
 - 1) Metal structures:
 - a) All main stress-carrying elements, welding material and bolting material shall conform to Table 1704.3 prior to erection.
 - b) Special inspections are required for bolts, welding and details as specified below:
 - (1) Installation of high strength bolts: Inspection shall be as specified in Section 8 of the AISC Specifications for Structural Joints Using A325 or A490 bolts listed in Appendix A.
 - (2) Welding inspection shall be in compliance with Section 6 of SWS D1.1 listed in Appendix A. Weld inspectors shall be certified in accordance with AWS D1.1 listed in Appendix A.
 - (3) The special inspector shall perform an inspection of the steel frame to verify compliance with the details shown on the approved drawings, such as bracing, stiffening, member locations and proper application of joint details at each connection.
 - c) Concrete construction:
 - (1) In the absence of sufficient data or documentation providing evidence of conformance to quality standards for materials in Chapter 3 of ACI 318 listed in Appendix A, testing shall be required of materials in accordance with the appropriate standards and criteria for the material in Chapter 3 of ACI 318. The testing of materials shall be performed by the OCMAPS Trust's independent testing lab.
 - (2) The location and installation details of reinforcing and pre-stressing steel shall be inspected for compliance with the approved drawings, specifications and ACI 318 (as Section 7.4, 7.5, 7.6 and 7.7).
 - (3) Forms for concrete, if used, shall be inspected for compliance with section 6.1 of ACI 318 listed in Appendix A, and with any additional design requirements specified on the approved plans and specifications. Inspection of form removal and restoring shall be conducted to verify compliance with Section 6.2 of ACI 318.
 - (4) During placing and curing of the concrete, the following special inspections shall be performed.

- (a) Evaluation of concrete strength, except as exempted by section 1905.6.3.3 of the BOCA Code (ACI 318 section 5.6).
- (b) Inspection for use of proper mix proportions and proper mix techniques (ACI 318, sections 5.2, 5.3, 5.4 and 5.8).
- (c) Inspection during concrete placement, for proper application techniques (ACI 318, section 5.9 and 5.10).
- (d) Inspection for maintenance of specified curing temperatures and techniques. (ACI 318, sections 5.11, 5.12 and 5.13).
- (5) Exceptions to concrete construction: Special inspection shall not be required for the following:
 - (a) Concrete footings of buildings three stories or less in height which are fully supported on the earth or rock.
 - (b) Nonstructural concrete slabs supported directly on the ground, including prestressed slabs on grade, when the effective prestress in the concrete is less than 150 psi.
 - (c) Plain concrete foundation walls constructed in accordance with Table 1805.5(1), 1805.5(2), 1805.5(3) and 1805.5(4).
- (6) Precast/prestressed concrete:
 - (a) Special inspections of precast/prestressed concrete structural members can be done by the Contractor's fabricator independent quality control inspector, as long as the structural members are inspected as fabricated items, and comply with Article 4.b of this section.
 - (b) Inspection during the application of prestressing forces shall be performed to determine compliances with section 18.18 of ACI 318.
 - (c) Inspection of the manufacture of precast concrete shall be in accordance with PCI MNL 116 and 117.
 - (d) Erection of precast concrete shall be inspected for compliance with approved plans and erection drawings.
- e. Masonry construction: The following special inspections for masonry construction shall be as follows in accordance with ACI 530/ASCE 6:
 - 1) Material (ACI 530.1/ASCE 6, section 2.2).
 - 2) Masonry strength (ACI 530.1/ASCE 6, 1.6).
 - 3) Construction operations:
 - a) Proportioning, mixing consistency of mortar and grout (ACI 530.1/ASCE 6, section 2.6A).
 - b) Application of mortar grout and masonry units (ACI 530.1/ASCE 6, section 3.5).
 - c) Condition, size, location and spacing of reinforcement (ACI 530/ASCE 6, section 1.12).
 - d) Protection of masonry during cold weather, temperature below 40F; or hot weather, temperature above 90F (ACI 530.1/ASCE 6 section 1.8).
 - e) Anchorage (ACI 530.1/ASCE 6 sections 1.15.4 and 2.1.2).

- 4) Exceptions to masonry construction:
 - a) Special inspection shall not be required for foundation walls constructed in accordance with Table 1805.5(1), 1805.5(2), 1805.5(3) and 1805.5(4).
- f. Pile foundations:
 - 1) The following special inspection of pile foundations are required:
 - a) The special inspector shall be present when pile foundations are being installed or during tests. Reference International Building Code section 1704.8.
 - b) The special inspector shall submit detailed records of the installation of each pile and the results of load tests. Records shall include the cutoff and tip elevation of each pile relative to a permanent reference.
- g. Special cases: Special inspections shall be required for proposed work which is, in the opinion of the code official, unusual in its nature. The Contractor, Architect, OCMAPS Program Manager and/or special inspector can bring any items to the attention of the code official that they feel might require special inspections.
 - 1) Construction of materials and systems which are alternatives to materials and systems prescribed by the International Building Code.
 - 2) Unusual design applications of materials described in the International Building Code.
 - 3) Materials and systems required to be installed in accordance with additional manufacturer's instructions that prescribe requirements not contained in the International Building Code or in standards referenced by the International Building Code.

A. GENERAL

1. FACILITIES

- a Temporary Offices:
 - 1) Require the Contractor to provide temporary office facilities complete with lighting, heating and air conditioning and telephone service. Require the Contractor to provide space for the inspection, design and OCMAPS Program staff in the temporary office facilities.
 - 2) Location of temporary office shall be subject to Architect's, OCMAPS Program Manager's and I-89 School District acceptance.
- b Specify the Contractor to provide temporary electrical service, including extensions and connections necessary for construction work, pay costs of installing and maintaining service for duration of project, and pay for the costs associated with use of permanent electrical system until date of substantial completion.
- c Require the Contractor to provide ventilation sufficient to prevent accumulation of dust, fumes or gases and to properly cure materials and disperse humidity.
- d Require the Contractor to provide temporary telephone service to temporary offices for duration of project and pay the costs for installation and for local services.
- e Require the Contractor to provide temporary water for construction purposes, including extensions and connections necessary for work, pay the costs of installation and maintaining service for duration of project, and pay costs associated with use of permanent water system until date of substantial completion.
- f Require the Contractor to provide and maintain temporary toilet facilities for construction personnel. Permanent new facilities may not be used by contractor personnel, and during work at existing facilities, under no circumstances will workmen be allowed to use any student or teacher toilet facility within the building.
- g Specify where work is performed with in an existing building, water, electrical and gas will be paid for by the I-89 School District (where possible to use convenience outlets with-in the building without disturbing school operations). Power for temporary office trailers shall be paid for by the Contractor.
- h At completion of work, or at time of permanent utility connections, as applicable, require the contractor to remove temporary facilities, including connections and debris resulting from temporary installation.

2. STAGING AREA

- a The Contractor shall be responsible for establishing staging areas with in the designated limit of work area for this Contract no staging or materials storage will be permitted outside the limit of work area.
- b Specify the Contractor is solely responsible for all security, protection, safeguards, etc. of materials and personnel within the established staging area (areas).

3. TEMPORARY CONTROLS

- a Require the Contractor to make every effort to effect a satisfactory noise abatement program during school hours. Require the use sound deadening materials where required to reduce disturbances to classroom in session.
- b Where cutting or removing materials which will generate dust and dirt, require the Contractor to provide temporary dust curtains, solid barricades, or the like, to retain and control dust relative to the area in which work is occurring and clean areas of dust so as not to allow its spread by pedestrian traffic.

4. EXISTING BUILDING AND PARTIALLY OCCUPIED NEW BUILDING SECURITY

- a Specify Contractor is responsible for operating in a manner that will maintain the security of the existing building and its contents.
- b Require the Contractor to restrict personnel to areas of each facility where their presence is required by the work to be performed. The Contractor's personnel shall not fraternize with students and school personnel.

- c Require any temporary barriers between new work and existing must be secured with solid temporary walls.
 - d Required emergency exit ways shall be maintained at all times.
 - e Should the Contractor work in the existing building at times that school personnel are not present, Contractor shall be made responsible for the security of the building. Before leaving, Contractor shall check all doors, windows, etc. to be certain that they are closed, locked and secure. Contractor shall leave premises in a condition to allow normal operation of school functions.
5. PROJECT SIGNS
- a Specify the Contractor shall provide one (1) Architect's project sign, size 4' x 8', in location designated by the Architect, so as not to hinder the progress of the Work, and maintain sign for the duration of construction.
 - b Sign shall be as per template illustrated in Figure 1, attached. All proposed sign layouts, all wording and names shall be submitted for approval by the OCMAPS Program Manager prior to fabrication.
 - c Sign shall be painted with a minimum of two (2) coats of exterior paint. Specify the Contractor shall employ a professional sign painter to paint all lettering and graphics.

Note: This sign needs to be edited and approved before installation.

FIGURE 1.
 CONSTRUCTION SIGN TEMPLATE

TOGETHER WE ARE BUILDING A BRIGHT FUTURE FOR OUR CHILDREN

Project Title

Architect

Architect Logo

General Contractor

Contractor Logo

Program Consultant



OKLAHOMA CITY METROPOLITAN AREA PUBLIC SCHOOLS TRUST

Chairman: Carl E. Edwards, Jr.

Trustees: J.W. Mashburn
 Caryl D. Decker
 Patrick T. Rooney

Anthony M. Francisco
Claudia San Pedro
Valerie R. Thompson



The City of OKLAHOMA CITY



Mayor: Mick Cornett

City Council: Gary Marrs
 Sam Bowman
 Larry McAtee
 Pete White
 J. Brian Walters
 Margaret S. "Meg" Salyer
 Ronald "Skip" Kelly
 Patrick J. Ryan

City Manager: James D. Couch
City Engineer: Dennis Clowers, P.E.
Program Manager: Eric J. Wenger, P.E.

Board Chairperson: Angela Z. Monson

Board of Education: Lyn Watson
 Gail Vines
 Phil Horning
 Steve Shafer
 Ruth Veales
 David Castillo
 Ron Millican

District 1
District 2
District 3
District 4
District 5
District 6
District 7

Superintendent: Karl Springer

A. GENERAL

1. PURPOSE AND SCOPE

- a. The Contractor will be responsible for creating a safe and healthy workplace for all of its personnel and the I-89 School District's personnel and students. It is the purpose of this Program to:
 - 1) Abide by all local, state, federal regulations and I-89 School District procedures.
 - 2) Apply good sense and safety practices to the project.
 - 3) Exercise good judgment in the interpretation of this guidance Program.
 - 4) Protect the public from any and all health hazards, which result from the construction operations.
- b. A Student and Site Safety Program (SSSP) shall incorporate:
 - 1) The unique safety requirements at each site.
 - 2) Procedures in case of an accident, hazard, or emergency.
 - 3) A plan for ensuring the safety and well being of the students, faculty and I-89 School District personnel.
 - 4) A plan for personnel's safety on the jobsite.
- c. The Contractor will be made responsible for initiating and administering the SSSP.
- d. The SSSP for each project will be subdivided into the following sections:
 - 1) General Statement of Safety Policy
 - 2) School Administration / Student Awareness
 - 3) Responsibilities / Implementation / Accident Prevention
 - 4) Site Specific Requirements for Contractor Operations
 - 5) Fire / Hazardous Material / Building Collapse / Explosion Procedures
 - 6) After hours Site Access and Security Plan
 - 7) Reporting / Recording of Safety Related Issues
- e. The Contractor shall develop jobsite personnel policies that include:
 - 1) Appropriate dress.
 - 2) Appropriate language.
 - 3) Prohibiting interaction with students and school personnel.
 - 4) Background checks on construction personnel
 - 5) Daily reports / notices regarding how many construction employees are on site, when, where and what time they left the site.
 - 6) No drugs, alcohol or smoking on school grounds. Policy for use of radios/other entertainment devices.
 - 7) Notification of power and utility outages, special conditions outside of construction areas.
 - 8) Crane or lifting equipment - swing or back-up protection.
 - 9) Daily clean up in all co-utilized areas of school building and grounds.
- f. All contractor employees are required to comply with the provisions of the SSSP when working at the jobsite. Employees unwilling or unable to comply with any provision of the SSSP, which applies to their work, shall not be allowed on the jobsite.
- g. For Contractor's use in the SSSP, several telephone numbers are listed below. The Contractor shall confirm these phone numbers at the start of the project and update the phone numbers as required.

Police, Fire, Ambulance, Chemical Spills	911
Oklahoma City Public School Control Room	427-0027
Sheriff's Department	236-1717
Oklahoma State Bureau of Investigation	848-6724
Municipalities:	
Oklahoma City	297-2535
Midwest City	732-2281
Nichols Hills	843-6637
Spencer	771-3226
Village	751-8861
Utilities:	
ONG	551-4000
OG & E	272-9595
OKC Water / Sanitation	297-3334
SW Bell Telephone	(800) 286-8313
National Weather Service	360-5928
American Red Cross	232-7121
Oklahoma County Emergency Management	713-1360

2. STUDENT AND CONTRACTOR'S SAFETY PROGRAM IMPLEMENTATION GUIDELINES
 - a. It is the responsibility of the Architect to engage the school administration and I-89 School District to discuss and prepare a SSSP that provides for the minimum requirements listed in this Section.
 - b. A copy of the SSSP will be issued to the School Administrator, OCMAPS Program Manager, I-89 School District and the Architect, to be placed in the project files.
 - c. Contractor will be required to adhere to plan.

3. EMERGENCY EGRESS
 - a. Procedures for identifying and providing and re-evaluation due to construction activities of emergency egress should be developed to include but not limited to the following:
 - 1) A primary and alternate egress route must be created and maintained for every room occupied by students and staff. This includes rooms that may be used intermittently throughout the day.
 - b. Primary and secondary emergency evacuation locations should be identified. These locations, where possible, should provide shelter to students and staff. They must also provide access for school administrators to communicate with the superintendent's office, the emergency command center and OCMAPS Office.

4. CONTRACTOR'S RESPONSIBILITY FOR VISITORS
 - a. The Contractor with the OCMAPS Program Manager, and the I-89 School District will develop policies and procedures for visitors to follow when on the construction site that conforms to the site-specific SSSP requirements at that jobsite. The items listed below should be included but not limited to the following:
 - 1) Procedures for notifying the Contractor, OCMAPS Program Manager, I-89 School District and/or Architect regarding site visitation.
 - 2) Signs should be posted at the main entrance informing visitors that they must stop at the front desk to sign in and show photo identification. The signs should also inform visitors that failing to follow these guidelines might result in their removal from the building.
 - 3) A visitor entering the building or construction site will be required to provide at least one (1) item of valid photo identification. The name, date, time, and destination of the visitor will be recorded in the logbook along with the visitor's signature. The visitor shall be required to sign out at the logbook when leaving the premises.

Visitors will wear or display their visitor badge at all times while they are in the

- building. Contractor will provide personal protective equipment as required.
- 4) A construction staff person should be assigned the duty to check the logbook periodically to ensure that no one remains in the building or construction area for an unauthorized period of time. In such an instance, it should be verified if the visitor is still in the building. If the verification cannot be made, the I-89 School District shall be notified for possible implementation of an intruder alert or search.
 - 5) It is incumbent upon the construction personnel to be aware of visitors that do not have an appropriate pass for designated area or have no visitor's pass at all. Where feasible, personnel should approach such persons and request that they return to the main office to properly check in. Personnel should then notify the Contractor management personnel.
 - 6) A visitor is required to be accompanied at all times by an authorized personnel informed / trained in the SSSP.
 - 7) If visitor is on site for an extended amount of time, develop procedures for issuing and training the visitor as to the SSSP requirements.
5. SITE ACCESS
- a. The Contractor shall review site layout with Architect, OCMAPS Program Manager, and I-89 School District (i.e. trailers, tools and equipment, access and egress, additional fire prevention and protection devices).
 - b. Separate construction traffic and entrances from school traffic and entrances.
 - c. New school construction – separate site access from residential traffic.
6. BUILDING ACCESS
- a. No construction personnel shall be in occupied areas of a school without prior authorization and badge.
 - b. All construction workers shall have proper school authorized badges
 - c. Contractor shall be required to:
 - 1) Construct and maintain construction entrances and exits
 - 2) Prepare, communicate and maintain a fire prevention procedures plan (i.e. as an attachment to subcontracts/ purchase orders, weekly safety meeting agenda item, quitting time walk through)
 - 3) Prepare, communicate and maintain a fire, hazardous materials, building collapse, explosion procedures plan (i.e. attachment to subcontracts, weekly safety meeting agenda item)
7. SITE POLICIES
- a. Require the Contractor develop policies and incorporate into the SSSP items listed below but not limited to following:
 - 1) Identification badges for construction employees and other associated personnel to be worn at all times. A person from the contractor staff should be assigned to monitor all construction personnel to ensure compliance.
 - 2) Establishment of sign-in procedures when working inside the school building or designated restricted areas.
 - 3) Designation of construction personnel parking areas.
 - 4) Designation of construction personnel / delivery entrances and exits.
 - 5) Clarification of construction and school working hours. (Identification of specific times and locations when work can not be performed)
 - 6) Designation / Clarification of areas of the building that are restricted areas or areas that require specific safety / protection requirements.
 - a) Establish prior notice duration before certain construction activities may be preformed
 - b) Establish specific work hours a construction activity may be required to be preformed
 - c) Identify construction activities that require supervision due to proximity or interaction with student activities.

- d) Discuss daily clean-up requirements and other expectations.
- e) Requirements for special devices or temporary construction should be discussed. (ventilation, hearing / eye protection, temporary construction protection barriers – fixed/hard, caution tape and warning signs)
- 7) Specific procedures for the delivery, storage and transport of construction supplies and/or equipment. (Identify procedures for protection, maintenance and acceptance of Contractor and I-89 School District supplied material or equipment)
- b. Develop and assign responsibilities for providing a safety awareness program for the School Administration and staff.
- c. Develop procedures for evacuation of limited mobility students to include but not limited to the following:
 - 1) Construct and maintain egress and access entrances to provide safe use by limited mobility students.
 - 2) Develop egress routes from the building and predetermined evacuation areas outside of the building, where applicable.
- d. Develop written procedures for Fire, HazMat (Hazardous Material) / Building Collapse / Explosion to include but not limited to the following:
 - 1) Develop procedures for chain of communication and responsibilities if a construction related accident does occur on site.
 - 2) Notification to School Administration, School Superintendent, OKC Police and Fire Departments, and OCMAPS Program Manager and should be done immediately.
 - 3) Building walk through shall be conducted twice daily (one at the beginning of the shift and one at the end of the shift) by the Contractor with particular attention given to the presence of fire hazards, proper equipment, access to fire doors, and visibility of signs.
- 8. CONTRACTOR SAFETY PROGRAM
 - a. The Contractor will have a copy of the SSSP available to all subcontractors / suppliers employees at that jobsite.
 - b. The Contractor should develop procedures for the Contractor and subcontractor's personnel covering safety of the jobsite. Suggested items include:
 - 1) Project Procedures
 - 2) Hazardous Communication Program
 - 3) OSHA Log for Project
 - 4) OSHA form (or equivalent) for reporting accidents at the site
 - 5) Required Signs (Hard Hats, No Trespassing, Danger, Caution, etc.)
 - 6) Appropriate MSDS for materials onsite
 - c. The Contractor is responsible for ensuring that onsite personnel use protective equipment suitable for their assigned task.
 - 1) Hard Hats
 - 2) Safety Glasses
 - 3) Ear Plugs
 - 4) Respirators
 - 5) Safety harness, lifeline, and lanyards or nets
 - 6) Flashers, signals, barricades, and reflective clothing for traffic controls
 - 7) Any other special equipment for personal protection
 - d. The Contractor shall be required to have emergency needs. Items such as the following on the job site:
 - 1) First Aid Kit
 - 2) Fire Extinguishers
 - 3) Emergency Aide Devices
- 9. The Oklahoma City Public Schools (OCPS) SSSP includes procedures for Fire, Hazardous Material Accident and Utility Problems. The procedures are included below for discussion with the

School Administration to allow for understanding of the Schools procedures in case of an emergency and to assign any certain responsibilities in case of a construction incident.

- a. Fire Procedures
 - 1) Pull the nearest fire alarm or call the office on the intercom to sound the alarm. Call an "all school evacuation".
 - 2) Call 911. Contact the Administrator on duty and campus resource officer, if available. Call the OCPS Control Room, 427-0027.
 - 3) If possible shut all the doors around the fire to contain it.
 - 4) Attempt to put the fire out only if you are trained in the use of a fire extinguisher and if the fire is in its beginning stages.
 - 5) Evacuate the building according to predetermined procedures. Give consideration to wind direction. Do not remain in, or move to, an area downwind from the fire. Move at least 300' away from the building.
 - 6) If you are unable to evacuate the building, seek a safer area as far from the fire as possible. Seal all doors and vents with cloth or other materials. Do whatever you can to communicate your location to rescue personnel.
 - 7) Teachers should take attendance and report any missing students to the Administrator.
 - 8) If safety permits, appointees should check bathrooms and unoccupied rooms.
 - 9) The Administrator on duty should have available to the Fire Department: the custodian, location of fire, knowledge of missing people, all building keys and a floor plan of the building.
 - 10) Make sure the Superintendent Liaisons Office is notified 587-0069.
 - 11) Return students to the building only on advice of Fire Department personnel. Attendance should be taken after returning to the room.
 - 12) Refer all media to the I-89 School District's Communication Director 587-0227.
- b. Hazardous Material Accident
 - 1) Initiate evacuation of the building according to the fire procedures. Give consideration to the wind direction. Do not remain in, or move to and area downwind from the hazardous material.
 - 2) Contract the Administrator on duty and campus resource officer, if available. Call 911 and the Control Room 427-0027.
 - 3) If you are unable to evacuate the building, seek a safer area as far from the hazardous incident as possible. Seal all doors and vents with cloth or other materials. Do whatever you can to communicate your location to rescue personnel.
 - 4) Make sure heating and air conditioning units are tuned off.
 - 5) The Administrator on duty should have available to the Fire Department: the custodian, location of fire, knowledge of missing people, all building keys and a floor plan of the building.
 - 6) Make sure the Superintendent Liaisons Office is notified 587-0069.
 - 7) Refer all media to the I-89 School District's Communication Director 587-0227.
- c. Utility Problems – Gas Leak or Electrical failure / Down Power lines
 - 1) Contract the Administrator on duty and campus resource officer, if available.
 - 2) Clear the area of all students and staff.
 - 3) Call 911, if fire or safety hazard is evident.
 - 4) Call the OCPS Control Room at 427-0027. They will contact all the necessary emergency responders.
 - 5) If necessary, call a "Secure in Place" alert to lock down the building until safety hazard is removed, or if warranted evacuate the building keeping students and personnel away from hazards.
 - 6) Have the custodian available when emergency personnel arrive.
 - 7) Make sure the Superintendent Liaisons Office is notified 587-0069.
 - 8) Refer all media to the I-89 School District's Communication Director 587-0227.

B. EXECUTION

1. CONTRACTOR MANAGEMENT SSSP RESPONSIBILITIES
 - a. Initiate the SSSP discussions with the Architect, OCMAPS Program Manager, Program Consultant and the I-89 School District and submit the SSSP to the Architect and OCMAPS Program Manager, the Program Consultant and the I-89 School District for review and acceptance.
 - b. Establish rules and programs designed to promote student safety and make known to all employees the established rules and safety policy.
 - c. Specify the Contractor shall record all instances of violations and investigate all accidents.
 - d. Specify the Contractor shall conduct safety inspections, maintain records, and continually monitor the SSSP for effectiveness.

2. CONTRACTOR FIELD PERSONNEL RESPONSIBILITIES
 - a. Require the Contractor
 - 1) Review accidents, supervise correction of unsafe practices, and file accident reports.
 - 2) Contractor to notify Architect, OCMAPS Program Manager, Program Consultant and I-89 School District in writing of all safety violations / incidents.
 - 3) Ensure safe performance by others present on the site, including the general public, visitors, and the employees of other contractors/suppliers.
 - 4) Comply with all local, state, and federal regulations.
 - b. The Contractor should take the following steps to implement an Accident Prevention Program:
 - (1) Each subcontractor/supplier will participate in a "kickoff meeting" prior to mobilizing onsite. At the kickoff meeting, the assignment of responsibility for the subcontractor/supplier safety will be reviewed, and coordination with other subcontractors and other work at the site will be emphasized.
 - (2) Safety topics will be on the agenda for the weekly subcontractor/supplier meetings onsite. Agenda topics will include safety reporting, upcoming work activities that may create coordination or safety issues with others working on the site, and a review of any special safety considerations from other parties.
 - (3) Changes in the safety requirements during the course of the project will be communicated in writing. The Contractors project management team will ensure that subcontractors acknowledge receipt of the revised safety requirements in writing.
 - (4) Accident investigations will be submitted by the Contractor. They will then be compiled and sent to the Architect. The report will include all of the information required by OSHA, and any other information considered relevant to the cause, conditions, or work practices leading to the accident. The write-up will include a corrective action for the individuals and companies involved in an effort to prevent a recurrence.

The following document is to be used in the naming of facilities and district property for all Oklahoma City Metropolitan Area Public School District projects.

The general conditions provided in this document are not to be modified without the written consent of the OCMAPS Project Manager. The document is also periodically updated, and each Architect must coordinate with the OCMAPS Project Manager to ensure the latest version is being utilized on the project.



OKLAHOMA CITY PUBLIC SCHOOLS
P.O. Box 25428, Oklahoma City, Ok 73125-0428

Educating Students for Life-Long Learning and Responsible Living

Regulation: EL-9-B

Effective Date: _____

NAMING FACILITIES AND DISTRICT PROPERTY

The Board shall be responsible for all decisions relative to the naming of all schools and all district owned facilities. The individual schools will be responsible for naming buildings, on school property, subject to the provisions outlined herein.

For a person's name to be considered for a school, he or she shall have been outstanding in school activities, or outstanding in furthering the cause of better schools in the Oklahoma City Public School District, or an outstanding citizen of the City and deceased or retired from active participation in community or school affairs. Schools and facilities shall not be named after current employees or sitting School Board Members.

NEW FACILITIES

The Board shall be responsible for naming all new district facilities. The Board shall also be responsible for all decisions relative to formal recognition plaques or other forms of permanent recognition for the donation of real property, by private sources, including those items acquired by the district from donated funds.

New facilities shall have a dedication plaque placed in an appropriate public location to commemorate the construction project. Dedication plaques shall be made of cast bronze, approximately 20" x 24" in size, and shall include the following information: The name of the facility, the year built or renovated, the name and district of the members of the Board of Education, the name of the CEO, the architectural firm's name and the construction contractor's name. The design of the plaque shall be developed by the project architect as a part of the construction documents.

The names of the Board members and the CEO shall be those who were in office when the construction project was approved by the voters and those Board members who were in office when the construction was completed. If no public vote was required, the names shall include those persons in office when Board approval for construction was granted and those Board members who were in office when the construction was completed.

EXISTING FACILITIES

The Board shall be responsible for changing the name of any school or district owned facility. The following procedures shall be followed by any person, or group, who wishes to have the name of a specific school, or District owned facility, changed:

- 1) Any party, or group, who wishes to have a school, or district owned facility, named after an individual, must file an application with the CEO. The application must contain the following information:

- A) The name of the person and biographical information regarding the person. The application should also contain information which indicates the contributions made to the district, or to the community, by this individual.
 - B) The application should be accompanied by at least 3 letters of support for the request.
- 2) The Board will consider all such applications during open Board meetings.

SITES LOCATED ON SCHOOL GROUNDS

The Individual school sites shall be responsible for naming buildings or rooms on those sites. Each building shall establish a school names committee which is composed of five (5) building staff members. The committee shall include at least one (1) building administrator, two (2) teachers and two (2) support staff members. Service on this committee shall be voluntary.

All request for names and name changes must be submitted to the school names committee, at the various schools, and once a change has been made, the committee shall advise the CEO and the Board of the name change.

A. GENERAL

1. REQUIREMENTS INCLUDED
 - a. Require the Contractor maintain at Project Site, one (1) record copy of:
 - 1) Drawings.
 - 2) Project Manual/Specifications.
 - 3) Addenda.
 - 4) Change Orders and other Modifications to Contract.
 - 5) Architect's Supplemental Instructions (ASI's) or written instructions.
 - 6) Approved and Approved As Noted Shop Drawings, Product Data and Samples.
 - 7) Field Test Records.
 - b. Require the Contractor make Record Documents available to Architect and the Program Manager.
 - c. Require the Contractor submit final Record Documents with Closeout Documents.
2. RECORD DOCUMENTS
 - a. Field Record Drawings: One (1) complete set of Drawings upon which all changes to Work are recorded daily with red ink to provide accurate, factual information relative to Work as constructed, both visible and concealed. Entries shall be made on line prints provided by Architect. The Contractor shall mark each sheet with a red ink rubber stamp reading "Record Drawings".
 - 1) Identify entry by "cloud" type circle around affected Work. Initial and date each entry.
 - 2) Record the following:
 - a) Horizontal location and elevation of underground portions of Work.
 - b) Location, size and arrangement of concealed mechanical and electrical portions of Work, including conduit, piping, valves, ductwork, outlets, and equipment.
 - c) Location, size and arrangement of exposed mechanical and electrical portions of Work.
 - d) Changes and corrections to dimensions.
 - e) Changes to materials, products, equipment and finishes.
 - f) Changes and deviations in Work from that indicated in Contract Documents.
 - g) Identify equipment, valves, piping, conduit, fixtures and devices using symbols and designations corresponding to those used in Contract Documents.
 - h) Invert elevations for all below-grade outside utilities with reference to permanent above-grade objects.
 - i) Identify a permanent benchmark located by a Global Positioning System (GPS).
 - b. Field Record Specifications: One (1) complete set of Project Manual/Specifications within which changes to materials, products, equipment, and systems are recorded; also, note which specified manufacturer was used. Corrections will be made with red ink and mark the Manual "Record Specifications" on outside back binding.
 - c. Final Record Subcontractors: Provide a list of all the subcontractors, their addresses, and a contact person who worked on the project. List each subcontractor's responsibilities.

A. GENERAL

1. APPLICABILITY

- a. The commissioning process described herein applies to new construction and major renovations and to all systems and assemblies, not just HVAC.
- b. Architect shall specify commissioning as applicable to the building as a total system, which includes:
 - 1) Life Safety features
 - 2) Electrical Systems
 - 3) Communication Systems
 - 4) Plumbing
 - 5) Irrigation
 - 6) Controls and/or Building Automation System
 - 7) HVAC Systems

2. COMMISSIONING PLAN

- a. The Commissioning Plan shall provide the structure, schedule and coordination planning for commissioning. The Commissioning Plan shall include details of the following:
 - 1) Commissioning Scope
 - 2) Systems to be commissioned
 - 3) Rigor of commissioning
 - 4) Team contact information
 - 5) Roles and responsibilities of all parties
 - 6) Communication and reporting protocols
 - 7) Commissioning overview and details of submittal activities
 - 8) Construction observation, check list, and start-up activities
 - 9) Process for dealing with deficiencies
 - 10) Test procedure development and execution
 - 11) Operations and maintenance (O&M) manual review and training issues
 - 12) Warranty period activities
 - 13) Description of summary report, progress and reporting logs, and initial schedule (including phasing, if applicable)

3. BID DOCUMENTS

- a. Architect to integrate commissioning requirements in the construction documents. Designate the Construction Specifications Institute (CSI) Construction Specification Section 01810 in Division 1 for general commissioning requirements.
- b. Use the unassigned Sections 01811 through 01819 to address requirements specific to individual systems.
- c. Notify the mechanical and electrical subcontractors of Division 15 and 16 commissioning requirements in Sections 15995 and 16995.

B. COMMISSIONING ACTIVITIES

1. PERFORMANCE TEST

- a. The Contractor shall be responsible to perform all tests procedures required in order to certify that all systems are functioning as designed and according to manufacturer's requirements.
- b. Performance test(s) shall be completed prior to final Commissioning procedures.

2. TEST REQUIREMENTS

- a. The Architect shall specify all test requirements to be performed by the Contractor.
- b. The Contractor shall establish that requirements have been met using test procedures that are satisfactory to the Architect/Engineer.

3. TRAINING
 - a. Training of School District personnel will be performed by the Contractor (appropriate entity) for each building system, sub-system or assembly as required.
 - b. Scheduling of training will be determined by the School District. The School District will determine the schedule for all training activities to take place based upon the number of personnel to be trained and School District hours of operation.
 - c. Coordination of Training events shall be accomplished by the Contractor in conjunction with the School District. In some cases, more than one training session may be required to train all personnel on a particular building system.
 - d. Notification of upcoming training events shall be the responsibility of the Contractor. The Contractor shall notify the School District of upcoming training events at least fifteen (15) School District work days in advance.
 - e. Official Calendar. The Oklahoma City Public School District official calendar may be viewed online and downloaded from www.okcps.org or obtained by contacting Oklahoma City Public Schools Administration at telephone (405) 587-0000.
 - f. In some instances, training may need to be scheduled around scheduled and non-scheduled school events, tests or other school activities.

4. REPORTS
 - a. Reports that are ordinarily required to be prepared by the Contractor for specific building systems shall be specified in the Contract Documents.
 - b. Test and Balance Report. The Test and Balance Report shall be submitted and approved by the Engineer-of-Record and returned via the Architect to the General Contractor and then to OCMAPS prior to the satisfactory completion of systems commissioning.
 - c. Network Data Infrastructure Report. The Network Data Infrastructure Test Report (Refer Section 16745A) shall be submitted and approved by the Engineer-of-Record and returned via the Architect to the General Contractor and then to OCMAPS prior to the satisfactory completion of systems commissioning.

5. COMMISSIONING
 - a. Commissioning of building systems shall be executed by the Contractor.
 - b. Normally, commissioning shall be completed prior to Demonstration of system performance to the School District.
 - c. Retro-commissioning of existing equipment, systems and assemblies that have not been recently commissioned may be required. The Architect shall investigate, analyze and report any areas that may be in need of retro-commissioning in order to ensure their continued performance over time.

6. DEMONSTRATION MEETING(S)
 - a. The Architect, in conjunction with input from OCMAPS and the School District, shall specify systems requiring Owner Demonstration.
 - b. Demonstration may involve two or more sites. Most Demonstration events take place at the project site. Others may require personnel to be posted at the School District administration headquarters or Service Center sites.
 - c. Demonstration of the following systems are normally always required:
 - 1) Building Automation System (and related temperature and zoned lighting controls)
 - 2) HVAC mechanical systems, chillers, boilers and pumps
 - 3) Dedicated cooling and/or heating systems
 - 4) Variable Speed Drives
 - 5) Outside air economizers and/or energy recovery ventilation units
 - 6) Mission Critical equipment
 - 7) Smoke evacuation exhaust systems
 - 8) Refrigerant alarm systems

- 9) Emergency power/fuel shut-off systems
 - 10) Security Alarm System
 - 11) Access Control System
 - 12) Fire Alarm System
 - 13) Communications System
 - 14) Video Surveillance System
 - 15) Emergency Generator
 - 16) Emergency power/fuel shut-off systems
- d. Demonstration of the Network Data Infrastructure system may be required.

A. GENERAL

1. Provisions of this Section shall apply to the following:
 - a. Work performed under the terms and conditions of the Contractor's Maintenance Bond to satisfy warranty related issues during the term of the Maintenance Bond.

B. DOCUMENTATION

1. Reference standard reporting form incorporated herein:
 - a. Warranty / Maintenance Bond Work Notification

C. EXECUTION

1. The attached Warranty / Maintenance Bond Work Notification form (or other such form as may be revised from time to time), shall be used by the School District to notify and initiate work by the Contractor about warranty related matters or issues requiring action and/or performance of work by the Contractor. The School District will forward maintenance bond work requests to the contractor via e-mail.
2. Upon receipt of Warranty / Maintenance Bond Work Notification, Contractor shall promptly acknowledge receipt of same and advise the School District of the Contractor's anticipated response time.
3. Upon satisfactory completion of Work under the warranty and/or Maintenance Bond, the Contractor shall report to the School District the actions taken and date of completion of work. Notification shall be confirmed by return transmittal of the Warranty / Maintenance Bond Work Notification.
4. Work performed under terms of Contractor's warranty shall require a verification inspection by the School District in the presence of the Contractor and such verification shall be deemed complete upon acceptance as evidenced by signature approval of both parties on the Notification form.

OKLAHOMA CITY PUBLIC SCHOOLS
WARRANTY / MAINTENANCE BOND WORK NOTIFICATION

Date: _____
Project No: _____
Project Description: _____
Location: _____
Contact Person _____
Phone: _____
Fax: _____

Description of problem: _____

Urgent **Important** **Needs Attention**

Responsible Contractor / Sub-Contractor: _____
Contact Person: _____
Date Forwarded: _____
Phone Number: _____
Fax Number: _____

Description of action taken or nature of repair: _____

Date Completed: _____

Verification of completed work: _____ **Date:** _____
Contractor

Verification of completed work: _____ **Date:** _____
OKCPS Representative

cc: _____

A. GENERAL

1. SITE SURVEY
 - a. As required by Architectural / Engineering contract agreement with the OCMAPS Trust or I-89 School District.
2. JURISDICTIONAL COORDINATION
 - a. The Architect is responsible to coordinate and document (in writing) all paving and related site work criteria within the public right-of-ways and easements (e.g. entries, accelerate / decelerate lanes, signage, sight distances, paving elevations, transitions to streets, etc.) with all agencies having jurisdiction; incorporate into Drawings and Specifications.
3. BUILDING CONSIDERATIONS:
 - a. If possible, location preferred on high area of site to minimize drainage problems.
 - b. Shall allow for logical future classroom and "core facility" expansion of at least 25% with minimal disruption to the originally constructed facility, existing grades, and utilities/services. Architect shall show expansion areas on Schematic Design Drawings for OCMAPS Program Manager approval.
 - c. Should provide student playground access with minimal crossing of vehicle traffic areas.
4. VEHICLE TRAFFIC
 - a. Bus and auto traffic shall be separated at student drop-off and pick-up areas.
 - b. Use of separate auto and bus/delivery entrances and drives would be preferable, but not a mandatory requirement.
 - c. Auto Drives and Parking: Nine feet (9') wide parking spaces. Handicap spaces, number and size per code. Identify parking count on drawings.
 - d. Bus Drives and Parking: Show striping in Chevron or Aisle System to suit project; allow for queue area. Sixty feet (60') clear turning radius required for all areas of bus traffic; buses shall be able to flow without backing-up. Design for student loading on passenger side of bus with absolute minimal student crossing of bus lanes (no crossing allowed at Elementary Schools). Fifteen feet (15') bus lane width. Aisles or spaces sequentially and legibly numbered 12" tall with traffic paint.
 - e. Parking Expansion: Campus design to incorporate and identify logical cleared "level" areas (minimizing disruption of existing conditions) for future increase of 25% over above auto and bus criteria.
 - f. Traffic Control and Directions: Show arrows and signage on drawings.
 - g. Bus canopies: Minimum 14'-6" clearance above finish grade.
5. FIRE LANES
 - a. Extent, widths, turning radii, dead end conditions, signage, and all clearances must comply with governing Fire Marshal criteria.
 - b. Do not provide ramped curb access; provide reinforced curb-and-gutter area at drive access to deter non-fire department traffic.
6. UTILITIES
 - a. Locate to minimize interference for future planned construction.
 - b. Underground electrical, telephone, cable TV shall be in conduit.
 - c. Inert polyethylene identification tape buried in same trench 18" maximum below finish grade for all utility lines and waste lines (no exceptions).
 - d. Electrical and Telephone lines buried minimum 36" and maximum 48" below finished grade.

A. GENERAL

1. SUMMARY
 - a. This Section includes the following:
 - 1) Demolition and removal of selected portions of a building or structure.
 - 2) Demolition and removal of selected site elements.
 - 3) Repair procedures for selective demolition operations.
2. MATERIALS I-89 SCHOOL DISTRICTSHIP
 - a. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain I-89 School District's property, specify demolished materials shall become Contractor's property and shall be removed from Project site.
 - b. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to I-89 School District that may be encountered during selective demolition remain I-89 School District's property. Specify Contractor shall carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to I-89 School District.
3. SUBMITTALS
 - a. Proposed Dust-Control and Noise-Control Measures: Require the Contractor to submit statements or drawings that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. The Contractor shall identify options if proposed measures are later determined to be inadequate.
 - b. Schedule of Selective Demolition Activities: the Contractor shall provide a schedule that include the following:
 - 1) Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure I-89 School District's on-site operations are uninterrupted.
 - 2) Interruption of utility services.
 - 3) Coordination for shutoff, capping, and continuation of utility services.
 - 4) Use of elevator and stairs.
 - 5) Locations of temporary partitions and means of egress.
 - 6) Coordination of I-89 School District's continuing occupancy of portions of existing building and of I-89 School District's partial occupancy of completed work.
 - c. Predemolition Photographs or Videotape: Require the Contractor show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by selective demolition operations. Submit before work begins.
 - d. Require the Contractor provide records that indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.
4. QUALITY ASSURANCE
 - a. Require the Contractor conduct a pre-demolition conference with the Architect and Program Consultant in attendance to review methods and procedures related to selective demolition including, but not limited to, the following:
 - 1) Inspect and discuss condition of construction to be selectively demolished.
 - 2) Review structural load limitations of existing structure.
 - 3) Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.

5. PROJECT CONDITIONS
 - a. I-89 School District will occupy portions of building immediately adjacent to selective demolition area. Require the Contractor to provide not less than 72 hours' notice to I-89 School District, Architect and Program Consultant of activities that will affect I-89 School District's operations.
 - b. Require the Contractor to maintain access to existing walkways, corridors, and other adjacent occupied or used facilities and not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction
 - c. Hazardous Materials:
 - 1) If materials suspected of containing hazardous materials are encountered, specify the Contractor shall not disturb and immediately notify Architect and the Program Consultant. Hazardous materials will be removed by OCMAPS Trust under a separate contract.
 - d. Storage or sale of removed items or materials on-site shall not be permitted.
 - e. Require the Contractor maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations and to maintain fire- protection facilities in service during selective demolition operations.

6. WARRANTY
 - a. Specify the Contractor shall remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

B. PRODUCTS

1. REPAIR MATERIALS
 - a. Use repair materials identical to existing materials.
 - 1) If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 2) Use materials whose installed performance equals or surpasses that of existing materials

C. EXECUTION

1. UTILITY SERVICES
 - a. Specify the contractor shall:
 - 1) Maintain services indicated to remain and protect them against damage during selective demolition operations.
 - 2) Not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by I-89 School District and authorities having jurisdiction and provide temporary services during interruptions to existing utilities, as acceptable to I-89 School District and to authorities having jurisdiction.
 - 3) Provide at least seventy-two (72) hours notice to Architect and Program Consultant if shutdown of service is required during changeover.
 - 4) Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.
 - 5) If utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of building.
 - 6) Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

2. **PREPARATION**

- a. Require the contractor shall follow these site procedures.
- 1) Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 2) Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from I-89 School District and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
 - 3) Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
 - 4) Protect existing site improvements, appurtenances, and landscaping to remain.
 - 5) Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
- b. Specify the Contractor shall follow these temporary construction procedures:
- 1) Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 - 2) Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 - 3) Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 - 4) Cover and protect furniture, furnishings, and equipment that have not been removed.
 - 5) Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
 - 6) Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

3. **POLLUTION CONTROLS**

- a. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.

4. **SELECTIVE DEMOLITION**

- a. Specify the contractor follow these selective demolition procedures:
- 1) Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
 - 2) Maintain adequate ventilation when using cutting torches.
 - 3) Handle salvage items as follows:
 - a) Clean salvaged items.
 - b) Pack or crate items after cleaning. Identify contents of containers.
 - c) Store items in a secure area until delivery to I-89 School District.

- d) Transport items to I-89 School District's storage area indicated on Drawings.
 - e) Protect items from damage during transport and storage.
 - 4) Handle reinstalled Items as followed:
 - a) Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
 - b) Comply with installation requirements for new materials and equipment.
 - c) Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
 - 5) Demolish concrete in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals, using power-driven saw, then remove concrete between saw cuts.
 - 6) Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.
5. DISPOSAL OF DEMOLISHED MATERIALS
- a Specify Contractor shall follow these demolition procedures:
 - 1) Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
 - 2) Not burn demolished materials.
 - 3) Transport demolished materials off I-89 School District's property and legally dispose of them.

A. GENERAL

1. This Section includes:
 1. Supplemental Information for Storm Water Construction Permit
 2. State of Oklahoma Department of Environmental Quality (DEQ) FORM 605-002A (September 13, 2002). Refer attached copy.

2. Four things needed for a Storm Water Construction Permit:
 1. Notice of Intent (NOI)
 - a. Sites under 1 acre use OKC-SWQ C-1 form
 - b. Sites over 1 acre use DEQ form 605-002A
 2. Storm Water Pollution Prevention Plan (SWPPP)
 - a. NOI and SWPPP must be signed by the same person (Owner/Operator or Contractor)
 3. Erosion Control Site Plan
 4. Check for \$55.00 payable to the Oklahoma City Treasurers Office

3. Websites for forms:
www.okc.gov/pw/storm.html (OKC forms)
www.deq.state.ok.us/WQDnew/stormwater/index.html (ODEQ forms)

A. GENERAL

1. Architect shall take approval action on required submittal data for proposed products and qualifications of applicator.
2. Applicator shall be state licensed.
3. **WARRANTY**
 - a. Five (5) years non-prorated from date of Final Acceptance (not the application date) against infestation and/or termite damage.
 - a. If evidence of termites occurs within warranty period, areas shall be retreated at no cost to the contracting entity.
 - b. Include optional renewal policy on annual basis after fifth (5th) year; fee shall be equitable and agreed upon by applicator and the I-89 School District.

B. PRODUCTS

1. **TOXICANT:** Shall bear Federal registration number of the U. S. Environmental Protection Agency. Shall be acceptable to U. S. Department of Agriculture for use in controlling termites without being injurious to plant life. Only manufacturer pre-mixes permitted; no job mixing of chemicals.

C. EXECUTION

1. Architect shall specify that Contractor:
 - a. Notify Architect at least forty-eight (48) hours prior to application.
 - b. Apply toxicant under concrete slab vapor retarders, around footings, and both sides of foundation walls.
 - c. Post signs in areas of applications, warning that poison has been applied; leave signs in place for minimum two (2) weeks following application.

A. GENERAL

1. ARCHITECTURAL DESIGN

- a. All documents shall be prepared by an Oklahoma-licensed Civil Engineer. Drawings shall be stamped, dated and signed.
- b. Paving designs, materials, and construction shall comply with Oklahoma City Standard Specifications criteria.
- c. Slopes: Positive drainage is mandatory. Show accurate and adequate spot elevations on Drawings. Slopes shall be:
 - 1) Minimum 1" in 4' all areas within 10' of building.
 - 2) Minimum 1" in 8' all other areas.
- d. Identify specific areas of heavy-duty and standard paving on Drawings.
- e. Consider economics and long-term maintenance of using concrete vs. asphalt paving.
- f. Striping and colors:
 - 1) New Facilities: Predominantly 4" wide "white"; identify and specify areas of "yellow", "red", and "blue" traffic painting. Specify total "blackout" eradication of inapplicable existing pavement markings.
 - 2) Additions and Modifications to Existing Facilities: Match color scheme of existing to greatest extent possible.

2. HEAVY DUTY PAVING (bus and truck traffic)

- a. Earth compacted to 95% Standard Proctor and proof rolled.
- b. 6 inches of graded aggregate, compacted to 95% Standard Proctor.
- c. 2 ½' of Type "A" asphalt binder.
- d. 1 ½' of Type "B" asphalt surface course.

3. STANDARD DUTY PAVING (general auto traffic and play courts)

- a. Earth compacted to 95% Standard Proctor and proof rolled.
- b. 4 inches of graded aggregate, compacted to 95% Standard Proctor.
- c. 2" of Type "A" asphalt binder.
- d. 1" of Type "B" asphalt surface course after crack repair.

4. RESURFACING

- a. 1 ½" type "B" asphalt surface course after crack repair.

5. TESTING (By Testing Laboratory)

- a. Soils: Confirm required compaction and density; lab to observe proofrolling. Submit written reports.
- b. Aggregate Base: Confirm required compaction and density.
- c. Asphalt: Confirm material densities and component thicknesses of entire paving assembly. One (1) test per 5000 s.f. surface area.

6. MARKINGS

- a. Layout per Drawings and to suit field conditions.
 - 1) Auto Parking: 9' wide spaces
 - 2) Bus Parking: 12' wide spaces (chevron system) with spaces numbered.
- b. All markings neat, straight, even, and uniform; no edge/end bleed out or overspray allowed. Two (2) coat application, minimum total 15-mil coverage thickness.
- c. Colors:
 - 1) WHITE: All auto parking spaces and direction arrows.
 - 2) YELLOW: All bus lanes, pedestrian crossings, general no-park zones (including along curbs), speed breakers, traffic lane direction dividers, and other cautionary areas.
 - 3) LIGHT BLUE: As highlight/background to WHITE in Handicap areas.
 - 4) RED: All Fire Lane striping and 18' tall "NO PARKING FIRE LANE"

pavement markings.

7. SIGNAGE
 - a. Specify signage to indicate traffic flow, stop, yield, turns, no parking, fire lane, etc.
 - b. In addition to the traffic flow signage, specify the following 24" X 18" signs with 8' posts and their quantities:
 - A. DESCRIPTION**
 - SPEED LIMIT 15 MPH
 - VISITOR SIGN IN PROCEDURE
 - LAW ON WEAPONS
 - SCHOOL PROTECTION ORDINANCE – CURFEW
 - SCHOOL PROTECTION ORDINANCE – UNAUTHORIZED PARKING
 - c. Specific sign wording to be provided by the Owner
8. WARRANTY
 - a. Traffic paint for two (2) year against material defects and/or fading.
 - b. Paving for two (2) years against settling, cracking, and other defects.

B. PRODUCTS

1. GRADED AGGREGATE
 - d. Meeting Oklahoma City Standard Specifications, crushed stone of hard, durable rock fragments, free of clay and/or organic matter.
2. ASPHALT
 - a. Civil Engineer to determine suitability of using recycled materials.
3. TRAFFIC PAINT
 - a. Alkyd-base, factory-mixed, quick-drying, non-bleeding formulated traffic paint.

C. EXECUTION

1. Specify paving to conform to the following:
 - a. Completed surface course shall be true to grade and fully drain without leaving pond areas.
 - b. Any areas of ponding and deficient thickness/density areas shall be cut out to a minimum 1" depth, then new satisfactory materials applied, sealed against existing paving to prevent water entry. Surface patching onto existing areas to achieve criteria will not be permitted.

The following document is to be used in reference to the Policy Recommendation Concerning Sidewalks and Community Accessibility for all Oklahoma City Metropolitan Area Public School District projects. Included in the document are the general requirements that are to be followed on each project.

The general conditions provided in this document are not to be modified without the written consent of the OCMAPS Project Manager. The document is also periodically updated, and each Architect must coordinate with the OCMAPS Project Manager to ensure the latest version is being utilized on the project.

Mayor's Committee on Disability Concerns

Policy Recommendation Concerning Sidewalks and Community Accessibility

The Mayor's Committee on Disability Concerns (MCDC) focuses primarily on generating awareness of disabilities issues. We have discussed the need for more and better sidewalks as well as curb cuts and accessible ramps along public streets in public rights-of-way (street easements). The Oklahoma City Committee believes there is a need to make the community more accessible with both public and private improvements for all pedestrians. This is a quality of life and health issue for all citizens but especially for people with physical disabilities. For example, sidewalks and/or Americans with Disabilities Act (ADA) compliant curb cut ramps need to be installed in small districts or neighborhoods that are home to several residents with disabilities, especially when shopping, services and other livability amenities are adjacent to their residences. This is particularly true near apartments. Public sidewalks and curb cuts/ramps along and leading up to bus routes are a critical need in all nine communities with bus service, but especially within the City of Oklahoma City (City).

To address this need, the Mayor's Committee on Disability Concerns recommends that the City, the Central Oklahoma Transportation and Parking Authority (COTPA) and the Association of Central Oklahoma Governments (ACOG) work jointly and with other organizations and jurisdictions to:

- encourage private investment in ADA compliant sidewalks and curb cuts/ramps on private property to improve the path of travel;
- inventory the presence/absence of ADA compliant sidewalks and curb cuts/ramps adjacent to and within a block of bus routes;
- identify areas with higher concentrations of people with disabilities and the sidewalk/curb cut network near or along public streets in those areas;
- identify districts with the best potential to be convenient for people unable to drive or choosing not to drive--areas with a good combination of nearby housing, shopping, and services along a bus route;
- emphasize the need to make existing sidewalks more accessible, especially in high priority areas such as along transit routes where there are government offices and facilities, places of employment, medical facilities, or other frequent use by people with disabilities;
- encourage adequate budgeting by state, county, municipal, school, and other public jurisdictions to address higher priority public sidewalk and curb cut needs, and especially along both the perimeters of public land and along the streets abutting transit routes;
- identify areas near public parks that would benefit from sidewalks and curb cuts/ramps for improved access from neighborhoods to parks;
- recognize publicly the progress made in the region annually.

Citizens have voiced pedestrian and ADA concerns in various forums over the years. This input was brought into sharper focus when this matter was one of four (4) transportation recommendations contained in a periodic Federal review of the Oklahoma City Area Regional Transportation Study (OCARTS) planning process. The review was conducted by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) and included a comparison of the City to communities across the country. That recommendation from the 2004 Joint Certification Review of ACOG stated that there should be increased focus on strategies to provide "...amenities such as sidewalks to bus stops and curb cuts for wheelchair bound transit patrons in order to improve overall accessibility and safety and increase transit ridership in the OCARTS service area." COTPA provides the bus service known as METRO Transit and can provide some assistance, but furnishing sidewalks and ramps compliant with the ADA is essentially a municipal responsibility far beyond the capacity of ACOG and COTPA. COTPA's funding and authority to implement sidewalks are very limited.

The MCDC recognizes that more public and private sidewalks and curb cuts/ramps are needed. Some public ones could be specifically included in upcoming bond issues, potentially as a separate proposition or as part of other capital improvement plans. Such quality of life improvements make our community more attractive to everyone, including potential businesses and residents.

March 20, 2006 (revised)

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Description of the playground safety surfacing system and general conditions:
 - 1) Surfacing shall be poured in place and trowelled to provide for a resilient, seamless rubber surface installed over the specified base. The surfacing manufacturer shall be responsible for all labor, materials, tools and equipment to perform all work and services for the installation of the surface. The surface shall be stable and slip resistant to comply with all requirements set forth in the *Americans with Disabilities Act*.
 - 2) Color EPDM materials (top cap/wearing surface). All EPDM cap materials will be peroxide cured rubber.
 - b. Related sections include the following:
 - 1) Division 2 Section 02860 "Playground Equipment"
2. SUBMITTALS
 - a. Product Data: For each type of surface required, including installation instructions.
 - b. Shop Drawings: For each type of surface require the following information:
 - 1) Certification from manufacturer that installer is a manufacturer certified for this installation.
 - 2) Two (2) samples measuring 1' X 1' in 2" thickness with tapered edges, in the color specified.
 - 3) Impact attenuation (per fall height requirements and depth specified), coefficient of friction, permeability, flammability, toxicity and tensile strength test results from independent approved and certified testing laboratories.
 - 4) Proof of specified insurance requirements.
 - 5) MSDS and Product Data Sheets.
 - 6) Overall plan, to scale, showing the limits of each type of surfacing required.
 - 7) Details including typical cross-section and perimeter conditions.
 - 8) Overall plan showing surface thickness relative to the fall height of playground equipment.
 - c. The colors are to be indicated on plans.
3. WARRANTIES
 - a. Surface shall be warranted for labor and materials for a period of no less than three (3) years against all defects. Written warranty must be submitted by the surface manufacturer.
4. QUALITY ASSURANCE
 - a. Source Limitations: Obtain all surfaces as required as a complete system from a single manufacturer.
 - b. Test Results
 - 1) Impact Attenuation – *ASTM F1292-96*: Impact attenuation test results will be provided to the I-89 School District. These test results shall be certified and submitted on the letterhead of an independent testing lab. Impact attenuation test results shall meet or exceed Consumer Product Safety Commission Guidelines for impact attenuation (G-max and Head Injury Criteria "H.I.C"). Both test results must be administered and evaluated under the same test and these results must be shown for three drops at each required temperatures: 32, 72, 120; yield less than 200 G's and less than 1,000 H.I.C. The impact site must be performed on the "worst case scenario" area of the sample tested. Testing laboratory must be certified to meet calibration program requirements of MIL-STD-45662A. Test report must state the base tested for this project.
 - 2) Coefficient of Friction – *ASTM D2047-92*: All products must meet a minimum standard on coefficient of friction of .9-wet, 1.0-dry. No exceptions will be made to this requirement in an effort to ensure ample slip-resistant conditions.
 - 3) Permeability: Product shall meet or exceed a coefficient of permeability of 5' per minute. NOTE: From a geotechnical standpoint, the permeability of a

material is a measure of the velocity at which water will flow through the void spaces or pores under a given hydraulic gradient. The product shall handle a minimum of 8" of rainfall per hour.

- 4) Flammability of Finished Floor Cover – *ASTM D2859*: Product shall pass flammability, test.
 - 5) UPIIT Test for Combustion Product Toxicity: Product shall pass the Pittsburgh Protocol Test for toxicity. The passing result is that the product is considered no more toxic than the product is considered no more toxic than wood.
 - 6) Tensile Strength – *ASTM D412-87 and Tear Resistance – ASTM D624-86*: This test indicates a product's ability to stretch, and how far it will stretch before it breaks. Test results must be a minimum of tensile strength = 60 p.s.i. and % elongation @ break = 40 (140% of original size).
- c. Installer Pre-Qualifications:
- 1) A list of twenty (20) surfacing projects completed with a similar product within the last eight (8) years. List shall include names of project representatives and respective telephone numbers. At least ten (10) of these projects must be at least five (5) years old. This list shall also contain projects that require the same level of difficulty, size of project, type of project (e.g. color transitions and special graphics). These twenty (20) projects shall have been contracted and installed by the company bidding the job.

B. PRODUCTS

1. MANUFACTURERS

- a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) No Fault Industries, Incorporated
 - 2) Safe Guard Corporation
 - 3) Surface America, Incorporated
 - 4) Spectraturf Incorporated
 - 5) Universal Surfacing Systems Incorporated
 - 6) Childsafe Products, Incorporated
 - 7) CushionDeck International
- b. Any product or surfacing manufacturer, which has not met the prior approval requirements of this section, shall not be approved.

2. MATERIALS

- a. Polyurethane Primer and Binder – 100% Polyurethane Binding Agent – Methylene Diphenyl Isocyanate (MDI) based binder with not more than 2% Toluene Diphenyl Isocyanate (TDI) added.
- b. Poured Cap – EPDM pigmented synthetic rubber granules (1-3 mm peroxide cured) with a minimum EPDM content of 25% by weight and certified letter from manufacturer stating this content. Strand, shaved, chipped, or shredded rubber is not acceptable in the poured cap.
- c. Impact Course – SBR or EPDM select rubber. The impact layer is to be a precise combination of recycled black rubber and polyurethane binder.

C. EXECUTION

1. PREPARATION

- a. Specify the base shall have the specific 2% minimum slope and shall vary no more than 1/8" when measured in any direction with a 10' straight edge. Asphalt base shall be allowed to cure a minimum of fourteen (14) days and new concrete shall be allowed to cure a minimum of seven (7) days prior to commencement of surfacing. A compacted stone base will not require cure time but will be subject to slope and

tolerance specification. Surface Manufacturer shall supply and install geotextile fabric cloth on compacted stone if selected for the base.

- b. If stone is used as a base, specify proper treatment with herbicides by others must be applied prior to arrival of surface installation crew. Minimum of 2" of surface (total depth) is required over a stone base. Also, no rolled products or pre-fabricated tiles will be acceptable. If is the primary intent of this specification to provide a seamless, porous safety surface.

2. INSTALLATION

- a. Specify the Contractor to install the playground surfacing as follows:

- 1) Thickness – Total depth of the surface may vary in the highest critical impact course according to fall height. All thickness' shall meet or exceed the fall height requirements for the both the equipment and fall zones as indicated on the drawings, or as specified by the equipment manufacturer.
- 2) Impact Course – The 1-5/8", or thicker as required by fall height, impact course must be composed of recycled rubber and be free of foreign matter. The impact course will be poured in place by means of screeding and hand-trowelled to maintain a seamless application. All rubber in the impact course will be of a select quality and considered blend of recycled rubber sizings to achieve maximum porosity and minimum residue. Rubber quality and sizings will be reviewed during the submittal process. Installation method shall use a measured screed rod 1/16" thicker than the required depth.
- 3) Poured Cap – The 3/8" minimum poured cap material shall be composed of EPDM granular rubber only. The cap will have a minimum weight of 2.2 pounds per square foot. The cap will be poured in place by means of screeding and hand-trowelled to maintain a seamless application. All rubber shall remain consistent in gradation and size. Color tinted binder will not be allowed. Installation method shall use a measured screed rod 1/16" thicker than the required depth. The graphic designs and color transitions used shall be full wear course depth. Color(s) to be determined by OCMAPS Program Manager and the I-89 School District.
- 4) Edges – Surface edges shall be flush with edge of adjacent area to provide safe transition. Surface shall be sloped to drain as indicated on plans.
- 5) Large Areas – All areas in excess of 2,000 s.f. or that require adjacent color pours will have a cold joint or seam due to the nature of the installation process. Large areas or adjacent colors require the material to be installed on separate days.

3. PROTECTION

- a. Specify surface installation crew shall be responsible for the protection of surface during the installation process and the Contractor shall be responsible for the security and protection of the surface during the curing period upon completion of the installation (approximately 48 to 72 hours, or as specified by the manufacturer).

The following document is to be used for design and construction of all Oklahoma City Metropolitan Area Public School District athletic facilities. Included in the document are the general requirements that are to be followed by architects and contractors working on each project.

The general conditions provided in this document are not to be modified without the written consent of the OCMAPS Project Manager. The document is also periodically updated, and each Architect must coordinate with the OCMAPS Project Manager to ensure the latest version is being utilized on the project.

Oklahoma City
Public Schools
Athletic Plan

September 2002



900 N. Klein ★ Oklahoma City, OK 73106-7098

To: Terry Wolfe, Senior Facility Officer
From: Warren G. Gardner, Executive Director, OKCPS/MAPS
Date: September 25, 2002

**RE: Request Approval for Renovation of Playgrounds and
Athletic Practice Areas (CONSENT AGENDA ITEM)**

This agenda item is in reference to Strategic Aim 3: Safe Environment That Fosters Learning; Goal 3:1: To have the district and community work together to provide and maintain facilities that are safe, orderly and secure for all users of the buildings and grounds and Governance policy EL-17: Facilities Design, Construction and Utilization.

Program purpose and description: To initiate, expand, and improve physical education programs for kindergarten through 12th grade students by providing space in terms of playgrounds, athletic practice fields, and support to enable students to participate actively in physical education activities where land is available. It is essential that at all grade levels the concept of space awareness, body awareness, qualities of movement and relationships as the basis for child-designed games, child-designed athletics become or be sustained as a part of the development of the whole child. Children are given movement tasks which can be solved individually or within a group. Cooperation and competition are handled developmentally through educational games and physical activity.

Expenditures for these items will be limited to each site line item budget amounts provide in the appropriate OPU funding codes for OCMAPS.

This agenda item addresses question 10 contained in the KIDS Committee report, Building A Learning City, "How will new or refurbished facilities enhance student achievement?"

The purpose of this report is to provide decision makers with a working definition of athletic practice fields. That is, what are the necessary specifications for playgrounds and athletic practice fields at each school site? This information once approved should be shared with The Facility Group and City Trust to provide direction with regard to facility design specifications.

In an attempt to provide specifications for playgrounds and athletic practice fields, a survey was developed to assess current facility conditions and what is necessary for playgrounds and practice fields. Participants in this survey included: the District Athletic Director, secondary coaches and elementary principals or physical education instructors that utilize these playgrounds and practice facilities. Each elementary school principal or physical education instructor was contacted by phone or by site visitation. Due to the large number of elementary physical education instructors, a small cadre of instructors was initially asked to provide a list of necessary space and grounds improvements for outdoor instruction and playgrounds. Once this list had been formulated coaches and P.E. instructors completed the survey. Moreover, site coaches and instructors were provided an opportunity to identify any additional facility need that may have been omitted from the survey. It should be mentioned, the names and sites of individual instructors who helped develop the survey list were provided by the District Athletic Director and American Federation of Teachers.

Physical education plays a critical role in educating the *whole* student. Research supports the importance of movement in educating both mind and body. Physical Education contributes directly to development of physical competence and fitness. It also helps students to make informed choices and understand the value of leading a physically active lifestyle. The benefits of physical education can affect both academic learning and physical activity patterns of students. The healthy, physically active student is more likely to be academically motivated, alert, and successful. In the preschool and primary years, active play may be positively related to motor abilities and cognitive development. As children grow older and enter adolescence, physical activity may enhance the development of a positive self-concept as well as the ability to pursue intellectual, social and emotional challenges. Throughout the school years, quality physical education can promote social, cooperative and problem solving competencies. Quality physical education programs in our nation's schools are essential in developing motor skills, physical fitness and understanding of concepts that foster lifelong healthy lifestyles.

With this philosophy in mind each of the participants was first asked to accurately identify basic practice facility needs. Respondents were asked to evaluate their current practice field or playground with a rating between 0 and 10. Zero (0) would mean that condition does not exist to carry out practice and ten (10) would rate the current practice condition as excellent. Further, coaches and P.E. instructors were asked not to list equipment needs for their particular site. Next, coaches were asked to prioritize the different options identified and available to them by sport activity. The following improvements in its recreational value were gleaned:

Elementary

In the elementary grades, the physical education program emphasizes the development of fundamental locomotor, non-locomotor, and manipulative skills through the main content areas of educational games, dance, and gymnastics.

The movement framework, (i.e., body, space, effort, and relationship) is also a part of the core content and is the basis for developing, expanding, and refining children's range of motor skills and awareness. Quality instruction by physical education professionals is critical if children are to develop fundamental motor patterns (e.g. jump, throw, skip, hop, catch, and kick). The motor skill foundations established during the elementary grades may enhance children's social, cognitive and physical development and increase the likelihood of continued interest and participation in physical activity. Fitness at elementary grades is supported by a rich experience in many basic movement forms.

Therefore, the following Elementary Playground and P.E. Space specifications were generated:

Elementary Playgrounds and P.E. Space

1. Two Playground/PE Areas (One Area designated for K-2; One Area designated for grade level 3-6)
2. Big Toy Area
3. Black Top Surface marked for games such as:
 - a. 4 Square
 - b. Basketball
 - c. Hop Scotch
4. Make playground surfaces and entries handicap accessible and leveled
5. Impact Protection
6. Track with Visible distance markings
7. Area with Sand for Outdoor Volleyball
8. Tetherball Area with wood chips
9. Outside Water Fountains
10. Outside Storage
11. New or Repaired Fencing

See Attachment A for survey results by site and sports activity.

Middle School

Quality middle school physical education programs provide students unique opportunities for demonstrating leadership, socialization, and goal setting skills. Involvement in physical activity has shown a consistent relationship with mood, self-esteem, and other indices of psychological well-being in early adolescence. Student preferences become more specialized at this age and the preference influences students' motivation to continue in physical activities. A youngster's feelings of perceived competence also affects future participation and self-esteem. Despite the physiological changes that occur at this age, students are generally willing to work cooperatively toward common goals because the desire for peer group acceptance is strong. Risk taking is attractive and students accept the challenge of setting and achieving personal goals. Physical education programs have a unique opportunity to provide learning experiences that enhance middle school students' self-esteem.

High School

During this phase of development, students begin to select activities based more on personal interests. Other factors affecting students' choices of physical activity may be their level of health-related physical fitness, body type, geographical location, and socio-economic group or circle of peers. Physical education programs must continue to enhance students' fitness development and offer an array of activities from which students can select.

Attitudes, habits, and perceptions are critical prerequisites for persistent participation in physical activities. To help students achieve self-realization through physical activity, the physical education program can guide student choices and help them become self-directed in the selection of activities that are satisfying. The importance of commitment and dedication in achieving success may be emphasized in physical education. Physical activity habits and preferences are not static, but are continually in a state of flux throughout one's lifetime. High school is a time when students can establish habits and attitudes about the role physical activity will play in their lifetime. This is the time for students to explore their preferences related to physical activity and perhaps specialize based on abilities and interests.

The following Middle and High School specifications were combined due to the similar types of instructional and extracurricular activity needs:

Middle and High School Practice Football Field Priority

1. Water/Irrigation to practice field
2. Goal Post (2)
3. Full size field leveled and crowned
4. Seating for 25-50
5. Utility Shed

High School Tennis Priority

1. Four Courts
2. One Court with backboards
3. Overhang Basketball Goals

Track

1. Cinder Track with curb, graded, flat, with drainage 4-6 lanes
2. Runway for pole vault and long jump with pit
3. High Jump Area
4. Water to site
5. Shot Putt Cement pads with appropriate space 60 ft.
6. Discus cement pad with appropriate space 150 ft.
7. Broad Jump Area
8. Storage for Hurdles

Middle and High School Softball/Baseball Practice

1. 2 Practice Fields; 1 with grass infield for baseball, 1 without grass infield for softball
2. Water for grass infield
3. Back Stop -- Overhang site based decision
4. Pitchers Mound for baseball
5. Good Drainage
6. Homerun Fence
7. Covered Dugout -- (Player Seating)
8. Security Fence 6-8 ft
9. Seating for 25
10. Utility Shed

Middle and High School Soccer

1. Soccer Goals
2. Soccer field graded, crowned, grassed and full size (wider than a football field).
3. Water for the field
4. Room for practice goals.

See Attachment B for survey results by site and sports activity.

Further discussion identified the following additional sport complex needs:

1. A Utility Building that provides water for the practice field and students.
2. Port-A-John or 2 restrooms simple secure 1 seat. Rationale:
The release of students into the build during class or after school practice should be avoided due to the safety issue of students being unsupervised on school property.

DRAFT

9/23/2002

We recommend all schools with students in kindergarten through fifth grades receive an age appropriate small toy and big toy area with impact protection. In addition, we recommend two outdoor P.E. areas that will also be used for recess and recreation. The first P.E. area would consist of a hard surface for teaching basketball, 4 square and other sports that require such a surface. This area will also provide an option when site based decisions are necessary by the principal and teacher to allow children outside on days when the ground is wet. The second P.E. area would be utilized as a P.E. field for teaching various sports such as bat and ball sports, soccer, kick-ball, and track/field events. Finally, this area would double to provide a traditional recess and recreation area.

Rationale: In the elementary grades, the physical education program emphasizes the development of fundamental locomotor, non-locomotor, and manipulative skills through the main content areas of educational games, dance, and gymnastics. The movement framework, (i.e., body, space, effort, and relationship) is also a part of the core content and is the basis for developing, expanding, and refining children's range of motor skills and awareness.

We recommend schools with a grade level configuration of six through eight (6-8) be provided an outdoor P.E. area made up of a hard surface area and a field area. However, newly configured schools where traditional middle schools have been located would not benefit from the addition(s) described above. These schools will support the district sports programs which include football, soccer, track, baseball and softball for middle aged students. Therefore, a separate P.E. field would be unnecessary. Students that attend nearby schools would be offered the opportunity to participate in competitive athletics at the traditional middle school.

Rationale: Quality middle school physical education programs provide students unique opportunities for demonstrating leadership, socialization, and goal setting skills. Quality middle school physical education programs provide students unique opportunities for demonstrating leadership, socialization, and goal setting skills. Involvement in physical activity has shown a consistent relationship with mood, self-esteem, and other indices of psychological well-being in early adolescence. Student preferences become more specialized at this age and the preference influences students' motivation to continue in physical activities. A youngster's feelings of perceived competence also affects future participation and self-esteem. Despite the physiological changes that occur at this age, students are generally willing to work cooperatively toward common goals because the desire for peer group acceptance is strong.

We recommend high schools be provided practice fields that include football, soccer, track, baseball, softball and Tennis areas.

It should be noted, all schools do not have the land area required for all recommend areas.

Other sites will need to wait for the architect's final design, including building additions, to determine if there will be land available for all recommended areas.

Rationale: High school is a time when students can establish habits and attitudes about the role physical activity will play in their lifetime. This is the time for students to explore their preferences related to physical activity and perhaps specialize based on abilities and interests.

**A Matrix
That Identifies by School
Items Provided At Each Site**

Summary of
Site Playgrounds and Fields
What Each Site Will Receive

Elementary Schools -	Grade	Small Toy	Big Toy	Hard Surface P.E.	Field P.E.	Practice Football	Practice Soccer	Practice Track	Practice Baseball/Softball	Practice Tennis Area
Adams	K-8	X	X	X	X					
Belle Isle	6/8			X	X					
Bodine	K-8	X	X	X	X					
Britton	K-6	X	X	X	X					
Buchanan	K-6	X	X	X	X					
Capitol Hill High School	9/12					X	X	X	X	X
Classen High School	6/12			X		Coop NE				
Cleveland	K-6	X	X	X	X					
Coolidge	K-6	X	X	X	X					
Creston Hills /Moon	K-8	X	X	X		X	X	X	X	
Douglass High School	9/12					X	X	X	X	X
Dunbar	K-6	X	X	X	X					
Edgemere	K-8	X	X	X	X					
Edwards	K-6	X	X	X	X					
Eisenhower Secondary	7/12			X		X	X	X	X	X
Eugene Field	K-6	X	X	X	X					
Fillmore	K-6	X	X	X	X					
Gatewood	K-8	X	X	X	X					
Grant High School	9/12					X	X	X	X	X
Green Pastures	K-8	X	X	X	X					
Hawthorne	K-6	X	X	X	X					
Heronville	K-8	X	X	X	X					
Hillcrest	K-6	X	X	X	X					
Hoover M.S./Stonegate	K-6	X	X	X	X					
Horace Mann	K-6	X	X	X	X					
Independence Enterp.	6/8			X	X					
Jackson M.S./Columbus	K-8	X	X	X		X	X	X	X	
Jefferson 7th-8th	7/8			X		X	X	X	X	
John Marshall High School	7/12			X		X	X	X	X	X
Johnson	K-6	X	X	X	X					
Kaiser	K-6	X	X	X	X					
Lee	K-8	X	X	X	X					
Linwood	K-6	X	X	X	X					
Longfellow	K-8	X	X	X	X					
Mark Twain	K-6	X	X	X	X					
Monroe	K-6	X	X	X	X					
New Elementary 1	K-8	X	X	X	X					
New Elementary 2	K-8	X	X	X	X					
Nichols Hills	K-6	X	X	X	X					
North Highland	K-6	X	X	X	X					
Northeast Academy	6/12			X		X	X	X Coop Classe	X	X Coop Classen
Northwest High School	9/12					X	X	X	X	X
Oakridge	K-6	X	X	X	X					
Parks	K-6	X	X	X	X					
Parnelee	K-2	X		X	X					
Pierce	K-8	X	X	X	X					
Prairie Queen	K-6	X	X	X	X					
Putnam Heights	K-8	X	X	X	X					
Quail Creek	K-6	X	X	X	X					

Summary of
Site Playgrounds and Fields
What Each Site Will Receive

Elementary Schools -	Grade	Small Toy	Big Toy	Hard Surface P.E.	Field P.E.	Practice Football	Practice Soccer	Practice Track	Practice Baseball/Softball	Practice Tennis Area
Rancho Village	K-6	X	X	X	X					
Ridgeview	K-6	X	X	X	X					
Rogers M.S.	K-8	X	X	X		X	X		X	
Roosevelt M.S.	K-8	X	X	X		X	X		X	
Sequoyah	K-6	X	X	X	X					
Shidler	K-8	X	X	X	X					
Southeast High School	9/12					X	X	X	X	X
Southern Hills	K-6	X	X	X	X					
Stand Watie	K-6	X	X	X	X					
Star Spencer High School	9/12					X	X	X	X	X
Taft 7th-8th	7/8			X		X	X	X	X	
Telstar	K-8	X	X	X	X					
Van Buren	K-5	X	X	X	X					
W. Nichols Hills	K-6	X	X	X	X					
Webster M.S.	3/8		X	X						
Western Village Enterp.	K-6	X	X	X	X					
Wheeler	K-8	X	X	X	X					
Willowbrook	K-8	X	X	X	X					
Wilson	K-6	X	X	X	X					

ATTACHMENT A

**Matrix of Elem. Playgrounds
Future Facility?
What Is Needed?**

	Two Playground/PE Areas	Playground with Impact Protection	Playground Fenced	Big Toy Area	Playground Handicap Accessible	Black Top Surface For Games	Track with Visible distance markings	Area with Sand for Outdoor Volleyball	Water Fountain	Tetherball Area	Outside Storage	Basketball Area									
Elementary Schools -																					
Creston Hills - Area I		2	0	2	0	0	2	0	0	5	0	5									
Dewey		7	7	9	0	6	6	0	0	0	0	0									
Dunbar		6	0	9	0	0	0	0	0	0	0	1									
Edwards		3	0	1	0	0	2	0	0	0	0	0									
Green Pastures		4	0	8	0	0	2	7	3	0	0	0									
King		7	7	9	0	7	4	0	4	0	0	0									
North Highland		0	5	7	0	0	0	0	0	0	0	7									
Parker		5	0	9	7	4	0	7	6	0	4	2									
Polk		8	10	5	8	0	6	0	0	0	0	8									
Spencer		6	4	8	5	0	7	3	0	0	5	5									
Star		3	0	10	0	0	1	0	0	10	0										
Telstar		8	8	8	5	6	9	7	0	0	7	5									
Willowbrook		2	0	2	0	0	1	0	0	0	0	1									
Area II																					
Edgemere		10	9	10	0	0	5	0	6	0	5	1									
Eisenhower		2	3	7	1	10	2	10	0	0	5	3									
Eugene Field		8	1	10	7	9	10	4	0	0	10	10									
Gatewood		7	0	10	0	0	10	9	0	0	8	10									
Putnam Heights		6	0	8	3	0	4	7	7	0	5	5									
Wilson		10	7	2	10	8	0	0	8	0	0	0									
Area III																					
Britton		4	2	4	7	10	2	2	0	0	2	2									
Horace Mann		3	1	8	0	7	1	4	0	0	3	1									
Johnson		5	3	9	4	5	2	8	3	0	3	1									
Madison		5	3	4	2	3	2	7	7	0	0	8									
Monroe		2	1	5	1	5	1	0	2	0	4	4									
Nichols Hills		7	10	10	10	0	7	0	0	0	5	7									
Quail Creek		6	4	2	3	1	4	6	0	0	4	3									
Ridgeview		6	3	6	7	5	4	5	0	0	5	5									
Sequoyah		9	9	10	5	10	6	10	5	0	8	1									
Stonegate		8	7	5	10	0	5	7	0	0	0	1									
W. Nichols Hills		10	10	7	10	10	8	10	10	8	10	10									

Matrix of TRACK Areas
 Future Facility?
 What Is Needed?

Elementary Schools -	Two Playground/PE Areas	Playground with Impact Protection	Playground Fenced	Big Toy Area	Playground Handicap Accessible	Black Top Surface For Games	Track with Visible distance markings	Area with Sand for Outdoor Volleyba	Water Fountain	Tetherball Area	Outside Storage	Basketball Area													
Area IV	7	7	7	5	1	1	3	2	0	7	0	0													
Adams																									
Arthur	Closed																								
Coolidge	5	8	1	5	8	5	0	0	0	0	0	0													
Fillmore	8	3	8	7	2	1	7	3	0	9	0	3													
Heronville	0	0	1	0	8	1	0	0	0	5	0	2													
Hillcrest	10	3	8	8	6	1	0	0	0	9	0	3													
Kaiser	5	8	6	10	8	1	7	6	0	6	0	5													
Pierce	5	8	10	6	8	8	4	0	0	8	0	6													
Prairie Queen	3	0	6	2	0	7	0	1	0	8	0	4													
Rancho Village	7	6	8	10	7	5	0	0	0	6	0	3													
Rockwood	4	8	7	9	5	5	0	0	0	0	0	0													
Southern Hills	1	0	8	8	0	0	0	0	0	0	5	6													
Stand Watie	1	0	7	0	10	4	2	0	0	4	0	4													
Van Buren	8	8	10	10	5	10	0	0	0	4	0	8													
Area V																									
Bodine	3	0	5	0	0	5	0	5	0	4	0	5													
Buchanan	7	5	10	8	5	4	0	0	0	0	0	4													
Capitol Hill	5	3	4	0	0	6	0	0	0	3	0	5													
Cleveland	6	0	10	0	0	6	7	4	0	2	0	1													
Columbus	5	7	7	0	7	0	0	0	0	0	0	0													
Hawthorne	7	0	9	0	0	5	6	7	0	2	0	2													
Hayes	5	5	8	7	8	1	6	0	0	2	5	1													
Lafayette	6	8	8	10	7	6	3	0	0	5	0	7													
Lee	2	0	3	3	1	0	0	0	0	3	0	2													
Linwood	4	0	8	0	0	0	0	0	0	5	0	4													
Mark Twain	8	6	5	8	8	6	5	0	0	0	0	8													
Oakridge	5	0	3	1	7	3	5	4	0	8	0	2													
Parmelee	6	7	9	8	4	9	1	0	0	9	0	5													
Shidler***	5	0	5	0	0	2	4	1	0	2	0	1													
Shields Heights	10	10	0	10	10	0	0	0	0	3	0	5													
Westwood	6	5	7	10	10	3	6	2	0	7	0	4													
Wheeler	3	0	2	0	0	5	2	0	0	2	0	2													
	330	224	392	266	235	223	187	96	8	231	5	210													
Average Rating of Playground	6	4	7	5	4	4	4	2	0	4	2	4													

ATTACHMENT B

**Matrix of Football Areas
Future Facility
What Is Needed?**

	Football PF	Irrigation	Goal Post 2	Leveled & Crowned Field	New/Repair Bleachers 40-50	Areas Secured by Fencing	Utility Shed	Video Tower													
High Schools																					
Capitol Hill High School	1	0	0	0		0	0	0													
Classen High School	Coop with Northeast Acad.																				
Douglass High School	8	0	0	0	0	8	0	0													
Eisenhower Secondary	No Program																				
Grant High School	1	10	1	10	2	10	10	10													
John Marshall High School	7	0	10	7	2	10	10														
Northeast Academy	0	0	10	10	0	10	10	0													
Northwest High School	0	0	10	10	10	10	0	0													
Southeast High School	5	0	10	5	1	5	0	0													
Star Spencer High School	0	0	0	0	0	0	5	0													
MIDDLE SCHOOLS																					
Classen SAS M.S.	Coop with Northeast Acad.																				
Harding M.S.	5	0	0	0	0	7	0	0													
Hoover M.S.	2	0	0	0	0	4	0	0													
Jackson M.S.	5	0	0	3	10	4	0	0													
Jefferson 7th-8th	8	0	0	5	0	5	0	0													
N.E. Academy M.S.	0	0	10	10	0	10	10														
Rogers M.S.	3	0	0	1	0	7	0	0													
Roosevelt M.S.	4	0	0	0	0	5	0	0													
Taft 7th-8th	Site Utilizes N.W. Classen Facilities																				
Webster M.S.	2	0	0	0	0	0	0	0													
Rate Existing Field Items																					
0-10 With 0 being N/A																					

**Matrix of Soccer Areas
Future Facility
What Is Needed?**

	Soccer PF	Irrigation	Goal Post 2	Leveled & Crowned Field	New/Repair Bleachers 40-50	Areas Secured by Fencing	Utility Shed														
High Schools																					
Capitol Hill High School	4	4	0	2	0	4	0														
Classen High School	0	0	0	0	0	0	0														
Douglass High School	No Program																				
Eisenhower Secondary																					
Grant High School	4	3	4	3	3	2	0														
John Marshall High School	5	3	10	5	3	3	1														
Northeast Academy	Coop with Classen			SAS																	
Northwest High School	5	0	10	5	0	5	0														
Southeast High School	6	6	6	6	1	7	0														
Star Spencer High School	No Program																				
MIDDLE SCHOOLS																					
Classen SAS M.S./NE	0	0	0	0	0	0	0														
Harding M.S.	No Program																				
Hoover M.S.	1	0	1	3	0	8	8														
Jackson M.S.	5	0	8	4	4	3	0														
Jefferson 7th-8th	0	0	2	0	0	1	0														
N.E. Academy M.S./Classen	Coop with Classen			SAS																	
Rogers M.S.	No Coach																				
Roosevelt M.S.	0	0	0	0	0	0	0														
Taft 7th-8th	1	0	0	0	0	3	0														
Webster M.S.	2	0	2	0	0	2	0														
Rate Existing Field Items																					
0-10 With 0 being N/A																					

**Matrix of Baseball/Softball Areas
Present Facility
What You Have Now.**

	Softball PF	Baseball PF	Irrigation	Backstop With Overhang	Drainage	Homerun Fence	Covered Dugout	Areas Secured by Fencing 6 or 8 ft.	New or Repaired Bleachers - 40-50 seats	Utility Shed														
High Schools																								
Capitol Hill High School	4	3	0	7	2	7	1	1	2	0														
Classen High School	Coop with Northeast Acad.																							
Douglass High School	1	2	1	1	2	0	0	0	1	0														
Eisenhower Secondary	Not Open																							
Grant High School	2	0	0	6	0	0	0	4	2	0														
John Marshall High School	5	8	7	8	0	0	5	7	8															
Northeast Academy	7	2	0	0	0	0	0	5	0	0														
Northwest High School	10	10	6	9	7	8	10	9	10	10														
Southeast High School	0	2	4	4	4	8	4	5	3	0														
Star Spencer High School	8	1	1	5	9	4	1	4	7	0														
Average Field Condition	5	2	3	5	4	3	2	5	4	3														
MIDDLE SCHOOLS																								
Classen SAS M.S.	Coop with Northeast Acad.																							
Harding M.S.		3	0	2	0	0	0	2	0	0														
Hoover M.S.	5	5	0	2	8	0	0	7	0	0														
Jackson M.S.		3	0	0	0	0	0	3	4	0														
Jefferson 7th-8th	1	1	0	0	0	0	0	0	0	0														
Moon M.S.	2	2	0	2	0	0	0	5	0	0														
N.E. Academy M.S.	7	2	0	0	0	0	0	5	0	0														
Rogers M.S.	4	4	0	3	0	0	0	0	0	0														
Roosevelt M.S.	1	1	0	0	0	0	0	2	0	0														
Taft 7th-8th	0	0	0	2	0	0	0	3	0	0														
Webster M.S.	2	2	0	1	0	0	0	5	0	0														

**Matrix of TRACK Areas
Future Facility?
What Is Needed?**

	Track	Long Jump Pit	Pole Vaulting Area	Discus Area	Irrigation	Areas Secured by Fencing	Hurdles Area	P. E. Field	Bleachers - Seating for 40-50	Utility Shed											
High Schools																					
Capitol Hill High School	2	0	0	0	7	10	5	2	10	10											
Classen High School	Coop with Northeast Acad.																				
Douglass High School	1	1	0	0	1	4	0	1	4	2											
Eisenhower Secondary																					
Grant High School	0	0	0	0	0	3	0	8	5	0											
John Marshall High School	10	0	0	5	0	6	8	7	1	0											
Northeast Academy	0	0	0	0	10	8	4	10	5	0											
Northwest High School	5	0	0	5	0	10	5	0	5	0											
Southeast High School	1	1	0	2	2	1	1	1	1	0											
Star Spencer High School	3	3	1	2	5	8	3	5	7	5											
MIDDLE SCHOOLS																					
Classen SAS M.S.	Coop with Northeast Acad.																				
Harding M.S.	0	0	0	0	0	0	0	8	0	0											
Hoover M.S.	1	0	0	0	0	1	0	1	0	0											
Jackson M.S.	0	0	0	0	0	3	0	10	4	0											
Jefferson 7th-8th	1	0	0	0	0	0	0	0	0	0											
Moon M.S.	0	0	0	0	0	2	0	4	0	0											
N.E. Academy M.S.	0	0	0	0	10	8	4	10	5	0											
Rogers M.S.	3	0	0	0	5	7	3	7	0	0											
Roosevelt M.S.	5	0	0	0	0	8	0	8	0	0											
Taft 7th-8th	10	8	0	7	10	8	10	8	9	8											
Webster M.S.	0	0	0	0	0	0	0	5	0	0											
Rate Existing Field Items																					
0-10 With 0 being N/A																					

Elementary Specifications:

Elementary school playground specifications have been divided into two tiers by student population. The two tiers consist of school sites with a student population of below 350 in the first tier and the second tier consist of schools with student populations between 351 and 500. Fifteen percent (15%) of each elementary school population is used as the basis for determining the capacities of site play systems (Small Toy or Big Toy).

Tier number 1 is provided:

Play systems with a capacity of: Up to 23 children ages 2-5 (Small Toy)

Minimum Size: 12' x 13' x 9' (3,66m x 3,96m x 2,74m)

Minimum Use Zone: 26' x 27' (7,92m x 7,2m)

Play systems with a capacity of: Up to 54 children ages 5-12 (Big Toy)

Minimum Size: 45' x 18' x 13'

Minimum Use Zone: 59' x 31'

Tier number 2 is provided:

Play systems with a capacity of: Up to 23 children ages 2-5 (Small Toy)

Minimum Size: 12' x 13' x 9' (3,66m x 3,96m x 2,74m)

Minimum Use Zone: 26' x 27' (7,92m x 7,2m)

Play systems with a capacity of: Up to 75 children ages 5-12 (Big Toy)

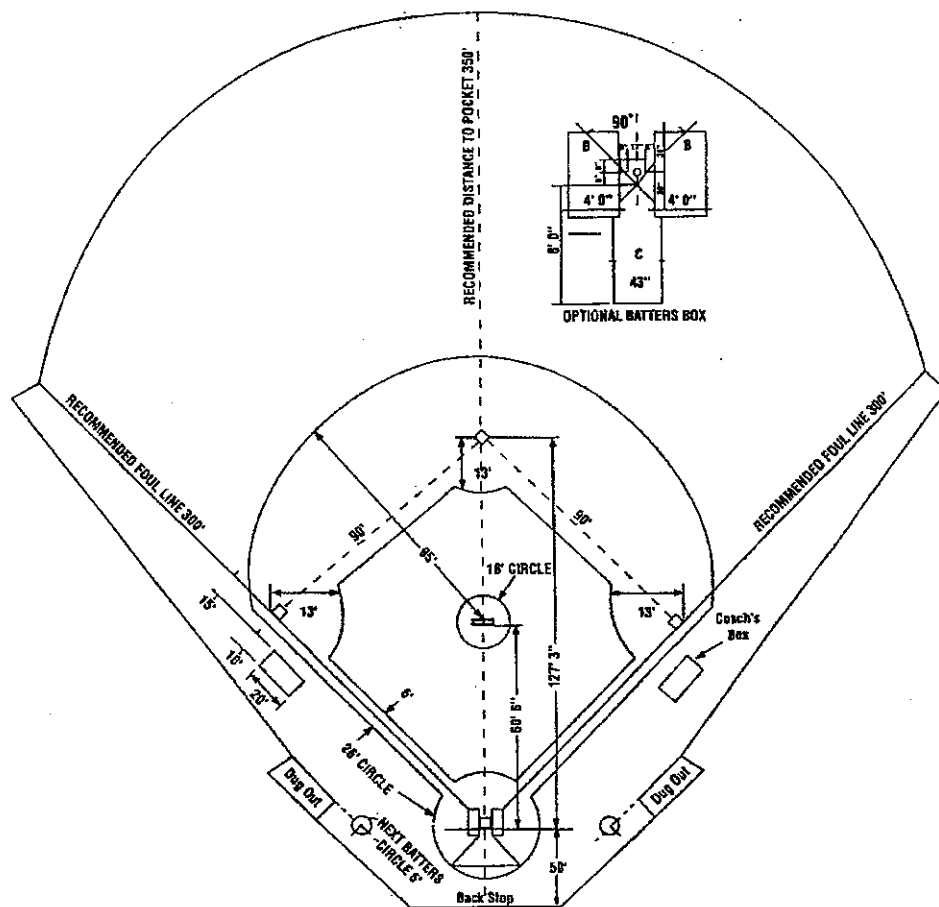
Minimum Size: 33' x 29' x 14' (10,06m x 8,84m x 4,27m)

Minimum Use Zone: 46' x 41' (14,02m x 12,50m)

It is recommended that each play system meet the requirements for access under the Accessibility Guidelines for Play Areas developed by the Federal Access Board with the addition of two ground-level play components and when installed over accessible surfacing. In addition, all play equipment must be installed with the following:

1. impact-absorbing surface
2. Smooth, rounded corners won't pinch fingers and joints
3. double wall construction to eliminate unwanted flexing
4. Lightweight interlocking borders to help manage the risk of injury.

PONY BASEBALL

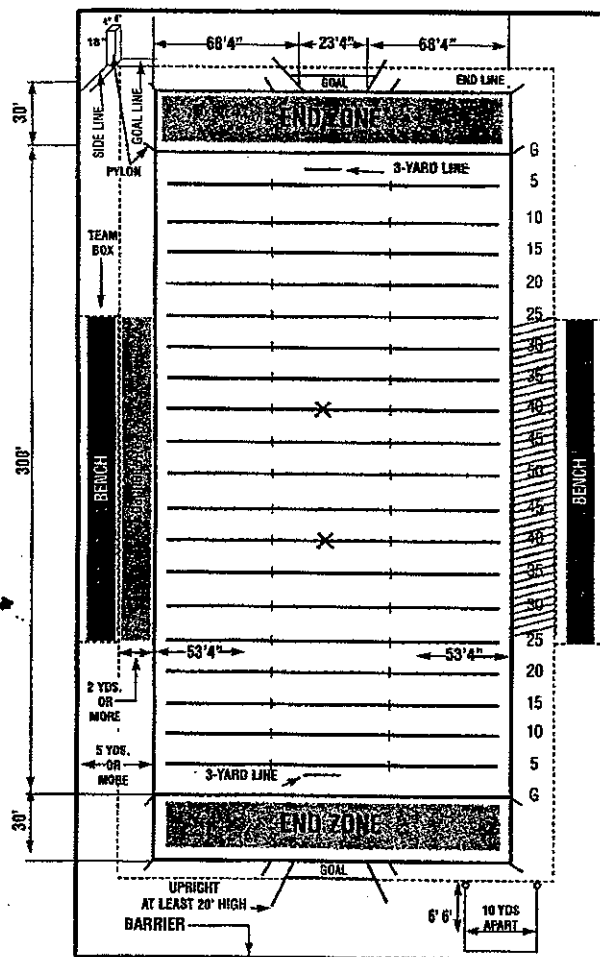


NOTE: The indicated dimensions are for use by players in the Colt (15-16) and Palomino (17-18) age categories of PONY Baseball.

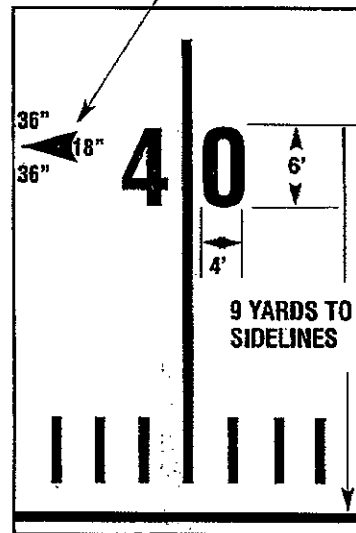
For more information regarding PONY Baseball, contact:

PONY Baseball
PO Box 225
Washington, Pennsylvania 15301
Telephone: 724-225-1060
Fax: 724.225.9852
E-mail: pony@pulsenet.com
Web site: www.pony.org

FOOTBALL



ARROWS INDICATING DIRECTION TO NEAREST GOAL LINE PERMITTED



RECOMMENDED YARD-LINE NUMBERING

NOTE: Game administration may place on the field, 4 inches from each sideline, yard-line extensions that should be 24 inches in length and 4 inches in width; and/or, at each yard line, numbers that should be 6 feet in height and 4 feet in width. The tops of the numbers should be 9 yards from the sideline and may include directional arrows next to the yard-line numbers indicating the direction toward the nearest goal line.

NOTE: Game administration may place on the field, at the inbounds lines, yard-line extensions that should be 24 inches in length and 4 inches in width.

NOTE: Both team boxes may be on one side between the two 45- and 20-yard lines. End lines and sidelines should be at least 4 inches wide. Other field dimensions should be 4 inches wide.

NOTE: Recommend the area between team boxes and sidelines be solid white or marked with diagonal lines.

NOTE: Inbounds lines should be 24 inches long and 4 inches wide.

NOTE: Recommend the field slope from center to each sideline at 1/4-inch per foot

NOTE: A 4-inch wide broken restraining line may be put around the entire field, 2 or more yards from the boundaries.

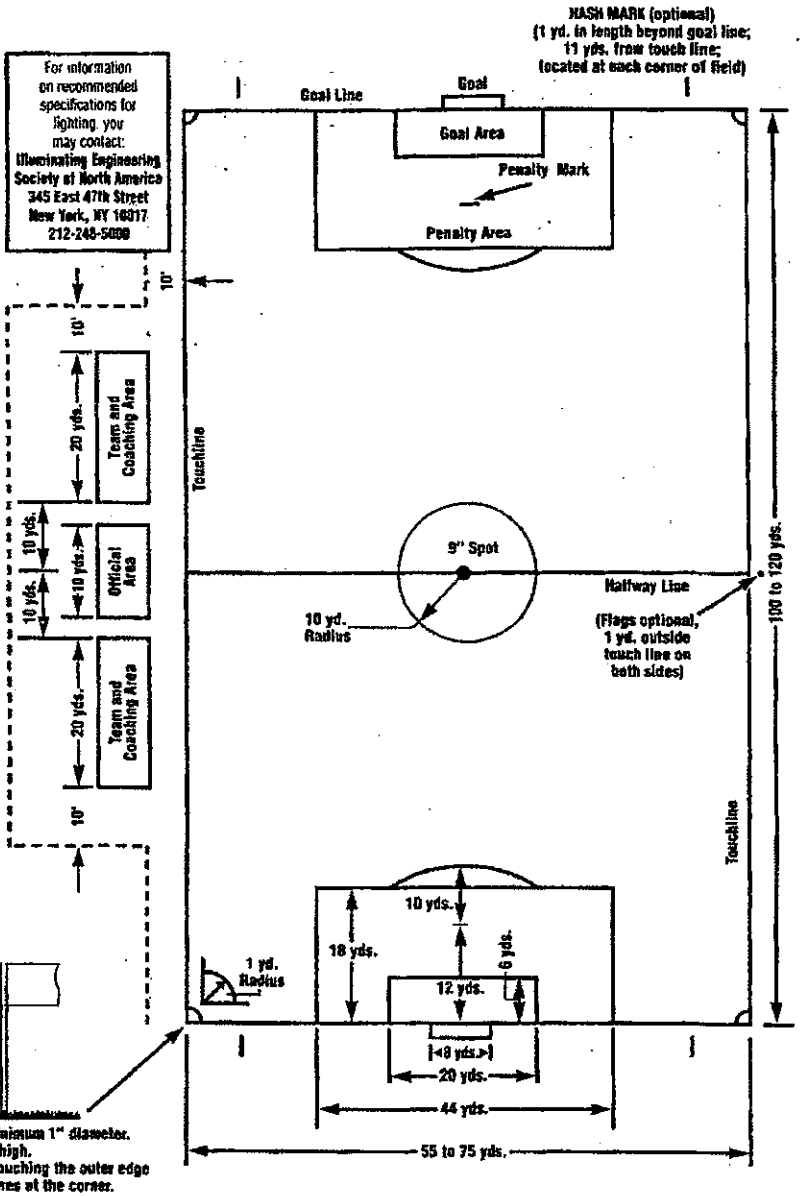
SOCCER

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An engineered soccer field should have a minimum of one-and-one-half percent slope on fields which are surface drained and made up of native soil. For fields with underground drainage the slope should be no less than one percent slope. Slope is measured from center to side. Under no circumstances should a soccer field be flat. For more information, contact Pam Scott, Design Architects, 816-472-1626.

SOFTBALL

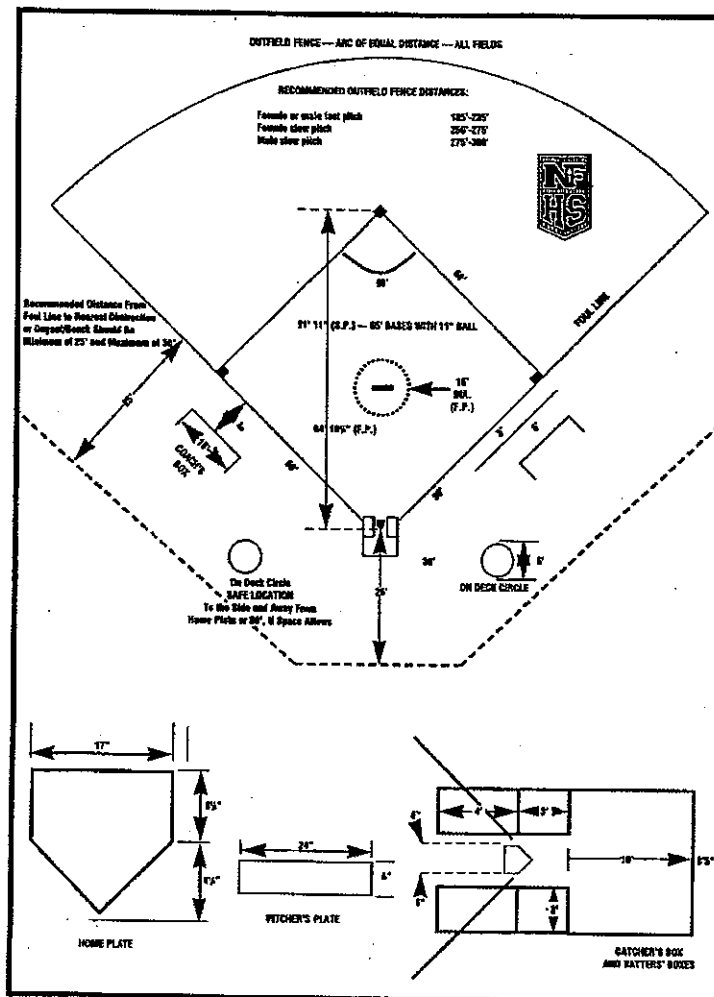
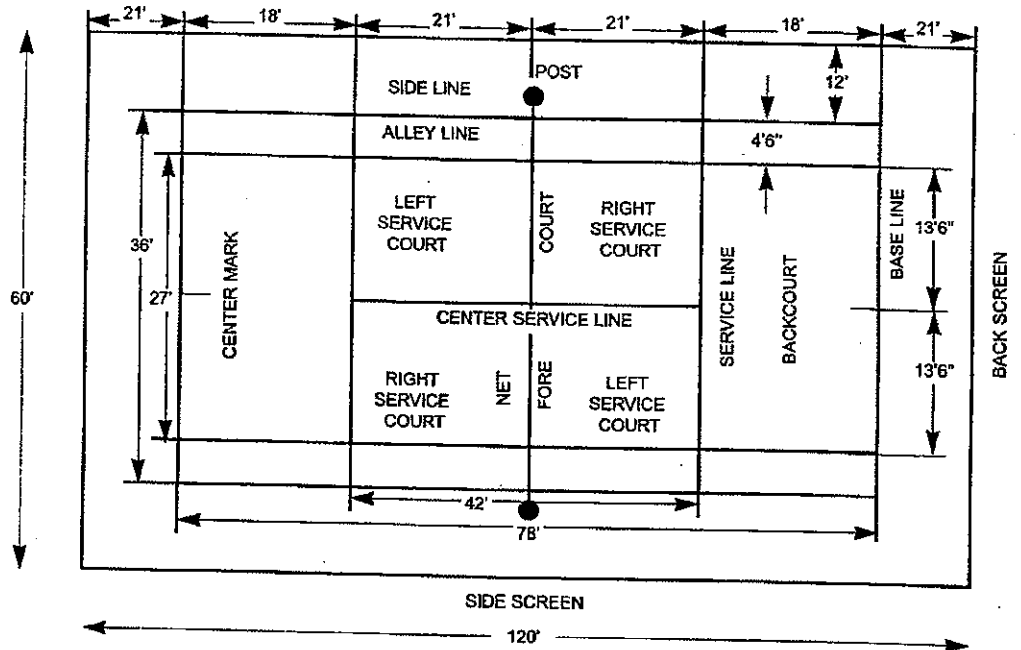
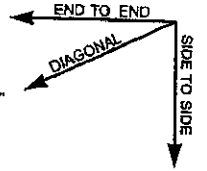


Diagram 2

When laying out the softball diamond, it is recommended that the line from home plate through the pitcher's plate to second base run east-northeast. If a skinned infield is used, the area is determined by measuring a 60-foot arc from the front center of the 46-foot pitcher's plate, even if other pitching distances are used.

TENNIS

TRUE PLANE
SLOPE
REQUIREMENTS:
1" IN 20' - 0" TO 1" IN 30' - 0"
FAST DRY COURTS
1% MAXIMUM
HARD COURTS



For more information regarding tennis, contact:

United States Tennis Association
70 West Red Oak Lane
White Plains, New York 10604
Telephone: 914-696-7000
Fax: 914.696.7167
Web site: www.usta.com

U.S. Tennis Court and Track
Builders Association, Inc.
3525 Ellicott Mills Drive, Suite N
Ellicott City, Maryland 21043-4547
Telephone: 410-418-4875
Fax: 410.418.4805
Web site: www.ustcba.com

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. The Architect is directed to take extra attention to design so that positive drainage is always accomplished, leaving no areas of standing water. This is especially important for areas within 20' of the building.
 - 1) Ground slopes and hardscape slopes shall be a minimum of 1' in 4' from building to curb line or for a minimum 20' from building.
 - 2) Finished earth grade adjacent to building shall be a minimum of 8' below finished floor, except adjacent to exits.
 - 3) All design criteria to meet requirements City of Oklahoma City Drainage Ordinance.
2. Unless authorized by the owner on a specific case-by-case project basis, all roof water drainage shall be collected and carried away from the building by underground storm drainage system.
3. A site drainage study, if required, by City of Oklahoma City Standard Specifications, is to be provided by the Architect.

B. PRODUCTS

1. EXTERIOR DOWNSPOUTS
 - a. If used, they shall terminate in cast iron or heavy duty extruded aluminum boots and connected to drainage system. Height to be a minimum of 5'-6"
2. PIPING
 - a. Minimum schedule 40 classification for all types (e.g. PVC, steel, etc.)
3. SEDIMENT DEVICES
 - a. Per Oklahoma City Standard Specifications for the Construction of Public Improvements.

C. EXECUTION

1. The Architect shall specify the Contractor take dated record photographs of all streams, ponds, and other water channels on site and adjacent properties, noting the erosion rates, sediment types, depths, etc. for documentation purposes prior to the start of any land disturbance activities.
2. The Architect shall specify the following:
 - a. Contractor shall secure triplicate original stamped and signed certificate copies by a Oklahoma-licensed land surveyor, executed on the form provided in the Bidding Documents to be submitted with the As-Builts as part of required Close-out Documents.
 - b. The drawings shall contain:
 - 1) All contours and elevations.
 - 2) Bottom of basin elevation in front of outlet device and opposite end of basin to verify drainage.
 - 3) Top of wall or dam elevation to verify freeboard.
 - 4) Width of dam (if applicable) at top of dam.
 - 5) Maximum ponding elevation and limits of ponding.
 - 6) Location of pond with respect to road right-of-way, property lines, and other easements.
 - 7) Detail of outlet device; show all elevations and dimensions.
 - 8) Date of record survey.
 - 9) Registered surveyor's seal and signature.

A. GENERAL

1. ARCHITECTURAL DESIGN

- a. Architect shall coordinate fencing criteria type and location regarding:
 - 1) Extent of property line fencing.
 - 2) Possible applications of Vinyl-coated fencing.
 - 3) Backstop and other specialty fencing.
- b. Fencing
 - 1) Types, Locations and Extent: Clearly identified on Drawings.
 - 2) Gates: Positive latching with padlock eyes; indicate swing direction and width dimensions.
 - 3) Padlocks: Include in hardware schedule for each gate; master key into school system.
- c. Type "A" Fencing
 - 1) Location: Set 12" inside the property line.
 - 2) Characteristics: 6' exposed overall height.
 - 3) Gates: None.
- d. Type "B" Fencing
 - 1) Locations: Around retention ponds and exterior equipment.
 - 2) Characteristics: 6' exposed height, no barbed wire.
 - 3) Gates: 12' wide, double leaf, padlocked.
- e. Type "C" Fencing
 - 1) Locations: At playfields; particularly at field edges leading to downward sloped areas. At areas to control pedestrian traffic.
 - 2) Characteristics: 4' exposed height, no barbed wire.
 - 3) Gates: 4' wide, no padlocks.
- f. Temporary Construction Fencing:
 - 1) Locations: Around all construction work areas, storage areas, and construction staging/parking areas. At additions to existing schools, provide children and teachers safe, fenced access to playfields.
 - 2) Characteristics: Minimum 6' exposed height.
 - a) Minimum fencing 12-1/2-gauge hog wire (no barbed wire) with drive-in posts as applicable at locations not requiring to be sight-proof.
 - b) Six inch (6") wide wood slats, continuous with a maximum 1/8" gap, installed on either wood or metal posts at sight proof locations.
 - 3) Gates: As necessary, padlocked. All gates will be double padlocked with one padlock keyed to the I-89 School District keying standard to allow School District access.

B. PRODUCTS

- 1. All materials shall comply with the Chain Link Fencing Manufacturers Institute ("CLFMI") standards. All materials and accessories for the project shall be provided from a single source.
- 2. Fabric: 2" diamond mesh. Minimum 9-gauge galvanized steel wire. Knuckle selvage top and bottom. (1 3/4" mesh for Tennis Courts)
- 3. Terminal Posts and Gate Posts: 3" O.D., hot-dipped galvanized, schedule 40 steel pipe. Lengths equal exposure plus 36" for embedment.
- 4. Line Posts: 2" O.D., hot-dipped galvanized, schedule 40 steel pipe. Lengths equal exposure plus 30" for embedment.
- 5. Post Caps: Required for all posts. Size to suit posts; integral eye for passage of top rail or tension wire.
- 6. Top Rails: 1-5/8" O.D., hot-dipped galvanized, schedule 40 steel pipe. Fabricate for swedge-type joints. Required on all fencing.
- 7. Braces:
 - a. Material same as top rails.
- 8. Fabric Tension Bars: 3/16" X 3/4" hot-dipped galvanized, single piece full height of fabric.

- Bands shall be 11-gauge X 7/8" wide.
9. Tension Wire: 7-gauge coated steel coil spring wire. Required at bottom of all fencing.
 10. Fabric Ties: 11-gauge aluminum alloy.
 11. Gates:
 - a. Framework and diagonal bracing: Same as top rail pipe, shop fabricated welded construction, all welds ground smooth, hot-dipped galvanized.
 - b. Hinges: Offset non-liftoff type to achieve 180-degree opening; minimum one (1) for each 24" of gate height or fraction thereof.
 - c. Latch: Fork type or plunger bar type with integral padlock eye to permit operation and unlocking from either side of gate.
 - d. Keeper: One (1) for each leaf; automatically engages gate leaf and holds leaf open until manually released.

C. EXECUTION

1. Architect shall specify the following:
 - a. Layout fencing per Contract Drawings and actual site conditions.
 - b. All posts set plumb. All permanent fencing posts set in the approximate plan center of 3000 psi concrete footings in firm solid earth. Terminal and gate posts set in 12" diameter X 42" deep footings; line posts set in 10" diameter X 36" deep footings. Post lengths to achieve minimum 6" concrete coverage around post bottom and sides; posts shall not contact earth. Top of concrete finished smooth, set to finished grade, and sloped away from post to shed water. Exposed post height to achieve required fabric height plus 2" of fabric clearance above finished grade.
 - c. Locate terminal posts at all corners and changes of direction. Install braces at each terminal post with pressed steel connectors.
 - d. Locate gate posts at both gate jambs of each gate. Install braces at each gate post with pressed steel connectors.
 - e. Line posts evenly spaced at maximum 10' OC.
 - f. Tie fabric to posts at 15" OC maximum; tie fabric to top rails at 24" OC maximum.
 - g. Top rails shall be installed parallel to finish grade.
 - h. Adjust gates and gate hardware for smooth operation without binding.
 - i. Remove temporary construction fencing at completion of project.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. SUMMARY
 - 1) This Section includes playground equipment and accessories for two (2) distinct units: K-2 and 3-5 grades. Both units shall have units for ADA accessibility.
 - b. Components and layouts shall be in accordance with the latest approved configuration provided by the OCMAPS Program Manager and the Program Consultant.
2. SUBMITTALS
 - a. Product Data: For each type of equipment required and required components, including installation instructions.
 - b. Shop Drawings: For each type of equipment, show general layout, component list, jointing, anchoring, support systems and accessories (required).
 - 1) Include an overall plan, to scale, showing the relationship of each type of equipment to one another, as well as to the playground limits.
 - 2) Include details of foundation system and a dimensioned plan layout of all footings: Supplied by playground equipment manufacturer.
 - c. Structural Calculations: For equipment indicated to comply with specified design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
 - d. Finish Samples for Verification: For each type of equipment and accessory.
3. WARRANTIES
 - a. Require submittal of proof of warranties equal to the specified systems as follows
 - 1) Two (2) year maintenance bond minimum warranty: Materials and workmanship (excluding vandalism)
 - 2) Fifty (50) year warranty: Support post (uprights) and decks (recycled plastic)
 - 3) Ten (10) year limited warranty: Expanded, pipes, rails, loops and rungs
 - 4) Five (5) year limited warranty: Rotomolded polyethylene components
 - 5) Lifetime limited warranty: Connection Hardware
 - 6) Fifty (50) year warranty: Recycled Plastic (stairs/bridges)
4. LIABILITY INSURANCE
 - a. Require submittal of proof of manufacturer's product liability insurance, written on the preferred occurrence form, for not less than the amount of \$2,000,000. No portion of the insurance coverage shall be self-insured. Product liability insurance written on a "claims made" form shall not be acceptable.
5. CERTIFICATIONS
 - a. Require submittal of certification of compliance for all components as follows:
 - 1) ASTM F-1487-95
 - 2) As specified for individual components elsewhere in this section.
 - 3) Provide a statement in writing verifying that the playground equipment complies with the current American with Disabilities Act Accessibility Guidelines (Accessibility Guidelines for Play Facilities). Any equipment that does not meet this requirement will be rejected.
 - 4) Provide a statement in writing verifying that the playground equipment is in compliance with the current Consumer Product Safety Commission Guidelines. Any equipment that does not meet this requirement will be rejected.
6. QUALITY ASSURANCE
 - a. Each type of equipment shall be obtained as a complete unit from a single

manufacturer, including fittings, accessories, bases, and anchorage devices.

- b. Factory-certified installer shall be certified by the National Playground Safety Institute.

B. PRODUCTS

1. MANUFACTURERS

- a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Dominica Recreation Products, Inc.
 - 2) Little Tikes
 - 3) Landscape Structure
 - 4) Bliss Products & Services, Inc.
 - 5) Miracle Recreation Equipment Company
 - 6) Safeplay Systems
 - 7) Gametime
 - 8) Leisure Lines Inc.
 - 9) Playworld Systems
 - 10) Play USA Inc.
- b. The equipment manufacturer shall demonstrate a ten (10) year work history and shall conform to the equipment components contained within these specifications.
- c. Playground equipment manufactured to submit playground equipment layout with fallzone requirements and square footage to Architect for approval.

2. PLAYGROUND EQUIPMENT COMPONENTS All recycled plastic items are composed of a minimum of 95% Post Consumer High Density Polyethylene (HDPE) and 5% reinforcing resins for stiffness, strength and durability.

- a. Post
 - 1) Recycled Plastic:
 - a) Posts shall be of min. dimensioned 6" x 6". East post shall be solid throughout of homogenous recycled material and shall have well-rounded edges. Posts shall be embedded in an oversized concrete footing a minimum of 30" below finished grade. No open or unused holes are acceptable for safety reasons. All support posts and decking shall be of the same material.
- b. Decks
 - 1) Recycled Plastic:
 - a) Decks shall be constructed of solid recycled plastic members with minimum 12 s.f. play surface members secured on each end in minimum two (2) places and supported with minimum two (2) support members which attach to the posts. Decks are fully factory manufactured with all members having rounded, smooth edges and pre-drilled recessed fastener hole locations for attaching directly into the posts. Decks are attached using minimum two (2) recessed lag screws per post. Connection with a low-density polyethylene insert to fit snugly into the recess to cap fasteners. All support posts and decking shall be of the same material.
- c. Hardware
 - 1) Connections:
 - a) Recessed lag screws directly into upright posts. Connection with a low-density polyethylene insert to fit snugly into the recess to cap fasteners. Each lag screw connection to resist corrosion.
- d. ADA Transfer Station and Stairs
 - 1) The ADA Transfer Station:
 - a) The ADA transition station deck shall be a full 9 ½ s.f. constructed in the same manner as the play structure deck. Support posts

members shall be and inset to facilitate transfer to and from wheelchairs. Each transition deck shall have a powder coated galvanized metal hand loop securely attached to facilitate transfer.

- 2) ADA Stairs:
 - a) ADA stairs shall be manufactured from with a low rise/deep tread construction that conforms to ADA specifications. Stair treads shall be minimum 14" deep and minimum 37" wide with risers that are 7" maximum. A two (2) level continuous handrail shall span the full length of the stairs.
- e. Barrier Rails:
 - 1) Barrier Rail:
 - a) The barrier rail is constructed of a top and bottom rail with nine vertical 1-3/8" (.085 wall) powdercoated galvanized metal rungs. All recessed fastener holes are factory provided and securely capped for lasting safety.
 - 2) Barrier Rail w/Steering Wheel:
 - a) A one-piece cast aluminum steering wheel with a lubricated brass bushing is securely fastened to the top rail. All recessed fastener holes are factory provided and securely capped for lasting safety.
- f. Bridges:
 - 1) Bridges B-1:
 - a) Shall be minimum seven dimensioned 2" X 6" boards and shall be individually secured in minimum two (2) places on each end of supports to be used as platform supports. The supports are lag bolted into the posts in minimum two (2) places on each end. Rails are constructed of a top and bottom rail with minimum nine vertical 1 3/8" (.085 wall) powdercoated galvanized metal rungs.
 - 2) Bridge B-2:
 - a) Shall be comprised of a series of 2" X 6" X 47" boards, securely fastened on 2" X 10" boards. All bridgeboards are independently rounded on all four (4) edges and each end. The side of the bridge is safely secured with a 38" high powder-coated galvanized steel safety rail.
- g. Slides:
 - 1) Spiral Slide w/Hood:
 - a) A rotationally molded one-piece slide bed and hood shall be of polyethylene with impregnated color pigment which is resistant to ultra violet radiation. The spiral side transition platform shall be of identical construction as the decks, ramps, steps, and transition stations.
 - 2) Wave Slide/Side by Side Slide/Safe Slide/Curve Slide
 - a) Slide shall be rotationally molded polyethylene with impregnated color pigment which is resistant to ultraviolet light. The slides are minimum 24" wide with a rail that is minimum 6" high at the top and minimum 4" at the exit. Wall thickness is 5/16" or greater, mounted in a minimum 24" footer.
 - 3) Crawl Tunnel/Tube Slide:
 - a) Crawl tunnel/tube slide shall be rotationally molded polyethylene with impregnated color pigment which is resistant to ultraviolet light. The tunnel shall be minimum 24" in diameter, which is securely fastened to the playstructure and encased in a wall panel to assure safety.
- h. Panels:
 - 1) Play panels are manufactured from material that is compression molded 3/4"

- high density polyethylene or approved equal that has been formulated for maximum ultraviolet resistance with all edges and corners well rounded for safety. The attached shapes are constructed of 3/16" high-density polyethylene that has been formulated for maximum ultra-violet resistance. They are securely attached with stainless steel screws with no protrusions at the back of the panel with all edges and corners well rounded for safety. All panels meet ASTM and CPSC standards. No panels shall consist of rung or high-density polyethylene. Provide a list of all panel configurations ten (10) days prior to bid opening.
- 2) Panel P-1 (game panel):
 - a) The 9-piece rotationally molded plastic panel is mounted on powdercoated rungs and each spins independently on the secured 1 3/8" rung. Spacing of all equipment complies with CPSC and ASTM standards. All fasteners are secured with a tamper resistant cap for safety.
 - 3) Panel P-2:
 - a) Bubble panel shall be molded polyethylene with impregnated color pigment which is resistant to ultra violet light with a wall thickness of 1/4" or greater. The bubble panel shall be securely fastened to the playstructure.
- i. Climbers-Horizontal Ladder-Overhead Loooper: All climbers shall be outfitted with a safe entry system constructed of 1 1/2" OD (.090 wall) hot dipped galvanized tubing. Climber shall have a 15" arched opening for safety except horizontal ladder and overhead looper. All entries are powder-coated to specifications.
- 1) Arch Climber:
 - a) The arch climber shall be constructed of 1 1/2" OD X (.090 wall) hot dipped galvanized pipe of adequate length to provide a safe entrance to the playstructure and be embedded with a 24" footing. Climbing rungs shall be constructed of 1 1/4" OD X (.085" wall) hot dipped galvanized pipe spaced 10" OC. The rungs are looped below the side rails to assure proper footing and hand holds. The arch climber shall be of welded construction and powder coated to specification. Mounted in a minimum a 24" footer.
 - 2) Spiral Climber:
 - a) The spiral climber shall be of all welded construction of a 1 1/4" OD (.085 wall) galvanized tube powdercoated to specification. The top arch attachment shall be fabricated with the same size tubing as the main spiral climber construction.
 - 3) Fire Pole:
 - a) The fire pole shall be of all welded construction of a 1 1/4" OD X (.085 wall) hot dipped galvanized pipe. The top arch shall be fabricated of the same size pipe as the pole and safely secured to the structure. The fire pole shall be of welded construction and powdercoated to specification. Mounted in minimum 24" footing.
 - 4) Tree Climber:
 - a) The tree climber shall have a center support structure constructed of 1.9" OD (.90 wall) hot dipped galvanized tubing formed on a 48" radius. The tree climber rungs are to be fabricated of 1.3155" OD (.085 wall) hot dipped galvanized tubing, spaced 12" on center. The tree climber shall be of welded construction and powdercoated to specification. Mounted in a minimum 24" footing. Tree climber must have a safe entry.
 - 5) Rung Incline:
 - a) Ladder rung incline ladder shall be minimum 37" wide and shall have side supports with 1.315" OD (.085 wall) powdercoated

- galvanized rungs. Ladder to be installed at 75-90 degree angles. Rung incline ladder shall have a safe entry.
- 6) Circle Climber/Web Climber:
 - a) Circle Climber and Web Climber shall be constructed of 1.31.55" OD (.90 wall) hot dipped galvanized tubing. Climbing circles and crossmembers of Web are to be fabricated of 1.31.55" OD (.085 wall) hot dipped galvanized tubing, spaced 12" OC. The climbers shall be of welded construction and powdercoated to specification. Mounted in minimum 24" footing. Climber must have a safe entry.
 - 7) Rock Climber:
 - a) A rotationally molded plastic w/arch shape recessed climbing holes and rounded handgrips with 6" wells. Minimum of 36" width and minimum 80" long.
 - b) A rotationally molded plastic w/arch shape recessed climbing holes and rounded handgrips with 6" wells. Minimum of 36" width and minimum 80" long.
 - j. Triple Chin Bar:
 - 1) Min. of a 1 ¼" OD (.085 wall) galvanized tube powdercoated to specification at min. 48" center between posts.

3. PLAYGROUND EQUIPMENT COMPONENTS QUALITY ASSURANCE:

- a. Powdercoated Galvanized Metal Options:
 - 1) All metal play options shall be of one-piece construction of hot dipped galvanized metal high strength tubing for integrity and corrosion resistance. Each option is powdercoated to specification.
- b. Powdercoating Specification:
 - 1) Polyester electro statically applied lo-mar powdercoating cured at 450-500 degrees Fahrenheit. All components to be powdercoated shall be free of excess weld and spatter and all welds ground smooth to the touch. Parts shall be thoroughly cleaned in a three-stage wash, phosphatizing bath and sealed with a non-chrome seal for corrosion resistance then thoroughly dried. Powdercoating shall be electro statically applied and fully oven cured at 400-500 degrees Fahrenheit for twenty (20) minutes.
- c. Polyester Lo-Mar powder shall meet or exceed ASTM standards for:
 - 1) Adhesion (D3359B)
 - 2) Flexibility (D1735)
 - 3) Overbake resistance (D2454)
 - 4) Salt Spray resistance (D117)
 - 5) Hardness (D3363)
 - 6) A minimum extreme bending stress (fb) of 14,000 psi (ASTM D198) and
 - 7) A minimum modules of elasticity of 340,000 (ASTM D198)
- d. All components shall meet or exceed ASTM standards for:
 - 1) A specific gravity less than 0.85 (ASTM D1622)
 - 2) A shear parallel to length that is a minimum of 600 psi (ASTM D143).
 - 3) Tension parallel to length a minimum of 900 psi (ASTM D143).
 - 4) Tension parallel to length a minimum of 900 psi (ASTM D198).
 - 5) Abrasion resistance yields a weight loss of 3.0 cubic inches in 100 hours (ASTM D3702).
 - 6) All members have co-efficient of friction greater than 0.25 when tested against shoe leather (ASTM D2394).
 - 7) Components shall contain no wood or wood fibers.

C. **EXECUTION**

1. PREPARATION AND INSTALLATION

- a. Require Contractor to verify that thickness of safety surfacing complies with the

- b. thickness recommended for the equipment components fall heights.
Require Contractor to conduct a pre-installation meeting.

A. **GENERAL**

1. ARCHITECTURAL DESIGN

- a. Establishment of required grassing and landscaping shall occur prior to final completion of the building and all other aspects of the project as a whole. If substantial completion occurs during the winter months or prior to establishment of grass and landscaping, provisions shall be made within the completion certificate to accommodate the completion of the task and a time line established for completion of the installation and maintenance period.

2. LANDSCAPE DESIGN

- a. As part of their services, the Architect shall engage the services of a qualified Landscape Architect ("ASLA" member) to oversee the design and construction administration of all project grassing and landscaping.
- b. Design Criteria: Overall site shall incorporate material species that:
- 1) Have had proven successful growth and endurance.
 - 2) Will provide a pleasing campus ambience.
 - 3) Require minimal maintenance.
 - 4) Are suited for climates/conditions similar to those of the project locality.
 - 5) Will grow in their natural form to reach maturity with minimal pruning.
 - 6) Consider the nature of children & pedestrian traffic patterns.
 - 7) Can be readily locally replaced and/or supplemented.
- c. Low Maintenance Areas
- 1) Locations: Designated property line undisturbed buffer zones and slopes exceeding 1-vertical to 3-horizontal ratio.
 - 2) Grasses: Use of weeping love grass is encouraged.
 - 3) Landscaping: Use evergreens, junipers, and mulch areas.
 - 4) Use low growing ground cover plants in lieu of pine straw beds in islands and adjacent to the building when possible.
- d. Sod at grass areas at Main Entry, 10' width around entire project building, and other feature areas subject to public view, and on playfields.
- e. Seeded Grass used at unsodded mowable areas of 1:3 slope or less.
- f. Drawings shall identify plant names, sizes, calipers, quantities, locations, spacings, and other pertinent criteria.
- g. Include Drawings and Specifications an automated irrigation system of building main entry landscape areas, and playfields. The design shall incorporate data from City of Oklahoma City Water Department water flow test for project site, and shall be separately metered from the domestic water system by an irrigation meter. Irrigation system shall have separate zones for shrubbery and grass areas. All lateral piping shall be set minimum 18" below finish grade; all underground non-metallic piping shall have non-corrosive tracer wire along entire piping lengths.

3. PLANT ESTABLISHMENT AND GUARANTEE PERIOD

- a. Establishment period for plants shall begin immediately after installation with the approval of the I-89 School District and the OCMAPS Program Manager and continue until the end of the guarantee period. During the plant establishment period the Contractor shall:
- 1) Water all plants to maintain an adequate supply of moisture within the root zone. An adequate supply of moisture is the equivalent of 1" of absorbed water per week either through natural rainfall or augmented by periodic watering. Apply water at a moderate rate so as not to displace the mulch or flood the plants and turf.
 - 2) Prune plants and replace mulch as required.
 - 3) Replace and restore stakes, guy wires and eroded plant saucers as required. Remove stakes from trees after 1 year of planting has elapsed.
 - 4) In plant beds, remove grass and weeds including the root growth, before they reach a height of 3".
 - 5) Spray with approved insecticides and fungicides to control pests and ensure

- 6) plant survival in a healthy growing condition.
 - 7) Remove any plants that die during this period and replace them with plants of the same size and species. A two-year guarantee for these plants begins on the day they are replaced.
 - 8) The Contractor is not responsible for theft or damage to plants by non-contractor vehicles or vandalism once plants are installed and approved.
 - 9) Two-year plant guarantee period will begin on the date of final acceptance. All planting and turf work shall have been completed, located and installed according to the drawings and specifications, and all plants and turf shall be in a living and healthy condition at the time of final inspection. The Contractor will immediately remove any dead plants noted at this final inspection and replace them with plants of the same size and species. Replacement of relocated plants, that the Contractor did not supply, is not required unless they die from improper handling and care during transplanting. Loss through Contractor negligence requires replacement in kind and size.
 - 9) Remove all sun-scalding protective covers from trees immediately after planting.
 - b. Termination of the Plant Establishment and Guarantee Period
 - 1) The I-89 School District will inspect all plants at the end of the one (1) year guarantee period. The Establishment and Guarantee Period will end on the date of this inspection provided the Contractor has complied with the work required under the plant establishment period. The Contractor shall also comply with the following requirements:
 - a) Replace dead, missing, or defective plant material.
 - b) From plants having been installed for one year, remove stakes, guy wires and any required tree wrappings.
 - c. Repair damage caused while making any plant replacements.
4. GRASS REQUIREMENTS
- Architect shall incorporate the following grassing notes onto the drawings:
- a. Permanent Grassing:
 - 1) The Contractor shall be responsible for attaining final permanent bermuda grassing (and/or sprigging and/or sodding) on the project in accordance with the specific criteria of the drawings and specifications. All temporary grassing which does not comply with the required permanent grassing materials, which were installed, for erosion control measures or the convenience of the Contractor shall be fully tilled under, then the soil prepared for permanent Bermuda in accordance with contract criteria.
 - b. Acceptable uniform stand of grass:
 - 1) An acceptable uniform stand of grass is defined as:
"Establishment of the specified grass, properly watered, maintained, mowed, and free of weeds, with the grass having a minimum of 97% coverage over the required areas and only scattered bare spots, none of which is larger than one (1) square foot in area."
 - 2) Maintain a grass height between 2" and 2-1/2" until final acceptance.
 - 3) Do not cut off more than 40% of grass height in single mowing.
 - 4) Perform mowing approximately weekly (or as required to fulfill the above criteria) for a total of not less than four (4) mowings prior to final acceptance.
 - c. Delivery and Storage
 - 1) Protect plants during delivery to prevent damage to root balls or desiccation of leaves. Protect trees during transport by tying in the branches and covering all exposed branches.
 - 2) The use of equipment such as "tree spades" is permitted provided the plant balls are sized in accordance with ANSI Z60.1 and tops are protected from damage.

B. PRODUCTS

1. GENERAL

All plant material will conform to the varieties specified or shown in the plant list and be true to botanical name as listed in Hortus Third.

- a. Plants: Plants shall be in accordance with ANSI Z60.1, except, as otherwise stated in the specifications or shown on the plans. Where the drawings or specifications are in conflict with ANSI Z60.1, the drawings and specifications shall prevail.
- b. Provide well-branched and formed planting stock, sound, vigorous, and free from disease, sunscald, windburn, abrasion, harmful insects or insect eggs with healthy, normal, and unbroken root systems. Trees, deciduous and evergreen, will be single trunked with a single leader, unless otherwise indicated, and display no weak crotches.
- c. Provide symmetrically developed deciduous trees and shrubs of uniform habit of growth, with straight boles or stems and free from objectionable disfigurements, and evergreen trees and shrubs with well-developed symmetrical tops with typical spread of branches for each particular species or variety. Plants shall have been grown under climatic conditions similar to those in the locality of the project. Spray all plants budding into leaf or having soft growth with an anti-desiccant at the nursery before digging.
- d. The minimum acceptable size of all plants measured before pruning with branches in normal position shall conform to the measurements designated. Plants larger in size than specified may be used with no change in the contract price. When larger plants are used, increase the ball of earth or spread of roots in accordance with ANSI Z60.1
- e. Provide nursery grown plant material conforming to the requirements and recommendations of ANSI Z60.1. Dig and prepare plants for shipment in a manner that will not cause damage to branches, shape, and future development after planting.
- f. Balled and burlapped (B&B) plant ball sizes and ratios will conform to ANSI Z60.1, consisting of firm, natural balls of soil wrapped firmly with burlap or strong cloth tied.
- g. Container grown plants shall have sufficient root growth to hold the earth intact when removed from containers, but shall not be root bound.
- h. Make substitutions only when a plant (or its alternates as specified) is not obtainable. Use the nearest equivalent obtainable size or variety of plant having the same essential characteristics, with an equitable adjustment of the contract price.
- i. When existing plants are to be relocated, ball sizes shall conform to requirement for collected plants in ANSI Z60.1, and plants shall be dug, handled and replanted in accordance with applicable sections of these specifications.

2. LABELS

- a. Each plant, or group and bundles or containers of the species, variety, and size of plant, shall be legibly tagged with a durable, waterproof and weather-resistant label indicating the correct plant name and size specified in the plant list. Labels shall be securely attached and not be removed.

3. TOPSOIL

- c. Topsoil shall be a well-graded soil of good uniform quality. It shall be a natural, friable soil representative of productive soils in the vicinity. Topsoil shall be free of admixture of subsoil, foreign matter, objects larger than one inch in any dimension, toxic substances, weeds and any material or substances that may be harmful to plant growth and shall have a pH value of not less than 5.5 nor more than 7.5.
- d. If sufficient topsoil is not available on the site to meet the depth as specified herein, the Contractor shall furnish additional topsoil. Additional topsoil shall meet the general requirement as stated above and comply with the requirements specified in Section, testing. Topsoil not meeting the pH range specified shall be amended by the addition of pH adjusters.

4. MULCH

- a. Mulch shall be free from deleterious materials and shall be stored as to prevent inclusion of foreign material.
- b. Organic mulch materials shall be shredded bark.

5. GUYING AND STAKING
 - a. Contractor shall be required to provide stakes for tree support of green 6' steel T-posts.
 - b. Guying wire shall be 12-gauge annealed galvanized steel.
 - c. Hose chafing guards shall be new or used 2-ply reinforced rubber or plastic hose of all the same color on the project.
 - d. Flags to be fastened to guys shall be surveyor's plastic tape, white in color and 6" in length.
6. WATER
 - a. Water shall not contain elements toxic to plant life.

C. EXECUTION

1. The Architect's Landscape Architect consultant shall perform all necessary construction contract administration duties thru the Architect to ensure the Contractor's satisfactory accomplishment of required grassing and landscaping for the project.
2. UNDERGROUND UTILITIES
 - a. Require the Contractor to identify locations of all underground utilities prior to landscape excavation. Damage to the utility lines will be repaired at Contractor's expense.
3. SOIL SAMPLES
 - a. Specify the Contractor shall take soil samples from several areas (Contractor to identify on Site Plan) of the site scheduled for grassing/landscaping to be analyzed by the Agricultural Extension Service (AES); provide the Architect's Landscape Architect with the written report of AES recommendations for soil amendments and fertilizers to be used on site. Contractor shall receive endorsement of recommendations from the Architect's Landscape Architect and incorporate accordingly. All of the above shall be done with no adjustments to either the Contract sum or Contract time.
4. TOP SOIL
 - a. A minimum 5" depth of topsoil required for all grass areas, and minimum 9" depth in shrubbery and ground cover beds. Specify Contractor is solely responsible for obtaining and distributing all required topsoil material for grassing and landscaping the project, regardless of source.
5. FINISH GRADES
 - a. Within 0.10' of required grade.
 - b. Smooth and uniform to accomplish mowing of grass to uniform heights without scalping. Specify Contractor to remove all stones 1" diameter and larger by machine and/or hand methods prior to grassing operations.
 - c. Sloped for proper drainage away from building and into storm system.
 - d. Specify Contractor to set sod in place with snugly abutting staggered joints, and rolled to remove all high/low/undulating areas.
6. GRASS MAINTENANCE AND ACCEPTANCE
 - a. Architect shall incorporate attached Notes onto Landscape Drawings.
 - 1) "Contractor shall maintain grass until Final Acceptance but for not less than sixty (60) calendar days after seeding/sodding. Full grass coverage shall be required within sixty (60) calendar days of planting."
7. PLANTING AND TURF INSTALLATION SEASONS AND CONDITIONS
 - a. Specify no work shall be done when the ground is frozen, snow covered, too wet or in an otherwise unsuitable condition for planting. Special conditions may exist that warrants a variance in the specified planting dates or conditions. A written request shall be submitted to the Architect stating the special conditions and proposal variance.
8. LAYOUT
 - a. Specify Contractor to stake plant material locations and bed outlines on project site for approval by the Architect before any plant pits or beds are dug. The Architect may approve adjustments to plant material locations to meet field conditions.
9. EXCAVATION FOR PLANTING

- a. Require the Contractor to perform the following: Where lawns have been established prior to planting operation, cover the surrounding turf before excavations are made in a manner that will protect turf areas. Existing trees, shrubbery, and beds that are to be preserved shall be barricaded in a manner that will effectively protect them during the protect construction.
 - b. Remove rocks and other underground obstructions to a depth necessary to permit proper planting according to plans and specifications. Where underground utilities, construction, or solid rock ledges are encountered, other locations may be selected by the Architect.
 - c. Plant pits may be dug by any approved method provided that the pits have vertical sides and flat bottoms. When pits are dug with an auger and the sides of the pits become glazed, the glazed surface shall be scarified. Size the plant pits as shown, otherwise, the minimum allowable dimensions of plant pits shall be regardless of width, 6" deeper for shrubs and 9" deeper for trees than the depth of ball or root spread; for ball or root spread up to 2', pit diameters shall be twice the ball or root spread; for ball or root spread from 2' to 4', pit diameters shall be 2' greater; for ball or root spread over 4', pit diameters shall be 2 times the ball or root spread.
 - d. Where existing soil is to be used in place, till new ground cover and plant beds to a depth of 4". Spread peat uniformly over the bed to depth of two inches and 2" thoroughly incorporate it into the existing soil to a depth of 4" using a roto-tiller or similar type of equipment to obtain a uniform and well-pulverized soil mix. During tillage operations remove all sticks, stones roots, and other objectionable materials. Plant beds shall be brought to a smooth and even surface conforming to established grades.
 - e. Form watering saucers around plants, with topsoil.
 - f. Treat plant saucers, shrub, and ground cover bed areas, prior to mulching, with an approved pre-emergent herbicide. Plant ground cover in areas to receive erosion control material through the material after material is in place.
10. SETTING PLANTS
- a. Specify Contractor to handle balled and burlapped and container-grown plants only by the ball or container, set plants plumb and hold in position until sufficient soil has been firmly placed around the roots or ball, set plants in relation to surrounding grade so that they are even with the depth at which they were grown in the nursery, collecting field, or container, plant ground cover plants after the mulch is in place, avoid contaminating the mulch with the planting soil, and add slow release packed, tablet or pellet fertilizer as each plant is installed as per manufacturer's recommendation for method of installation and quantity.
 - b. Specify Contractor to backfill balled and burlapped stock with planting soil mixture as specified to approximately half the depth of the ball and then tamp and water. Carefully remove excess burlap and tying material and fold back. Where plastic wrap or treated burlap is used in lieu of burlap, completely remove these materials before backfilling. Tamp and water remainder of backfill planting soil mixture and then form earth saucers or water basins around isolated plants with topsoil.
11. MULCHING PLANTS
- a. Specify Contractor to:
 - 1) Mulch within 24 hours after planting and after applying the pre-emergent herbicide, except ground cover areas that shall have organic material placed before planting.
 - 2) Place a mulch of shredded Cypress mulch shall be spread to a uniform minimum thickness of 3".
 - 3) Keep mulch out of the crowns of shrubs and off buildings, sidewalks, light standards, and other structures.
12. STAKING AND GUYING
- a. Specify the Contractor to stake and guy plants as shown on the drawing and as specified, install iron anchors according to detail recommendations and fasten flags securely on each guy wire approximately 2/3 of the distance up from ground level.
13. PRUNING

- a. Require the Contractor to:
 - 1) Prune plant material in the following manner: Remove dead, broken and crossing branches. Make cuts with sharp instruments flush with trunk or adjacent branch to eliminate stubs. No "Headback" cuts at right angles to line of growth are permitted. Do not pole trees or remove the leader. Remove trimmings from the site.
 - 2) Existing trees to be pruned are shown on the drawings. Perform tree pruning and cavity work by an arborist in accordance with ANSI Z133.1. Remove dead wood ½" or more in diameter, branches interfering with or hindering the healthy growth of the trees, and diseased branches with a clean cut made flush with the parent trunk. Cut back or remove branches as necessary to give the trees proper shape and balance. In removing the large limbs, make the initial cut on the underside at a safe distance from the trunk or lateral, to prevent ripping of bark. Ensure branches and trimmings do not endanger traffic or cause damage to property during removal. Section large branches or limbs that cannot be removed in one piece without endangering traffic or property. Lower sections by ropes. Repair any damage resulting from the Contractor's negligence during pruning. Workmen are not permitted to climb trees with climbing spurs. To promote proper healing, cut off flush stubs or limbs that have resulted from improper cuts or broken as a result of former pruning. Remove girdling roots.

14. MAINTENANCE

- a. Require Contractor to maintenance operations to begin immediately after each plant is planted and continue as required. Keep plants in a healthy, growing condition by watering, pruning, spraying, weeding, and any other necessary operations of maintenance. Keep plant saucers and beds free of weed, grass, and other undesired vegetation. Inspect plants one (1) per week during the installation period and perform needed maintenance promptly.
- b. Maintenance to continue until final acceptance of the project.

15. RECOMMENDED MATERIALS

Shrubs / Grasses

Crape Myrtle	Yaupon Holly	Nandina's
Maiden Grass	Variiegated Miscanthus	(Domestica, Gulf Stream, Harbour Dwarf)
Deciduous Holly	Vitex	Vanhoutte Spiraea
Nellie R Stevens (tree form)	Junipers (Dwarf/spreading)	Winterberry Euonymus
Burning Bush	Liriope	Glossy Abelia
'Anthony Waterer' Spirea	Prostrate Abelia	Foster Holly #2
Dwarf Yaupon Holly	Leatherleaf Mahonia	Southern Wax Myrtle
Dwarf Ornamental Grasses		

Mature Height

Recommended Spacing

Large Shrubs

5' – 10'

6' – 15'

- Vitex – Vitex agus-castus
- Crape Myrtle – Lagerstroemia indica
- Yaupon Holly – Flex vometoria
- Nellie R Stevens Holly – Ilex x Nellie R. Stevens
- Deciduous Holly – Ilex decidua
- Vanhoutte Spiraea – spiraea x vanhoutte
- Winterberry Euonymus – Euonymus bungeana
- Burning Bush – Euonymus alata

Large Trees

25'oc min.
40'oc (preferred)

Lacebark Elm – *Ulmus parvifolia*
Baldcypress – *Taxodium distichum*
Kentucky Coffee Tree – *Gymnocladus dioica*
Burr Oak – *Quercus marocopus*
London Planetree – *Platanus x acerifolia*
Shumard Red Oak – *Quercus shumardi*

Medium Trees

25' oc (preferred)

Smoke Tree – *Continus coggygia*
Purple Smoke Tree – C.c. 'Purpurea' , 'Royal Purple'
Golden Rain Tree – *Koelreuteria paniculata*
Chinese Pistache – *Pistachia chinensis*
River Birden – *Betula nigra*
Sawtooth Oak – *Quercus acutisslma*

Small Trees

Oklahoma Redbud – *Cercis reniformis* 'Oklahoma'
Saucer Magnolia – *Magnolia Soulangiana*
Desert Willow – *Chilopsis linearis*

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Avoid terms "mortar" and "grout" interchangeably; use correct terminology for specified condition.
 - b. Architectural details using materials in structural applications must be endorsed by structural engineer with stamp and signature on any Drawing, which has Structural items.
 - c. Identify areas of colored mortar conditions on Drawings. Architect shall limit colored mortars to low-cost range materials.
 - d. Cavity spaces below grade in exterior walls shall be filled solid with grout to through-wall flashing elevation.
2. Structural and Architectural drawing details of same conditions shall fully agree on materials and terminologies.

B. PRODUCTS

1. MORTAR
 - a. Type "S" for all brick unless recommended being otherwise by the Brick Institute and CMU applications.
 - b. Provide integral water reducing and plasticizing admixture for all exterior applications.
 - c. Use one brand and type of cement for entire project.
 - d. Colored mortar (as applicable to suit design): Integral factory-mixed pigments; no job mixing allowed. (Natural mortar color preferred or standard low cost range color.)
 - e. No anti-freeze admixtures allowed.
2. CEMENT GROUT: Minimum 3000 p.s.i. 28-day strength.

C. EXECUTION

1. Sample Mock-Up Panel: Refer to Section 04210 for mock-up panel requirements
2. Specify joint finish to be tooled slightly concave; sled runners on horizontal joints.
3. Colored mortar shall be prior approved by the contracting entity.
4. Specify all brick head and bed joints filled solid; no furrowing allowed.
5. Specify Contractor to cover and protect freshly laid masonry and cavity walls at stopping pints during construction prior to completion.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Bond: Running; no units less than 2" long. No stack bond.
 - b. Joints: nominal 3/8", concave tooled; fully bedded, not furrowed.
 - c. Steel Lintels: Primed and painted after fabrication.
 - d. Weeps: Minimum 24" OC.
 - e. All recessed items to coordinate with brick coursing to greatest extent possible.
 - f. Draw all Building Elevations; include "hidden" areas. Dimensionally locate ALL wall-mounted items (e.g. hydrants, standpipes, speakers, downspouts, lights, receptacles, signage, etc.) and draw large-scale details of their relationships with brickwork. Draw large-scale elevations and details of all feature coursing conditions.
 - g. Expansion and Control Joints: All shall be dimensionally located on Building Elevation drawings and designed in accordance with the recommendations of the Brick Institute of America. Coordinate with vertical block joint locations. Do not locate expansion joints within 16" of window jamb or door jamb. Draw large-scale frontal and section details to show materials and brickwork relationships.
 - h. Sections and details shall illustrate brick in its correct size to agree with specified materials.
 - i. No sealers to be used on finished brickwork.

B. PRODUCTS

1. BRICK: Architect to specify size and give actual unit dimensions to avoid any misunderstandings in nomenclature. Special shapes shall be specified as required for project. Use solid units where cores (frogs) would otherwise be exposed to view.
2. CLEANING COMPOUND: Must be compatible with specified brick. Specify Contractor to submit brick manufacturer's written endorsement of proposed cleaner to the Architect for file.
3. MORTAR: See Section 04100 for criteria.

C. EXECUTION

1. Sample Mock-Up Panel: Architect shall specify the specific list of example features for the project that the sample mock-up panel shall illustrate. Specify Contractor to provide 4'-0" x 4'-0" sample mock up panel Incorporate examples of all conditions pertinent to the project; include bonding patterns, colored mortars, finished joint tooling, back-up construction, expansion joints and control joints (with sealant and backer rod), horizontal reinforcing, anchorage to back-up construction, thru-wall flashing, cavity insulation, weeps, and any other special conditions for the project into masonry panel. The sample panel shall be approved by the contracting entity prior to initiating actual work on the project. Sample panel shall not be a part of the actual work. Contractor shall maintain and protect approved sample panel for duration of masonry construction.
2. The Architect shall specify the following general construction criteria:
 - a. All cutting done accurately with masonry saws; 2" minimum unit length.
 - b. All bed and head joints fully mortared; no furrowing allowed.
 - c. Keep all designed cavity areas free of mortar droppings and debris.
 - d. No toothing of progressive masonry work permitted.
 - e. All vertical expansion and control joints straight and clean.
 - f. Securely cover installed work at end of each workday.
 - g. Secure minimum 24" wide plastic and/or mulch at base of building to protect brickwork from mud staining and other construction splatters; protection remains until hardscape / landscape established.

A. GENERAL

1. STRUCTURAL DESIGN
 - a. The Architect shall not assume the duties of a Structural Engineer.
 - b. Design of all structural elements and construction administration (with field reports) shall be performed by an Oklahoma-licensed Structural Engineer.
 - c. Stamp and signature of Structural Engineer shall be required on Drawings and Specification cover and Index Sheet.
 - d. Design for all required live loads, dead loads, concentrated loads, wind loads, and other stresses shall be per applicable code. Structural Engineer shall denote these load requirements on the drawings.
 - e. Structural Engineer shall design to meet per seismic zone code requirements.
 - f. Lintel schedule shall be shown to suit project. Detail shows special end-bearing details.
 - g. Detail and dimension framed openings to suit specified equipment.
 - h. Indicate structural member type, size, locations, centers, offsets, actual bearing and finished floor elevations.
 - i. Provide loading and restraint information or complete connection details.
 - j. Provide details and locations of anchor bolts, welded connections, high strength and non-high strength bolts.
 - k. Show and describe extent of fireproofing.
2. ARCHITECTURAL DESIGN
 - a. Show alpha/numeric column grid on all plan drawings.
 - b. Identify vertical control joint locations and detail joints.
 - c. Identify footing and base plate elevations. Coordinate with depressed slabs elevations.
 - d. Avoid column isolation diamonds at terrazzo, hard tile, and vinyl composition tile floors. Coordinate isolation joint locations, as required.
 - e. Roof bearing heights to agree with roof slopes. Show actual bearing heights in feet-and-inches above finish floor (relative bearing heights unacceptable). Minimum completed roof slope 1/4" per foot required; remember to consider actual camber on long-span roof framing to avoid ponding water.
 - f. Actual column sizes compared with actual concrete masonry unit sizes to accomplish necessary fire-rated column envelopment and/or finish details.
 - g. Specify all exterior ferrous metal items shall be fully primed after fabrication.
 - h. Specify exposed-to-view structural items shall have all welds ground smooth.
 - i. Specify tagging, orientation marks, and piece marking shall be concealed from view in all normally visible finished work.
 - j. Specify primer to be lead-free, compatible with finish paint where exposed-to-view; coordinate with painting criteria.
 - k. Verify bearing heights and finish floor elevations are coordinated and are consistent with structural drawings.
 - l. Verify ceiling and wall clearances.
 - m. Evaluate roof drainage for ponding and ice dam weights.
3. MECHANICAL DESIGN
 - a. Detail and dimension framed openings to suit specified equipment. Coordinate framing support and openings for specified mechanical equipment.
 - b. Indicate specified mechanical equipment weights on plans to provide coordination of slab and roof framing.
 - c. Roof and floor framing heights shall be set with consideration for overhead duct sizes and routes and damper, VVT, detector, and control access for maintenance.
4. PLUMBING DESIGN
 - a. Detail roof drain body support framing.
 - b. Consider underground pipe bends and inverts at column locations when determining

- footing elevations, column lengths, and/or angles of influence affecting structure. Civil engineering underground storm, sanitary, and rain manifold piping also to be considered.
- c. Detail framing supports for rooftop gas piping.
- d. Establish roof and floor framing heights to consider overhead sprinkler piping, roof drain laterals, valving, and maintenance access.
- 5. **ELECTRICAL DESIGN**
 - a. Framing heights shall account for light fixture clearances, particularly high-hat type.
 - b. Coordinate electrical fixtures and equipment weights with structural design.
 - c. Coordination of maintenance access should be integrated into design.
- 6. **TESTING**
 - a. Testing Lab to check welded and bolted connections per ASTM, RCSC, AWS and AISC criteria.

B. PRODUCTS

- 1. Steel plates, shapes, and bars: Minimum ASTM A-36.
- 2. Bolts and Nuts: ASTM A-307, Grade A; bolt lengths to accomplish full thread engagement of nuts.
- 3. Primer paint: LEAD-FREE, compatible with finish paint at exposed-to-view conditions.
- 4. Galvanizing: Hot-dipped after fabrication; chemically treated for paint bond in finish conditions.
- 5. Non Shrink Grout:
 - a. Minimum 7000 p.s.i. 28-day strength.
 - b. Non-metallic type at exterior conditions or where exposed to view.

C. EXECUTION

- 1. The Architect shall specify the Contractor to:
 - a. Shop paint all steel except where scheduled for fireproofing and areas within 2" of scheduled field welds.
 - b. Locate all piece markings and orientation marks to be concealed from view in the finished work.
 - c. Grout column bases and bearing plates solid with non-shrink grout.
 - d. Provide all temporary erection bracing.
 - e. Perform bolting and field welding to secure structural elements with all welding by AWS-certified personnel.
 - f. Touch-up shop-applied painting with identical primer material and/or galvanizing with recommended "cold galvanizing" compound for full material coverage.
 - g. Apply fireproofing on members where required by governing code criteria.

A. GENERAL

1. ARCHITECTURAL DESIGN

- a. All millwork and cabinetry included in the Construction Documents.
 - b. Millwork shall be constructed of high density (60 lb) particleboard or plywood and solid lumber construction.
 - c. Millwork shall meet AWI Custom Grade.
 - d. No painted surfaces allowed anywhere in construction. Use natural finish (or plastic laminate) fronts, sides, and insides. Avoid dark color plastic laminate.
 - e. Avoid designs with sharp corners to greatest extent possible.
 - f. Sink base cabinet designs to allow maintenance access for traps.
 - g. Base cabinets: 36" high X 24" deep except as specifically noted in schedule. 6" high full-depth top drawers with remaining door fronts, one (1) 22" deep adjustable shelf per unit. 4" high back, side splashes against walls and ¾" x 1 ½" counter trim at front. Plastic laminate (or acid-resistant) tops.
 - h. Wall cabinets: 30" high X 12" deep, door fronts. Two (2) adjustable full-depth shelves each unit. Bottom @ approximately 18" above base cabinet tops; tops to match height of teacher and storage cabinets.
 - i. Storage cabinets: 84" high X 36" wide X 24" deep, paired door front, five (5) 22" deep adjustable shelves.
 - j. Wardrobe cabinets: 84" high X 36" wide X 24" deep, locked paired door front, full-width clothes rod and 22" deep fixed shelf at 5'-4" AFF. 8" square inside-door vanity mirror centered at 5'-0" AFF.
 - k. Teacher cabinets: 84" high X 36" wide X 24" deep, locked paired door front. Vertically divided for 14" wide wardrobe cabinet and 18" wide storage cabinet per criteria above.
 - l. Locks: Chrome plated US32D cam-type cabinet locks. Provide two (2) keys per each lock; each room cabinet group keyed alike, but different from other room groups, and all units for the project masterkeyed. Endeavor to key into existing systems to greatest extent possible.
 - m. Hinges: Self-closing, 3-way adjustable, permanently lubricated, concealed-from-view fasteners.
 - n. Pulls: Chrome plated US32D, 4" centers, wire pull type, concealed- from-view fasteners.
 - o. Drawer guides: Side-mounted, permanently lubricated ball bearing, full extension, 75-pound capacity.
 - p. Use 4-1/2" high toe kicks on all floor-mounted cabinets to allow setting of 4" coved rubber base without field-trimming.
2. Coordinate plumbing rough-in. dimensionally locate centerlines of all sinks on Drawings.

B. PRODUCTS

1. FIRE-TREATED WOOD

- a. Used above ceilings and/or within fire-rated enclosures plus all equipment backboards. Maximum 25 flame spread per ASTM E-84. Isolate from contact with metal items.

2. PRESSURE-TREATED WOOD

- a. Used in contact with masonry, steel, concrete, and/or roofing system materials.

3. MOISTURE CONTENT

- a. Kiln-dried after treatment to attain maximum 19% for lumber and max. 15% for plywood.

4. FASTENERS

- a. Hot-dipped galvanized and/or stainless steel for all treated wood and all exterior attachments.

C. EXECUTION

1. Specify Contractor to allow Architect to review millwork for defects prior to installation. Contractor shall not install any millwork prior to inspection and approval by the Architect.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Coordinate materials, thicknesses, insulation values of all (such as exterior insulation and finish systems (EIFS), insulating glass, weather stripping, roof systems, etc.) materials with Mechanical Engineer to achieve functionally correct heating, ventilation and air conditioning (HVAC) systems that comply with Oklahoma Energy Code criteria.
 - b. Clearly identify insulation materials on Drawings.
 - c. Mechanical Engineer to provide calculations of required R-Values.
2. Coordinate with other "non-energy-code" work such as, but not limited to, fire stopping, roof systems, mechanical insulation, EIFS, and sound attenuation blankets.
3. Granular fill insulation (in CMU cells) shall not be used.

B. PRODUCTS

1. INSULATION
 - a. Batt Insulation: Maximum flame spread twenty-five (25) when used in ceilings and soffits. Use integral foil facing set on warm side of application.
 - b. Rigid Extruded Polystyrene Insulation: Use at building perimeter and exterior cavity walls. Must be enveloped per code criteria.

C. EXECUTION

1. Cavity wall insulation shall be sized to fit between projecting veneer anchors. Specify Contractor to coordinate installation, primer, and adhesive with dampproofing work.
2. Specify Contractor to install insulation joints tight and all batt insulation joints to be sealed with foil-faced tape, or equal.
3. Require all building perimeter insulation be set beneath slab (above stone sub-grade), and extend minimum distance of 2'-0" inside building with butt joints tight and secure to prevent movement during slab placement.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Do not use this system unless absolutely necessary on wall surfaces below the fascia line of one story buildings, except on soffits.
 - b. Dimensionally locate all control joints on elevations. Show differing colors as applicable.
 - c. Do not use material within 36" of finish grade due to potential damage by lawn maintenance equipment.
2. WARRANTY: Five (5) years non-prorated material and labor against failures in water tightness, discoloration, adhesion, cohesion, and other visual, thermal, and/or moisture entry defects.

B. PRODUCTS

1. Use High-Impact systems on all areas within minimum 8' height of adjacent accessible grounds, roofs, and walks.
2. Specify sealants compatible with listed manufacturer systems.

C. EXECUTION

1. Require the Contractor to prepare project mock-up, illustrating all assembly back-up components, finish textures (over substrate butt joint), colors, control joints, sealant joints, corner condition, rustications, drips, general workmanship, and other details specific for the project. The mock-up shall be a minimum of 36" X 36".
2. Use mulch and/or polyethylene sheets to protect finishes from mud and dust staining; maintain until adjacent grassing and hardscape is completed.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Roofing system shall be watertight without depending on any metal flashing or coping.
 - b. Roof slope: Minimum 1/4" per foot in any direction; this includes cross-slopes and crickets.
 - c. Crickets: Required to direct water to drains; required on "high sides" of all rooftop equipment.
 - d. Counter flashing: Minimum 8" above roof surface for all rooftop items and equipment.
 - e. Equipment curbs: Tops level in all directions.
 - f. Primary Roof Drains: Sump for 24" distance around drains; caps slotted or screened to minimize foreign object entry.
 - g. Walkway Pads: Not used except 6' X 6' area at high and low step-offs at each roof ladder.
 - h. Roof Dividers: Required at maximum 150' intervals, any direction.
 - i. Scuttles: Tops sloped to drain.
 - j. Copings: Sloped towards roof minimum 1" across width for drainage; provide sealant at all transverse joints.
 - k. Insulation: Minimum 2-layer application with all joints staggered minimum 12"; show material types and thicknesses on Drawings.
 - l. Pipe Penetrations: Braced high and low to structure to prevent movement. Insulate from underside of deck, along laterals, then minimum 6" vertical below next elbow joint (or tangent) to reduce potential condensate drippage.
 - m. Existing Roofs: All traffic upon, and work associated with, existing roof systems shall be done in methods, manners, and by personnel endorsed by the manufacturer of the existing roof. The in-effect warranties and integrity of the existing roof systems shall be fully maintained.
 - n. Pipe supports: Draw details to illustrate all project conditions.
 - o. No angle supports thru roof plane; if necessary, use capped-off galvanized pipe supports that can be easily flashed and sealed.
2. MECHANICAL COORDINATION
 - a. Equipment mounted level; curb types and heights to achieve required minimum base flashing criteria.
 - b. Gas Equipment heights to achieve minimum 3" vertical clearance between roof surface and bottom of drip leg piping cap.
 - c. For safety, ease of maintenance, and to minimize damage to roof system components, no equipment locations within 5' of roof expansion joints and/or roof divider joints, vertical parapets; no equipment within 10' of roof edges.
 - d. Roof system thermal insulation values based on heating, ventilation and air conditioning (HVAC) system design and the minimum guideline of R-30.
3. ELECTRICAL COORDINATION
 - a. Avoid using pitch pockets for conduit penetrations. Power for rooftop equipment shall be located inside the respective equipment curb and accessible per code criteria.
 - b. Cable TV Masts and Supports: Provide galvanized pipe penetrations, minimum 24" height above roof surface, capped and sealed, anchored high and low to building structure, with base flashing.
4. KITCHEN EQUIPMENT COORDINATION: Show all rooftop equipment, penetrations and roof-related details on Drawings.
5. STRUCTURAL COORDINATION
 - a. Top-of-steel elevations to accomplish required slopes and drainage; consider

- camber on members to avoid trapping water.
 - b. Footing elevations at wet columns to allow for underground storm pipe slopes/inverts and bends.
 - c. Supports at roof perimeters, equipment, and roof drain bodies.
6. WARRANTIES
- a. Roof System (includes roofing, insulation, related flashings, and incidental roof system construction components): Manufacturer's 20-year, no dollar limit, to cover materials and labor to repair any leaks and/or failures occurring within the warranty period.
 - b. Roofing, Flashing, and Copings: Contractor's two-year material and labor warranty to repair any leaks (and other damage caused by these leaks) within the warranty period.

B. PRODUCTS

1. All materials shall be certified as totally asbestos-free.
 - a. ROOF SYSTEMS: 4-ply system: 3-ply built-up plus a modified bitumen cap sheet with granule surfacing, complying with UL Class A and FM I-90 wind uplift criteria.
 - 1) Manville Roofing Systems
 - 2) Tamko Asphalt Products
 - 3) U. S. Intec, Incorporation
 - 4) GAF Materials Corporation
 - 5) Firestone
 - b. BITUMEN: ASTM D-312, Type III.
 - c. INSULATION (Also reference Mechanical Coordination criteria):
 - 1) First layer: Rigid closed-cell isocyanurate; stabilized "R" value = 10 minimum, FM Class I fire hazard classification, UL classified for installation with Class A roof covering.
 - 2) Second layer: Rigid perlite boards, minimum 1/2" thick, UL classified for installation with Class A roof covering. Provide additional factory-tapered boards (minimum 1/4" per foot slope) for crickets.
 - 3) Lightweight insulating concrete can be considered as an alternative to rigid board insulation.
 - d. EXPANSION JOINTS and DIVIDER JOINTS: Factory-manufactured assemblies recommended by the roof system manufacturer.
 - e. WALKBOARDS: As recommended by roof system manufacturer to achieve specified warranty: minimum 2'-0" wide. Walk boards usually not required with the modified bitumen cap sheet with granule surfacing.
 - f. EQUIPMENT SUPPORTS: As recommended by both the roof system manufacturer and the equipment manufacturer.
 - g. PIPE SUPPORTS: Non-ferrous, non-corrosive type as recommended by roof manufacturer for proper pipe support and weight distribution on roof; supports shall provide unbinding thermal expansion/contraction movement of piping without jeopardizing warrant ability of roof system. Set supports on additional wearing surface of cap sheet layer or walk-pad material.
 - h. ROOF VENTS: Provide if required by roof system manufacturer.

C. EXECUTION

1. PRE-ROOFING CONFERENCE: Must be held after approval of submittal data, and at least seven (7)-calendar days prior to start of roofing work.
2. GENERAL INSTALLATION

- a. Maintain end-of-workday watertight building conditions on all re-roofing projects on existing facilities. Contractor shall be solely responsible for all damage occurring due to failure to properly seal building.
- b. Install only as much roofing insulation as can be covered with roofing during the same work period.
- c. Completed roof system shall fully drain, leaving no standing water after 24 hours following end of rainfall.
- d. Clean completed roof of all construction debris.
- e. At roofing projects for existing buildings, all debris shall be removed from the grounds at the end of the day.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Show details on the Drawings. Show all locations on Roof Plan Drawings.
 - b. Minimum roof hatch size 2'-6" by 3'-0". Top of roof hatch sloped for drainage; minimum counter flash height shall be 8".
 - c. Tops of equipment curbs level and minimum 8" above roof surface for counter flashing.
 - d. Schedule roof hatch padlock in hardware schedule.
 - e. Coordinate ladder anchorage and termination with specified roof hatch.
 - f. Coordinate structural supports; hatches and curbs shall not rely solely upon metal deck for support.
2. Insist on submittal of roofing manufacturer's endorsement of proposed hatches and curbs; particular attention to materials, and counter flashing heights and details. Get submittal for roof curb endorsement from respective manufacturers whose equipment will be secured to curbs.

B. PRODUCTS

1. ROOF HATCH
 - a. Characteristics: Aluminum construction, single-leaf, integral latch with interior padlock eye, power-assist opening, insulated walls and top, weather stripped, factory-finished or primed to receive field paint.
 - b. Manufacturers: Bilco #S-50, Milcor #RDS-1, and Naturalite #RSL-3036 or approved.
 - c. Provide a "ladder-up" extension handrail at top of ladder.
2. ROOF CURBS
 - a. Characteristics: Minimum 18-gauge galvanized steel (heavier if required for specific equipment), integrally welded, pressure-treated wood nailers, raised cant integral with curb (size to match roof insulation), and minimum 1-1/2" rigid fiberglass insulation.
 - b. Manufacturers: Custom Curb, Incorporation, Roof Products and Systems Corporation, Thybar Corporation or equals
3. LADDERS
4. WALKING SURFACES

C. EXECUTION

1. Specify Contractor to secure accessories to roof framing; set to achieve required slopes and/or level conditions.
2. Specify Contractor to secure equipment to curbs using plated threaded fasteners, one for each factory-prepared equipment attachment hole; use of nails is prohibited.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Opening Identifications: Identify all openings (including metal-framed cased openings) in a logical three or four-digit numerical plan progression sequence; first digit opening numberings may want to relate to plan zones on larger projects. Do not identify openings with alphabetical suffixes of the rooms/spaces they serve, or by the general type or function of the door. Each opening shall have its own numbered identification.
 - b. Opening Schedule: Prepare in horizontal format. List opening numbers along the left and right columns. Leave ample room for possible additions and modifications. Every fifth horizontal line on the schedule shall be darkened to facilitate reading across. Vertical columns shall also list applicable data for frames, doors, details, fire labels, hardware sets, louver sizes, undercuts, room signage copy, frame number designation, and other notes; use heavy lines or double lines to separate major vertical column categories.
 - c. Do not use any fully-glazed or storefront-type doors.
 - d. Avoid positioning adjacent doors that might interfere with respective operation of each, or might create awkward traffic patterns and access to spaces.
 - e. All high traffic doorways in High Schools shall be metal doors.
2. MECHANICAL AND ELECTRICAL DESIGN COORDINATION
 - a. HVAC door louver and/or undercut criteria shall be shown on the door schedule; HVAC Engineer to advise Architect of required sizes and locations.
 - b. Openings to equipment room shall be sized to allow installation and/or replacement of without having to disassemble the equipment into parts or components.

B. PRODUCTS

1. GENERAL SPECIFICATIONS (FOR METAL DOORS AND FRAMES)
 - a. Gauge and type of exterior and interior doors and frames
 - 1) Exterior doors shall be SDI Grade III, extra heavy-duty model 2A (seamless, minimum 16-gauge galvanized steel construction, insulated, including all accessories and reinforcement. Top of exterior doors shall be closed flush and welded watertight.
 - 2) Exterior frames shall be fabricated from 14-gauge cold rolled steel.
 - 3) Interior doors shall be SDI Grade III, extra heavy-duty model 2 (seamless), minimum 16-gauge.
 - 4) Interior frames shall be fabricated from 16-gauge cold rolled steel.
 - b. Primer Paint: Lead-free compatible with scheduled finish paint materials.
 - c. Galvanizing: ASTM A653A-96, zinc coating A -25 on all exterior units and at kitchen washrooms, toilets, locker rooms, showers and laboratories, with factory applied primer.
 - d. Hardware Reinforcing: Proper for scheduled hardware.
 - e. Time (Fire) Labels: Locate at eye level on the hinge edge.
 - f. Weather-stripping: Required at head, jambs, sills, and meeting stiles of all exterior doors.
2. METAL DOORS
 - a. Exterior and Interior doors shall be 1¼" thick and 7' in height.
 - b. Vertical Edge Bevel: 1/8" in 2". Provide 2-1/8" radius at double-acting doors.
 - c. Insulation: Required for all exterior units; minimum 0.09 "U" value, solid urethane.
 - d. Top and Bottom Closure: Exterior units closed and sealed to prevent water entry.
 - e. Bottom Weeps: Exterior units, concealed-from-view.
3. METAL FRAMES
 - a. Construction: Fully (across the entire cross-section) welded construction; all exposed-to-view welds ground smooth to present a uniform appearance.
 - b. Profile: Wraparound type with throat dimensions 1/8" greater than respective actual wall assembly thicknesses for all interior units and the interior portions of exterior

- frames.
 - c. Mortar Guards: At all hardware attachment areas, and sign areas (see Section 10400 criteria).
 - d. Silencers: Punched for silencers; delete punching on exterior doors.
 - e. Caulk/Sealant: Neat caulk (sealant) joint around the entire perimeters of frames at junctures to wall construction.
4. ACCESSORIES
- a. Glass Stop Material: Minimum 14-gauge, galvanized for locations noted above, and prime painted same as door and/or frame. Locate on secured side of door or frame.
 - b. Glass Stop Installation: Mitered corners prepared for and secured with oval head, phillips head screws at max. 12" OC and maximum of 3" from corners.
 - c. Frame Anchorage: Jamb anchors at masonry wall openings shall be standard wire anchors. Frames at masonry walls shall be filled with grout. Jamb anchors for plaster and gypsum wallboard partition openings shall be a minimum of 18-gauge steel. Provide floor anchors at all frames.
 - d. Finish Hardware reinforcement: shall be a minimum of 12-gauge for hinges and closers and be a continuous channel for the full height of door, 14-gauge for strikes and be a continuous channel for the full height of door, 7-gauge for hinges at door frames, 26-gauge steel plaster guards or mortar boxes welded to the frame shall be provided at hardware cutouts where installed in concrete, masonry or plaster openings.
 - e. Vision Lights: glaze with ¼" UL labeled wire glass at fire rated doors and ¼" tempered glass at other doors. Glazing kits shall be concealed type flush with door surface.
 - f. Louvers: shall be sight proof louvers constructed of 24-gauge steel V and Y shaped blades set in 20-gauge frame. A galvanized wire mesh ½" x ½" screen shall be provided at the inside face of exterior door louvers.
 - g. Finish Preparation: shall be cleaned, bonderized and shop primed using manufacturer's standard baked on rust inhibitive primer.
5. MANUFACTURERS
- a. Steelcraft, Ceco or approved equal

C. EXECUTION

1. Specify materials to be properly stored above ground and covered at the site to reduce potential damage and premature rusting. Require all rusted areas to be immediately cleaned to bare metal and areas touched-up with primer paint.
2. Frame Anchors: Anchors spaced at 24" OC maximum along each jamb, and with floor clip attachments at the base of each jamb.
3. Grout: All frames in masonry shall be fully grouted.
4. Frame/Door Margin: Equal 1/8" maximum head and jamb margins; Doors shall operate without binding.
5. Sill Clearance: 3/8" above finish floor materials.
6. Threshold Clearance: 3/8" maximum.
7. Field Painting: Do not paint over time (fire) rating labels.
8. Contractor to store doors and frames properly at jobsite off the ground and protected from moisture.

A. GENERAL

1. ARCHITECTURAL DESIGN

- a. See Section 08100 – Hollow Metal Work for coordination, opening identification and schedule criteria.

B. PRODUCTS

1. DOOR CRITERIA

- a. Thickness and height: 1-3/4" thick x 7'-0" high
b. Construction: Solid core complying with NWWDA I.S.1 and Section 1300 of AWI "Architectural Woodwork Quality Standards" requirements. Cores shall be solid particleboard except for fire rated doors.
c. Paint Grade Veneers: Interior doors to have transparent finish, pre-finished at factory utilizing low VOC finishes.
d. Natural Finish Veneers: Plain slice red oak with book matching veneers at double doors.
e. Vertical Edge Bevel: 1/8" in 2".
g. Time (Fire) Labels: Located at eye level on the hinge edge.
h. Standard Door Warranty: Life of the installation against delamination, telegraphing of core components, and warp or twist.
i. Rated Door Warranty: Life of the installation against all defects, delamination, telegraphing of core components, and warp or twist.

2. ACCESSORIES

- a. Glass stop material and installation same as Section 08100 – Hollow Metal Work criteria. (UL rated where required.)
b. Vision Lights: Glaze with 1/4" UL labeled wire glass at fire rated doors and 1/4" tempered glass at other doors. Glazing kits shall be concealed type flush with door surface.
c. Louvers: Shall be sight proof louvers constructed of 24-gauge steel V and Y shaped blades set in 20-gauge frame. A galvanized wire mesh 1/2" x 1/2" screen shall be provided at the inside face of exterior door louvers.
d. Coat Hooks: Two (2) coat-hooks with US 26D finish on all office doors in new and renovated spaces.

C. EXECUTION

1. Specify contractor to properly store doors on site above grade and under cover to prevent moisture entry and warpage.
2. Require contractor to not install doors until the building is enclosed, the permanent heating, ventilation and air conditioning (HVAC) systems are in operation and residual moisture has dissipated.
3. Specify Contractor to install doors to the following tolerances:
a. Frame Margin (with door closed): 1/8" maximum at head and lock jamb, and 1/16" at hinge jamb.
b. Sill Clearance: 1/4" above finish floor material unless specifically noted to be undercut.
c. Threshold Clearance: 1/4" maximum.

A. GENERAL

1. ARCHITECTURAL DESIGN

- a. Architect shall engage the services of an architectural hardware consultant to assist in the design specifications and establishment of hardware sets for the project.
- b. Hardware sets shall be prepared in vertical format within the specifications. Each set shall identify the applicable openings for that set and coordinate set numbers to match those on the opening schedule.
- c. Architect shall include one legible catalog cut copy of each specified hardware item with the Contract Documents submitted for the Program Consultant's review and comments.
- d. Hardware shall comply with all governing ADA and handicap code criteria.
- e. Identify rated hardware at all rated openings.
- f. Keying: Establish keying into a new District Great Grand Master Key System. For additions to existing facilities, key to existing facility master keying to maximum extent. Use removable core cylinders. Specify a construction keying system and permanent cores be delivered to the I-89 School District. The contractor shall provide only the material cost of permanent cores in the bid price. The installation of cores shall be performed by the School District.
- g. Existing building hardware to be changed to work with owner's new keying system.

2. DURING CONSTRUCTION

- a. Contractor provides services of architectural hardware consultant during construction. Supplier shall be "local" (within 100 mile radius of Oklahoma County, Oklahoma).
- b. Hardware schedule submittal: Vertical format.
- c. Catalog Data: Submit one legible copy for each proposed hardware item with the submitted schedule.
- d. Keying: Contractor to use construction keying at all new facilities. The contractor shall deactivate the construction keys and then provide permanent keys to the designated I-89 School District personnel as part of project close-out.

B. PRODUCTS

1. Finishes:

- a. Hinges shall be US 26D. (626)
- b. Lock sets, stops and misc.: US 26D (626)
- c. Exit devices: US 26D. (626)
- d. Flat goods: US 26D. (626)
- e. Closers: Sprayed to match adjacent hardware.

2. Hinges:

- a. (Continuous hinges, stainless steel: Markar or approved equal) (Butt Hinges: Stanley, Hager, PPB or approved equal)
- b. Full Mortised (or half-surfaced) type, 5 knuckle.
- c. Four ball-bearing type on heavy-usage doors.
- d. Non-removable pins on exterior doors.

3. Locks and latches:

- a. Corbin Russwin ML 2000, or approved equal less cylinder.
- b. Minimum seven-pin tumblers (locks)
- c. Classrooms and Offices: Double cylinder classroom function.
Mechanical and Custodial Rooms: Storeroom function (no double cylinder locks).
Dressing and Public Restrooms: Push – Deadbolt with key on entry side, and blank on inside.
- d. Cylinders and cores shall be visually master keyed.

4. Deadlocks
 - a. 1" minimum throw.
 - b. Minimum seven-pin tumblers.
5. Padlocks: (Best brand)
 - a. Master keyed to School District keying system and keyed in required groups.
 - b. Schedule for all gates at fenced areas, entry gate, roof hatch, and walk-in cooler and freezer doors.
6. Keying:
 - a. Lock Cylinders to be Best Peaks system, No substitutions.
 - b. Permanent Keys: Nickel-silver alloy: Key to great grand master School District systems manufacturer's system. Provide six (6) grand master keys, fifteen (15) master keys, and two (2) change keys per lock as a minimum, the I-89 School District to decide the number of keys to be provided per category. Submit per close-out procedures.
7. Exit devices:
 - a. UL fire rated.
 - b. Von Duprin – Model 99NL – 26D.
 - c. Warranty: Five (5) years against any material/workmanship defects.
 - d. Attachments: Sex-bolts on metal doors, thru-bolts on wood doors.
 - e. Use rim devices with keyed removable mullion at paired doors.
 - f. Push bar US 26D. (626).
 - g. Pull handles with night latch function where applicable and code compliant
 - h. Active panic bar and cylinder locks.
8. Stops:
 - a. Wall and Floor Stops (Ives, Trimco, Hagar, Rockwood or approved equal. Only cast products, wrought products not acceptable)
 - b. Overhead stops: Glynn-Johnson or approved equal.
 - c. Order of Preference: 1) Wall-mount, 2) Floor-mount, 3) Overhead.
 - d. Floor-mounted unit heights to assure door contact.
9. Overhead Closers (LCN-4040 Series with options SPR Cush, H,P as required):
 - a. Non-handed and non-sized, surface-mounted, through bolted, with sex bolts, overhead type.
 - b. Cast-iron bodies, hydraulically controlled, full rack and pinion
 - c. No hold-opens on exterior closers.
 - d. Cushion stop feature where contact stops are not feasible.
 - e. Adjustments: Back check, closing (general) speed, and latching speed.
 - f. Warranty: Ten (10) years against any material/workmanship defects.
 - g. Mounting and positioning to accomplish uninterrupted weatherstripping or sound seals on applicable openings.
 - h. Where existing is replaced, repair holes in frames and doors.
10. Overhead Holders:
 - a. Rixson-Firemark, Incorporation
 - b. At exterior doors to maintenance areas (e.g. Lawnmower Storage, Mechanical Rooms, Switchgear Rooms, and Sprinkler Rooms).
 - c. Mounting and positioning to accomplish uninterrupted weather stripping.
11. Bolts (Flush and/or surface types):
 - a. 3/4" minimum throw.
 - b. Top strike plate.
 - c. Bottom dustproof strike.
 - d. Top bolt operation at maximum 72" AFF.
12. Flat Goods:
 - a. All minimum 0.050" thickness, black or brown plastic finish.
 - b. Kick Plates: 10" high X door width less 2".

- c. Armor Plates: Minimum 36" high X door width less 2".
- 13. WEATHERSTRIPPING AND DOOR SEALS (Pemko National Guard (N-G) or approved equal)
 - a. All exterior doors.
 - b. At heads, jambs, sills, and meeting stiles.
 - c. All screw-on adjustable type.
 - d. Provide drip mold at head frame and door bottom of exterior doors not having overhead canopy protection.
- 14. THRESHOLDS
 - a. Comply with ADA and governing handicap criteria.
 - b. Aluminum material.
- 15. ELECTRONIC CONTROLS
 - a. Access Control – Locknetics or approved equal.
 - b. Entrance accessibility- LCN 4600 Series Auto Equalizer.
 - c. Coordinate rough-in and wiring with electrical criteria to achieve proper operation.
 - d. All UL rated.
- 16. KEY CABINETS
 - a. Capacity: 150% of required number of keys.
 - b. Location: Directed by I-89 School District.
- 17. SECURITY KEY BOX
 - a. Location: At front entrance.
- 18. SPARE PARTS
 - a. Provide six (6) each spare lock cylinder cores complete with two (2) each spare keys (blanks) per core (total of 12 blank spare keys).

C. EXECUTION

- 1. Specify a pre-keying conference shall be held with the Architect, OCMAPS Program Manager, the Program Consultant, I-89 School District, contractor and the manufacturer's representative.
- 2. Specify Contractor to install thresholds as follows:
 - a. Bedded in sealant.
 - b. Anchored with phillips-head, flat-head, stainless steel screws in lead expansion shields.
 - c. Anchored 12" OC, symmetrical at opening centerline, and maximum 3" from each end.
 - d. All exposed ends closed.
 - e. Cope to fit snug around jamb frame profiles.
- 3. Specify Contractor shall:
 - a. Avoid stripping/defacing heads of screws and/or bolts.
 - b. Install for smooth quiet operation; provide necessary adjustments.
 - c. Provide maintenance and operation instructions.
 - d. Have completed installations inspected and "signed-off" by representatives of hardware manufacturers.
- 4. Specify the hardware manufacturer shall set up the key cabinet organization, shall tag all of the keys and shall install the keys into the cabinet.
- 5. With the exception of Door Category "D" (see below) there will be only two exterior doors that can be opened with a key (see Category "B" – Kitchen and Category "C" below).

There are four categories of exterior door hardware:

- a. Hardware for doors that are exit only. These doors remain locked at all times but are always available for exit. There is no access hardware on the exterior of these doors.
- b. Hardware for doors that are used during the day for entry and exit but remained locked in between. These doors are always available for exit but are accessible only

with the proximity card access system. (Note: The kitchen door would also have a keyed lock which could override the card access system).

Examples: Playground access doors, kitchen access door, teacher's parking access door.

- c. Hardware for main entry doors. Typically these are double doors. If this is one of locations to receive a card access device then one of the doors should have card access, a panic device and exterior pull. The other door will be considered the main entry door. The hardware for the main entry door should include key access, panic device and exterior pull.

If this entry doesn't receive card access then both doors would be the same except that one of the doors would have key access.

Note: If the architect designs an entry vestibule so that visitors have to be buzzed into the building from inside that vestibule then additional provisions will have to be made for that hardware.

- d. Hardware on doors to rooms that do not open to the interior of the building.

Example: Athletic storage rooms, fire riser room, etc.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Design in compliance with National Safety Glazing Standards and governing code wind load criteria.
 - b. Warranties:
 - 1) Thermal Insulating Units: Ten (10) years against condensation due to edge seal failure.
 - 2) Mirrors: Ten (10) years against spoilage of backing material.
 - 3) Exterior glazing (vertical): Two (2) years against leakage.
 - 4) Skylights: Five (5) years against leakage.
 - c. Provide tinted and/or thermal insulated units as required by heating, ventilation and air condition (HVAC) system design.

B. PRODUCTS

1. Tempered Glass: Meets ASTM C 1048, minimum 1/4" thickness.
2. Wired Glass: UL listed; diamond mesh.
3. Sealant: Comply with Section 07900 criteria.

C. EXECUTION

1. Require Contractor to clean all surfaces just prior to Final Acceptance date.

A. GENERAL

1. ARCHITECTURAL DESIGN:
 - a. Areas of use
 - 1) Fire protection of steel structure in rated assemblies in accordance with governing code criteria.
 - 2) Exterior soffits.
 - b. The Architect shall coordinate with Engineers to avoid locating filters, valves, dampers, and other maintenance-type items for systems above "hard" ceilings to the greatest extent possible.
 - c. Necessary access panels shall be of proper sizes, ratings, and types as needed to facilitate equipment maintenance.
 - d. All exterior soffits shall be properly vented.

B. PRODUCTS

1. Lath: Expanded galvanized sheet steel for horizontal surfaces; self-furring diamond mesh for vertical surfaces.
2. Accessories: As suited for application; galvanized.

C. EXECUTION

1. Require the Contractor to use a three-coat application method required.

A. GENERAL

1. ARCHITECTURAL DESIGN

a. Areas of use:

- 1) Metal stud/drywall partitions allowed only in Administrative Areas.
- 2) Type "X" Fire protection of steel structure in rated assemblies in accordance with governing code criteria; Drawings shall identify UL Design Assembly numbers.

b. Provide access panels as needed to facilitate equipment maintenance.

c. Interior metal stud/drywall partitions are prohibited except in Administrative Areas.

d. Locker room ceilings moisture resistant vinyl coated gypsum board lay-in panels.

e. Toilet room ceilings.

B. PRODUCTS

1. Ceiling framing members shall be galvanized, of proper size and design supported from structure to prevent undue deflection

2. Accessories: As suited for application; galvanized.

C. EXECUTION

1. Finish smooth without joint cracking, voids, "hot spots", or undulations for receipt of paint.

A. GENERAL

1. ARCHITECTURAL DESIGN

- a. To the maximum extent possible, avoid slab control joints in areas scheduled to receive tile floors; if absolutely not possible, then design and detail all tile relief (control) joints to align directly above slab joints. Coordinate Architectural and Structural Drawings accordingly.
- b. Abrasive quarry tile or raised-pattern quarry tile with minimum 5" covered bull nosed base and non-white color acid-resisting grout joints shall be used in kitchens, and serving areas, kitchen office, P.E. locker rooms and showers.
- c. Unglazed ceramic tile or quarry tile floors with minimum 4" covered bull nosed base or 1-2" bull nosed with 1-2" tile and a 1-1" covered tile depending on the size of the field tile used and dark color acid-resisting grout joints shall be used in all toilet rooms.
- d. Architect shall show TCA installation method numbers on Contract Drawings.

B. PRODUCTS

1. Quarry Tile: 6" X 6" face, nominal 1/2" thick, slip-resistant, factory-applied wax coating.
2. Ceramic Tile: 2" X 2" face, 1/4" thick, unglazed, factory dot mounting for 1/16" joints; provide matching trim shapes and specialty units.
3. Grout: Dark color, multi-component epoxy type.
4. Latex additives shall be used for all grouts and mortars, except epoxy-based materials.
5. Control joint sealants per Section 07900.
6. Synthetic marble thresholds: ADA compliant with off-white color, used at all transitions from all tile to other floor finishes.
7. Attic Stock / Maintenance Material: Minimum of one (1) carton of quarry or ceramic tile per type and color or 5% of total square foot area of installed material. Provide 2% of total base material.

C. EXECUTION

1. Establish required relief (control) joints to be filled with sealant.
2. Thick-set: Use minimum 1-1/4" mortar bed over depressed slab for all quarry tile floors Tile shall be at uniform perimeter wall elevation and slope to floor drains. Architect should evaluate the most appropriate to substantiate if thickset ceramic tile is to be used at battery toilets.
3. Thin-set: Use only at drinking fountain areas, kindergarten toilets, and staff toilets. Based on Architect's evaluation of most appropriate use of material type thin-set ceramic tile may be used at battery toilets.
4. Architect shall show TCA installation method numbers on Contract Drawings.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Minimum ceiling height criteria:
 - 9'-0": Except as noted below
 - 9'-4": High School classrooms, Corridors, Phys Ed (Gym) Storage Rooms
 - 10'-0": Media Centers
 - 12'-0": Art Rooms at High Schools
 - 10'-0": Art Rooms at Elementary Schools
 - 12'-0": Music Rooms in Elementary Schools
 - 14'-0": Cafeterias
 - 16'-0": Choral Rooms High School
 - 18'-0": Orchestra Rooms: High School
 - 20'-0": Band Room: High School
 - 21'-0": Elementary School Phys Ed Rooms
 - 22'-0": Elementary School Gymnasiums
 - 25' to 26'-0": High School Gymnasiums
 - b. Architect and Engineers to consider sound control when evaluating acoustical ceilings and other locations of specific use in their design.
 - c. Classroom background noise not to exceed 30 – 35 dB. Reverberation time should not exceed 0.6 seconds. Special consideration to sound transmission and reverberation time should be given to gymnasiums, cafeteria, assembly areas, music rooms and kitchens.
 - d. Verify classrooms are located away from exterior noise source if possible.
 - e. Adjacent doors at corridor wall should be avoided if possible.
 - f. Acoustical ceiling tile should have a NRC of 0.75 or better.
2. MECHANICAL AND PLUMBING DESIGN
 - a. Mechanical and plumbing equipment sound transmission should be taken into consideration throughout the design process. Locate roof top units above corridors in classroom areas if possible.
 - b. Provide isolation and vibration control for appropriate mechanical equipment.
 - c. Consider heating, ventilation and air condition (HVAC) diffusers with an NC below 20 – 25.
 - d. Verify plumbing chases are isolated from adjacent classrooms.
3. ELECTRICAL DESIGN
 - a. Verify electrical outlets are offset in walls to reduce sound transmission.
 - b. Identify and consider isolation of noise generating electrical equipment such as transformers and switchgear.
 - c. Coordinate audio / video locations and requirements.
4. WARRANTY: Five (5) years against grid support failure and sagging tiles.

B. PRODUCTS

1. Grid: Standard exposed, intermediate duty, cold-rolled steel, 15/16" flange width, standard low-gloss white color.
2. Acoustical Ceiling Units: ASTM E 1264.
3. Acoustical Suspension System: ASTM C 635 for materials. Flame Spread of 25 or less and 50 or less for smoke developed per ASTM E 84.
4. Hold-down clips: Use in Physical Education areas and within twelve feet of exterior doors and in fire-rated lay-in ceilings.
5. Standard Tile: 2' X 4', minimum 5/8" thick mineral fiber non-directional fissured board. Use in classrooms, corridors, and general areas. Use humidity resistant for all locations.
6. Washable Tile: 2' X 4', minimum 5/8" thick mineral fiber with vinyl or ceramic facing. Use in kitchens, kitchen support areas, Elementary toilets, and all other "wet" areas not having drywall/plaster ceilings.
7. Stainless Steel: Required solid (no penetrations) minimum 24" band around kitchen range hood; Architect shall verify with governing code criteria.

8. Music room ceiling material as recommended by the acoustical engineer.
9. Attic Stock / Maintenance material: Minimum of one carton of acoustical tile and ceiling grid per type and color or 1% of total square foot area of installed material. Contractor to provide to the Owner for storage and future use per the project closeout requirements

C. EXECUTION

1. Levelness: Specify 1/8" in 10'-0", 1/4" maximum variation within room area.
2. Require Contractor to provide one additional grid hanger wire at each corner of each lay-in light fixture (4 wires total at each light); additional independent jack chain supports from lights proper to structure is outlined in Section 16500 criteria.
3. Specify Contractor shall not install acoustical tile until the building is enclosed. The permanent HVAC system is in operation and residual moisture has diminished under manufacturer's requirements.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Theater Stage Flooring:
 - 1) Architect to verify with OCMAPS Program Manager, I-89 School District and Program Consultant if wood or vinyl composition tile is to be used.
 - 2) If wood flooring is to be used, use nominal 1" X 2-1/4" tongue-and-groove kiln-dried maple with resilient underlayment.
 - 3) If vinyl composition tile is to be used, see Section 09660 criteria.
 - b. Gymnasium Flooring: Floating system consisting of 33/32" kiln-dried northern hard maple strip flooring, adhesive-set to double layer (1/2" each layer) plywood sub-flooring mounted on 15/32" pneumatic rubber pads over vapor barrier on concrete slab.
2. WARRANTY
 - a. Gymnasium flooring fully (non pro-rated) guaranteed five (5) years against defects in materials and/or installation.

B. PRODUCTS

1. All products, accessories, and adhesives shall be totally asbestos-free.
2. Wood Theater Stage Flooring: Robbins, Inc. Lock-Tite system or approved equal by Connor Flooring, Horner Flooring Company, or Action Floor Systems. Each bundle stamped as attestation to fire treatment by treatment plant. Resilient underlayment of 1/2" thick multicellular, closed-cell, flexible polyethylene plastic foam. Perimeter base of lock-tite maple molding. Finished with "Robbins" Miracle Oil modified polyurethane sealer and finish.
3. Gymnasium Flooring: Robbins, Inc. Bio Cushion System or equal or approved by Connor Flooring, Horner Flooring Company, or Action Floor Systems. 4" high venting type molded rubber base with 3" toe. Game line marking paint shall be lead-free polyurethane type paint recommended by the flooring manufacturer. Floor finish shall be minimum three (3) coats of lead-free heavy-duty moisture-cured polyurethane varnish applied after application of game line paint.
4. Manufacturer's standard straight edge tongue and groove end matched solid wood flooring. The strips should measure 25/32" thick X 2-1/4" wide X 2' minimum length and averaging 4' – 6" long. Specify either double channeled base, plain sawn No. 1 common red oak, or plain sawn, MFMA certified second and better grade, northern hard maple with transparent polyurethane finish. Floor to be DIN approved.
5. -TRANSPARENT POLYURETHANE FINISH: shall be a polyurethane co-polymer with the following characteristics:
 - Solids 42%
 - Volatile Contents 58%
 - Carrier: De-sulferized Aliphatic solvent
 - Application rate: 350 – 400 s.f. per gallon
6. ATTIC STOCK / MAINTENANCE MATERIAL
 - a. Minimum of wood flooring material per type and color of 10% of total square foot area of installed material. Provide 2% of total base and underlayment material. Contractor to provide for storage and future use per the project closeout requirements

C. EXECUTION

1. Architect shall specify the following:
 - a. Concrete slabs and substrate construction shall be level to within 1/8" in 10'-0", 1/4" maximum overall variation within room area.
 - b. Contractor shall sand and prepare floor surfaces to be smooth, without gouges or undulations.
 - c. Contractor shall not install wood flooring until the building is enclosed, the permanent heating and cooling system is in operation, and residual moisture from plaster,

- concrete, masonry or terrazzo has dissipated.
- d. Contractor shall protect completed wood flooring during remainder of construction period with heavy kraft paper or other suitable covering, so that flooring and finish will be without damage or deterioration at time of acceptance.
 - e. Contractor shall install transparent polyurethane finish in the following manner:
 - 1) Prepare floor.
 - 2) Apply one (1) coat floor seal.
 - 3) Paint all lines using oil base quick dry enamel (2 coats).
 - 4) Apply one (1) coat floor seal.
 - 5) Cut floor w/#3 steel wool.
 - 6) Apply one (1) coat floor seal.
 - 7) Cut floor w/#3 steel wool.
 - 8) Buff.
 - f. Game line markings shall be accurately laid out, of uniform width and color consistency; use differing colors for basketball and volleyball.
 - g. Contractor shall apply finishes in accordance with floor manufacturer's recommendations, not less than three (3) coats, screen and clean surfaces between coats.

A. GENERAL

1. ARCHITECTURAL DESIGN

- a. Vinyl Composition Flooring ("VCT") areas of use:
General Classrooms
Kitchen dry storage rooms
Elementary School wet areas other than toilet areas
Home Economics rooms (food preparation areas)
Science Labs and Science Prep rooms
Media Workrooms, Visual Arts Rooms, Darkrooms, and Media Prep Rooms
Cafeteria/Dining rooms and Staff Dining areas
Clinics
Corridors
- b. Rubber tiles: Use at all interior ramped corridors.
- c. Stair treads: Use slip-resistant types at all interior stairways.

B. PRODUCTS

- 1. All products, accessories, and adhesives shall be totally asbestos-free.
- 2. Vinyl composition floor: 12" X 12" face, 1/8" thick, all same "lot" number (including required extra stock).
- 3. Base: Rubber, black, or bronze/brown 4" height, top-set coved type; preformed corners are not to be used.
- 4. Rubber tile: Minimum 0.105" thick.
- 5. Stair treads: Rubber, 1/8" thick, integral bullnosed raised disc design, full tread width and depth.
- 6. Accessories: Reducers and transition items as required.
- 7. Adhesive: Flooring manufactures specifically approved waterproof adhesive.
- 8. Extra stock material: Minimum of one (1) carton of vinyl composition tile per type and color or 10% of total square foot area of installed material. Provide 2% of total base material. Contractor to provide to the I-89 School District for storage and future use per the project closeout requirements.

C. EXECUTION

- 1. Specify Contractor to:
 - a. Thoroughly clean, wet mop and prepare substrates for applications. The moisture content of the concrete shall not exceed the amount recommended by the flooring manufacturer at the time of installation.
 - b. Apply leveling compound to ease all transitional floor areas scheduled to receive abutting floor materials of differing thicknesses. Tops of abutting floor materials shall be level throughout to avoid potential trip hazards.
 - c. Locate floor material transitions in center depth of cased openings, and centered beneath doors in their closed positions.
 - d. Allow installed VCT and adhesives to cure a minimum of fourteen (14) days prior to performing required in-place mopping, cleaning, and two-coat waxing.
 - e. The completed flooring shall be installed smooth with tight joints (1/16" joints for entry tiles), accurately scribed at all vertical abutments with no evidence of trapped trash particles beneath the surfaces causing "dimpling" and/or "ghosting" onto the tile surfaces.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Verify carpeted areas with OCMAPS Program Manager, I-89 School District and Program Consultant for specific project requirements.
 - b. Coordinate on-carpet and in-carpet items (e.g. door stops, cleanouts, floor receptacles, thresholds, etc.) for proper design function and fit. Carpet flanges for floor outlets and cleanouts shall accomplish level, flush walking surface.
 - c. Coordinate thicknesses of adjacent floor materials. Detail and specify to provide smooth transition walking surfaces devoid of trip hazards.
 - d. Endeavor to avoid carpeted room plan area dimensions, which result in "slivers" to the greatest extent possible.
2. SUBMITTALS
 - a. Proposed seaming diagrams of all carpeted areas. Layouts shall maximize use of full 6' widths with minimal seaming. Architect to review for warp-to-warp and weft-to-weft seam abutments and minimal carpet "slivers" to greatest extent possible; if unavoidable, "slivers" shall be located in least-trafficked areas. Seams in wall openings shall be centered on the wall. If the opening has a door, seams shall be centered beneath the door in closed position.
 - b. Duplicate samples of actual proposed carpet materials concurrent with carpet manufacturer's printed catalog data stating compliance to all technical criteria.
 - c. Catalog data of all proposed carpet adhesives and accessories.
 - d. Carpet manufacturer's statement of acceptance of compatibility of concrete slab curing/sealing materials with carpet adhesive.
3. WARRANTIES
 - a. Manufacturer shall warrant that the carpet will neither cause static nor induce malfunction of electronic equipment when installed throughout the equipment operation area.
 - b. Remedy of claims under this warranty if found valid, shall include the engaging of the qualified installer to replace the carpeting in the static affected area with new materials having adequate static control properties, at no cost to the contracting entity for materials and labor, except that moving, replacing, disconnecting and reconnecting of equipment is not included herein.
 - 1) Static is defined as the electric charge built up and later discharged from a person, cart or other objects as a result of movement of that person or object upon the floor covering.
 - 2) Malfunction is defined as any failure of the electronic equipment caused by carpet-induced static electricity, provided the equipment is operating within specifications in every other respect.
 - 3) Electronic equipment is any computer, work processor, terminal, or other peripheral component, communications processor, typesetter or broadcast equipment sold by a recognized manufacturer (or its authorized distributor, agent, or representative) and installed and serviced by qualified personnel.
 - c. Carpet manufacturer must certify by register and roll numbers that carpet shipped for this project complies with all requirements of the Specifications subject to normal manufacturing tolerances.
 - d. Manufacturer shall furnish the following written warranties to the OCMAPS Program Manager prior to bid date:
 - 1) Carpet Manufacturer's Standard Warranty for Wear – Twenty-five (25) year non-prorated warranty.
 - 2) Yarn Manufacturer's Color Fastness Warranty:
 - a) Light: Ten (10) year warranty.
 - b) Atmospheric: Five (5) year warranty.
 - 3) Static: Lifetime of the carpet.
 - 4) Edge Ravel & Delamination: Twenty-five (25) year warranty.
 - 5) Stain Warranty - Ten (10) years.

B. PRODUCTS

1. GENERAL MATERIAL
 - a. Manufacture:
 - 1) One (1) manufacturer shall be used throughout the project.
 - 2) All carpet shall be first quality of American manufacture.
 - 3) Approved manufacturers: C&A, Shaw Contract, Interface, Lees Facilities or approved equal that meets specifications.
 - b. Tolerances: Materials shall be subject to normal carpet industry manufacturing tolerances of plus or minus five percent with at least 33% of material being on the plus side.
 - c. Colors: Minimum two (2) custom colors shall be available.
 - d. Minimum Critical Radiant Flux: 0.45 watts per square centimeter per ASTM E-648 / NFPA 253.
 - e. Smoke Developed (Specific Optical Density): 450 or less (flaming) per NFPA 253 (NBS/AMINCO SMOKE CHAMBER).
 - f. Pile Construction: Tufted, textured loop pile.
 - g. Pile Yarn: Continuous filament textured. Yarn must be heat set or air entangled. No single step or straight down yarn processing accepted.
 - h. Density Factor: As noted per FHA formula $D=36 \times W/T$.
 - i. Static Control: Protect from static discharge in excess of 3.0 kv when tested per AATCC-134 (at 70° F & 30% relative humidity) for a five (5) year period from Final Acceptance, regardless of what static control is used.
 - j. Maintenance material: 5% of each color & type (in minimum 3' widths) to be provided to the designated School District personnel for storage for future use.
2. CARPET CHARACTERISTICS
 - a. Nylon Fiber: Type 6, 6 nylon, no manufacturer's own nylon will be accepted.
 - b. Construction: Textured Loop.
 - c. Gauge: 1/12 or greater
 - d. Pile Units per Inch: 8.0 minimum
 - e. Pile Height: 0.117" minimum (ASTM 418, Section 12)
 - f. Pile Thickness: 0.085" minimum
 - g. Yarn Face Weight: 14-oz./square yard minimum
 - h. Width: 6' per roll
 - i. Primary Backing: Synthetic Woven or Non-Woven
 - j. Secondary Backing: Closed cell, vinyl cushion backing system.
 - k. Adhesion: Carpet to be installed with a Low VOC releasable "dry" adhesive system supplied by carpet manufacturer.
 - l. Total weight: 81 oz. / SY
 - m. Dying method: Solution / Yarn Dyed
 - n. Flammability: Class I, 0.45 watts / cm² or greater (NFPA 253)
 - o. Smoke Density: NFPA 258 less than 450
 - p. Warranty: Twenty-five (25) year non-prorated excessive wear (not more than 15% loss of pile fiber weight) delamination, edge reveal and zippering.
3. CARPET ACCESSORIES
 - a. Adhesives: Installation via "wet" adhesive, stretch-in, grid system and free lay is not acceptable.
 - b. Edge Strips and Terminating Bars: Provide carpet terminating edge bars / reducing strips at doors and other locations where the carpet is scheduled to terminate.
 - c. Seam Sealer: Types and application methods as recommended by the carpet manufacturer. Provide for a chemically welded seam that is also impermeable to moisture and airflow.

- d. Accessories: shall be as manufactured by Roberts Consolidated Industries, Inc. or approved equal. Moldings at material transitions shall be new Roberts "Carpet Bar" #12-1641-3, 1" Hammered Aluminum. Provide all other accessories for a complete installation.

C. EXECUTION

1. Specify all joints where carpet abuts carpet, both edges of trimmed carpet shall be sealed with latex.
2. Installation contractor must be certified by the manufacturer. Require the Contractor to provide documentation of certification.
3. Specify carpet shall be installed with full coverage of approved primer.
4. Specify where carpet abuts vertical surfaces there shall be no void spaces between carpet and vertical surfaces.
5. Specify Contractor shall provide seam diagrams for approval by Architect prior to installation. Require Contractor to:
 - a. Locate all seams in areas of least traffic.
 - b. Place seams to be parallel to main traffic direction, minimize cross seams.
 - c. Not locate seams perpendicular through door openings.
 - d. Locate change of color or pattern between rooms and under door opening centerlines.
 - e. Provide monolithic color, pattern and texture match within any one area.
 - f. Run parallel to walls (seams must be farther apart than 12').
6. Chemically weld all seams with manufacturer's recommended seam sealer.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. For all renovation painting projects, in preparing the specifications and the finish schedule, the Architect shall follow the recommendations from a paint consultant on how to prepare the surfaces and with which product to paint.
 - b. Spray Applications: Use only where not accessible or impractical to use roller and/or brush applications. Coverage shall be equal to brush coats.
 - c. No flat finish paints allowed for walls and trim, except backstage areas.
 - d. All painted concrete masonry units shall be pointed and thoroughly primed with block filler.
 - e. Colors: See Finishes Check List for standard colors. All backstage equipment surfaces in theaters painted flat black.
 - f. Use natural finishes (stains and varnishes) on all wood doors.
2. SUBMITTALS
 - a. Require the Contractor to submit the following product data:
 - 1) Submit complete list of products proposed for use at least thirty (30) days prior to commencement of painting work. (Intent of Contractor to use products specified does not relieve him from responsibility of submitting product list).
 - 2) Indicate manufacturer, brand name, quality and type paint for each surface to be finished.
 - b. Require the Contractor to submit the following color samples:
 - 1) Color charts: Submit two (2) sets of color charts from paint manufacturers proposed for use, for color selections by Architect and OCMAPS Program Manager.
 - 2) Brush-out samples:
 - a) Following color selection or issuance of color schedule, prepare actual brush-out samples of each paint, stain or finish actually required for use on the project.
 - b) Submit minimum 8" x 10", brush-out samples in duplicate. Apply products in number of coats specified for actual work.
 - c) Provide brush-out samples on the following substrates:
 - i) To simulate drywall, lumber, board products and metals for paint finish: Heavy Poster Board or Hardboard.
 - ii) To simulate wood for transparent finish provide sample(s) of actual species and grade specified.
3. SAFETY PRECAUTIONS
 - a. Require the Contractor to adhere to the following safety precautions:
 - 1) Provide temporary fire protection equipment in materials storage area.
 - 2) Prohibit smoking in storage area.
4. QUALITY ASSURANCE:
 - a. Applicator shall be approved by paint manufacturer in writing. Approval shall indicate the following:
 - 1) Manufacturer has instructed applicator in the installation of specified material.
 - 2) Applicator has been engaged in satisfactory application of materials on project of similar scope for at least three years.
 - b. Specify the following standards of quality:
 - 1) Prior to production application of paint coatings a "Standard of Quality" application shall be prepared for inspection and acceptance by the Architect, the OCMAPS Program Manager and the Program Consultant. Said application shall be made on a representative area of the project with the approved coatings applied in accordance with this specification by the coatings applicator.
 - 2) A representative of the manufacturer of the special coatings shall be present at the job site to observe this application, inspect surfaces and conformance

- to specification.
- 3) Upon completion of this sample application, a representative of the Contractor, the manufacturer and the Architect, the OCMAPS Program Manager and the Program Consultant shall inspect and approve this area. Upon acceptance said area shall become the "Standard of Quality" for subsequent coatings application, and the application contractor shall be responsible for maintaining the accepted quality throughout the subsequent application.
 - 4) For painting of previously painted surfaces an independent testing laboratory and the paint manufacturer's representative shall determine the recommended coating.

B. PRODUCTS

1. All products shall be the highest quality of Manufacturers' line of products.
2. All primers and finish products shall be totally lead-free.
3. All finish materials shall be compatible with primers; particularly needed where materials are shop primed.
4. Manufacturers:
 - a. Acceptable manufacturers are subject to compliance with specified requirements:
 - 1) Benjamin Moore Company
 - 2) Porter International
 - 3) Sherwin-Williams Company
 - 4) Pittsburgh
 - b. Products specified herein are as manufactured by the listed companies, and shall be the basis for the standard of quality. Products of other acceptable manufacturers specified, similar in material, type and quality, may be acceptable for use subject to approval of specified product data submittal. All products shall be the manufacturers' highest quality products.
 - c. Where products other than those of the manufacturer listed as the standard of quality are specified in Painting Schedule, such products have been selected to achieve specific results and substitutions will be allowed only in accordance with product options and substitutions section.
 - d. Miscellaneous materials:
 - 1) Paint thinners and tints shall be products of same manufacturer as paints or approved by him for use with his products.
 - 2) Lacquers, turpentine, patching compounds and similar materials required for execution of work shall be compatible with painting materials and surfaces applied.
5. Paint and stain colors shall be as scheduled with final approval based on brush-out sample submittal.
6. Maintenance Materials:
 - a. Furnish minimum one (1) gallon of each paint color and finish used on project for the Owner.
 - b. Properly identify each container with manufacturer, color name, product number, and color formula.
 - c. Store materials at location designated by Owner.

C. EXECUTION

1. PREPARATION
 - a. Surfaces to receive finishes shall be dry and free of debris, oils, dust or other deleterious materials. Before application of coatings, quality assurance inspection shall have been performed and approved by the paint manufacturer.
 - b. Require the Contractor to treat mildewed surfaces with a solution of one quart hypochlorite bleach with 2 ounces of tri-sodium phosphate to one gallon water. Rinse and allow to dry prior to painting.
 - c. Specify Contractor to sand and dust between coats to remove visible defects when viewed from a distance of 5'.
 - d. Specify Contractor to ensure finish coats shall be smooth, free of brush marks,

- e. streaks, laps or pile-up of paint, skipped or missed areas.
 - e. Require Contractor to back-prime finish carpentry and millwork with material specified for prime coat, without runs on face. Finish cut edges prior to installation.
 - f. Require Contractor to paint inside of ductwork flat black for entire area visible through ceiling openings. Paint underside of ductwork and other above-ceiling items flat black for entire area visible through ceiling openings.
2. PAINTING SCHEDULE:
- a. Surfaces not requiring painting:
 - 1) Exterior brick masonry.
 - 2) Pre-finished surfaces and items.
 - 3) Concealed ductwork, conduit and piping, except as visible from completed spaces.
 - 4) Concrete, block or drywall surfaces above finished ceilings.
 - 5) Pre-cast concrete window sills.
 - b. The quantities of coats specified are minimums. Specify Contractor is responsible for application of any additional coats necessary to achieve required coverage and color uniformity.
 - c. Exterior surfaces (All manufacturers and products are listed to establish design criteria. Equal products by qualified manufacturers will be considered during the design process. Architect must specify a minimum of three (3) manufacturers or equivalent products.):
 - 1) Existing cement asbestos panels, elastomeric finish:
 - a) First coat: Porter – Porter acrylic sealer.
 - b) Second coat: Porter – 6000 Line Porter-flex.
 - c) Third coat: Porter – 6000 Line Porter-flex Low Profile.
 - 2) Ferrous metals, acrylic waterborne enamel:
 - a) First coat: Porter – 296 Glyptex Rust Inhibitive Primer.
 - b) Second coat: Porter – 909 Advantage 900 Gloss.
 - c) Third coat: Porter – 909 Advantage 900 Gloss.
 - 3) Galvanized metals and aluminum, acrylic waterborne enamel:
 - a) First coat: Porter – 290 Galvanized Metal Primer. 296 Glypten (for Aluminum).
 - b) Second coat: Porter – 909 Advantage 900 Gloss.
 - c) Third coat: Porter – 909 Advantage 900 Gloss.
 - d. Interior surfaces (All manufacturers and products are listed to establish design criteria. Equal products by qualified manufacturers will be considered during the design process. Architect must specify a minimum of three (3) manufacturers or equivalent products.):
 - 1) Existing glazed block, acrylic waterborne enamel:
 - a) First coat: XIM UMA Bonding Primer.
 - b) Second coat: Porter – 909 Advantage 900 Gloss.
 - c) Third coat: Porter – 909 Advantage 900 Gloss.
 - 2) Concrete unit masonry and brick, acrylic waterborne semi-gloss enamel:
 - a) First coat: Porter – 9203 Quick Fil.
 - b) Second coat: Porter – 909 Advantage 900 Gloss.
 - c) Third coat: Porter – 909 Advantage 900 Gloss.
 - 3) Concrete unit masonry, waterborne acrylic epoxy (Kitchen and Showers):
 - a) First coat: Porter-Block-Loc Waterproofing Block Filler No. 222.
 - b) Second coat: Porter-Porter Guard WB Acrylic Epoxy No. 9549G.
 - c) Third coat: Porter-Porter Guard WB Acrylic Epoxy No. 9549G.
 - 4) Concrete unit masonry, waterborne acrylic epoxy (All other locations).
 - a) First coat: Porter – Pro-Master 2000 Latex Block Filler No. 6223.
 - b) Second coat: Porter – Porter Guard WB Acrylic Epoxy No. 9549G.
 - c) Third coat: Porter – Porter Guard WB Acrylic Epoxy No. 9549G.

- 5) Ferrous metals, alkyd semi-gloss:
 - a) First coat: Porter – 296 Glyptex Rust Inhibitive Primer.
Porter – 286 Fast Dry Universal Primer
 - b) Second coat: Porter – 129 Alkyd Satin Enamel.
 - c) Third coat: Porter – 129 Alkyd Satin Enamel.
 - 6) Galvanized metals and aluminum, alkyd semi-gloss:
 - a) First coat: Porter – 290 Galvanized Metal Primer. 296 Glyptex (for Aluminum)
 - b) Second coat: Porter – 129 Alkyd Satin Enamel.
 - c) Third coat: Porter – 129 Alkyd Satin Enamel.
 - 7) Existing metal lockers: acrylic urethane:
 - a) First coat: Porter – 286 Fast Dry Universal Primer.
 - b) Second coat: Porter – Interthane 990 HS.
 - 8) Concrete Floors: epoxy polyamide:
 - a) First coat: Glidden – 12735/12702 Tru-Glaze Epoxy Primer by Devoe Paint.
 - b) Second coat: Glidden – 124XX/12402 Tru-Glaze-4 Epoxy Gloss Coating by Devoe Paint.
- e. A maximum of ten (10) colors will be selected. Each area of the building will be painted a base color with selected accent walls.

A. GENERAL

1. ARCHITECTURAL DESIGN

- a. The Room Finish Schedule is included as a guide for the Architect on material use and finishes. The Architect may propose local conditions and reasonable substitutions during the design process.
- b. The OCMAPS Program Manager, the Program Consultant and the I-89 School District will review and comment on the Room Finish Schedule developed by the Architect.

B. ROOM FINISH SCHEDULE

1. Room Finish Schedule Section 09990B is attached. This is a guideline schedule. A project specific schedule will be developed by the Architect.

Revised August 2009

ROOM NAME		PREFERENCE MATERIAL	COMMENTS (Including possible substitute materials)
TYPICAL CLASSROOM	FLOORS	VINYL COMPOSITION TILE	CARPETING SHALL NOT BE INSTALLED IN CLASSROOMS.
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK - PAINT FINISH	
	CEILING	2 X 4 ACOUSTICAL	
CORRIDOR	FLOORS	VINYL COMPOSITION TILE	
		CERAMIC TILE @ WATER FOUNTAINS	
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK - PAINT FINISH	
	CEILING	2 X 4 ACOUSTICAL	
ELECTRICAL CLOSETS (Other than Technology Support Areas)	FLOORS	SEALED CONCRETE	
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK - PAINT FINISH	
	CEILING	2 X 4 ACOUSTICAL	
MECHANICAL ROOMS	FLOORS	EXPOSED, SEALED CONCRETE	
	BASE	NONE	
	WALLS	CONCRETE BLOCK - PAINT FINISH	
	CEILING	NONE	
STORAGE ROOMS	FLOORS	VINYL COMPOSITION TILE	
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK - PAINT FINISH	
	CEILING	2 X 4 ACOUSTICAL	
CLINIC	FLOORS	VINYL COMPOSITION TILE	
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK - PAINT FINISH	
	CEILING	2 X 4 ACOUSTICAL	
SCIENCE ROOM	FLOORS	VINYL COMPOSITION TILE	CARPETING SHALL NOT BE INSTALLED IN CLASSROOMS.
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK - PAINT FINISH	
	CEILING	2 X 4 ACOUSTICAL	
PUBLIC RESTROOMS	FLOORS	PORCELAIN CERAMIC TILE (NON-GLAZED)	2 X 4 ACOUSTICAL
	BASE	PORCELAIN CERAMIC TILE (NON-GLAZED)	
	WALLS	CERAMIC TILE WAINSCOT	
		CONCRETE BLOCK W/ EPOXY PAINT	
	CEILING	GYP. BOARD - PAINT FINISH	
INDIVIDUAL RESTROOMS	FLOORS	PORCELAIN CERAMIC TILE (NON-GLAZED)	2 X 4 ACOUSTICAL
	BASE	PORCELAIN CERAMIC TILE (NON-GLAZED)	
	WALLS	CONCRETE BLOCK W/ EPOXY PAINT	
	CEILING	GYP. BOARD - PAINT FINISH	

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ROOM NAME		PREFERENCE MATERIAL	COMMENTS (Including possible substitute materials)
RECEPTION AREA	FLOORS	VINYL COMPOSITION TILE / CARPET / CERAMIC TILE	
	BASE	RUBBER	
	WALLS	GYP. BOARD - PAINT FINISH	
	CEILING	DECORATIVE ACOUSTICAL / GYP. BOARD	
ADMINISTRATIVE OFFICES	FLOORS	CARPET	
	BASE	RUBBER	
	WALLS	GYP. BOARD - PAINT FINISH	
	CEILING	2 X 4 ACOUSTICAL	
MAIL ROOM	FLOORS	VINYL COMPOSITION TILE	
	BASE	RUBBER	
	WALLS	GYP. BOARD - PAINT FINISH	
	CEILING	2 X 4 ACOUSTICAL	
WORK ROOM	FLOORS	VINYL COMPOSITION TILE	
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK - PAINT FINISH	
	CEILING	2 X 4 ACOUSTICAL	
COMPUTER ROOM	FLOORS	CARPET	
	BASE	RUBBER	
	WALLS	GYP BOARD - PAINT FINISH	
	CEILING	2 X 4 ACOUSTICAL	
JANITOR	FLOORS	SEALED CONCRETE	
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK - PAINT FINISH	
	CEILING	2 X 4 ACOUSTICAL	
KITCHEN	FLOORS	QUARRY TILE	
	BASE	QUARRY TILE	
	WALLS	CONCRETE BLOCK - WITH EPOXY PAINT	
	CEILING	MYLAR / VINYL COATED LAY-IN GYP. BOARD	
CAFETERIA	FLOORS	VINYL COMPOSITION TILE	
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK - PAINT FINISH	
	CEILING	2 X 4 ACOUSTICAL	
GYMNASIUM	FLOORS	WOOD @ PLAYING AREA	
	BASE	VENTED (BY FLOOR MANUFACTURER)	
	FLOORS	VINYL COMPOSITION TILE	
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK (MIN. 10' HIGH) - PAINT FINISH	
	CEILING	TECTUM ABOVE 10' PAINT FINISH	

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ROOM NAME		PREFERENCE MATERIAL	COMMENTS (Including possible substitute materials)
COACH'S OFFICE	FLOORS	VINYL COMPOSITION TILE	
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK - PAINT FINISH	
	CEILING	MYLAR / VINYL COATED LAY-IN GYP. BOARD	
LOCKER ROOMS	FLOORS	SEALED CONCRETE	
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK - PAINT FINISH	
	CEILING	PAINT FINISH	MYLAR / VINYL COATED LAY-IN
SHOWERS / RESTROOMS	FLOORS	PORCELAIN CERAMIC TILE (NON-GLAZED)	
	BASE	PORCELAIN CERAMIC TILE (NON-GLAZED)	
	WALLS	CONCRETE BLOCK W/ EPOXY PAINT	
	CEILING	WATER RESISTANT GYP. BOARD	
AUDITORIUM	FLOORS	VINYL COMPOSITION TILE	
		CARPET @ AISLES	
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK W/ ACOUSTICAL TREATMENT AS REQUIRED	
	CEILING	ACOUSTICAL TREATMENT	
BAND ROOM	FLOORS	CARPET	
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK W/ ACOUSTICAL TREATMENT AS REQUIRED	
	CEILING	ACOUSTICAL TREATMENT	
MUSIC / ART ROOM	FLOORS	VINYL COMPOSITION TILE	CARPETING SHALL NOT BE INSTALLED IN CLASSROOMS.
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK W/ ACOUSTICAL TREATMENT AS REQUIRED	
	CEILING	ACOUSTICAL TREATMENT	
TECHNOLOGY SUPPORT AREAS FOR "MDF" AND "IDF" NETWORK EQUIPMENT	FLOORS	VINYL COMPOSITION TILE	USE ANTI-STATIC FINISHES
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK - PAINT FINISH. ON ONE WALL INSTALL 3/4 INCH AC GRADE FIRE RATED PLYWOOD OR NON-RATED PAINTED ALL SIDES. (8' H X 8' W). CONFIRM PLYWOOD LOCATION WITH ARCHITECT.	
	CEILING	OPEN TO STRUCTURE/FILL ALL PENETRATIONS AND PAINT	
TECHNOLOGY SUPPORT MOBILE CART STORAGE CLOSETS	FLOORS	VINYL COMPOSITION TILE	USE ANTI-STATIC FINISHES
	BASE	RUBBER	
	WALLS	CONCRETE BLOCK - PAINT FINISH	
	CEILING	2 X 4 ACOUSTICAL OR DRYWALL	

A. GENERAL

1. ARCHITECTURAL DESIGN

- a. Provide marker boards in lieu of chalkboards.
- b. Existing chalkboard surfaces may be replaced or covered with face sheet panels made of materials which provide magnetic surfaces, equal to Claridge Products LCS series.
- c. Existing tackboard surfaces may be removed and replaced or covered with fabric-covered, durable solid core or cork mounted boards, equal to Claridge Products.

B. PRODUCTS

1. All marker boards, tack boards, chalkboards and display rails by the same manufacturer throughout the project.
2. Trim and accessories: Satin anodized extruded aluminum.
3. Marker boards:
 - a. Material/construction: 24-gauge porcelain enameled steel bonded to minimum 3/8" particleboard with 0.015" aluminum backing sheet. Surface for liquid chalk, off white color.
 - b. Sizes: All units 48" tall. Provide a Total 16 L.F. in each classroom (8 L.F. integrally music-staffed in Music Rooms); one unit, 8 L.F. in each workroom.
 - c. Accessories per unit: Top map rail with cork insert, four (4) map hooks, two (2) roller brackets, one (1) chalk trough. One (1) flag holder per classroom.
 - d. Provide 8' chalkboard and 8' marker board in Art classrooms.
4. Tack boards:
 - a. Material/construction: Minimum 1/4" thick cork composition, color throughout entire thickness, with 1/4" thick hardboard backing.
 - b. Size: All units 48" tall. Provide a total 16 L.F. in each elementary classroom; total 12 L.F. in each high school classroom; one (1) unit 8 L.F. in each Elementary Cafeteria, each workroom, and each lobby area.
 - c. Accessories: Top map rail with cork insert and four (4) map hooks.
5. Display rails: Extruded aluminum with 1/4" thick cork insert, 1" width, continuous lengths. Locate two (2) in Elementary School hallways and 40 L.F. in each classroom.. Mount at 48" A.F.F. and 72" A.F.F.

C. EXECUTION

1. Specify mounting heights from finish floor to bottoms of units in accordance with State Department of Education Standards:
 - a. Kindergarten and Primary Classrooms (grades K thru 3): 30"
 - b. Intermediate Classrooms (grades 4 and 8): 30"
 - c. High School Classrooms: 33"
 - d. All Workrooms and Staff Areas: 33"
2. Specify Contractor to instruct school personnel regarding maintenance and "care-and-cleaning" procedures and provide written instructions in Close-Out documents.

A. GENERAL

1. ARCHITECTURAL DESIGN COORDINATION
 - a. Comply with American Disabilities Act and all governing codes.
 - b. Layouts mindful of sight lines to assure privacy screening from other public areas.
 - c. Fixture quantities will be per code criteria.
 - d. Elementary School Design Criteria:
 - 1) Water closet partitions: Floor-mounted, overhead braced, with stainless steel anti-grip head rail, solid polymer with continuous hinge doors.
 - 2) Architect shall confirm use of urinal partitions in student toilets with Program Consultant.
 - e. High School Design Criteria:
 - 1) Pilasters, and doors (at each stall): Standard 58" height set 12" above floor, solid polymer, and minimum 3/4" thick. Compartments shall be floor mounted, overhead braced. Set doors to pilasters with continuous stainless steel hinges.
 - 2) Attachments: Stainless steel tamperproof fasteners.
 - f. Staff Toilets: Design layouts, hardware, and accessories for use by both sexes; Polymer partitions (water closet and urinal) same as Elementary criteria.
 - g. Public Toilets: Design for separate MEN and WOMEN use; Polymer partitions same as Staff Toilet criteria.

B. PRODUCTS

1. Hardware and fasteners: Stainless steel (no cast aluminum or "Zamac") with theft-proof heads. Use "through-bolts" (threaded insert with vandal resistant bolt at both sides) to secure hinges, brackets, stops and latches to doors and partitions. Provide vinyl bumper strip to absorb impact at doorstops and latch.

C. EXECUTION

1. Architect shall specify
 - a. Toilet partitions shall be floor mounted and overhead braced with continuous T-anchor with vandal resistant stainless steel machine screws with expansion anchors at masonry and tile walls and with toggle bolts at hollow walls and expansion anchors at other walls. Pilasters shall be secured to floor with a minimum of two (2) #14 1-1/2" stainless steel screws with expansion anchors. Provide polymer base trim to conceal floor anchorage and leveling devices.
 - b. Urinal screens if required, shall be provided between adjacent urinals and where located next to lavatories. These screens shall be of the same construction as the toilet partitions and shall be floor mounted and overhead braced with continuous T-anchor with stainless steel screws with expansion anchors.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Design to withstand wind loads in accordance with governing codes.

B. PRODUCTS

1. Design: Cone tapered (6" butt diameter and 3-1/2" top diameter), ground set, with internal halyard system.
2. Material: Aluminum alloy, clear anodized finish all exposed components.
3. Height: 30'-0" above ground.
4. Halyard: 1/8" diameter stainless steel braided aircraft cable with neoprene-coated cable, counter height and ball retaining loops.
5. Truck: Ball-bearing sheaves in revolving non-fouling truck cap.
6. Ball: 6" diameter, 14-gauge aluminum, mount to truck assembly.
7. Flash collar: Spun or cast aluminum, size to cover foundation tube.
8. Foundation tube: Minimum 16-gauge galvanized corrugated steel.
9. Grounding spike: Minimum 3/4" diameter steel rod, minimum 6' length, welded to base plate, entire assembly galvanized after fabrication.
10. Flags (required to be provided by the Contractor, in sized to suit pole height):
 - a. American "Stars and Stripes" .
 - b. Oklahoma State Flag.
11. Flag snaps: Satin chrome plated bronze with neoprene covers.
12. Concrete pad: Minimum 3000 p.s.i., 4" thick, 6' square (or 8' diameter), light broom finish. Provide hard surface pedestrian walk access for entire route to flagpole.

C. EXECUTION

1. Architect shall specify Contractor to:
 - a. Deliver poles and accessories in protective wrappings; remove wrappings just prior to erection.
 - b. Install unit plumb and in accordance with approved submittal data; avoid scarring finished surfaces.
 - c. Verify proper operation of hoisting assembly and test to assure smooth quiet operation over entire travel length.
 - d. Instruct designated school personnel on proper operation and maintenance.

A. GENERAL

1. ARCHITECTURAL DESIGN

a. Dedication Plaque:

- 1) New facilities shall have a dedication plaque placed in an appropriate public location to commemorate the construction project. Architect shall design, specify and locate a dedication plaque to be provided and installed by Contractor. The plaque design, text and location will be approved by the OCMAPS Program Manager and School District prior to any manufacture.
- 2) The dedication plaque shall include the following information:
 - a. Names of the School Board Members
 - b. Names of the OCMAPS Trust Members
 - c. Names of the Mayor and City Council Members
 - d. Names of other project representatives
- 3) The names of the OCMAPS Trust, School Board and City Council shall be those, who are currently in office when the project was constructed. If an individual was involved in the beginning stages of a project, but left office before project was completed, his/her name may appear in the lower left area of the plaque.
- 4) Dedication plaques shall be made of cast bronze, approximately 18" x 36" in size. Figure 1 (sample illustration) shall serve as a template in the design of dedication plaques for all OCMAPS projects.

b. School Site Sign:

- 1) Back-up construction and related site work to accommodate sufficient lettering for actual school name plus numbers only of street address. Colors and materials of back-up construction shall permit easy reading of copy.
- 2) Copy: Cast aluminum, minimum 12" height, all capitals, either "Optima" or "Helvetica Medium" style.
- 3) Locate and orient for visibility and readability; consider sight lines, traffic and potential landscaping.

c. Message Board:

- 1) As part of School Site sign, include a 4' H X 6' L message board (with horizontal tracks for copy insertion) on each visible face with lockable front door; provide 200 copy set of 6" tall capital letters and numerals (black) plus twenty (20) clear 3" W X 6" H clear plastic blanks for creating punctuation. All backing, letter/numeral/blanks and track shall be designed to withstand thermal heat build-up within the sign without deformation or deterioration from ultraviolet light.
- 2) Sign to be mounted on a brick or concrete base.

d. Site Traffic Signage:

- 1) Designs and mountings per the Manual on Uniform Traffic Control Devices (MUTCD). MUTCD sign types and locations shall be shown on Civil Engineering Drawings.

e. Building Sign:

- 1) Cast Aluminum letters, minimum 12" height, all capitals, either "Optima" or "Helvetica Medium" style. Architect shall design for only one; the OCMAPS Program Manager and the I-89 School District shall approve location.

f. Interior Room Signage:

- 1) Specify Contractor to provide all interior room signage. Signage to include room number and in some cases a room name.
- 2) All rooms at a school are to have a room number except the following:
 - a. Corridors, vestibules, entries, etc.
 - b. Small, non-walk-in storage closets which are inside another room.

- 3) The following room types shall have a room number and a fixed room name:
 - a. Restrooms
 - b. Mechanical and Electrical Rooms
 - c. IDF and MDF Rooms
 - d. Custodial Rooms
 - e. Media Center
 - f. Administration (Office)
 - g. Principal
 - h. Assistant Principal
- 4) Classrooms and other office spaces should have a sign that has a fixed room number. A changeable room name is optional with this signage.
- 5) All existing signage should be replaced when building is renumbered.
- 6) Must comply with ADA and HIPA requirements.
- 7) Type: ¼" thick acrylic plastic with substrate lettering and graphics laminated to plastic laminate background with ¼" thick acrylic plastic back plate with beveled edge detail.
- 8) Use international symbols where possible.
- 9) If room number is applied over glass provide backing material on opposite side of glass.

B. PRODUCTS

1. All exterior signage shall be by one (1) manufacturer.
2. All interior signage shall be by one (1) manufacturer; not required to be the same as exterior signage manufacturer.
3. All attachments shall be vandal proof and corrosion-resistant.
4. Dedication plaques shall be made of cast bronze. The attached illustration (sample) shall serve as a template in the design of dedication plaques for all OCMAPS projects.

C. EXECUTION

1. Architect shall specify:
 - a. Dedication plaque to be furnished and installed by the General Contractor awarded the construction contract for the project. The contractor shall prepare a formal submittal for review and approval by the School District and OCMAPS Staff prior to release for fabrication and installation. The Architect and Contractor shall not approve this submittal until first reviewed and approved by the School District and OCMAPS as evidenced by official notice bearing signature and initialed by the OCMAPS Program Manager. The School District and OCMAPS Staff shall approve the location designated for the Plaque prior to installation.
 - b. Interior room signage shall be mounted in accordance with ADA requirements on partition adjacent to strike jamb.
 - c. All signage shall be mechanically fastened; no adhesive fastening allowed.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Student lockers shall be provided at High Schools only.
 - 1) Quantity: 110% of designed student enrollment.
 - 2) Type: Two-tier, (single tier, 12" wide X 12" deep X 6'-0" tall; all units have sloped tops if area permits), louver door, built-in master keyed combination lock each unit.
 - 3) Along classroom area corridors; maintain minimum 8'-0" clear corridor width.
 2. P.E. Lockers shall be provided at High Schools only.
 - a. Quantity: For each "Boys" and "Girls" Locker Room; a ratio of ten (10) box lockers (12" x12") for each two (2), half lockers. Lockers should be in groups of 2-5 tier units of box lockers and 1-2 tier unit of half lockers. Confirm the number of lockers with the Program Consultant. Plan shall accommodate 1000 box lockers (500 boys and 500 girls) and 200 half lockers (100 girls and 100 boys).
 - b. Types: Five-tier and two-tier, perforated (70% minimum open area), master keyed combination pad locks lock each unit with recessed handle.
 3. Athletic Lockers shall be provided at High Schools only.
 - a. Quantity: 100 total in Boys and Girls Varsity Locker Room. Confirm number with Program Consultant.
 - b. Type: Single tier perforated type: 15" W X 15" D X 6'-0" H for women; 18" W X 21" D X 6'-0"H for men.
 - c. Recessed handle with mastered keyed combination padlock each unit.
 4. Kitchen Staff Lockers:
 - a. Quantity: 14 total in Kitchen Dressing Room.
 - b. Type: Two-tier, louver door, built-in master keyed combination lock each unit.
 5. Curbs: Concrete base with standard metal base for floor mounted lockers in classroom corridors.

B. PRODUCTS

1. Manufacturers: "Lyon", "Penco", "Republic", "Medart", or "Interior Steel". All units within project shall be same manufacturer.
2. Construction Minimums: 20-gauge body, 16-gauge doors and frames (14-gauge doors at athletic perforated units and P.E. lockers), 18-gauge shelves, filler panels, closures, and tops, and 13-gauge latch hooks.
3. Hardware: Non-removable pin hinges, recessed pocket handle combining latching device release and locking mechanism, one silencer at each latch hook, spring-actuated slide latches, one (1) latch hook per -tier unit.
4. Hooks: One (1) double-prong ceiling hook and 2 single-prong wall hooks per unit.
5. Number Plates: Factory-installed aluminum with 3/8" high-etched numerals.
6. Finish: Baked enamel over phosphate-treated steel.

C. EXECUTION

1. Architect shall specify Contractor to:
 - a. Install units into pressure-treated wood nailers cast into concrete curbs and secured to masonry walls.
 - b. Install filler pieces and tops with hairline joints.
 - c. Test all units for proper, quiet, unbinding operation; lubricate and adjust as required.
 - d. Verify proper operation of all combination locks and keys. Provide six (6) properly identified locker master keys to I-89 School District at project close-out.
2. Instruct I-89 School District's maintenance panel on locker maintenance, hardware adjustments, combination reprogramming, and lock change out.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Design locations in accordance with governing codes.
 - b. Extinguishers will be in fully recessed cabinets in public spaces and corridors; cabinet bodies shall not project into traffic paths. Where cabinets are set in fire-rated partitions, maintain partition fire-rating integrity.
 - c. Bracket-mounted extinguishers in Kitchens, Foods / Laboratory Classrooms, Science Classrooms, storage rooms, mechanical rooms, and other non-public areas.
 - d. Locate one (1) 10# BC extinguisher within 10' of each kitchen range hood.
 - e. Provide an Annul extinguishing system for Family/Consumer Science Range Hoods with automatic shut off for gas ranges.

B. PRODUCTS

1. Extinguishers: Type ABC (type BC in kitchens) multi-purpose, dry chemical, meeting UL Standard 299 for Class A, B, and C fires, with integral charge status indicators.
2. Brackets: Extinguisher manufacturer's standard for vertical mounting and easy removal of the extinguisher. Bracket shall have integral bottom support with upper strap for extinguisher.
3. Cabinets: Factory-finished metal, fully recessed, solid panel door, with "FIRE EXTINGUISHER" lettering in horizontal orientation.
4. Provide fire blanket and cabinet where required in Science areas.

C. EXECUTION

1. Specify mounting heights at 4'-8" to top of cabinet or 4'-0" to top of bracket.
2. Architect shall require Contractor to provide properly charged extinguishers immediately prior to Final Acceptance; including dated inspection tag.

A. GENERAL

1. ARCHITECTURAL DESIGN

a. Shelving:

- 1) Consider actual lengths and widths of assembled groups to maximize usage layouts within rooms and spaces. Footplate sizes and incorporation of individual units, and sufficient installation clearances may affect room dimensions.
- 2) Coordinate layouts and shelf heights with door clearances, lighting, access to wall switches, heating, ventilation and air conditioning (HVAC) and sprinklers. Provide a minimum 18" code-required sprinkler head clearance.

- b. Kiln Room: Wire rack type, stainless steel, two (2) units, each 36" long X 18" deep with minimum five (5) shelves.
- c. Teacher Workrooms: Shelving on 20% to 25% of floor plan footprint; 1/2 of units 18" deep, 1/2 of units 12" deep.
- d. Science Storage: Wood shelving on 20% to 25% of floor plan footprint; all units 24" deep, maximize incorporation of 48" long units. Shelf shall have the code required raised front edge strip.
- e. Book Storage: Shelving on 35% to 40% of floor plan footprint; 1/2 of units 18" deep, 1/2 of units 12" deep.
- f. Elementary Physical Education Equipment Storage: Shelving on 35% of floor plan footprint; 2/3 of units 18" deep, 1/3 of units 24" deep; provide two (2) 24" deep units with minimum 54" length for tumbling mat storage.
- g. Outdoor Storage: Two (2) 36" long X 18" deep units.
- h. Other Storage Areas: 18" deep units to cover 20% of room plan footprint.

B. PRODUCTS

1. Manufacturers: Lyon 8000 Series, Penco Clipper Shelving, or Republic Clip Shelving; standard grey color factory baked enamel.
2. Each unit shall be provided and assembled as an independent (starter) unit with four uprights and individual bracing members. Common uprights and bracing serving adjacent units is prohibited.
3. Characteristics (All units minimum 84" high with adjustable shelves):
 - a. Adjustable shelves: 18-gauge. All 18" and 24" deep units reinforced front and rear. Seven (7) shelves for each 18" and/or 24" deep unit; ten (10) shelves for each 12" deep unit.
 - b. Post Uprights: Minimum 16-gauge steel, punched maximum 1-1/2" O.C. for adjustable shelves.
 - c. Sway Braces and Shelf Reinforcement: Minimum 12-gauge steel.
 - d. Foot plates: Heavy gauge steel to protect flooring.

C. EXECUTION

1. Architect shall specify Contractor to:
 - a. Assemble units, installing plumb and level. Secure adjacent units together and attach to walls. All attachments at 72" A.F.F., using spacers as necessary.
 - b. Provide minimum 11-oz. spray touch-up paint for maintenance material.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Indicate dimensions of all locations and mounting heights (in accordance with governing codes and ADA criteria).
 - b. Handicap dimensions for Elementary School students per Uniform Federal Accessibility Standards "Recommendations for Accessibility to Serve Physically Handicapped Children in Elementary Schools".
 - c. Locate soap dispensers over, not beside, lavatories.
 - d. Verify specific project uses and applications for combination units, towel hooks, shower rods, shower curtains, and shelving with Program Consultant.
 - e. Hand dryers to be located in all student restrooms. All dryers shall be shown on both architectural and electrical drawings.
2. Warranty
 - a. Ten (10) years against silver spoilage on mirrors.

B. PRODUCTS

1. All keyed products by same manufacturer; all keyed alike except for coin receiving boxes on vending equipment. Provide two (2) keys per accessory.
2. Products listed below are for reference purposes, bidding documents shall include two (2) additional equals by acceptable manufacturers.
 - a. Toilet tissue holder: Georgia-Pacific VISTA 9" twin jumbo bath tissue dispenser. Item # 58250; Product Family # 47131708 OR approved equal. See attachment.
 - b. Paper towel dispenser: Georgia-Pacific VISTA Lever roll towel dispenser. Item #58553; Product Family # 47131701 OR approved equal. See attachment.
 - c. Wall waste receptor: Bobrick B-277. (Staff toilets only).
 - d. Mirrors (one at each lavatory):
 - 1) Student toilets: Bobrick B-1659, 16" wide X 24" tall, stainless steel trim.
 - 2) Staff toilets, public toilets and all handicap lavatories: Bobrick B-2949, 16" wide X 30" tall, tilt-type, stainless steel trim.
 - e. Grab bars: Bobrick B-6206.99 series set at each handicap water closet.
 - f. Soap Dispensers: Betco, Unit: Dispensers, Size: 900mL, Amount: 12 Dispensers per case, Ship: Case, Break: White, Item Number:10113200, Description: 900mL, ADA Compliant, dispenser OR approved equal.
 - g. Mop and Broom Holders: Bobrick B-223x36, one (1) at each Janitor Closet and Utility Closet.
 - h. Pipe insulation: Truebro Mfg. Co. #101-G at each handicap lavatory.
 - i. Electrical Hand Dryer: (In student, staff and public toilets) World Dryer A53, 30 second drying cycle, cast iron cover, fixed nozzle, push button operation only.
 - j. Napkin Disposal Units
 - 1) Sanitary napkin disposal units mounted in stalls should not be the type that is accessible from two separate stalls, requiring a hole be cut in the toilet partition. Each stall is to have its own unit.
 - 2) Sanitary napkin disposal units should be installed in student restrooms as follows:
 - a. Elementary Schools (where there are 5th grade and above students)
 - b. Middle Schools
 - c. High Schools
 - 3) Sanitary napkin disposal units should be installed in public, staff and unisex restrooms.
3. Metal finishes: Stainless steel #4 finish.

C. EXECUTION

1. Mounting heights and locations shall be shown on drawings.
2. Specify the extent possible and all exposed fasteners tamperproof.
3. Specify that the Contractor shall turn over keys to the I-89 School District per close-out procedures.

The bath tissue dispenser at all Oklahoma City Public School Buildings will be the unit attached or an approved equal.

**Georgia-Pacific®
 9" Twin
 Jumbo
 Bath
 Tissue
 Dispenser**

VISTA® twin jumbo jr. dispensing system for dependable, high capacity performance.



Item Description:

This durable, high-capacity VISTA 9" jumbo bath tissue dispenser holds two rolls up to 9" in diameter each--the equivalent of 11.5 rolls of standard 2-ply tissue. The design reduces waste by restricting access to the second roll before the main roll is completely used up. Our attractive see-through grey color complements any decor. This covered, key-lock design protects against waste as well as pilferage while making refilling rolls quick and easy.

Features & Benefits:

- *High-Impact Plastic Construction*
 Durable, washable plastic doors stand up to most cleaning agents, ensuring years of cost-saving performance
- *High-Capacity*
 Holds two roll up to 9" in diameter (the equivalent of 11.5 rolls of standard 2-ply tissue) for continuous service
- *Stub-Roll Feature*
 Reduces waste by restricting access to the second roll before the main roll is used up

ADD TO LIST

Item #	Product Family	Pack	Inner Pack Count	Total Case Count			
58250	47131708	4 Each	1 Each	4 Each			
Color	Dispenser Dimensions H x W x D	Paper Grade	Ply	Core Size	SCC	UPC # Retail Scanner Code	Replaces Item
See-Thru Grey/Grey	12.625" x 20.375" x 5.625"				10073310582501	073310582504	

Shipping Info

Gross Weight	Case Cube	Shipping Unit Qty	Layer Qty / TI	Floor HI	Floor Unit Qty	Pallet HI	Pallet Unit Qty	Shipping Case Dimensions	Floor Unit Dimensions
24.000 LB	4.149 CF	20	4	5	20		20	24.250" x 20.750" x 14.250"	48.500" x 41.500" x 71.250"

The bath towel dispenser at all Oklahoma City Public School Buildings will be the unit attached or an approved equal.

VISTA®
Lever
Roll
Towel
Dispenser

See 54338 for Replacement



ADD TO LIST

Item Description:

The easy-to-load VISTA dispenser offers economical dispensing of hardwound roll towels in adjustable 2.5", 3.5", or 4.5" increments. Its durable lever mechanism has been rigorously tested to simulate five years of high traffic at a rate of 850' per day. Patented transfer system transfers paper flow from the stub roll to the main roll, reliably reducing stub roll waste. This attractive see-through grey color complements any decor, and the covered, key-lock design protects against waste and pilferage while making refilling rolls quick and easy.

Features & Benefits:

- *Three Cost-Saving Lever Settings*
Lever action dispenses toweling in 2-1/2", 3-1/2", or 4-1/2" increments
- *Roll Transfer Indicator*
Signals when it's time to transfer the stub roll into position and load a new roll
- *Durable, High-Capacity Structure*
High-impact plastic construction holds over 1000 feet of paper and stands up to cleaning chemicals and 250 pounds of force

Item #	Product Family	Pack	Inner Pack Count	Total Case Count		
58553	47131701	1 Each	1 Each	1 Each		
Color	Sheet Size W x L x H	Quality Ply	Core Size	SCC	UPC # Retail Scanner Code	Replaces Item
See-Thru Grey/Grey	12.125" x 10.000" x 14.875"			10073310585533	073310585536	56553

Shipping Info

Gross Weight	Case Cube	Shipping Unit Qty	Layer Qty / TI	Floor HI	Floor Unit Qty	Pallet HI	Pallet Unit Qty	Shipping Case Dimensions	Floor Unit Dimensions
13.000 LB	1.539 CF	36	12	3	36		36	16.250" x 11.000" x 14.875"	48.750" x 44.625" x 44.000"

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Architect shall coordinate with the OCMAPS Program Manager and Program Consultant regarding selection of a Floor Safe versus a Wall Safe, depending upon site-specific requirements of the school.
 - b. Locations: Coordinate the exact location with the Program Consultant.
 - 1) Elementary School: Administration Area.
 - 2) Middle School: Administration Area.
 - 3) High School: Administration Area.
 - c. Coordinate location with shelving and potential furniture layout to avoid interference and maintain easy access. Dimensionally locate on Floor Plan with dimension above finish floor.
 - d. Submit keys and combination directly from manufacturer to designated School District personnel via certified mail concurrent with shipment of safe to Contractor.

B. PRODUCTS

1. Basis of Design: Provide one (1) AMSEC Model No. UL-1812XD or equal. Floor Safe shall be U.L. Listed Class 350°F two hour fire and impact rating.
2. Manufacturers: American Security Products Company, Armor Safe Technologies, Gary Safe Company, Mc Gunn Safe Company, Major Safe Company, Mosler, Incorporated, NKL Safe Company, and Sterling Safe Company.
3. Type: Floor mount, internal anchor bolt hole with hardware.
4. Construction: Continuous welded steel with hinged locking doors.
5. Safe: 25" H x 18" W x 23-1/2" D outside dimensions, factory 350° 2 hr. Fire Rating.
6. Inside: 18-1/2" H x 12-1/2" W x 17" D inside, with door, equipped with handle activated locking mechanism.
7. U.L. Listed Group II key changeable combination lock with relock. 1 million possible combinations.
8. Safe manufacturer provided anchor bolt hardware.

C. EXECUTION

1. Architect shall specify Contractor to:
 - a. Place safe onto floor in designated location. Safe to be installed level and secured to floor using manufacturer provided hardware.
 - b. Turn over keys and combination to designated I-89 School District representative per the project closeout requirements.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Dimensionally show curtain locations and layouts on Reflected Ceiling Plan drawings.
 - b. Coordinate track layouts and support framing.
 - c. Coordinate electrical power supplies and locations.
2. Submittal Data
 - a. Details of drapery construction, track system, suspension support system, fasteners, ropes, Pulleys, accessories, and other data pertinent to the project.
 - b. Material certifications of compliance to NFPA criteria.
 - c. Motors and machinery information for electric-operated curtains.

B. PRODUCTS

1. Automatic Curtain Machine and Track Assembly
 - a. Manufacturers: Automatic Devices, Company, Atlas Silk Stage Equipment, and Hoffend and Sons, Incorporated.
 - b. Curtain Machine: Start/stop/reverse feature, minimum 1/4 HP, single-phase, 120-volt power. Fully automatic with cable speed of 86 fpm, automatic overload protection breaker, disconnect switch, and emergency hand-crank. Include limit switch and two remote control switches. Assembly shall be mounted on a steel base.
 - c. Front Curtain Track: Minimum 14-gauge galvanized steel track with double neoprene ball bearing rollers, suspension-mounted, automatic operation.
 - d. Cyclorama and Door Curtain Track: One-piece, continuous, extruded aluminum track, suspension-mounted, walk-along operation.
 - e. Pipe Battens at Ceiling Borders and Valance: 1-1/2" schedule 40 black pipes with hanging hardware, clamps, and accessories for complete assembly operation.
 - f. Accessories shall include, but not limited to, brass grommets, galvanized chains, ropes, pulleys, clamps, and master carriers.
2. Curtains
 - a. Manufacturers: Hoffend and Sons, Incorporated, United Stage Equipment, Karma Corporation, Georgia Stage, Incorporated, and Southern Scenic and Equipment Company.
 - b. Fabric: Curtain and valance shall be 21 ounce flameproof cotton velour.
 - c. Fire Resistance: Permanently flame-resistant per NFPA 701; flame-resistant tag shall be sewn into each panel on backside of hem.
 - d. Size: Full-height from track-to-floor or carrier-to-floor, all with 50% fullness, fabricate front curtains in two equal widths with 12" meeting overlap and material turn-back on each section.
 - e. Cyclorama curtains in sections as shown with minimum 12" overlap, hung from carriers at 12" OC with S-hooks through curtain grommets.
 - f. Door curtains shall be the same as cyclorama curtains PLUS curtain bottoms weighted. Divide for cyclorama at center of opening.
 - g. Valances and Ceiling Borders: Same as curtain construction with provisions for hanging.

C. EXECUTION

1. Architect shall specify Contractor to:
 - a. Install curtain materials only after all dust-creating activities have been completed, just prior to Final Acceptance. Clean and steam as recommended to remove all fabric face creases after hanging.
 - b. Test all curtains for proper operation in all respects and make necessary

- c. adjustments. Verify operation of remote control units.
Instruct designated I-89 School District personnel in operation and maintenance procedures.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Architect shall engage the services of a qualified Kitchen Consultant to assist in the design coordination of all food service equipment.
 - b. Kitchen and all support areas shall be designed in accordance with program criteria and direction by the I-89 School District, the OCMAPS Program Manager and the Program Consultant.
 - c. Architect shall secure a list of all food service equipment specific for the project plus any other specific project layout requirements from the I-89 School District, the OCMAPS Program Manager and the Program Consultant.
2. KITCHEN DESIGN
 - a. Range Hood Area: All receptacles and rough-in supply positioned at least 12" inside hood plan outline; position for easy maintenance access plus possible replacement. Locate 10 BC bracket mounted fire extinguisher within 10' of hood per governing code criteria. Hood perimeter with minimum 24" wide stainless steel (no penetrations) ceiling panel.
 - b. Electrical Disconnects: Required for all equipment; use waterproof type at all wet areas.
 - c. Dimensionally locate all floor rough-in items for ease of hook up, maintenance access and avoidance of trip hazards.
 - d. Provide mixing faucet (hot and cold water) for hose reel assembly.
 - e. Provide shunt trip breakers for main gas lines to gas equipment.
 - f. Provide properly sized concealed raceways and conduits for networking computerized cash registers.
 - g. Avoid raised thresholds and saddles in all paths of cart travel.
 - h. Exterior screen door to loading dock shall be stile-and-rail, hollow metal, with insect screening and heavy duty galvanized expanded steel diamond lath on inside and outside faces.
 - i. Close the large gaps above the pass through refrigerator and heating units.
 - j. Provide ample floor drains in the main kitchen to provide shallow slopes and to facilitate wash down.
 - k. Provide a floor drain in the mop room and in the dish room.
 - l. Install locking doors so that the serving area can be secured.
 - m. The CAFS data drops for the cashiers in the Cafeteria should run directly to the nearest network closet versus back to the Manager's office. There is no need to connect the cashiers to a hub in the Manager's Office. The Manager's computer in the kitchen will require a data drop for the computer. Ensure that each outlet for the cashier computer is a grounded, dedicated, isolated outlet.
 - n. Provide a kitchen ringer to the Manager's telephone.
 - o. Provide electrical, phone, and computer outlets in the Manager's Office.
 - p. Provide electrical accommodation for oscillating wall mounted fans in the following locations: two (2) in the scullery, three (3) in the serving line, one (1) outside of manager's office directed toward production area, one (1) outside of dry storage directed toward production area, one (1) over production area and one (1) over wall behind serving line directed toward production. Ensure that fans are included in the mechanical section.
 - q. Provide twelve (12) lockers, double stack, for kitchen personnel.
 - r. Provide a teacher's icemaker, sink and cabinet in the back of the cafeteria.
3. WARRANTIES
 - a. Minimum two (2) year Material and Labor on all items.
 - b. Five (5) year non-prorated Material and Labor against compressor failures.
 - c. All defects found within the above warranty periods shall be promptly remedied at no expense to the contracting entity. Replaced compressors shall carry a renewed five (5) year Material and Labor guarantee from date of replacement.

B. PRODUCTS

1. Provide foot pedal brake locks on non-swivel pairs of wheels of all mobile items.
2. All floor-mounted items shall have minimum 4" vertical adjustment of bullet feet and / or wheels.
3. Undersides of dish tables shall be sound deadened.
4. All equipment and fasteners shall be fabricated of non-corrosive materials.
5. Panelboards: Electrical panelboard mains and wiring sized 20% over present loading with minimum 20% additional panelboard space for spare and future breakers. Provide legible, outside panel labels and inside typewritten directories. Lockable panelboards all keyed alike
6. Serving line tray slides to be solid surface rather than open rail.

C. EXECUTION

1. Specify all welds shall be ground smooth to achieve uniform appearance.
2. Specify Contractor to seal all rough-in penetrations with mildew-resistant silicone sealant.
3. Require Contractor shall "start up" and thoroughly test all functions (making adjustments and modifications as necessary) of all installed equipment to verify satisfactory operation prior to scheduling inspection.
4. Require the Contractor to secure inspection approvals from governing code officials and Oklahoma County Health Inspector.
5. The Contractor and an authorized representative of each food service equipment items shall instruct designated I-89 School District personnel regarding operation, lubrication and maintenance of unites. Provide Operation and Maintenance Manual per closeout criteria.
6. Contractor to turn over all keys to I-89 School District as part of closeout procedures.

D. SUGGESTED ALLOCATION OF SPACE (IN SQUARE FEET) BY FUNCTION IN THE KITCHEN
 (State D.O.E. Minimum Suggested)

FTE Students	525	788	1050	1313	1575	2100
Refuse /Mop	56	56	56	56	56	56
Receiving	60	60	72	72	84	84
Lounge	65	65	65	80	96	96
Office	90	90	90	90	120	120
Prep/Cook	800	900	950	1000	1050	1050
Dishroom	168	168	168	192	192	192
Serving Line(s)	210	400	610	820	820	1030
Storage Dry	250	300	350	400	450	500
Walk-In Freezer	350	400	450	500	550	600
Walk-In Cooler	350	400	450	500	550	600
REQUIRED KITCHEN SQUARE FEET	1600	2000	2400	3000	3500	4000
# Serving Lines	1	2	2-3	3-4	4-5	5-6
Hood Size	10'- 12'	10'-12'	10'-14'	10'-14'	10'-16	10'-16

ELEMENTARY SCHOOL CAFETERIA EQUIPMENT SPECIFICATIONS

**** a. All manufacturers and models are listed to establish design criteria. Equal equipment by qualified manufacturers will be considered during the design process.**

QUANTITY	DESCRIPTION	MANUFACTURER	MODEL
	Walk-In Freezer	Thermo-Kool, Mid-South Industries, Inc.	Custom Built
	Walk-In Cooler	Thermo-Kool, Mid-South Industries, Inc.	Custom Built
	Cooler/Freezer Shelving	Intermetro Industries Corp.	Metromax
	Chemical Room Storage Shelves	Intermetro Industries Corp.	Metromax
	Mop sink	Specified in Mechanical Section	
	Mop Holder – 36” Handler Wall Rack	Rubbermaid	52443WL
	Refrig./Freezer Dunnage Racks	Intermetro Industries Corp.	Metroseal II
	Dry Storage Shelving	Intermetro Industries Corp.	Metromax
	Locker Room Storage Shelves	Intermetro Industries Corp.	Metromax
	Dry Storage Dunnage Racks	Intermetro Industries Corp.	Metroseal II
	Platform Truck	Win-Holt Equipment	DUC-2448
	Mobile Shelving	Serv-o-Lift/Eastern	60R4M
	Worktables	Tables Mfg. Co.	Custom Built
	Utility Cart	Lakeside Ergo	6810
	Cook's Table	Tables Mfg. Co.	Custom Built
	Mobile Pan Racks	Cres Cor	207-UA-13
	Can Opener Cart	Tables Mfg. Co.	Custom Built
	Can Opener	Edlund	#11
	Baker's Table	Tables Mfg. Co.	Custom Built
	Vegetable Sink (2 compartment)	Low Temp Industries	Custom Built
	Thawing Sink w/Sideboard (2 compartment)	Low Temp Industries	Custom Built
	Pot & Pan Sink (4 compartment)	Low Temp Industries	Custom Built
	Overhead Spray Assembly (4 Comp. Sink)	T&S Brass and Bronze Works, Inc.	B-0167

QUANTITY	DESCRIPTION	MANUFACTURER	MODEL
	Disposer (1 in Veg. Sink, 1 in 4 Comp. Sink)	Salvajor	200-SA-6.5ARSS-TR
	Pan Drying Rack w/Casters	Intermetro Industries Corp.	Metromax F2448X
	Soiled Dishtable	Low Temp Industries	Custom Built
	Clean Dishtable	Low Temp Industries	Custom Built
	Dishmachine	Hobart Corp.	CRS-66A
	Booster Heater	Hatco Corp.	S-36
	Scrapmaster	Salvajor	200-SM
	Silver Soak Sink	Low Temp Industries	PSS-21
	60 Qt. Mixer	Hobart Corp.	H-600
	Proofing Cabinet	Intermetro Industries Corp.	C175-CLN8*
	Slicer and Mobile Slicer Stand	Hobart Corp. Cres Cor	2912 278-PT-1818-DS
	Vertical Cutter/Mixer	Hobart Corp.	HCM450
	Double Stack Convection Oven	Southbend	GB-25SC
	40-Gallon Kettle/Short Series	Cleveland	KGL-40SH
	Convection Steamer	Cleveland	36-CGM-16-300
	Hot Top Range	Vulcan Hart Co.	GHX-45
	40-Gallon Tilting Skillet	Vulcan-Hart Co.	E40TB
	Water Stanchion	T&S Brass & Bronze	B-0193
	Pass-Thru Warmer	Traulsen	
	Pass-Thru Refrigerator	Traulsen	
	Reach-In Refrigerator (3 compartment)	Traulsen	
	20-Quart Mixer	Hobart Corp.	A-200
	Mixer Table	Tables Mfg. Co.	Custom Built
	Milk Cooler	Delfield Co.	NLFAC-16
	Hot Food Counter	Delfield Co.	KH-2 -NU-MOD74
	Hot Food counter	Delfield Co.	KH-2-NU- MOD60

QUANTITY	DESCRIPTION	MANUFACTURER	MODEL
	Cold Food Counter	Delfield Co.	KCSC-74-B-MOD
	Ice Cream Counter	By Owner	
	Cashier Stand	Delfield Co.	KCS-30-MOD
	Ice Maker w/Bin	Manitowac	Q320
	Water Filter	Cuno	CES-8576-S
	Ice Maker & Water Dispenser	Scotsman	TDE650AE-1A
	Counter with Sink to Hold Ice Tea Urn and Ice Maker/Dispenser		Custom Built
	Ice Tea Urn	Bunn-O-Matic Corp.	PTD-4
	Mobile Condiment Table	Perfection Equipment, Inc.	UC4P-4PT-CART
	Silverware Cart	Delfield Co.	KC-28-NU with Open Storage
	Flatware Dispenser	Steril SIL Company	TC-8S
	Tray Storage Cart	Delfield Co.	TT2-1014
	Bulk Bin	Rubbermaid	3602
	Washer	Other	
	Dryer	Other	
	Mixing Faucet w/Hose Rack with 20' Hose		
	Pot Filler	T&S Brass	B-610
	Hood	By Mechanic	
	Wall Mounted Pot Rack	Low Temp Industries	Custom Built
	Locking Free Standing Cabinet for Chemicals	Iceberg Enterprises	92573

HIGH SCHOOL CAFETERIA EQUIPMENT SPECIFICATIONS

**** b. All items and quantities listed are subject to change based on changes in technology or changes in program requirements.**

QUANTITY	DESCRIPTION	MANUFACTURER	MODEL
	Walk-In Freezer	Thermo-Kool, MidSouth Industries, Inc.	Custom Built
	Walk-In Cooler	Thermo-Kool, MidSouth Industries, Inc.	Custom Built
	Fly Fan	Berner International Corp.	CNT-2-72
	Platform Truck	InterMetro Industries Corp.	D23N
	Work Table	Advance Tabco	KSS-305
	Walk-In Shelving (Sets)	InterMetro Industries Corp.	MetroMax
	Dunnage Rack	InterMetro Industries Copr.	MetroMax
	Track Shelving (Set)	InterMetro Industries Corp.	MetroMax
	Storage Shelving (Set)	InterMetro Industries Corp.	MetroMax
	Pan Rack	Cres Cor	207-UA-13
	Set, Lockers	Specified in Architectural Section	
	Washing Machine	By Owner	
	Wall Shelf	InterMetro Industries Corp.	PolyErecta
	Clothes Dryer	By Owner	
	Set, Shelves for Chemicals	Intermetro Industries Corp.	Metromax
	Mop Sink	Specified in Mechanical Section	
	Mop Holder 36" Wall Rack	Rubbermaid	52443WL
	Soiled Pan Table		Custom Built
	Disposer	In-Sink-Erator	SS-200
	Disposer Control	In-Sink-Erator	CC-101
	Condensate Hood	Air Saver	PWS-5
	Utensil Washer	Hobart	UW-50

QUANTITY	DESCRIPTION	MANUFACTURER	MODEL
	Booster Heater	Hatco	S-15
	Clean Pan Table		Custom Built
	12' Hose w/Wall Hook	T&S Brass & Bronze Works	B-175/B166 & B/104D
	Pot Drying Rack	InterMetro Industries Corp.	MetroMax
	Pot & Pan Sink		Custom Built
	Mixer Stand	Wilder or Cres Cor	707
	20-Quart Mixer	Hobart Corp.	A200
	Prep Table w/Sink	Atlanta Kitchen Equipment, Inc.	Custom Built
	Disposer	In-Sink-Erator	SS-200
	Disposer Control	In-Sink-Erator	CC-101
	Utility Cart	Lakeside Ergo NC	6810
	Cook's Table	Advance Tabco	VSS-306
	Exhaust Hood	Gaylord Industries	
	Utility Distribution System	Gaylord Industries	DH-IM Island Mount
	40-Gallon Kettle, Steam Jacketed/Short Series	Cleveland	KGL-40SH
	Kettle Drainer	Seco	
	40-Gallon Tilting Skillet	Cleveland	SEL-40-T4
	16 Pan Steamer	Cleveland	36-CGM-16-300
	Range	Vulcun	GHX-45
	Convection Oven (Double)	Southbend	GB-25-SC
	Deep Fat Fryer (Double)	Pitco Frialator	2-14RD-S-BIF
	Filter w/Dump Station	Pitco Frialator	BF14
	Work Table	Advance Tabco	KSS-306
	Work Table s/Sink		Custom Built
	Blast Freezer	Traulsen & Co., Inc.	RIF 1-34 HUT-BF
	Ingredient Bins (Set)	Trimeld	63554WL

QUANTITY	DESCRIPTION	MANUFACTURER	MODEL
	Baker's Table		Custom Built
	Proof-Hot Cabinet	InterMetro Industries Corp.	C175-CL8N
	Shelving	InterMetro Industries Corp.	MetroMax
	Work Table	Advance Tabco	KSS-305
	Work Table w/Sink		Custom Built
	Slicer	Hobart	2912
	Mobile Slicer Stand	Cres Cor	280-1816
	Can Opener Cart	Tables Mfg. Co.	Custom Built
	Can Opener	Edlund	#11
	Condiment Counter		Custom Built
	Condiment Dispenser	Wunder-Bar	
	Drop-In 1/3 Pan		
	Work Table	Advance Tabco	KSS-306
	Deep Fat Fryer w/Filter	Pitco Frialator	6-14RD-S-BIF
	Dump Station & Heat Lamp	Pitco Frialator	BNB
	Clamshell	Lang Manufacturing	XL-48
	Exhaust Hood	Gaylord	
	Cold Food Wells	Delfield	8118B
	Sneeze Guard		Custom Built
	Hot Food Wells	Delfield	8759-D
	Grill Counter		Custom Built
	Cash Register	By Owner	
	Pizza Warmer (thermal shelves)	Mercos Products	TS-60B
	Sneeze Guard		Custom Built
	Hot Food Wells	Delfield	8745-D
	Cold Food Wells	Delfield	8118B

QUANTITY	DESCRIPTION	MANUFACTURER	MODEL
	Pizza Counter		Custom Built
	Pass Thru Refrigerator	Hobart	QC-D-2
	Exhaust Hood	Gaylord	
	Cutting Table		Custom Built
	Sneeze Guard		Custom Built
	Hot Food Wells	Delfield	8759-D
	Sneeze Guard		Custom Built
	Cold Food Wells	Delfield	8130B
	Mexican Counter		Custom Built
	Pass Thru Heated Cabinet	Hobart	QCDH1
	Equipment Stand		
	Nachos Warmer	Hatco & Duke	FDW-1-MN & 308-25SS
	Wall Shelf		1156
	Hot Food Well	Delfield	8717-D
	Soup Well	Wells	SS-10ULTD
	Beverage Cooler	Delfield	F5PC36D
	Comfort Counter		Custom Built
	Work Table	Duke	310-25SS
	Pass Thru Heated Cabinet	Traulsen	
	Pass Thru Refrigerator	Traulsen	
	Ice Maker w/Bin	Manitowac	S-320
	Refrigerator	Hobart	QC-1
	Deli Counter		Custom Built
	Refrigerated Display Case	Delfield	561-CR
	Dry Display Case	Delfield	549-CD
	Bakery Counter		Custom Built

QUANTITY	DESCRIPTION	MANUFACTURER	MODEL
	Ice Cream Freezer	Delfield	225
	Smoothie Dispenser	By Owner	
	Refrigerated Work Table	Delfield	18691BUC
	Milk Shake Unit	Taylor	444
	Pretzel Warmer	Hatco	FDW-1X
	Work Table w/Sink		Custom Built
	Condiment Counter		Custom Built
	Bag-In-Box Rack		
	Locking Free Standing Cabinet for Chemicals	Iceberge Enterprises	92573

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. The Architect shall engage the services of a qualified Kitchen Consultant to assist in the design coordination of the cooler/freezer units.
 - b. The Program Consultant will give the Architect criteria for required sizes of cooler and freezer sections.
 - c. The "R" factor for panels shall be R-34 or better.
 - d. Locate in Kitchen area with entry doors to each section as close to loading dock entry door as possible.
 - e. 8'-6" factory ceiling height; minimum finished ceiling height after floor tile installation shall be 8'-1".
 - f. Provide adequate aisle dimensions for maneuvering carts at door areas.
 - g. Design for easy maintenance access to compressors, condensers, and power sources for service and accessibility.
 - h. Finished floors shall be thick-set quarry tile; 1" uniform slope from rear of each unit to unit front door, level with Kitchen quarry tile at door sills. Interior bases shall be quarry tile.
 - i. Closure panels between top of units and Kitchen finished ceiling and between wall panels and Kitchen walls shall match cooler/freezer unit wall panels.
 - j. Show sealant (or rubber base) closure at bottom of front walls along Kitchen quarry tile floor.
 - k. Stand-alone (exterior) units shall be weatherproof. Coordinate expansion joints at abutments to building walls, slabs, and roof.
 - l. Show shelving layouts within each section.
2. STRUCTURAL DESIGN
 - a. Depress floor slab 4" to 6" below elevation of Kitchen slab to suit specified units.
 - b. Evaluate stone fill under slab for drainage/ventilation. Provide drainage/vent outlets.
 - c. Show structural elements of stand-alone units.
3. MECHANICAL DESIGN
 - a. Dimensionally locate floor drains close to unit walls for receiving indirect condensate drain piping from units. Do not run the cooler condensate line thru the freezer unit. Provide adequate slope on all condensate lines to assist function without internal freeze clogging.
 - b. Verify requirements for dry-pipe sprinkler system with governing code officials. If required, also provide additional heads and tools in cabinet at main valve area per code.
 - c. For security and loss prevention, locate outdoor components such as condensers, condensing units and related equipment on the roof and not on the ground.
 - d. All refrigerant lines shall be routed through interior or exterior walls and through ceilings to penetrate roof at appropriate locations. Installation of refrigerant lines onto exterior (exposed) surface of outside perimeter walls (except hidden surface of parapet walls) is prohibited
4. ELECTRICAL DESIGN
 - a. Coordinate power characteristics of cooler/freezer, lighting, fans, compressors, condensers, heat strips, disconnects, and other feature items for the cooler and freezer units.
 - b. Identify cooler/freezer circuitry items in kitchen electrical panel.
 - c. Provide electrical thermostatically controlled heat tape wrap within insulation around all condensate piping within the freezer space.
 - d. All electrical conduit within the units shall be "seal-tight" type with all connections sealed to prevent air entry into conduits.
 - e. For security and loss prevention, locate outdoor components such as electrical conduit, disconnects, weatherproof enclosures and related items on the roof and not on exterior perimeter walls.
 - f. All electrical conduit shall be routed through interior or exterior walls and through

ceilings to penetrate roof at appropriate locations. Installation of conduit onto exterior (exposed) surface of outside perimeter walls (except hidden surface of parapet walls) is prohibited. (Exception: Rigid (threaded) conduit may be located on perimeter walls where practical or required.)

5. WARRANTIES
 - a. Ten (10) year non-prorated material and labor against material and workmanship defects in panel system, panel and door insulating value, and door seals.
 - b. Five (5) years non-prorated material and labor against compressor failures.
 - c. Ten (10) years non-prorated against water entry thru roof and/or wall panels on stand-alone units.
 - d. Replaced compressors shall carry a renewed five (5) year material and labor guarantee from date of replacement.

B. PRODUCTS

1. Prefabricated, approved by National Sanitation Foundation, sizes as shown on drawings units manufactured by Thermo-Kool, Kolpak, Elliott-Williams Co. or approved equal.
2. Walls and ceiling shall be 0.042" pebble-embossed aluminum cladding over minimum 4" foamed-in-place polyurethane.
3. Unit floors to be 14 gauge bright-galvanized metal to withstand 600 PSF of uniform load. The units will be designed to have quarry tile floor and base.
4. Each door to be minimum 6'-8" high X 3'-0" wide, sill less in fitting or flush type, minimum 22 gauge type 304 stainless steel, heat cables all around, adjustable rubber wiper gasket at sill, self-closing lift-cam hinges, safety release inside latch, outside latch with padlock eye (padlock and keys shall be specified in Section 08710 – Finish Hardware). Provide relief ports. Freezer door port shall be heated.
5. PVC compression gaskets at all panel sections.
6. Vapor-proof, globe type lights, with a shatterproof guard. Flush switch on outside panel near door latch, four (4) overhead lights plus one light just inside door in each cooler and freezer. Coordinate overhead light locations with shelving layouts for optimum illumination.
7. Minimum 2-1/2" diameter thermometer with a rust-resistant case, flush-mounted on outside of each cooler and freezer.
8. Provide all closure trim, sealants, and accessories for completed installed package.
9. Condenser and Evaporator:
 - a. Coordinate Architectural/Mechanical/Electrical characteristics, locations, rough-in, and mounting pads.
 - b. Balance refrigeration system to accomplish operating temperature of 34 to 38° F in cooler and -10 to 0° F in freezer.
10. Shelving
 - a. No aluminum shelving allowed.
 - b. Architect to verify desired type with the Program Consultant.
 - c. Plan around Metro Max by Inter Metro Industries Corporation or equal.

C. EXECUTION

1. Architect shall specify Contractor to:
 - a. Slope Kitchen quarry tile floor slightly away from doors to reduce potential dragging and premature wear of sill seals.
 - b. Install closure panels to seal tight to adjacent construction.
 - c. Coordinate quarry tile installation procedures within each unit with the unit manufacturer's recommendations. Architect shall note if manufacturer requires that the unit doors be left open during, and 48 hours following, quarry tile installation.
 - d. Seal all (inside and outside) penetrations thru unit walls and ceilings to prevent condensate build-up inside units. Architect shall pay special attention to wiring inside the conduits for lights and thermometers.
 - e. "Start-up" and thoroughly test all functions (making adjustments and modifications as necessary) of the installed units to verify satisfactory operation prior to scheduling

- final inspection.
- f. Secure inspection approvals from governing code officials and Oklahoma County Health Inspector.
- g. Along with manufacturer's representative, instruct designated I-89 School District personnel regarding operation, lubrication, and maintenance of units. Provide Operation and Maintenance Manuals per close-out criteria.
- h. Turn over door padlocks and keys to designated School District representative as part of closeout procedures. Padlock shall be keyed to the school district keying system as specified in Section 08710 Finish Hardware.

A. GENERAL

1. ARCHITECTURAL DESIGN

- a. All equipment shall comply with Oklahoma Secondary School Athletic Association (OSSAA) requirements.
- b. Provide 25' clear height to the bottom of any and all obstructions over playing areas at high schools.
- c. Basketball courts: shall be the following size:

	Main Courts	Cross Courts
High Schools	50' X 94'	50' x 94' (if possible)

Provide 10' overrun on all sides of main court.
- d. Elementary School Items: Four (4) fixed basketball backstops/goals, with adjustable height capability and support provisions, for two (2) climbing ropes.
- e. High School Items: Six (6) [two (2) main court and four (4) cross court] electric winch fold-up type basketball backstops/goals, four (4) volleyball post sleeves, and support provisions for four (4) climbing ropes.
- f. Dimensionally locate backstop centerlines and volleyball post sleeves on Architectural Floor Plans. Coordinate locations with dimensional game marking layouts. Dimensionally locate climbing rope rough-in on Architectural Reflected Ceiling Plans.
- g. Design concrete-filled wall reinforcement and roof structure to sustain all required loads, stresses, and mounting criteria.

B. PRODUCTS

1. Fixed Basketball Backstops and Goals:

- a. Backstops: Competition courts shall be rectangular shaped, glass with bottom edge padding. Practice courts shall be fan shaped molded fiberglass, white enamel finish, red (orange) target and border, and bottom edge padding.
- b. Goals: Steel rod rim with no-tie nylon netting. Rims shall be "breakaway" type.
- c. Framework and Mounting: Rigid factory-painted flat black pipe superstructure, wall-mounted to reinforced masonry with anchor bolts.
- d. Height Adjustment: Goal height easily adjustable from floor (without use of ladder) to either 8' AFF or 10' AFF in Elementary Schools.

2. Operable Basketball Backstops and Goals:

- a. Cross Court Units: Backstops, fiberglass same as for fixed units. Manufacturer's standard fan shaped molded fiberglass, white enamel finish, red (orange) target and border, and bottom edge padding. Cross-court backstops shall be electrically-operated.
- b. Main Court Units: Rectangular design backstops, 1/2" tempered glass panel in gasketed extruded aluminum frame with padding along bottom edge and up 10" minimum each side; fired vitreous enamel target and border markings conforming to official requirements. Provide breakaway type goals; construction and netting same as fixed units.
- c. Type: Overhead supported single center post with sway bracing, folding type.
- d. Superstructure: Manufacturer's standard with die-formed fittings, factory pre-finished flat black enamel paint.
- e. Hoist Operation: UL listed electric winch, minimum 2:1 load safety factor, self-locking worm gear type capable of holding backstop at any position when raising or lowering. Each winch shall be independently operable from properly identified remote key switch. Provide dedicated circuit for each winch.

3. Volleyball Post Sleeves:

- a. Manufacturer's products: Aalco #GS-35, Porter #00872, an approved equal.
- b. Characteristics: 3-1/2" inside diameter, chrome-plated cover with swivel-type hinge

- and removal key.
- c. Provide floor sleeves for volleyball at high school gymnasiums. Sleeves shall be recessed steel with hinged floor plate. Top of floor plate must be completely encapsulated and shall be flush with wood floor. Floor plates shall be flush with wood floor. Floor plates shall be either solid brass or steel with chrome plated finish.
4. Climbing Rope Rough-in: (High Schools)
 - a. Each unit shall be a 3" diameter schedule 40 galvanized pipe, mechanically fastened high and low to roof structure, bottom of pipe projecting 3" below bottom of exposed structure (or below finished ceiling line). Provide 9/16" diameter holes 1-1/2" from pipe bottom; provide one 4" long, 1/2" diameter stainless steel shear pin, one end studded, other end drilled with 5/32" hole, and one easily removable spring-type 1/8" stainless steel cotter key.
 - b. Owner will provide and install climbing ropes plus chain and S-hooks for rope assemblies.
 5. SCOREBOARD: Wall mounted electronic type, with time-clock, team scores, period, bonus, jump ball, next possession, and possession. Time clock shall be bi-directional with ability to directly set any number of minutes and seconds.
 6. SOCCER AND FOOTBALL GOAL POSTS: shall be supplied and installed by Contractor.
 7. WALL PADS: 2" thick, polyurethane foam, mounted on 3/8" plywood and covered with heavy-duty vinyl covering. Permanently mounted at end walls of basketball courts. In Physical Education Gyms, end walls of side courts should also be padded.

C. EXECUTION

1. Architect shall specify Contractor to:
 - a. Install equipment plumb, level, true-to-line, rigidly secured, and in locations shown on Drawings.
 - b. Accurately layout game markings; apply per gymnasium flooring criteria.
 - c. Install volleyball post sleeves at height such that tops will be flush with finished gymnasium floor material.
 - d. Verify smooth and correct operation of all operable backstop units; verify all functions of electric units. Set electric limit switches as applicable.
 - e. Protect equipment from damage until Final Acceptance date.
 - f. Turn-over keys for key switches to designated I-89 School District personnel as part of project close-out.
 - g. Instruct designated I-89 School District personnel regarding operation, lubrication, and maintenance of units.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Coordinate Mechanical and Electrical rough-in design layouts with actual casework (equipment) items being specified as the basis of design; dimensionally locate all rough-in service items at 1/4" scale.
 - b. Design room sizes to suit specified casework (equipment); allow for proper fit with normally expected construction tolerances.
 - c. Lab stations for wheel chair access shall be provided.
2. SUBMITTALS
 - a. Specify the Contractor has full responsibility to locate rough-ins to suit the approved casework (equipment) items. Contractor shall submit 1/4" scale rough-in layout shop drawings with his casework (equipment) submittals; submit prior to slab and wall construction.
 - b. Manufacturer's certification that all proposed products (including faucets, piping, tubing, valves, solders, etc.) is lead-free.
 - c. Architect to check actual sizes of submitted casework (equipment) to confirm proper fit in designed room dimensions; adjustments to room dimensions and related work to suit Contractor's proposed units shall be done at Contractor's expense.
3. Deliver and store casework inside only after space is temperature/humidity conditioned, enclosed, and wet operations completed.

B. PRODUCTS

1. Acceptable manufacturers:
 - a. General Equipment Manufacturers, Sheldon Laboratory Systems
 - b. Kewaunee Scientific Equipment Corporation
 - c. Taylor Division of American Desk Manufacturing Company
 - d. Fisher/Hamilton
 - e. Mohon International Campbell Rhea
 - f. Collegedale Casework
2. All casework (equipment) shall be wood and the products of a single manufacturer.
3. Laboratory tops shall be chemical-resistant type as follows:
 - a. Solid monolithic molded modified epoxy resins with surface color.
 - b. Chemical resistant plastic laminate over particleboard core with backing sheet and edge banding; laminate with water-resistant adhesive.
4. Casework countertops: Plastic laminate over particleboard core with backing sheet and edge banding; laminate with water-resistant adhesive.
5. Hardware:
 - a. Manufacturer's best quality, heavy-duty type.
 - b. All master keyed within school project; all keyed doors/drawers within same room keyed alike.
6. Fume Hoods (High School Only): Double-wall construction, flush interiors and air foil fronts, air bypass type providing constant air volume thru hood regardless of sash position. Exterior of furniture steel in selected color, bottom airfoil of stainless steel. Exterior finish chemical-resistant, two-part epoxy, interior non-asbestos transit with white epoxy coating. Provide manufacturer's standard exhaust fan with hood assembly. Provide one (1) in each chemistry lab and two (2) in the A.P. Chemistry.
7. Mechanical Service Fixtures: Brass base metal, triple chrome plated.
8. Sinks:
 - a. Chemical resistant: Modified epoxy resin with acid-resistant lined solids interceptor tailpiece.
 - b. Other: #302/304 stainless steel #3 or #4 finish.
9. Shelving shall be a wood floor mounted unit with each shelf having the code required raised front edge strip.

C. EXECUTION

1. Require the Contractor to:
 - a. Adjust all hardware; doors and drawers to operate smoothly without binding.
 - b. Test all equipment for proper operation.
 - c. Clean and/or replace damaged components prior to Final Acceptance.
 - d. Turn-over keys to designated I-89 School District personnel as part of close-out procedures.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Exterior Locations: All windows, sidelites, and transoms.
 - b. Interior Locations: Administrative area windows, large (half door) door lites, sidelites, and transoms.

B. PRODUCTS

1. Acceptable Manufacturers and Models:
 - a. Graber Industries , Incorporated, "Mini-blinds".
 - b. Levelor Lorentzen, Incorporated, "Riviera".
 - c. Marathon Carey-McFall Company, "Bali Classics Model S3000".
 - d. Approved equal.
2. Characteristics:
 - a. Nominal 1" wide aluminum slats, .08" thick.
 - b. Synthetic fiber ladders and lift cords.
 - c. Wand tilter bottom at 48" AFF. Provide long lengths for blinds at high windows.
 - d. Clear anodized satin aluminum finish.
 - e. Brackets, supports, reinforcement, and accessories to achieve complete operable units.
 - f. Size to be full opening less allowable space at head, jambs, and sill for recommended air circulation.
3. Operation:
 - a. Blinds shall raise and lower full opening height with locking at any point of travel. Provide lift cord stays to accomplish level travel. To greatest extent possible, locate lift cords at right side of units.
 - b. Full 180° tilt. To greatest extent possible, locate wands at left side of units.

C. EXECUTION

1. Architect shall specify Contractor to:
 - a. Verify inside dimensions prior to shop drawings and fabrication.
 - b. Either jamb-type or head-type mounting to suit opening; detailed on drawings.
 - c. Provide supports at maximum 5'-0" o.c.
 - d. Install all units plumb and level; horizontally center in openings.
 - e. Contractor shall adjust all mechanisms for proper operation. Blind sill shall not contact windowsill when fully lowered.
 - f. Clean and/or replace damaged components just prior to Final Acceptance.

A. GENERAL

1. ARCHITECTURAL DESIGN

- a. Architect shall show dimensioned seating layouts on drawings; indicate units with left/right tablet arms if required.
- b. Provide a seat number plaque on each seat.

B. PRODUCTS

1. Acceptable manufacturer is Irwin Seating Company, Grand Rapids, Michigan, Patriot Services 3000, model #303030TA, or equal.

C. EXECUTION

1. Specify Contractor to:

- a. Accurately install to designed layout, approved shop drawings, and in straight uniform rows. Install after carpeting has been installed and accepted by the seating contractor; avoid carpet raveling during seat unit installations.
- b. Adjust all mechanisms for proper operation.
- c. Instruct designated I-89 School District personnel on removal/replacement of components.
- d. Provide two (2) additional seat backs, two (2) additional seats, four (4) additional right-hand tablet arms, and two (2) additional left-hand tablet arms as maintenance stock.
- e. Clean and/or replace damaged components just prior to Final Acceptance. Contractor shall use maintenance stock for replacements.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Design requirements
 - 1) Design bleachers to support and resist, besides their own weight, the code required forces.
 - 2) Design railings, posts, and sockets to withstand the code required horizontal forces applied separately.
 - 3) Design to meet life safety code and ADA requirements.
 - b. Performance requirements
 - 1) Sideline seats to include:
 - a) End rails: Self storing.
 - b) Provide end panels.
 - c) Provide foot level aisles/intermediate steps.
 - d) Provide center aisle "P" handrails.
 - 2) Provide design to accommodate scorers' table and players' benches.
2. SUBMITTALS
 - a. Manufacturers printed product literature, installation instructions, operating instructions, and maintenance procedure for wall attached folding bleachers.
 - b. Shop drawings
 - c. Quality control submittals:
 - 1) Design calculations; indicate compliance with specified and code required loadings.
 - 2) Seal with stamp and signature of professional engineer licensed in State of Oklahoma.
3. QUALITY ASSURANCE
 - a. Welder's certifications shall be required.

B. PRODUCTS

1. MANUFACTURED UNITS
 - a. Acceptable products:
 - 1) Products specified as standard of quality are manufactured by Hussey Seating company.
 - 2) Products of manufacturers listed below are acceptable for use, subject to compliance with specified requirements.
 - a) Interkal, Incorporated
 - b) Irwin Seating Company
 - b. Type: Electrically operated multiple tiers to open and close individual sections containing series of tiered rows. Open and close, one (1) below the other, providing maximum seating when open with minimum of floor space required when closed. Secure first moving row with friction and mechanical locks. Other rows operable only upon unlocking and cycling first row.
 - c. Characteristics:
 - 1) Frames: Fully welded assemblies comprised of high tensile steel upper cantilever arm, vertical column, and gusseted lower track.
 - 2) Wheels: 3 ½" diameter. Non-marring soft rubber face designed to protect wood or synthetic floor surfaces. Smaller wheels are prohibited. Use not less than eight (8) wheels under each moving row for rows 1-10.
 - 3) Columns: Formed box channels of high tensile steel fitted with braces to meet design conditions.
 - 4) Row interlocks: Joining each row structure front to rear by two (2) interacting steel connections plus automatic gravity locks.
 - 5) Seats and support system: 18" long unitized interlocking engineered plastic modules providing scuff resistant textured 12" wide anatomically contoured seat surface. Non-interlocking seat modules are prohibited.

- 6) Decking: 19/32" nominal plywood with exterior glue, 5-ply, Group 1 plugged cross band under face. Comply with NBS JPS-1-83. Provide extruded "H" connector between plywood panels.
- 7) Deck supports: 11-gauge, minimum structural steel plate spaced not more than 5'-0" OC.
- 8) Fasteners:
 - a) Structural connectors Stress rated bolts and self locking nuts meeting SAE requirements. Use of self tapping bolts or screws is prohibited.
 - b) Seat support module: Attached to 14-gauge, minimum, galvanized steel nose beam; concealed mounting hardware.
- 9) Finish:
 - a) Understructure: Manufacturer's standard low gloss enamel.
 - b) Risers: Corrosion resistant silver gray matte finish zinc alloy plating.
 - c) Wood: Moisture repellent sealer and two coats pigmented polyurethane finish.
 - d) Propulsion: Provide integral automatic electromechanical system with friction drive system to operate telescoping seating. Control by dual directional removable walk-along plug-in pendant; 24VAC and >50ma; pendant plug-in to front of first row. Link assemblies together with continuous drive shaft using ½ HP, 208, 3-phase power source behind each bank.

C. EXECUTION

1. Require Contractor to test and check units for correct operation in the presence of the Architect and repair any faulty operation or parts.

A. GENERAL

1. ARCHITECTURAL DESIGN
 - a. Architect and Structural Engineer to coordinate supports for elevator rail, door enclosure frames and sills.
 - b. Coordinate all mechanical and electrical services to elevator equipment including but not limited to the following:
 - 1) Pit and machine room lighting and convenience outlets.
 - 2) Mainline power feeders to terminals of each elevator controller / disconnect switches
 - 3) Power feeders to each car lighting and exhaust fan
 - 4) Ventilation of hoistway and machine rooms
 - 5) Fire code requirements at pit, hoistway and machine room.
 - c. Verify and coordinate all code required devices with Fire Marshal and Elevator Inspector.
2. SUBMITTAL DATA
 - a. Specification to require shop drawings that include dimensioned drawings showing plans, elevations, sections and large-scale details.
 - 1) Indicate equipment locations, weights, electrical and mechanical requirements.
 - 2) Hoistway entrances indicating operation, construction, method of attachment to adjacent construction, sill type, and anchorage
 - 3) Car enclosure showing elevations of interior walls and reflected ceilings plan, indicating materials, finishes, colors fabrication and construction details and dimensions. Details for lanterns, position indicators, car buttons and other similar items.
 - b. Specification to require product data for each principal component or product. Capacities, sizes, performance characteristics, controls systems and certified test reports for required components shall all be required.
 - c. Specifications shall require the submission to the owner of signed elevator manufacturer certification that elevator hoistway doors, frames, hardware and accessories comply with specified fire rating requirements.
 - d. Specifications shall require the submission to the Architect of the elevator inspection certificate.
 - e. Operation and Maintenance manuals should include manufactures recommended lubrication intervals, parts list and wiring diagrams to be submitted as part of the close out requirements.
4. MAINTENANCE
 - a. Require the elevator manufacturer provide maintenance service on complete elevator equipment, including labor and materials, for a period of twelve (12) months, beginning at the Final Acceptance.
 - b. Maintenance service shall include all required materials, labor and equipment to maintain elevator in proper operating condition and an established systematic monthly examination and service of equipment.

B. PRODUCTS

1. MANUFACTURERS
 - a. Acceptable Manufacturers:
 - 1) Dover Elevator Systems, Incorporation
 - 2) Montgomery Elevator Company
 - 3) Otis Elevator Company
 - 4) Schindler Elevator Corporation
2. ELEVATOR SYSTEM DESCRIPTION:
 - a. Description:

- 1) Capacity: 2,500 lbs., minimum
- 2) Speed: 80 fpm
- 3) Car platform dimensions: 7'0" wide by 5'0" deep minimum
- 4) Car height: 7'4" clear under finished ceiling
- 5) Car doors: 3'6" wide by 7'0" high, center opening
- 6) Hoistway doors: 3'6" wide by 7'0" high, center opening
- 7) Power Supply: 208 VAC, 3-phase, 60 cycle
- b. Car Enclosure:
 - 1) Car enclosure to be plastic laminate faced and edged wall panels with backing sheet on unexposed side of panels.
 - 2) Ceiling assembly to be stainless steel ceiling with downlight arrangement with a #4 satin finish.
 - 3) Illumination to be low voltage downlight system with a minimum of nine (9) down lights.
 - 4) Ventilation to be two-speed blower type fan located in car ceiling with concealed vents.
 - 5) Front returns, fascia and trim to be baked enamel finish.
 - 6) Floor finish to be carpet as indicated on Finish Schedule.
 - 7) Car Doors to be 1 ¼" thick hollow metal construction filled with sound deadening material. Car side of doors to be baked enamel finish.
 - 8) Sills to be extruded aluminum with non-slip finish.
 - 9) Electrical outlet shall be provided in base below main opening panel with 110 VAC duplex outlet.
 - 10) Handrails to be flat bar railing with brushed stainless steel finish at rear side of car enclosure.
 - 11) Pads and hooks to be provided and one (1) set of pads in color selected by Architect from manufacturers standard colors.
3. HOISTWAY ENTRANCES
 - a. Doors to be minimum of 16-gauge steel construction with manufacturer's baked enamel finish.
 - b. Frames to be minimum of 14-gauge steel construction with manufacturer's baked enamel finish.
 - c. Door operator to be heavy-duty current motor driven operator operating car and hoistway doors simultaneously, maximum closing speed of two (2) ft./sec. One (1) ft./sec. Per door panel.
 - d. Each hoist way entrance shall be equipped with interlock to prevent movement of car away from landing until doors are locked in the closed position and to prevent opening of doors at a landing from corridor side. Unless car is at rest at that landing or is in the leveling zone and stopping at that landing.
 - e. Provide hoist way entrance locking device in accordance with ANSI/ASME A17.1 for each hoistway, to allow authorized persons to gain access to hoistway. Provide means for unlocking each hoistway entrance at each landing.
 - f. Provide sight guards in finish matching entrances.
4. HOISTWAY EQUIPMENT
 - a. Guide rails to be minimum of 15 lb. Guide rails.
 - b. Provide normal and final terminal stopping devices in accordance with ANSIASME A17.1
 - c. Provide spring buffers under car in elevator pit in accordance with ANSIASME A17.1
 - d. Provide emergency terminal stopping devices for speeds exceeding 100 fpm. Devices shall operate independently of normal terminal stopping devices, should

- normal devices fail to slow the car at terminals intended.
5. POWER UNIT
 - a. Pumping and Control Mechanism: Compact, submersible type designed with components in a self-contained unit
 - 1) Positive displacement, non-pulsating type
 - 2) Output of pump shall not vary more than 10% between no load and full load on the elevator car
 - 3) Drive to be direct coupling
 - 4) Motor to be 20 HP or as recommended by manufacturer.
 - 5) Oil control unit to consist of the following components:
 - a) Relief valve to be externally adjustable capable of bypassing total oil flow without increasing back pressure more than 50% above working pressure.
 - b) Check valve designed to close quietly without permitting any reverse flow.
 - c) Lowering valve and leveling valve to be externally adjustable for drop away speed, lowering speed, leveling speed and stopping speed. Leveling valve shall be designed to level car to floor in travel direction.
 - d) Electronic controller to be solid state microprocessor type. Provided with thermal overload relays to protect motor.
 6. HYDRAULIC PLUNGER / CYLINDER
 - b. Plunger / cylinder assembly to be direct lift, two cylinder assembly of size required by elevator manufacturer to lift gross weight over travel distance. Assembly to consist of the following components:
 - 1) Plunger to be turned and polished seamless steel tubing.
 - 2) Cylinder to be steel tubing with minimum 3.0 mil thickness, rust inhibitive, factory applied prime paint finish.
 - 3) Stop ring to be welded to plunger.
 - 4) Internal babbitt lined or bronze plunger guide bearings and oil seal assembly with drip ring and wiper.
 7. FAILURE PROTECTION
 - a. Design electrical control circuit so that if malfunction occurs due to motor starter failure, low oil level or car failing to reach a landing in the "UP" direction within a predetermined time, elevator car shall automatically descend to lowest terminal landing. Doors shall automatically open when the car reaches that landing. Doors shall then automatically close and all control buttons except the "DOOR OPEN" button in the car station shall become inoperative.
 8. FIRE FIGHTER'S SERVICE
 - a. Phase I Emergency Recall Operation: Provide a three-position key switch, located at the main floor landing push-button station and connected to the building life safety system, which, when activated, shall return the elevator car to the main floor landing without stopping for car or hall button calls. If smoke detector at the main floor landing is activated, the elevator car shall return to an alternate level approved by the local governing official.
 - b. Phase II Emergency In-Car Operation: Returned cars shall park at main floor with doors open until returned to normal service or to emergency operation by key-operated fire fighter's service switch in car operating panel.
 - c. Parked cars at the main floor except those in emergency service operation, shall have all car buttons except "DOOR OPEN" button rendered inoperative.
 - d. Fire service key box to be Knox Company #3200R reading "FIRE DEPARTMENT ELEVATOR KEYS". Locking and keys to meet requirements of State and Local

- officials. Location to be adjacent to elevator lobby and as approved by local officials.
9. ELECTRONIC PASSENGER SENSING DEVICE
- a. In addition to the automatic reversing door edge, provide solid-state electronic device to detect entering passenger's prior to reversing edge making contact. Device shall re-open doors and shall hold doors open until passengers have entered. Device shall then allow doors to resume closing.
10. CAR OPERATING PANELS
- a. Each car shall have one (1) car operating panel, integral with front return panel. Panel shall be manufacture's standard modular design with finishes as specified. Operating panel shall contain the following:
- 1) Dot matrix position indicator.
 - 2) Internally illuminated floor buttons without graphics.
 - 3) Emergency alarm button
 - 4) Door open button
 - 5) Manufacturer's standard tactile symbols, numerals, letters and braille characters, complying with ANSI 117, located adjacent to buttons identifying functions and landings.
 - 6) Emergency lighting
 - 7) Capacity plates
 - 8) Phase I fire fighter's call cancel switch
 - 9) Phase II fire fighter's call cancel switch
 - 10) Phase III fire fighter's key switch
 - 11) Keyed switches for the following:
 - a) Electronic passenger sensing device
 - b) Fan/Light
 - c) Emergency stop
- b. Telephone cabinet to be integral with the car-operating panel with tactile symbol. It shall not be lockable
- 1) Emergency telephone to be provided in the car mounted cabinet. Acceptable product is Viking Model K-1600-EHF elevator telephone or approved equal.
 - 2) Box style, push button operation with automatic dialing and features complying with ADA requirements.
 - 3) Provide telephone wiring complete with communication wiring from telephone to elevator equipment room.
 - 4) Provide programming capability for at least three separate phone numbers that will be automatically dialed in sequence when the current number is the sequence is not answered in 3-4 rings.

C. EXECUTION

1. Specify Contractor to:
- a. Provide and maintain suitable protective coverings, barriers, devices, signs and other appropriate methods or procedures to protect elevator work from damage or deterioration.
 - b. Remove all protective devices and clean all finished surfaces as required for Architect's satisfaction.
 - c. Verify proper operation of all control system components to determine that all control systems and operating devices are functioning properly.
 - d. Upon completion of elevator installation and before permitting use of elevator, perform code required acceptance tests. Advise architect of dates and times that tests are to be performed. All cost of testing shall be borne by the Contractor until accepted by the local officials.

- e. Deliver keys for all key operated switches to the I-89 School District representative in triplicate. All switches except for the fireman's service switches shall be keyed alike. Key fireman's service switch to local fire department standards.
- f. Perform necessary adjustments prior to inspection by local officials.
- g. Instruct designated I-89 School District personnel on operation and maintenance of systems.
- h. Include copies of as-built control sequencing in close-out documents.
- i. Provide one legible copy of as-built control sequencing framed and mounted under clear non-yellowing plastic, mounted near the control panel.

A. GENERAL

1. MECHANICAL DESIGN

- a. Architect shall specify product types, which require minimal maintenance; this is particularly important for rooftop items. Architect shall locate items for ease of maintenance access.
- b. The Architect shall endeavor to list at least three (3) manufacturers for each and every product specified by giving manufacturer's name and model numbers; always include the phrase "or approved equal, contingent upon full compliance with all criteria" whether the product is made by one, two, three or more manufacturers.
- c. Where Drawing and Specification references are made to trade names or to names of manufacturers, such references are made solely to designate and identify the quality of the equipment or material to be provided; these references are not intended to restrict competitive bidding.

2. ENGINEERING

- a. The Architect shall not assume the duties of a Mechanical Engineer.
- b. Design of all mechanical systems and Construction Contract Administration (with field reports) shall be performed by qualified Oklahoma-licensed Mechanical Engineers whose specialties are the specific respective disciplines of Mechanical Engineering. This means that an Engineer whose specialty is heating, ventilation and air conditioning (HVAC) or Electrical systems shall not engineer Plumbing systems or Fire Protection systems and vice/versa.
- c. Stamps and signatures are required on Mechanical Engineering Drawings and the cover of the Specifications.
- d. Design per code required seismic zone criteria.
- e. Show designated alpha/numeric column grid, space names, and space numbers on all plan drawings.
- f. Design for logical economical addition to existing systems in future expansion of the school with minimal retrofit.
- g. Design for outside air supplied at rate shown in the current International Mechanical Code.
- h. Comply with all plumbing, mechanical and handicap codes.

3. DOCUMENT COORDINATION

- a. The Architect shall be responsible for the full coordination of all aspects of Mechanical products and systems with all Architectural design plus all other Engineering disciplines.
- b. No mechanical equipment, piping, or ductwork shall be located within 42" of switchboards and/or panelboards.
- c. No water piping (domestic, storm, sanitary, sprinkler, etc.) shall be located above electrical switchboards and/or panelboards. If the governing code officials require sprinklers at electrical rooms, then shields must be provided over the panels.
- d. All above-ceiling items shall be located such to minimize necessary ceiling system component removal to attain access for maintenance and/or replacement.

4. UTILITIES

- a. The Architect shall contact all appropriate utility agencies to determine the locations, availability, and loads of services and utility regulations/requirements for the project. Document all information in writing and transmit copies to the OCMAPS Program Manager for review and file.

5. REPORTS

- a. The following reports shall be secured from the manufacturer upon installation. Copies of the reports shall be given to the OCMAPS Program Manager and the I-89 School District.
 - 1) Boiler Certified Inspection Report
 - 2) Cooling Tower Certified Testing Report

6. FIELD TESTS AND INSTRUCTIONS
 - a. The following equipment shall be field tested for proper and rated performance in the presence of the designated inspector(s) and the designated I-89 School District personnel shall be instructed on the proper operation and maintenance of the equipment or system:
 - 1) Boilers
 - 2) Gas-fired unit heaters
 - 3) Electric heaters
 - 4) Cooling towers
 - 5) Air-cooled heat pumps
 - 6) Water source heat pumps
 - 7) Air handling units
 - 8) Fan-coil units
 - 9) Exhaust and ventilating units
 - 10) Kitchen range hood system
 - 11) Dust collector
 - 12) Fire and smoke dampers
7. WARRANTIES
 - a. All guarantees commence on date of Final Acceptance.
 - b. All guarantees fully cover the costs of materials and labor (M and L) for repair and/or replacement within the guarantee period.
 - c. All equipment and workmanship guaranteed for at least one (1) year M and L.
 - d. Water heaters and pressure vessels guaranteed for three (3) years M and L.
 - e. All equipment compressors guaranteed for five (5) years M and L.
 - f. Building Automation System (B.A.S) shall be guaranteed for one (1) year; including but not limited to hardware, software and all associated wiring, connections devices and methods, graphics and control programs, fully usable for owners control of all energy consuming devices at said location and monitoring of specified points associated with said energy consuming devices and systems, operator and maintenance training, and the proper function of all aspects of the B.A.S. system for the purposes intended, utility cost control by remote energy management control.
8. RECORD DRAWINGS
 - a. The Contractor shall be required to maintain a set of Record Drawings on-site on a daily basis, reflecting accurate dimensional record of all underground, buried, or otherwise concealed work.
 - b. The Architect shall be required to have the Mechanical Engineer inspect and then to certify on the Architect Pay Application that the Contractor is maintaining these Record Documents up-to-date.
9. CONTRACT CLOSEOUT
 - a. Criteria prior to certifying for final payment to the Contractor. Attention is further directed to the responsibilities of the Architect outlined for closeout. See synopsis list below:
 - 1) Lead Content Certificate: As part of the closeout documents, the Architect shall require the Contractor to include a certificate stating that the lead content in the domestic water system complies with governing code and Health Department criteria. A test shall be made at each faucet, spigot, drinking fountain, and any other fixture where drinking water may be obtained.
 - 2) Record Drawings: The Contractor shall be required to submit Record Drawings to the Architect.
 - 3) Operation and Maintenance Manuals.
 - 4) Acknowledgements of Instruction.
 - 5) Keys: Contractor to get signed receipt from designated I-89 School District personnel.

- 6) Boiler Test Certificates: It is the Contractor's responsibility to have each boiler, large (greater than 50 gallon capacity) water heater, kitchen equipment steamers, and pressure vessels inspected by a City of Oklahoma City Boiler and Plumbing Inspector and the State of Oklahoma certified inspector upon installation. Each inspection report shall be submitted to the Oklahoma Department of Labor, Safety Engineering Section, Oklahoma City, Oklahoma to the attention of Chief Safety Engineer, plus a copy of each report transmitted to the Architect. One (1) additional copy of each report shall be included in each of the three (3) closeout Manuals.
 - 7) Utilities: Contractor shall be responsible for obtaining meter readings for utilities on the Final Acceptance date prior to utility turn-over to the OCMAPS Program Manager.
10. DRAWING NOTES
- a. Architect shall incorporate the following "PLUMBING SYSTEM NOTES" and "MECHANICAL SYSTEM NOTES" (edited to suit the specific project) within the Mechanical Drawings for project Plumbing and HVAC systems.

PLUMBING SYSTEM NOTES

1. All potable water systems shall use lead-free piping, solder, and flux.
2. Supply systems shall use dielectric adapters where pipes of dissimilar metals are being connected.
3. The potable water system shall be properly disinfected in accordance with Federal Specification BB-C-120. Subsequent to the disinfection, Contractor shall submit water samples to the Local Health Department (LHD) for testing and approval; LHD approval must be attained before the system is put into service.
4. All piping penetrating the plane of the roof shall be insulated with minimum 1" thick continuous insulation from the underside of the roof deck, along all laterals, to 6" below the last above-ceiling vertical elbow joint.
5. All vertical piping penetrating the roof shall be braced high and low to the structure to prevent movement, which would jeopardize the integrity of the roof flashing.
6. All horizontal piping on the roof shall be supported in methods, manners, and at spacings approved by both the pipe manufacturer and the roof manufacturer; supports shall be designed for unbinding slippage or with non-corroding rollers to allow for thermal movement of the piping without jeopardizing the roof system.
7. The bottom access of all gas leg drip piping shall be minimum 3" above adjacent horizontal surface.
8. All domestic water, sanitary, and vent piping shall be sleeved through walls; sleeves shall be sized to allow passage of the pipe and its full insulation thickness plus annular space for installation of safing and/or sealant as required.
9. Coordinate provision for protecting piping beneath handicap lavatories required and identified with toilet accessories.
10. Neatly install white mildew-resistant silicone sealant bead around the periphery of all plumbing fixtures in contact with walls and/or floors

MECHANICAL SYSTEM NOTES

1. All rooftop equipment curbs shall be a minimum of 8" above the finished roof surface for counter flash endorsed by the roof manufacturer.
2. The tops of all equipment curbs and housekeeping pads shall be level.
3. All equipment housekeeping pads shall be a minimum 3-1/2" high, all corners chamfered, and all exposed-to-view surfaces dressed smooth.
4. All equipment labeling/identification shall be legible and shall be mechanically secured to the equipment with non-corroding fasteners.

5. All wall-applied items (such as, but not necessarily limited to, thermostats, sensors, annunciators, and detectors) shall be installed plumb, level, and in the locations designated in the Drawings and Specifications. All device covers and trim shall fit snugly to wall surfaces on all sides. If the Drawings and Specifications have overlooked specific locations for some items, then the Contractor shall obtain clarification and direction from the Architect prior to installation of these items.
6. All roof top unit condensate drain piping shall have P-traps with air vent except negative pressure draw thru units on outlet side, routed away from units 12" from trap. Provide pre-cast concrete splash block, or copper splash pan, beneath each outlet to dissipate and direct condensate to storm system.
7. All miscellaneous rooftop equipment supports shall be endorsed by both the respective equipment manufacturer the roof system manufacturer and the project architect and structural engineer.
8. Provide additional suspended supports as may be necessary to prevent flexible ductwork from contacting the ceiling material and/or the ceiling framing/grid assembly.
9. Ductwork exposed in spaces without ceilings shall be free of size marks or assembly code numbers; all such marks shall be on the inside of ductwork. During fabrication and assembly, keep the outside surfaces clean. Bands shall join on the top (concealed-from-normal-view) of the duct and spirals shall be continuous. Threaded rods for hanger straps shall be neatly clipped and secured without excess. Greater attention to appearance in spaces without ceilings is expected and dented/scarred duct will not be acceptable.
10. INSTRUCTION
 - a. The Contractor shall arrange for instruction on the systems to designated I-89 School District personnel by qualified manufacturer technical representatives of each item of equipment.
11. MAINTENANCE SERVICE AND REPAIRS
 - a. Contractor to arrange for qualified equipment service technicians to provide preventative maintenance service every three (3) months (minimum 4 times) within the one-year warranty period to keep all systems operating in first-class working order.
 - b. Contractor shall coordinate service times with the I-89 School District at least one (1) week prior to proposed regular servicing schedule.
12. ELECTRICAL
 - a. Motors and motor starters required for proper operation of equipment covered under this section, except items specified furnished under the Electrical Section, shall be furnished under HVAC Division of the specifications. Devices which are a part of the power wiring circuit and which are not integral parts of the equipment, shall be installed under the Electrical Division,
 - b. Controls, relays, contactors and switches required for proper operation of equipment covered under this section, except items specified furnished under the HVAC Division or the Electrical Division, shall be furnished under this section of the specifications.
 - c. All control and interlock wiring shall be furnished and installed under this section.
 - d. Power wiring, unless otherwise indicated herein before, shall be furnished and installed under the Electrical Division of the specifications with coordination with the Control Contractor.
 - e. Devices, materials and installation shall conform to requirements of the Electrical Division, except as specified herein.
 - f. Wall mounted thermostats and sensors shall be installed 5'-0" above the finished floor.
 - g. All wiring shall be of adequate size for the service. The minimum size low voltage control wire shall be #18 AWG. The minimum size line voltage control wire shall be #14 AWG THHN, 600 volt insulation. All control wiring shall be protected against overload by fuses or circuit breakers as required by The National Electrical Code.

- h. All wiring and cable installed exposed in a space, concealed inside a wall, concealed above a non-accessible ceiling or underground outside the building shall be installed in appropriate conduit. All line voltage wiring shall be installed in conduit. All low voltage wiring installed above accessible ceilings may be installed without conduit by using I.T., fire alarm, intercom system, etc. color coordinated cable with a jacket which is U.L. listed for installation in a return air plenum.
- i. Plenum rated cable installed in corridors shall be installed in cable hangers, which are specified in Electrical Divisions. All cables for this system shall be grouped together within the hanger and tied with a cable tie. See detail on the drawings for arrangement with other systems.
- j. Plenum rated cable installed in other spaces where there are no cable hangers shall be tied to the building structure at approximately 6'-0" on center using cable ties.
- k. Plenum cable shall pass through fire-rated walls by drilling a hole in the wall and installing a conduit with bushings on each end through the wall. Install the cable through the conduit and then seal the opening around the conduit and the hole in the conduit with a U.L. listed fire rated sealant.
- l. All plenum rated cable used for the control system shall have a white or clear outer jacket. All cable ties shall be PAN-TY PL-702 plenum rated ties or approved equal.
- m. All wiring shall be color-coded or identified with tab markers.

A. GENERAL

1. ARCHITECTURAL DESIGN

- a. The Architect shall originate performance specifications which shall require a qualified Fire Protection Contractor to design and install the fire protection system in conformance with all codes and NFPA pamphlets.
- b. Contractor shall secure written Oklahoma City Water Department water flow tests and volume rates at proposed water tie-in locations for the project.
- c. System piping, valving, head types, and head coverage's shall be designed based upon water flow test and volume rate results; generic performance-type engineering (e.g. merely requiring compliance to NFPA-13 criteria) will not be acceptable. Fire Protection Contractor shall identify date, location, gallons per minute, and pressure results of the Oklahoma City water flow test on the Fire Protection Drawings.
- d. Architect shall require the Fire Protection Contractor to:
 - 1) Review proposed system with governing code officials; determine need for possible dry, halon, or other-than-wet systems for the project.
 - 2) Coordinate tie-ins with kitchen range hood and grease laden exhaust hood duct systems.
 - 3) Coordinate water-flow switch alarm tie-in to a central alarm panel within 40' of the site administrator office and electronically to a central monitoring site or agent specified by the I-89 School District.
 - 4) Contractor will pay for all metering fees, and impact fees, meters, vaults and valves that are not normally installed by Oklahoma City Water Department. Contractor will pay for all other items (e.g. valve boxes, vaults, backflow valves, detector check valves, alarm valves, etc.) required to fulfill the Contract beyond the items installed by Oklahoma City Water Department.

2. FIRE PROTECTION INSTALLATION COORDINATION

- a. Architect shall require Fire Protection Contractor to:
 - 1) Provide properly designated access areas with sufficient work clearances for all valve and water flow alarm assemblies.
 - 2) Consider pipe system slopes in determining above-ceiling pipe routes and clearances with other mechanical, plumbing, and electrical systems. Avoid piping located above or within 42" of electrical switchboards and panelboards; show baffles to divert water where required.
 - 3) Coordinate locations of all test lines and drain-down piping with the Architect; this is particularly important where such piping is exposed-to-view and/or subject to damage.
 - 4) Locate and route piping above ceilings and in spaces where the minimum temperature shall be 40° F; in isolated cases where this may not be possible, provide supplemental thermostatically controlled heating to achieve this criteria.
 - 5) Require special attention to system installations in exposed-to-view conditions (e.g. P.E. areas and other areas having no finished ceilings); piping routes shall be coordinated with the Architect and installations shall be straight, neat, workman-like. All exposed piping shall be installed to prevent vandalism. All piping primed and finish painted in public areas.
 - 6) Review proposed fire department connection location with the Architect, the I-89 School District, the OCMAPS Program Manager and the Program Consultant for details with related construction.
 - 7) Require all piping through walls to be sleeved and sealed.
 - 8) Coordinate underground pipe routes and thrust blocks with structural and other underground systems to avoid conflicts. All underground piping to be ductile iron with megalug mechanical joint connections.

3. SPRINKLER HEADS

- a. Centered on lay-in ceiling tiles if possible - but not closer than 3" to a ceiling grid.
- b. Visually aligned in two (2) directions, parallel to both major column axis lines; uniformly exposed below ceiling line.
- c. Locations accurately shown on Architectural as-built reflected ceiling plans; coordinated with engineering drawings and engineering criteria and all other ceiling items.

B. PRODUCTS

1. METERS, VALVES, VAULTS, ETC.
 - a. Architect shall require Fire Protection Contractor to determine exactly which items will be supplied and/or installed by Oklahoma City Water Department.
2. SPRINKLER HEADS
 - a. Architect shall require Fire Protection Contractor to use:
 - 1) Chrome pendant type with escutcheons at all finished ceiling areas.
 - 2) Upright brass at all areas without ceilings.
 - 3) Avoid wall-mounted types wherever possible.
 - 4) With chrome-plated wire cages, including attachment devices, in physical education areas.
 - 5) With wax coating in science rooms.

C. EXECUTION

1. Architect shall require Contractor to coordinate and cooperate with Oklahoma City Water Department for timely installations of meters, vaults, and other items handled by the Oklahoma City Water Department.
2. Specify underground piping to be:
 - a. Installed minimum 36" below finish grade.
 - b. Provided with brightly-colored, metallic-core, non-deteriorating, minimum 2" wide identification ribbon tape set 24" below finish grade, directly above piping.
 - c. Provided with accurate description in surveyor terms of "as built" locations of all underground pipe locations (including depths) in reference to a permanent "bench mark". This shall be verified by the Architect and specifically edited on 'As Built' drawing sets that are delivered to the owner during the close-out of the project.
3. TESTING
 - a. Specify Architect shall witness pressure-tests of all underground piping prior to backfilling.
 - b. Specify Contractor shall pressure-test all above-ground system components.
 - c. Specify Contractor to obtain sign-off from all required governing code officials prior to Final Acceptance.
4. SPRINKLER CABINETS
 - a. Specify Contractor to:
 - 1) Provide sprinkler cabinets in locations shown on Drawings and approved by code officials.
 - 2) Stock cabinets with required heads and tools.
5. VALVE TAGS
 - a. Specify Contractor to:
 - 1) Provide brass plate valve tags, integral legible 1/4" high die-stamped identification.
 - 2) Provide brass chain looped through tag and valve wheel for each valve.
6. CLOSE-OUT
 - a. Specify Contractor to:
 - 1) Provide three (3) sets of As-Built Drawings of fire protection system.
 - 2) Contractor shall instruct designated I-89 School District personnel on system and interfacing with other building systems.

The general conditions provided in this document are not to be modified without the written consent of the OCMAPS Project Manager. The document is also periodically updated, and each Architect must coordinate with the OCMAPS Project Manager to ensure the latest version is being utilized on the project.

	<u>Water Service</u>	<u>School Water</u>	<u>Sewer</u>	<u>Storm</u>	<u>Gas Service</u>	<u>School Gas</u>	<u>Other Jobs</u>	<u>Total Plumbing</u>
Adams Elementary	\$22,000	\$43,000	\$35,000	\$18,000				\$118,000
Administration/Research	\$15,000		\$8,500			\$22,000		\$45,500
Arthur Elementary	\$12,000	\$30,000	\$8,000	\$4,500		\$12,000		\$66,500
Belle Isle	\$5,500	\$26,000						\$31,500
Bodine Elementary	\$4,500	\$38,000	\$12,000	\$43,000		\$12,000		\$109,500
Britton Elementary			\$0	\$23,000				\$23,000
Buchanan Elementary				\$17,500				\$17,500
Capitol Hill Elementary	\$30,000	\$183,000					\$80,000	\$293,000
Capitol Hill High School	\$112,000	\$83,000	\$57,000			\$48,000	\$40,000	\$340,000
Classen SAS				\$37,500				\$37,500
Cleveland Elementary				\$16,500				\$16,500
Columbus Elementary				\$35,700				\$35,700
Coolidge Elementary				\$35,700				\$35,700
Dewey Elementary								\$0
Douglass High School								\$0
Dunbar Elementary	\$22,000	\$15,000	\$0			\$12,000	\$43,000	\$92,000
Edgemere Elementary			\$0	\$12,000				\$12,000
Edwards Elementary			\$0	\$8,500				\$8,500
Eisenhower Middle School	\$50,000	\$100,000						\$150,000
Emerson Alternative	\$22,000	\$40,000	\$185,000			\$12,500	\$28,000	\$287,500
Eugene Field Elementary				\$37,500				\$37,500
Fillmore Elementary	\$87,000	\$28,000	\$17,500			\$10,000	\$18,000	\$160,500
Gateway Academy/Harrison								\$0
Gateway Elementary								\$0
Grant High School								\$0
Green Pastures Elementary	\$8,500	\$68,900	\$15,400	\$28,500			\$16,500	\$137,800
Hawthorne Elementary			\$0					\$0
Hayes Elementary			\$0	\$12,000				\$12,000
Heronville Elementary	\$0	\$0						\$0
Hillcrest Elementary				\$14,000				\$14,000
Hoover Middle School								\$0
Horace Mann Elementary								\$0
Jackson Middle School								\$0
Jefferson Middle School	\$35,000	\$5,000						\$40,000
John Marshall High School	\$200,000	\$250,000	\$100,000	\$500,000	\$600,000	\$65,000	\$400,000	\$2,115,000

	<u>Water Service</u>	<u>School Water</u>	<u>Sewer</u>	<u>Storm</u>	<u>Gas Service</u>	<u>School Gas</u>	<u>Other Jobs</u>	<u>Total Plumbing</u>
Johnson Elementary								\$0
Kaiser Elementary				\$16,000				\$16,000
KIPP (@ Moon)	\$0	\$0	\$0	\$0	\$0		\$0	\$0
Lee Elementary	\$14,000	\$120,000	\$22,000			\$38,000	\$15,000	\$209,000
Linwood Elementary			\$0					\$0
Longfellow (on Prospect)								
Madison Elementary								\$0
Mark Twain Elementary								\$0
Monroe Elementary				\$8,500				\$8,500
Moon Middle School	\$43,000	\$110,000	\$0			\$10,000	\$11,000	\$174,000
Nichols Hills Elementary	\$0		\$0					\$0
North Highlands Elementary								\$0
Northeast High School	\$0		\$154,000					\$154,000
N.W. Classen High School	\$35,000	\$15,000	\$0			\$25,000	\$23,000	\$98,000
Oakridge Elementary	\$52,000			\$125,000				\$177,000
Parker Elementary								\$0
Parmelee Elementary	\$22,000	\$85,000	\$28,000			\$8,000	\$12,000	\$155,000
Pierce Elementary				\$13,500				\$13,500
Polk Elementary		\$15,000	\$20,000			\$12,000	\$15,000	\$62,000
Prairie Queen Elementary								\$0
Putnam Heights Elementary								\$0
Quail Creek Elementary	\$22,000	\$52,000	\$28,000			\$8,000	\$12,000	\$122,000
Rancho Village Elementary	\$28,000	\$82,000	\$0			\$12,000	\$22,000	\$144,000
Ridgeview Elementary	\$18,000	\$47,000	\$32,000			\$6,000	\$12,000	\$115,000
Rockwood Elementary	\$12,000	\$45,000	\$0	\$37,500			\$9,000	\$103,500
Rogers Middle School								\$0
Roosevelt Middle School								\$0
Sequoyah Elementary			\$0					\$0
Service Center								\$0
Shidler Elementary				\$8,500				\$8,500
Shields Heights Elementary	\$50,000	\$10,000		\$9,600				\$69,600
Southeast High School	\$0		\$160,000			\$9,000	\$67,000	\$236,000
Southern Hills								
Spencer Elementary			\$0					\$0
Stand Watie Elementary			\$0					\$0

A. GENERAL

1. MECHANICAL DESIGN

- a. Cut-off Valves
 - 1) Show plan locations on Drawings; must be easily accessible, preferably above lay-in ceiling.
 - 2) Locations and quantities shall enable logical and orderly shut-off of domestic water supply zones so as to allow repairs to zones without disrupting service to other zones.
 - 3) One (1) for each toilet battery, kitchen, gymnasium dressing room and each classroom.
 - 4) One (1) for each exterior wall hydrant.
 - 5) One (1) for each faucet supply beneath lavatory/sink.
 - 6) One (1) each side of each water heater.
 - 7) Locations above ceilings identified with 1" wide red reflective tape, wrapped two (2) complete turns around ceiling grid, cut end of tape concealed above ceiling, directly below each valve.
- b. Pressure Reducing Valve: Required on main domestic water supply line if entering pressure is over 80 p.s.i.; specify setting not to exceed fixture faucet recommendations.
- c. Wall Hydrants
 - 1) One for each 150 l.f. of building perimeter.
 - 2) A wall hydrant shall be located within 20' of the exterior kitchen door (s).
 - 3) A wall hydrant shall be located within 100' of all roof mounted mechanical equipment.
 - 4) A high volume, wall hydrant or code approved freeze proof yard hydrant shall be located within 20' of any type of all site mounted mechanical equipment that will typically require maintenance.
 - 5) Dimension and detail mounting locations and relationships to exterior materials. Hydrants should be recessed with lockable covers.
- d. Hot Water Supply
 - 1) Provide at all sink/lavatory fixtures.
- e. Insulation
 - 1) All hot water, cold water, and hot water return piping above ceilings.
 - 2) All storm and rain leader piping from underside of roof deck to final vertical drops above ceiling lines.
 - 3) All piping run within outside walls shall be positioned on the warm side of building insulation.
- f. Metering
 - 1) Domestic water: Meters as required by design. Double detector check on fire mains.
 - 2) Irrigation systems shall be separately metered with approved backflow preventor.
 - 3) All and any items installed by the governing authority will be paid for and coordinated by the Contractor.
- g. Water Hammer Arrestors: Required for all supply lines serving quick closing valves.
- h. Underground Identification: Provide #10 copper wire along entire length of all nonconductive piping below grade.
- i. Supply Piping: Preferably run overhead with specific attention to their locations, routings, protection, and minimizing potential freezing. All piping in corridors shall be run as close to corridor walls as possible. Any piping run underground shall be run in soft draw a Type K copper without joints.
- j. Floor Drains:
 - 1) All gang toilets

- 2) Kitchen areas
 - 3) Can wash
 - 4) Locker rooms
 - 5) Showers
 - 6) Janitor closets
 - 7) Vocational shops
 - 8) Science laboratory eye wash/safety showers
 - 9) Mechanical rooms
- k. Hose Bibbs: One (1) for each gang toilet; between lavatories at 16" A.F.F. and should be recessed with a lockable cover and provided with approved backflow preventor.
- l. Trap Primers: All points of collection of condensate drains and for floor drains that are subject to drying out from non-use. All trap primers shall be supplied from the topside of the water line. They must be accessible for maintenance reasons. Use only (mandatory) telfon tape on joints.

B. PRODUCTS

1. All items shall be totally lead-free.
2. Supply Piping
 - a. Type "K" soft drawn copper without joints under slabs and underground. (No PVC)
 - b. Type "L" copper above ground.
3. Condensate Piping: Type "L" copper.
4. Pop-off Drain Piping: Type "L" copper.
5. Polybutylene Piping: Strictly prohibited from use.
6. PVC Piping
 - a. Minimum weight: Schedule 40.
 - b. Prohibited from use in return air plenums.
 - c. May use for vent piping and for sanitary/storm waste lines starting 5' outside building lines where governing codes will allow use.
 - d. No PVC piping for water supply piping on site or in the building.
7. Acid-resisting Pipe: At drains and vents from Science Classrooms and must drain to dilution tank.
8. Cast Iron Pipe
 - a. Service weight, no-hub type, minimum four (4) stainless steel bands, minimum 4" size: All storm piping to 5' outside of building and all above-slab sanitary piping.
 - b. Service weight, bell-and-spigot type with lead plus oakum (or rubber) gaskets: All under-slab sanitary piping.
9. Galvanized and Asbestor-Cement Pipe: Prohibited from use
10. Solder
 - a. Tin-antimony/silver solder; totally lead-free.
 - b. Soldered joints under slab are prohibited.
11. Dielectric Unions: At all supply piping joints between differing metals.
12. Wall Hydrants: Freeze-proof, box-type, with vacuum breaker, loose key, and wall clamp.
13. Hose Bibbs: Keyed vacuum breaker type.
14. Cleanouts
 - a. Sanitary lines: Use floor types only, 4" minimum size, complete with flush plug. Interior applications shall have easily-removable brass floor covers to suit finish floor materials set flush with finish floor to avoid trip hazard.
 - b. Storm lines: Can use floor types or wall types, 4" minimum size, complete with flush plug. Interior applications shall have easily removable tapered-edge brass covers surface-set to finish surfaces.
 - c. Exterior cleanouts shall have top of flush plug set flush to finish grade (or pavement).

Each cleanout set in earth shall have 6" deep, 24" diameter concrete apron, top of concrete flush with finished grade.

15. Roof Drains: Painted cast iron (not plastic) domes, with deck clamps; provide required sump pans. Secondary (emergency) roof drains with adjustable standpipe.

C. EXECUTION

1. INSPECTIONS

- a. Specify Contractor shall pressure-test all piping for inspection by the Architect and the governing code officials.
- b. Specify Contractor shall give the Architect and the governing code inspector at least 24 hours notice for required inspections to be performed.
- c. Specify Architect and the governing code officials shall witness all tests and inspect all underground piping prior to backfilling.
- d. Specify Contractor shall have all domestic water piping systems disinfected, flushed, then tested for purity and lead content at each faucet/outlet where drinking/cooking water may be obtained by governing code (and/or Health Department) officials. Specify Contractor shall submit written test results with close-out documents.

2. Underground Domestic Water Piping: Specify minimum 36" below finish grade

3. Underground Pipe Bedding and Support: Specify along entire barrel length; supporting only at bell joints is prohibited.

4. Backfill

- a. Specify Contractor shall backfill only after satisfactory testing inspection results.
- b. Specify trench shall be hand-filled with clean dry sand, tamped to required 95% Standard Proctor compaction for a minimum depth of 12" above top of pipe. Settling the backfill by water compaction shall be prohibited.

5. Underground Piping Locator and Identification

- a. Specify all nonconductive pipe shall be installed with #10 copper wire set with the pipe itself.
- b. Specify all underground piping outside the building shall have brightly-colored, metallic-core, non-deteriorating, minimum 2" wide, identification ribbon tape set 12" above the top of pipe, or 24" below finish grade, whichever dimension is shallower.

6. Condensate Lines: Specify provisions of air vents on outlet side of "P-trap".

7. Interior Valve Locations.

- a. Require Contractor to provide valve tag schedule and drawing as part of close-out documents.

8. Hydrant Keys: Specify Contractor to provide two (2) per hydrant; submit with close-out items.

A. GENERAL

1. MECHANICAL DESIGN
 - a. Comply with Americans with Disabilities Act (ADA) and other governing handicap code criteria.
 - b. Draw all toilet plans (plus all toilet elevations - cut just inside partition doors - which have fixtures and adjacent accessories) at 1/4" = 1'-0" scale. Dimensionally locate fixture centerlines; show all dimensions of fixture relationships to controlling items in order to demonstrate design compliance with handicap criteria.
 - c. Design chase walls for proper wall-hung fixture support, plus work room and maintenance access.
 - d. Show all fixture junctures to floors and walls sealed with white mildew-resistant silicone sealant.
2. ENGINEERING COORDINATION
 - a. Fixture types, nomenclatures, and locations shown on Plumbing Drawings shall agree with same on Architectural Drawings.
 - b. Coordinate vanity-type sinks and mountings with architectural casework construction and details; design for proper trap access and compliance with ADA and other governing handicap code criteria.
 - c. Receptacle location, mounting height, and circuitry for water cooler.
 - d. Coordinate rough-in and locations of lavatories in Kitchen with Kitchen Consultant.
 - e. Do not use gooseneck faucets in any location other than at lab and prep sinks in science rooms.

B. PRODUCTS

1. WATER COOLER
 - a. 110-volt, separate circuit, accessible outlet concealed from view.
 - b. Stainless steel top, enameled cabinet, wall-hung; provide for required handicap use.
2. WATER CLOSET
 - a. Floor-mounted types.
 - b. Student gang toilets, staff toilets, kindergarten toilets, clinic toilet, and kitchen staff toilet.
 - c. Use 12" rim height elementary water closets. ADA water closets for elementary school students shall be the standard 15" rim height.
3. URINAL
 - a. Wall-hung type with integral p-trap.
 - b. Boys gang toilets and men's staff toilet.
4. LAVATORY
 - a. Wall-hung type with carriers.
 - b. Student gang toilets; provide heavy-duty automatic shutoff faucet.
 - c. Staff toilets, kitchen (minimum 2), kitchen staff toilet, and clinic toilet; provide hot and cold water wrist handle faucets.
5. VANITY SINK
 - a. Stainless steel, single bowl, self-rimming type, 6" depth, secured to casework countertop.
 - b. Kindergarten classrooms; provide fountain bubbler at front.
6. WORK SINK
 - a. Stainless steel, single bowl, self-rimming type, 8" depth, secured to casework countertop.
 - b. One (1) in each Media Workroom, Media Production Room, Teacher Workroom, Industrial Arts Room, and Clinic.
 - c. Two (2) in each Art Classroom.
 - d. Six (6) in each Home Economics Classroom; provide faucet spray.

7. SCIENCE SINK
 - a. Acid- and chemical-resistant bowl.
 - b. Acid-resistant waste and vent piping run separately.
8. MOP SINK
 - a. Floor-mounted. Silicone sealant around all floor and wall contact areas. Provide mixing faucet with integral bucket hook.
 - b. One (1) in each Janitor Closet and Kitchen can wash.
9. WASHING MACHINE FITTING
 - a. Flush-mounted at 36" A.F.F.
 - b. Back-flow preventers required on supply piping.
10. WASH-DOWN FITTING
 - a. Kitchen area.
11. EMERGENCY EYEWASH
 - a. Floor-mounted, stand-alone type, piped to drain. Can be integral with emergency shower.
 - b. One (1) in each Science Classroom.
12. EMERGENCY SHOWER
 - a. Provide with floor drain
 - b. One (1) in each Science Classroom
13. SHOWER
 - a. Physical Education Locker Room areas.
14. WASH FOUNTAIN
 - a. Physical Education Locker Room areas.
15. WATER HEATERS
 - a. Use several electric (110/220 volt) water heaters, sized for their point-of-use zones, in lieu of central heaters with circulating pumps.
 - b. School Administration Area shall have its own separate water heater.
 - c. Locate for ease of maintenance access.
 - d. Pop-off piping run (sloped to drain) to nearest floor drain.
15. AUTOMATIC FILL VALVE
 - a. Combination pressure reducing valve and pressure relief valve; Armstrong model 11 or equal by Bell and Gossett, or Taco.
17. AIR SEPARATOR
 - a. Armstrong type "VA", or equal by Bell and Gossett or Taco, with no internal strainer.
18. EXPANSION TANK
 - a. Armstrong, Amtrol, or Taco pressurized bladder type, constructed of heavy-gauge steel with welded ends and seams for 125 p.s.i. working pressure; provide ASME stamp.

C. EXECUTION

1. Specify carriers securely attached to wall construction; need to be fully grouted into wall construction to improve stability and reduce potential breakage.
2. Specify fixtures securely attached to carriers, casework, and floor construction; set to prevent rocking and/or dislodgement.
3. Specify fixtures set level and square to axis of casework and/or partitions.
4. Specify faucet assemblies set square to sinks and lavatories; paired faucet handles set symmetrical in off positions.
5. Specify neatly applied white mildew-resistant silicone sealant bead around all fixtures in contact with walls and floors.

A. GENERAL

1. MECHANICAL DESIGN

- a. Coordinate locations to assure necessary maintenance accessibility and/or future repair/replacement with minimal disruption to adjacent systems and/or construction.
- b. Provide primary and standby pumps for all mechanical systems including but not limited to:
 - 1) Fire and jockey pumps
 - 2) Heating water supply loop
 - 3) Chilled water loop
 - 4) Hydronic loop
 - 5) Condenser water loop
 - 6) Heat pump primary loop
 - 7) Building domestic hot and cold water
 - 8) Condensate return loop

B. PRODUCTS

1. Acceptable Manufacturers: Armstrong, Bell and Gossett, Burks Pump Company, Barns or Taco, subject to compliance to all criteria; use one (1) manufacturer throughout the project.
2. PUMP CHARACTERISTICS
 - a. Centrifugal frame mounted (not close coupled) with cast iron casing, bronze impellor, corrosion-resistant steel shaft, mechanical seal, and sealed motor of adequate size to prevent overloading.
 - b. Provide built-in thermal overload protection on all fractional horsepower motors with thermal overload, fractional H.P. starters with a toggle switch permanently mounted within sight of each fractional H.P. motor. All 3-phase starters shall be provided with three thermal overloads, size selected to provide the best possible over-current protection based on full load amps (F.L.A.) of the individual motor served by the starter. Auxiliary contacts and external cabinet reset buttons shall be provided. Hand-off automatic key switches (keyed to a single key for all site) shall be specified.
 - c. Provide suction diffusers with built-in strainers, inlet vanes, and support legs. Product shall be designed and installed as required and insulation shall be installed to allow for accessibility for cleaning without damaging insulation.
 - d. Strainers: Two (2) required for each pump; a fine mesh start-up, and a normal-operation strainer with 1/8" diameter holes. It should be specified that the fine mesh start up strainers shall be left at each pump or turned over to designated I-89 School District personnel during close-out process for future maintenance use.
3. Provide fully automated back-up changeover feature, for primary pump failure, on all mechanical system pumps using either a hardwired or Building Automation System (BAS) method of sensing pump failure. Any system installed for this purpose must be fully compatible with and monitored by the Siemens Apogee BAS front end and must transmit an alarm condition to the operator station and / or a network alarm printer.
4. Variable frequency pump speed control may be used in conjunction with building hydronic system part load flow control, based on BAS, zone occupancy flow requirements. Building and hydronic piping designs shall be architecturally, mechanically, and electrically BAS zoned for logical partial occupancy, based on anticipated Space Occupancy / Use Types. Buildings shall be designed for optimum energy use flexibility (i.e. typical after school hours use of athletic facilities, auditorium, library / media center, administrative office, kitchen / cafeteria, summer school, meeting rooms etc. shall be supported without operating unnecessary, unoccupied spaces.)

C. EXECUTION

1. Specify Contractor to install pumps in accordance with manufacturer's published instructions, provide necessary vibration any none isolation and support piping so that piping weight is not supported by the pumps.

2. Specify Contractor shall field verify proper operation of all pumps in the presence of the authorized manufacturer's representative and mechanical engineer and perform the following operations:
 - a. Check suction piping connections for tightness to avoid drawing air into pumps.
 - b. Clean strainers, and set pump controls.
 - c. Perform necessary lubrication.
 - d. Provide N.E.B.B certified test and balance reports that include but are not limited to:
 - 1) Manufacturer published pump curve(s) and H.P. selection requirements.
 - 2) Design engineer's system design flow requirements.
 - 3) A list / schedule of full load amps, as measured with a calibrated digital amp meter, with flow control valves adjusted to achieve required flows to meet typical system full flow load confirmed by the mechanical design engineer. Test pump curve performance under actual operating conditions on the project as compared to design data; make adjustments to pumps as necessary. Include copies of manufacturer's written report in closeout documents.
3. Specify Contractor shall instruct designated I-89 School District personnel on operation and maintenance procedures.

A. GENERAL

1. MECHANICAL DESIGN

- a. Sound levels in classrooms shall be 25 to 30 NC and 20 to 25 in Music Classrooms.
- b. System shall be designed to meet the high levels of the Oklahoma Energy Code criteria based on Architect designs for construction of exterior walls, roofs, windows, space volumes, and other relevant criteria.
- c. Architect shall clearly advise the Program Consultant and OCMAPS Program Manager of intent to use through-wall, wall-hung air conditioners and/or heat pumps for any areas of the project for OCMAPS Program Manager approval.
- d. Coordinate equipment mountings, pre-fabricated supports, and roof curbs with Section 07720 criteria.
- e. Low levels of sound transfer from duct work, diffusers and equipment shall be a major design criteria.

2. SAMPLE SYSTEM DESCRIPTIONS

At the Architect submission of Schematic Design Documents for review, include a paragraph description of the proposed heating, ventilation and air conditioning (HVAC) system(s) for each space within the project. Examples of what is considered as proper adequate descriptions are as follows:

- a. "HVAC System will be four-pipe chilled and hot water with fan coils in serving each classroom, and air handlers with heating/cooling coils for Administration areas and other areas where ducting is required. A water-cooled chiller will provide chilled water, and a gas fired hot water generator will provide space heating water."
- b. "HVAC will be wall-hung heat pumps with electric resistance heating for classrooms. Pad-mounted units with natural gas furnaces and direct-expansion cooling will be provided in Administration and other areas requiring ducting."
- c. "HVAC will be water-cooled reverse-cycle heating/cooling units with a central cooling tower and natural gas-fired boiler. Each room or area will be provided with its own unit(s). Administration and Band Room will be equipped with heat pumps with resistance heating which may be operated without central equipment."

3. SYSTEM CRITERIA FOR SPECIFIC AREAS OF SCHOOL

- a. Classroom Areas: Individual high efficiency roof top package units, central plant fan coil units or individual water-cooled reverse-cycle heating and cooling units for each classroom.
- b. Administration Area(s), Media Area(s), Music Rooms, Kitchen and Cafeteria: Shall have individual room, high efficiency rooftop package units, splits systems, central plant fan coil units, or individual water cooled reverse-cycle heating and cooling units for each room.
- c. Gymnasium(s), including Physical Education and Practice Gyms, Locker Rooms, and Common Areas: High efficiency rooftop package units, package or split system central station air handling units with self contained heating and cooling systems independent from other building HVAC systems. Systems for these types of occupancy shall be installed in mechanical equipment rooms or on an adjacent building roof to prevent transmission of sound and/or vibration to the conditioned space. Mounting units in the space above the gym floors or on the roof of gyms is prohibited. Associated ducts and air distribution shall not be located above wood gym floors and shall be well insulated to prevent condensation, preferably concealed from sight.
- d. Auditorium: High efficiency rooftop package units, package or central station air handling units with split or self contained heating and cooling systems independent from other building HVAC systems. Systems for these types of occupancy shall be installed in mechanical equipment rooms or on an adjacent building roof to prevent transmission of sound and/or vibration to the conditioned space. Mounting units in

the space above the auditorium or public seating area of the auditorium roof is prohibited. Associated ducts and air distribution shall be concealed from sight. Attention to noise levels is required.

- e. Main Network Management and Technology Network Equipment Rooms: Independent system not on the Building Automation System (BAS) with temperature monitoring available, using the BAS. and security alarm systems upon approval of OCMAPS Program Manager and I-89 School District.

4. TESTS

- a. Architect to secure legible copies of required boiler and pressure vessel tests performed by a State of Oklahoma certified inspector.
- b. SOUND LEVEL TESTING: OCMAPS Program Manager reserves the right to engage the services of an Independent Laboratory to perform tests within the facility for compliance with required sound level criteria. Deficient areas shall be corrected to attain compliance at no expense to the contracting entity.

B. PRODUCTS

- 1. Carrier (P6), York (Predator), Lennox (L-series), Trane (President) or approved equals are acceptable.
- 2. Manufacturer system components and their controls shall have a proven satisfactory performance record of working together for not less than five (5) years; Architect to verify prior to incorporating into design.
- 3. All equipment, pumps and starters shall be obtainable from a local distributor with repair/replacement parts normally kept in stock; this is especially required for all compressors and refrigeration equipment.
- 4. FILTERS
 - a. Large roof top package or central station air handling units are to include 2" 30% efficient filters.
 - b. Fan coil units with return air grilles are to include 1" pleated filters.
 - c. Other – as specified in manufacturer publications of an acceptable manufacturer of Indoor Air Quality (IAQ).

C. EXECUTION

- 1. INSPECTIONS
 - a. The Architect shall perform however many on-site inspections (with accompanying written reports) as are necessary to assure of the Contractor's faithful performance of the Work in accordance with the Contract Documents.
 - b. Require the Contractor to fully cooperate with the inspecting Architect and uncover all concealed areas during inspections.
- 2. START-UP: Specify major equipment and systems shall have authorized manufacturer technical representative present during start-up.
- 3. Specify the Contractor:
 - a. Shall not operate units without filters at any time.
 - b. Not overload filters with dust and/or dirt.
 - c. Be responsible for maintenance of all filters until date of Final Acceptance.
 - d. Provide new clean filters on all equipment immediately prior to date of Final Acceptance.

A. GENERAL

1. MECHANICAL DESIGN

- a. Any spaces with piping above the ceiling, where attic space is not used as return air plenum or there is no heat above the ceiling, shall have lay-in transfer air grilles to allow room heat into the ceiling cavity; show on Mechanical Drawings and Architectural Reflected Ceiling Plans.

B. PRODUCTS

1. REFRIGERANT PIPING

- a. Material: Type "L" hard-drawn copper tubing meeting ASTM B-88.
- b. Fittings: Long-radius type wrought copper solder meeting ASTM B-75.
- c. Joints: Silver solder (45% silver) or Silphos (15% silver).
- d. Sight Glass and Filter Dryer: Provide for each refrigerant circuit in the liquid line.

2. CONDENSATE DRAIN PIPING

- a. Material: Type "L" hard-drawn copper tubing meeting ASTM B-88.
- b. Fittings: Long-radius type wrought copper solder meeting ASTM B-75.
- c. Slope: Minimum 1/8" per foot in direction of flow.
- d. Joints: 95%-5% tin-antimony solders.
- e. Traps: Provide air vent on outlet side.

3. HVAC WATER PIPING

- a. Material: Condenser water, cooling tower water, chilled water tempered water, and heating hot water piping shall be schedule 40 black steel meeting ASTM A-120 or Type "L" hard-drawn copper tubing meeting ASTM B-88.
- b. Ends: Beveled or threaded as required.
- c. Positioning: Take-off for heat pump supply shall be side-mounted and for returns shall be top-mounted.
- d. Drawings and specifications shall require automatic air eliminators to be provided per common practice at all high points in the system.

4. INSULATION

- a. Suction Line and Condensate Piping: 1/2" thick foam plastic; maximum "K-value" of 0.28 at 75° F mean temperature; seal all joints and seams with adhesive.
- b. Heating Hot Water, Chilled Water, Heat Pump and Cooling Tower Supply and Makeup Water Piping: 1-1/2" thick Foamglas cellular glass pipe insulation, tightly abutting joints and seams, covered with Glasfab glass cloth and two coats of black asphalt mastic. Provide additional weatherproof 0.016" aluminum jacket over the insulation mastic on all exterior-piping areas.

5. ELECTRIC HEAT TAPE

- a. Thermostatically-controlled, self-regulating, 6 watts per foot, 115-volt.
- b. Required on all exposed cooling tower supply and make-up piping which is normally filled with water when the tower basin is filled and the tower pump is not operating.

C. EXECUTION

1. The Architect shall specify the Contractor perform the following work on the systems noted below in the sequence listed:

- a. Refrigerant Piping Testing and Charging Sequence:
 - 1) Pressure-test at 350 psig and check for leaks with leak detector.
 - 2) Then purge system and evacuate to 250 microns.
 - 3) Then vacuum shall be broken with dry nitrogen.
 - 4) Then purge and evacuate to 100 microns.
 - 5) Then charge system to unit manufacturer's recommendations.
- b. Condensate Drain Piping:
 - 1) Pitch minimum 1/8" per foot in direction of flow.

- 2) Provide outlet on outflow sides of traps.
 - 3) Provide necessary piping supports.
 - 4) Route interior piping to a floor drain or nearest storm system drainage; do not tie directly into sanitary system vents or waste piping.
 - 5) Route rooftop and other exterior piping a distance of 12" beyond traps away from units; provide pre-cast concrete splash blocks beneath each outlet to dissipate and direct condensate to the roof system.
- c. HVAC Water Piping:
- 1) Install horizontal sections dead level.
 - 2) Run-outs shall be graded in manners to prevent formation of air traps of entrained air.
 - 3) Install air vents at ends of mains in locations per Drawings.
- d. Electric Heat Tape: Installed on required piping prior to pipe insulation.
2. CHEMICAL TREATMENT
- a. Hydronic Systems shall not be filled and pumps operated until hydronic systems have been cleaned and treated.
 - b. Chemical treatment will be I-89 School District specified and district prime vendor water treatment Contractor-installed. Under no circumstance shall the General or Mechanical Contractor install any chemical treatment or system cleaning materials into the HVAC systems. With coordination by the general contractor, Architect and Mechanical Design Professional with notice to the designated I-89 School District maintenance personnel at the appropriate time to introduce required chemical treatment into the HVAC systems.
 - c. Specify District Water Treatment Contractor shall clean HVAC piping systems with coordination by the general contractor, Architect and Mechanical Design Professional with notice to the designated I-89 School District maintenance personnel at the appropriate time to introduce required chemical treatment into the HVAC systems.
 - d. Specify the flushing of the HVAC piping shall be witnessed by the Architect and/or Mechanical Design Professional and the District Director of Maintenance.
 - e. Provide a "filtered feeder" for introduction of chemicals into the system.

A. GENERAL

1. MECHANICAL DESIGN

- a. Consult with OCMAS Program Manager, I-89 School District and Program Consultant regarding proposed uses of boiler systems prior to initiating design.
- b. All electrical conduit shall be routed through interior or exterior walls and through ceilings to penetrate roof at appropriate locations. Installation of conduit onto exterior (exposed) surface of outside perimeter walls (except hidden surface of parapet walls) is prohibited. (Exception: Rigid (threaded) conduit may be located on perimeter walls where practical or required.).

2. LOCATIONS OF POSSIBLE USE

- a. Retrofit to roof top units is preferred.
- b. Large multi-story buildings where rooftop or split system retrofits pose an application difficulty.
- c. Add water source heat pumps at unit ventilation system locations if possible. Water source heat pumps on existing 2-pipe system with a cooling tower in place of chiller(s) and ground loops and a backup boiler are more maintainable where the system will be used as primary source of supplemental loop heat and air conditioning with ground source loop systems, if possible.
- d. Boiler/Chiller systems may be selected for large multi-building campuses where a central physical plant provides heating and chilled water to either the existing or replacement unit ventilators and future master plan buildings.

B. PRODUCTS

1. Acceptable Manufacturers: Raypak, Teledyne, Lars, Kewanee, Cleaver Brooks, PVI or equal; use one manufacturer throughout project.
2. High efficiency boilers must have full operation & maintenance training. Manufacture shall approve boiler & Building Automation System sequence of operation as part of submittal process.
3. Approved by AGA and ASME, inspected and stamped for applicable working pressure.
4. Sectional boiler controls shall be 2-stage (high and low) firing.

C. EXECUTION

1. Mechanical Engineer shall verify conditions affecting boiler installations, including but not limited to Building Automation System sequence of operation as part of the submittal process. In situations of low heating water temperature associated with boiler failure(s) in buildings that require heating water to prevent condensation in inappropriate locations, I.E. V.A.V boxes and un-insulated piping, Control systems should prevent the operation of chilled water system when heating water temperature are below the dew point.
2. Mechanical Engineer shall field-verify conditions affecting installations and code-required access to electrical items which may be located in the same space.
3. Locate, position, and orient boilers to enable access to all maintenance components of the boilers and valving serving the boilers and ideally locate to facilitate future removal and replacement as single units without affecting adjacent construction.

A. GENERAL

1. MECHANICAL DESIGN

- a. All Mechanical Rooms containing any water pipes; provide wall-mount thermostat to operate heaters whenever room temperature falls below 40° F.
- b. Engineering Drawings shall show heater locations, mounting heights, orientation positioning, mounting details (securing to structure), and any other pertinent items.
- c. Unit heaters shall not be installed above hard wood floors or any surface that may be damaged if heat exchanger condensation is produced. A method of preventing condensation damage may be presented by the Mechanical Engineer.

B. PRODUCTS

1. ACCEPTABLE MANUFACTURERS

- a. Reznor, Trane, Sterling, or Carrier; use one manufacturer for all units on project.

2. UNIT CHARACTERISTICS

- a. Casings: Heavy-gauge steel panels. Baked enamel finish outer casing; colors selected by Program Consultant from manufacturer's standard colors.
- b. Louvers: Manually adjustable horizontal-type to direct airflow.
- c. Outer casing shall contain a heat exchanger, burners, and gravity vent with draft diverter, propeller fan, and operating controls.
- d. Heat Exchanger: Heavy-gauge aluminized steel with integral draft diverter; burners shall be stamped aluminized steel or stainless steel.
- e. Fan: Propeller type, enclosed by fan guard, with totally enclosed fan motor.
- f. Gas Operation: Provide unit with automatic gas valve, spark-ignited intermittent safety pilot with electronic flame supervision, high-limit switch, 24-volt control transformer, gas pressure regulator for 1/2 p.s.i (14" w.c.) inlet pressure, and manual gas valve.
- g. Wire Guards: Latched, galvanized expanded metal type on all units in Physical Education Rooms to prevent damage from projectiles to unit components.
- h. Thermostatic control shall be provided as part of the building automation system.

C. EXECUTION

1. Specify Contractor shall field-test all heaters for proper operation; adjust all controls, louvers, ventilation interfacing, and other system components as necessary.

A. GENERAL

1. MECHANICAL DESIGN
 - a. Typical Location: Entry vestibules.
 - b. All electric heaters to be controlled by the building automation system. Permissive on a seasonal and time of day B.A.S. program.
 - c. Reflected Ceiling Plans shall show all radiant-panel-type and unit-heater-type ceiling heaters.
 - d. Cabinet Heaters shall be accessible for maintenance.

B. PRODUCTS

1. ELECTRIC UNIT HEATERS
 - a. UL labeled, manufactured by "Chromolox", or equal.
 - b. Ceiling-mounted heaters: Heavy-gauge steel with propeller type fan, permanently-lubricated motor, sheathed fintube heating element, adjustable discharge louvers, automatic reset high limit, control transformer, built-in contactor, thermostat, and disconnect switch.
 - c. Wall-mounted heaters: Fully recessed types preferred; coordinate with wall construction to maintain fire-rating integrity.
2. Electric duct heaters are prohibited.
3. Radiant panel ceiling heaters are prohibited.

C. EXECUTION

1. Specify all wall-mounted heaters shall be installed plumb and level with front trim snug to finished wall construction.
2. Specify all ceiling-mounted heaters shall be set level with uniform snug fit around all sides of ceiling trim.
3. Specify Contractor to field-test all heaters for proper operation; adjust controls, louvers, and other components as necessary.

A. GENERAL

1. MECHANICAL DESIGN
 - a. Secure OCMAPS Program Manager and District approval of proposed systems and manufacturers prior to initiating design.
 - b. Locations and sizes of specified units coordinated with Mechanical Drawings and shown to scale on Architectural and Structural Drawings.
 - c. Structural Drawings shall show all necessary framing and supports for specified units.

B. PRODUCTS

1. ACCEPTABLE MANUFACTURERS
 - a. Aaron, Carrier, Climate Master, GovernAir, Mammoth, or Trane, subject to compliance with all criteria.
 - b. Mechanical Equipment manufacturer shall have a proven successful five (5) year record with the specified unit manufacturer.
 - c. Use one (1) manufacturer pair (units and controls) throughout Project.
2. UNIT DESCRIPTION
 - a. Unit shall consist of an internally insulated casing with cooling coil, drain pan assembly, centrifugal fan, motor and filters.
3. UNIT CONSTRUCTION
 - a. Coil: Direct expansion type, dual circuit with thermal expansion valve for each refrigerant circuit. Aluminum fin, mechanically bonded to seamless copper tubing or heating water & chilled water or a coil size for the cooling application in the case of 2-pipe hydronic systems.
 - b. Casing: Heavy-gauge steel, galvanized or phosphatized, internally insulated with 1" fireproof glass fiber. Provide access panels to all internal parts. Mount on vibration isolators.
 - c. Drain Pan: Welded galvanized steel, insulated, and provided with a threaded pipe connection.
 - d. Fan: Forward-curved centrifugal type with adjustable V-belt drive, motor and motor starter.
 - e. Filters: Farr 30-30 or bag filters with throw away type pre-filters selected by indoor air quality requirements and outside air intake location/ air quality.

C. EXECUTION

1. Require Contractor to test and balance water coil flow to required g.p.m. adjust damper linkages, clean unit of foreign materials, perform required lubrication and install clean filters.
2. Specify unit manufacturer's authorized service representative shall:
 - a. Inspect general installation and field assembly of all components, including piping, ductwork, electrical connections motor load, at CHWS & CHWR and controls.
 - b. Submit written report of findings/acceptance/corrective actions to the Architect, the Contractor, the OCMAPS Program Manager and the Program Consultant.
 - c. Oversee all central station AHU unit start-ups.
 - d. Conduct instruction to designated School District personnel just prior to project Final Acceptance.
3. Specify Contractor to coordinate all testing and balancing.
4. Specify air-handling equipment shall be able to be electronically controlled by the School District building automation system.
5. Notice: Require Contractor to provide "Equipment Starts Automatically" warning signage at all applicable B.A.S controlled air handling and mechanical equipment.

A. GENERAL

1. MECHANICAL DESIGN

- a. Secure OCMAPS Program Manager, I-89 School District and Program Consultant approval of proposed mechanical systems and manufacturers prior to initiating design.

B. PRODUCTS

1. ACCEPTABLE MANUFACTURERS

- a. Carrier, First Company, McQuay Climate Master or Trane, subject to compliance with all criteria. Use one manufacturer throughout project.

2. UNIT DESCRIPTION

- a. Unit shall consist of direct expansion or chilled water and heating water coils and condensate drain pan, direct-drive fan, and filter; all contained in a steel cabinet with baked enamel finish.

3. UNIT CONSTRUCTION

- a. Coil: Direct expansion type, with refrigerant metering device. Aluminum fins mechanically bonded to seamless copper or aluminum tubing or a two or four pipe hydronic coil set.
- b. Fan: Forward-curved centrifugal type with multi-speed direct drive permanently lubricated motor, and Siemens B.A.S. fan relay.
- c. Filters: 1" thick throwaway type or as specified by manufacturer.

C. EXECUTION

1. Specify Contractor to perform required adjustments and lubrication, clean units of foreign materials and install clean filters.

2. Require unit manufacturer's authorized service representative and Siemens B.A.S. Contractor to:

- a. Inspect general installation and field assembly of all components, including piping, ductwork, electrical connections, and controls.
- b. Submit written report of findings/acceptance/corrective actions to the Architect and/or Mechanical Design Professional.
- c. Oversee unit start-ups and pre-operational commissioning.
- d. Conduct unit instruction to designated I-89 School District maintenance personnel prior to project Final Acceptance.

3. Specify Contractor to coordinate testing and balancing.

A. GENERAL

1. MECHANICAL DESIGN

- a. Drawings shall show all details, attachments and supports, mounting heights, required adjacent 24" wide horizontal stainless steel surround, and interfacing with all other related work.
- b. Bottom of hood level, mounted at 6'-6" A.F.F.
- c. Coordinate hood size and related work with Food Service Equipment designed by Kitchen Consultant. Hood size shall provide the code required overlap of the cooking equipment, but not less than 12" all around.
- d. Coordinate fan systems with heating, ventilation and air conditioning (HVAC) system air quantity requirements
- e. Coordinate fire suppression system, shut-down systems, roof curbs, flashing, exhaust fans, and all other related work with the designs of respective Engineers.

B. PRODUCTS

1. SYSTEM CRITERIA

- a. Prefabricated, consisting of a double-island canopy, grease filters, supply and exhaust fans, supports, and fire suppression system.
- b. Shall comply with all applicable NFPA-90 & NFPA-96 criteria, be UL listed and labeled, and bear the National Sanitation Foundation seal of approval.
- c. Acceptable manufacturers are Greasemaster, Seco, Cambridge, Delfield, Gaylor and Savonair contingent upon compliance with all criteria.

2. CANOPY

- a. Stainless steel with #4 finish, or aluminized steel with eggshell white epoxy finish.
- b. Liquid-tight assembly at all joints and seams.
- c. Exposed-to-view welds ground smooth, and polished prior to finishing.
- d. Concealed surfaces and construction minimum 18-gauge galvanized steel.
- e. Front and bottom edge faces shall have extruded aluminum dampers and registers to distribute make-up air into the canopy; filters shall be aluminum mesh.
- f. Vapor-proof marine lights installed inside canopy.
- g. Galvanized steel filter housing with grease cups and aluminum filters the full periphery length of the hood.

3. EXHAUST FAN UNIT

- a. Up-blast type power roof ventilator with spun aluminum housing and ½" mesh bird screen.
- b. V-belt drive aluminum fan wheel with permanently lubricated motor located out of the air stream. Provide disconnect switch.

4. SUPPLY FAN UNIT

- a. Shall supply approximately 80% of exhaust air requirement; Architect to specify size and capacity; subject to Code requirements.
- b. Forward curved centrifugal blower with adjustable V-belt drive.
- c. Permanently lubricated motor.
- d. Galvanized steel housing with baked enamel finish, and 1" thick internal fiberglass insulation.
- e. Make-up air filters: 1" thick aluminum mesh washable type.
- f. Make-up air inlet protected with weather hood and bird screen.
- g. Provide magnetic motor starters for exhaust and supply fans.
- h. Switches: Mounted in remote panel on hood faces. One (1) switch shall simultaneously operate supply and exhaust fans; separate switch shall operate vapor-proof lights.

5. DUCTWORK

- a. Supply ducts: Minimum 18-gauge galvanized steel.

- b. Exhaust ducts: Minimum 16-gauge black-welded steel with welded joints and clean-outs.
- 6. FIRE SUPPRESSION SYSTEM
 - a. Automatic dry-chemical type (potassium carbonate/potassium acetate based designed for flame knockdown and securement of grease-related fires) system by Ansul, or equal, meeting UL requirements.
 - b. Include one mechanically operated emergency shut-off valve (this in addition to the electrically operated automatic shut-off system for the gas-fired equipment) in the gas main piping which serves the equipment located beneath the hood.
 - c. Galvanized steel exposed piping for surface protection nozzles.
 - d. Provide UL Listed electric snap-action switch (shunt-trip breakers) to shut-off power to all equipment beneath the hood.

C. EXECUTION

- 1. Require Contractor to install complete range hood assembly and systems in accordance with UL Listing, NFPA-96, governing codes, and Health Department regulations, and manufacturer's instruction manual.
- 2. Specify Contractor to field-test installed assembly and systems to verify their proper operation.
- 3. Specify the test and balance agency shall test for required supply and exhaust air quantities; including data in written report. Variances to criteria shall be corrected by the Contractor, then retested to verify compliance.

A. GENERAL

1. MECHANICAL DESIGN

- a. The Contractor will provide from an Independent agency, either AABC or NEBB certified, that specializes in, and whose business is limited to, the testing and balancing (T&B) of heating, ventilation and air condition (HVAC) systems to perform these services for the project.
- b. The Architect shall clearly identify all necessary test and balance criteria for the HVAC systems in the Construction Documents.
- c. At least two weeks prior to the scheduled testing and balancing of the system, the Architect shall furnish the T&B Agency the following:
 - 1) One (1) up-to-date set of Drawings, Specifications, and Addenda.
 - 2) One (1) set of transparencies of the Architect-approved HVAC system shop drawings, noting as-built ductwork, plus one set of related product data submittals (e.g. diffusers, controls, control diagrams, etc.).

B. PRODUCTS

1. Instruments used for testing and balancing of air and hydronic systems shall have been calibrated within six (6) months prior to balancing. Submit letter of certification listing instrumentation used and latest date of calibration; include one (1) copy in each submitted report.

C. EXECUTION

1. Specify Contractor to perform the following procedures:
 - a. Testing and balancing shall be performed in complete accordance with AABC Standards for Field Measurement and Instrumentation Form No. 81266, Volume One, published by the Associated Air Balance Council.
 - b. Just prior to official testing and balancing, the Contractor shall:
 - 1) Install new filter media throughout system.
 - 2) Lubricate all motors and bearings.
 - 3) Verify proper fan belt tensions.
 - 4) Verify proper fan rotation, variable speed drive control and building automation system control.
 - 5) Verify that all dampers (both fire and volume types) are in their correct and appropriate B.A.S controlled or locked positions.
 - 6) Place outlet dampers in their normal B.A.S. controlled operating positions. The B.A.S. contractor should work with the test and balance contractor to verify and calibrate equipment operation.
 - 7) Verify hook-up of all control system components.
 - 8) Review the information given to the T&B Agency by the Architect for correctness and known as-built conditions.
 - c. The T&B Agency shall:
 - 1) Test for air quantities compared to Drawings and Specifications.
 - 2) Retest, adjust, and balance systems subsequent to significant system modifications; re-record test results.
 - 3) Test for noise levels and vibration.
 - 4) Record all data; submit three copies of report to Architect for review along with recommendations for correcting unsatisfactory items which cannot be successfully balanced.

A. GENERAL

1. ELECTRICAL DESIGN
 - a. The Architect shall not assume the duties of an electrical engineer.
 - b. Design of all electrical systems and construction contract administration (with field reports) shall be performed by qualified Oklahoma-licensed electrical engineers who have experience in the specific respective disciplines of electrical engineering required for the project.
 - c. Stamps and signatures required on electrical engineering drawings and the cover of the Specifications Project Manual.
 - d. Design as required for Seismic Zone criteria.
2. DRAWING NOTATIONS
 - a. Show designated alpha/numeric column grid, space names, and space numbers on all Plan Drawings.
 - b. Design for compatible economical addition to existing systems. Plan for future expansion of the school with minimal retrofit. Research existing systems to see if they must be replaced to meet code or if replacement is feasible due to age or possible damage due to replacement before adding the new.
 - c. All utility consuming devices and systems in all buildings shall be controlled by the primary Building Automation System (BAS) located in the OCPSD Energy Management Office.
 - d. A lighting control system shall be installed in all OCPSD Buildings. The electrical engineer shall consider using three (3) lamp fixtures with electronic ballasts in most classrooms, offices and other occupancies. Alto TL-35, 3500K lamps shall be used as the "or equal" benchmark. Room occupancy sensors shall be linked to the BAS occupancy for reset of "On Time Duration" based on time of day occupancy program scheduling. Watt Stopper Dt-200, CL-12, CL24 Sensors and/or comparable products shall be used as "or equal" benchmark.
 - e. Lighting retrofits shall be considered at each project. The electrical engineer shall consider two (2) T-8 light fixtures with three (3) tube electronic ballasts in most classrooms, offices and other occupancies. Alto TL-80, 3500K lamps shall be used as the "or equal" benchmark. GE and Sylvania may be included in the "PRODUCT" section however the Specification should mandate that the use of fluorescent tubes be site dumpster disposable. Fluorescent lamps used shall be low-mercury, TCLP compliant.
3. LOW-VOLTAGE WIRING
 - a. All low-voltage wiring run above ceilings shall be plenum-rated, not in conduit, strung to avoid contact with the ceiling system components, light fixtures, HVAC equipment, and similar above-ceiling items, installed with approved hangers; low-voltage wiring may include, but not necessarily be limited to, the following systems:
 - 1) Each low voltage system shall be neatly grouped, fastened and tagged to facilitate identification of each conductor system for maintenance. Conductors shall be supported from the structure and not laid on the ceiling grids below.
 - 2) HVAC controls and Energy Management System
 - 3) Speakers and intercoms
 - 4) CATV
 - 5) Security
 - 6) Magnetic door hold-open devices
4. Provide for appropriately sized system boxes and conduit, set within the wall construction to the greatest extent possible; provide bushed-end conduit terminations (projecting 6" from wall construction) above the ceiling.
5. For those systems identified above as I-89 School District installed, provide pull strings within the respective conduit and box.
6. Identify plan locations for properly sized sleeves through all walls, which run to the underside of decking for the logical passage of all low-volt wiring systems. Specify the subsequent fire-

- rated treatment to be provided for all sleeved wiring through rated wall construction.
7. Main switchgear shall have 20% spare capacity and branch panels shall have 20% spare spaces as a minimum. The Electrical Engineer shall consider spare load capacity in the design of the Main switchgear and branch panels to allow for the required spare capacity included in each panel.
 8. Particular attention is directed to the design coordination of Electrical requirements for Mechanical system items.
 - a. No mechanical equipment, piping, or ductwork shall be located within 42" of electrical switchboards and/or panelboards.
 - b. No water piping (domestic, storm, sanitary, sprinkler, etc.) shall be located above electrical switchboards and/or panelboards. If the governing code officials require sprinklers, then shields must be provided over the panels.
 - c. All above-ceiling items shall be located such to minimize necessary ceiling system component removal to attain access for maintenance and/or replacement.
 9. The Architect and Engineer shall contact all appropriate utility agencies, power, telephone, cable television (CATV), to determine the locations, availability, and loads of services and utility regulations/requirements for the project. Document all information in writing and transmit copies to the OCMAPS Program Manager and the Program Consultant. Engineer is also responsible for contacting and coordinating with appropriate utility agency related to its design responsibility.
 10. **FIELD TESTS**
 - a. All applicable equipment shall be field tested for proper and rated performance in the presence of the designated inspection(s).
 11. **INSTRUCTIONS**
 - a. The designated I-89 School District personnel shall be instructed on the proper operation and maintenance of the equipment or system.
 12. **WARRANTIES**
 - a. All guarantees commence on project date of final acceptance.
 - b. All guarantees fully cover the costs of materials and labor (M & L) for repair and/or replacement within the guarantee period.
 - c. All equipment and workmanship guaranteed for at least one (1) year M & L.
 13. **RECORD DRAWINGS**
 - a. The Contractor shall be required to maintain a set of Record Drawings on-site on a daily basis, reflecting accurate dimensional record of all underground, buried, or otherwise concealed work.
 - b. The Architect shall be required to certify on the Architect's Pay Application that the Contractor is maintaining these Record Documents up-to-date.
 14. **CONTRACT CLOSE-OUT**
 - a. The Architect shall see to it that the Contractor fully complies with all Close-out criteria prior to certifying for final payment to the Contractor. Attention is further directed to the responsibilities of the Architect outlined for Close-out. See synopsis list below:
 - 1) Architect who shall incorporate the information onto sets of as-built record drawings to be transmitted to the OCMAPS Program Manager prior to final payment to the Architect.
 - 2) Operations and Maintenance Manuals.
 15. **KEYS**
 - a. Contractor to get signed receipt from I-89 School District. Include for all switchboards, panelboards, control devices, etc.
 16. **UTILITIES**
 - a. Contractor shall be responsible for obtaining meter readings for utilities on the Final Acceptance Date prior to utility turn-over to the OCMAPS Trust.
 17. **ELECTRICAL SYSTEMS NOTES**
 - a. Architect shall incorporate the following "ELECTRICAL SYSTEM NOTES" (edited to

- suit the conditions and systems for the specific project,) within the Electrical Drawings for project.
- b. All interior and exterior wall-mounted devices and lights shall be set plumb, level, and square. All device trim and/or finished covers shall be set snug to wall surfaces on all sides. All exterior items shall be neatly sealed against water infiltration.
 - c. The minimum size switch, receptacle, and other type device plate shall be "JUMBO" size plates shall be used at all masonry and concrete conditions. All switch, receptacle, phone jack, data cable, CATV, blanks, and other type device plates shall be of the same finish and same size type throughout the project.
 - d. No electrical devices in fire-rated or other partitions shall be placed back-to-back where devices serve opposite sides of the common partition; devices in fire-rated partitions shall be offset a minimum of 6" from adjacent edges.
 - e. All panelboard designation labels shall be black (or red per criteria) bakelite with integral white etched-in caricatures of minimum 3/8" size. All panelboard directories shall be neatly typed and orderly showing the circuit breaker layout in the panelboard. All "SPARES" shall be legibly identified and neatly typed. All circuit breakers shall be identified with the manufacturer's standard printed self-stick tab markers.
 - f. Locate electric water cooler receptacles at heights to be concealed from view, but accessible, by the installed water cooler.
 - g. All equipment shall have concrete pads which shall be set level with their top elevation not less than 3 1/2" above surrounding floor or grade. All corners shall have one-inch chamfered edges, and all exposed-to-view surfaces dressed smooth.
 - h. Contractor shall provide additional required suspended supports to prevent above-ceiling flexible conduit from contacting the ceiling grid, framing, finish material, or tiles.
 - i. Unless specifically dimensionally noted otherwise, all incandescent lights shall be centered within the respective ceiling tiles.
 - j. All ceiling-mounted devices shall be supported from the ceiling framework or grid, not from the ceiling tile or material itself. Specify earthquake clips to fasten each lay in troffer to the ceiling grid in addition to the two (2) diagonal wire supports securely fastened to the structure.
 - k. Each lay-in light fixture shall be additionally supported (in addition to the ceiling grid corner wires) with not less than two (2) galvanized steel jack chains or rods or #10 wire [one (1) at each opposite diagonal corner of each light] secured to the structure above the ceiling.
 - l. Regardless of the quantities and/or locations shown for fire alarm horns and annunciators, it shall be the Engineer's responsibility to locate as many fire horns and supplementary annunciation as needed to achieve a minimum 60 decibel level above ambient noise throughout the project as required by the governing Fire Marshal.
 - m. All vertical conduit and/or supports penetrating through the roof shall be braced to the roof structure high and low to prevent movement, which would jeopardize the roof flashing integrity.
 - n. All conduits penetrating the plane of the roof shall have minimum 1" thick insulation on all portions between the undersides of roof deck and finished ceiling line to reduce potential condensate drips.

A. GENERAL

1. ELECTRICAL DESIGN

- a. Wiring for intercom and fire alarm for detached buildings shall tie back to the corresponding systems in the main building by separate homeruns, not by connecting to nearest horn or pull box.
- b. Intercom and fire alarm stub-outs shall be designed to accommodate possible future portable classrooms. Coordinate locations with the OCMAPS Program Manager, Program Consultant and the I-89 School District.
- c. Ensure that service is provided for all electrical equipment. Such items include:
 - 1) Time clocks.
 - 2) Clothes washer and clothes dryer in Family/Consumer Science.
 - 3) Family/Consumer Science: Range hoods, refrigerators, ranges/ovens, microwave ovens, dishwashers, and sink disposal units.
 - 4) Science Lab: Fume hoods, refrigerators, sterilizing units, etc.
 - 5) Vocational Wing: Paint spray booths, wood shop equipment, power tools, and dust collector system, Cosmetology hair dryers, metal shop equipment tools, and automotive education equipment.
 - 6) Art kilns and ventilators, pottery wheels.
 - 7) Dark room equipment and power for vent fans.
 - 8) Kitchen Serving Line Cash Registers (with isolated grounds) and Data lines.
 - 9) Toilet Electric Hand Dryers [two (2) in each gang toilet].
 - 10) Gymnasium Scoreboards in High Schools football field system wiring and lights.
 - 11) High School Theater: Projection screens.
 - 12) High School basketball backstop winches, seating winches.
 - 13) Kitchen: Ice makers, ice cream machines, milk shake machines, and at least two (2) wall-mounted oscillating vent fans.
 - 14) Administration Area: Copy machines and other office equipment.
 - 15) Media Centers: Color duplicators, printers, copy machines, binders, and other equipment, project screens.
 - 16) Teacher Workrooms: Copy machines, vending machines.
 - 17) High School Locker Rooms: Laundry equipment and whirlpools.
 - 18) Electric physical training equipment.
 - 19) Computer network cabling.
 - 20) Security system.
 - 21) Intercom system.
 - 22) Parking lot lighting.
 - 23) Shunt trip breakers for kitchen equipment.
- d. Secure the I-89 School District's criteria for all NIC items furnished by the I-89 School District and to be connected under the contract. Data shall include voltage, single- or 3-phase, full load amps and any other pertinent information and data sheets by the equipment supplier.

2. CIRCUITRY

- a. Branch circuits shall be 2, 3, or 4 wires run from the panels to all devices. Do not combine one (1) designated homerun with other homeruns. All circuits shall have green insulated ground conductor, sized per National Electric Code and run with circuit conductors.
- b. Lighting shall be on separate circuits from power outlets and other circuits.

B. PRODUCTS

1. WIRE MATERIALS

- a. Copper; #10 AWG and smaller shall be solid, #8 AWG and larger shall be stranded.

- b. Minimum size for 120/208/240-volt and 277/480-volt branch circuits shall be #12AWG. Minimum control wiring #14AWG.
 - c. Use minimum #10AWG for 20 amp branch circuit wiring homeruns exceeding 75' at 120/208-volts or 200' at 277/480-volts.
 - d. Use minimum #10 AWG for 20 amp branch circuit wiring homeruns exceeding 75'.
 - e. Insulation: THHN or THWN.
 - f. Underground service entrance conductors shall be with cross-linked polyethelive jacketed, 600-volt, similar to General Electric Volkene.
2. The use of direct burial cable is prohibited.

C. EXECUTION

1. PREPARATION
 - a. Specify no wires or cables shall be pulled in conduit zones until affected conduit system zone is complete, and free of burrs and/or foreign materials which could damage the conductor insulation material.
2. WIRING
 - a. Specify the Contractor shall follow these procedures:
 - 1) Where a portion of a circuit, feeder or system is interrupted, the existing portions shall be rerouted and reconnected together to maintain the original integrity.
 - 2) Where wiring is relocated from one cabinet to another, the complete circuit and conduit shall be rerouted to the new location, not passed through the original cabinet.
 - 3) Additions and renovations interconnect new work with existing work to adapt systems; match existing where possible.
 - 4) No splices are allowed in panels unless prior written approval on a case-by-case basis from the OCMAPS Program Manager and the Program Consultant is obtained.
 - 5) All wiring through junction boxes shall have a minimum of 6" of slack for future tie-ins; do not pull wire tight-and-straight through boxes. Continuous wire groups through junction boxes shall be wrapped a minimum two (2) complete "hand-loops", tied together with electrical tape, and set in the respective box. Where the opening to an outlet, junction or switch point is less than 8" in any dimension, each conductor shall be long enough to extend at least 3" outside the opening.
 - 6) Splicing of continuous circuit wiring in junction boxes shall be kept to an absolute minimum.
 - 7) All device wiring shall extend a minimum of 6" beyond the face of the device box per National Electric Code criteria.
 - 8) In any place where a circuit is split between two (2) or more conduits, wires of opposite polarity shall be run in each conduit.
 - 9) Conductors shall be continuous between devices, and from devices to pull boxes, junction boxes, and/or panels. No joints or splices permitted in conduits.
 - 10) All feeders to panels and all branch circuit wiring shall be in conduit.
 - 11) All wiring over 12" long within fluorescent fixtures shall be 105° C type THHN or THWN.
3. Color coding shall comply with Section 16195 criteria.

A. GENERAL

1. ELECTRICAL DESIGN
 - a. Show elevation drawing with typical dimensioned device mounting positioning adjacent to door openings for all classrooms, workrooms, and other public areas; show relationships of all adjacent wall-mounted devices, including light switches, call-backs, thermostats, etc.
 - b. Do not locate any single (or gang) device "bridging" differing finish materials, such as part of device on concrete masonry unit (CMU) and part on tile.
2. SWITCHES
 - a. Classroom lights: Switch to operate alternate rows within each classroom.
 - b. Physical Education area lights: One (1) switch for each 1/4 to 1/3 of fixtures equally distributed throughout room. Use key-type switches in High Schools; use regular switches in Elementary Schools.
3. RECEPTACLES (General Criteria)
 - a. Avoid designs with floor receptacles to greatest extent possible.
 - b. No receptacles in student restrooms.
 - c. Provide corridor receptacles every 100 l.f. on their own circuits, not part of circuits for classrooms or other spaces.
 - d. Provide 110-volt/30 amp outlet on dedicated circuit in the largest Janitor Closet for recharging of floor scrubber.
 - e. Exterior outlets shall be GFI type. Provide one (1) duplex-type at Main Entry area, and one duplex-type at Kitchen Service Entry area; provide other exterior outlets around building periphery at 300' intervals. Provide self-closing waterproof covers.
 - f. Use GFI receptacles at all wet areas.
 - g. Provide two (2) duplex receptacles along each Classroom wall; distribute locations equally along periphery.
 - h. Provide a minimum of three (3) circuits for outlets for office equipment in Workrooms and vending equipment in Staff Lounge Areas and Faculty Dining Room; identify dedicated circuit outlets.
 - i. In renovation projects of existing schools where classroom receptacles must be added, use surface mounted non-metallic plugtrac or equal. They may be fed by mounting track over an existing receptacle and using existing homerun, or where no receptacle is available, by using plugtrac riser up into the ceiling. Do not use surface mounted conduit and outlet boxes.
 - j. In classrooms where computers are to be used, use Hobbell combination power and communication basetrac or equal.
4. COMMUNICATION RECEPTACLES:
 - a. Provide box with coverplate and 3/4" minimum conduit to terminate above accessible ceiling with insulated bushing. Some locations will combination voice/data box.
5. DUPLEX-TYPE RECEPTACLES ON COMMON CIRCUITS, COMPUTERS AND NETWORK BOXES AND WIRING
 - a. Coordinate with Section 16710 Data Cabling Systems.
 - b. Network Data Box: 4" L X 4" W X 3" D box and coverplate (box attachments in each corner) with 1" conduit from box, run overhead, turned out above ceiling line, locate adjacent to quad outlet except as noted for Computer Classrooms. In some cases box will house voice jacks also.
 - c. Provide five (5) data outlets in each Classroom plus two (2) at the teacher's station at the TV areas one (1) in each Teacher Workroom, each Pupil Personnel area, each Music Office, each Principal's Office, each Assistant Principal's Office, Food Service Office and at each Administrative Area work station. Provide quad outlet boxes at each data location.
 - d. In designated Computer Classrooms, provide two (2) data and quad outlets on each wall of room. Provide two (2) data and two (2) quad outlets above the ceiling.
 - e. Media Centers:
 - 1) Charging Desks: Two (2) duplex receptacles and data boxes and one (1) common network box.
 - 2) Offices: One (1) duplex receptacle and data box each with one (1) adjacent network box each.

- 3) File Server Area: One (1) duplex receptacle and data box and one (1) network box.
- 4) Workrooms and Production: Two (2) duplex receptacles and data boxes and one (1) network box each.
- f. Elementary School Look-up Stations: Six (6) duplex receptacles and data box and four (4) network boxes.
- g. High School Look-up Stations: Nine (9) duplex receptacles and data boxes and four (4) network boxes.
- h. Main Reading Room: Data connections for ceiling mounted data projector and a data station for its computer.

B. PRODUCTS

- 1. WALL SWITCHES
 - a. Acceptable Manufacturers: Hubbell, Leviton, P & S, or equal; use one (1) manufacturer throughout project.
 - b. Characteristics: nylon, totally enclosed, quiet type, self-grounding, equal to Hobbell #1201.
 - c. Color: Ivory.
- 2. KEY SWITCHES
 - a. Acceptable Manufacturers: Hubbell, Leviton, Square-D, P & S, or equal; use one (1) manufacturer throughout project.
 - b. With red pilot light and overload protection for fractional horsepower motors; Square-D type FSJ-1P or equal.
 - c. Locations: Student gang toilets, corridor lighting, cafeteria, Physical Education areas, operable basketball goals, bleachers and football fields.
 - d. All keyed alike; key alike to existing key switches.
 - e. Provide guards for all Physical Education area switches.
 - f. Specify ceiling mounted occupancy sensors in gang toilets equal to Wattstopper, with override switches.
 - g. Corridor fixtures controlled by BAS system, with local override switches.
- 3. OVERRIDE SWITCHES
 - a. Manufacturers: Arrowhart #1192 with #HH41 key, or equal.
 - b. Location: Main mechanical/electrical room.
 - c. Keyed override shall be wired parallel to the 6-hour timer and the photo control which are in series. Provide minimum one key for each switch.
 - d. Control outside lighting by a 6-hour spring-wound timer without a "hold" feature located in the Administration area. This shall be the school's only means of control for exterior lighting. Primary control shall be by the Energy Management System.
- 4. RECEPTACLES
 - a. Acceptable Manufacturers: Hubbell, Leviton, Pass & Seymour, Arrowhart, Bryant or equal; use one (1) manufacturer throughout project.
 - b. Characteristics: nylon, totally enclosed, 120/277 volt, minimum 20 amp rated, equal to Hobbell #5252.
 - c. Colors:
 - 1) Ivory: General purpose.
 - 2) Orange: Isolated ground, dedicated circuit (e.g. computers).
 - 3) Brown: Other dedicated circuits (e.g. copy machines & vending machines).
- 5. COVERPLATES
 - a. Minimum "jumbo" size (no exceptions).
 - b. Interior Devices: Brushed stainless steel.
 - c. Exterior Devices: Self-closing, die-cast aluminum.
 - d. Provide for appropriate modular multiuse communication / data outlets.

C. EXECUTION

- 1. Specify the Contractor to:
 - a. Grout fill around all boxes in CMU partitions to solidly anchor in place.

- b. Attach devices with screws to their respective outlet boxes, without depending on the device to pull them tight.
 - c. Not position between differing wall materials.
 - d. Offset devices on opposite faces of walls a minimum of 6"; no back-to-back receptacles or other devices are allowed.
 - e. Position all adjacent items of same size shall be aligned.
2. SWITCHES
- a. Specify the Contractor to install switches as follows:
 - 1) Mounted vertically; one-way, single pole single throw, switches shall have "ON" position up.
 - 2) Mount at 48" A.F.F. (Architect verify with Adult ADA criteria) to bottom of switch box (box bottom at top of sixth CMU course).
 - 3) Switches operate using dual-level switching within each classroom.
 - 4) Install receptacle switches connected in the phase conductor of the circuit and control only the outlets indicated.
 - 5) Require the Contractor shall turnover all keys for outside lighting overrides to the OCMAPS Program Manager; no keys shall be given to any local school personnel.
 - 6) All light switches in corridors shall be key-type.
3. RECEPTACLE
- a. Specify the Contractor to install receptacles as follows:
 - 1) General Mounting: Vertically, ground hole down, bottoms of outlet boxes at 16" A.F.F., set on top of second CMU course. All adjacent items aligned.
 - 2) Horizontal Mounting: All outlets above countertops; locate bottom of box at first CMU course line above top of splash. All adjacent items aligned.
 - 3) Grounding: Green ground wire connected from the ground lug on the receptacle to a screw in the back of the outlet box or with an approved grounding strap.
4. COVERPLATES
- a. Specify the Contractor install coverplates as follows:
 - 1) Required for all devices and all blank outlet boxes.
 - 2) Install with matching screws, snug to finished surface on all sides.
 - 3) Install plumb and level. Adjust device and/or box as required.
5. Electrical Engineer shall field-verify accomplishment of all criteria (e.g. switch functions, receptacle functions, installation of required pull strings, proper grounding, etc.).

A. GENERAL

1. ELECTRICAL DESIGN
 - a. Verify mounting height schedule compliance with governing handicap codes and stipulate heights accordingly.
 - b. Show elevation drawing with typical dimensioned device mounting positioning adjacent to door openings for all classrooms, workrooms, and other public areas; show relationships of all adjacent wall-mounted devices, including light switches, call-backs, thermostats, etc.
 - c. Dimensionally locate all wall-mounted exterior devices on the Architectural elevation drawings.
2. MOUNTING HEIGHT SCHEDULE
 - a. The following schedule is developed to assist in the locations of interior wall-mounted devices in conjunction with the standard vertical coursing of concrete masonry units.
 - b. The Architect shall obtain specific direction from the Program Consultant on all device height locations for conditions not utilizing standard masonry coursing above floor lines (e.g. sloping Auditorium floors and ramps).
 - c. The Architect shall design the device locations for ease of masonry cutting and to minimize masonry shelling and other slivering which could result in eventual fracture of the masonry.
 - d. Mounting heights for exterior devices shall consider the coursing of exterior masonry and proper balance of device function with the design esthetics of proposed exterior finish materials.
 - e. Schedule below gives mounting heights A.F.F. to bottom of device:

1)	Light Switches	48"	(4'-0")
2)	General Receptacles	16"	(1'-4")
3)	Telephone Receptacles	16"	(1'-4")
4)	TV Receptacles	56"	(4'-8")
5)	Computer Network Boxes	16"	(1'-4")
6)	Thermostats	64"	(5'-4")
7)	Intercom Call Backs	48"	(4'-0")
8)	Fire Alarm Pull Boxes	48"	(4'-0")
9)	Fire Alarm Horns	92"	(7'-8")
10)	Clocks	88"	(7'-4")
11)	Program Bells	92"	(7'-8")
 - f. Schedule below gives mounting heights A.F.F. to top of device:

1)	Hand Dryers (Elem. Schools)	36"	(3'-0")
2)	Hand Dryers (H.S.)	48"	(4'-0")
3)	Panelboards	78"	(6'-6")
4)	Safety Switches	72"	(6'-0")
5)	Motor Starters	72"	(6'-0")

A. GENERAL

1. Properly label all equipment (e.g. disconnects, starters, motor control center, panel boards, panels, annunciation panels, intercoms, etc.).
2. Identify specific items of equipment requiring precautionary labeling; include designs and specific labeling copy for all such items required to be provided in the Contract.
3. Provide branch panel and circuit number designation at each receptacle, starter, etc. from which it is fed. Identification can be by plasticized tape with raised lettering.

B. PRODUCTS

1. NAMEPLATES
 - a. 3/8" tall engraved letters/numbers; Helvetica medium style.
 - b. Black finish with white copy: 120-volt, 220-volt, and 208-volt panels.
 - c. Red finish with white copy: 277-volt, 480-volt and higher panels.
 - d. Locate on outside where easily visible without having to open equipment or remove any access panels.
2. PANEL DIRECTORIES
 - a. All functioning circuits properly identified and typewritten.
 - b. All spares identified and typewritten.
 - c. Spaces numbered sequentially, vertically, from top to bottom, and started on left side.
 - d. Provide on inside of every panel front cover in stenciled black 1" letters the following:
 - 1) Panel feeder size.
 - 2) Distribution panel and circuit number from which it is fed, including circuit breaker or fuse size.
3. COLOR CODING
 - a. All conductors up to and including #8 AWG shall be color coded to indicate voltage and phase.
 - b. All conductors from #6 and up shall be color coded with tape within 2" of each end to indicate voltage and phase.
 - c. Color schedule:

			<u>120/208</u>	<u>277/480</u>
1)	Phase A	-	Black	Brown
2)	Phase B	-	Red	Orange
3)	Phase C	-	Blue	Yellow
4)	Neutral	-	White	Grey
5)	Ground	-	Green	Green
4. Provide on inside cover of each motor starter or disconnect (other than in motor control centers) stenciled in black 1" high letters, the distribution panel and circuit number source including breaker or fuse size.

C. EXECUTION

1. Specify all nameplates shall be mechanically secured to the respective item of equipment by suitable pop rivets; double-stick adhesive tape/foam is prohibited. Nameplates shall be mounted plumb and level.
2. Electrical Engineer shall field verify correctness of all panel board labels and directories.

A. GENERAL

1. ELECTRICAL DESIGN

- a. Coordinate locations for required maintenance access clearances with related items of construction and/or I-89 School District supplied items; this is particularly important if panelboards are proposed to be located in areas other than designated electrical closets.
- b. Draw dimensioned interior elevations and details of all panelboards located in public areas and general staff work areas; panelboards in such areas should ideally be flush-mounted types.
- c. Tops of all panelboards shall not exceed 6'-6" A.F.F.
- d. Electrical panels for Food Service Equipment shall be directly accessible from the Kitchen.
- e. Do not mix surface-mounted with flush-mounted panelboards in the same spaces subject to public view. Double-width panelboards shall have matching trim with both cabinets and doors of the same size.
- f. Coordinate plumbing piping not to be within 42" of panelboards.
- g. All flush-mounted panelboards shall be provided with an additional three (3) 3/4" empty conduits with pull strings from the panelboard, up inside the wall, and elbowed out above the ceiling line.
- h. Plans shall identify panels and circuit sources; show panelboard schedules with corresponding identification. Particular attention to power criteria for Kitchen Equipment and Mechanical Equipment items.
- i. Keep lighting and power items on different circuits.
- j. Do not combine 3-phase circuits with 110/220 single-phase circuits in same panelboard; provide additional separate panelboards for 480-volt, 277-volt, and 208-volt 3-phase items. No circuits of voltages differing from Main Panel Voltage are permitted, except for control power if necessary for a contactor located in the same enclosure.
- k. All panelboards shall have a protective hood in sprinkled areas.
- l. Do not install panels in hallways. Locate in electrical closets.
- m. Computer circuits shall be fed separately from electronic grade panels with built in TVSS protection, similar and equal to those of current technology. Computer circuits shall not share neutrals.
- n. No load center type panels are acceptable.

B. PRODUCTS

1. PANELBOARDS

- a. Acceptable Manufacturers: General Electric Company, ITE Gould, Square-D Company, Westinghouse Electric Corporation, Siemens, Incorporated, or equal.
- b. Mounting: Flush- or surface-mounted.
- c. Type: NEMA-1, except NEMA-3R where located in Kitchen and/or other areas subject to wetting.
- d. Capacity:
 - 1) Spaces: Minimum 120% of present project requirements.
 - 2) Load: Main Breaker and feeder conductors sized to accommodate present project load plus minimum of 20% additional future load increase.
- e. Integral clear plastic pocket for insertion of manufacturer's panel directory on inside of panel door.
- f. Lift-latch door handle with integral keyed lock.
- g. Manufacturer's standard grey color on all exposed-to-view areas.

2. CIRCUIT BREAKERS
 - a. Same manufacturer as panelboard.
 - b. Bolt-in type.
 - c. 220/240-volt breakers and 3-phase breakers shall be bonded to disconnect all ungrounded conductors simultaneously by one individual breaker toggle switch for the circuit.
 - d. Ground Fault Interrupter types required for:
 - 1) All exterior receptacles and lights.
 - 2) All Janitor Closet, Toilet, Kitchen, and Mechanical area receptacles.
 - e. All unused spaces blanked-off with appropriate blanks.
3. IDENTIFICATION
 - a. Sequentially vertically numbered. Panel buses shall be numbered and circuit numbers shall correspond to panel space numbers.
 - b. Engraved labels mechanically attached to outside of panelboard door.
 - c. Typed directories with typed "spares" set under clear plastic in slotted directory support inside panelboard door.
 - d. Identify circuits with factory peel-off stick-on legible numerical tabs.
 - e. Provide stenciled information in each panel as specified in Section 16195.

C. EXECUTION

1. Specify the Contractor to install panelboards plumb and level at required elevations, secure to wall construction with tops of all panelboards within the same space at the same elevation.
2. Require perimeter frames of flush-mounted panelboards shall be set snug to wall construction on all sides.
3. Do not allow feed-thru branch circuits in panels.
4. Do not allow branch circuit splices.
5. All panelboards for the project shall be keyed alike; key to match existing panelboards at additions to existing facilities. Require two (2) keys per panelboard, turned-over to designated I-89 School District personnel at project closeout.
6. Specify the Contractor provide typewritten panelboard directories identifying items served by correspondingly labeled breakers. All panelboard spares shall be noted in type on each directory.
7. Electrical Engineer shall field-verify correctness of all panelboard labels and directories.

A. GENERAL

1. ELECTRICAL DESIGN
 - a. Show locations of all disconnects on electrical plans.
 - b. Coordinate disconnects locations to achieve required code clearances and avoid interference with adjacent construction.
 - c. Engineer shall obtain approval from governing code officials for disconnect locations and types during design phase and the pre-bid permit review process of the Contract Documents.
 - d. Safety/disconnect switches shall be required for all gas and/or electric equipment within 6' of item or within reach of item being served. A cord-and-plug on single-phase 110/220-volt items will be acceptable if acceptable to governing code officials. Special attention is directed to Kitchen Equipment and Mechanical Equipment items; disconnects should be external and not a factory part of the equipment item.
 - e. Required for all equipment of 2 KVA power or higher within 6' of equipment and shall contain a can bond lug with marked bond wire of proper size.
 - f. Disconnects on HVAC units shall have proper working clearance per National Electric Code; locate within reach of the control- or servicing-end of the served unit.
 - g. Shunt-trip breakers required for all Kitchen Equipment Items located under Range Hood.

B. PRODUCTS

1. SAFETY SWITCHES
 - a. Acceptable manufacturers: General Electric, ITE-Gould, Square-D, Westinghouse, or equal; all for project shall be same manufacturer and shall match switchgear choice.
 - b. Heavy duty type with NEMA-1 enclosures, except that NEMA-3R watertight enclosures used for exterior areas, Kitchen areas, and other areas subject to wetting.
 - c. Provide number of poles, wires, and voltage rating for load served.

C. EXECUTION

1. Require the contractor to provide channel support frames for mounting when wall mounting is not available; avoid mounting directly to equipment housing.
2. Provide disconnect for all motors and dry type transformers not adjacent to panel being fed from.
3. Provide duplex 120-volt W.P. receptacle mounted on side of disconnect on any roof-mounted equipment.

A. GENERAL

1. ELECTRICAL DESIGN

- a. Dimensionally locate all soffit lights and all lights not in lay-in ceilings on the Architectural Reflected Ceiling Plans; coordinate with layouts for shelving and mechanical and electrical items.
- b. Dimensionally locate all exterior wall-mounted fixtures on the Architectural Elevation Drawings; coordinate locations with other exterior building features.
- c. Coordinate fixture types and heights with ceiling heights; ceiling types, dimensions and locations of other overhead rough-in and equipment, and other building design features to accomplish required fixture locations and installation/maintenance clearances with related above-ceiling work.
- d. Parking lot lighting fixtures, lamps, and wiring shall be provided in the construction contract.
- e. All supports and restraints to comply with appropriate Seismic Zone criteria.
- f. Lighting plans shall meet foot-candle level and anti-glare ordinances of applicable jurisdiction.
- g. Lighting system shall be capable of being tied to I-89 School District automated Energy Management System (EMS) with minimal retrofit and expense.
- h. In the event of a complete power failure or loss of phase, emergency lights will continue to illuminate.
- i. All lighting panels shall contain only lighting circuits.
- j. Specify vandal-proof fixtures in public/student areas with ceilings 8'-0" or lower, all toilets and restrooms, all Gymnasiums, and all exterior fixtures.
- k. Lay out lights to maximize illumination effect. Particular attention is directed to mechanical equipment spaces and storage areas with fixed shelving.
- l. Fixtures for Gymnasiums, Physical Education areas, Auditoriums, and other high-ceiling areas shall be types that enable changing of the lamps from the floor. Specify the inclusion of one (1) manufacturer-recommended bulb changer for each fixture type in the construction contract.
- m. Avoid use of "High-hat" type fixtures to greatest extent possible.
- n. Coordinate with Architect's Finish Schedules and Reflected Ceiling Plans for appropriate fixture trim; specify accordingly for each fixture.
- o. Include a light fixture schedule on the Final Plans and Specifications; identify fixture type (matching the plan designations), manufacturers/model numbers, voltage, and any special features/notes.
- p. Coordinate with Architect and Kitchen Consultant to assure inclusion of all fixtures associated with Food Service Equipment items.

B. PRODUCTS

1. FLUORESCENT LIGHT FIXTURES

- a. Only use fixture types utilizing 48" 32 watt T8 rapid start lamps. Do not use 2' X 2' fixtures, or those requiring 96", or BLAX, or U shaped lamps.

2. CLASSROOM FIXTURES: 3500K (Kelvin)

- a. Shall meet State D.O.E. Standards of minimum 60-70 footcandle maintained with maximum of 1.5 watts/s.f. energy input. Use lay in type three (3) lamp fixtures with parabolic lenses, nominal 3" deep with non-iridescent silver diffuser.
- b. Specify strip fixtures with hinged wire guards for major interior mechanical and service areas.
- c. Lamps: TL835

3. BALLASTS

- a. Electronic Class A sound, Class P with less than 10% harmonic distortion.

4. DIFFUSERS

- a. 1/8" thick clear prismatic acrylic type; however, parabolic types are preferred. All

- wraparound lenses shall be 1-piece, virgin acrylic, injection molded.
5. INCANDESCENT LIGHT FIXTURES
 - a. Use as vapor-proof lights in Kitchen and Walk-in Cooler/Freezer.
 - b. Use strip fluorescent with wire guards in Janitor closets and small utility areas.
 - c. Avoid use of incandescent lighting (exception in auditoriums / theatrical equipment) by using compact fluorescent (HPF). Where dimming may be desired, use compact fluorescents with Lutron-type dimmer capable of dimming to 1%.
 6. METAL HALIDE LIGHT FIXTURES
 - a. Use 400-watt vandal-proof high bay above 20 ft A.F.F. in all Physical Education areas and Gymnasiums. Fixtures shall have a protective wire cover to prevent damage to lamps. Proposed fixtures should take into account the appropriate lighting levels and light distribution at the court. Confirm each.
 - b. Provide with S-hooks, cords, and plug-in power for replacement ease.
 - c. Provide with suction-type guards.
 - d. Key-switched: Comply with Section 16143 design criteria.
 - e. To be controlled by Building Automation System (BAS)
 7. EXIT LIGHTS
 - a. Metal stencil, red-letter type with appropriate direction arrows, with battery.
 - b. Lamping: LED Style only.
 - c. Exit light circuits to be fed from a central emergency inverter.
 8. EMERGENCY LIGHTS
 - a. Shall operate separately from Exit Light circuits.
 - b. No battery pack type fixtures.
 - c. Emergency lights shall be fed from a central emergency inverter.
 9. EXTERIOR BUILDING FIXTURES
 - a. Vandal-proof type.
 - b. Controlled by photocell plus a 6-hour maximum, no hold, spring-wound timer located in the Administration area that operates a lighting contactor. Contactor and override switch in same location as lighting panel.
 - c. Provide for operation by automated EMS. Emergency lights shall be fed from a central emergency inverter.
 10. PARKING LOT (DRIVEWAY) LIGHT FIXTURES
 - a. Illumination: Maintain minimum footcandles average maintained on paved surfaces, as per Code.
 - b. Metal Halide lamping.
 - c. Controlled with and same as exterior building fixtures, and provided for operation by EMS.
 11. FIXTURE TRIM
 - a. All fixtures in plaster ceilings shall have plaster frames.
 12. LIGHTING CONTROLS
 - a. Occupancy Sensors: All interior lighting shall be controlled by stand alone, adjustable occupancy sensors, passive infrared and ultrasonic technology room controls that are interactive with the Building Automation System and/or the Burglar Alarm System. Override controls for use during audio-visual presentation are required. Exterior lighting shall be controlled by photocells or the BAS.
 13. EMERGENCY POWER SOURCE:
 - a. All emergency lights, exits, FA panel, security, intercom, telephone, walk in cooler/freezer units shall be energized from a central inverter unit that, upon power failure, switches to the battery-powered inverter for air conditioning power. The unit shall be sized 25% larger than the anticipated load. The amount of outage time available can be varied, depending on the number of batteries in the unit.

C. EXECUTION

1. PARKING LOT (DRIVEWAY) LIGHTS
 - a. Specify the Contractor shall coordinate all rough-in for all parking lot (driveway) pole

- lights; coordinate all criteria with the Architect.
 - b. Require 8' length of 3/4" diameter copper ground rod driven into ground adjacent to each base with 1" diameter conduit and #2 AWG conductor wire to hand-hole height in center of light pole.
 - c. Specify Contractor shall wire for exterior lighting controls as specified.
2. OVERHEAD FIXTURE SUPPORTS
- a. All overhead fixtures shall be supported from the building structure in manners, which will insure equal distribution of fixture weight to each support with the fixture maintaining a level position.
 - b. Lay-in fluorescent lights shall be supported:
 - 1) From opposite corners with a minimum of two (2) weld less jack chains with S-hooks, rods or #10 wire and, on the ceiling grid with one (1) additional ceiling hanger wire support to structure installed at each corner of the fixture.
3. All overhead fixtures in conditions other than lay-in ceilings shall be supported with concealed plated steel rods, minimum 1/4" diameter, positioned as recommended by the fixture manufacturer. Require a minimum of two (2) supports for each 4' fixture chassis at maximum 48" oc spacing. This criteria includes, but may not be limited to, Auditorium lights, stage lights, and Physical Education area lights.
4. Require a minimum of two (2) stem supports [one (1) at each end] for each strip-type fluorescent fixture.
5. Require stem support to junction box for each incandescent fixture.
6. Require new lamps for all light fixtures.
7. Verify proper switching and operation of all fixtures with particular attention directed to total darkness criteria. Verify proper operation of exterior light override system.
8. Demonstrate examples of from-the-floor lamp changing on each type of high fixture with respective manufacturer-provided lamp changers. Specify Contractor shall turn over lamp changers to designated I-89 School District personnel as part of Contract Close-Out.
9. Require the Contractor provide "attic stock" maintenance lamps for all high-pressure sodium fixtures; quantity shall be at least 5% of total number of fixtures.

A. GENERAL

1. ELECTRICAL DESIGN
 - a. **On additions to existing facilities, discuss possible addition of generator in lieu of battery packs with the OCMAPS Program Manager, I-89 School District and Program Consultant before proceeding with design documents.**
 - b. Generator location shall be adjacent to school service area, near service drive or fire lane for easy access, and ideally near the main transformer serving the school.
 - c. Provide Type "B" fencing/gate enclosure around the generator unit. See Section 02831 criteria. Design enclosure dimensions for all present items, and to enable proper maintenance access to generator and other adjacent enclosed equipment items; coordinate with governing code criteria and manufacturer recommendations.
 - d. Provide maintenance-free hard-surfaced ground material within fenced enclosure; slope 1/4" per foot for surface drainage.
 - e. Emergency power shall be designed for the following:
 - 1) Data Infrastructure U.P.S. Inverters (in MDF/IDF) *
 - 2) HVAC serving Technology Support Areas (MDF/IDF)
 - 3) Walk-in Cooler/Freezer Equipment
 - 4) Building Automation System
 - 5) Security System Building Access Control Devices
 - 6) Security System Closed Circuit Monitoring Devices
 - 7) Security System Intrusion Detection and Alarm Devices
 - 8) Sump Pumps
 - 9) Fire Suppression (Sprinkler) System Jockey Pumps
 - 10) * Note: U.P.S. Inverter(s) for Data Infrastructure may be Owner furnished contractor installed.
 - f. Program generator to exercise for thirty (30) minutes each week at a specific day and time during daylight non-scholastic hours.
2. WARRANTY
 - a. All components of system shall be warranted for two (2) years from date of Substantial Completion.

B. PRODUCTS

1. ACCEPTABLE MANUFACTURERS
 - a. Caterpillar Corporation, Cummins, Onan Corporation, or equal, subject to full compliance with all criteria. Entire emergency generator system and its components shall be the products of one (1) manufacturer.
2. SUPPLIER QUALIFICATIONS
 - a. Endorsed by the generator system manufacturer.
 - b. Located within 100 miles of project site.
 - c. Maintain a stock of standard spare parts.
 - d. Offer 24-hour/7-day service availability.
3. GENERATOR SYSTEM CHARACTERISTICS
 - a. The generator shall have the following characteristics:
 - 1) Comply with NFPA 110 criteria.
 - 2) Automatic starting at both scheduled exercise times and at power failures.
 - 3) Instrument panel with remote annunciator panel
 - 4) Automatic shut-down in case of low oil pressure, low coolant level, high coolant temperature, overcrank, overspeed, or RPM sensor loss.
 - 5) Fully automatic battery charger.
 - 6) Weatherproof galvanized steel housing with factory-baked enamel finish.
 - 7) Automatic transfer switch.
 - 8) Generator to be natural gas powered.
4. Cooling system to function at 110° F ambient temperature and have engine coolant

recovery system.

5. Provide all incidental and miscellaneous accessories required for the entire system (e.g. mufflers, battery rack and cables, flexible fuel lines, block heater, etc.).
6. System to be capable to interface with security panel

C. EXECUTION

1. Require the Contractor submit required shop drawing and submittal data to the Architect for approval action. Include all system characteristics, physical dimensions, and a site layout plan showing equipment locations and relationships to other adjacent items.
2. Require the system be installed in accordance with manufacturer's instructions and approved submittal data.
3. Specify prior to start-up, authorized manufacturer technicians shall check out the completed installation and shall be present during the initial system start-up. Automatic start-ups and exercising cycles shall be tested. Generator system shall demonstrate the ability to assume the required emergency stand-by loads.

A. GENERAL

1. ARCHITECT DESIGN
 - a. Coordinate planned locations for future classroom additions and/or portable classrooms with the OCMAPS Program Manager, Program Consultant and I-89 School District for designing rough-in hook-up locations of future system additions.
 - b. Review schematic design documents and completed construction documents with the governing Fire Marshal for compliance with all code criteria.
 - c. Types of wall construction, walls to structure, ceilings, paths of sound travel, and other construction features shall be considered when evaluating locations for alarms to achieve required decibel level above ambient noise.
 - d. Each Music Room, Band Room, Choral Room, Auditorium and Vocational (wood, auto, metal, machine) Shop shall have at least one (1) fire alarm within the space with strobes.
 - e. Show all ceiling- and soffit-mounted devices on architectural reflected ceiling plans.
 - f. Design to comply with governing ADA code criteria.
 - g. Dimensionally locate exterior horns on architectural elevation drawings.
 - h. Voice evacuation system shall be provided as required by Code in areas of assembly as defined by the Fire Marshall.
 - i. All wiring for project additions shall tie back to the main system; wiring for project additions shall be tied back with separate homeruns, not by connecting to nearest existing system device box. (If existing system is not code compliant, replace or review if upgrade is possible to make system code compliant).
 - j. Locate a 6" X 6" X 4" junction box above the ceiling near an exterior wall with a 2" conduit weather head through the roof nearest to each area of planned future additions and/or portable classrooms.
 - k. Show locations of all equipment and devices on electrical drawings (not as a part of power or lighting drawings).
 - l. Coordinate door holder operations with Architect hardware.
 - m. Coordinate duct detectors.
 - n. Interface with intercom system override and the security system.

B. PRODUCTS

1. ACCEPTABLE MANUFACTURERS
 - a. Silent Knight, Fire-Lite Alarms, and any other manufacturer providing that non-proprietary equipment. All products for project shall be of same manufacturer.
2. GENERAL OPERATION
 - a. The system shall be a microprocessor based intelligent addressable fire alarm system.
 - 1) New facilities: Tie into emergency generator system, if present.
 - 2) As a minimum, actuation of any alarm shall automatically initiate the following:
 - a) Sound all audible alarm signals at march-time cadence and cause all visual alarm signals to flash.
 - b) Flash a red LED on the actuated device module at the control panel annunciator.
 - c) Activate the location indicator on the building annunciator.
 - d) Activate signals to shut-off gas fuel solenoid valves.
 - e) Activate signals to the mechanical control equipment to shut-down and/or reroute air handling systems.
 - f) Activate signals to release all magnetically held smoke and/or fire doors.
 - g) On building additions and renovations activate signals to the existing fire alarm control panel, if retained, in the existing building to initiate

all existing building alarm devices and to reset or drill from

administration Area both panels at the same time.

- h) Activate the digital communicator to report the type of alarm and location to the remote central monitoring station.

3. SYSTEM FEATURES

a. System shall contain not less than the following:

- 1) Class B wiring fire alarm system.
- 2) During an alarm condition, the associated device alarm LED shall flash until acknowledged (by silencing the alarm signals); this shall allow determination of location of last alarm.
- 3) Allow the general alarm devices to be silenced only by authorized personnel accessing a locked control cabinet, then operating an "ALARM SILENCE" switch. However, a subsequent device alarm shall reactivate the signals. Engagement of the "ALARM SILENCE" switch shall be indicated by illumination of the "ALARM SILENCED" LED and an audible trouble signal.
- 4) Power failures, opens, grounds, or a disarrangement of the system wiring or components shall be indicated by a visual and audible trouble signal.
- 5) Ground Fault detection.
- 6) Alarm and Trouble LED for each device.
- 7) Subsequent alarm (resound) feature.
- 8) "Dead Front" design control panel with all LED alarm, trouble, and power indicators located behind a locked transparent door.
- 9) Modular pluggable solid state construction.
- 10) Supervise all alarm-receiving-circuit and signal-circuit wiring.
- 11) Automatic transfer to standby batteries upon power failure.
- 12) Lightning and surge protection.
- 13) All modules shall be placement supervised.
- 14) Provision for remote drill and reset station; drill condition shall not shut down the HVAC system, nor shall it dial the Fire Department or 911.
- 15) All fire alarm panels (including transponder panels on multiple systems) shall have a ground wire (other than conduit ground) for proper operation of lightning protection.

4. CONTROL PANEL COMPONENTS

a. Provide an intelligent response controller type MD/MDE fire alarm control panel (or additional components into existing control panels) with not less than the following components:

- 1) Common alarm control module that allows an alarm from one (1) device to be silenced, but allows subsequent alarms from other devices to resound the alarm. Provide monitoring of all status changes within the system, system reset, signal silence, system trouble LED, alarm silenced LED, common system alarm LED, AC power on LED, trouble silence, and lamp test.
- 2) Alarm receiving modules Class B type. Each circuit shall be suitable for connection to manual fire alarm stations, heat detectors, approved smoke detectors, and water flow alarm switches. Upon receipt of an alarm, the receiving circuit shall lock into alarm, pulse its individual red device LED and signal the Common Control Unit. Silencing of the audible devices shall cause the flashing device LED to light steadily. The Class B device circuits shall be individually supervised for open wiring and ground faults.
- 3) Signal circuit modules required for each circuit, capable of supplying a minimum of 2.0 amps at 24-volt DC for the operation of polarized alarm signaling devices. Each circuit shall be provided with over current protection and shall light an individual LED trouble indicator when any of the following conditions occur:
 - a) Open or shorted wiring.
 - b) Operation of the over current device.
 - c) Ground fault.

- d) The availability of 24-volt DC signal power at the module shall be supervised; provide to signal all devices plus pre-wire for adding two (2) future signal circuits.
 - 4) Requires two (2) position switches to disconnect auxiliary control circuits. A system trouble condition shall be generated when an auxiliary system function (HVAC control, remote connection circuit, etc.) has been disconnected. Provide a switch module for each auxiliary circuit plus pre-wiring for adding two (2) future circuits.
 - 5) Provide auxiliary relay modules for each auxiliary circuit function; each relay required to have a contact rating of 5 amps at 120-volts AC/24-volts DC. Each relay shall have one set of programmable (N.O./N.C.) SPST contacts. Provide pre-wired capacity for two future circuits.
5. REMOTE ANNUNCIATOR
- a. Fire alarm panel may be the annunciator if located in the office area.
 - 1) Provide a graphic annunciator panel in Main Administration area to include a drill, reset, and silence (key switch), plus LED (lamp) test switch.
 - 2) For additions to existing facilities, modify the existing graphic annunciator panel, if it is retained, in the Main Administration area to include classroom addition areas and associated devices.
6. MANUAL PULL STATIONS
- a. Stations in renovated areas and/or additions should match existing if existing system is retained.
 - b. Non-coded, dual-action stations, red in color. Stations shall provide indications of operation by remaining in the tripped position until reset with proper key. All stations master keyed with the control equipment. Label each station with a device address inside the housing.
7. PHOTOELECTRIC SMOKE DETECTORS
- a. Removable photoelectric smoke detector heads with separate bases.
 - b. Operate on the light scattering principle using a pulsed LED light source and a silicon photodiode sensing technology. Factory pre-set alarm sensitivity of 0.3 db/m. The omni-directional sensing chamber shall be protected by an insect screen and be unaffected by ambient light.
 - c. Include provision for operating a remote 6-volt LED alarm indicator and be capable of being tested from a remote test switch AND also from a magnetically operated reed switch in the detector head. Test shall electronically simulate a smoke concentration not exceeding 0.6 db/m.
 - d. Detector alarm shall cause the normally flashing power indicator LED to light continuously and the alarm circuit to operate. Detectors shall be capable of latching and non-latching alarm functions, shall be non-polar, and shall provide for field sensitivity measurement and easily operated functional field test.
 - e. Wiring terminations: Clamp-type screw terminals protected by a terminal block cover.
 - f. Housing: Low-profile with flat white factory finish. Provide label with device address inside housing.
 - g. LED shall be visible in daylight from 25' away.
8. DUCT-MOUNT PHOTOELECTRIC SMOKE DETECTORS
- a. Complete units with housings, photoelectric smoke detector heads, and sampling tubes sized according to duct width.
 - b. Base and enclosure of manifold constructed of solid structural foam, and shall incorporate an airtight smoke chamber in compliance with UL-268A Standard for smoke detectors in duct applications. Enclosure shall be equipped with an integral mounting base for the detector, and shall be capable of local testing via magnetic switch.
 - c. Clear enclosure covers shall be Lexan.
 - d. Operate at air velocities between 300 fpm and 4000 fpm. Include integral filter system to reduce dust and residue accumulation, and airflow monitor to indicate presence and direction of airflow through the detector.

- e. Duct detectors furnished and wired as fire detection/alarm system work, but mounted and installed as per Division 15.
- f. Label with device address inside housing.
- g. Detectors shall be accessible without use of tools.
- 9. DOOR HOLDERS
 - a. Mounted on single-gang box.
 - b. Position to avoid interference with other door hardware.
- 10. AUDIO/VISUAL ALARM SIGNALS
 - a. Wall or ceiling-mounted units, in all areas required by code, with minimum output of 0.75 candela with a flash rate of 1 to 3 Hz, and word "FIRE" hot-stamped in red on a vandal-resistant polycarbonate lens.
 - b. Horns constructed of die-cast zinc, red enamel finish, with minimum output rating shall be 93 dbA at 10' and a minimum of 60 dbA in all areas of the building with doors closed.
 - c. Provide flush-mounting backbox of maximum size 16 square inches, or surface-mounting cast-type backbox.
- 11. EXTERIOR HORNS
 - a. Weatherproof, constructed of die-cast zinc, red enamel finish, with minimum output rating of 93 dbA at 10'.
- 12. REMOTE RELAYS
 - a. 24-volt DC for each auxiliary function with 4PDT contacts rated at 10 amps as required to interface with each auxiliary control function.
 - b. Provide protective enclosure and mounting box hardware.
- 13. CONDUCTORS
 - a. 600-volt insulated copper complying with NEC Article 760.
 - b. Terminations: Crimp-on connectors.

C. EXECUTION

- 1. FIRE ALARM SYSTEM
 - a. A fire alarm system contractor, not the electrical subcontractor unless also fire alarm system contractor, shall install the system.
- 2. EXISTING FACILITIES
 - a. Interconnect new systems with existing systems so that activation of any system will automatically activate all other systems. After the violation device has been cleared, the reset in the Administration area shall reset all systems simultaneously. Architect shall verify during the design that this is possible with existing equipment.
 - b. On additions to existing facilities, the Contractor shall arrange for a job site conference two weeks prior to any work being performed on the existing system. The Contractor shall take meeting minutes and distribute to all parties for record.
 - c. Project additions shall have separate homeruns to existing fire alarm panel with all wires numbered; tying to nearest available horn or pull box is unacceptable.
- 3. FUTURE ADDITIONS
 - a. Provide conduits with pull strings from the Main Control Center to each junction box location for planned future additions and/or portable classrooms.
- 4. Provide all equipment, wiring, conduit, boxes, and miscellaneous items required for a complete and operating system in accordance with all governing codes, manufacturer's recommendations, and final plans and specifications.
- 5. Provide all control relay wiring required to interface with all other systems and/or auxiliary functions.
- 6. Smoke detector heads shall not be installed until the final testing of the HVAC system (including Test and Balance) has been completed, and all dust-creating construction has ceased. Heads installed prematurely shall be removed, cleaned, and reinstalled per manufacturer recommendations to the satisfaction of the Architect..
- 7. Remote relays shall be located within 25' of the item being controlled (or signaled), and shall have all wiring up to the coil supervised.

8. All conductors, cable, and wiring shall be installed in conduit. All wiring shall be completely separate from any other system or wiring.
9. DUCT DETECTORS
 - a. Clearly and legibly identify locations on ductwork at eye level.
10. LABELING
 - a. Require the following:
 - 1) Color code and label all conductors at control panels, junction boxes, and devices.
 - 2) Label (not handwritten) each device (initiating, signaling, and circuit) with its associated device address inside the housing or on the connecting junction box. If exposed, label shall be visible from the floor.
 - 3) Provide a 9" X 12" legible drawing of the building floor plan showing all fire alarm devices to be framed under tempered glass as part of the annunciator panel. Locate in main administration area and include existing building zoning.
11. CERTIFICATIONS
 - a. Require upon completion of the installation, an officer of the Electrical subcontractor shall submit (through the Contractor) to the Architect and the system manufacturer's representative, a signed written statement attesting that all system equipment was installed in accordance with the code, final plans and specifications, and instructions and directives provided by the system manufacturer. The NFPA form shall be used and submitted.
 - b. Require upon completion of check-out and testing of the installation, the system manufacturer's authorized representative shall provide written certification that the system has been properly installed, tested, and is functioning properly.
12. TESTING
 - a. Specify Contractor shall test the installed system for compliance with all performance criteria, and make adjustments as necessary; submit letter statement of compliance as part of project Close-Out Documents.
 - 1) Require system manufacturer's authorized representative shall provide supervision of final system installation, panel connections, and check-out.
 - 2) Specify Contractor shall make all arrangements and pay all fees in connection with the testing of the system.
 - b. Every system device shall be tested for its correct operation, except that heat detectors shall be sample-tested.
 - c. All tests shall be performed to meet requirements of the governing code officials.
13. INSTRUCTION
 - a. Require instruction of designated I-89 School District personnel on the operation and maintenance of the fire alarm system; including system wiring, operation, function, and maintenance.
 - b. Provide one (1) instruction session to governing code authorities with local fire department representatives.
14. MAINTENANCE CONTRACT
 - a. System Manufacturer Representative shall present for the I-89 School District consideration a proposal to provide semi-annual inspections and tests of the system with subsequent written reports of findings.

A. GENERAL

1. ARCHITECT DESIGN
 - a. **Architect to show clock locations on Final Plans and Specifications. Classroom, workroom, corridor, office, and administration clocks shall be located at 7' 4" A.F.F. maximum; classroom clocks above main chalkboard or marker board. Architectural Final Plans and Specifications shall identify specific heights and locations for clocks in all other locations.**
2. CLOCK LOCATIONS
 - a. One (1) in each classroom; including Music Rooms, Vocational Rooms, Band/Choral Rooms, Art Rooms, Special Education, etc.
 - b. One (1) in each Administration Reception Area.
 - c. One (1) in each Principal's Office, Assistant Principal's Office, Conference Room, and Administrative Office.
 - d. Minimum one (1) in each Cafeteria/Dining area.
 - e. One (1) in P.E. area and Gymnasium.
 - f. Minimum one (1) in each Auditorium and Theater, also one back stage.
 - g. Minimum one (1) in Media Center visible from Circulation Desk, plus one (1) in each Media Center Office, Workroom, and Conference Room.
 - h. In student corridors and cross-corridors at maximum 150' intervals.

B. PRODUCTS

1. ACCEPTABLE MANUFACTURERS
 - a. Primex, Rauland-Borg or equal. Use single system manufacturer throughout project. Clock System must be global positioning satellite-based systems, which obtain time signals based upon connection with the internet, computer or from other than a GPS based satellite signal are not acceptable.
2. CLOCKS
 - a. Analog clocks shall be battery-operated.
 - b. Clocks shall be 12" diameter quartz clock with black cases and plastic lens.
 - c. Provide multi-year batteries in each clock.
 - d. Time Clocks will interface with intercom system.
 - e. Clocks shall be capable of automatically adjusting for Daylight Saving Time.
3. RECEIVER
 - a. GPS receiver designed for roof or outdoor mounting.
 - b. Receiver cable must be plenum rated where required by code.
4. TRANSMITTER
 - a. Unit shall obtain current atomic time from satellite.
 - b. The clock system transmits time continuously to all system clocks.
5. TRANSMISSION
 - a. Frequency range: 72.100 to 72.400 MHz.
 - b. Transmission power: 1 watt (30dBm) maximum.
 - c. Radio technology: Narrowband FM
 - d. Number of channels: 16
 - e. Channel bandwidth: 20 kHz maximum
 - f. Transition mode: one-way communication
 - g. Data rate: 2 Kbps

A. GENERAL

1. ELECTRICAL DESIGN COORDINATION
 - a. Utilize each school's local area network (CAT-6 cabling) to support voice-enabled communication with the exception of telephone lines specified in this section.
 - b. Provide all cable and other materials, labor, equipment, and incidentals necessary for a complete energy telephone system. CAT-6 is used for voice in all rooms. See Data Infrastructure Section.
 - c. Coordinate millwork at Administration reception counter to achieve access to telephone receptacle and routing of phone cords.
 - d. Main Service Entrance should ideally be located in Main Equipment Room (MDF). Utilize the existing backboard in the MDF to serve all services.
 - e. Design for interfacing with security, intercommunications, fire alarm, data and energy management and other building systems requiring phone lines.
 - f. Provide two (2) dedicated telephone lines for fire alarm panel, one (1) line for the primary and one (1) line for the secondary service line. Provide one (1) dedicated line for elevators (all elevators in the building will share this line). Provide two (2) dedicated lines that can be shared with the security panel and two (2) 911 hotphones.
 - g. These telephone lines will run to the MDF.
2. TELEPHONE RECEPTACLE LOCATIONS
 - a. Provide two (2) telephone lines in the Administrative area, behind the front desk in the reception area, that can be utilized for failsafe and for 911.
 - b. One (1) can use the same line as the security system.

B. PRODUCTS

1. CONDUITS AND BOXES
 - a. Comply with Section 16100 design criteria.
 - b. Minimum 3/4" conduit size required.
 - c. Bushed ends at backboard locations.
2. COVERPLATES
 - a. For onsite telephone wire only if any exist.
 - b. "JUMBO" size brushed stainless steel cover with bushed center hole for telephone outlet covers.
 - c. "JUMBO" size blank covers at all unused telephone boxes.
3. EQUIPMENT CABINETS
 - a. "Square-D" Class 6650 lockable cabinet to hold required spare parts and tools.
 - b. Locate at Main Backboard.

C. EXECUTION

1. SERVICE ENTRANCE
 - a. Minimum 4" underground conduit with wide-sweep elbows from utility tie-in source to the telephone backboard.
 - b. Terminate conduit with smooth insulated bushed end at edge of backboard (minimum 16" A.F.F.).
2. GROUNDING
 - a. 6" long X 1" high X 1/8" thick copper grounding bus on each backboard. Provide minimum twelve (12) grounding set screws.
 - b. #1/0 AWG insulated copper ground conductor in a 3/4" rigid conduit from each backboard to the main electrical service ground bus and bond.
3. BOX MOUNTING
 - a. For onsite telephone wire only, otherwise comply with Section 16145 design criteria.
 - b. In accordance with Section 16100 criteria, vertically with bottoms of boxes at 16" A.F.F., set on top of second CMU course. Flush-mount with wall surfaces.
 - c. Grout fill around all boxes in CMU partitions to solidly anchor in place.
 - d. Do not position boxes between differing wall materials.
 - e. Offset telephone boxes and other device boxes on opposite faces of walls a minimum

- of 6"; no back-to-back devices are allowed.
4. COVERPLATES
 - a. For onsite telephone wire only.
 - b. Install with pair of matching screws, box snug to finished surface on all sides.
 - c. Install plumb and level; adjust box as required.
 5. CONDUITS
 - a. For onsite telephone wire only.
 - b. Each telephone receptacle box shall have its own conduit run to top of partitions and turned out above the ceilings.
 - c. In the (MDF), neatly terminate conduits above the ceiling and at uniform height 4" inside the perimeter of the backboard with smooth insulated bushed ends and secure conduits to wall construction.
 6. IDENTIFICATION
 - a. Label the outlets in the Administrative area for the Emergency 911 lines.
 7. TIE-INS
 - a. Provide for telephone system vendor tie-in to building security system, intercom system, fire alarm systems, data systems, and energy management systems.

A. GENERAL

1. ELECTRICAL DESIGN

- a. Interface with criteria for fire alarm systems.
- b. Make sure that the console is properly located in the Main Administration area; coordinate with potential office equipment layout in area and other construction features.
- c. Control center, switch panels, and booster amplifier to be installed in an equipment cabinet. The cabinet shall be set into a wall and allow accessibility to the back side for equipment maintenance. Cabinet shall be Lowell L-60-42 or equal.
- d. Cabinet shall stand 18 inches above floor level (see accompanying diagram). Device order in equipment cabinet (from top to bottom):
 - 3u Blank Panel
 - Bogen MCP-35A Control Center
 - SBA 225 Switch Panel
 - SBA 225 Switch Panel (If not necessary, fill with blank panel)
 - 3u Blank Panel
 - 1u panel w / A3F connector
 - Install booster amplifier (if needed) at bottom of cabinet
- e. Fill all empty spaces in equipment cabinet with blank panels (see accompanying diagram).
- f. When total system load does not exceed 30 Watts, a booster amplifier is not required.
- g. All wiring for projects shall tie back to the main system; wiring for project additions shall be tied back with separate home runs, not by connecting to the nearest system device.
- h. Show all speaker locations on Electrical Plans; show ceiling or soffit speaker locations in Architectural Reflected Ceiling Plans.
- i. Dimensionally locate exterior speakers on Architectural Elevation Drawings.
- j. Provide one empty 1½ " conduit and pull wire from equipment cabinet to a pull box with cover located above the ceiling adjacent to an exterior wall at each program-designated area of future expansion and/or portable classroom area. Provide one empty 1½" conduit weather head through the roof at each of these pull box locations for future use.
- k. New schools shall have the intercom system tied to emergency generator, if provided within design criteria.

2. SPEAKER LOCATIONS AND FUNCTIONS

- a. All classrooms (includes Music, Physical Education, Art, Pupil Personnel, Special Education, Band and Choral Rooms, etc.).
- b. Teacher Workrooms, Kitchen Manager's Office, Cafeteria/Dining, Auditorium, Gymnasiums and corridors (Hallway speakers shall be spaced a maximum of 20' apart to insure adequate coverage and set at 2 watts) exterior building areas directed to playfields, at bus loading areas, entrances and exits, and courtyards.
- c. Provide call-in feature for all Classrooms and Workrooms. Call-in equipment shall be mounted in close proximity to primary room exit.
- d. Provide one (1) control center microphone such as Bogen MBS-1000A or equal equipped with Switchcraft A3M connector.
- e. Provide one (1) 1u blank panel fitted with Switchcraft A3F connector. Panel to be installed in equipment rack with A3F connector wired to MIC 1 input of intercom control center.
- f. Provide enough blank rack panels to completely fill unused equipment rack spaces.
- g. Provide one (1) emergency announcement station in a flush mounted locked cabinet immediately inside the exterior door at the bus loading area. Provide

microphone with 20 ft. of pigtail microphone cord and jack plug into matching receiver outlet. Connect to MIC 2 input of intercom control center. Cabinet size shall comfortably accommodate all required system components.

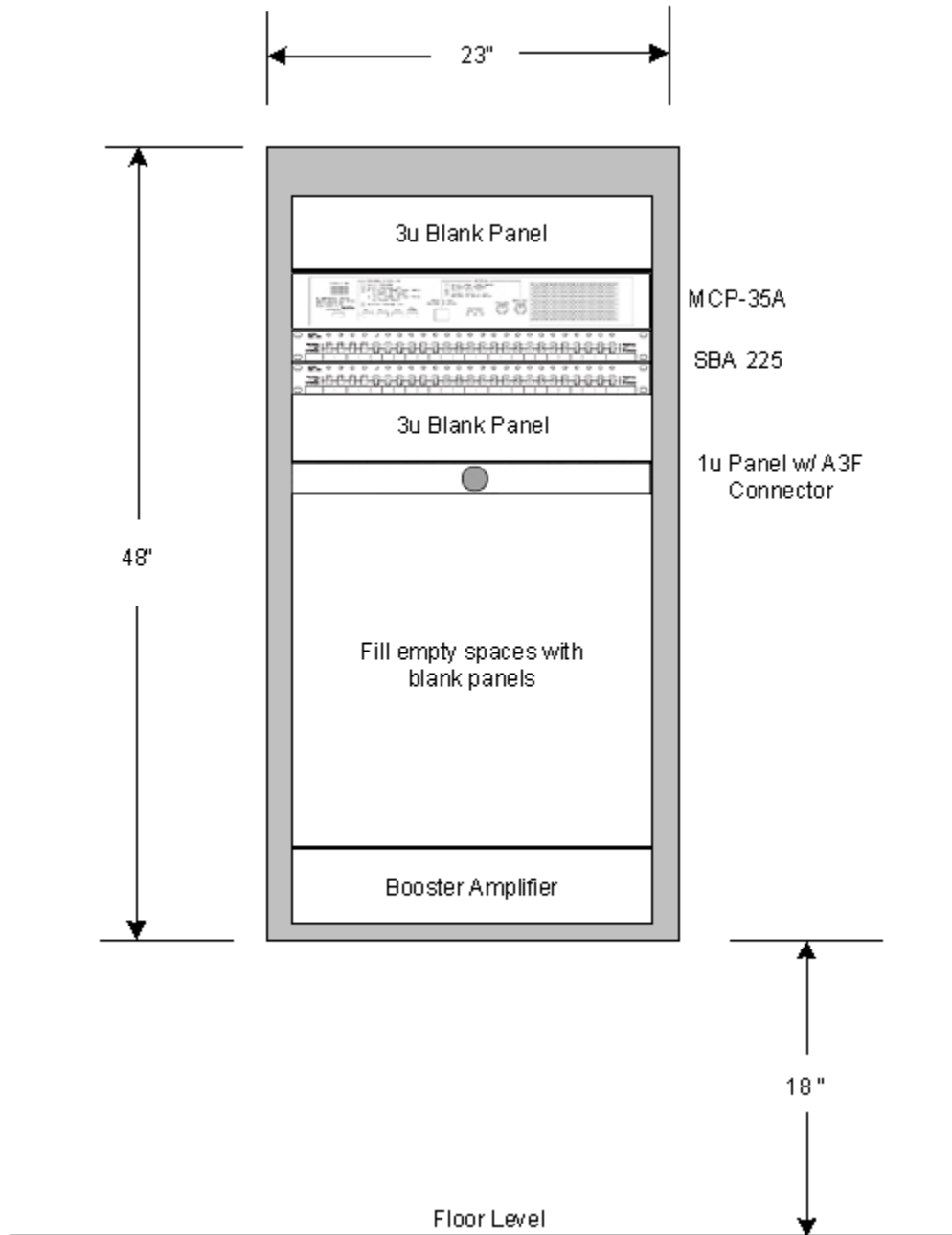
- h. The labeling of the switch panel assembly shall be by room number in numerical sequence, from left to right. Rooms without numerical designation (e.g. Clinic, Library, etc) shall be labeled to reflect location relative to numerically designated rooms.
- i. The system shall have a minimum of 10% spare room selector switches.
- j. Provide the owner with the intercom equipment service manuals and an "as built" drawing detailing building wiring, etc., as required by Section 01060.

B. PRODUCTS

1. ACCEPTABLE MANUFACTURERS
 - a. Intercom control center shall be Bogen MCP-35A or approved equal.
 - b. Ceiling speakers shall be Bogen S86T725PG8W or approved equal.
 - c. Wall speakers shall be Bogen WBS8T725 or approved equal.
 - d. Outside speaker horns shall be Bogen SPT-15A or approved equal.
 - d. Booster Amplifiers (paging) shall be Bogen HTA series or approved equal, specifications determined by total system load.
 - e. Call-in box shall be of metal construction such as Wiremold V-5760 or approved equal and equipped with Bogen CA10A flush mounted switch assembly or approved equal.
 - f. Switch panel assembly to be Bogen SBA 225 or approved equal.
2. INTERCOM SYSTEMS NOT DESIGNED AS A FIXED, PERMANENT INSTALLATION ARE NOT ACCEPTABLE.
3. CABLE
 - a. Four (4) conductor shielded type to all speakers such as West Penn 358 or approved equal. All wiring shall be splice free. All exposed wiring shall be housed in a suitable metal raceway. Crimp type connectors such as Molex 09-50-3041 or approved equal shall be used exclusively for switch panel terminations. Interference fit type connectors are unacceptable.

C. EXECUTION

1. Contractor shall label panel switches with permanent room numbers as designated by the Oklahoma City Public Schools District Architect.
2. Unless otherwise specified, contractor shall determine speaker wattage taps for any given location based upon standard practice and engineering criteria.
3. Installed system shall be tested for satisfactory performance of all functions in the presence of the Architect, the OCMAPS Program Manager, the Program Consultant and designated School District personnel. Make adjustments and re-test as required. Contractor shall submit signed-off copies of checklist that identifies all required functions as a testament to full satisfactory performance of system.



**Typical Installation
Cabinet Details & Device Placements**

PRE-K THROUGH 12th GRADE INTRUSION DETECTION SYSTEM

The intrusion detection system at the Oklahoma City Public School's Pre-K through 12th grade facilities shall be designed according to the following guidelines:

A. GENERAL

1. The design shall not integrate with provisions of Section 17200 Access Control System and Section 17300 CCTV System. The intrusion detection system shall be designed as a stand-alone system.
2. There shall be at least three alarm system keypads; one in the kitchen; one near the staff parking and one near the front entry. Exact locations of keypads are to be determined on a school by school basis.
3. The alarm system shall be partitioned into a minimum of two zones; one for the kitchen and one for the rest of the school.
4. Preference for a security system is a DMP XR500N, or approved equal.
5. A list and plan showing location of devices and their addresses is to be provided to the school district's security monitoring company.

B. EQUIPMENT

1. The intrusion detection system shall consist of a combination of the following:
 - a. Door Contact Alarms
 - 1) All exterior doors shall have a contact alarm.
 - 2) Some exit only doors may be outfitted with "ALARM WILL SOUND ON EXIT" system.
 - b. Motion Detectors
 - 1) There is to be motion detector coverage in all corridors.
 - 2) There is to be a motion detector in community use areas such as the media center, gymnasium, cafetorium, computer lab areas, summer textbook storage areas.
 - 3) Any room with an outside opening (including a roof hatch and/or skylight).
 - c. Metal Detectors
 - 1) Electrical outlets to be provided by design.
 - 2) Owner to furnish metal detectors.
 - 3) Programming pin numbers into security system should be able to occur from two locations; the school district's service center and the school principal's office. This programming should occur via the school's network without the necessity of an additional computer interfacing with the card access system control panel. Each pin number should be able to be programmed with information specific to that number.

C. MONITORING REQUIREMENTS

1. Daytime:
 - a. Contact alarms on designated doors will be activated and monitored during school hours. At the end of the school day all doors with contact alarms will be monitored.
 - b. Motion detectors turned off.
2. Nighttime / After School:
 - a. All contact alarms on doors to be activated.
 - b. All motion detectors turned on.
3. Zoning:
 - a. Design shall allow for school to be divided into detection zones. The number of zones may vary from school to school, with two zones minimum. The Kitchen area will need separate zoning.

PRE-K THROUGH 12th GRADE ACCESS CONTROL SYSTEM

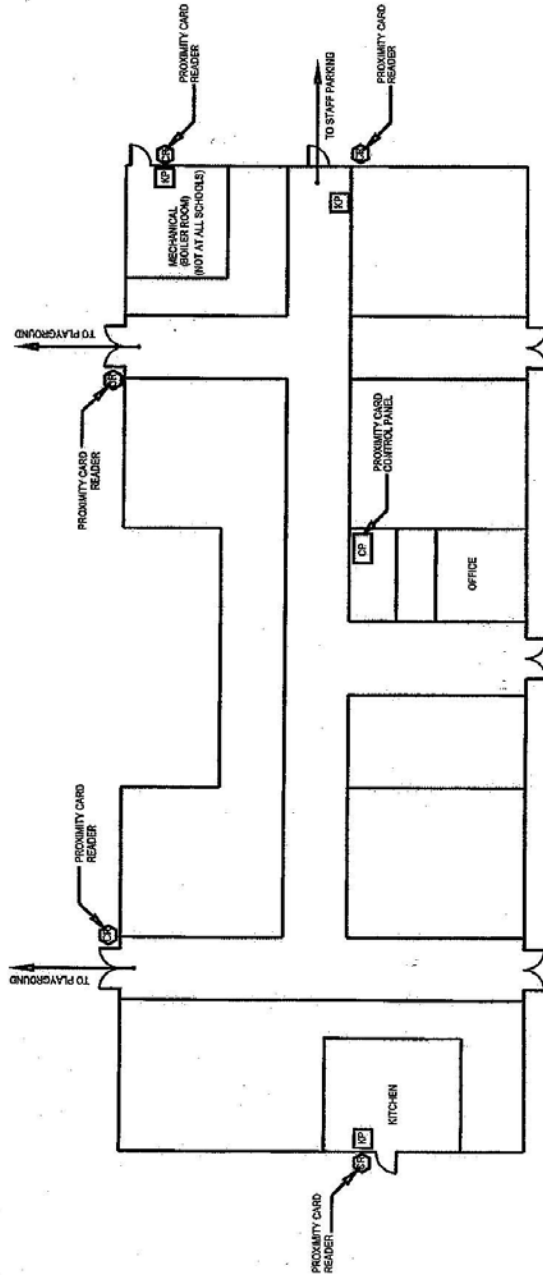
The access control system at the Oklahoma City Public School's Pre-K through 12th grade facilities shall be designed according to the following guidelines:

A. EQUIPMENT

1. The building access system should be a proximity card reader system. It should use a standard size card, not a key fob. This is a stand-alone system.
2. Programming the card access numbers into the system should be able to occur from two locations; the School District's Service Center and the school's principal's office. This programming should occur via the school's network without the necessity of an additional computer interfacing with the card access system control panel.
3. Each access number should be able to be programmed with information specific to that number.
4. Software should be provided at both computers to allow for remote programming over the district's network. Training is to be provided to the school district for the use of the software.
5. Card access points should be in the following locations:
 - a. All exterior doors used for entry and exit. This includes doors to the playground, kitchen, staff parking, mechanical rooms, etc.
 - b. One of the main entry doors.
 - c. Other doors on a case by case basis.
 - d. Refer to attachment.
6. A minimum of 100 access cards are to be provided to the School District.




B. MONITORING REQUIREMENTS

1. Daytime:
 - a. All devices turned on.
2. Nighttime / After School:
 - b. All devices turned on.



GENERIC PLAN PROXIMITY CARD ACCESS SYSTEM

LEGEND:

-  CARD READER (ACCESS SYSTEM)
CARDS TO BE 26-BIT WIEGAND
-  KEYPAD (INTRUSION SECURITY SYSTEM)
-  CONTROL PANEL (ACCESS SYSTEM)

- MANUFACTURERS:
1. KEYSCAN
 2. DIMP (CARD ACCESS ONLY)

- NOTES:
1. CARD ACCESS SYSTEM IS TO BE PROGRAMMABLE OVER THE DISTRICT'S NETWORK FROM 2 LOCATIONS; THE PRINCIPAL'S OFFICE AND THE DISTRICT'S SERVICE CENTER. PROVIDE AND INSTALL SOFTWARE AS REQUIRED AT THESE 2 LOCATIONS.
 2. THE CARD ACCESS CONTROL PANEL IS TO CONNECT DIRECTLY INTO THE DISTRICT'S NETWORK WITHOUT HAVING TO INTERFACE WITH A STAND-ALONE COMPUTER PROVIDED AS PART OF THE ACCESS SYSTEM.
 3. THE CONNECTION BETWEEN THE READERS AND THE CONTROL PANEL CAN BE WIRED OR WIRELESS.
 4. THE CARD ACCESS SYSTEM IS A STAND-ALONE SYSTEM AND IS NOT TO BE COMBINED WITH OTHER SECURITY SYSTEMS.
 5. THE READER IS A PROXIMITY READER. A KEYPAD IS NOT PART OF THE READER HARDWARE. THE KEYPADS SHOWN IN THE GENERIC PLAN ARE RELATED TO THE BUILDING SECURITY SYSTEM (INTRUSION).
 6. PROVIDE A MINIMUM OF 100 BLANK CARDS PER SCHOOL. THE CARDS ARE TO BE STANDARD SIZE (CREDIT CARD SIZE) NOT KEY FOBS.
 7. FINAL LOCATIONS AND NUMBER OF CARD READERS TO BE DETERMINED ON A SCHOOL BY SCHOOL BASIS.

OKLAHOMA CITY PUBLIC SCHOOLS
 CAPITAL IMPROVEMENTS DEPT.
 4/27/10

PART I – GENERAL

A. PRE-K THROUGH 6TH AND 7TH - 8TH GRADE CCTV SYSTEM

1. At a minimum the CCTV System should consist of the following:
 - a) An interior camera monitoring each exterior entrance (including media center) to the building with the exception of exterior doors in offices and classrooms.
 - b) Digital Video Recorder (DVR).
 - c) Monitoring Station – Located in the Reception Area.
2. If the budget allows the following additional CCTV equipment should be installed in order of priority.
 - a) One exterior camera to monitor the staff parking.
 - b) One exterior camera to monitor the playground
 - c) One exterior camera to monitor the public entry and parking.
 - d) Two additional cameras (interior or exterior) located at the discretion of the principal.
Note: An additional DVR may be required for equipment listed in item #2.
3. DVR(s) to be located in the MDF.
 - a) Monitoring Station – Located in the Reception Area

B. 9th THROUGH 12th GRADES

1. At a minimum the CCTV System should consist of the following:
 - a) An interior camera monitoring each exterior entrance (including media center) to the building with the exception of exterior doors in offices and classrooms.
 - b) Digital Video Recorder (DVR).
 - c) Monitoring Station – Located in the Reception Area.
2. If the budget allows the following additional CCTV equipment should be installed in order of priority:
 - a) One exterior camera to monitor the staff parking.
 - b) One exterior camera to monitor student parking.
 - c) One exterior to monitor the courtyard.
 - d) One exterior camera to monitor the public entry and visitor parking.
 - e) One interior camera to monitor the boiler room.
 - f) Two interior cameras to monitor interior of main gymnasium.
 - g) Four additional cameras (interior or exterior) located at the discretion of the principal.
3. DVR(s) to be located in the MDF

C. GENERAL

1. The CCTV system is a stand-a-lone system. It is not tied into any of the other security systems.

PART II – PRODUCTS

A. CLOSED CIRCUIT TELEVISION SYSTEM

1. DIGITAL CLOSED-CIRCUIT TV SYSTEMS
 - a. Existing cameras:
 - 1) CCTV cameras shall be tested to verify fully operational status. Repair and replace as required.
 - 2) Cameras at each facility are to be UL listed and shall be compatible with existing system complying with not less than the specifications contained herein.
 - b. New cameras:
 - 1) Installation of new cameras where required shall include mounting brackets and/or camera housings fully compatible with the camera provided.

- 1) Cameras shall have automatic iris control and shall be for interior or exterior use under normal and low light conditions of illumination and shall be provided with a weatherproof housing as specified.
 - 2) Camera shall be mounted at or as close to the original location as possible and shall include electronic components for automatic adjustment of iris to varying levels of illumination.
 - 3) Camera shall be CCD digital type with auto iris lens compatible with existing system. Lens shall contain a vari-focal length.
 - 4) Power supplies shall be internally protected.
 - 5) Cameras shall have line-lock to avoid roll during switching operations.
 - 6) Exterior cameras shall be designed for the intended purpose and environment and all shall have the following minimum specifications:
 - a) Polycarbonate clear dome
 - b) Weather sealed
 - 7) 470 TVL Color NTSC (Day) / B&W (Night Vision) switch to B&W at low light.
 - 8) Operating Temperature range (Interior: -13 to 122 degrees F), (exterior: -50 to 140 F)
 - 9) Light Sensitivity 0.8 lux @F1.5 (B&W - 0.1 lux @F2.0)
 - 10) Quick change lenses
 - 11) Line voltage 24 VAC
2. CAMERA HOUSINGS AND SUPPORTS:
- a. All camera housings shall be an integral part of the dome camera and be securely attached to mounting surfaces.
 - a. The flush ceiling mounted units shall contain additional accessory support for acoustic ceiling installations. Wall mounted units shall be rated for support of not less than 150 lbs.
 - b. Weatherproof tamperproof housings shall be constructed of aluminum and finished with a weatherproof, heat reflecting paint. Housing shall be internally insulated. Cover shall be secured in place with tamperproof bolts. Housings shall be supplied with a fan, heater, sun-shield, and defroster glass if necessary for use in applied location.
3. MONITORS:
- a. CCTV monitors shall be tested to verify fully operational status. Repair or replacement if required shall be in harmony with specifications outlined herein.
 - b. Monitors shall be mounted on shelf in equipment rack, and compatible with the total system specified herein and comply with these specifications. Provide Zenith L27W46 (or equal by Sony, RCA, or Phillips) LCD monitor wall mounted in main reception area for display of all cameras.
4. DIGITAL VIDEO RECORDERS (DVR):
- a. Linux Based embedded operating system that controls the system for switching, recording and complete functionality. Control system shall be Dedicated Micros DS2 or equal with the following minimum specifications:
 - 1) 16 video inputs (NTSC)
 - 2) 5 matrix switch outputs
 - 3) 24 alarm inputs
 - 4) 30 days normal recording capacity mode, 320 GB storage.
 - 5) Activity detection on each camera
 - 6) Multi-screen display of live cameras on PC monitors
 - 7) Viewing of cameras on screen in 1,4,9,16 blocks
 - 8) 60 images/second record speed
 - 9) Real-time playback
 - 10) Software adjustable recording schedule
 - 11) High resolution MP4 compression

- 12) Time, date, alarm, and camera retrieval filters
 - 13) CE and FCC approved
 - 14) Remote-View Software
 - 15) Keyboard and mouse
 - 16) Network Interface
 - 17) DVD Recorder Built-IN
- b. Existing and/or New Installations: Where applicable, control system components shall be mounted in existing panels and tested for fully functional status. If new components are required, they are to be mounted in a Lowell L267-77 or equivalent rack and located in the MDF/IDF Technology equipment room.
- 1) This rack shall include capabilities for the following: control system PC, viewing CRT, keyboard, mouse and other accessories required for a complete install.
 - 2) Provide locking perforated front door, mounting shelves, U-181B power panel and I-180 auxiliary power strip. Equal to Mid-Atlantic or Atlas.
 - 3) Complete software packages shall be provided to allow program adjustment of all camera settings, recording modes, viewing modes, activity detection sensitivity, etc.
 - 4) **Interface system with District Ethernet Network** to allow viewing and adjustment of system components via PC's granted access on the Network as well as PC's granted access via their internet connection. All access to the system shall be controlled via security logins/passwords. System shall allow exporting of selected video clips or single bitmap images. System shall provide digital motion detection by means of pixel change monitoring. Users shall have the ability to set desired area to monitor for pixel change to trigger alarm recording. System shall provide continuous loop recording of 5 seconds duration to allow events immediately prior to alarm recording initiation to be recorded.

PART III – EXECUTION

A. CLOSED CIRCUIT TELEVISION SYSTEMS

1. Maintain security systems and components, in accordance with equipment manufacturer's written instructions, in compliance with National Electrical Code, and with recognized industry practices, to ensure that CCTV system complies with requirements and serves intended purposes. Coordinate initial programming of system with Oklahoma City Public Schools. Provide software to Oklahoma City Public Schools for installation on other Networked PC's for control and monitoring of system.
2. Use extreme care in handling, fishing and pulling-in electronic coaxial cable to avoid damage to cable and shielding. Avoid excessive and sharp bends. Ensure manufacturer's recommended pulling tensions are not exceeded.
3. Install CCTV equipment properly to avoid causing mechanical stresses, twisting or misalignment of equipment being exerted by clamps, supports and cabling.
4. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque requirements. Where these are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Standards 486A and B, and the National Electrical Code.
5. Pull conductors simultaneously where more than one is being installed in same raceway.
6. All cables shall be a continuous homerun from the camera location to the equipment room. No splices will be accepted.
7. Maintain all necessary operating power systems to equipment specified in this section.
8. Maintain all cabling required for installation of complete system. All cable not enclosed in conduit shall be plenum rated.

B. GROUNDING

1. Maintain equipment grounding connections for television systems as indicated. Tighten connections to comply with tightening torques specified in UL standard 486A to assure permanent and effective grounds.

C. FIELD QUALITY CONTROL

1. Upon completion of inspection of existing system or installation of new CCTV system components, and after circuitry has been energized with normal power source, test systems to demonstrate capability and compliance with drawings and specification. Where possible, correct malfunctioning units at site, then retest to demonstrate compliance, otherwise remove and replace with new units and proceed with retesting.

D. TRAINING

1. Provide training to the School District on any new closed circuit television system. Contractor shall show all main connection points for the system, and explain the function of the system and each major component type. Contractor shall instruct in any maintenance requirements, and procedures to be followed when new equipment is added to the MDF/IDF rooms in the future.
2. Provide information on all new closed circuit television systems including any applicable test results in the owners and operators manuals.
3. Contractor shall obtain a sign-off from the owner that they have received adequate training for the equipment.

The data infrastructure system for all OKCPS school facilities shall be designed according to the following:

A. GENERAL

A. OVERVIEW

- a. This document defines the cabling system and subsystem components to include cable, termination hardware, supporting hardware, and miscellaneous items required to furnish and install a complete cabling infrastructure supporting voice and data. This design will be used for all K-12 educational facilities. This document describes cable routing for classrooms, labs, administrative area, offices, technology support areas and any other area that requires cabling. It also shows diagrams of typical classrooms layouts, parts, and labeling to enhance clarification.
- b. A data drop can be used for both data and/or voice. Refer to the Section 16740 for specific information about telephone. The Data and Telephone Sections will be cross-referenced.
- c. For existing schools, the computer network is comprised of a fiber-based star topology with one central network closet or main distribution frame (MDF). All fiber runs from each classroom data cabinet to the MDF. The new CISCO VoIP phone system uses CAT-6 cabling which is terminated in a typical classroom data cabinet or the MDF and is powered by a CISCO Power over Ethernet (PoE) network switch.

B. REQUIREMENTS

- a. All Fiber cabling shall run from every classroom to the MDF (Main Distribution Frame or main network equipment closet) unless specifically directed by the OCMAPS Program Manager.
- b. All CAT-5 copper data cabling shall be removed.
- c. All classroom electrical poles shall be removed.
- d. Network equipment shall be relocated from existing network cabinets and consolidated into open racks in the MDF closet coordinated by OCMAPS Technology Manager.
- e. Provide all equipment, cable, connectors, conduit, outlet boxes and all other devices required for the erection of a complete and operating system in accordance with applicable local, state and national codes, the manufacturer's recommendations, the contract drawings and specifications. Color code shall be used throughout.
- f. Cables shall be installed in continuous lengths from origin to destination with no splices unless specifically addressed in this document.
- g. All cables shall either be in conduit or cable tray, or J-hooks or trapeze system for entire length. J-hook systems shall be supported at a minimum of 4' intervals. Refer to drawings for conduit size and cable tray locations. Minimum conduit size shall be $\frac{3}{4}$ ".
- h. Install cable above fire-sprinkler systems and do not attach to the system or any ancillary equipment or hardware.
- i. Install the cable system and support hardware so it does not obscure any valves, fire alarm conduit, boxes, or other control devices.
- j. Cables shall not be attached to ceiling grid or lighting support wires. Where lightweight support of drop cables are required, the Contractor shall install clips to support the cabling.
- k. Contractor will configure and install cabling and equipment as to provide a configured and working CAT-6 copper and fiber based, drop(s) integrated into the Wide Area Network of the I-89 School District.
- l. Wiring Scheme will be TIA/EIA 568-B compliant.

- m. CAT-6 cable runs in classrooms and offices or visible to those who use the building will be either in the walls at drop locations with flush mount faceplates (whenever possible) or in a horizontal surface mount around perimeter of the room.
- n. Technology support areas to be located no further than 295 linear ft. from the jack location in classroom to the patch panel in the technology support area. If distance of the wire run is anticipated to exceed 295 linear ft., a separate technology support area must be provided, or alternative distribution method must be identified.
- o. Raceway, faceplates and J-Boxes will be Ivory in color or matched as closely as possible to the mounting surface color.
- p. Existing infrastructure may be used but it is the responsibility of the contractor to ensure the infrastructure is certified to these specifications. If CAT-5 infrastructure channel exists, it will be removed unless directed by the OCMAPS Program Manager. Empty faceplates or faceplates with holes will not be left in any room.

C. WARRANTY

- a. The Contractor shall provide a system warranty covering the installed cable system against defects in workmanship, components, and performance, and follow-on support after project completion.
- b. CABLING SYSTEM WARRANTY: The contractor shall facilitate at least a ten (10) year performance warranty between the manufacturer and the I-89 School District. An extended component warranty shall be provided which warrants functionality of all components used in the system for at least 10 years from the date of acceptance. Copper links shall be warranted against the link performance minimum expected results defined in the TIA/EIA 568B, TSB-67. Fiber optic links shall be warranted against the link and segment performance minimum expected results defined in the TIA/EIA 568B, Annex H.

D. TESTING AND VALIDATION

- a. Testing and validation will be performed to verify CAT-6 and fiber cabling system and performance and to ensure accuracy. Test all cables in accordance with this document, the ANSI/TIA/EIA standards and best industry practices. If any are in conflict, the Contractor will be responsible to bring any discrepancies to the attention of the Architect for clarification and/or resolution. Provide documentation and test reports showing individual listing of each cable pulled in the facility, with complete detailed results to OCMAPS Technology Manager.

B. STANDARDS

- a. Each wall plate will have its own conduit run to the top of partitions and turned out above ceiling, including the blank wall plates.
- b. All work will be designed in accordance with the BICSI TDMM, and will be installed in accordance with the BICSI CIM. In addition, all work will conform to:
 - 1) 2002 NEC (or most current) including 110-3, and 800-6.
 - 2) ANSI/TIA/EIA Building Wiring Standards.
 - 3) OEM installation directions.
 - 4) Applicable State and local code.
- c. Pathways will be installed using wide J-hooks with minimum bend radius. Wire bridle rings or cable ties will not be acceptable. In the classroom, small bundle support wide J-hooks may be used to attach to ceiling wire support IAW 1997 TIA/EIA 569-A Standard. Complete building cabling pathways will be installed, where deemed appropriate, for future building structured cabling systems requirements on those

routes required by the project plans and specifications. J-hook load will not exceed 40% of capacity.

- d. Plenum CAT-6 Belden Media Twist Bonded-Pair Network Cable 1874A or equal will be utilized. Cable jacket color of red.
- e. All connections between technology support areas will be multimode 50/125 μm duplex fiber optic.
- f. Each fiber optic cable connection in MDF will be terminated with SC connectors to TIA/EIA specification and installed in fiber optic rack mount termination cabinets.
- g. UTP modules will be Panduit Mini-Com TX-6 PLUS, part number CJ688TPRD, Red in color.
- h. If the Panduit part that is specified is not available then the Panduit replacement part is acceptable.
- i. The standards articulated will be used in both new construction and remodeling.
- j. PATCH PANEL

- 1) These standards require sole use of Panduit patch panels for continuity, expansion and ease of maintenance. No substitution will be accepted.
- 2) Forty-eight (48) port copper patch panels in the MDF will be Panduit part number UICMPPA48BL.
- 3) A fiber patch panel (Panduit part number FRME2) will be in the MDF-A rack in the MDF.
- 4) The MDF fiber patch panel will have six (6) Adapter Panels loaded with blue SC duplex adapters with ceramic sleeves (Panduit part number FAP6WBUDSCZ).
- 5) Terminate fiber cables properly with adequate slack left at both entrance location and termination unit.
- 6) MDF fiber optic strands will be terminated in the following order:

<u>Position</u>	<u>Color</u>
1	Blue
2	Orange
3	Green
4	Brown
5	Slate
6	White
7	Red
8	Black
9	Yellow
10	Violet
11	Rose
12	Aqua

- 7) Equipment racks MDF-A and MDF-B will house the copper patch panels for horizontal cabling for all rooms that are within the 300' cable limit (not including Labs, Media Rooms and the Trade and Industrial area).
- 8) All copper and fiber patch panels will be located in MDF-A, but larger schools will require some copper patch panels to be placed in MDF-B to accommodate all equipment listed in the rack order of Figure 2.
- 9) If the copper patch panels utilized in MDF-A exceed 14U then install the remaining patch panels in MDF-B.
- 10) All MDF equipment will be rack mounted in the order as specified in Figure 2 below.
- 11) Lower 1/3 of Rack B shall be reserved for Cox.

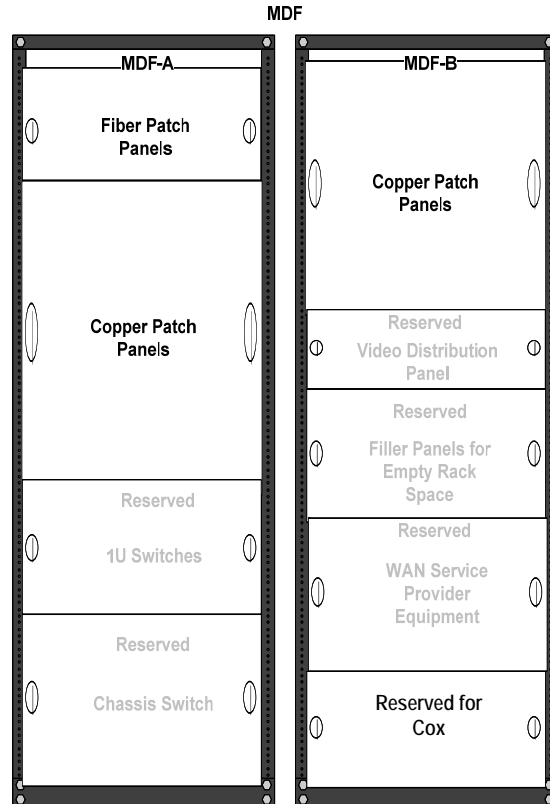


Figure 2 – Typical Configuration of “MDF” Network Equipment Rack

k. FACEPLATES

1. Faceplates will be single gang, vertical sloped holding up to four (4) Mini-Com Modules. (Panduit part number UICFPSE4IW or equal).
2. Outlets will provide a means of supporting modular jacks during termination.

l. LABELING

1. Labeling scheme per classroom will contain assigned identifiers for space, panel and port per TIA/EIA 606 standards. All labels must be machine generated and inserted into faceplate then secured with clear plastic cover.
2. All faceplates will denote at the top, the MDF or classroom data cabinet room number on each faceplate. For example, if the label is IDF-D100, then this means the cables in this faceplate are terminated in network technology support area located in room D100. The individual CAT-6 modules will be identified with a label representing the port number below each CAT-6 module. This port number will be the same port number used to identify this cable in the MDF. For example, if 10 cables are terminating in the classroom then the faceplate port numbers will fall in a range from 1 to 10. In addition, all faceplates will denote at the bottom, Classroom number. For example, the label of C104 implies the room number where the faceplate is located. Figure 7 shows the detailed labeling required for a faceplate for classroom C104.

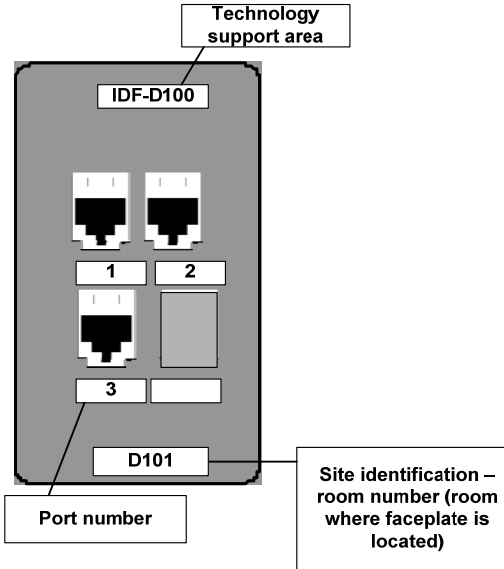


Figure 7 – Typical Data Receptacle Labeling Scheme

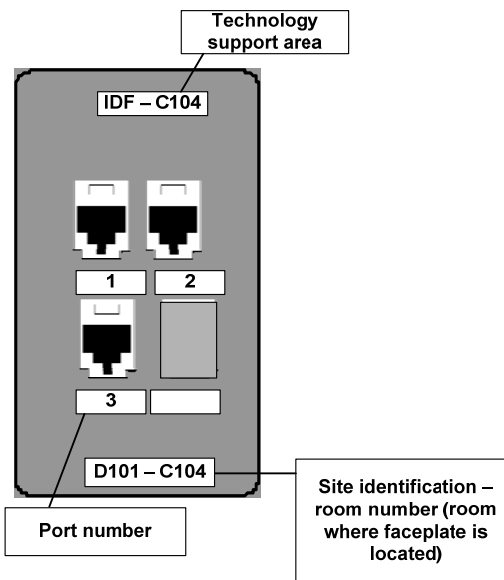


Figure 7A – Typical Data Receptacle Labeling Scheme
For Classrooms with Wall Mount Equipment Racks

3. Labeling Main Distribution Frame (MDF or network closet)
4. All MDF equipment racks will have a visible label using the following convention: “MDF-A” which would represent equipment rack A and “MDF-B” would represent equipment rack B and so on as shown in Figure 2.
5. Ports on the patch panels will be grouped and labeled in order from left to right, top to bottom.

6. Figure 8 illustrates how all copper patch panels will be labeled. Each port will be labeled with "Room Number – Cable Number". For example, classroom A104 would have ports labeled A104-1, A104-2,... A104-6 and administrative rooms are labeled B01-1, B01-2, B01-3, B02-1, B02-2, etc.
7. Fiber patch panels are labeled similar to the copper patch panels. The label represents where the fiber is terminated on the other end of the cable.
8. Figure 9 illustrates the fiber patch panel in the MDF. In this example, the cable is running to three (3) different IDF's. Each port is labeled with the room number – cable number.
9. Labeling Fiber and CAT-6 Cable
 - a) Identify cables according to the labeling scheme per TIA/EIA 606 standards on the cable and each terminating location.
 - b) The cable shall be labeled with this format: room number - cable number - room number. For example cable 1 in room C104 terminating in the IDF that is in room D100, the cable shall be labeled C104-1-D100. For cable 1 in room C104 terminating in the MDF-B rack, it shall be labeled C104-1-MDF-B.

m. GROUNDING AND BONDING

1. Provide a Telecommunications Bonding Backbone (TBB). This backbone will be used to ground all telecommunications cable shields, equipment, racks, cabinets, raceways, and other associated hardware that has the potential for acting as a current carrying conductor. The TBB will be installed independent of the buildings electrical and building ground.
2. Provide the main entrance facility/equipment room in each building with a telecommunications main grounding bus bar (TMGB). Provide each technology support area with a telecommunications ground bus bar (TGB). The TMGB will be connected to the building electrical entrance grounding facility.
3. Ground all racks, metallic backboards, cable sheaths, metallic strength members, splice cases, cable trays, etc. entering or residing in the MDF to the respective TGB or TMGB using a minimum #6 AWG stranded copper bonding conductor and compression connectors.
 - a) All wires used for telecommunications grounding purposes shall be identified with green insulation. Non-insulated wires shall be identified at each termination point with a wrap of green tape. All cables and bus bars shall be identified and labeled consistent with the labeling system.
 - b) The TBB will be designed and/or approved by a qualified PE licensed in Oklahoma. The TBB shall adhere to the recommendations of the TIA/EIA-607 Telecommunications Bonding and Grounding Standard, and shall be installed in accordance with best industry practices. Installation and termination of the main bonding conductor to the building service entrance ground, at a minimum, shall be performed by a licensed electrical contractor.

C. DESIGN

- A. Main Distribution Frame (MDF)

- 1) Refer to Figure 1.
 - 2) The main network equipment room (MDF) is the central equipment room for the school site. The environmental controls serving the MDF area shall be separate from the building HVAC control system for year-round operation.
 - 3) MDF closet shall be at least 10' x12' or greater in size.
 - 4) Cable Management Rack (Floor Rack).
 - a) A 19" Standard Rack (7' Aluminum), Panduit part number CMR19X84, Chatsworth part number 46353-703, B-Line part number SB556084XU or equivalent will be placed in the MDF. Two (2) or more racks will be placed in the MDF for schools with classroom totals 50 or less and three (3) or more racks with classroom totals over 50.
 - b) Racks in the MDF will be placed as close to the demarcation point as possible, allowing BICSI standards compliant space between walls and walkways.
 - c) Racks will be ganged together with vertical cable manager centered between and on each end (Panduit part number NCMV8, Chatsworth part number 30095-703, B-Line part number SB-571-66D-084 or equivalent).
 - d) Two (2) ea. horizontal Power Distribution Units (PDU) will be mounted to the rear of each rack. The PDU will have ten (10) 5-15R outlets and one (1) 5-20P plug with at least an 8' cable. Part number PD-91SR or equal shall be provided.
 - e) Rack will be securely attached to the floor. Additional lateral bracing may be required. Consult manufacturer for methods of horizontal bracing.
 - f) All racks shall be grounded to the telecommunications ground bus bar in accordance with the grounding section of this document.
- B. WALL LININGS
- g) One wall shall be lined with trade size $\frac{3}{4}$ " AC-grade plywood 8' high. Plywood should be void free and either fire rated or treated on all sides with at least two (2) coats of fire-resistant paint. Reference architectural plans for this requirement.
 - h) Walls will contain ladder cable trays to facilitate management, routing and distribution of cables.
- C. EQUIPMENT RACK CLEARANCES
- i) Allow a minimum of 3'-4" (1m) of clear working space from equipment and cross-connect fields.
 - j) Allocate a space of at least 7'-6" (2.3m) high for each rack. Allow 3'-0" minimum clear working space to the front, rear and at least one side of each rack or combination of racks. Allow sufficient space for provision of vertical cable management racks which fasten to the sides of equipment racks.

E. NON-CLASSROOM DATA DROPS

Offices, Workrooms, Mobile Lab Cart Storage, Networked Printers, Teacher Dining Area, etc. (e.g., Speech, OT/PT, Clinic, Kitchen, Gym, Parent Resource, Conference Rooms, etc.) shall have two CAT-6 data drops. There are two scenarios for cabling and termination and include:

- a. If distance is less than 295 feet, it shall run from that room location and be terminated in the MDF.
- b. If distance is greater than 295 feet, it shall run and be terminated in nearest typical classroom cabinet. (NOTE: A typical classroom does not include: computer labs, media centers, or technology rooms that contain several data drops. These special classroom data cabinets do not have enough physical space or network switch capacity to terminate office data drops.)
- c. Cabling Connectors for classrooms shall be Panduit CMDSBLLC 50um LC Duplex Fiber Module w/ phosphor bronze split sleeves. (NOTE: This is a non-proprietary generic LC adapter that should fit any standard LC patch cable.)

F. NEWLY CONSTRUCTED SCHOOLS, CABLING FOR ALL STUDENT INSTRUCTION AND CLASSROOM AREAS

- a. Provide six (6) CAT-6 media twist cable in each classroom. Terminate in the classroom data cabinet.
- b. Provide an additional CAT-6 cable from the MDF to each area used for student instruction, the stage, and in a central location within the administration area with 50' slack, coiled up in the ceiling above the classroom for future Access Point. Exception: If a wireless access panel (switch) exists in a classroom do not run cable above the ceiling for future Access point.
- c. Provide two (2) blank wall plates with matching color blank modules for future network drop locations in each classroom as shown in Figure 4.
 - 1) See Figure 4 for placement locations.

G. RENOVATED (EXISTING) SCHOOL FACILITIES, CABLING FOR (Classrooms with existing wall-mounted cabinet)

- a. In general, a wall-mounted classroom data cabinet or equipment rack will exist in most existing classrooms.
- b. Six (6) Cat-6 drops utilizing media twist cables will generally exist in all Classrooms.
- c. If six (6) Cat-6 drops that utilize media twist cables do not exist, Contractor shall install additional cables and terminate each to ensure that all Classrooms are provided with six (6) data connections.
- d. The Contractor shall ensure there are at least two (2) Cat-6 data drops in a receptacle located opposite the door leading from the corridor and adjacent to the marker board.
- e. All fiber-optic and Cat-6 cables must be salvaged unless directed by the OCMAPS Program Manager.

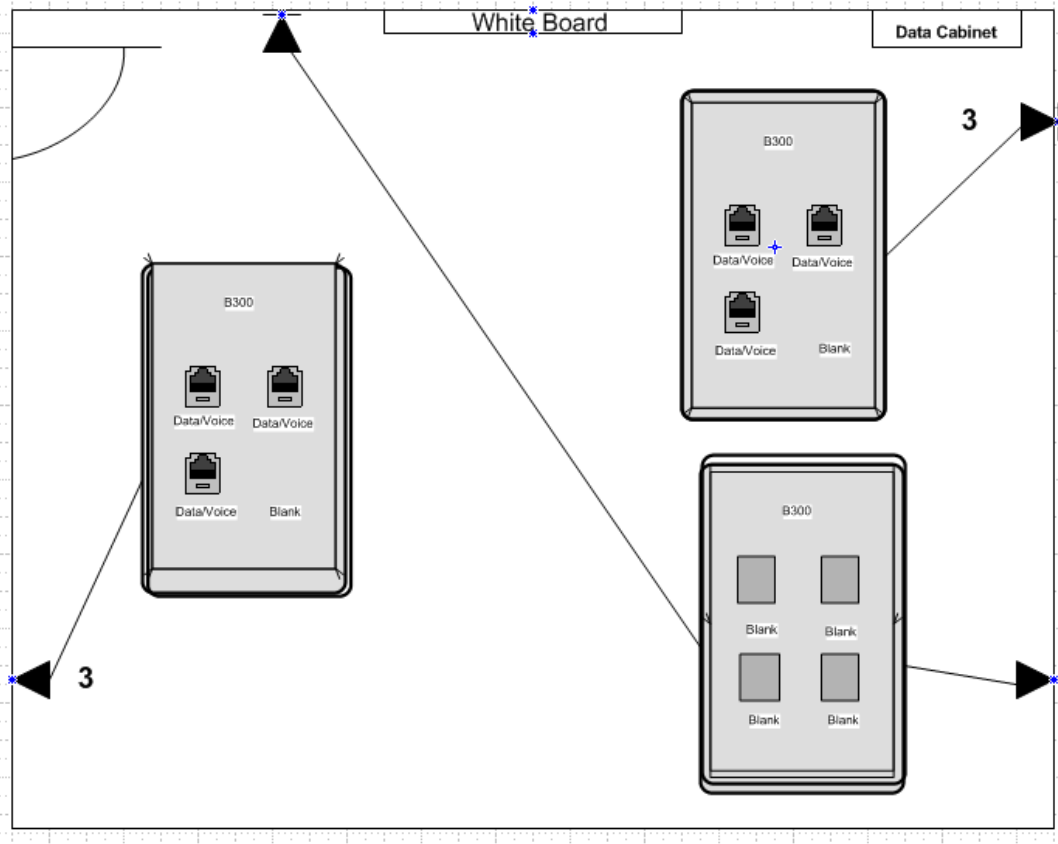
H. RENOVATED (EXISTING) SCHOOL FACILITIES, CABLING FOR (Classrooms with no wall-mounted cabinet existing)

- a. Install and configure one (1) per classroom, Hoffman wall mount equipment rack, part number 929RU or equal. The cabinets will be black in color. These equipment racks shall be mounted in observance with all ADAAG guidelines. Cable entry holes into the cabinets will be protected with rubber grommets or similar cable protection. Cabinets will be wall mounted on ¾" plywood, sized for the cabinet and covered with

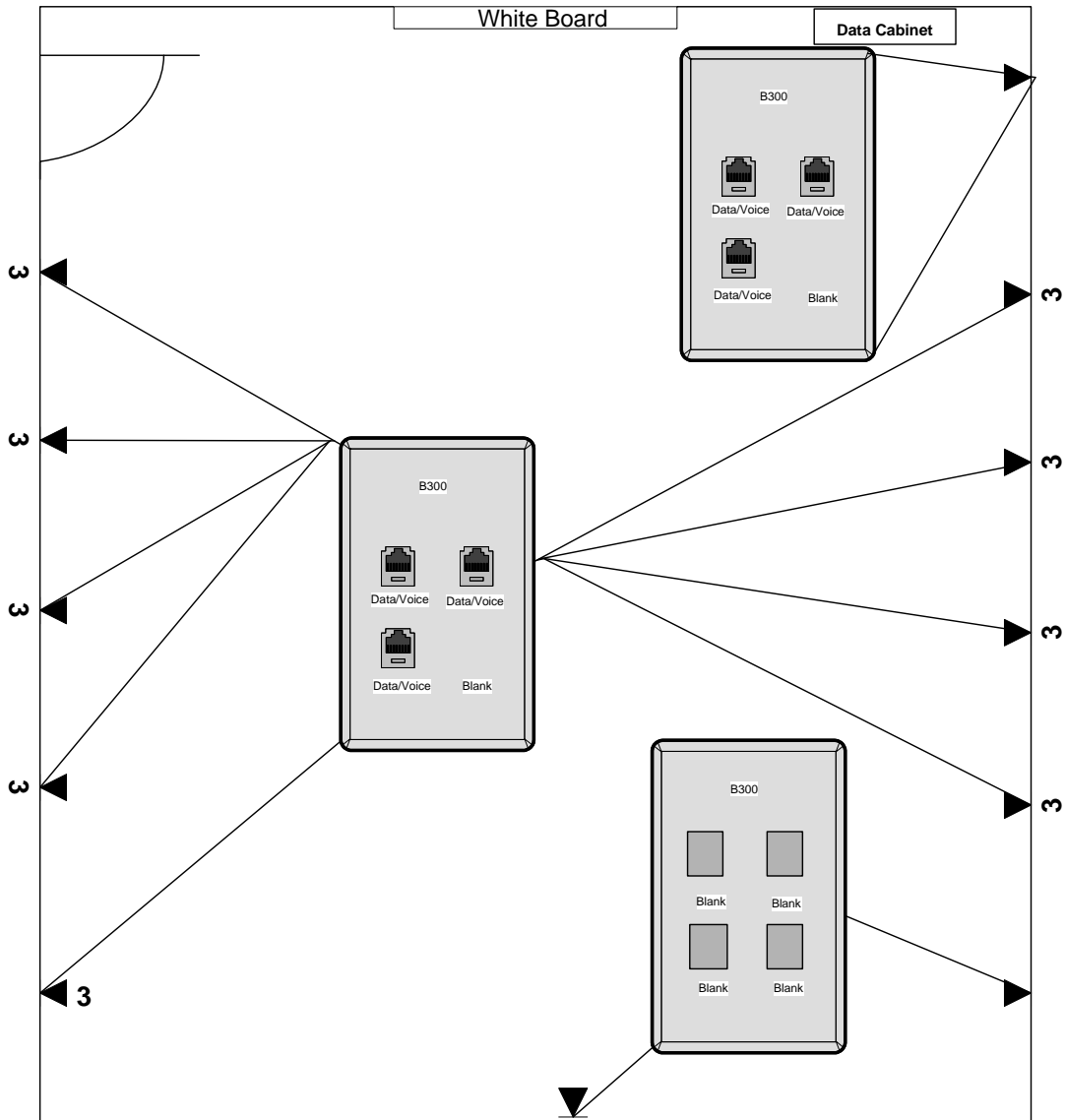
a fire resistant paint that closely matches cabinet color. Plywood may be trimmed to match cabinet size. Upon completion of work, cabinets will be locked and keys removed. Keys must be turned over to Mr. Steve Washam, Oklahoma City Public Schools or his representative only.

- b. Install and configure one (1) per classroom cabinet, Panduit Modular 24 port Mini-Com Patch Panel, Part # UICMPP24BL.
- c. Install and configure one (1) 6-strand fiber optic cable from each classroom cabinet to the MDF. Terminate all strands of fiber in the order shown below with Panduit CMDSBLLC 50um LC Duplex Fiber Module with phosphor bronze split sleeves. Classroom fiber modules will be placed in the existing classroom patch panel in positions shown below:
 - 1) First pair – (blue/orange) – position 22
 - 2) Second pair – (green/brown) – position 23
 - 3) Third pair – (slate/white) – position 24

Typical Classroom Configuration



Typical Computer Lab Configuration in existing buildings



CAT-6 Copper Cabling Requirements

ID	Location	Quantity	Termination Point	Comments/Notes
1	Administrative - Assistant Principal Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst typical classrooms evenly.
2	Administrative - Attendance Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst typical classrooms evenly.
3	Administrative - Copy Center / Work Room	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
4	Administrative - File Storage	0	n/a	n/a
5	Administrative - Financial Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
6	Administrative - General Storage	0	n/a	n/a
7	Administrative - Guidance Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
8	Administrative - Principal Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
9	Administrative - Secretarial Area	3	MDF or nearest typical classroom data cabinet	3 CAT-6 data drops per each secretary/admin staff in one receptacle/faceplate for VoIP phone, computer, and fax usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
10	Administrative - Student Services Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.

ID	Location	Quantity	Termination Point	Comments/Notes
11	Administrative Conference Room	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
12	Art - Kiln Area	0	n/a	n/a
13	Art Classroom	6	Classroom data cabinet	6 CAT-6 data drops per typical group classroom instruction.
14	Auditorium/cafetorium	1	MDF or nearest typical classroom data cabinet	1 CAT-6 data drop (50 foot coiled in ceiling) for wireless access point connectivity. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
15	Band Classroom	6	Classroom data cabinet	6 CAT-6 data drops per typical group classroom instruction.
16	Band Storage	0	n/a	n/a
17	Building Automation Systems	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each separate building automation system areas
18	Classroom - Drama	6	Classroom data cabinet	6 CAT-6 data drops per typical group classroom instruction.
19	Classroom - Foods Lab	6	Classroom data cabinet	6 CAT-6 data drops per typical group classroom instruction.
20	Classroom - Theatre	6	Classroom data cabinet	6 CAT-6 data drops per typical group classroom instruction.
21	Classroom - Vocal/General Music Room	6	Classroom data cabinet	6 CAT-6 6 data drops per typical group classroom instruction.
22	Classrooms - Business Education	6	Classroom data cabinet	6 CAT-6 data drops per typical group classroom instruction.
23	Classrooms - ESL	6	Classroom data cabinet	6 CAT-6 data drops per typical group classroom instruction.
24	Classrooms - JROTC	6	Classroom data cabinet	6 CAT-6 data drops per typical group classroom instruction.
25	Classrooms - MH/Cross Categorical	6	Classroom data cabinet	6 CAT-6 data drops per typical group classroom instruction.
26	Classroom - PK/Kindergarten	6	Classroom data cabinet	6 CAT-6 data drops per typical group classroom instruction.
27	Classroom - Grades 1-6	6	Classroom data cabinet	6 CAT-6 data drops per typical group classroom instruction.
28	Classroom - Grades 7-8	6	Classroom data cabinet	6 CAT-6 data drops per typical group classroom instruction.
29	Classroom - Grades 9-12	6	Classroom data cabinet	6 CAT-6 data drops per typical group classroom instruction.

ID	Location	Quantity	Termination Point	Comments/Notes
30	Computer Lab	30	Classroom data cabinet	30 CAT-6 data drops per typical computer lab classroom instruction.
31	Construction or Welding Lab	10	Classroom data cabinet	10 CAT-6 6 data drops per typical group classroom instruction.
32	Drama Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
33	Gym	0	n/a	n/a
34	Gym/coach Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
35	Health Clinic - Cot Area(s) / Treatment	0	n/a	n/a
36	Health Services - Nurse/Clinic Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
38	JROTC Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
39	Kitchen Manager's Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Also require 1 analog line to AT&T demark in MDF. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
40	Kitchen Point-of-sale (POS) cashier station	1	MDF or nearest typical classroom data cabinet	1 CAT-6 data drop per each POS. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
41	Laundry Room	0	n/a	n/a
42	Life Skills Area	0	n/a	n/a
43	Media Services - Circulation Desk	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per circulation desk in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst typical classrooms evenly.

ID	Location	Quantity	Termination Point	Comments/Notes
44	Media Services - Reading Area (elementary, middle school)	5	MDF or nearest typical classroom data cabinet	5 CAT-6 data drops per media center in two receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst typical classrooms evenly.
45	Media Services - Reading Area (high school)	15	MDF or nearest typical classroom data cabinet	15 CAT-6 data drops per media center in five receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst typical classrooms evenly.
46	Media Services - AV Storage / Retrieval	0	n/a	n/a
47	Media Services - Multimedia Production	0	n/a	n/a
48	Media Services - Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst typical classrooms evenly.
49	Media Services - Work Room	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each work room in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst typical classrooms evenly.
50	Media Services Area (50' coiled in ceiling for wireless AP)	1	MDF or nearest typical classroom data cabinet	1 CAT-6 data drop (50 foot) coiled in ceiling for wireless access point connectivity. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst typical classrooms evenly.
51	Miscellaneous Technical Labs	TBD	Classroom data cabinet	Confirm with OKCPS IT to determine special technical needs.
52	Music - Director Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst typical classrooms evenly.
53	Music - Instrument Rehearsal Room	0	n/a	n/a
54	Music - Orchestra Rehearsal Room	0	n/a	n/a
55	Music - Piano Lab	0	n/a	n/a
56	Music - Uniform Storage	0	n/a	n/a
57	Music Classroom	6	Classroom data cabinet	6 CAT-6 6 data drops per typical group classroom instruction.

ID	Location	Quantity	Termination Point	Comments/Notes
58	Music Instrument and Central Storage	0	n/a	n/a
59	Parent/Teacher Resource Room	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
60	PE Female Athletic Director Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
61	PE Male Athletic Director Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
62	PE/Athletic Storage	0	n/a	n/a
63	Physical Education - Concessions	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
64	Physical Education - Main Gym, Practice Gym	0	n/a	n/a
65	Physical Education - Training Room	0	n/a	n/a
66	Physical Education - Wrestling/Aerobics/Dance	0	n/a	n/a
67	Resource Area	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
68	Restrooms	0	n/a	n/a
69	Science Lab	5 plus	Classroom data cabinet	5 CAT-6 data drops plus 1 data drop for each demonstration table.
70	Special Needs Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.

ID	Location	Quantity	Termination Point	Comments/Notes
71	Special Needs Work Area/Room	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
72	Stadium and/or Gym Concession Area	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per concession area in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
73	Stage office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
74	Teacher/Faculty Work Room	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each work room area in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
75	Teacher/Faculty Dining Area	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each teacher/faculty area in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
76	Technology Support - Mobile Lab Storage Space	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
77	Technology Support Area - MDF	0	n/a	n/a
78	Technology Support Area - Network Printer Space	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each networked printer in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
79	Theatre - Control Room	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each control room/office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
80	Theatre - Costume Storage	0	n/a	n/a
81	Theatre - Make-up & dressing Rooms	0	n/a	n/a

ID	Location	Quantity	Termination Point	Comments/Notes
82	Theatre - Scene Shop	0	n/a	n/a
83	Therapists - Occupational Therapy/Physical Therapy (OT/PT) Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
84	Therapists - Psychology Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
85	Therapists - Speech Office	2	MDF or nearest typical classroom data cabinet	2 CAT-6 data drops per each office in one receptacle/faceplate for VoIP phone and computer usage. Typical classroom data cabinet has 24-port PoE capacity. Be sure to optimize and distribute amongst MDF or typical classrooms evenly.
86	Trade & Industrial Area Agriculture (AG Mechanics & Animal Science)	15	Classroom data cabinet	15 CAT-6 data drops per typical trade area classroom instruction.
87	Trade & Industrial Area Agriculture (Horticulture)	15	Classroom data cabinet	15 CAT-6 data drops per typical trade area classroom instruction.
88	Trade & Industrial Area Automotive	15	Classroom data cabinet	15 CAT-6 data drops per typical trade area classroom instruction.
89	Trade & Industrial Area Cosmetology	10	Classroom data cabinet	10 CAT-6 data drops per typical trade area classroom instruction.
90	Trade & Industrial Area Graphic Communication Lab	30	Classroom data cabinet	30 CAT-6 data drops per typical trade area classroom instruction.
91	Trade & Industrial Area Health Science Technology	20	Classroom data cabinet	20 CAT-6 data drops per typical trade area classroom instruction.
92	Trade & Industrial Area Marketing/I.C.E.	10	Classroom data cabinet	10 CAT-6 data drops per typical trade area classroom instruction.

D. SYSTEM DOCUMENTATION

- a. Provide test reports and documentation to the OCMAPS Technology Manager upon successful completion of CAT-6 and fiber installation.
- b. Provide Warranties as specified.
- c. Provide data schedule submittal "spreadsheet" to OCMAPS Technology Manager prior to beginning cabling installation.

Section 17750 - Room Data Power Schedule

ROOM DATA & POWER SCHEDULE

REVISION 1.01

SAMPLE SUBMITTAL FOR SECTION 17750

LINE	ROOM NAME	Room No.	Outlet Type & Quantity Per Room							
			CAT-6 Drops (Active Data/Voice) RJ-45	Blank Faceplate (Future Data/Voice)	COAX (A/V) 'F'-Coupler	Analog Telephone RJ-11	Dedicated 115 VAC Power			
							NEMA 5-15P Duplex	NEMA 5-15R Duplex	NEMA 5-20R Duplex	NEMA L5-30R Duplex
1	Administrative - Assistant Principal's Office		3							
2	Administrative - Conference Room		3							
3	Administrative - Copy Center / Work Rooms		3							
4	Administrative - Financial Office		3							
5	Administrative - Parent Resource Room		2							
6	Administrative - Principal's Office		3							
7	Administrative - Public Waiting Area		1							
8	Administrative - Reception		6							
9	Administrative - Secretarial Area		6		1	1				
10	Administrative - Student Services		3							
11	Auditorium/Stage		2							
12	Classroom - Art		6	2	1					
13	Classroom - Art Kiln Room									
14	Classroom - Before/After School Child Care		6	2	1					
15	Classroom - Elementary Grade		6	2	1					
16	Classroom - ESL		6	2	1					
17	Classroom - FACS Instruction		21	2	1					
18	Classroom - Kindergarten		6	2	1					
19	Classroom - Music		6	2	1					
20	Classroom - Pre-K		6	2	1					
21	Classroom - Science		5	2	1					
22	Classroom - Science (Each Demonstration Table)		1							
23	Faculty Lounge		2		1					
24	Faculty Workroom		3				1			
25	Food Services - Cafeteria Large Area		3							
26	Food Services - Kitchen Manager Office		3							
27	Food Services - Kitchen Point of Sale Cashier		1							
28	Food Services - Teacher Dining Area		2		1					
29	Gym		2							
30	Health Clinic - Cot Area(s) / Treatment		2							
31	Health Clinic - Office		3							
32	Media Services - AV Storage		2							
33	Media Services - Circulation Desk		8							

Section 17750 - Room Data Power Schedule

ROOM DATA & POWER SCHEDULE

REVISION 1.01

SAMPLE SUBMITTAL FOR SECTION 17750

LINE	ROOM NAME	Room No.	Outlet Type & Quantity Per Room							
			CAT-6 Drops (Active Data/Voice) RJ-45	Blank Faceplate (Future Data/Voice)	COAX (A/V) 'F'-Coupler	Analog Telephone RJ-11	Dedicated 115 VAC Power			
							NEMA 5-15P Duplex	NEMA 5-15R Duplex	NEMA 5-20R Duplex	NEMA L5-30R Duplex
34	Media Services - Computer Lab		30	2	1					
35	Media Services - Multimedia Production		2							
36	Media Services - Office		3							
37	Media Services - Reading Room		4		1					
38	Media Services - Video Storage / Retrieval		2							
39	Media Services - Work Room		4			1				
40	MEP - Building Automation System Interface		1							
41	MEP - Fire Alarm System Interface		1			2				
42	MEP - Security System Interface		1			1				
43	MEP - Sprinkler System flow switch interface		1							
44	Special Needs - Classroom		6	2	1					
45	Special Needs - Office		2							
46	Special Needs Work Area		2							
47	Student Services - Conference Room		3							
48	Student Services - Guidance Office		3							
49	Technology Support - IDF Room (Intermediate)							6		
50	Technology Support - MDF Room (Main)							6	1	
51	Technology Support - Mobile Cart Storage		2				2 (?)			
52	Therapists - (Speech)		6	2						
53	Therapists - OT / PT / SLP		6	2						
54	Therapists - Psych.		3							
55										
56										
57										
	TOTALS		217	26	15	4	2	0	12	1

These guidelines apply to all buildings owned by the Oklahoma City Public School District. The Building Automation System (BAS) for all buildings shall be designed and constructed according to the following guidelines:

A. GENERAL

1. These guidelines pertain to the operation, control and monitoring of all HVAC systems installed at each school site, and to the front-end computer systems installed at the School District Service Center Energy Management Office (EMO).
2. To minimize electric, natural gas and water consumption at the facility and enhance utilization of demand-based, time-of-use and other utility rate schedules and energy savings programs by the School District.
3. The Architect shall design a BAS system as manufactured, installed and serviced by Siemens Building Technologies, Inc. Design shall not include systems from other manufacturers, unless otherwise directed by the Program Manager. The design shall provide for control of all HVAC, interior and exterior lighting and other systems as required. Both new and existing BAS control systems shall be integrated. Existing BAS system shall be updated as required.

B. ENERGY MANAGEMENT

The School District EMO provides control and monitoring of HVAC and other systems from the School District Service Center located at 2500 N.E. 30th Street in Oklahoma City.

C. MINIMUM REQUIREMENTS

- The BAS shall communicate with the School District Energy Management Office front end.
- Existing BAS infrastructure shall be upgraded or replaced as required for compatibility.
- New facility additions shall be incorporated into existing BAS infrastructure where possible.
- New and existing HVAC systems shall have adjustable thermostats operable by occupants at the school.
- Contract documents prepared by the Architect shall be clear and detailed; mechanical and electrical designs shall be completely coordinated.
- The contract documents shall provide the BAS under the base bid.

D. SITE CONDITIONS

1. Architect shall determine existing systems in operation at the school facility site. Architect shall confirm whether specific system(s) are not in operation due to being inoperable, abandoned or on stand-by. The Architect shall coordinate with OCMAPS, the Program Consultant, and the School District to obtain historical and site-specific information at the beginning of Task 2 - Preliminary Design phase.
2. The design shall meet the following priorities as budget allows:
 - a. New and/or upgraded BAS building supervisor level controls and/or firmware, control of new HVAC plant equipment, upgraded control of existing HVAC plant equipment and use of occupant-adjustable digital display room thermostats throughout.
 - b. Interface with new zone lighting controls (for new and existing lighting systems). Note: May be omitted with use of occupancy sensors for interior lighting control.
 - c. Other mechanical, electrical or water-consuming systems as required.

The Architect shall ensure that existing system(s) or component(s) designated by the Architect as "not in contract" shall function and communicate with the new BAS system regardless of brand or manufacturer.

E. COMPLIANCE WITH INDUSTRY STANDARDS

1. The design shall be based on non-proprietary, open-protocol industry accepted standards. The Architect shall ensure that the Contractor complies with the requirements in all respects. The following industry standards shall be the basis for design:
 - ANSI/ASHRAE Standard 135-2001 - BACnet® - A Data Communication Protocol for Building Automation and Control Networks, or latest revision.

- ASHRAE Guideline 13-2000 – Specifying Direct Digital Control Systems, or latest revision.
 - LONTalk™
 - ANSI/ASHRAE/IESNA Standard 90.1-2001
2. The design shall provide for forward compatibility to meet future requirements and needs, allowing for interface with other building systems as required.

F. CONTROL POINTS

Refer to “OKCPS Energy Management System Feature Summary” for specific information. The BAS installation shall provide the following minimum points:

1. Start/stop and status of HVAC equipment, fans, pumps, etc.
2. Monitor & override occupant-adjustable thermostat heating/cooling set-points
3. Monitor space temperature and humidity in all conditioned zones
4. Monitor carbon dioxide (CO₂) level in all conditioned zones
5. Monitor supply air temperature (output) of individual HVAC systems
6. Monitor and control damper position for all outside air and relief air systems
7. Monitor outside air (ambient) temperature and humidity

G. CONTROL WIRING AND DEVICES

All control and communications wiring and devices shall be furnished and installed by the Contractor. Communications shall be through the School District’s Information Technology (IT) network. Existing wiring and devices may be utilized except where conditions dictate differently.

H. EXISTING FACILITY OPERATION AND CONTROL

The School District currently utilizes a “Siemens Apogee” operator workstation located at the EMO. The operator workstation provides control of HVAC plants at individual school sites. Temperatures within the facility are typically occupant-controlled within predefined limits. The EMO communicates with school sites via the School District’s Intranet/Ethernet system. Back-up communication capabilities may also be provided from existing land-based telephone lines.

Existing facilities to be renovated and/or expanded shall be equipped with the necessary components, firmware and/or software modifications to enable complete interoperability between existing and new BAS systems. The interoperability shall be according to standard(s) described herein.

I. TEMPORARY SERVICES

During the renovation and construction phases of existing school facility sites, the command, control and monitoring (communications) capability of the School District BAS shall be maintained by the contractor when the facility or affected part of the facility is to remain occupied or ready for occupancy. Any temporary utility connection(s) necessary in order to maintain operation, command and control of the existing BAS by the School District must be provided and maintained by the contractor until such time that permanent, new connections are provided, tested, and commissioned as required under the construction contract. This includes all telephone, data, fiber-optic and related utility connections unless specifically scheduled and approved for demolition. The School District shall have final approval of the disconnection, removal, abandonment of any existing communications, electric or electronic line.

J. COMMISSIONING

The Architect shall provide for commissioning of the BAS to function properly within the facility as an integral part of the execution process.

1. Design Phase: A site-specific commissioning specification and preliminary execution schedule shall be prepared by the Architect and submitted for review during the Final Plan Services – Task 3 phase at the 60% construction document (CD) review stage.
2. Construction Phase: Commissioning shall include testing, validation and demonstration. Architect and Contractor shall coordinate with School District officials by providing written notice at least fifteen (15) working days prior to the start of the scheduled commissioning

process, exclusive of School District holidays. Commissioning shall commence upon satisfactory completion of all mechanical, plumbing, electrical and other affected building systems. Commissioning shall not be deemed as completed until verified by proof of proper system operation from the School District EMO site.

K. TRAINING

Formal training of School District personnel shall be provided under the construction contract. Architect shall incorporate a formal training program as follows:

1. Design Phase: A site-specific training agenda and preliminary schedule shall be prepared by the Architect and submitted for review by the School District and Program Consultant during the Final Plan Services – Task 3 phase at 60% construction document (CD) review stage. The training agenda and preliminary schedule shall be finalized by the School District and returned to the Architect by the Program Consultant following the 60% construction document (CD) review stage. Architect shall incorporate the training agenda and preliminary schedule into the construction documents prior to the final plan review (95%) submittal stage.
2. Construction Phase: Training shall not commence until after the commissioning process has been completed. Architect and Contractor shall coordinate with School District officials by providing written notice at least twenty (20) working days prior to the start of scheduled training, exclusive of school holidays. Installation and service manuals shall be provided as part of the training program. An “as-built” drawing of the wiring system shall be provided during the training program. Training shall not be deemed as completed until written evidence is received from the School District and Program Manager/City Engineer or Program Consultant.

L. DE-COMMISSIONING AND REMOVAL OF ABANDONED SYSTEMS

The Architect shall investigate and design so that abandoned systems will be de-commissioned and removed as part of a supervised and coordinated demolition process. The Architect/Engineer shall refer all questions regarding specific systems, components and/or devices to be demolished to the Program Consultant, who will then obtain a response from the School District.

M. SCHOOL DISTRICT RESPONSIBILITY

The School District will coordinate and assist the Contractor as necessary during the construction phase upon request by the Contractor. The District shall provide internet protocol (IP) addresses for the required connection(s) to the District’s Ethernet system. The School District will determine the scope, content and extent of the training program to be provided and will provide a schedule of dates, times and locations for the training to occur. The School District will accept delivery of the training program from the contractor (BAS Sub-contractor) at the conclusion of each training session or program to be provided.

OKCPS Energy Management System Feature Summary

	Programs											
	Time Scheduling	Start/Stop Opt.	Holiday Scheduling	Smoke Cnt.	Enthalpy Opt.	Peak Demand Limiting	Dehumidification (4)	Status Information Required	Free Cooling	Heat/Cool Mode	Zone Control	Remote Notification
SCHOOLS												
High School	X	X	X	X	X	X		X		X	X	X
Middle School	X	X	X	X	X	X		X		X	X	X
Elementary School	X	X	X	X	X	X		X		X	X	X
AIR HANDLING UNITS												
Built Up AHU	X	X	X	X	X	X	X	X	X	X	X	X
Rooftop AHU	X	X	X	X	X	X	X	X	X	X	X	X
Split System	X	X	X	X	X	X	X	X		X	X	X
Exhaust Fans	X	X	X	X				X			X	
Heat Recovery Systems	X	X	X	X		X		X			X	
TERMINAL UNITS												
VAV Boxes	x (1)					X	X	X				X
Fan Coil Units	X	X	X			X	X	X		X	X	X
Unit & Cabinet Heaters	X	X	X							X	X	X
Outside Air Systems	X	X	X	X	X		X		X			X
P-Tac Unit	X	X	X				X				X	X
McQuay Unit Ventilators	X	X	X			X	X	X		X	X	X
IT Room Unit												X
PLANT												
Chillers	X	X	X			X						X
Boilers	X	X	X									X
Pumps	X	X	X									X
Cooling Towers									x (8)			X
P&F Heat Exchanger									x			X
Thermal Storage System ⁽⁵⁾	X	X	X									X
Variable Frequency Drives	X	X	X			X						X
Refrigerant Monitoring Systems												X

OKCPS Energy Management System Feature Summary

	Programs											
	Time Scheduling	Start/Stop Opt.	Holiday Scheduling	Smoke Cnt.	Enthalpy Opt.	Peak Demand Limiting	Dehumidification (4)	Status Information Required	Free Cooling	Heat/Cool Mode	Zone Control	Remote Notification
FIELD DEVICES												
Temperature								x (2)	x			x
Pressure								x (2)				x
Humidity	x (3)						x	x (2)				x
Air Flow												x
Water Flow												x
Setpoints (temp, pressure, Rh)	x					x						
CO2	x (3)	x (6)										x
Smoke												x
Valves						x						
Damper Actuators												
Start/Stop/Status	x	x	x	x		x		x		x	x	
Lighting Systems	x		x			x (7)		x			x	
CONTROL SYSTEM COMPONENTS												
HVAC Equipment Integration Drivers	x	x	x			x					x	x
Floor Level Controllers												x
Building Level Controllers												x
Management Level Workstations												x

Foot notes > for discussion

(1)	Power back device for unoccupied or part load.
(2)	Analog/graphics display of select site point conditions
(3)	Trend logging of CO2 & humidity is desirable for I.A.Q. quality control and record keeping purposes. Unoccupied control and alarm set points may differ from occupied hours.
(4)	Dehumidification control loops to be applied on a zone level basis.
(5)	Some locations only.
(6)	O.A. off when unoccupied (w/ override capability)
(7)	Lighting level set back for peak demand control
(8)	Tower based, free cooling if heating season air conditioning is necessary.

OKCPS Energy Management System Feature Summary

	Alarms							Analog/Binary Points					
	Hi Analog	Low Analog	Hi Binary	Low Binary	Proof	Comm Fail	Alarm Instructions	Alarm Acknowledge	Trend	Local Command	Owner Adj. Zones	Global Command	Color Graphic
SCHOOLS													
High School						X	X				X		X
Middle School						X	X				X		X
Elementary School						X	X				X		X
AIR HANDLING UNITS													
Built Up AHU										X	X	X	X
Rooftop AHU										X	X	X	X
Split System										X	X	X	X
Exhaust Fans					X		X	X	X	X	X	X	X
Heat Recovery Systems													
TERMINAL UNITS													
VAV Boxes			X	X						X	X	X	X
Fan Coil Units			X	X	X					X	X	X	X
Unit & Cabinet Heaters				X						X	X	X	X
Outside Air Systems			X	X	X					X	X	X	X
P-Tac Unit										X	X	X	X
McQuay Unit Ventilators			X	X						X	X	X	X
IT Room Unit	X	X											X
PLANT													
Chillers	X	X			X					X		X	X
Boilers	X	X			X					X		X	X
Pumps					X					X		X	X
Cooling Towers					X					X		X	X
P&F Heat Exchanger										X		X	X
Thermal Storage System ⁽⁵⁾										X		X	X
Variable Frequency Drives					X					X		X	X
Refrigerant Monitoring Systems					X								X

OKCPS Energy Management System Feature Summary

	Alarms							Analog/Binary Points					
	Hi Analog	Low Analog	Hi Binary	Low Binary	Proof	Comm Fail	Alarm Instructions	Alarm Acknowledge	Trend	Local Command	Owner Adj. Zones	Global Command	Color Graphic
FIELD DEVICES													
Temperature	X	X					X	X	X	X		X	X
Pressure	X	X					X	X	X	X		X	X
Humidity	X	X					X	X	X	X		X	X
Air Flow	X	X	X	X	X		X	X	X	X		X	X
Water Flow	X	X	X	X	X		X	X	X	X		X	X
Setpoints (temp, pressure, Rh)	X	X							X	X		X	X
CO2	X	X					X	X	X	X		X	X
Smoke			X				X	X	X				X
Valves								X	X	X		X	X
Damper Actuators								X	X	X		X	X
Start/Stop/Status					X		X	X	X	X	X	X	X
Lighting Systems									X	X		X	X
CONTROL SYSTEM COMPONENTS													
HVAC Equipment Integration Drivers	X	X	X	X	X	X	X	X					
Floor Level Controllers						X	X						
Building Level Controllers						X	X	X					
Management Level Workstations						X	X	X					

OKCPS Energy Management System Feature Summary

	Reports				Diagnostics						Editors			Communication	
	Alarm Log	Event Report	Maintenance Log	Run Time	System Activity Utility	Database Upload/Download	Comm Diagnostics	Panel	Point	Program	Point	Program	Graphic	Ethernet TCP/IP	BACnet IP
SCHOOLS															
High School	X	X	X	X	X		X	X	X	X	X	X	X	X	X
Middle School	X	X	X	X	X		X	X	X	X	X	X	X	X	X
Elementary School	X	X	X	X	X		X	X	X	X	X	X	X	X	X
AIR HANDLING UNITS															
Built Up AHU	X	X	X	X	X						X	X	X		
Rooftop AHU	X	X	X	X	X						X	X	X		
Split System	X	X	X	X	X						X	X	X		
Exhaust Fans	X	X	X	X	X						X	X	X		
Heat Recovery Systems	X		X	X							X	X	X		
TERMINAL UNITS															
VAV Boxes	X	X			X						X	X	X		
Fan Coil Units	X	X			X						X	X	X		
Unit & Cabinet Heaters	X	X			X						X	X	X		
Outside Air Systems	X	X	X	X							X	X	X		
P-Tac Unit	X	X			X						X	X	X		
McQuay Unit Ventilators	X	X	X	X	X						X	X	X		
IT Room Unit	X	X	X	X	X						X	X	X		
PLANT															
Chillers	X	X	X	X	X						X	X	X		
Boilers	X	X	X	X	X						X	X	X		
Pumps	X	X	X	X	X						X	X	X		
Cooling Towers	X	X	X	X	X						X	X	X		
P&F Heat Exchanger	X	X	X	X	X						X	X	X		
Thermal Storage System ⁽⁵⁾	X	X	X	X	X						X	X	X		
Variable Frequency Drives	X	X	X	X	X						X	X	X		
Refrigerant Monitoring Systems	X	X	X	X	X						X	X	X		

OKCPS Energy Management System Feature Summary

	Reports				Diagnostics						Editors			Communication	
	Alarm Log	Event Report	Maintenance Log	Run Time	System Activity Utility	Database Upload/Download	Comm Diagnostics	Panel	Point	Program	Point	Program	Graphic	Ethernet TCP/IP	BACnet IP
FIELD DEVICES															
Temperature	X	X	X		X										
Pressure	X	X	X		X										
Humidity	X	X	X		X										
Air Flow	X	X	X		X										
Water Flow	X	X	X		X										
Setpoints (temp, pressure, Rh)		X			X										
CO2	X	X	X		X										
Smoke	X	X	X		X										
Valves			X		X										
Damper Actuators			X		X										
Start/Stop/Status	X	X	X	X	X				X	X	X	X	X		
Lighting Systems		X		X	X				X	X	X	X	X		
CONTROL SYSTEM COMPONENTS															
HVAC Equipment Integration Drivers	X	X	X		X	X	X	X	X	X	X	X	X		
Floor Level Controllers	X	X	X		X	X	X	X	X	X	X	X	X		
Building Level Controllers	X	X	X		X	X	X	X	X	X	X	X	X	X	X
Management Level Workstations	X	X	X		X	X	X			X			X	X	X



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