This facility standards document is provided by the Owner for use in the preparation of construction documents. However, the furnishing of this document to the Architect by the Owner does not relieve the Architect of any professional liability and responsibility for the project.

This document has been revised from the original version. Additional versions may be forthcoming. The Architect shall verify that they have the latest revisions.
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SECTION 5: ATHLETIC STANDARDS
SECTION 6: FINE ARTS STANDARDS
SECTION 7: MECHANICAL STANDARDS
SECTION 8: ELECTRICAL & WAN/LAN STANDARDS
SECTION 9: CAD STANDARDS
The following information is for architects for creating construction documents for USD 259. Some of these items have been included in this standard previously but are being relocated into this new section in order to draw your attention to them.
A  DESCRIPTIONS

1) The owners, Wichita Public Schools, USD #259, shall be identified in this standards document as "owner", "district", and "USD 259." When information is needed by the project architect from the "owner", the project architect shall contact the contractually designated "owner’s representative."

2) The technical professionals as contracted by the district to perform technical design services for the bond issue projects shall be identified in this standards document as "project architect / engineer."

B  SURVEY AND GEOTECHNICAL SERVICES

1) When the architect requests architectural survey and geo-technical subsurface exploration proposals, the RFP (request for proposals) shall define the items as needed for specific project conditions. Proposals shall be evaluated by the architect to be (2) "equal proposals" for each service. Only those equal proposals that the architect believes will meet the needs of the project and are in the best interest of the district should be submitted to the district for processing.

2) For survey proposals include:

a) Field work

(1) Steel pins set at all property corners.

(2) Steel pins set at all easements

(3) Permanent benchmark established.

(4) Flag and paint pin tops with hot pink fluorescent paint.

(5) Use ½" steel pins, imbedded in the ground a minimum of two (2) feet.

b) Utilities (sewers, water, storm sewer, gas, telephone, electricity, cable TV)

(1) Location of all utilities on site and in adjacent streets or easements.

(2) Nearest location for each utility.

(3) Manholes and invert elevations of sewer.

(4) Utility poles and guy wires.

(5) Location of nearest fire hydrant.

(6) Contractor to contact Kansas One and related sources, as required for flagging utilities.
c) Legal description
   (1) Legal description.
   (2) Setbacks required by code, plat, or restrictive covenant.
   (3) Utility and access easements.
   (4) Unrestrictive covenants affecting construction.

d) Topography
   (1) Contours shown at 1’ - 0” intervals.
   (2) Topography shown to opposite side of adjacent streets.
   (3) Drainage onto site from adjacent properties (area of drainage and location).
   (4) Walks, curbs, paving, fences, light poles, and signage.
   (5) Trunk locations of all trees, accurate within 1”.
   (6) Trunk diameter of trees indicated.
   (7) Location of existing buildings and structures on site.
   (8) Accurate (within 1”) dimensions of existing buildings on site including location, size, windows, doors, and finish floor elevations.
   (9) Elevation of curbs and walks, within 1”.
   (10) Use 25’ grid for contour survey.
   (11) Use city datum elevations.
   (12) Locate trees 6” O.D. or over.
   (13) Provide information required by FEMA to determine that FEMA shelters will be one foot above the 100-year flood plane or above the 500-year flood plan (whichever is greater.)

e) Site drawing
   (1) Drawn at scale of 1” = 50 ft.
   (2) AutoCAD compatible file on electronic media.
(3) Conform to USD 259 AutoCAD Standards.

(4) Provide a stamped and signed copy of survey to USD 259 architect.

3) When surveyors call KS-One prior to survey work, the School Service Center will not perform an “all site” flagging for the surveyor. A utility plot will be provided upon request, of all known existing underground utilities and their approximate locations. If owner assistance is needed in special circumstances, contact 973-2119.

C CITY OF WICHITA PLANNING DEPARTMENT MODIFICATIONS

1) For site requiring platting, easements, administrative adjustments, set back exceptions contact Property Technician at 973-2239.

D ARCHITECT INVOICES

Architect invoices shall be prepared as shown in the sample invoices attached (Appendix A). Reimbursables should be included on invoice.

E SCHEDULES

The architect will advise the owner’s representative and the owner in writing of any issues that arise in construction schedules.

F CONTRACT INFORMATION

A 24/7 name/ number for the architect shall also be provided to the Owner.

G PROJECT COMPLETION

1) Architect shall provide Architect’s Final Checklist (Appendix B) and CAD drawings (See “CAD Standards”).

2) Complete, updated, correct site drawings shall be submitted to the owner by the project architect at the end of the project. These drawings shall include all new site improvements, all new utilities, and all discovered and existing utilities. CAD drawings shall be prepared according to the district CAD drafting standard. (Refer to CAD Standards section.)

3) Verify building set backs prior to designing building additions and parking lots.
Appendix A - Architectural Fee Sample Invoice

Please submit reimbursable expenses and fees on the same invoice as shown here. Legible copies of all invoices must be attached for reimbursable expenses.

SAMPLE INVOICE

To: (USD259 Bond Plan Manager) Invoice #: 7
Attention: (Representative)
1234 N. Broadway PO#: 16000
Wichita, KS 67202

Project: _______________________________________________________________
Project Manager: _______________________________________________________
Project Architect: _______________________________________________________

INVOICE DATE FOR ARCHITECTURAL SERVICES: March 1, 2016 through March 31, 2016

FEE BASIS:
Fixed Design fee: $45,800.00 (note any addendums to the original fee should be included here when approved)
Addendums
Current Total $45,800.00

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TOTAL 100% $ 45,800.00 34% $ 15,572.00

DESIGN FEE:
Total of 34% earned through March 31, 2016 $ 15,572.00
Less previously billed (13,282.00)
TOTAL DESIGN FEE DUE THIS INVOICE $ 2,290.00

REIMBURSABLE EXPENSES:
Current Expenses: (all current expense invoices are attached)
Outside Printing
SP 11X17 Color Prints (0.40/ea)
SP 24X36 Plots (3.00/ea) $ 81.00 X 1.05
SP 24X36 Prints ($1.00/ea)
Total reimbursable expenses incurred to date $ 353.08
Less previously billed reimbursable expenses (268.03)
TOTAL REIMBURSABLE EXPENSES DUE THIS INVOICE $ 85.05

SUMMARY BILLING:

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<th>Expenses</th>
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<td>$ 15,925.08</td>
<td>Total Paid $ 15,925.08</td>
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TOTAL BALANCE DUE INCLUDING THIS INVOICE $ 2,375.05
## Appendix B - Architect’s Final Checklist

All paperwork items must be submitted to the owner via the Bond Plan Manager at one time. Failure to do so may cause items to be returned and final payment to be delayed. Provide one set of each document.

**Date submitted to Project Representative** __________________________

**Project Name and Number** ___________________________________________

**Name of Architect** __________________________________________________

**Name of Contractor** ________________________________________________

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<tr>
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<td></td>
<td>CCO items completed &amp; submitted by contractor</td>
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<td></td>
<td>CCO paperwork signed &amp; submitted by contractor</td>
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<tr>
<td></td>
<td>CO paperwork signed &amp; submitted by contractor</td>
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<tr>
<td></td>
<td>Substantial completion form signed &amp; submitted by contractor</td>
</tr>
<tr>
<td></td>
<td>Final C.O. to duct contingency balance signed &amp; submitted by contractor</td>
</tr>
<tr>
<td></td>
<td>Consent of surety to Final Payment AIA G707 signed &amp; submitted by contractor</td>
</tr>
<tr>
<td></td>
<td>Electronic file of construction drawings on a compact disk (Label: School/name/construction drawings/date/Architects name)</td>
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<tr>
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<td>11x17 paper copies of construction drawings bound in a booklet</td>
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<td>Electronic file of quick plan drawing on compact disk. Label: School/name/quick plan drawing/date.</td>
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<td></td>
<td>Site utility drawing on 11x17 paper copy</td>
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<td></td>
<td>Electronic file of site plan drawing on compact disk. Label: school name/site plan drawing/date</td>
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</table>

Sign when all items are complete, correct, and have been submitted.

__________________________________________________________________________  ____________________________________________________________________________

Bond/Project Representative  Owner
SECTION 1: GENERAL DESIGN GUIDELINES

GENERAL DESIGN GUIDELINES

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A. MISSION STATEMENT:

To: Provide facilities/environments that meet the educational needs of the students in a way that:

- Provides space and equipment that enhances learning,
- Provides safe environments, conforming to all codes & State Board of Education requirements,
- Provides lasting, quality structures with building materials that have long life, ease of maintenance and repair, and
- Provides cost effective buildings, responsibly spending tax-generated funds,

so that:

Student achievement is enhanced.

B. DESIGN REQUIREMENTS

All design work must conform to current applicable codes required by law at all sites—such as IBC, UMC, UPC, NEC, and ADA. In addition, designs must comply with NFC regarding fire safety and KDHE regulations regarding asbestos and other hazardous material. Final construction documents must be submitted for review by the City of Wichita Central Inspection Department (CID) and other agencies as applicable. For projects that include pre-schools, latchkey, and/or child care centers, plans must be submitted to Kansas Department of Health and Environment and must meet requirements for state licensure.

The Owner (Wichita Public School System, USD #259) is very concerned with the safety of students. For any District project, fire safety issues shall be addressed per Kansas Buildings Fire Safety Handbook, latest edition. All items required for the project must be submitted including code footprints required by Kansas State Fire Marshal.

Tornado refuge areas shall be addressed at all sites. A shelter area meeting regulations as required by FEMA 361 shall be incorporated into the building design if the district can secure grant funding for the project. Current version may be found at: [http://www.fema.gov/safe-room-resources/fema-p-361-design-and-construction-guidance-community-safe-rooms](http://www.fema.gov/safe-room-resources/fema-p-361-design-and-construction-guidance-community-safe-rooms). If the District is unable to secure funding, the shelter shall be redesigned to meet FEMA #361 (Version #1). The size of the shelter should be based on the maximum occupancy at any one time at the facility including total student count, total staff count, and an allowance for typical visitor count (parents, volunteers, etc.). The project architect will be required to submit construction documents, cost reports, other documents, and special inspection reports as required by FEMA. See Appendix A & B attached (Safe Room Procedures and FEMA Design Review Check List).

District Facilities listed on the National, State, or Local Register of Historic Places require special attention to comply with historic preservation guidelines. The project architect shall coordinate with the Wichita Historic Preservation Board, State Historic Preservation Board, and others as necessary. Facilities listed on historical registers and facilities within 500 feet of a historic building have standards and guidelines that are enforced by boards. For historic buildings not on the Register, the project architect shall be sensitive to the building’s historic nature in rehabilitation efforts. Rehabilitation is defined as “the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are
significant to its historic, architectural and cultural values.” (Refer to US Department of the Interior publication “Illustrated Guidelines for Rehabilitating Historic Buildings.”)

When developing Auto-CAD drawings for bid documents and for internal company production drawings, architects and engineers can utilize their own company standards. However, when submitting the final Auto-CAD drawings to the District (construction drawings, quick plan drawings, and site utility drawings), the architects/engineers will submit these drawings formatted using USD 259’s CAD drafting standards. The project architects/engineers shall supply, for each project; complete, updated, correct Auto-CAD drawings. (See “CAD Drafting Standards”)

C. BASIC DESIGN GUIDELINES

The elements in this Facility Standards Document 2016 are to be incorporated in design work. A reference to this document to be found on the District’s website (www.usd259.org/facilities) must be made in each project specification.

Provide spaces in accordance with the Education Specification Facility Space Needs. Provide designs to meet students’ needs and to create conditions that enhance student achievement. Do so with simple designs and standard finish materials. Funds shall be focused on the following priorities 1) educational needs, 2) maintenance and operational issues, 3) aesthetics, 4) design statements.

It is the desire of USD 259 to provide facilities that create good environments for learning and promote environmental sustainability. Sustainable design strategies should be evaluated and incorporated in projects if the learning environment is enhanced while saving energy, resources and money. Some strategies and examples include the following:

- Wise use of resources:
  Example: high recycled content materials, regionally available materials

- Reduced impact on the environment
  Example: minimal site disruption, reduce storm water run-off, reduce heat-island effect

- Responsive resource management
  Example: energy efficient equipment, reduced water usage fixtures, building orientation

- High quality, healthy indoor spaces
  Example: day lighting, views to exterior, low-emitting materials, increased ventilation

- Provide learning resources and opportunities to support school sustainability efforts
  Example: recycling alcoves, education graphics explaining “green” concepts.

Exterior aesthetic appearance, colors, building materials, and detailing shall be simple and be compatible with the area/neighborhood in which it is located.

Building additions should attempt to blend with and complement original buildings. In the case of multiple existing additions at a site that are not conforming, the project architect shall complement the original structure or the structure which best fits the neighborhood. Complement the structure with building materials, rooflines, window shapes and sizes, colors, detailing, etc.
Buildings shall be simple and straightforward (no circular designs). Buildings shall be designed to allow for ease of orientation inside and outside the building. Main entries shall be a focal point in design and offices shall be at main entrances. Main entry shall access both main corridor and reception for security purposes.

It is acceptable and encouraged to repeat building designs at multiple sites when the design is appropriate to the building needs and the site setting/orientation.

When utility companies require site-specific fees (i.e., extension of utilities), that are unknown at the time of bidding, the utility company shall invoice the District directly. The cost will not be included in the construction contract. The project architect/engineer shall consult with the Energy Management department (973-2146) regarding the installations and the fee.

Standard fees shall be included in the base bid. This includes but is not limited to ‘tap equity connection fees’ as published by the City of Wichita. (See page II-7 paragraph J)

Single story buildings are preferred. Slight grade changes in single story buildings are acceptable with interior ramps meeting ADA standards. Slab on grade is an acceptable construction system. Maintenance tunnels/crawl spaces are ideal, but may not be economically feasible in new buildings. There will be no student classroom occupancy in basements added as part of new construction. First floor elevations shall be such that there is sufficient grade away from structure for proper drainage.

D. SPECIFIC GENERAL DESIGN INFORMATION

During design, consideration should be given to the future accessibility of electrical and mechanical systems so repairs and additions can be easily accomplished. On existing buildings, install mechanical and electrical infrastructure items in tunnels where available. On new buildings/additions, and on remodels with no tunnels, provide a lay-in ceiling throughout the facility so that these systems are easily accessible (when feasible). Main sewer and waste lines of buildings shall be installed as deep as possible so that future installations can be made.

Toilet fixture numbers shall be established per needs at the site. Minimum fixture numbers as required by IPC code are typically not adequate. Provide pipe chases adequate for easy maintenance (i.e., a minimum of 2’ 6” clear space between back to back toilet rooms - See Appendix C). Provide recommended clearances for all chases. Provide toilet facilities adjacent to latchkey program locations.

Consideration should be given to safety (interior and exterior). External appurtenances shall not enable students to climb upon the roof. Placement of electrical and/or mechanical equipment and other potential hazardous items shall not be accessible to students.

Doors to the outside shall be in sufficient number to meet egress as required by code. Exits that are not required shall be kept to a minimum. Due to security, all doors are kept locked during the day except the main entrance.

Provide for adjacencies of functions as addressed in Ed Specs. Administrative offices shall be located at the main entrance in such a way that all visitors to the site can be monitored by the office personnel. Large group gathering spaces shall be centrally located. Classrooms shall
be separated by wings if feasible. Provide custodial closets with service sinks in close proximity to food serving areas. If feasible, the cafeteria (or multipurpose room) shall be adjacent to the playground.

Provide stacked locations and similar utilities grouped in close proximity, if feasible. Provide node room locations throughout the building for network backbone that allows all rooms to certify within 90 meters (295 feet) of node rooms. (See requirements in LAN/WAN Section).

When raised platforms are provided (i.e. library reading areas or music rooms), provide raised platforms built of metal or wood studs on the concrete floor slab in lieu of constructing platforms of concrete and in lieu of pits. This allows for easier removal in the future.

Prior to bidding remodel projects at existing buildings, the owner will identify any items to be salvaged and delivered to the owner at the School Service Center, 3850 N. Hydraulic, Wichita, KS, by the successful contractor.

Though sprinklered buildings are sometimes beneficial to architects relative to types of construction of buildings, allowable square footage, etc; they are a problem from a maintenance viewpoint. Architects shall meet code for construction types without sprinklering buildings whenever feasible. When sprinklers are required in assembly areas, a dry sprinkler system shall be utilized.
Appendix A - Safe Room Procedures

The following items are required for all FEMA SAFEROOMS and shall meet the requirements of FEMA 361, second edition, and ICC500-2008.

1. Peer Review
   An independent peer review by a registered design professional, for both the structural engineering and architecture for conformance with the FEMA and the ICC documents. Based on past projects, it is our understanding that FEMA has allowed the independent review to be done by members of the same firm or organization. (FEMA 316: Section 3.6.3, ICC 500: Section 106.1.1)

2. Quality Assurance Plan
   The quality assurance plan, prepared by a registered design professional indicating the load transfer elements, the reason for the increased Quality Assurance/Quality Control (QA/QC) and all of the QA/QC elements and requirements. It needs to summarize the entire contract document QA/QC components into a separate document so all the people involved with the construction know their duties, roles, and requirements. (FEMA 361: Section 3.10, ICC 500: Section 107.3).

3. Special Inspections
   These are the special structural inspections performed as required by the 2006 IBC, Chapter 17. Inspections shall be by an approved inspector (sometimes multiple), to ensure compliance with the contract documents for material, details, etc. (FEMA 361: Section 3.10.4, ICC 500: Section 106.2 and 106.3).

4. Structural Observations
   Structural observations for general conformance shall be by a registered design professional at critical stages of construction. They should typically be performed by the structural engineer that designed the project unless approved otherwise. (FEMA 361: Section 3.8.2 and 3.10.2, ICC 500: Section 106.4)

5. Contractor Responsibility Letter
   The contractor, each subcontractor, special inspector, testing lab, etc., responsible for those items indicated in the quality assurance plan shall provide a written statement of understanding and give QA/QC methods to follow the plan. (FEMA 361: Section 3.10.3, ICC 500: Section 107.8.3).

6. Items 1-5 should be provided in a bound document at the end of the project and delivered to USD 259 prior to final payment.

7. PCI certified shop and AISC steel manufactures are required for FEMA shelters for precast and steel fabrication.

8. Quality assurance plan must be provided by a registered design professional as part of the contract documents. Structural observations must be done by the engineer of record on the project.

9. Fees for the required special inspection and structural observation services shall be paid directly from the district. Architect must receive at least two quotes from different vendors, and must receive approval prior to commencing with the work.
Appendix B - FEMA Design Review Checklist

The purpose of this checklist is to ensure that the Safe Room Project Architects in FEMA Region VII have included all the necessary information in their submitted Construction Plans and supporting documents for a full grant subapplication review with respect to the design and criteria as detailed in FEMA 361 Design and Construction Guidance for Community Safe Rooms, Second Edition 2008 and the prescriptive safe room in FEMA 320 Taking Shelter from the Storm; Building a Safe Room for Your Home or Small Business. Third Edition 2008. In order to assist the project architect and designers with their designs, cross-references to the FEMA 361 and the ICC/NSSA Standard for the Design and Construction of Storm Shelters (ICC-500, August 2008) are included in the checklist where appropriate. The majority of the references are to FEMA 361; however, the project architect and designer will also need to be familiar with the requirements of ICC-500. FEMA 361 references ICC-500 on certain issues, but where there is a conflict between the two documents, FEMA 361 governs. ASCE 7-05 should be used and the structure must be in compliance with all applicable Feral, State and local building codes.

Project Architects, designers, and owners must understand the importance of each component of the checklist. All items must be addressed and the proper information provided in the initial submittal. If a checkmark is in the column under “Required in Construction Documents,” then that line item must be included in the construction documents submitted to FEMA or the submittal will be considered incomplete. For this reason, the Project Architect must acknowledge the accuracy and completeness of each item by placing his or her professional seal on the checklist as is done with the construction plans. The checklist is submitted to FEMA, whose reviewers will check the architect’s response to each item as well as the location in which it is provided (the plan number, subapplication sheet number, or attachment included in the submittal). If the space provided in the response column is not sufficient for the architect, the supplemental sheet may be used to provide additional response and commentary. If the information provided is deemed insufficient by FEMA, a response will be sent to the architect with a request for the missing information.

A copy of FEMA 361 may be obtained from http://www.fema.gov/plan/prevent/saferoom/fema361.shtm.


FEMA financial assistance policies for the design and construction of a tornado safe room may require the submittal of an operations and maintenance plan prior to the start of construction. The owner should consult the grantee (typically the State emergency management agency) for specific requirements. Failure to address the operations and maintenance plan requirement may result in a construction delay.

A copy of the required checklist can be downloaded from: www.kansastag.gov/FEMASafeRoom
Appendix C – Recommended Pipe Chase Clearances

**General Design Guidelines**

- **Single Closet**: 12" REC. 24" REC.
- **Back to Back Closets**: 24" REC. 30" REC.
- **Battery of Closets**: One Side of Chase (WATER HEADERS)
- **Battery of Closets**: Back to Back (VENT HEADER)

**Designer Note:**

Recommended Clearance - allows maintenance personnel to maintain pipes and devices through an access door. Coordinate access door location with piping and ducts in chase. Align back to back fixtures.
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This section provides a summary of information on general conditions and other procedures. Portions of the information will be provided in electronic format for architects to use in project specifications. (Division 1 in electronic format; Revised AIA A101 & AIA A201 in hard copy.) See Revised Division 1, AIA A101 & AIA A201 for complete information. Note: Architects must include information provided in this document that is not provided in electronic format. Only one section of “Contractor Facilities and Temporary Controls” Either for New construction or for Remodeling and Infrastructure Revisions) will be used in the architect’s project.

A BIDDING / AWARD OF BIDS

1) Bidding Procedures
   a) Bidding shall conform to Board of Education Policies.
   b) Bid dates, times, and bid numbers shall be determined in cooperation with the Director of Purchasing and the Owner’s Representative.
   c) Bid number shall be established for each project and shall be included on all bidding documents. All correspondence pertaining to the project must contain this number.
   d) Print final construction drawing documents on black line in lieu of blue line.
   e) Notify the district’s control vendors and Simplex when plans are available for bidding. For current bids/proposals go https://259ebid.ionwave.net

2) Recommended bidding requirements:
   a) Plans will be available through select plan rooms and from USD 259’s E-Bid system: https://259ebid.ionwave.net/Login.aspx.
   b) Sealed bids will be received on E-Bid by the Owner at the USD 259 Service Center, 3850 North Hydraulic, Wichita, KS 67219, on or before the date and time specified above or as directed by an authorized USD 259 addendum. The time of receipt shall be determined by the time clock stamp on E-Bid. Bids received after the specified close of bid will not be accepted. Bids will be opened and read aloud at the Alvin E. Morris Administrative Center, Purchasing Office.
   c) The project architect shall contact, as a minimum: the plan rooms listed in the electronic information provided and ensure they receive a copy of all applicable plans and specifications.
d) Contractors must be pre-approved by the owner (see section “B” in General Information).

e) The contract, if awarded, will be awarded to the bidder who has submitted the lowest responsible contract sum meeting specifications, subject to the school district’s right to reject any or all bids. It is understood by all parties that the district reserves the right to waive minor informalities or irregularities in the bids.

f) To be considered “responsible” the bidder must meet all requirements as identified in the specification. This shall include the following:

1. Bids received via E-Bid
2. Bids received by the bid date and time.
3. All Addenda acknowledged.
4. Bid bonds and Certification regarding debarment forms must be uploaded to E-Bid
5. Bids submitted by USD #259 approved contractors / subcontractors.
6. Pre-bid meeting attended if required.

g) Bids that do not conform to the requirements of the specification may be rejected as not responsible.

h) The successful bidder must have on file with the Purchasing Department a Taxpayer Identification Number Form (substitute W-9 form). This form is not required at the bid opening but must be completed immediately thereafter and returned to Purchasing Department.

3) The successful bidder will enter into an AIA Form #A101-2007 agreement with the owner. A copy of the current version shall be included in the project specification.

4) Immediately following the bid opening, the project architect shall prepare contracts for the accepted low bidder. Contract date should be the day following the next Board of Education meeting.

5) The contractor shall return the signed agreement to the project architect, along with the required Certificates of Insurance and Bonds. The project architect shall deliver copies of Certificates of Insurance and Bonds to the owner’s representative with the signed agreement. The contractor shall submit complete copies of all insurance policies to the owner, as required.

6) Upon approval of signed contract, Bonds and Certificates of Insurance, the owner will issue a notice to proceed and a Kansas State Tax Exempt Certificate
to the contractor.

7) Delay in providing Bonds or Insurance by the contractor in a form satisfactory to the owner shall not extend contract completion time.

B PRE-APPROVAL OF CONTRACTORS

1) The district requires pre-approval of some contractors such as General Contractors, Asbestos Contractors, Swimming Pool Contractors, Mechanical Contractors, Electrical Contractors and Leviton Contractors, Turf Field System Contractors, Tennis Court Installation Contractors, and Track Contractors.

For a complete list of pre-approved contractors, go to: www.usd259.com – District Offices/Purchasing/Solicitations/Vendor Information: USD 259 – Approved Bidders List

a) In the event that a general contractor submits a project bid and if major subcontractors are required on the project (i.e., mechanical, electrical, Leviton), the proposed subcontractors shall be listed on E-Bid. Only subcontractors that have been approved by the owner PRIOR to the bid letting shall be proposed. Proposing to use subcontractors not approved by owner may be cause for rejection of bid. Proposed subcontractors shall not be changed after the General Contractor submits a sealed bid. It is the responsibility of contractor submitting the bid to verify that all proposed subcontractors have been pre-approved by the owner.

2) Contractors will be required to file with the owner a contractor’s qualification statement, AIA form #305, in order to be placed on the owner’s approved bidder list. A letter from the surety indicating bonding capacity must be included with the AIA form #305, as well as a company EOE statement (see section “C” in General Information), a statement identifying all fines and stop work orders issued by any regulatory agencies within the past three years and additional documents as needed to establish the qualification of the contractor. The owner will inform contractors who have requested approval and who have submitted the required approval documents if or when they are approved for bidding.

C EQUAL EMPLOYMENT OPPORTUNITY

1) Each bidder is required to observe the provisions of the Kansas Act Against Discrimination and shall not discriminate against any person in the performance of work under the contract because of race, religion, color, sex, national rights, ancestry or handicap.

2) In all solicitations or advertisements for employees, the bidder shall include the phrase “equal opportunity employer,” or a similar phrase to be approved by the Kansas Commission on Human rights.

3) If the contractor fails to comply with the manner in which he reports to the Kansas Commission on Human Rights in accordance with the provisions of the
Kansas Act Against Discrimination, he shall be deemed to have breached the present contract and it may be canceled, terminated or suspended and the contractor will be removed from the approved bidders list.

4) If the contractor is found guilty of a violation of the Kansas Act Against Discrimination under a decision or order of the Kansas Commission of Human Rights, which has become final, he shall be deemed to have breached the present contract and it may be canceled, terminated or suspended, in whole or in part, by the Board of Education.

5) The contractor shall include all the above provisions in every subcontractor purchase order so that such provisions will be binding upon such subcontractor or vendor.

6) A written plan indicating the contractor’s policy which includes the aforesaid items shall be filed with the owner.

D DBE, MBE, WBE

Unified School District 259 (USD 259) desires to allow as many vendors as possible the opportunity to participate – especially DBE (Disadvantaged Business Enterprise), MBE (Minority Business Enterprise) and WBE (Woman’s Business Enterprise) businesses – in the roles of providing goods and services to the school District.

To that end, USD 259 collects data to better determine where its purchasing dollars are spent. This includes tracking of dollars spent with subcontractors. To do so, we must have an accurate identification and categorization of all vendors or contractors conducting business with us.

Vendors or contractors seeking to be certified as WBE/DBE or MBE are strongly encouraged to contact the State of Kansas, the Mid America Minority Business Development Council (MAMBDC) or the Women Business Enterprise National Council (WBENC) for assistance.

If your company is not a DBE, MBE or WBE, and you are providing products or services to the School District, your efforts to contract with vendors who are DBE’s, MBE’s or WBE’s is appreciated.

If your company is providing services to the School District, upon receipt of the signed agreement, the contractor shall provide a list of subcontractors complete with contact name, address and phone number, their ethnicity and indication whether they are DBE, MBE or WBE etc. and the cost of the total contract for their portion of the work (use the attached document for reporting-Appendix H).

E IMMIGRATION & NATIONALITY ACT

Unified School District 259 actively supports the Immigration & Nationality Act (INA) which includes provisions addressing employment eligibility, employment verification, and nondiscrimination. Under the INA, employers may hire only persons who may legally work in the United States (i.e., citizens and nations of the U.S.) and aliens
authorized to work in the U.S. The employer must verify the identity and employment eligibility of anyone to be hired, which includes completing the Employment Eligibility Verification Form (I-9). The contractor shall establish appropriate procedures and controls so no services or products in response to this Request for Bid/Proposal will be performed or manufactured by any worker who is not legally eligible to perform such services or employment.

**F AIA GENERAL CONDITIONS**

1) The General Conditions of the Contract for Construction #A-201, latest edition, as published by the American Institute of Architects, and as revised by the owner, shall be included as a part of all construction contract documents. Include a copy of the current A-201 in all project specifications.

**G WARRANTIES**

1) A minimum warranty of one-year is required on all projects. The warranty period starts on the date of substantial completion. Extended warranties are required on specific items as addressed in this standards document. Warranties include parts and labor.

2) Costs of repair or replacement shall not accrue to the owner including repair or replacement of other work disturbed by or because of repair or replacement.

3) Guarantees, which are standard guarantees provided by a manufacturer, shall be received by the contractor, filled out completely and filed with the company for the owner. Certificates or registration stubs shall be submitted to the owner upon completion of the work.

4) In the event that an item must be operated prior to substantial completion of the project, that particular items guarantee period may commence earlier than substantial completion, if approved in advance by the owner. Documentation regarding this item must be included in AIA document #G704, Certificate of Substantial Completion.

5) When written guarantees are presented, the document shall include the following information:

   a) Name and address of project and owner
   b) Article, and material or system covered
   c) Name and address of installing contractor
   d) Name and address of prime contractor
   e) Signature of individual authorized to sign contracts for the company issuing the guarantee
6) Provide the following extended warranties (others are included in Architectural, Mechanical, and Electrical sections) and mark equipment with warranty expiration date in large print using black permanent marker in an area that is easily visible:

a) Minimum of five year on air-conditioning compressors
b) Minimum of two years on variable frequency drives
c) Minimum of 10 years on gas/heat exchanger equipment
d) Minimum of three (3) years on automated system controls
e) Minimum of twenty (20) years on roofs

H TAXES

1) Materials and equipment incorporated into district projects are exempt from the payment of sales tax under the laws of the State of Kansas, and such sales tax shall not be included in the proposal of the bidder. Excise tax shall be paid by the contractor and shall be included in the proposal of the bidder.

2) The owner will provide the contractor with a Kansas Sales Tax Exemption Certificate number. The Kansas State Tax Exempt Certificate will be sent to the contractor from the District.

3) Upon issuance of a proper exemption certificate to the contractor, the contractor shall assume full responsibility for his own proper use of the certificate, and shall pay all the cost of any legally assessed penalties relating to the contractor’s improper use of the exemption certificate. The contractor shall comply with all statutes of the State of Kansas related to sales tax exemption.

4) A State of Kansas Project Completion Certificate shall be presented to the owner by the contractor with close-out documents upon completion of the job.

I BONDING

1) Bonding is required on all District projects.

a) The attached check list will be used to verify bonding requirements are met for projects over $100,000. To expedite this process, the architect is encouraged to check the contractors bond certificates before submitting to the owner. (Appendix A).

b) A Bid Bond in a form acceptable to the district/owner shall accompany the response to the request for bid in an amount of five percent (5%) of the total amount of the base bid.
c) The owner reserves the right to retain the security of all bidders until the successful bidder enters into the contract or until 60 days after bid opening. Once the owner has approved a contract, bid securities will be returned as soon as practicable. If any bidder refuses to enter into a contract; the owner may retain the bid security as liquidated damages, but not as a penalty.

d) Prior to signing the contract, the owner will require the successful bidder to secure and post a Kansas Statutory Payment Bond, in accordance with K.S.A. 60-1111. Also provide AIA form #A-312 Performance Bond and Payment Bond in full amount of the contract sum to cover faithful performance of the contract and payment of all obligations arising thereunder. Surety approved by the owner and authorized to transact business in Kansas shall issue such bonds. No offshore bonding companies allowed. Kansas’s statutory payment bond must be filed with the Sedgwick County District Court 18th Judicial Clerk’s Office prior to submitting to owner.

J PERMITS, FEES, AND NOTICES

1) Plan review fees shall be paid by the owner.

2) When construction documents are ready for bidding, the project architect shall submit copies as required to the various governmental authorities for review.

3) Permit fees shall be paid by the contractor and the costs thereof included in the base bid.

4) Standard fees charged by municipal agencies shall be included in the base bid. (See pages 1-3)

K CONTINGENCY AMOUNTS/ CONTINGENCY CHANGE ORDERS

1) The owner will add a contingency amount to the accepted Base Bid on every contract. This sum shall not be included in the base bid amount, but will be included in the total contract cost. This portion is included in the total contract cost so that minor additions and changes to the contract can be made. The Architect shall identify the contingency amount in the bid specification. The amount shall be set by the owner’s representative. That portion of the contingency sum not used during construction shall be removed from the total contract sum by change order at the finish of the job.

2) Minor changes to the work shall be accomplished via a contingency change order using contingency funds. Contingency Change Orders shall be prepared as shown in the sample Contingency Change Order form attached. (Appendix F)

3) AIA change orders that increase the total contract sum must be approved by the Board of Education and will be proposed only in critical situations.
SECTION 2: GENERAL INFORMATION

L SCHEDULE

1) Project schedules shall be submitted by the contractor on computerized format such as Microsoft Project.

2) Project schedule shall be updated by the contractor on a monthly basis or at appropriate intervals, and at any additional times as requested by the project architect or owner/owner’s representative.

M CONSTRUCTION TIME AND LIQUIDATED DAMAGES

1) The architect, in consultation with the owner’s representative shall establish realistic completion date (based on labor and material availability), which shall be identified in the documents and construction shall be completed by the contractor by the established date. A date shall be established and not a “number of days”.

2) If a claim for additional time is made on the basis of adverse weather, the request for increase in contract time as allowed by the revised General Conditions shall be made by the contractor within one month of the adverse weather conditions. Requests shall be made in writing and will be awarded only as allowed in the revised General Conditions. The project architect must inform the owner’s representative of any request for time extensions. The Owner’s representative has the authority to approve/disapprove any time extension requests.

3) The agreement will include a stipulation that liquidated damages will be established for each calendar day after the agreed completion date that the work is not fully certified by the Architect as being substantially complete. The amount of liquidated damages shall be established by the owner’s representative.

4) The contractor acknowledges and recognizes that the Owner is entitled to full and beneficial occupancy and use of the completed work following expiration of the Contract time and that the Owner has entered into, or will enter into, binding agreements demising all or part of the premises where Work is to be completed based upon the Contractor’s achieving Substantial Completion of the Work within the Contract Time. The Contractor shall further acknowledges and agrees that if the Contractor fails to complete substantially or cause the Substantial Completion of any portion of the Work to not be completed within the Contract Time, the Owner will sustain extensive damages and serious loss as a result of such failure. The exact amount of such damages will be extremely difficult to ascertain. Therefore, the Owner and the Contractor agree that if the Contractor fails to achieve Substantial Completion of the Work within the Contract Time, the Owner shall be entitled to retain or recover from the Contractor, as liquidated damages and not as a penalty, the sum of $_____ per calendar day commencing on the first day following expiration of the Contract Time and continuing until the actual date of Substantial Completion. The amount will be determined between the Owner’s Representative and Project Architect prior to the bid. Such liquidated damages are hereby agreed to be a reasonable pre-estimate of damages the Owner will incur as a result of delayed completion of the Work.
5) Therefore, liquidated damages will be assessed to the contractor for each calendar day the work is not completed after the contracted completion date.

N INSURANCE

1) Insurance Protection, underwritten by carriers licensed to do business in the State of Kansas and approved by the owner, shall be certified for the required limits of liability (Appendix G). No work shall commence prior to obtaining all insurance hereunder and filing of policies with the owner. Contractor’s Insurance policies must be submitted to the Director of Risk Management; USD 259. Payment will be withheld until policies are submitted and approved.

2) Contractor shall provide minimum insurance coverage, as indicated in the revised General Conditions.

3) Any accidents or incidents on District property shall be reported on the attached incident report. (Appendix B)

4) Contractor shall keep Certificates of Insurance on file at the job site, including Certificates of Insurance of subcontractors.

5) Individuals who are self-employed and are not required by law to provide statutory worker’s compensation shall be covered by the general contractor.

6) All insurance policies shall name the owner as additional insured. (See General Conditions.)

7) All insurance policies shall provide that no cancellation of the policy or endorsement shall be effective until 30 days following certified mailing of written notices of such cancellation to the Architect and to the owner.

9) Contractors shall obtain owners and contractors protective insurance that includes the owner as the named insured.

10) The project architect shall obtain and monitor insurance coverages and request updated copies from the contractor if coverage ends during the course of the project.

11) Lack of evidence of insurance coverage is an acceptable reason for the project architect or owner to shut-down the project. Loss of work due to failure on the part of the contractor to provide evidence of insurance coverage is not a valid reason for extension of contract time.
HAZARDOUS MATERIALS
(See the revised General Conditions for specific items relating to hazardous materials.)

1) New Construction:
   a) No asbestos-containing building materials (ACBM) and/or lead-based paint are to be used in construction in District Buildings.
   b) The project architect shall provide a letter to the owner (the Director of Environmental Services) indicating that new construction is free of ACBM and/or lead-based paint.

2) Existing Buildings: (Work involving removal of asbestos containing building materials (ACBM) or lead abatement will be performed by the owner. Contact the architect and owner’s representative immediately if ACBM or lead abatement is required.
   a) Architects/Contractors who are conducting work at Unified School District 259 buildings are required to consult the Asbestos Management Plan to determine whether their actions will result in the disturbance of asbestos-containing building materials (ACBM). A copy of the building’s Asbestos Management Plan is located in the main office of each building. If the contractor cannot make this determination from the Asbestos Management Plan, the contractor should immediately call the Director of Environmental Projects at 973-2006 and request assistance.
   b) Construction activities that involve the removal of paint will require sampling of the paint layers by a certified Kansas Lead Inspector using work practice standards under K.A.R. 28-71-1 through 28-72-53. The paint sample must be submitted for lead analysis to a laboratory that is accredited by the State of Kansas. Paint samples containing 0.5% or more of lead will be classified as “lead-based paint.”
   c) All ACBM removal will be performed on a separate contract initiated by the owner by a licensed asbestos contractor selected from the USD 259 approved contractor list per the following ACBM (Asbestos-containing building Materials) guidelines:

(1) Operations and Maintenance (O&M) work is any work that disturbs less than or equal to three (3) square feet/3 linear feet of asbestos-containing building material. This shall include O&M work such as:
   (a) The removal of three (3) linear feet of piping insulation,
   (b) The removal of three (3) square feet of surfacing material
   (c) The drilling of holes through friable or non-friable material
(d) Any other work that disturbs asbestos-containing materials or that could cause non-friable asbestos-containing materials to become friable.

(2) O & M work shall be performed by Kansas Class I Asbestos Workers, and supervised by a Kansas Class II Asbestos Supervisor (as contracted by the owner)

(3) An approved asbestos contractor must submit notification of O&M work to the Environmental Services Department that includes at a minimum the following items:

(a) The name, address, and certificate number of the individual person who supervised the asbestos project and each employee or agent of the licensee who worked on the project.

(b) The location and a description of the project and the amount of asbestos material that was removed.

(c) The starting and completion dates of each instance of removal or encapsulation.

(d) A summary of the procedures that were used to comply with all applicable standards.

(e) The name and address of each asbestos disposal site where the waste containing asbestos was deposited.

(f) Any other information which may be required by the State.

(4) All work performed must comply with all State, Federal, and local regulations for the removal, transportation, and disposal of ACBM and asbestos-containing debris. Failure to comply could lead to substantial fines being levied against the contractor and could possibly result in lawsuits and damages.

(5) All removal of asbestos-containing material shall be performed by licensed asbestos contractor selected from the USD #259 approved bidder’s list and as contracted by the owner. The contractor will submit State Notifications and amendments, and a copy of the project work schedule to the USD #259 Asbestos Program Manager before the start of any asbestos removal project. The personnel must be trained according to OSHA. (Occupational Safety and Health Administration) regulations, which usually require a minimum of sixteen (16) hours of training provided by an OSHA approved training provider. Personnel who must disturb asbestos are required to wear protective clothing such as Tyvek suits and HEPA equipped respirators, and must dispose of any asbestos-containing
material or debris in accordance with NESHAP (National Emissions Standards for Hazardous air Pollutants) regulations.

d) At a USD #259 building, a contractor should do the following:

(1) Refer to the Asbestos Management Plan to determine if any asbestos will be disturbed by the contractor’s actions. This would include but not be limited to, actions such as drilling or cutting through ceilings, floor, and walls.

(2) When entering tunnels and crawl spaces, care should be taken to determine if the tunnels have been restricted to trained asbestos personnel only. If this is the case, the tunnel or crawl space will be identified as restricted by a sign posted near the entrance. Only properly trained individuals wearing proper clothing and HEPA (High Efficiency Particulate Air) equipped respirators will be allowed to enter posted tunnels.

(3) If the contractor cannot make a determination from the asbestos Management plans if he will encounter or disturb asbestos, the contractor should call the Director of Environmental Services Department for assistance. The supervisor of Environmental Services will then assign personnel from the department to assist the contractor in making a determination.

(4) If the contractor encounters asbestos-containing material, the contractor must comply with all Federal, State, and local regulations regarding asbestos. The contractor shall not disturb ACBM. If the contractor disturbs ACBM’s, the contractor will be responsible for all costs associated with removal, cleanup, monitoring and disposal of asbestos-containing materials and any resulting accidental fiber release episode.

(5) If the contractor encounters ACBM, the contractor shall contact the architect, who will contact the owner’s Supervisor of Environmental Services department immediately.

(6) Many district boiler interiors have ACBM. Prior to scheduling removal of a boiler at a site, the owner should be requested to inspect boiler interiors for ACBM.

e) INTACT FLOOR TILE AND MASTIC REMOVAL

The contractor may be allowed to perform intact floor tile and mastic removal if approved in advance by the District. If approved, the Contractor shall comply with all the requirements of OSHA 1926.1101 regulations as may be applicable to the removal of floor tile and associated mastics.
SECTION 2: GENERAL INFORMATION

(1) Training: Employees shall be trained as required in 1926.1101 (k)(9) including workers and competent persons in Class II work practices involving intact floor tile removal.

(2) Exposure assessments and Monitoring: Conduct initial exposure assessment with both 8 hour time weighted average and 30 minute excursion monitoring of employee exposure as required in 1926.1101 (f).

(3) Employee Protection: Employees shall use respiratory and protective clothing as may be required by 1926.1101 (h) and (i).

(4) Work Practices: 1926.1101 (g)(8)(i)

(a) Regulated work area by demarcating and posting proper signage, controlling access to authorized personnel only.

(b) Clean the floor with a HEPA filtered vacuum.

(c) Mist the floor tiles with amended water.

(d) The floor tile shall be removed intact, as much as possible, by hand methods. Heating the floor tile may aid in the removal. If heated tiles can be removed intact, wetting may be omitted.

(e) Mastic may be removed with solvent. Carefully apply the solvent using a brush to aid the dissolving of the mastic. Floor dry may be used to clean the contaminated solvent from the area. The use of powered equipment (such as electric buffers) to remove mastic is prohibited.

(f) Clean the removal area with a HEPA filtered vacuum.

(g) Dispose of all debris as asbestos material in a proper landfill.

(h) Prohibited activities: Dry sweeping, drilling, sanding, grinding, sawing, mechanical chipping or otherwise pulverizing floor tile or mastic causing release of asbestos fibers from their matrix. Eating, drinking, smoking and chewing gum or tobacco is prohibited in the regulated area.

(5) The Contractor shall perform floor tile and mastic removal work only when the following requirements are met:

(a) Only personnel who have the proper asbestos floor tile removal training will be allowed in the work area.
(b) Outside the work area, the only people that will be allowed in the building are contractors, subcontractors, and USD 259 custodial and maintenance staff.

(c) Teachers, administrators, students and the public at large will not be allowed in the building during asbestos floor tile removal.

(6) Before scheduling the asbestos floor tile removal, the contractor shall perform the following:

(a) Contact the Building Principal to schedule a removal time that will not impact school activities.

(b) Contact the Rental Services Office (973-4558) to schedule a removal date that will not interfere with building rental activities.

(c) Fax a copy of the work schedule to Environmental Services (973-2005).

(7) When arriving at the site after normal working hours (5:00 PM) the contractor shall:

(a) Contact USD 259 Dispatch at 973-2100 to let security know that the contractor has arrived at the site.

(b) Make arrangements with building staff (building custodian or building engineer) to have the building security system turned off during the work.

(c) After work is complete the contractor shall turn the security system back on and inform USD 259 Dispatch (973-2100) that the contractor is leaving the building.

f) Lead-based paint (LBP) procedures:

(1) Lead-based paint was commonly used in school buildings built before 1978. Lead-based paint dust can represent a health hazard and toxin to children and school personnel when ingested or inhaled. Contractors that perform work activities such as sandblasting, scraping, sanding, or chemical removal of painted surfaces will need to assume that lead-based paint is present, or make a determination using a Kansas Licensed Lead Inspector to sample suspect materials. All lead-based paint sampling protocols must meet or exceed guidelines established by the State of Kansas. In addition, all lead-based paint analysis must be performed by Kansas certified laboratories.
(2) Any measure or set of measures designed to permanently eliminate lead-based paint hazards in a child-occupied facility is classified as a lead abatement and hence is a regulated activity. Lead abatement shall not include renovation, remodeling, landscaping, or other activities when these activities are not designed to permanently eliminate lead-based paint hazards, but are designed to repair, restore, or remodel a given structure, even though these activities may incidentally result in a reduction or elimination of lead-based paint hazards.

(3) The Lead-Based Paint Renovation, Repair and Paring Program (RRP) is a Federal and State regulatory program that covers child occupied facilities including schools and day-care centers built before 1978. It includes pre-renovation education requirements as well as training, certification, and work practice requirements. Contracts must be in compliance with K.A.R. 28-72-1 through 28-72-53 for applicable child occupied facilities.

(4) Lead-Based Paint Debris (LBPD) is any lead-based paint demolition debris or lead-based paint architectural component debris. Under 40 CFR Part 745, lead-based paint debris can be sent to a construction/demolition landfill, non-municipal landfills which accept conditionally exempt small quantity generated waste and hazardous waste disposal facilities. LBP cannot be sent to municipal landfills due to permit restrictions and leaching characteristics of these sites. Lead-based paint debris does not include concentrated LBP wastes such as LBP chips, dust, blast media, solvents, sludges, and treatment residues.

(5) Lead-based paint waste materials that do not meet the definition of lead-based paint debris as discussed in item 3 (above) must be evaluated as a potential hazardous waste. The contractor shall contact Environmental Services for instructions on the management, transportation, and disposal of lead-based paint waste materials that do not meet the criteria of lead-based paint debris.

g) Hazardous Waste procedures:

(1) The Contractor will manage all waste according to State, Federal, and local regulations. These regulations include, but are not limited to, all current and amended Resource Conservation and Recovery Act (RCRA) regulations, Kansas State hazardous waste including Universal Waste which includes certain batteries, pesticides, mercury-containing equipment, and bulbs (lamps) as denoted in Kansas Administrative Regulations K.A.R. 28-31-15.

(2) Where applicable, the Contractor is responsible for the management of all waste activities pertaining to, but not limited to: 1) the proper identification of waste, 2) the proper labeling of
waste, 3) the proper containerization of waste, 4) the proper storage of all waste, 5) regulatory notifications, 6) transportation and disposal, and 7) documents related to shipping, disposal of waste, and employee waste training. Hazardous waste transporters used by a Contractor must comply with K.A.R. 28-31-6. Hazardous waste storage, treatment, and disposal facilities used by a contractor must comply with K.A.R. 28-31-8, K.A.R. 28-31-8b, and K.A.R. 28-31-9, and any other applicable State or Federal regulations. The shipping manifest must be retained by the generator for 3 years.

(3) All waste discharged to a sewer system must meet the discharge standards of the local sewage treatment facility and must obtain approval prior to dumping into a publicly owned treatment works. Where applicable, all waste submitted to a landfill must have a proper solid waste authorization.

(4) Polychlorinated biphenyls (PCB) and diethylhexyl phthalate (DEHP) contaminated fluorescent tube ballasts must be incinerated. The mercury and glass components of mercury-containing lamps must be reclaimed. Copies of certificates of ballast disposal and certificates of mercury lamp reclamation must be sent to Environmental Services. Copies of manifests and Bills of Lading for PCB and DEHP containing ballasts, and mercury containing lamps must be sent to Environmental Services. Refer to “Waste Ballasts/Mercury Lamps Worksheet.” (Appendix E)

(5) The contractor will be responsible for all costs associated with managing and disposal of waste as well as the cleanup of spills or releases of waste.

h) MSDS procedures:

(1) USD #259 needs to be able to respond to both employee and student health concerns, illnesses, and injuries that may result when they are exposed to products used and/or stored on USD #259 property. To facilitate this response, the contractor will submit copies of Material Safety Data Sheets (MSDS) to Environmental Services for products used and/or stored on USD #259 properties. Submit these at the start of the project through the project architect.

P APPLICATION FOR PAYMENT

1) Provide a schedule of values for approval to the project architect as required by the General Conditions prior to the start of the project. Base requests for payment on the portions of the work completed as described on the schedule of values. FEMA shelter costs shall be broken out as separate line items on the schedule of values.
2) After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents. A retainage of ten percent (10%) of the completed work and stored material will be withheld from each payment until fifty percent (50%) of the Work has been completed and fifty percent (50%) of the Contract Amount has been paid; thereafter, no further retainage will be held, however, the accumulated amount shall be retained until completion, except that should the Contractor at any time fail to keep current with the approved Progress Schedule, retainage shall be increased to ten percent (10%) and shall remain at such until the Contractor is again in compliance with the Progress Schedule. The accumulated amount of retainage shall be released on any undisputed payment due within thirty (30) days after substantial completion. However, if any subcontractor is still performing work under its subcontract, the portion of the retainage attributable to such subcontractor shall be withheld until thirty (30) days after such subcontractors work is completed.

3) Submit payment applications to the Architect on the 20th of the month. The project architect shall process payment as per the General Conditions and AIA A101.

4) The project architect shall review and, if appropriate, approve the payment application and then submit to the owner’s representative. The project architect will reject the submittal if incorrect.

5) The owner shall make payment per the revised General Conditions and A101.

6) No interest will be paid by the owner on monies due and unpaid.

7) Per the General Conditions, the District holds retainage until final completion and final payment of the Work. On the Certificate of Substantial Completion, the Contractor is given a specified number of days to “complete or correct the Work on the list of items attached hereto… (These should typically be listed as thirty days.) “Once these specified number of days are reached, the District will determine in conjunction with the Project Architect and Owner a dollar value of the Work which is not yet “complete or correct”. The balance of the retainage on the Work will then be released for payment to the contractor. (Note: All Project Architects should add the Contractors Final Payment Application Checklist to their punch list of Work to be completed/corrected). This allows a larger payment to the Contractor at the end of the Work while still ensuring the District retains sufficient funds for the Work. No final payment of the District’s determined dollar value will be made to the contractor until all of the Work is complete/current.

Q MATERIAL SUBSTITUTIONS

1) If a specific product is identified in the District Standards document, alternate products shall not be considered. The architect shall consult the owner when in doubt regarding “equal” products.
2) All submittals for products shall be reviewed by the project architect to meet specifications and District Standards. Such submittals are not required to be provided to owner, unless requested.

R ACCESS TO BUILDINGS

1) Architects and contractors working in a building or on USD #259 grounds must wear a badge at all times. Contractor / sub-contractor badges shall include:

   a) Company name and/or company logo
   b) Employee name and photo.

2) The contractor shall cooperate with the administration at the project site. The contractor shall sign in daily, if required, by the building administration, or shall use other means as required by the administrators, for communicating their presence at the site.

3) Due to security issues, attendance center doors are NOT ALLOWED TO BE PROPPED OPEN AT ANY TIME.

4) The contractor shall cooperate with the administration at the site on working hours. Typically, these hours will not extend beyond the time that a custodian / engineer is scheduled to work at the site.

5) If extended work hours are absolutely required to complete the work, the contractor shall notify the owner’s representative 72 hours in advance of the need for access to the building.

6) Access to particular rooms at the project site shall be coordinated with the site custodian.

7) Keys will be provided to contractors by the owner’s representative if access is necessary when employees are not present. Contractors must agree to the following procedures before keys are provided:

   a) Keys will NOT be duplicated when loaned.
   b) Additional keys will NOT be borrowed from site personnel.
   c) All keys will be returned to the owner’s representative at one time upon completion of the project.
   d) Final payment will be made only after return of all keys and/or payment of all fines related to key use.
**SECTION 2: GENERAL INFORMATION**

e) Lost keys will be reported immediately to Safety Services Mon – Fri, (316) 973-2260, or after hours and weekends, (316)973-2100. Contractor will submit a report for lost keys and case # will be assigned.

f) The project superintendent will at all times know the location of and be responsible for all keys loaned to the contractor.

g) Persons entering the building with loaned keys will:

1. Contact security dispatch (973-2100) immediately prior to entering the building. Give security your name, your company name, your cell phone number, and your proposed schedule for occupying the building.

2. Disengage the alarm upon entering the building.

3. Keep the entrances monitored or locked when using the building.

4. Verify windows and doors are closed and securely locked when leaving the building.

5. Re-activate the alarm when leaving the building.

6. Contact security dispatch immediately upon departure of the building.

h) If keys are lost, the following charges will be incurred:

1. High School Keys - $1,200.00 per site

2. Middle School Keys - $800.00 per site

3. Elementary School Keys - $500.00 per site

i) If the contractor fails to notify security prior to building entry, it will trigger a false alarm and USD 259 security and/or Wichita Police will be contacted and dispatched. The contractor will be charged for false alarms at a rate of $25.00 for the first alarm and $50.00 each alarm thereafter.

j) Any failure on the part of the contractor to abide by any or all of these procedures, and/or repeated false alarms may be cause for the loss of the privilege of a loaned key.

**S BEHAVIOR STANDARDS**

1) Contractor and employees shall exercise discretion in language, behavior, etc. when working on school properties and at any time they are in the presence of students, parents, employees and administrators.
2) Unacceptable behavior shall be the basis for removal of contractor/subcontractor employees from the project. The definition of unacceptable behavior is solely defined without question by the owner.

3) Use of alcohol or illegal drugs by any contractor’s employee is absolutely prohibited.

4) Smoking/tobacco products anywhere on USD #259 property are prohibited.

**SEXUAL HARASSMENT**

1) The contractor shall comply with all City, State and Federal laws, rules, regulations, and ordinances, and USD #259 policies, pertaining to sexual harassment in regard to USD #259 employees, pupils or other individuals on USD #259 property.

2) If an employee of a contractor or subcontractor is suspected of sexual harassment, the individual will be reported to the contracting entity. The suspected individual/s will not be allowed to continue to work at the site.

3) Failure on the part of the contracting entity to insure employee / subcontractor compliance with the applicable regulations may result in:
   a) Revocation of current contracts.
   b) Elimination of the contractor from the approved bidders list.

4) Sexual harassment may include, but is not limited to
   a) Sexually oriented communication, including sexually oriented verbal “kidding” or harassment or abuse.
   b) Subtle pressure or requests for sexual activity.
   c) Unwelcome attempts to change a professional relationship into a personal, social-sexual relationship.
   d) Creating a hostile work or learning environment, including the use of innuendoes or overt or implied threats.
   e) Unnecessary touching of individual, e.g., patting, pinching, hugging, repeated brushing against another person’s body.
   f) Requesting or demanding sexual favors accompanied by implied or overt threats concerning an individual’s employment.
   g) Requesting or demanding sexual favors accompanied by an implied or overt promise of preferential treatment with regard to an individual’s employment.
h) Sexual assault or battery as defined by law.

U SAFETY OF PERSONS AND PROPERTY

1) Safety at the sites is of utmost concern to the owner. The contractor shall take all precautions for the safety of:

   a) Students in attendance at the site.
   b) Administrators, parents, and visitors at the site.
   c) All employees of the district, all employees on the work, and all other persons who may be affected thereby.
   d) All the work and all materials and equipment to be incorporated therein, whether in storage on or off the site.

2) The contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public authority having jurisdiction for the safety of persons or property, to protect them from damage, injury or loss.

3) The contractor shall erect and maintain, as required by existing conditions and progress of the work, all reasonable safeguards for safety and protection, including fencing and posting of danger signs and other warnings against hazards. The contractor shall also post safety regulations.

4) The project site will be kept clean and organized, and debris shall be disposed of daily.

5) The project architect shall plan and require general contractor to provide for adequate exiting during construction as required by the State Fire Marshal and the City of Wichita for fire safety during the course of the project.

6) Dig permits

   a) When surveyors call KS-One prior to survey work, the School Service Center will not perform an “all site” flagging for the surveyor. A utility plot will be provided upon request, of all known existing underground utilities and their approximate locations. If owner assistance is needed in special circumstances, contact the Architectural Department at 316-973-2016 or 316-973-2018.

   b) Contractor is responsible for notifying KS ONE-CALL prior to ALL digs per KS ONE-CALL procedure.

   c) The excavator shall designate the area of excavation with white paint, flags, and/or stakes prior to the arrival of the utility locator. Pre-marking allows the excavators to accurately communicate to the facility owners / operators or their locator where the excavation
is to occur. When you call Kansas One-Call, tell the operator that the area has been white lined. They will put that information on the locate ticket to inform the locator that the area has been white-lined.

d) If contractor, during the course of construction encounters any unmarked utilities, or damages any utilities, contact the owner immediately.

e) The owner shall repair any damage to owner’s utilities.

(1) If damaged utilities were marked, the contractor shall pay the owner for the cost of repairs as determined by the owner.

(2) If damaged utilities were not marked by the owner but properly reported to KS ONE-CALL, please call the Architectural Department at (316) 973-2018; the owner shall repair utilities at no cost to the contractor.

V CONTRACTOR FACILITIES AND TEMPORARY CONTROLS – NEW CONSTRUCTION

1) Utility Usage

At new construction (Natural gas, electricity, water/sewer, trash, and telephone service.) All utilities shall be provided and paid for by the general contractor, including the setting of separate meter.

a) New Construction includes:
New buildings at new sites
New building additions at existing sites.

2) Temperature requirements during construction

a) The general contractor shall provide temporary heat and/or cooling as required to maintain specified conditions for construction operations, or to prevent damage from dampness and cold, or to dry out work. Do not use temporary equipment which might damage the building. Mechanical contractor shall make permanent heating systems ready as soon as is practical, and supply temporary heat from these as soon as permanent systems are completed.

3) Utility change-over

a) Utilities shall be changed to owner’s account on the date of substantial completion. There shall be NO interruption of service. The general contractor is responsible for notifying the Energy Management office a minimum of five (5) working days in advance of any changes in billing
4) Contractor Use of Premises

a) Limit use of premises to allow:

1) Owner occupancy
2) Work by others and work by owner
3) Work by general contractor and subcontractors
4) Telephone / Fax Service

(a) The general contractor shall provide / maintain telephone service at the contractor’s field office for the duration of construction, including use of the phone by the architect or representative, for calls to the architect’s office, the owner, project engineering consultants, suppliers, or others, as necessary for the proper and expedient completion of all duties required for administration of this project.

(b) The general contractor shall provide / maintain a fax machine, and provide, maintain, and pay for temporary telephone service for the fax machine, in the contractor’s field office for the duration of construction. This machine will remain the property of the general contractor. The architect shall provide the owner’s representative with the fax machine number.

(c) The general contractor shall provide a 24/7 contact name/number so that they can be contacted by the Owner in the event that an emergency arises at a bond construction site when no construction personnel are on site. This name/number shall be distributed to the Owner at the pre-construction meeting and shall be updated periodically throughout the entire project as needed.

5) Temporary Sanitary Facilities

a) The general contractor shall provide properly serviced toilet facilities for use of all workers.

b) The general contractor shall maintain toilet facilities in clean and sanitary conditions.

c) Toilet facilities in existing schools shall NOT be used by contractors.
6) Barriers and Fencing

a) The general contractor and all subcontractors shall install and maintain all warnings, barricades, construction fences, signal lights, and any other warning or barricade as required to warn and protect the public from hazards due to their operations.

b) The general contractor shall provide temporary chain link security fencing around perimeter of construction and material storage area(s), including lockable gates at construction additions. Contractor shall be responsible for maintaining security fencing in good repair throughout the project, and for locking job site at night. The Architect shall specify placement of security fencing by consulting with building administration prior to installation. The number and sizes of gates in the temporary security fence will be as determined by general contractor requirements.

c) All such warning devices and barricades shall be installed in compliance with OSHA and IBC requirements, and any additional local ordinances.

7) Water Control

a) The general contractor shall maintain excavations to keep reasonably free of water. Provide, operate, and maintain pumping equipment as needed. Costs for all such pumping shall be paid for by the general contractor.

8) Exterior Enclosures

a) The general contractor shall provide temporary weather-tight closures to exterior openings to permit acceptable working conditions and protection of the work.

b) The general contractor shall provide temporary roofing as required to protect interior building finishes and equipment if there is a delay in installing final roof.

c) Costs for all such temporary closures shall be paid for by the general contractor.

9) Protection of Installed Work

a) Protect existing and installed work, and provide special protection where required.

b) Prohibit traffic or storage upon roofed surfaces. Repair shall be made to damaged existing or installed work at no additional cost to the owner.
10) Progress Cleaning
   a) Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

11) Field Offices and Sheds
   a) The general contractor shall furnish and maintain in good condition during progress of work a field office facility for use of general contractor and the Architect. Provide a table or other flat surface on which to review plans and specifications. This facility will remain property of the general contractor.
   b) The field office shall be weather-tight, with lighting, electrical outlets, heating, cooling and/or ventilating equipment, and equipped with sturdy furniture and drawing display table.
   c) Contractor shall keep a complete set of drawings, general conditions of the contract, supplementary conditions, specifications, addenda, change orders, shop drawings, monthly project schedule updates and any supplementary drawings or other written instructions pertaining to the construction of this project at the field office location, for use by all workers, the owner, and the architect.

      The architect shall consistently verify that the above needed documents are available.

   a) Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to final inspection.
   b) Clean and repair damage caused by installation or use of temporary work.
   c) Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

W CONTRACTOR FACILITIES AND TEMPORARY CONTROLS - REMODELING AND INFRASTRUCTURE REVISIONS

1) Utility usage at existing sites
   a) When working in existing buildings (i.e., infrastructure and remodel), existing utilities can be used by the contractors and will be paid by the owner.
2) Temporary Electricity

a) Connect to existing power service. Power consumption shall not disrupt owner’s need for continuous service.

b) Provide power outlets for construction operations, branch wiring, distribution boxes, and flexible power cords as required.

c) If power service must be discontinued for any reason, this shall occur during non-attendance time frames or as scheduled with the building’s administrator and the owner’s representative. Contractor shall notify the Energy Management office a minimum of five (5) working days in advance of any changes in billing responsibility. Refer to “Sitework Standards”, section D.

d) It will be the contractor’s responsibility to maintain power at all times at major node sites. The major node sites must be maintained at all times for security purposes. The major nodes control the telephone system for the referenced site and for several other school sites. This includes use of the security system, the fire alarm system, the 911 system and the telephone and network systems.

3) Temporary Lighting

a) Provide and maintain temporary lighting for construction operations and security light(s) around construction area(s).

b) Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

c) Existing permanent building lighting may be utilized during construction in existing buildings. Repair, clean, and replace lamps at end of construction as required, prior to substantial completion inspection.

d) Turn off items used prior to leaving the site, and/or discontinuing use.

4) Temporary Heating and Cooling

a) The general contractor shall provide temporary heat and/or cooling as required to maintain specified conditions for construction operations, or to prevent damage from dampness and cold, or to dry out work. Do not use temporary equipment which might damage the building. Mechanical contractor shall make permanent heating systems ready as soon as is practical, and supply temporary heat from these as soon as permanent systems are completed.

b) General contractor shall provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.
c) The general contractor shall maintain minimum temperatures for installation of material(s) as specified herein or otherwise as required by product manufacturer(s). Contractor shall repair or replace materials damaged as a result of exposure to low temperature; either during initial application or installation, curing, or subsequent construction activity.

d) The general contractor shall provide qualified personnel to operate temporary and permanent equipment.

5) Temporary Ventilation

a) The general contractor shall ventilate enclosed areas as required to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, and gases.

b) The general contractor may utilize permanent H.V.A.C. systems if needed for proper finishes at the job as soon as these systems are available. Note information in warranties section. Extend and supplement equipment with temporary fan units as required to maintain clean air for construction operations.

6) Telephone / Fax Service

a) The general contractor shall provide / maintain telephone service at the contractor’s field office for the duration of construction, including use of the phone by the architect or representative, for calls to the architect’s office, the owner, project engineering consultants, suppliers, or others, as necessary for the proper and expedient completion of all duties required for administration of this project.

b) The general contractor shall provide / maintain a fax machine, and provide, maintain, and pay for temporary telephone service for the fax machine, in the contractor’s field office for the duration of construction. This machine will remain the property of the general contractor. The architect shall provide the owner’s representative with the fax machine number.

c) The general contractor shall provide a 24/7 contact name/number so that they can be contacted by the Owner in the event that an emergency arises at a bond construction site when no construction personnel are on site. This name/number shall be distributed to the Owner at the pre-construction meeting and shall be updated periodically throughout the entire project as needed.

7) Temporary Water Service

a) The contractor may use water for construction purposes from the present building systems, but must make his own extensions.
8) Temporary Sanitary Facilities
   a) The general contractor shall provide properly serviced toilet facilities for use of all workers.
   b) The general contractor shall maintain toilet facilities in clean and sanitary conditions.
   c) Toilet facilities in existing schools shall NOT be used by contractors.

9) Barriers and Fencing
   a) The general contractor and all subcontractors shall install and maintain all warnings, barricades, construction fences, signal lights, and any other warning or barricade as required to warn and protect the public from hazards due to their operations.
   b) The general contractor shall provide temporary chain link security fencing around perimeter of construction and material storage area(s), including lockable gates at construction additions. Contractor shall be responsible for maintaining security fencing in good repair throughout the project, and for locking job site at night. The Architect shall specify placement of security fencing by consulting with building administration prior to installation. The number and sizes of gates in the temporary security fence will be as determined by general contractor requirements.
   c) All such warning devices and barricades shall be installed in compliance with OSHA and IBC requirements, and any additional local ordinances.

10) Water Control
    a) The general contractor shall maintain excavations to keep reasonably free of water. Provide, operate, and maintain pumping equipment as needed. Costs for all such pumping shall be paid for by the general contractor.

11) Exterior Enclosures
    a) The general contractor shall provide temporary weather-tight closures to exterior openings to permit acceptable working conditions and protection of the work.
    b) The general contractor shall provide temporary roofing as required to protect interior building finishes and equipment if there is a delay in installing final roof.
    c) Costs for all such temporary closures shall be paid for by the general contractor. Costs of damages shall be the responsibility of the general contractor.
12) Egress
   a) Contractor is required to maintain egress as required by the State Fire
      Marshal and the City of Wichita Fire Marshal’s Office. Any construction
      modifications to provide such egress shall be included in the construction
      document, approved by the Central Inspection Department of Wichita, the
      State Fire Marshal’s office, the local fire jurisdiction, and included in the
      contractor’s base bid.
   b) Architect shall meet with building administration to plan and coordinate
      modifications to evacuation procedures at the site and contractor shall
      provide signage for the site as needed.

13) Protection of Installed Work
   a) Protect existing and installed work, and provide special protection where
      required.
   b) Prohibit traffic or storage upon roofed surfaces.
   c) Repair shall be made to damaged existing or installed work at no
      additional cost to the owner.

14) Access Roads
   a) Designated existing on-site roads may be used for construction traffic.

15) Parking
   a) Parking and access to the project will be coordinated at the pre-
      construction meeting.
   b) Only parking areas identified can be used to accommodate construction
      personnel. School parking areas shall not be disrupted.
   c) Return parking area(s) to original condition at end of project, including re-
      grading and reseeding of grass if required.

16) Progress Cleaning
   a) Maintain areas free of waste materials, debris, and rubbish. Maintain site
      in a clean and orderly condition.
17) Field Offices and Sheds

a) The general contractor shall furnish and maintain in good condition during progress of work a field office facility for use of general contractor and the Architect. Provide a table or other flat surface on which to review plans and specifications. This facility will remain property of the general contractor.

b) The field office shall be weather-tight, with lighting, electrical outlets, heating, cooling and/or ventilating equipment, and equipped with sturdy furniture and drawing display table.

c) Contractor shall keep a complete set of drawings, general conditions of the contract, supplementary conditions, specifications, addenda, change orders, shop drawings, monthly project schedule updates and any supplementary drawings or other written instructions pertaining to the construction of this project at the field office location, for use by all workers, the owner, and the architect.

d) The architect shall consistently verify that the above needed documents are available.


a) Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to final inspection.

b) Clean and repair damage caused by installation or use of temporary work.

c) Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

X PROJECT CLOSEOUT

1) Final Inspection

a) Complete entire project to meet substantial completion as identified in the general conditions, including all City of Wichita C.I.D. inspections, prior to requesting final inspection.

b) If an occupancy permit is required, secure it prior to calling for final inspection. Present a signed inspection card to project architect at the beginning of the final inspection.

c) Execute final cleaning prior to final inspection. Remove all debris and construction facilities from the site.
d) It is the contractor’s responsibility to inform the project architect when the work is substantially complete in accordance with Contract Documents and ready for project architect’s inspection by scheduling with the project architect a final walk through. The project architect shall notify the following:

(1) Building principal
(2) Project engineers
(3) Owner’s representative
(4) All contractors / subcontractors
(5) Owner’s construction review team member assigned to the project.
(6) Anyone else as requested by the owner.

e) Complete the commissioning process prior to scheduling final walk through procedures.

f) Contractor shall have final punch list prepared for the final walk through.

g) Following completion of all punch items identified by the project architect during the final inspection, the contractor shall inform the architect that the work is complete in accordance with the contract documents. The contractor will normally complete punch items within thirty (30) days.

h) Contractor is responsible for upkeep of site such as grass mowing and weed removal during construction (this includes from substantial completion to final payment).

i) Contractor is responsible for debris removal, ground leveling and reseeding of additional areas at the completion of project.

j) The contractor may submit final application for payment after all items on the Contractor’s Final Payment Application and Checklist (Appendix C) are complete and turned in to the project architect.

The owner may occupy the space after substantial completion. Any damage caused by owner after occupying the space will be repaired by the owner at the owner’s expense.

2) Project Record Documents

a) Submit operations / maintenance manuals with product information in bound notebooks; 8 ½ “X 11” text pages.
b) Internally subdivide the binder contents with permanent page dividers, logically organized with tab sections clearly printed under reinforced laminated plastic tabs.

c) Submit two sets of all items.

3) Commissioning

The contractor shall perform commissioning activities with the owner. (See Mechanical Standards) The intent is to obtain a more rapid “shakedown” of project HVAC systems to prevent the multi-year problems with the intended goal being a fine-tuned, fully functional project HVAC system for the district.
Appendix A - Bond/Contract Submittals Checklist

Date _____________________  Person Performing Check __________________________

Project Name / or Number _______________________________________________________

Policy Dates:___________________________________________________________________

Name of Contractor’s Company:_____________________________________________________

<table>
<thead>
<tr>
<th>Items to check</th>
<th>Check if complete</th>
<th>Comments (Date completed)</th>
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<tr>
<td>Project name or number</td>
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<tr>
<td>Contractor’s name/firm</td>
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<td>Proper Signature</td>
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<td>Check Date (not ‘old copy)</td>
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<tr>
<td>Proper limits/amounts per Specifications</td>
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<tr>
<td>Policy dates within project timeframe, Note always for one year…</td>
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</table>

District as additional insured, for Bond projects show Owner and Plan Manager as a primary and non-contributory additional insured on general liability, additional insured on auto policy

*In description of operations .................................................................

Cancellation stated as ‘30 days notice’...........................

Commercial General Liability box checked for occurrence not as claims ......

General Aggregate box check for per project not as per policy ......

Workers Compensation box check to include proprietor ..............

or in description of operation

Insurance Company shall have……..

Policy holder rating no lower than “A-“.................

Financial rating not lower than ‘VII”II..........................

(continued on next page)

(Bond Contract Submittals Checklist) Page 1 of 3  (01-12-12)

*  **Note: The Policy holder rating system and Financial rating system are found on the Internet page 4 of 14 at http://www3.ambest.com/ratings/entities/search.aspx
Certificate of Insurance (continued)

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Performance Bond

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<td>Original (not a copy)</td>
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<td></td>
</tr>
<tr>
<td>Sealed/stamped</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date on Bond not earlier than Contract date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surety listed on U.S. Treasury Department’s Surety List (Circular 570 list)***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Bond Contract Submittals Checklist) Page 2 of 3 (01-12-12)
### Payment Bond

<table>
<thead>
<tr>
<th>Items to check</th>
<th>Check if complete</th>
<th>Comments (date completed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project name or number</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract dollar amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contractor's name/firm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original (not a copy)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proper Signature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIA Document A312 used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total amount same as contract amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sealed/stamped</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date on Bond not earlier than contract date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surety listed on U.S. Treasury Department's</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surety List (Circular 570 List)***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: The Surety List of the U.S. Treasury Department can be found on the Internet at [http://www.fms.treas.gov/c570/](http://www.fms.treas.gov/c570/)*

### Statutory Bond

<table>
<thead>
<tr>
<th>Items to check</th>
<th>Check if complete</th>
<th>Comments (Date completed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project name or number</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract dollar amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contractor's name/firm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original (not a copy)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proper Signature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Must have been filed (filed stamp) or receipt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All three parties signed; witness, bond, contractor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Others

<table>
<thead>
<tr>
<th>Items to check</th>
<th>Check if complete</th>
<th>Comments (Date completed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owners and Contractor protective Insurance with Owner as the Name insured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power of Attorney</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date on Power of Attorney same date or prior to date on Bond</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix B – Incident Report

USD #259
INCIDENT REPORT

Project Location: ______________________________  Type of Incident: ________________________

Bid #________________ Date: __________________ Time: _________(a.m./p.m.)

Information on Incident:

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

Incident reported by: ______________________________
CONTRACTOR:        ______________________________
PHONE:    __________________________  FAX: __________________________

Signature: _______________________________________  Date:  ________________

(Please print name)

Report incident to:
Dispatcher, USD #259                                    Risk Management
Phone:  973-2100                                            Phone: 973-4565
Fax:    973-2180                                              Fax: 973-4671

Dispatch – notify:
Division Director, Plant Facilities – 973-2182
Fax – 973-2150

All paperwork items must be submitted to the owner via the Architect at one time. Failure to do so may cause items to be returned and final payment to be delayed.
Appendix C – Contractor’s Final Payment Application Checklist

Date submitted to Owner___________________
Project Name and Number________________________

Name of Architect_________________________________________________
Name of Contractor___________________________________________

<table>
<thead>
<tr>
<th>Item</th>
<th>√ when done</th>
</tr>
</thead>
<tbody>
<tr>
<td>This Final Payment application checklist</td>
<td></td>
</tr>
<tr>
<td>FEMA structural checklist and attachments</td>
<td></td>
</tr>
<tr>
<td>CCO paperwork complete &amp; accurate</td>
<td></td>
</tr>
<tr>
<td>CO paperwork complete &amp; accurate</td>
<td></td>
</tr>
<tr>
<td>Completed mechanical inventory sheets</td>
<td></td>
</tr>
<tr>
<td>LAN certifications</td>
<td></td>
</tr>
<tr>
<td>Data Rack Layout Drawings</td>
<td></td>
</tr>
<tr>
<td>Termite Inspection reports</td>
<td></td>
</tr>
<tr>
<td>Check-out keys returned to owner via Ken Arnold</td>
<td></td>
</tr>
<tr>
<td>Occupancy permit with all items complete except USD 259 responsibilities (i.e. landscaping and parking lots)</td>
<td></td>
</tr>
<tr>
<td>Temporary</td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td></td>
</tr>
<tr>
<td>Subcontractor Data Sheet</td>
<td></td>
</tr>
<tr>
<td>Release of lien form AIA G706A</td>
<td></td>
</tr>
<tr>
<td>Project completion certificate</td>
<td></td>
</tr>
<tr>
<td>Substantial completion form</td>
<td></td>
</tr>
<tr>
<td>Final C.O. to deduct contingency balance</td>
<td></td>
</tr>
<tr>
<td>Consent of surety to Final Payment AIA G707</td>
<td></td>
</tr>
<tr>
<td>Operating and Maintenance manuals (2 sets/site)</td>
<td></td>
</tr>
<tr>
<td>Electrical</td>
<td></td>
</tr>
<tr>
<td>HVAC</td>
<td></td>
</tr>
<tr>
<td>Plumbing</td>
<td></td>
</tr>
<tr>
<td>Special equipment</td>
<td></td>
</tr>
<tr>
<td>Air balance report</td>
<td></td>
</tr>
<tr>
<td>Additional warranty certificates</td>
<td></td>
</tr>
</tbody>
</table>
### SECTION 2: GENERAL INFORMATION

#### As built (Bond paper construction document set marked by Contractor at job site to show built conditions)
- Architectural
- Mechanical
- Electrical
- Structural

#### System commissioning and training complete:
- HVAC
- Fire Alarm
- Electrical
- Electrical Metering
- Security
- Intercom
- LAN/WAN
- Phones
- DDC

#### Color lists of all finish materials

#### DDC control layout (as built) and graphics

#### DDC computer delivered to SSC (if specified)

#### DDC controls up and running for current season. Default mode for off season

#### SSC contacted for change out of exterior cylinder (contractor must contact Key Shop, 973-2103)

#### Turnover of all new interior building keys to Key shop – correctly identified

#### Turnover of all new misc. keys to Key shop – correctly identified

All items are complete and correct and have been submitted.

---

Architect [Signature] Date [Date]  
Bond Plan Manager [Signature] Date [Date]
Appendix D – Mechanical Inventory Sheet

<table>
<thead>
<tr>
<th>Type of Equipment</th>
<th>CHILLER</th>
<th>BOILER # of BTUs</th>
<th>FURNACE/AC</th>
<th>RTU/AC</th>
<th>PUMPS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># of Tons</td>
<td>HOTWATER</td>
<td>STEAM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AHU/AC</td>
<td>AHU/HTG</td>
<td>AHU/AC &amp; HTG</td>
<td>RTU/AC &amp; HTG</td>
<td>RTU/HTG</td>
</tr>
<tr>
<td>List Others:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Manufacturer:</th>
<th>TRANE</th>
<th>MCQUAY</th>
<th>CARRIER</th>
<th>SUPERIOR</th>
<th>L.E.S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CLEAVER/BROOKS</td>
<td>LOCHINVAR</td>
<td>BRADFORD/WHITE</td>
<td>BURNHAM</td>
<td>OTHER</td>
</tr>
<tr>
<td>List Other(s):</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Description of Location (Room Number)</th>
<th></th>
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</table>

<table>
<thead>
<tr>
<th>Model Number</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Serial Number</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Voltage</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Refrigerant Type ( )</th>
<th>Amount: ( )</th>
<th>Circuit Number(s): ( )</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Belt Size</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Filter Size</th>
<th>Dimension: __________ __________ __________ Count: __________</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pump Frame</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pump pipe size</th>
<th></th>
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</table>

<table>
<thead>
<tr>
<th>Motor RPM</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Motor HP</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Comments:</th>
<th></th>
</tr>
</thead>
</table>
Appendix E - Waste Ballasts / Mercury Lamps Worksheet

Building ________________________________________________________________

CRT Name ______________________________________________________________

CRT Phone ________________________  Cell Phone ___________________________

Contractor Name _______________________________________________________________

Contractor Phone _________________________  Cell Phone ___________________________

Instructions: Submit the information request below to Environmental Services 3-4 weeks prior to the time a contractor will need containers for mercury lamps and/or ballasts. This amount of time is needed to receive delivery of these containers. If a contracting entity chooses to exercise its salvage rights, it is essential that Design and Construction receive a document showing that the contractor has assumed title to the ballasts or lamps. In the absence of the document, USD 259 may assume liability for any mercury lamps or ballasts that are not disposed of properly by the contracting entity.

Write the number of ballasts scheduled to be removed in the “Estimated Number” blank opposite “Ballasts.” Write the number of lamps for each lamp type in the column labeled “Estimated Number.” If a type of mercury lamp is not listed below, enter the type in a blank space beneath “Description.” All amounts should reflect the quantity for which USD 259 will assume disposal responsibilities. Exclude quantities of mercury lamps and/or ballasts that the contractor will manage as salvage.

<table>
<thead>
<tr>
<th>Estimated Number</th>
<th>Description</th>
<th>Estimated Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ballasts</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 ft. Fluorescent Tubes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 ft. Fluorescent Tubes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6 ft. Fluorescent Tubes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 ft. Fluorescent Tubes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>U-Tube Fluorescent Lamps</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High Intensity Discharge Lamps</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Yes  NO  Question #1

Does the contractor plan to exercise its salvage rights for mercury lamps?

Comments

Yes  NO  Question #2

Does the contracting entity plan to exercise its salvage rights for ballasts?

Comments

Yes  No  N/A  Question #3

If either question #1 and/or question #2 are “Yes”, has the contracting entity submitted a signed document to Design and Constructing assuming title of mercury lamps and/or ballasts? Check with Julie Hedrick to see if this document exists. If this document is needed, Design and Construction will create it for the contractor to sign.
Appendix F – Sample Contingency Change Order (CCO)

WICHITA PUBLIC SCHOOLS
USD 259

Please submit back up information on all items indicating the breakdown of the total cost. Bond and insurance costs are not included in CCO’s as the contingency sum has already been included in the total contract cost.

CONTINGENCY CHANGE ORDER

PROJECT #: 17-25-091  CHANGE NO.  #4

PROJECT: Jefferson Elementary
School Addition
4615 E. Orme
Wichita, KS

DATE: 10/01/16
P.O.: P2050611

TO: ABC Construction
4901 N. WYX Street
Wichita, KS 67200

CONTRACT BID: $2,794,405.00
CO #1 in the amount of $2,011.00 on 6/25/16
ORIGINAL CONTINGENCY: $40,000.00
Add to contingency fund by C.O. #2 on 9/1/16
+ $10,000.00
REVISED CONTINGENCY: $50,000.00
CONTRACT TOTAL: $2,846,416.00

YOU ARE DIRECTED TO MAKE THE FOLLOWING CHANGES IN THIS CONTRACT:
List deducts from jobs and additions to contingency first.

Item 1 Omit signage included in contract which will be furnished by USD 259 Add to contingency $500.00
Item 2 Mud jack under wood floor in lieu of removal and replacement of wood floor, sleepers, and concrete. Add to contingency $5,000.00
Item 3 BOE added $10,000.00 to contingency fund by change order #2 on 9/0/01. Add to contingency $10,000.00 $15,500.00
Item 4 Add 100’ linear foot cast iron storm drain piping. Deduct from contingency $6,000.00
Item 5 Change location of connection of sewer line, Increase size of line from 4’ to 6’. Deduct from contingency $8,224.00 ($14,224.00)

TOTAL $1,276.00

Original Contingency Sum……………………………………………………………….. $40,000.00
Net Change By Previous Contingency Changes………………………………………….. $37,000.00
Contingency Sum Balance Prior to this Change………………………………………….. $3,000.00
Contingency Balance will be (Increased) (Decreased) (Unchanged) by this Change…… $1,276.00
New Contingency Balance……………………………………………………………….. $4,276.00
Contract Time will be (Increased) (Decreased) (Unchanged) by………………………… (2) Days

OWNER’S REPRESENTATIVE DATE:
_________________________________________  ____________________________________

ARCHITECT CONTRACTOR
_________________________________________  ____________________________________

DATE__________________________  DATE__________________________
Appendix G - Owner’s Instructions for Insurance and Bonds

Owner’s Instructions for Insurance and Bonds

The requirements set forth in the appendix are based on insurance provisions and requirements set in Article 11 of AIA Document A201, General conditions of the contract for Construction – 2007 Edition, as modified for this project, (“AIA Document A201, 2007 Edition), and the completion of the instructions is presumed to be based thereon.

A. CONTRACTOR’S LIABILITY INSURANCE

Concerning the insurance described in Paragraph 11.1 of AIA Document A201, 2007 Edition, specify the following limits:

1. Worker’s Compensation and Employers Liability: Statutory
   - Bodily Injury by Accident $100,000 Each Accident
   - Bodily Injury by Disease $500,000 Policy Limit
   - Bodily Injury by Disease $100,000 Each Employee

   Officers who will be on the job site SHALL be included

2. Commercial General Liability (including Premises-Operations; Products and Completed Operations, XCU cannot be excluded)
   - Each Occurrence Limit $1,000,000
   - General Aggregate Limit $2,000,000
   - Products/Completed Operations Aggregate Limit $2,000,000
   - Personal and Advertising Injury Limit $1,000,000

   The General Liability policy shall include a General Aggregate. Such General Aggregate shall be not less than $2,000,000. Policy shall be endorsed to have a per project aggregate.

3. Umbrella Excess Liability:
   - Each Occurrence Limit $5,000,000
   - Aggregate $5,000,000

   For projects in excess of $10,000,000:
   - Each Occurrence Limit $10,000,000
   - Aggregate $10,000,000

4. Automobile Liability (owned, non-owned, hired);
   - Bodily Injury
$  Each Person      $1,000,000
$  Each Accident     $1,000,000

Property Damage:
$  Each Occurrence $1,000,000
or $1,000,000 combined single limit

**B. OWNERS’ AND CONTRACTOR’S PROTECTIVE LIABILITY INSURANCE**

Concerning the insurance described in Paragraph 11.3 of AIA Document A201, 2007 Edition, the Contractor shall provide this insurance with the following limits:

$  Each Occurrence     $1,000,000
$  Aggregate     $1,000,000

**C. PROPERTY INSURANCE**

Concerning the insurance described in Paragraphs 11.2 and 11.4 of AIA Document A201, 2007 Edition, the Owner will purchase the insurance in the amounts deemed to be in the public interest that is described in Paragraphs 11.2 and 11.4 of AIA Document A201, 2007 Edition.

**D. PROFESSIONAL LIABILITY INSURANCE**

The insurance requirements have been specified at 3.12.10 of the General Conditions (AIA A201).

**E. BONDS**

(a) A Performance Bond, Payment Bond and Statutory Bond as described in Paragraph 11.5 of AIA Document A201, 2007 Edition, and in the Additional Documents as that term is defined in Paragraph 1.1.1 of AIA Documents A201, 2007 Edition, shall be provided in the following amounts:

- Performance Bond 100% of Contract Sum
- Payment Bond 100% of Contract Sum
- Statutory Bond 100% of Contract Sum

(b) The Performance and Payment Bond shall be in the form set forth in AIA Document A312.

**F. DEDUCTIBLE**

Deductibles shall not exceed $5,000. Deductibles are the responsibility of the Contractor.
Appendix H – Subcontractor Data Sheet

SUBCONTRACTOR DATA SHEET

Formal Bid #__________  Project Name:  ______________________________

Prime Contractor Name:______________________________________________

Prime Contract Amount:______________________________________________

THIS FORM MUST BE SUBMITTED TO DESIGN AND CONSTRUCTION
3850 N. HYDRAULIC, WICHITA, KS 67219

<table>
<thead>
<tr>
<th>Subcontractor Name / Address / Phone No.</th>
<th>Sub Contract Amount</th>
<th>Type of Work</th>
<th>Status (check as many as apply)</th>
<th>Ethnic Code</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>DBE SBE WBE</td>
<td>A AA NA HI PI Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DBE SBE WBE</td>
<td>A AA NA HI PI Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DBE SBE WBE</td>
<td>A AA NA HI PI Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DBE SBE WBE</td>
<td>A AA NA HI PI Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DBE SBE WBE</td>
<td>A AA NA HI PI Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DBE SBE WBE</td>
<td>A AA NA HI PI Other</td>
</tr>
</tbody>
</table>

Status:  DBE (Disadvantaged Business Enterprise), SBE (Small Business Enterprise), WBE (Women Business Enterprise)

Ethnic Code:  A (Subcontinent Asian American), AA (African American), NA (Native American), HI (Hispanic American), PI (Pacific Islander Asian American), or Other (Majority)

Please make every effort to fill in all lines above.

I hereby certify that the above information is true and correct and that I will notify the Purchasing Agent, in writing, of any changes that occur prior to completion of the work.

Prime Contractor’s Signature: __________________________ Date:  __________

Purchasing Agent’s Signature: __________________________ Date:  __________
# SECTION 3

## SITEWORK STANDARDS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>EXISTING CONDITIONS</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>UTILITIES</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>UTILITY ACCOUNTS</td>
<td>5</td>
</tr>
<tr>
<td>D</td>
<td>PEDESTRIAN / EMERGENCY / VEHICLE CIRCULATION</td>
<td>6</td>
</tr>
<tr>
<td>E</td>
<td>USD #259 TRANSPORTATION</td>
<td>7</td>
</tr>
<tr>
<td>F</td>
<td>PARKING</td>
<td>8</td>
</tr>
<tr>
<td>G</td>
<td>LANDSCAPING</td>
<td>9</td>
</tr>
<tr>
<td>H</td>
<td>SOIL TREATMENT</td>
<td>13</td>
</tr>
<tr>
<td>I</td>
<td>FENCING / PIPE BARRIERS</td>
<td>14</td>
</tr>
<tr>
<td>J</td>
<td>SITE SIGNAGE / FLAGPOLES</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>1) General</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>2) Building Name Signs</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>3) Building Address Signs</td>
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<td></td>
<td>4) Monument Signs</td>
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<td>5) Construction Signs</td>
<td>19</td>
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<td></td>
<td>6) Flagpole</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>7) Branding</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>8) Dedication Plaque</td>
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</tr>
<tr>
<td>K</td>
<td>PLAYGROUND EQUIPMENT</td>
<td>20</td>
</tr>
<tr>
<td>L</td>
<td>DELIVERIES / DOCKS</td>
<td>21</td>
</tr>
<tr>
<td>M</td>
<td>TRASH SERVICE</td>
<td>21</td>
</tr>
<tr>
<td>N</td>
<td>GENERATOR PAD</td>
<td>22</td>
</tr>
<tr>
<td>O</td>
<td>INTERIOR COURTYARDS</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Appendix A – Bond Issue Sign</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Appendix B – Play pad for Elementary Schools</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Appendix C – Pre – K Fenced Area</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Appendix D – Container Enclosure</td>
<td>27</td>
</tr>
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</table>
A EXISTING CONDITIONS

1) Site/utility plans showing known utilities and site conditions are provided by the owner. However, the owner makes no guarantee that all the utilities are identified or that they are accurate.

2) Utilities are to be conserved whenever possible. It is the contractor’s responsibility to see that district conservation guidelines are followed.

   General suggestions for utility conservation are:

   a) All running water will be turned off when not in use.

   b) All electrically powered apparatus are to be turned off when not in use, including interior and exterior lighting.

   c) The site’s exterior envelope is to remain sealed whenever possible when mechanical conditioning of air is in use.

3) Refer to Section II General Information, U – Safety of Persons and Property

B UTILITIES

1) New utility installations shall be as follows:

   a) Fiber optic lines Installation – Schedule 40 PVC piping.

   b) Communication lines– Buried cable

   c) Storm Sewer

   Avoid storm sewer piping if feasible on site. (Allowed at building entrances to keep sidewalk clear). Drain site on grade following the natural contour of the site, if proper site drainage design can be achieved. Design minimize fill. Grade site for positive flow away from building (eight percent (8%) minimum drainage away from the building for a distance of twenty (20) feet). Drain site so that water does not create wet areas in playgrounds or icy areas at pedestrian paths via swale to lot perimeter (preferably gutters). Do not artificially divert or retain water onto adjacent properties. If storm sewer piping is required, use PVC. Exceptions to be approved by owner.

   d) Water Service – Minimum type “K” soft copper 4” diameter and above; C900 is allowed.

   e) Gas Service- Approved non-metallic as per code.
f) Sanitary Sewer – PVC

g) Fire Service –

(1) Fire protection main riser. As part of the fire protection system piping, furnish and install a Watts type ATR at stainless steel service riser, size to match FP line size shown on the plans. The fire protection system water service riser shall be composed of a single extended 90° fitting factory fabricated of type 304 stainless steels with maximum working water pressure rating of 200 PSI. The fitting shall be 72” long in both the horizontal and vertical dimensions and shall have a grooved end connection on the vertical building connection side and bell type CIPS coupler on the underground water service connection end. Riser elbow shall be anchored in concrete as specified in the NFPA 24 pamphlet.

(2) Underground Fire Protection Main. Provide a new fire protection water main extension for the fire sprinkler system as shown on the plans. Install shall be in accordance with NFPA Standard No. 24 and local water department standards. Underground piping shall have a minimum cover of 3.5’ measured from top of pipe to finish grade and shall be centrifugally cast ductile iron pressure pipe with cement lining and exterior bituminous coating for special Class 250 meeting AWWA specification C-151/121.51 pipe more than 10 feet from the building may be C900-89 PVC pressure pipe with “Ring Tite” joints. Fittings shall be cast iron mechanical joint type meeting AWWA Specifications C111/A2611 and C153/A21.53. All bolts and nuts on fittings and flanges shall be covered with plastic roofing cement to make them impervious to ground water attack. Provide sleeve in the building wall or floor one pipe size larger than the water main piping, seal annular space between pipe and sleeve water tight and provide flanged and anchored connections where entering the building.

h) Electrical – Schedule 40 PVC electrical. For electrical service, underground, three (3) phase service is preferred.

i) Fire Hydrant – Locate as per current codes.

j) Contact utility companies to be impacted by design work as early in the design phase as possible (i.e., Westar, Kansas Gas Service Co., Black Hills Energy (formerly Aquila), etc). Westar requires a minimum 8 week notice for service changes. Provide them a drawing of the proposed relocation work. Contact the owner’s representative regarding utility relocations needed at project site.
2) When new utility installations are attached to existing:

a) Verify integrity of existing systems. Modify if required. All utilities shall have a single meter per site. (Exceptions: When signs or other specialty use items have been installed at sites to be paid for by separate funding sources or when a second meter is requested by and paid for by utility company.) If more than one meter is necessary or is more economical to the district, contact owner for approval of all exceptions.

b) At new gas meter installations, contact the owner regarding electronic flow measurement (EFM).

3) ALL utility lines including storm sewer lines shall include tracer wire for line identification. Tracer wire shall be installed in trench with piping. The tracer wire shall be a bare copper wire; minimum size #10. If the wire is over 500 feet, the tracer wire must be accessible at both ends for line identification. At the end point of the line, exterior to the building, an easily accessible, above ground tracer wire box shall be installed. The access box shall be a Type E conduit box. The cover plate for the box shall have a screw with a nut on the inside and outside of the cover plate. The tracer wire should be attached to the screw on the inside of the box using the nut to secure the tracer line to the cover. The outside nut will be available for connection of the locator instrument to the tracer wire for tracing.

4) It will be the contractor’s responsibility to maintain power at all times at major node sites. The major node sites must be maintained at all times for security purposes. The major nodes control the telephone system for the referenced site and for several other school sites. This includes use of the security system, the fire alarm system, the 911 system and the telephone and network systems. Engineers shall request information on whether a school is a major node from IST Division (316) 973-4200.

5) No matter what stage of design or construction they are in, the contractor is required to notify the Owner twenty-four (24) hours in advance of any initial charging of a gas line, and furthermore such initial pressurization with natural gas is to be scheduled only on non-school days. Additionally, contractors are reminded that they must follow all applicable codes relative to any gas line work.

6) A copy of the natural gas line pressure check inspection by the Metropolitan Area Building and Construction Department (MABCD) is to be forwarded immediately to the owner’s representative.

7) The District has asked that all contractors working in schools over the holidays, where the contractors are still controlling the school’s heating system on site, to use the night setback position (55 degrees). If contractors have any questions, they can contact Energy Managers at 973-2146.
C UTILITY ACCOUNTS

(Questions should be directed to Energy Management at 973-2146)

In order to ensure a smooth transition for any utility addition or change (electricity, natural gas, water / sewer), these procedures must be followed:

1) There is to be no interruption in utility services due to transfer of utility account responsibility.

2) The Energy Management office must be contacted in advance a minimum of five (5) working days under the following circumstances:
   a) Removal of any utility service (electricity, natural gas, water / sewer)
   b) Installation or addition of any new utility service.
   c) Changes in billing responsibility; i.e. end of contractor obligation to pay utilities and transfer of account to USD 259.

3) Upon notification, the Energy Management office will provide the name and contact information for the appropriate utility customer service representative assigned to USD 259.

4) Before the District will accept responsibility for any utility account, the following systems must be complete and the District must have operational control
   a) All HVAC systems
   b) Outside building mounted lighting.
   c) Air and water balancing
   d) DDC Controls commissioned and turned over to the District
   e) Final filter changes complete
   f) Final HVAC maintenance schedules complete

5) Natural gas service is primarily under transport agreements, involving supply contracts and transport contracts from separate companies. Due to the complexity of natural gas service the Energy Management office must be contacted a minimum of five (5) working days in advance for any additions or changes in the natural gas service.
   a) Multiple buildings are equipped with EFM (Electronic Flow Measurement) natural gas meter devices. There are district telephone lines connected to modems on devices beside the gas meters. Phone lines and gas meters must be maintained at all times. Questions about a specific meter
SECTION 3: SITEWORK STANDARDS

or for a list of meters, contact the Energy Management office.

6) Energy Management contact person for utility accounts:

Energy Management Clerk (7:00am – 3:30pm)
Phone: 316-973-2146
Fax: 316-973-2150

D PEDESTRIAN / EMERGENCY / VEHICLE CIRCULATION

1) GENERAL

Design for: driveways, parking, emergency access, delivery of supplies from district warehouse, daily delivery of food from district nutrition services, trash service, bus loading & unloading, parent drop-off & pick-up. All site layouts should be designed with the safety of students as top priority. Care should be taken in the layout of pedestrian/vehicular/ emergency circulation on the site so vehicles are separated from children. In locating other site items, the convenience of adult personnel is secondary to student safety (i.e. longer distances to trash dumpsters).

2) BUS LOADING ZONE should have a pedestrian waiting concrete pad that is large enough for the student body at dismissal time, ADA Compliant, and should be separated from streets and drives. Bus loading zone should be on school property. Designate zone with 6-8” solid yellow border.

3) PEDESTRIAN WALKWAYS should avoid crossing driveways. If a walkway must cross a driveway, cross where there is limited room for vehicles such as a single lane drive. Avoid pedestrian walkways at parking lots. No pedestrian walkways allowed in the food or supply loading dock areas. All areas where students and staff access the school, including pathways that approach the building from the sides or the rear should be connected with paved walkways. Pedestrians’ walkways that must cross driveways on school property shall be painted with 4” yellow stripes.

4) SIDEWALKS should be provided from all areas where students will approach school on foot whenever possible.

5) CROSSWALKS should be painted on pedestrian walkway when on school property. Paint with 4” yellow stripes. Painting of crosswalks on city streets is not allowed.

6) A LOADING DOCK OR RECEIVING AREA for kitchen, building maintenance and supplies should be provided away from all pedestrian and play areas since large vehicles pose a danger to pedestrians. Driveways to loading docks may pass through the bus loading, staff parking or parent drop-off areas, but docks
should not be located in the immediate vicinity of any of these areas. Under no circumstances should walkways pass through loading dock areas.

7) STAFF PARKING AREAS can be located with less concern for accessibility and safety than other areas since staff generally arrives before and leaves after students come and go and are better able to handle traffic than children. If possible, walkways from staff parking areas should be designed in a manner that limits crossing vehicular traffic areas, bus loading, and bus areas.

8) STUDENT DROP-OFF AND PICK-UP area shall allow for ease of entry, drop-off or pick-up and ability to exit without backing up and turning around or entering a parking space. A drive area, away from bus traffic, is preferred. This area can be incorporated with other parking areas for students and/or staff. Direct pedestrian access from this area to the school building without crossing other traffic areas is also preferred. Any crosswalks to this area should be designated with yellow stripes.

The drop-off and pick-up waiting area shall be a designated “safe area”. The design shall include adequate area for a waiting “Safe Area” similar to bus loading areas. If required provide signage and painted stripes (yellow), in these areas to indicate “Safe area – no vehicles allowed”. No vehicles shall be allowed in the “safe area.”

9) EMERGENCY VEHICLES: Paved surface shall be provided for fire truck parking as required by local fire authorities taking into account hose distances and locations of fire hydrants.

10) At existing school facilities, the designer should visit the school at peak traffic times to observe possible traffic hazards and provide design solutions that improve the safety of the site.

E USD #259 TRANSPORTATION

1) A large number of USD #259 students arrive at school by bus. Bus sizes include:

   Full size bus: 40’
   Mini-bus: 25’
   Class 1 OH Van: 27’
   Class 3 OH Van: 31’

   (Measurement represents vehicle length plus extended cross view mirrors and about one foot for clearance from next vehicle)
The designer shall verify with the owner information on numbers of each size of bus for each attendance center and the bus schedule and drop off / delivery plan. Site plans shall accommodate appropriate design with adequate areas, the proper lineal feet for bus loading and unloading, and adequate space as required for bus turn-around. Drive designs shall be conservative so as to avoid tight spaces or unsafe-driving. Buses are required by law to always drive forward (no backing allowed).

2) The following bus staging is preferred:
   a) Right wheels to the curb and single file with all buses loading against the curb. This method is preferred since no students are required to pass between buses, nor are they required to enter the driveway area. However, space limitations often preclude this method.

   Or, as an alternative, if a) is not feasible:
   b) Single lane or multiple lane diagonal parking bumper to bumper. This pattern allows increased use of space. If students must cross a driveway area, provide safety walks as needed. The bus lane must be a minimum of 14 feet in width to accommodate the opened service door and student loading.

3) Entrance to building adjacent to bus stop shall be ADA Compliant.

F PARKING

At most projects the architect will "design" the parking to be constructed by owner - verify for each project.

1) Parking lot size shall be as required by the Wichita Sedgwick County Unified Zoning Code. Ninety-degree parking is preferred. Use sixty degrees and one way traffic if required for safety. Parking spaces shall be 9' x 18' (preferred). Smaller spaces are allowed if required. Handicapped parking shall be provided (with required painting and signage) as required by city codes (use universal parking standard.) Provide visitor parking in close proximity to school to allow for convenient parental access for school visitation. Parking spaces shall be designated with painted stripes in lieu of bumper blocks (use bumper blocks only if required for safety). Paint all parking stripes with 4" white or yellow lines.

2) Extend paving boundaries so that small, isolated areas of grass are eliminated. (Mowing is done on large riding mowers; not push mowers). Eliminate curbing for ease of mowing and snow removal. Slope lots for proper drainage-minimum 2%. Prefer gravity drainage to perimeter (to street) in lieu of pipe drainage, if feasible.
SECTION 3: SITEWORK STANDARDS

3) Where privacy fencing is required by code at parking lots adjacent to residential properties, fences shall be metal or concrete. Wood fence exceptions must be approved by owner. Landscaping is preferred in lieu of fencing (if feasible).

4) Parking lot adjacent to building and exit routes should be lighted for safe parking by staff/visitors after dark. (Refer to Section 8 Electrical Standards – K Exterior Illumination).

5) Asphalt mix shall be designed in accordance with City of Wichita Standards. Soil at lot sites shall be tested by soils engineer approved by owner. Stabilize soil or increase material depths as recommended by the soil engineer. At parking spaces and car driveways, provide 5" of asphalt in two layers. (3" Base BM 4 with 2" surface BM 2.) At truck/bus driveways: Provide 7" of asphalt in two layers (5" base with 2" surface.)
Concrete: 5) If cost is equal or proven to be cost effective, provide minimum 6" concrete with 3500 PSI rock mix with roadmat with proper reinforcement.

6) Speed bumps are not allowed in parking lots.

7) All sidewalks to be 4" thick reinforced concrete except where trucks and buses drive across which will be 6" concrete w/reinforcing wire or as required by code.

G LANDSCAPING

1) Architect will provide minimal landscape design simply to comply with city codes for the purpose of obtaining a building permit. Landscaping will be provided and installed by owner. The site master plan should reflect the minimum number of plantings as required by city code. The city Metropolitan Area Planning Commission (MAPC) has waived the requirement for parking lots with fifty (50) or more spaces to provide a parking island with tree in the island. The MAPC has agreed to allow all school sites to use the square footage factor of 10 for calculating the tree count.

2) For guidelines other than those specifically sited below, the recommended reference is the City of Wichita Landscaping Ordinance Guidebook.

3) Landscaping shall be simple and not interfere with future maintenance work. At expected maturity, no planting shall encroach the building, utilities, or service areas.

4) Where possible, retain all healthy, well-shaped trees on the site. No raised planters or required additional plantings shall be included in landscaping designs. The city MAPC will allow existing trees / shrubs on school sites to be included in the count for the overall landscape requirements.

5) Site staff is responsible for the care of all plantings, including early stages of life.
6) Landscapable area
   a) Landscapable area shall be defined as any permeable area capable of sustaining plant material. This area shall be identified as one of the following:
      (1) Public: Areas available to the public either by accessibility or view. Examples:
         (a) Entrance / main public access
         (b) Areas of public foot traffic
         (c) Major sight-line areas
      (2) Private: All other permeable areas used for district purposes and/or expansion. Examples:
         (a) Playgrounds
         (b) Courtyards
         (c) Athletic areas
      (3) Service: Generally non-permeable areas where access is restricted to authorized personnel. Examples:
         (a) Delivery / pick up areas
         (b) Waste collection areas
         (c) Drives and access roads

7) Landscaping for the following areas is required:
   a) Street yard
      (1) For district purposes, the definition of, and measurements for, “street yard”, as set forth in the City of Wichita Landscape Ordinance Guidebook, are accepted by the Wichita Public Schools.
      (2) Where possible, the landscaping standard set forth for “street yard” in the City of Wichita Landscape Ordinance Guidebook shall be met.
      (3) Emphasis is to be placed on the enhancement of main public entrances.
# SECTION 4

## ARCHITECTURAL STANDARDS

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SECTION 4: ARCHITECTURAL STANDARDS

A. CONCRETE

1) General

a) All structural concrete construction shall be performed containing A.S.T.M. approved materials to meet all applicable codes and structural requirements.

2) Flatwork

a) All concrete flatwork shall be completed using a minimum of 3500 psi rock mix concrete.

b) All building slabs and slabs for vehicular traffic shall be constructed using at least a ¾” aggregate mix. Slabs for vehicular traffic shall be a minimum of 6” thick and contain proper reinforcement and be on rock base.

c) Minimum width for sidewalk in student traffic areas with two-way pedestrian traffic shall be five (5) foot wide concrete slabs. Sidewalks shall be a minimum of 4” thick and contain proper reinforcement.

d) All exterior concrete with pedestrian or vehicular traffic shall be broom finish.

e) Tactile surfacing as required by ADA will be incorporated into concrete surface.

f) All interior flatwork shall have 15 mil vapor barrier.

g) All concrete shall be poured according to ACI 318 standards.

h) Provide a 4” thick by 2 Ft. wide concrete mow strip around perimeter of building on all additions and new buildings.

3) Expansion

a) Length of section shall be no more than 1 ½ times the width before a control joint, a minimum of ¾’ thickness of the slab (saw cut or medium grooving).

b) Penetrations full thickness with 1” expansion joints shall be included in the length at no more than 5 times the width; 20’ drive every 100’; 5’ wide every 25’.

c) In large slabs where width exceeds 20 foot, full thickness 1” expansion joint penetrations shall be used to break up those expansions into architectural widths not to exceed 20’. Joints are spaced at intervals of
SECTION 4: ARCHITECTURAL STANDARDS

approximately 100’ lengths. In large slabs where width exceeds 20 feet, install full depth control joint to break up those areas into architectural widths not to exceed 20 feet. Control joints are placed at 10 foot intervals along the run, with full depth 1” control joints placed at 100’ intervals and at starting and ending points where abutting an existing surface (i.e. asphalt or concrete driveway).

d) Provide full thickness penetrations with 1/2” expansion joints where slabs meet fixed objects such as foundations, walls, light poles, etc.

e) Seal fiber expansion joints or provide asphalt expansion joint material (waterproof and self-sealing).

4) Reinforcing

a) All concrete construction shall be performed using reinforcement procedures that meet all applicable codes and structural requirements.

b) The project architect/engineer shall inspect all reinforcing prior to pour.

c) At sidewalks directly adjacent to buildings, stabilize by pinning to buildings with #4 - 12” long rebar - minimum, spaced no further than 24 inches apart.

d) All concrete flatwork shall include metal reinforcing minimum 6x6 W2.9/2.9 (old designation 6x6-6/6).

5) Sealant

a) All flatwork concrete should be sealed with an approved curing compound. All vertical exterior wall concrete should be sealed with a waterproofing sealant. These materials must be applied according to manufacturer specifications.

6) Cold Weather Concrete

a) Flatwork placed during winter months or adverse conditions may contain maximum 2% calcium chloride, hot water, or a combination of both when conditions dictate. When temperatures are expected to drop below freezing, protective measures must be taken to insure that the concrete does not freeze. Any work performed in city easements should not be constructed if temperature is expected to be 32º or less.

7) Color

a) It is preferred that no color additives be added to structural concrete.

b) Coloring of exterior flatwork concrete is not allowed.
c) Coloring of interior flatwork is allowed by approval of the owner.

8) Testing

a) During construction supervision, concrete quality shall be monitored by the project architect and concrete rejected if not meeting specifications.

b) Included in all construction documents shall be provisions for testing of concrete cylinders on all structural concrete pours in accordance with ASTM Standards and paid for within the construction contract. Cylinders shall be tested by an approved laboratory and results provided to the project architect/engineer. The owner shall be notified if test results indicate results not meeting, or potentially not meeting, project requirements.

c) Soil testing fees during construction shall be the responsibility of the contractor.

B. MASONRY

1) General

a) Masonry construction shall comply with City Code and ACT530.1-ASCE6-TMS602.

b) If feasible, the preferred school construction material is masonry. The building system may be:

1. Structural bearing wall with a combination of concrete masonry units / modular brick facing.

2. A post and beam system with concrete block/brick. (Either steel or concrete post and beam).

3. Facing brick as a veneer anchored to concrete or studs.

c) On additions to brick buildings, the brick shall match the existing building. Bonds and grout shall also match.

d) The project architect, prior to bidding, shall choose the actual brick product. The architect will consult with the brick manufacturer so that any negative impact to construction schedule due to deliveries will be avoided.
2) **Weep holes:**
At 24” on center maximum 16” on center with wick at flashing. All flashing should extend beyond the face of the wall to form a drip. (Per ACI/ASCE/TMS Standards)
Applications:

a) For new concrete unit masonry projects, true running bond is preferred. Exterior masonry walls shall have rounded concave tooled joints. For interior masonry, rounded, concave tooled joints are also preferred. Non-colored grout is also preferred.

b) Generally accepted construction practices must meet IBC standards and shall meet or exceed ASTM specifications and shall be installed in accordance with the standards and methods of the Masonry Institute of America.

c) Architectural interest created with contrasting masonry or with varied brick pattern is acceptable; however complex patterning or barely distinguishable intricate brickwork and brickwork which substantially increases labor costs, is to be avoided.

d) Any required masonry cut should be performed with a power abrasive saw for a clean cut.

e) After exterior block or brick is cleaned and moisture has left the face, the entire new exterior face shall be coated with a clear, aqueous silane / polysiloxane blend, penetrating type waterproofing. Product formula shall be specialized for type units. Apply in accordance with manufacturer’s instructions.

f) In external masonry, install construction joints and expansion joints in accordance with the standards and methods of the Masonry Institute of America.

g) If cap stones are used, set stone in mortar bed; provide acrylic caulk for all butt joints (colored to match).

3) **Interior Masonry:**

a) Masonry corridor walls are preferred; CMU’s or a combination of hollow CMU’s and brick.

b) Concrete floors shall be covered with non-slip mosaic ceramic tile in rest rooms, kitchens, and other areas prone to wet conditions. Use quarry tile in building foyers.

c) Concrete floors with sealant and no floor finish material are acceptable in boiler rooms, storage rooms, and janitor closets.
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d) At interior walls extending into larger rooms, provide corner blocks with rounded corners for safety.

e) Large rest rooms walls shall be masonry construction with ceramic tile.

f) Walls separating classrooms and walls in office complexes can be framed and finished with sheetrock, in lieu of masonry.

C. METALS

1) General

a) All exterior metal finishes on existing buildings shall be a medium bronze or matching paint color. (Benjamin Moore & Company - Ironclad Quick Dry Industrial Enamel – Bronze tone –07164.)

b) All metal color finishes on new buildings must be approved by owner.

2) Stairs, Railings and Handrails

a) In utility and emergency areas, steel-framed stairways should have metal pan risers.

b) Guard rails, handrails, etc., should be structurally very durable, and meet all applicable codes. Lightweight handrails will not stand up under student use and are not acceptable. Railings shall be constructed of 1 ¼" schedule 40 standard steel pipe railing. Handgrip size and shape shall meet ADAAG standards. Side mounted, friction-kept, or allen screw mounted mechanical connections are not satisfactory. All connections shall be fully welded. The preferred mounting is to mount the vertical member directly to an imbedded metal plate in the concrete and be fully welded.

3) Gutters/ Down spouts/ Splash blocks

a) On existing buildings, roofs shall be drained by scuppers meeting code on overflow scuppers and/or gutters and downspouts similar to existing conditions. Where internal drain leaders are required; size adequately, pressure test, and insulate.

b) Provide commercial grade, metal, pre-finished, gutters, and down spouts. No aluminum.

c) Provide pre-cast concrete splash block at each down spout. Top of splash block shall be at grade (so those blocks can be mowed over) while also maintaining positive drainage away from building.
SECTION 4: ARCHITECTURAL STANDARDS

d) Type of splash block: ½” diverter or drain end on splash block.

e) Provide clean-outs for any underground storm sewers adjacent to down spouts.

4) Miscellaneous metals:

   a) Provide foot scrapers at building entrances. Construct of 1¼” schedule 40; standard steel pipe railing with welded joints. Scraper shall be ¼” x 4” steel plate with beveled top welded at ends to pipe supports. Set in concrete footings.

D. WOOD AND PLASTICS

1) Rough Carpentry:

   a) All blocking, roof curbs, nailers, etc. shall be dimensional lumber (no plywood).

   b) All exterior dimensional lumber subject to heavy moisture or other deteriorating factors shall be pressure treated.

   c) Installations and usage shall meet the standards of the Timber Products Association. Incorporate into the work only lumber that is straight, true, and meets construction standards.

   d) Provide mechanical anchorage device at sill plate and truss connection to minimize potential wind damage.

2) Finish Carpentry:

   a) There shall be no sharp corner edges. All trims shall have rounded corners.

3) Standard Casework

   a) Quality

      1) All workmanship and materials shall comply with AWI custom grade standards. Product and installation shall be AWI certified. Certificates will be submitted to owner if requested. If there is a conflict between AWI and District standards, District standards shall prevail.

      2) Typical millwork units for elementary classrooms shall be similar to the attached drawings.
SECTION 4: ARCHITECTURAL STANDARDS

3) All cabinetry must comply with ADA Standards.

4) A “mock up” unit shall be submitted for approval from District prior to fabrication of casework for new schools or multi-room additions.

5) Each contractor shall provide shop drawings for approval from District prior to fabrication of casework for new schools or multi-room additions.

b) Panel Materials

1) All millwork shall be AWI custom grade, plain sliced red oak with natural finish. Open cabinets shall be red oak inside and out. Use birch if a painted finish is required to match existing conditions. All edges and outside corners of doors and drawer fronts shall be rounded to a 3mm radius and sanded to provide a smooth finish.

2) All cabinet boxes and semi-exposed shelves will be of ¾” industrial grade / #45 density particleboard with melamine interiors (White). Edges of the fixed body members shall be banded 3mm thick solid wood to match veneer. All edging shall be machine applied with hot adhesive. All edges and corners are to have a 3mm radius.

c) Fabrication

1) Cabinet doors and drawer fronts: All exposed drawers and door fronts shall be ¾” red oak veneer on MDF core, ¾”: overlay type. Components shall be edge banded. Band four sides with 3mm thick solid wood to match veneer. All edging shall be machine applied with hot adhesive. All edges and corners are to have a 3mm radius.

2) Cabinet standard dimensions: Cabinets shall be constructed in standard unit sizes and types. Provide adequate in-wall blocking for anchoring of all millwork. Use fire treaded block according to the fire rating of the wall.

(a) Upper cabinets: Upper cabinets should not exceed a maximum span of 2’ 8” wide, 1’ 4” deep and 2’ 6” tall. Overall height of uppers should not exceed 7’ tall. Upper cabinets above sinks should match base width and be a maximum 1’ 6” tall.

(b) Base cabinets: Millwork used as work surface shall be 24” minimum depth by 30” tall. Standing work surfaces shall be 36” tall to the top of the countertop. The typical elementary classroom counter height is 30” tall. All base cabinets shall be set on a solid 2 x 4 frame base with a 2 ½ x 3 ½ toe kick. Cabinet to cabinet connections may be sex-bolts, steel only. (See Appendix 4-E)
SECTION 4: ARCHITECTURAL STANDARDS

(1) Elementary ADA height shall be 2’7” from floor to top of countertop. Do not stair step the countertop at sinks.

(2) Middle and High Schools ADA height shall be 2’10” from floor to top of countertop. Do not stair step the countertop at sinks.

(c) Storage shelves: Storage shelves shall be constructed of ¾” red oak veneer particle board with solid red oak hardwood nosing on the edge ¾” x 1 ½”, with a maximum spacing of 32” on standards. Standards and brackets shall be KV heavy duty Standards (87 ANO) and brackets (187LLANO).

(d) Drawer construction: (Either system is acceptable)

(1) 5/8” Baltic birch plywood with 5/8” Baltic birch bottoms, dovetail construction.

(2) Blum Metabox system on drawers; bottoms and backs shall be ¾” red oak veneered plywood with 3 mm solid wood edging.

(3) If you are providing file drawers for the built in workstations, they must accept letter and legal files.

(e) Provide plastic laminate countertops and backsplashes.

(f) Counter to be built according to specification as shown in Appendix E.

(1) The front edge of the counter should be nosed with ¾” x 1 ½” solid wood edge with overlaid laminate. The front wood edge to match cabinets with a ¼” radius on the bottom edge and 3mm radius on the top edge.

(2) Underlayment for plastic laminate tops:

   i. Use of veneer core plywood with type 2 adhesive.
   ii. Industrial grade particle board or fiberboard with a 24 hour thickness swell factor of 5% or less and a 24 hour water absorption factor of 10% or less is required.
   iii. Backer sheets to be applied per AWI standards.

(3) Secure backsplashes to the countertop with concealed fastening methods. Seal all joints by
setting backslash into a continuous bead of silicone sealant prior to attachment.

(4) Glue seams in laminate on site, stagger laminate and countertop seams a minimum of 12”. Laminate seams shall be a minimum of 2 ft. from the edge of all sinks. For Laminate countertops, Cold rolled off site is allowed.

(5) Do not use mechanical tight joint fasteners/dog bone fasteners to connect countertop seams. Connect countertop seams with a ¾” x 12” overlap tongue glued and screwed to the bottom side of the countertop between the 3” under cleats.

(g) Plastic laminates: Standard products are preferred, Premium and HD selections are allowed in special situations. Dark black, brown, purples and reds are not approved (except black on science table tops). Acceptable brands are:

(1) Wilsonart
(2) Formica

(h) Circulation Desk: In new offices and libraries, reception desks/counters shall be provided as a millwork item. All vertical exposed surfaces shall be red oak veneer; plastic laminate, fabric, and acoustic panels will not be accepted.

(1) Do not use under counter mounted monitor systems. All monitors are to sit on the top of the countertop with minimum 2” black plastic grommet cut in appropriate location at the back edge of work space for cords. (Per staff request).

(2) The top hood on all circulation desks should have minimum clearance underneath the counter of 13” to facilitate 3 ring binders. Overall counter height to the top of the hood is 43 ½”.

(3) Keyboard tray: 3M #MMMAKT60LE Knob Adjustable keyboard tray. Only supplied on a limited basis upon Admin. request.

(4) All Circulation desks shall be a standard design, no circular designs, no laminate, fabric, or similar material on vertical surfaces, and no inlaid artwork. All vertical surfaces are to be red oak veneer. Special exceptions may be granted. Design professional should submit design alterations to Director of Design and Construction for evaluation and possible approval.
(5) The finish on the circulation desk shall be 1 coat sealer (Sherwin Williams Sher-wood T60-FT-2) and 2 coats Lacquer (Sherwin Williams Sher-wood T70-F2-2 Hi-Bild medium rubbed effect).

(6) The library circulation desk should sit in front of the Library office/workroom and have visibility of the entire room. Do not set the desk in the center of the room. Special exceptions may be granted. Design professional should submit design alterations to Director of Design and Construction for evaluation and possible approval.

(7) The library desk shall have two entry points.

(8) All base cabinets shall be set on a solid wood frame base. Particle board aspects shall not sit on the floor.

(9) All countertops shall be 1 1/2" thick and shall be properly supported.

(10) All countertop seams shall be supported from underneath with a 12" overlap cleat and staggered 12" from the laminate seams.

(11) The opening for the book cart in the library shall be 22" deep x 34" wide x 42" tall. The owner shall supply the library book cart.

(12) The top hood shall be constructed from 3/4" panels with end support panels and supports a maximum of 4'; do not use a stud wall to construct the hood to allow for maximum work space.

(13) The work countertop shall set on top of the base wall.

(14) The circulation desk shall have a 3 1/2" top space on the front wall and shall set on a solid wood base.

(15) The stud wall shall be solid wood.

(16) The MDF panels shall not touch the floor.

(17) Trim the front of the desk with 1/4" x 1 1/2" solid oak batting trim, rail and style design. All panel seams, edges and corners shall be trimmed on the outside of the desk.
SECTION 4: ARCHITECTURAL STANDARDS

(18) Center the ADA drop down to the front of the desk.

d) Hardware – Approved products or approved equal

1) Cabinet Shelf hardware:
   (a) KV233ZC Standards
   (b) KV256ZC Clips

2) Drawer and door pulls: Pride Industrial #P-353SC 3” centers

3) Drawer slides:
   (a) Single extension: Blum # 230M series
   (b) Full extension: Blum #430E series

4) Hinges and Plates:
   (a) Hinge: Blum 170 degree #71T6580 Concealed Full overlay hinge
   (b) Plates: Blum mounting plate # 175H7100 or 175H9100

5) Storage shelving:
   (a) KV187LLANO Bracket
   (b) KV87ANO Standards
   (c) KV211ANO center rest

6) Display cases:
   (a) KV180ANO Bracket
   (b) KV80ANO Standards

7) Coat hooks: Ives by Schlage
   (a) Wardrobe hook (side by side): SP582A92 silver

8) Locks:
   a) Compex National 80 series
   b) Install locks in the following areas; health rooms, reception desks, offices, science room upper cabinets and teacher lab tables, and Child Daycare upper cabinets; centered in top of draw fronts. Key differently per room.

9) ADA Panel catches
   a) Epco adjustable tension ball catches 1013DB, Brass 4 per panel.

10) File Systems:
SECTION 4: ARCHITECTURAL STANDARDS

a) Blum metafile system.

11) Bumpers: 3m Bumpon SJ6561 clear

12) Grommets: Mockett EDP Flip-top series 2 ½” hole
   a) EDP 1-90 sleeve
   b) EDP 2-90 cap

e) Finishes:

1) Sealer: one coat sanding sealer: Sherwin Williams Sher-wood T60-FT-2
   Lacquer: One coat: Sherwin Williams Sher-wood T70-FT-2 Hi-bild medium Rubbed effect lacquer

2) Two coats polyurethane in art rooms and rooms with potential water damage.

3) If no existing millwork to match, provide natural oak finish. If existing color is desirable match existing.

4) Volume finish application must be shop finished. Touch up is allowed on site.

5) Painted birch cabinets are acceptable for new cabinets in rooms with existing cabinets. Paint the cabinets on site so all match. Painted surfaces shall conform to color standards.

E. THERMAL AND MOISTURE PROTECTION

1) Roofing

a) Pavers and gravel ballasts are not allowed on flat roof systems. Ballasted EPDM roofs are not allowed. Roofing material shall be fully adhered. Minimum roof slope on the roofs shall be ¼” per foot.

b) Provide sheet membrane, base flashings and component materials that meet requirements of FM 4450 and FM 4470 as part of a roofing system and that are listed in FM’s “Approval Guide” for Class 1 or noncombustible construction, as applicable. Identify materials with FM markings.

c) Roofing system shall comply with FM Classification 1-90 for uplift (min.)

d) Roofing system shall be designed to withstand 90 mph winds at 30’ above ground.
e) The preferred roofing system is:

(1) Tapered SBS Modified bitumen-roofing system: is preferred with white granular surfacing. Provide a minimum 2” rigid foam insulation, or as needed to meet specified “R-21” insulation values, organic base sheet, Ruberoid Mop FR (Granule) (or architect approved equal), 3-ply. Hot application. Roof shall have ¼” per ft. slope.

(2) Two layers ISO, Stratavent mopped, two ply flex ply six and Ruberoid Mop FR Mod White.

f) ROOFING MANUFACTURER’S WARRANTY

(1) Submit a written warranty for labor and material, without monetary limitation (No Dollar Limit, NDL), signed by roofing system manufacturer agreeing to promptly repair leaks results from defects in materials or workmanship for 20 years.

(2) Repairs and replacements required because of events beyond Contractor’s/Installer’s/Manufacturer’s control (and which exceed performance requirements) shall be completed by Contractor/Installer and paid for by Owner.

(3) All products (i.e. fascia, copings, gravel stop, etc.) used in the roofing assembly must be supplied and warranted by the same manufacturer, including; insulation and flashings.

(4) Submit roofing membrane, insulation and metal trim (i.e. fascia, copings, gravel stop, etc.) guarantees/warranties together.

(5) A single Contractor shall be responsible for roofing systems, insulation systems and flashings.

(6) This should be confirmed at the time of “Submittal Approvals” to ensure compliance.

g) All roof penetrations shall be properly flashed. All wall flashings and curb flashings shall have reinforcing sealant and membrane on the inside and outside corners instead of the bow-tie patches. Reinforcing sealant should be equal to Flex Seal.

h) All wiring on roofs shall be in conduit and pitch pans installed where they penetrate the roof.

i) Provide supports for piping equipment and conduit so they are above the roof (minimum 18”) on stands. No wood blocking on roof structure. Special care shall be taken to insure the water proofing of the roof at supports by providing an additional layer of membrane under the support
SECTION 4: ARCHITECTURAL STANDARDS

and this shall be at least ¼” in thickness. Use Miro Industries Inc. supports or equivalent; minimum 18”.

j) At roof top equipment/air conditioning units, mount units on stands so that unit is 18” minimum above roof deck. Visible equipment located on roofs shall have permanent screening.

k) Use only two part pourable pitch pan sealer in pitch pans.

2) Flashing

a) All flashing shall be a minimum of 8” in height, unless a special request is made. Metal flashing needs to be nine inches above finished roof.

b) New (visible at ground level) flashing shall be 24 gauge minimum pre-finished. At existing buildings, color shall be dark bronze. Flashing must be at least one brick coarse below weep holes in masonry.

c) Where flashing will not be visible at ground level 26-gauge minimum galvanized metal is acceptable.

d) Through-wall flashing under coping of parapet walls is required.

3) Fire Stopping

All openings in and/or penetrations of fire-resistive assemblies shall be protected in accordance with the International Building Code. Fire stopping materials and assemblies shall be UL-listed for the application. This shall include area separation assemblies in existing buildings at locations of remodel.

4) Insulation

a) Roof assembly: Minimum R-21

b) Wall assembly: Minimum R-13

c) Provide perimeter foundation insulation (rigid) to two (2) feet below grade. Full perimeter of the building envelope shall be insulated leaving no cold spots. Minimum R-6.

d) Sound barrier: Provide at offices and conference rooms for privacy.

e) Loose, blown in, fill insulation is not allowed in walls.

f) Poly moisture barrier is preferred, in lieu of Kraft faced insulation.
SECTION 4: ARCHITECTURAL STANDARDS

5) Ventilation

a) Provide good natural ventilation for any non-insulated space (i.e. attics, eaves, etc.). Verify that all items requiring protection are included within insulated space.

6) EIFS

a) Exterior Insulation and Finish Systems (EIFS) is not an acceptable exterior building finish for an entire school structure.

b) EIFS is allowed for small areas, when out of reach (must be minimum of 10'-0" above ground) where an alternative finish is needed.

c) Fabric shall be 20 oz.

7) Expansion Joints

a) Expansion joints should be installed at offsets and junctures at wall in L-, T-, and U- shaped buildings and at new building adjoining old.

b) A general guideline that may be used for preliminary spacing at expansion joints in masonry walls is 125'-specific situations should be carefully analyzed before placement of joints.

c) Expansion joints should provide a complete separation through the brick structure with no bonding at the break.

d) Elastic painted sealant over a pre-molded compressible filler or water stop shall be installed.

F. DOORS AND WINDOWS

1) Entrances and Storefronts

a) General

(1) Exterior aluminum storefront doors will use an ADA compliant Latching Panic Exit Saddle Threshold. The threshold will be at least 5” wide, and no more than ½” high at the tallest point of the threshold, and the door will need to have no more than 3/8” total undercut. This will allow the bottom of the door to bump up against the ThermoSeal in the threshold. A door sweep with a drip will still be required at the bottom exterior side of the door.
SECTION 4: ARCHITECTURAL STANDARDS

Threshold will be similar to Pemko 20005AT, McKinney MCK2005AT, or National Guard Products 896N. Vestibule aluminum storefront doors and exterior hollow metal doors will use the standard threshold.

(2) Entrance systems shall meet all the requirements of the ADAAG. All installations shall meet all current ADA accessibility requirements.

(3) Power-assisted or automatic doors shall be provided at the building entrances of special education facilities where a substantial number of the occupants are wheelchair bound. Use push buttons in lieu of motion detectors.

(4) The minimum door width for all new doors shall be 36 inches. Double doors shall have keyed removable center mullions. Provide Best cylinders. High traffic, interior fire doors should have magnetic hold-opens.

b) Aluminum entrance systems

(1) Aluminum storefront systems shall be used for “front door” and major public entrances only. All other entrances shall be hollow metal doors and frames.

(2) Where aluminum exterior doors are used, they must be of the sturdiest, heavy-gauge metal (min. 0.125” wall thickness at jambs and doors) and wide-style rail type. (5” vertical stile, 5” top rail, 10” bottom rail, and 10” mid panel). The hanging frames need to be of equally heavy quality, strength, and stability. Pivot hinges are allowed. Pivots will be heavy duty and equal to Rixson 195 top and bottom pivots, with M19 intermediate pivots. Provide with continuous hinge.

(3) Extrusions shall be 6063-T5 alloy and temper (ASTM B 221 alloy G.S. 10A-T5). Fasteners shall be aluminum, stainless steel, or plated steel in accordance with ASTM A 164. On larger units, provide shear block connections in lieu of screwed connections.

(4) Frame sections shall be tubular members and shall provide for flush glazing of sidelights and transom areas. Applied stops shall be allowed at header bar only.

(5) Overall dimension of frame members shall be 1 ¾” x 4 ½” to accommodate 3/16” tempered glass.

(6) Exterior store front 2” x 4 ½” thermal break to accommodate 1” unit.

(7) Exterior doors 150 series wide style with ¼” glass
SECTION 4: ARCHITECTURAL STANDARDS

(8) Interior store fronts 1 ¼” x 4 ½” non-thermal for ¼” glass.

(9) Approved manufacturers: EFCO, Kawneer, US Aluminum Corporation, Manko, Wausau or Tubelite.

(10) On existing buildings and additions, aluminum shall match existing. If multiple colors, consult with owner. On new buildings, colors are allowed.

2) Metal Door and Frames:

a) Hollow metal doors shall be 16-gauge. Use hollow metal doors at exterior and other heavy use locations. Exterior door will have A60 galvanizing.

b) Metal frames shall be 16-gauge, fully welded, wrap around. Exterior frames will have A60 galvanizing.

c) Where pairs of doors at exits or stairwells are required, rim-type exit devices, center locking, shall be provided with a keyed removable mullion. Provide Best cylinders.

d) Boiler and Mechanical room doors should have an interior panic device. Provide Best cylinders.

e) Provide extra rust preventative on bottom one-foot of frames.

f) Doors and frames for FEMA Shelters will be a minimum of 16-gauge and will be tested per the ICC500 Test Standards and will meet the FEMA 361 2nd Edition Standards. Doors, frames and hardware will be tested assemblies and will bear metal labels from 3rd party test labs.

3) Exterior Doors at Courtyards

a) 1 pair of hollow metal doors (Ceco Versa Door) 18 gauge. Polyurethane insulation, A60 galvanized 6’-0” x 7’-0” active leaf will be prepped for mortise lock and door closer. Flush top cap for both door leaves. Inactive leaf will be prepped for auto flush bolts, door closer, strike, and overlapping metal astragal #4471.

b) 1 hollow metal frame (Ceco SU series) 16 gauge A60 galvanized, frame will be set up and welded. Frame will be prepped for door closers and flush bolt strike.

<table>
<thead>
<tr>
<th>Exterior Courtyard Doors</th>
</tr>
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<tr>
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SECTION 4: ARCHITECTURAL STANDARDS

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<tr>
<th>1 set</th>
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<th>FB10W US26D</th>
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<td>NGP 425HD</td>
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4) **Wood Doors**

a) Rated wood doors are preferred for classrooms and other interior door locations. Seven-foot (7') high doors are preferred. Doors will be 5 ply construction, premium grade.

b) Oak with stain or natural finish is preferred. Birch, painted doors are allowed. Other species may be allowed to match existing conditions. No laminate finish on doors allowed.

c) Classroom and office doors shall have windows and/or sidelights (as allowed by code). Windows in doors and side lights shall meet ADA width and height requirements.

5) **Fire Doors:**

a) No rolling fire doors allowed. Provide rated wood or metal doors on hinges with magnetic hold openers tied into fire alarm system.

b) No fusible links allowed.

6) **FRP Doors**

a) FRP doors will be used in and around the Pool area only.

b) FRP Flush doors will have stiles and rails of extruded 6063-T5 aluminum alloy. All anodized finishes are class (.7 mil). Mitered corn joints secured by angle block, 5 pound cubic foot poured-in-place urethane core. Doors will have internal hardware reinforcements.

c) Frames will be 1/8” wall extruded 6063-T5 aluminum alloy tubing. ½” thick aluminum bar stock for closers and strikes. Equal to Special Lite.
SECTION 4: ARCHITECTURAL STANDARDS

7) Windows

a) Windows are essential for natural lighting in school.

b) Operable windows are essential for natural ventilation in classrooms even at A/C facilities. Operable windows shall be hoppers and/ or awnings. Double hung windows are to be avoided. Awnings are preferred but must clear pedestrians.

c) Aluminum windows shall be thermal projected aluminum windows EFCO Series #2900 (or approved equal by Manko, Kawneer, Tubelite or US Aluminum Corporation) of 6063T5 extruded aluminum alloy or Traco Series 2900 TR750 On existing buildings and additions, aluminum shall match existing. On new buildings, colors are acceptable.

d) Windows shall conform to ANSI/AAMA; 101 IF 2-97

e) Projected vent hardware shall be Anderberg Series 301-4 bar Stainless steel arms.

f) Locking handles shall be project-out cam handles with strike, and manufactured from a white bronze alloy with a US25D brushed finish.

g) Windows shall be double weather-stripped.

h) Provide thermally broken exterior frames with insulation in voids.

i) If windows extend below 32” AFF, area below 32” shall be infilled with Mapes panels (see 11 – insulated panels)

8) Skylights

a) No skylights allowed except as approved as a special exception by USD 259.

b) Clerestory windows are allowed for sunlight in interior spaces.

9) Glass

a) Glass sizes used for door and windows shall be as required by code with a maximum L+W dimension of 100”.

b) Window shall be double-glazed with thermal-break frames using outside ¼” polished plate, space ½” and inside ¼” clear polished plate. Inside shall be obscure at restrooms and other private locations. Insulated glass shall be warranted for a period of 10 years for seal failure. Use bronze glass on exterior when frames are bronze-tone. Use low E glass when feasible.
SECTION 4: ARCHITECTURAL STANDARDS

c) Interior glazing shall be tempered glass, except where required by code to be 20 minute wire glass. All wire-glass locations must be approved by owner.

d) There shall be no glass installed below 32” AFF. Below 32” shall be Mapes, or approved equal, insulated panel.
## Hardware
(typical hardware schedule for some typical door types are attached)

### TYPICAL DOOR HARDWARE

**Aluminum (Pair) Entry:**

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<th>Item</th>
<th>Brand</th>
<th>Model/Specification</th>
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<tr>
<td>2</td>
<td>Continuous Hinge</td>
<td>MK</td>
<td>MCK-12HD or MCK-14HD (as required) CL</td>
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<td>1</td>
<td>Key Rem Mullion</td>
<td>Detex</td>
<td>90KR w/Best Cylinder</td>
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<td>1</td>
<td>Exit Device</td>
<td>Sargent</td>
<td>8804 PSB US32D w/Best Cylinder</td>
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<tr>
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<td>Exit Device</td>
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<td>305CN x Door Height</td>
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**NOTES:** Weather-stripping furnished by Aluminum Door Supplier.

**Aluminum (Single) Entry:**

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<td>Continuous Hinge</td>
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### TYPICAL DOOR HARDWARE

#### HM Dock Doors (Pair): HM Exterior Doors (Pair):

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### SECTION 4: ARCHITECTURAL STANDARDS

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## SECTION 4: ARCHITECTURAL STANDARDS

### FACILITY STANDARDS

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<td>1 St. Auto Flush Bolts McKinney FB10W US26D RCK 1942</td>
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<td>2 Door Closers Corbin DC6210-A3 689 NO-SUB</td>
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<td>1 FEMA Rem. Mullion Sargent JC980 USP NO-SUB</td>
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<td>2 FEMA Panics Sargent FM LC-8713-F ETJ US32D NO-SUB</td>
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<td>2 Drip Sweeps Pemko 345AV NGP 101AV</td>
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<td>1 FEMA Mullion Sargent HC980 (or 12-HC980 for Fire Rated)</td>
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<td>2 FEMA Exit Devices Sargent FM LC-8713-F ETJ US32D NO-SUB</td>
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<td>2 Cylinders Best 1E-74 RP3 626 NO-SUB</td>
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<tr>
<td>2 Door Closers Corbin DC6210-A3 689 NO-SUB</td>
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### SECTION 4: ARCHITECTURAL STANDARDS

#### 10) Keying:

- **a)** All interior doors are to be on a master key system. All key systems shall be factory keyed and registered. Key Shop Locksmith shall determine master key system and allow for 50% future expansion.

- **b)** All exterior door openings, this system shall be factory keyed and factory registered, secondary doors in entry lobbies, and mechanical / boiler room doors are to have BEST cylinders – NO exceptions. All exterior doors with temporary locks must have keyed cores installed to provide security for buildings. Hex key dogging is required on panic bars. **No cylinder dogging allowed.** All exterior doors shall be key retract.

- **c)** All keys should be turned over to the district locksmith, along with a typed schedule of keys, prior to substantial completion. This includes any miscellaneous keys; example: flagpoles, basketball goal operation, breaker panels, etc. A bitting list should also be provided.

- **d)** BEST temporary construction cores shall be provided by contractors. District shall be provided with an operation key and a control key location to be approved by owner.
11) **Safes**

   a) Safe combination number and paperwork shall be provided to Supervisor of Glass/locks/doors Department.

   b) Safes: Gardal Model Number GBF-3318 or AMSEC CSC 3018

12) **Insulated panels**

   a) Porcelain enameled insulated panels shall be manufactured by AllianceWall, Mapes, or architect approved equal, and shall be produced by continuous coil process.

   b) Panels shall be 1” insulated, double-faced, ceramic (porcelain) on steel panels.

   c) Exterior skin shall be 28 gauge porcelain enamel steel face with Type “A” porcelain enamel, semi-gloss, standard color by architect.

   d) Stabilizing core member shall be 1/8” thick hardboard.

   e) Central core member shall be 3/8” polyurethane.

   f) Interior skin shall be 25-gauge galvanized steel, prime painted.

   g) Insulated panel shall have a nominal thickness of 1” and have an overall “U” value of .23.

**G. FINISHES**

1) **Required materials:**

   a) The following finish material items are products used consistently throughout all USD 259 facilities and should be incorporated into all designs. Owner must approve any variation from these:

      (1) Paint for hollow metal frames and other metal on existing buildings: PLEASE SEE STANDARD COLORS AND PRODUCTS ON PAGES IV-32, IV-33.

         (a) Exterior: Bronzetone or match existing

         (b) Interior (existing portion of building): match existing or Bronzetone

         (c) Interior (new additions): can be new single color throughout as approved by owner.
SECTION 4: ARCHITECTURAL STANDARDS

(d) Paint for hollow metal frames on new buildings:
   1. Interior: Provide single color throughout as approved by owner.
   2. Exterior: Bronzetone, aluminum or other single color as approved by owner.

(e) Paint product shall be urethane alkyd enamel

(f) Color number for Bronzetone is P2264.

(2) Acoustical tile ceilings:

(a) 24"x48" x 5/8" Certain Teed BET 197 or Armstrong Cortega (preferred).

(b) Acoustical panels shall be: white; fissured, non-directional or pattern; square edge; lay-in.

(c) No revealed edge tiles, no recessed T-bar, no concealed grids, no fiberglass, and no variation of patterns are allowed. 24" X 24" X 5/8" ceiling tiles will be considered for areas other than classrooms and corridors when the need for variation is justified.

(3) **Tee system** shall be cold rolled steel exposed surface, pre-finished flat white as manufactured by Donn (preferred) for 24" X 48" panels. Equal products as manufactured by Celotex or Armstrong are also approved. Use fire rated as required. Main and cross tees shall be the same height. Wall angles shall be L-shaped. Typical classroom ceiling heights is 8’8”.

(4) **Vinyl base at carpet and VCT**: Johnsonite or approved equal; 4", cove at tile, cove or straight at carpet; Bronzetone is preferred; black is acceptable. Provide in 4’ strips without pre-manufactured corners.

(5) On all 12x12 VCT floor tile keep the same theme throughout each building. Any installation of new floor tile, and vinyl cove base shall be consistent with the existing field color that has been established throughout the buildings. Caulking shall be implemented at all exposed ceramic tile, glaze block, and veneer block base.

(6) Carpet is allowed in classroom, music rooms, libraries and offices. No carpet is allowed in corridors, science rooms, FACS room, teacher work rooms, storage closets, gyms, cafeterias and nurses’ office. No carpet is allowed in other areas of water or food. Carpet is available in roll goods and carpet squares.

   a) Use one color per site. Call Design & Construction Coordinator at (316) 973-2017 for approved manufacturers and colors.
(7) To keep the same theme throughout the building, any installation of new carpet, cove base, and rubber transition trim shall be consistent that of carpet already established throughout the buildings.

(8) Use 5/8” Type X gyp-board except in damp areas. In damp areas, use Dens Guard Tile Backer or approved equal. No gypsum board products will contain asbestos.

(9) Provide fiberglass reinforced plastic FRP board in custodial-rooms and from top of mop sink to ceiling. FRP board is also allowed in restroom remodels. Use Chemlite Glassboard or equal. Color: Colonial white.

(10) Elementary multipurpose room flooring layout shall be per attached drawing (See Athletic Section Appendix A)

2) Required products with architect’s choice
The following finish materials shall be incorporated into design, but the architect shall specify the actual color/pattern.

a) Vinyl composition tile (V.C.T.)

   (1) Use a similar tile pattern throughout the building. Patterns in corridors should have a linear element running through corridor (used for directing student’s single file) or utilize a random pattern for ease of maintenance. Solid neutral field tile and colorful accent tiles.

   (2) Field tile shall be light and neutral, with colors as accents.

   (3) Classrooms shall be field tile.

   (4) Provide type IV, 12” x 12” x 1/8” with through pattern. No solid colors.

   (5) Adhesive shall be clear thin set solvent free (Parabond 50009 Armstrong S515 or equal).

b) Interior Ramps

   (1) Ramps shall be covered with no-slip type surface such as Armstrong “Crosswalk” or Lonseal Loncoin II. No other vinyl sheet goods allowed. Install with no seams perpendicular to traffic.

   (2) Rubber tile with round or square pattern is allowed.
SECTION 4: ARCHITECTURAL STANDARDS

c) Ceramic tile (rest rooms)
   (1) Provide 2” x 2” mosaic tile, unglazed (floors). Ceramic tile base.
   (2) Provide 4” x 4”, or 2” x 2” glazed, wall tile (full height walls).
   (3) Provide a light predominate field color for wall tile with accent colors in simple patterns. Keep numbers of colors to a minimum.
   (4) Floor tile shall be a darker neutral solid color. Grout shall be slightly darker than floor color. (Preferably dark grey or dark brown).
   (5) Porcelain tile is also allowed in lieu of ceramic.
   (6) A metal feature strip should be used to provide a smooth transition from one floor finish to another.

d) Tile: Kitchens
   (1) Floors: Provide sealed quarry tile, slip resistant, with quarry tile base, single color use Kenyan Red Q01 or Smoked Gray Q54.
   (2) For ceramic floor tile, use 2x2 slip resistant tile, sealed with ceramic tile base. Use American Olean A94 Willow Speckle.
   (3) An ADA Compliant metal feature strip should be used to provide a smooth transition from one floor finish to another.
   (4) Provide FRP around sinks, plumbing fixtures, and food preparation. For balance of kitchen walls, paint with epoxy paint.

e) Entry vestibule
   (1) Provide sealed quarry tile at entries. Single color in a dark neutral solid. Grout shall be slightly darker than floor tile. Porcelain tile is also allowed in lieu of quarry tile.

f) Stair Treads
   (1) Treads should be individually trimmed to fit each step both in depth and side to side.
   (2) For vinyl treads contact adhesive should be used. For rubber treads install with contact or suitable rubber flooring adhesive. Cove base adhesives are not to be used.
SECTION 4: ARCHITECTURAL STANDARDS

3) Painting:
Please use standard colors and products on page 4-35

a) Classroom walls shall receive one prime coat and two finish coats of high-quality semi-gloss finish latex paint. Ceilings shall be flat latex paint. Kitchens shall be epoxy paint.

b) Woodwork stain shall match existing adjacent finish. New construction will have a natural finish (no stain) refer to section D. Number 3e). Provide one coat of sealer and two coats of polyurethane. Sand and tact between coats.

c) Interior concrete block shall receive block filler, and minimum two coats of high quality, semi-gloss finish paint.

d) All interior and exterior metal shall require a primer coat and one coat of high quality, alkyd enamel paint. Use Benjamin Moore Ironclad, Quick Dry Industrial Enamel.

e) Provide mix formulas for all colors of finishes. The number of differing paint colors shall be kept to a minimum. All paints and finish material shall be available from local dealers or manufacturers.

4) Colors
Please use standard colors and products on page 4-35

This standard is meant as a guideline. For specific approvals, a color board will be submitted to the Owner for approval.

a) General color guidelines:

(1) Color shall promote educational goals. Color choices shall be primarily functional color choices to promote educational goals rather than design choices.

(2) Exterior colors shall blend with the environment. Exterior palates shall be developed as a reflection of the natural environment surround the school so that the exterior color relates and blends with the neighborhood buildings and landscape. If the project is an addition to an existing building, the exterior palate of the addition shall match and/or blend with the existing building.

(3) Match patterns/colors provided in 2008 Bond Projects or other recent remodels.

b) Interior colors shall promote building unity.

Interior Colors shall be used to help create a unified building. Repeating a lighter toned, base color throughout the buildings allows for continuity and consistency and promotes focus. The entire color palette shall work
SECTION 4: ARCHITECTURAL STANDARDS

together to create a harmonious whole. If the project is an addition to an existing building, new color choices shall be compatible with existing colors and not chosen to the exclusion of other colors in the same facility.


c) Interior colors shall be harmonious. Harmony is something that is pleasing to the eye and creates order and balance in the visual experience. When something is not harmonious, it’s either boring or chaotic. Avoid the extreme of a color palate that is so bland that the viewer is not engaged. Also avoid the other extreme where the visual experience is overdone and chaotic. Color harmony delivers visual interest and a sense of order.

d) Accent colors shall be used for mental stimulation and interest...

In addition to the light tone base color (see choices under specific color recommendations below), accent colors should be added to promote harmony, mental stimulation and interest. Accent colors shall be light and bright and shall blend with other building colors. Harmonious accent color pallets are created with analogous colors, complementary colors and color schemes based on nature. Use of darker value colors are not allowed as accents: black, dark brown, dark red, dark purple or other dark colors.

e) Colors shall last over time.

(1) Accent colors should not be trendy colors but colors that last over time.

(2) Elementary Schools: Use vibrant Primary and secondary colors in pure hues

(3) Middle Schools: For primary and secondary colors use tints and tones rather than pure hues scheme. Tertiary color schemes are allowed at Middle Schools. School color schemes are allowed at Middle Schools.

(4) High Schools: Use School Colors

(5) Pick colors to support educational functions

(6) Color can be used for way-finding. Colors can be used to designate grade levels/departments or functions. Color can be used to help kids to exhibit orderly behavior (i.e. stand in a straight line on the colored squares).

(7) Large areas of red are not allowed.

(8) Paint colors: A building shall be predominately a light, neutral, base color.

• District wall Colors are: Holly White, Snowmass, Light Gray or Beige.
SECTION 4: ARCHITECTURAL STANDARDS

- Ceiling colors are: White Sherwin Williams; Promar 200; 640512703 Extra White
- Wall: 09-651 Holly White –Sherwin Williams/Promar 200-semi gloss
- Wall: 09-776 259 Gray - Sherwin Williams/Promar 200-semi gloss
- Wall: 09-665 259 Snow Moss - Sherwin Williams/Promar 200-semi gloss
- Wall: 7036 Accessible Beige-Sherwin Williams/Promar 7036

(9) Colors used for accents shall be simple and repeated. Numerous variations of value and brightness of the same hue are not allowed.

(10) Paint for hollow metal frames and other metal on existing buildings:

(11) Exterior: Match existing

(12) Interior (existing portion of building): Match existing

(13) Interior (new additions): can be new single color throughout as approved by owner.

(14) Paint for hollow metal frames on new buildings: Interior: provide single color throughout as approved by owner.

Exterior: Single color as approved.

(15) Paint product shall be urethane alkyd enamel. Color number for Bronzetone is M2264.

<table>
<thead>
<tr>
<th>USD–259 STANDARD COLORS AND PRODUCTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATION/USES</td>
</tr>
<tr>
<td>Interior Wall Field Color Paint</td>
</tr>
<tr>
<td>(No Exceptions)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Interior Wall Accent Colors Paint</td>
</tr>
<tr>
<td>(No Exceptions)</td>
</tr>
</tbody>
</table>

WICHITA PUBLIC SCHOOLS
FACILITY STANDARDS
### SECTION 4: ARCHITECTURAL STANDARDS

<table>
<thead>
<tr>
<th>Material</th>
<th>Color/Finish/Type</th>
<th>Brand/Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interior Ceiling Paint</td>
<td>White B31W2651 200 Semi-Gloss Latex 0 VOC</td>
<td>Sherwin Williams Pro Mar</td>
</tr>
<tr>
<td>Gypsum Board (Sheet Rock) Primer</td>
<td>White B30WJ7774 700 Primer Finish Flat Latex</td>
<td>Sherwin Williams Pro Mar</td>
</tr>
<tr>
<td>Interior Raw Cinder Block and Concrete</td>
<td>White</td>
<td>Sherwin Williams Prep-rite</td>
</tr>
<tr>
<td>Glazed Block Primer</td>
<td>White</td>
<td>Sherwin Williams Prep-rite</td>
</tr>
<tr>
<td>Glazed Block Paint</td>
<td>Match Existing Field Color</td>
<td>Sherwin Williams Waterborne</td>
</tr>
<tr>
<td>Interior and Exterior Metal Primer</td>
<td>Gray/White</td>
<td>Benjamin Moore Alkyd Universal Primer</td>
</tr>
<tr>
<td>Interior and Exterior Metal Paint</td>
<td>Bronzetone 64 or Match Existing</td>
<td>Benjamin Moore Super Spec P-22 Urethane Alkyd Gloss Enamel</td>
</tr>
<tr>
<td>Exterior Painted Concrete</td>
<td>Rustic Beige 10-216 White A82W151</td>
<td>Sherwin Williams A-100 Latex Satin</td>
</tr>
<tr>
<td>Exterior Windows and Fascia</td>
<td>Bronzetone 12-53</td>
<td>Sherwin Williams A-100 Latex Satin</td>
</tr>
</tbody>
</table>
(16) Corridor Floor tile
The predominate color for floor tile shall be a light, neutral base color. Accent colors shall be added to promote harmony, mental stimulation and interest.

(17) Laminate: Neutral laminates are preferred. Re-use laminates when possible so varied laminates are kept to a minimum throughout. Additional colors will be allowed with the approval of the owner.

(18) Vinyl base: Black or bronze tone shall be used for vinyl base.

(19) Ceilings: Ceilings shall be white (exceptions allowed in auditoriums, stages and other performance areas).

(20) Restrooms: The predominate ceramic wall tile color shall be a light neutral base color. Accents shall be added for interest. Male restroom colors shall be consistent throughout the facility and female restroom colors shall be consistent but the two shall be different color schemes. Ceramic floor tile shall be in darker values than wall color. Grout for floor tile shall be in slightly darker values than tile (preferably dark grey or dark brown).

(21) Toilet partitions: Preferred color is almond. Additional colors shall be allowed with the approval of the owner.

(22) Marker Boards: White marker board with aluminum frame so that the contrast of the background of the writing surface and the color of the written message should be as great as possible.

(23) Gyms and Multi-purpose rooms: Floor tile colors for elementary schools are standard (see drawing provided). School colors for accents are allowed. Red is not allowed for vinyl gym divider curtains.

(24) Color submittals
(a) Color boards shall be submitted prior to bidding for owner’s approval indicating colors and patterns for all architectural finishes.
(b) A list of colors for all finishes shall be provided at the close of the job.
(c) Unfinished cans of paint and unfinished boxes of tile shall remain on the job site at the close of the job.
SECTION 4: ARCHITECTURAL STANDARDS

H. SPECIALTIES

1) Toilet Partitions

Toilet partitions shall be floor mounted top braced – no ceiling suspended units allowed. NOTE: Solid Plastic – HDPE restroom partitions are allowed in athletic and concession areas. See the following guidelines:

- Section: 102213
- Material: Solid Plastic-HDPE
- Type: Floor Mounted Head rail, Braced
- Hinges: 8” Aluminum Wrap Around
- Brackets: Continuous Aluminum
- Strike / Keeper: 6” Aluminum
- Pilaster Shoes: Stainless Steel
- Panel / Door Height: 55"
- Heat Sinc Trim: Bottom of all Panels and Doors
- Urinal Screen: 24” x 42” Wall Hung with Continuous Aluminum Brackets Fire Rating: Class B
- Colors: Manufacturers Standard Colors
- Texture: Orange Peel, Hammered or Tough Texture (EX)
- Warranty: 25-year Minimum
- Manufacturers: Accurate, Scranton Products, Hadrian

a) Doors:

(1) Doors must be 1” thick, constructed of two sheets of 22 gauge electro-galvanized, bonderized, stretcher level quality steel, formed and bonded under pressure with a non-toxic adhesive to a resin impregnated core.

(2) Edges must be tack welded at 18” intervals around the perimeter and sealed with a 20 gauge interlocking molding. Molding corners shall be welded into each other and to face sheets, and ground smooth to form a right frame around the components.

(3) Provide coat hooks on all doors.

b) Panels:
(1) Panels must be 1” thick constructed of two sheets of 20 gauge Electro galvanized, bonderized, stretcher level quality steel, formed and bonded under pressure with a non-toxic adhesive to a resin impregnated, sound deadening honeycomb core; Edges must be tack welded at 18” intervals with a 20 gauge interlocking molding. Molding corners shall be welded into each other and to face sheets, and ground smooth to form a right frame around the component.

c) Pilasters:

(1) Pilasters shall be 1 ¼” thick constructed of two sheets of 20 gauge Electro galvanized, bonderized, steel, formed and bonded under pressure with a non-toxic adhesive to a full face resin impregnated, sound deadening core.

(2) Vertical edges must be tack welded at 18” intervals with a 20 gauge interlocking molding. A 22-gauge channel shall be welded within the top of each pilaster to form a reinforced mounting chamber to seat and anodized anti-grip aluminum handrail. An inverted stirrup with a Jack Bolt, for leveling during installation and permanent height adjustment, shall be welded within the base of each pilaster. “L” brackets shall be coupled to the stirrup brackets.

(3) A shoe shall conceal each floor mounting, having an internal cross section conforming to the pilaster, and being formed or type 304 stainless steel having a #4 finish.

d) Head rail:

(1) Head rail shall be provided to bridge all compartments and brace the end freestanding pilasters to the wall. It shall be comprised of anodized to aluminum with a satin finish, contoured to provide anti-grip features consisting of a sharp center edge.

e) Hardware:

(1) All exposed hardware shall be chromium die-case Zamac. Door hinges must be wraparound if Hadrian Standard 601005 and for handicap 601025. Upper door hinge is recessed and interlocked in the door and includes as nylon pin within the place of the door. Lower door hinge is to be recessed in the door and includes mating box and Pintle nylon cams, which provide the bearing surface. The cams are adjustable to allow the door to rest at any position within a 270-degree range.

(2) Door hardware shall include a coat hook, a bumper, a stop, a keeper, and a concealed latch with emergency access on all but 34” doors. 34” door hardware is addressed below and must
consist of ADA approved hardware.

f) Finish:

(1) All units shall be chemically cleaned, degreased, and phosphatized, prior to application of a baked Glogard polyester powder coating of at least 1.5” mil thickness.

(2) Black, dark brown, dark blues and dark reds are not allowed. Preferred color: Almond. Additional colors will be allowed at the approval of the owner.

g) Handicapped Doors: (36”)

(1) Door hardware: Door latch sets must be equal to #6049 Bobrick door hardware cover plates 304 stainless steel, ADA compatible. Keeper – 304 stainless steel.

(2) All stainless steel theft proof and/or Hex Head through bolts will be provided as required.

h) Guarantee:
All products properly maintained by owner shall be guaranteed against chipping, flaking, cracking or discoloration, for a minimum of three (3) years.

i) Approved manufacturers:

Global Steel Products (Embassy series) or Hadrian Products. All products must carry a three year warranty. Revise to allow powder-coated finish or baked enamel finish and allow welded corners.

2) Marker boards/Smartboards/ tack boards:

a) Marker boards/Tack boards

(1) Provide Claridge Product Series 800 LCS Boards or Nelson / Adams, Quartet or Newline Products Inc., or equal product with magnetic porcelain writing surface and equal extruded aluminum frames map rail, chalk tray, and trim. Provide map rail with map hooks. Install at 32” AFF.

b) Smart boards –SMART LightRaise 60wi Projectors with Da Lite Idea boards on new construction (newly constructed walls) See Attached layout: Appendix 4-F.

(1) Marker boards without map rail for projector use should be installed in classrooms as follows:

(a) Pre-K: 18” AFF
SECTION 4: ARCHITECTURAL STANDARDS

(b) K/1/2/3 grades: 21” AFF
(c) 4/5/6 grades: 26” AFF
(d) 7-12 grades: 32” AFF

(2) Provide 2” space between adjacent boards to allow for re-set.

(c) Bulletin boards/Classrooms

(1) Provide Claridge Products, Inc. Series 800 Fabricork, Nelson/Adams, Quartet of Newline Products Inc. or equal product bulletin boards with extruded aluminum trim.

(2) Install at 32” AFF; Color: cream Driftwood ku233 - Claridge

(d) Tack strips

(1) In corridors, provide sections of Claridge #74 or Quartet of Newline Products Inc. map rail with end caps as needed.

Pre-K through 1st grade: 48” AFF
2nd through 5th grade: 60” AFF

3) Toilet Accessories:

a) Grab bars: Provide snap flange grab bars as manufactured by Gamco; ASI and Bradley or approved equal products.

b) 1 ½ “diameter, 18 gauge, type 304 stainless steel, concealed mounting, 42 ” long exposed surface polished to a #4 satin finish snap flange mounting plate is 11 gauge 1/8” type 304 stainless steel 3” in diameter and heliarc welded to the bar.

c) Tubing is fabricated of 18-gauge (.050”), type 304 stainless steel, concealed mounting.

d) Exposed surfaces polished to a number 4 satin finish.

e) Snap flange-mounting plate is 11 gauge, 1/8 “type 304 stainless steel 3” in diameter and heliarc welded to the bar. Snap flange cover escutcheon, which is decorative only, is 22 gauge type 304 Stainless Steel

f) Mounting plates and center posts are heliarc welded to tubing

g) Clearance is the distance between the finished wall surface and the inner edge of the tubing. Clearance dimension required: 1½”.
h) Stainless Steel Framed Mirror.

(1) Inter-Lok Stainless Steel Framed Mirror shall have frame fabricated of alloy 18-8 stainless steel, type 304 No.18-gauge with mitered corners. All exposed surfaces shall be No 4 satin finish. Mirror glazing shall be No-1 quality ¼ inch thick float/plate glass and shall be warranted for 15 years against silver spoilage. All edges of mirror shall be protected with friction and chafe absorbing fillers. Back of mirror shall be protected by full size shock-absorbing water-resistant filler and full size one piece No 20 gauge corrosion protected steel. A #18 gauge corrosion protected steel “H” bracket shall be supplied with all required mounting hardware. Mirror shall be secured to vertical bracket with locking screws. Typical size: 18”x24”. Stainless Steel Mirror shall be Bobrick B-165 or Bradley Model 781 or architect approved equal.

4) Fire extinguisher:

Fire extinguishers shall be wall hung without cabinets and will set in a recess or niche at corridors and high traffic areas.

5) Signage

a) Interior restroom signs shall be plastic signs with embossed letters as required by ADA and shall be provided and installed by owner.

b) Interior room signage shall have slide-out pockets so name signage is interchangeable and shall be provided and installed by owner.

6) Miscellaneous Specialty Items

a) The specialty items in the table attached will be located on the appropriate architectural drawings, including backing, and will be identified by the architect, provided by the owner, and installed by the contractor. The cost to properly install these items will be included in the base bid.

(1) Procedure for contractor pick up of specialty items:

(a) Backing sizes are:
   Sanitary Napkin Dispensers - (27" h x 10" w)
   Sanitary Napkins Disposal (9" h x 11" w)
   Tissue Paper Dispenser - (10.5" h x 19" w)
   Paper Towel Dispenser – (7.5" h x 12.5" w)
   Soap Dispenser – (10.5" h x 6.25" w)
(b) Contractor will request items, when needed, from the district’s designated Construction Review Team (CRT) representative.

(c) The CRT will prepare a district stock requisition for the quantity of each item requested for the project.

(d) Note: On large quantity orders the Contractors will transport the specialties items to the job site, on small quantities the CRT will transport the items.

* If electric hand dryers are used as an alternate product (use only upon request by principal and if within budget), use only Dyson Air Blade.
### Specialties Items List

The following are specialties items needed for support of Projects.

<table>
<thead>
<tr>
<th>Product and catalogue number</th>
<th>Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanitary Napkins Dispensers (MS 23032)</td>
<td>CRT places requisition to purchase; contractor installs</td>
<td>Located in Girl’s and Unisex restrooms in Middle and High Schools per restroom</td>
</tr>
<tr>
<td>Sanitary Napkins Disposal (MS58861)</td>
<td>CRT places requisition to purchase; contractor installs</td>
<td>Located in Girl’s and Unisex restrooms in Middle and High Schools in each toilet stall</td>
</tr>
<tr>
<td>Paper Towel Roll Dispenser 80 (MS23010) *</td>
<td>CRT places requisition to purchase; contractor installs</td>
<td>Located at all sink locations (restrooms, science lab classes, etc.)</td>
</tr>
<tr>
<td>Tissue Paper Dispenser (MS23044)</td>
<td>CRT places requisition to purchase; contractor installs</td>
<td>Located in all restrooms in each toilet stall</td>
</tr>
<tr>
<td>Dispenser, (Betco MS23000)</td>
<td>CRT places requisition to purchase; contractor installs</td>
<td>Located at all sink locations (restrooms, science lab classes, etc.)</td>
</tr>
<tr>
<td>Waste-baskets MS02610</td>
<td>CRT places requisition to purchase</td>
<td>Located in all offices, workrooms, classrooms, kitchen, any work areas</td>
</tr>
<tr>
<td>Pencil Sharpener (S044355)</td>
<td>CRT places requisition to purchase &amp; work order for SSC to install</td>
<td>Located in all offices, workrooms, classrooms, kitchen, any work areas</td>
</tr>
<tr>
<td>Flag Holder</td>
<td>CRT places requisition to purchase &amp; work order for SSC to install</td>
<td>Located in all classrooms, libraries, media centers, all learning areas</td>
</tr>
<tr>
<td>U.S. Flags (F022485)</td>
<td>CRT places requisition for purchase; CRT shall deliver to site</td>
<td>Located in all classrooms, libraries, media centers, all learning areas</td>
</tr>
<tr>
<td>Sharps Cabinets</td>
<td>CRT contacts Environmental Dept. to buy</td>
<td>Located in nurse’s room</td>
</tr>
<tr>
<td>Maps</td>
<td>CRT mentions to principal will come out of minor improvement funds</td>
<td>Located in all classrooms, libraries, media centers, all learning areas</td>
</tr>
<tr>
<td>Map Holders</td>
<td>CRT mentions to principal will come out of minor improvement funds</td>
<td>Located in all classrooms, libraries, media centers, all learning areas</td>
</tr>
<tr>
<td>Audio-visual Screen (S042030)</td>
<td>CRT mentions to principal will come out of minor improvement funds</td>
<td>Located in all classrooms, libraries, media centers, all learning areas</td>
</tr>
<tr>
<td>Audio-visual Screen Brackets</td>
<td>CRT mentions to principal will come out of minor improvement funds</td>
<td>Located in all classrooms, libraries, media centers, all learning areas</td>
</tr>
<tr>
<td>Flashlight (FO22600)</td>
<td>CRT contacts Environmental Dept. to buy</td>
<td>Located in all Safe Rooms</td>
</tr>
<tr>
<td>Hand-crank Weather Radio</td>
<td>CRT contacts Environmental Dept. to buy</td>
<td>Located in all Safe Rooms</td>
</tr>
<tr>
<td>First-aid Kit</td>
<td>CRT contacts Environmental Dept. to buy</td>
<td>Located in all Safe Rooms</td>
</tr>
</tbody>
</table>

FEMA Items

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Location</th>
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<tbody>
<tr>
<td>Flashlight (FO22600)</td>
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</tr>
<tr>
<td>First-aid Kit</td>
<td>CRT contacts Environmental Dept. to buy</td>
<td>Located in all Safe Rooms</td>
</tr>
</tbody>
</table>
7) **Hall Lockers (For Middle Schools and High Schools Only)**

   a) Recessed hall lockers are preferred and shall be single tier 12” x 12” x 5’ lockers in numbers as determined by the administration. Lockers shall be mild-annealed, cold-rolled steel, free from surface imperfections. Bolts are zinc-plated. Locker bodies shall be 24-gauge steel with 16-gauge formed steel channel doorframe with continuous door strike. Locker doors shall be 16-gauge steel with three (3) doorjams welded to doorframes to engage locking device. Provide ventilation at top and bottom 6 louver vent top and bottom. Hinges shall be riveted on right side. Securely anchor lockers in place. All freestanding lockers shall have sloped tops. Interior of lockers shall be manufacturer’s standard interior color. Doors and frames shall be one color from manufacturer standard color charts. 4” concrete bases for all free standing. Aluminum number plates with figures at least 3/8” high (Embossed or etched) attached near top of door. Exposed portions of lockers shall be colors as determined by the architect (special order colors not allowed). Penco, Lyons, ASI, Art Metal or Republic are approved.

   b) Provide Master brand built in locks, dead bolt style, and series 1670. 1671 should only be used as exception with administrative approval. Lock key shall match existing building at sites where there are already lockers. Provide black locks only.

8) **Multi-purpose Room Divider Curtains**

   a) Provide electrically operated fold-up gym divider curtains, 18 oz. minimum solid vinyl 10 foot high vinyl with mesh above. (Can be 8’ high solid vinyl at Elementary Schools).

   b) Colors can be school colors or what looks good in multi-purpose room: No red divider curtains.

   c) Keyed on/off switch mounted 6’ above finished floor; located so operator can see entire curtain go up and down.

   d) Approved Manufacturers:

   (1) Draper
   (2) Performance Sports Systems
   (3) Jaypro Sport Equipment
   (4) Porter Sports Equipment
I.  EQUIPMENT / RECEIVING

See Appendix A and B for Kitchen Equipment

1)  Supply Receiving Area

a) The supply receiving area should be separate from the kitchen delivery area and have its own delivery door (2-3" x 7") keyed with removable mullion and "lock-open hooks."

b) Interior door from supply receiving area to rest of building should be a minimum 36” door.

J.  FURNISHINGS

1)  Blinds

a) At all office and library (consult with owner re: type) windows without previously existing blinds, provide Levelor Monaco 1” aluminum blind in standard colors, color by architect. In all classrooms provide black out shades at all windows so room can be made completely dark.

2)  Cafeteria Tables

a) Wall fold-down cafeteria tables and bench units are preferred to freestanding mobile units IF budget and room layout allows.

b) If freestanding tables are used, provide adjacent storage space, adequate in size for storage of tables. Provide safety straps for all tables. See furniture standard for free standing tables.

c) Approved manufacturers for wall fold-down tables:

(1)  Mitchell

d)  Fold-down tables, when provided, shall meet the following criteria:

(1)  All tables shall be recessed in lieu of surfaced mounted.

(2)  Table and bench construction:

(a)  Tables and benches to be ¾” thick core board with a density of not less than 45 pounds per cubic foot with a hardness of at least 1,000 pounds. Core shall be surfaced
with .050 thick plastic laminate with a .027 backing sheet on the non-exposed surface. Plastic molding, flush type and countersunk, shall be used as standard edging.

(b) Tables shall be 14’0" long x 27 7/8" wide x 28" high.

(c) Benches shall be 14’0" long x 11 7/8" wide x 17” or 18” high

(d) Table top frame to be constructed of dual 1 ¼” x 2 1/8” steel box channels and bench frame to be of dual 1 ¼” x 16-gauge steel angle having rounded edges for strength and added safety. Frames shall provide supporting structure horizontally through entire length of table and bench leaves. All tubular members shall be of 16-gauge, 1” diameter steel tubing.

(e) End legs shall be equipped with 2” fixed caster and center legs shall have steel cushion to provide stability and maneuverability to table and bench when detached from storage pocket.

(f) Tables and benches shall be detachable from and interchangeable in steel pockets. Opening of table and benches from storage pocket shall be accomplished with manual release at bottom and dual automatic and manual releases at top for added safety. Table shall be equipped with compression spring for added safety and ease of operation.

(g) Each table and bench shall be equipped with automatic locks in the open or closed position. Table and benches shall lock automatically when folded into pocket for storage.

(h) Anti-jackknife device shall be standard on all tables.

(i) The surface of table and benches shall be free of lock holes or covered with tamper-proof covers for purpose of sanitation and appearance. There shall be a clearance between table and bench leaves to act as a dirt deterrent and for added safety.

(j) All metal parts to be thoroughly cleaned in detergent phosphate combination, plus chromic acid rinse to resist corrosion and provide maximum paint adhesion. Then finished with high-grade electrostatically applied black baked on epoxy powder for superior resistance to abrasion, marring, and scratching.
SECTION 4: ARCHITECTURAL STANDARDS

(k) There shall be no bars, brace, or struts under the table or from table to seats, which interfere with comfortable seating, ingress, or egress.

(l) Provide standard colors as approved by owner.

3) Free standing mobile units
   a) Tops
      (1) Tops of mobile tables and benches shall have a ¾” core of select resin wood having an average density of 45 P.C.F. and a minimum density of 40 P.C.F.
      (2) Top surface shall be of standard .050 high-pressure laminate.
      (3) A .027 high-pressure, laminate balancing sheet shall be bonded to the bottom of the core.
      (4) The top edge profile shall have a radius; the corner radius shall be ½”.
      (5) The top edges shall be sealed with emulsion filler and coated with high-density multi-base finish for high resistance to abrasion, chipping, and common cleaning solution.
      (6) Vinyl molding will be supplied on special order.

   b) High pressure laminate patterns:
      a) Provide standard manufacturers colors as approved by owner.

   c) Metal finish:
      b) All metal parts to be thoroughly cleaned in a detergent phosphate combination plus chromic acid rinse to resist corrosion and provide maximum paint adhesion, then finished with high-grade electrostatically applied gray or black baked-on epoxy powder for superior resistance to abrasion, marring and scratching.

   d) One-fold table with benches
      (1) Table shall open or close in a single and synchronous operation, controlled through the cycle by a combination of counterbalance and compression springing for safer, simpler operation.
      (2) Table understructure shall be unitized and self-supporting.
SECTION 4: ARCHITECTURAL STANDARDS

(3) Tops and benches shall be solely use surfaces, not structural or operating parts of the table or benches.

(4) End legs shall be equipped with 4” ball-bearing swivel casters which become the base of the closed unit for easy rolling and compact storage.

(5) Adjustable tabletop shall provide less distance in critical bench-to-elbow area for lower grades (from 29” to 27” to top surface).

(6) Tables shall lock automatically in open and closed positions. No bars, braces or struts under the table comfortable or capacity seating.

(7) Table will feature walk-in, walkout framework, making stepping over benches unnecessary.

(8) Reinforced top and bench rails shall be double 16-gauge steel angles, 1 ¾” in depth, for rigidity, safety and extra strength.

(9) Automatic latch shall maintain wide base stance for greater stability during movement to or from storage.

(10) Tables will store in 4-sq. ft. of floor space when nested in a series and the entire understructure (all bars, braces, or struts) shall be enclosed for safety, compactness, and appearance.

(11) Leg members shall be of 16-gauge, 1” diameter, steel tubing.

(12) Non-marking vinyl shoes shall be fitted on center posts to provide rigidity of the floor and stability to the bench.

(13) Casters shall be attached to an internally reinforced double-tube end leg member for strength and stability.

(14) All pivot points will be in metal with riveted fastening except where table is field adjustable to other heights.

4) Warranties
Provide written warranty information at close of job. Warranties shall be:

a) Table base – 10 years

b) Table tops – 5 years
SECTION 4: ARCHITECTURAL STANDARDS

5) Science Tables
   a) Tops shall be epoxy resin or stone attached with mechanical fasteners.

6) Elementary Multi-purpose room furnishings:
   a) All backstops need to be side-folding and be attached to the wall.
   b) Backboards are to be fan-shaped, made of fiberglass material and shall be white powder-coat finish with official perimeter and target markings. Backboards shall be reinforced where goal will be attached, and rib reinforced on backside.
   c) Basketball rims are to be standard front mount rims, compatible with backboards and include net.
   d) Panel mats (crash pads) are to be made of vinyl, 6’ tall, 24” wide, and 2” thick, with a total of six (6) pads centered on the wall behind each basketball goal. Panel mats will match school colors.
   e) Volleyball inserts shall be provided per Section 5 Athletic Standards

7) Acoustical treatment for FEMA multi-purpose rooms:
   a) Install vertical baffles on 4’0” centers across the ceiling; can be in rows or basket weave configuration. (See Figure 1 – Scheme #3 on attached Appendix C) Baffles can be constructed of various materials, the most economical being 2.0 mil thick PVC fabric encapsulating a 2” thick, 3 lb./cubit ft. density glass fiber board. PVC material can be thicker if perforated with at least a 15% open area. Colors are also available for the PVC material. Typical baffle size is 2’ X 4’, although they can be furnished in almost any size. Baffles can be constructed with a fabric facing in lieu of PVC, if desired. Panels should be hung using 12-gauge wire or #25 sash chain.
   b) With baffles, an additional 1,500 sq. ft. of sound absorbing wall material is required. Tectum or Acousti-plank is suggested. Must be offset from wall with insulation behind (Appendix C).

8) Furniture
   a) Bond furniture responsibility:
      (1) Building Project Architect:
         (a) Inventory current furniture that will be reused with the Principal.
(b) Access furniture needs for new spaces with Principal
(c) Choose furniture from Furniture Catalog with Principal
(d) Verify that furniture requests are within budget
(e) Prepare scaled drawing for placement of all furniture
(f) Coordinate and schedule deliveries with vendors, general contractor and Principal
(g) Verify receipt and create punch list

(2) Principal
   (a) Work with architect to determine all furniture needs.
   (b) List furniture to be purchased from Furniture Catalog
   (c) Work with CRT to determine what will be refinished and reused.
   (d) The CRT will prepare purchase requisitions.

(3) Furniture Project Manager (Purchasing Dept.)
   (a) Review requisitions and obtain funding accounts, then forward to Supervisor of Design & Construction for signature
   (b) Order furniture after requisitions are signed.

(4) Bond Project Manager
   (a) Act as liaison between Project Architect, Principal and Furniture Manager
   (b) Assist in determining availability of funding

Note: The furniture needs have been estimated and are listed in the program document. Use these as a beginning guideline for new furniture requirements and budget. The owner will provide a furniture standards catalog to the architect. Final approval of furniture purchases and budget must be approved by Director of Design and Construction.
APPENDIXES

Appendix 4-A - Kitchen Information

**Kitchen – For Satellite (Non-production kitchen) and Secondary Schools (Production kitchen)**

- The following personnel will be included in all Design and Development meetings, including initial meetings at schools; Director, Assistant Director, Secondary Supervisor, Nutrition Services, Elementary Supervisor, Nutrition Services.

- Kitchen must meet all requirements of the most current Kansas Food Code.

- Kitchen must be located on exterior wall. The kitchen delivery door (double door with removable mullion – Secondary and one 40’ minimum door - Satellite) must have direct access to kitchen. Door to have peep hole and buzzer for security.

- For school kitchens, adequate electrical service will be provided. Consult with the Nutrition Services for specific equipment specifications and location.

- The kitchens shall be directly adjacent to the meal serving location, typically a cafeteria.

- The serving area will have the following attributes:
  
  1. Modern and attractive, with restaurant feel. Achieved by use of current restaurant trends; including pendent lighting, sleek signage, modern serving lines and appropriate acoustic levels in dining area.
  2. School colors used in all color schemes, including tile, signage, wall paint, naming cafeteria with mascot; for example, Buffalo Café.
  3. Serving area will have multiple stations for maximum flow of students. – Secondary Schools ONLY
  4. Separate space needed for a la carte room in some situations. – Secondary Schools ONLY

- Seating available in cafeteria must be based off of current school enrollment as well as current lunch schedule. Seating needs to accommodate all students eating during a lunch period.

- **Cafeteria/Dining area must have an outside double door to take trash directly to dumpster.**

- Elementary schools are allowed residential ranges without hood in teacher’s lounges, as long as space will be occupied by adults only.
Following are lists of “typical equipment” needed for kitchens – Satellite and Secondary. Equipment needs vary due to building configuration, enrollment numbers, number of lunch periods, etc.

Food Service Equipment in a Satellite (Non-production) Kitchen

Satellite (Non-production) Kitchen and Minimum Measurements – See Diagram (Typical Elementary Kitchen Layout on page 4-60)

- Kitchen – 18’ X 26’6”
- Storage – 18’ X 8’6”

- Milk Coolers: Milk coolers must be located where students can pick up milk before proceeding to the serving counter.
- Upright Refrigerator
- Hot Holding Cabinets
- Cold Holding Cabinets
- Cold Serving Line
- Hot Serving Line
- Serving Countertop
- Roast-N-Hold Warmer
- Microwave
- Hand Sink
- 3 Compartment Sink
- Storage:
  - Computer Desk
  - Phone/Clock
  - Delivery Door
  - Bulletin Boards

**Homestyle Range, Refrigerator, and Ice Machines** - Nutrition Services does not purchase these items because they are not required for the operation of the school breakfast and lunch programs.

Ice machine- Optional, school purchased

- Ice machines shall be Manitowoc brand
- For service from USD259 mechanical systems, model MAN UD-0140A or a comparable model must be purchased.
- Warranty items shall be responded to within 72 hours.
- Ice machine shall have all standard manufactory warranty’s
- Ice machines shall be air cooled only
- Electrical Requirements: 115V, 1 phase

**Dining Room Tables and Benches.**
Nutrition Services does not purchase these items.
Appendix 4-B - Typical Secondary Kitchen
Food Service Equipment in a Secondary (Production) Kitchen

**Serving Area:**
- Milk Coolers
- Hot holding cabinets
- Bun Pan Racks
- Self-serve choices bar
- Hot serving tables
- Cold serving tables
- Cashier stands, for POS (point of sale)
- Display refrigerators
- Condiment stations
- Hand sink
- Dedicated network connection at cashier stations

**Kitchen:**
- 2 Doublestack convection ovens
- 2 Burner range
- Combi Oven
- Steamers
- Four Compartment Sink – one compartment to have spray hose and a garbage disposal
- One Compartment Sink with spray hose for food preparation
- Ice machine
- Stainless steel work tables
- Hand sinks
- Office: Computer desk-2, 1-3 drawer filing cabinet, with windows to kitchen, serving area
- Unisex restroom with self-closing door
- Walk-in refrigerator – minimum 12 x 12 with inner ramp
- Walk-in freezer – minimum 12 x 12 with inner ramp
- Reach in refrigerators/freezers
- 2 entrance/exit doors are required from kitchen to serving area.
- Dry store room – minimum 20’x15’
- Lockers, minimum 10, for staff use.
Appendix 4-C - Ceiling Panels

5 TECTUM SOUNDBOARD ABSORBING CEILING PANEL OPTIONS
Appendix 4-D - Wall Panels

- **Trim as desired**
- **1-1/2" thick tongue & groove Tectum panels on 2x1 horizontal furring strips maximum 24" oc.**
- **1-1/2" thick light weight unpaced fiberglass insulation.**
- **Tectum to be furnished without backing material. Tectum can be lightly spray painted with non-bridging latex paint if desired.**
- **WALL CARPET FACING IS AVAILABLE IF DESIRED.**
- **Fasten Tectum to furring in tongue & groove joint where possible. Countersink face fasteners and glue crumb over fastener heads.**
- **Steel support angle may be required for panels 12'-0" high and higher.**
- **Note: Acousti-Plank is an equivalent substitute for Tectum panels.**

**Tectum-Sound Absorbing Wall Panel**
Appendix 4-E - Typical Elementary Classroom Millwork

NOTE:
REFER ARCHITECTURAL STANDARDS SECTION 6, WOOD AND PLASTICS 3) STANDARD CASEWORK FOR MATERIALS, FINISHES, ETC.
SECTION 4: ARCHITECTURAL STANDARDS

NOTE:
REFER ARCHITECTURAL STANDARDS SECTION 6, WOOD AND PLASTICS 3) STANDARD CASEWORK FOR MATERIALS, FINISHES, ETC.

PLASTIC LAMINATE TO EDGE OF HARDWOOD NOSING
NO FILE BIT RADIUS FILLET TOP
3/4" x 1 1/2" RED OAK FRONT EDGE WITH 1/4" RADIUS FILLET
1" CLEAT — CONTINUOUS

3/4" MDF CORE AT DOOR — ROTARY RED OAK VENEER

FILLER CLEAT AT CABINET BULKHEADS AND AT ENDS OF COUNTERTOP

2' - 1"

3/4" PLASTIC LAMINATE BACK SPLASH
3/4" AC PLYWOOD TOP WITH PLASTIC LAMINATE FINISH
3/4" x 1 1/2" RED OAK FRONT EDGE WITH 1/4" RADIUS FILLET REFER DRAWING 7 ABOVE
3/4" MDF CORE AT DRAWER — ROTARY RED OAK VENEER

FOR HIGH SCHOOLS & MIDDLE SCHOOL 2'-10" REFER DRAWING 2 AT ELEMENTARY SCHOOLS 2'-7" REFER 2a

1/4" BACKER WITH WHITE MELAMINE FINISH
SEMI-EXPOSED SURFACES TO BE WHITE MELAMINE
RESILIENT BASE
FINISH FLOOR
2 X 4 BLOCKING

WICHITA PUBLIC SCHOOLS
FACILITY STANDARDS

OCTOBER 2016

HOME
SECTION 4: ARCHITECTURAL STANDARDS

NOTE:
REFER ARCHITECTURAL STANDARDS SECTION 6, WOOD AND PLASTICS 3) STANDARD CASEWORK FOR MATERIALS, FINISHES, ETC.
SECTION 4: ARCHITECTURAL STANDARDS

WALL (STUDS AND GYPSUM BOARDS)
# 7-2" COURSE THIRD SCREWS AND INSET 3" FROM EACH END.
1" CONSTRUCTION
3/4" BLOCKING, SCREWED WITH #7 SCREWS
3mm RADIUS FILLET TOP AND BOTTOM
3/4" CONSTRUCTION VERTICAL DIVIDERS AND END PANELS – RED OAK VENEER FINISH
1" ADJUSTABLE SHELF CONSTRUCTION
FIXED SHELF WITH RED OAK VENEER FINISH
1/4" BACKER – RED OAK VENEER FINISH
3mm RADIUS FILLET TOP AND BOTTOM
RED OAK VENEER FINISH ON BOTTOM – TO MATCH DOOR
1" CONSTRUCTION
DRYWALL SCREWS (#7 – 2") IN BULKHEAD EQUALLY SPACED IN TOP AND BOTTOM
WARDROBE HOOKS (IVES BY SCHLAGE SP582 AS2) ON 3/4" SOLID RED OAK
REFER DRAWING THIS APPENDIX C

WARDROBE HOOKS (IVES BY SCHLAGE SP582 AS2) ON 3/4" SOLID RED OAK
REFER DRAWING THIS APPENDIX C

NOTE:
REFER ARCHITECTURAL STANDARDS SECTION 6, WOOD AND PLASTICS.
STANDARD CASEWORK FOR MATERIALS, FINISHES, ETC.

16
WARDROBE HOOK / CUBBIES SECTION

RESILIENT BASE
FINISH FLOOR
NOTE:
REFER ARCHITECTURAL STANDARDS SECTION 6, WOOD AND PLASTICS 3) STANDARD CASEWORK FOR MATERIALS, FINISHES, ETC.

3/4" X 1 1/2" RED OAK FRONT EDGE WITH 3mm RADIUS FILLET TOP AND BOTTOM, REFER DRAWING 12 THIS PAGE

HEAVY DUTY BRACKET AND STANDARD, REFER SPECIFICATIONS 32" MAXIMUM SPAN

3/4" MDF CORE – RED OAK VENEER FINISH ON ALL VISIBLE SURFACES

3/4" PBD. WITH RED OAK VENEER

3/4" X 1 1/2" RED OAK FRONT EDGE WITH 3mm RADIUS FILLET TOP AND BOTTOM

HEAVY DUTY BRACKET AND STANDARD, REFER SPECIFICATIONS 32" MAXIMUM SPAN

REFERENCE ELEVATION 12", 16" OR 24" DEEP

RESILIENT BASE

FINISH FLOOR

CLOSET SHELVING SECTION

12 FRONT EDGE DETAIL

17 CLOSET SHELVING SECTION
NOTE:
REFER ARCHITECTURAL STANDARDS SECTION 6, WOOD AND PLASTICS 3) STANDARD CASEWORK FOR MATERIALS, FINISHES, ETC.

NOTE:
FIELD VERIFY DIMENSIONS THEN CUT TO FIT.

SUPPORT FOR COUNTERTOP

- SCREW TO STUDS OR BLOCKING IN THE WALL
- 3/4" SOLID RED OAK, GLUED AND SCREWED TOGETHER FROM THE BACK AND TOP
- 3/4" ROTARY RED OAK VENEER 7 PLY PLYWOOD
- 1/4" X 3/4" SOLID RED OAK WOOD NOSING
- BASE ON FINISH FLOOR
SECTION 4: ARCHITECTURAL STANDARDS

CLASSROOM TEACHER'S CABINET

3/4" MDF CORE SHELF WITH HARDWOOD EDGE - RED OAK VENEER FINISH

HANGER ROD

4 ADJUSTABLE SHELVES

NOTE: CABINET DOORS NOT SHOWN / SHOWN AS HIDDEN LINES SO THE SHELVES, ETC. CAN BE SEEN.
NOTE:
REFER ARCHITECTURAL STANDARDS SECTION 8, WOOD AND PLASTICS 3) STANDARD CASework FOR MATERIALS, FINISHES, ETC.

WALL

3/4" MDF CORE SHELF WITH HARDWOOD EDGE – RED OAK VENEER FINISH

1 1/2" DIAMETER FIXED STEEL HANGER ROD

3/4" MDF CORE AT DOOR – ROTARY RED OAK VENEER

3/4" CONSTRUCTION VERTICAL DIVIDERS – RED OAK VENEER FINISH BEYOND

1/4" BACK WITH RED OAK VENEER FINISH

3/4" MDF CORE SHELF WITH HARDWOOD EDGE – RED OAK VENEER FINISH

RESILIENT BASE
FINISH FLOOR
2 X 4 BLOCKING

COAT ROD SECTION 21
Appendix 4-F - Light Raise: Front of Classroom
SECTION 4: ARCHITECTURAL STANDARDS

NOTE:
ALL DIMENSIONS TO BE CONFIRMED AND SCALLED APPROPRIATE TO ACTUAL SIZE OF SPACE, MAY VARY FROM ROOM TO ROOM - SITE TO SITE.
REFER TO ARCHITECTURAL STANDARDS SECTION 5 WOOD AND PLASTICS FOR ALL SPECIFICATIONS.

MATERIALS
- 1/4" SOLID OAK
- 1/4" SOLID WOOD PLANKING
- 1" SOLID WOOD

ELECTRICAL MOUNTING FOR DESK AREA POWERS TO BE LOCATED UNDER DRAWER BASE TO ALL ACCESS INTO WALL CHASE FOR DISTRIBUTION

COUNTER TOP SEAM SUPPORT - OVERLAP OUST EXTEND 1/2" ON EITHER SIDE OF OUST. GLUE TO BE SEWNED AND ADHERED WITH WATERPROOF ADHESIVE TO JAMBO SEDGE OF COUNTER TOPS

SECTION
- 5" UNDER COUNTER OUST AT FRONT AND BACK
- 2" RADIUS ALONG BOTTOM EDGE OF OUSTING

INTERIOR ELEVATION & SECTION
- 1 1/2" HOLLOW MAXIMUM SPACING 4' OC

INTERIOR ELEVATION
- 23 RECEPTION DESK & STORAGE MILLWORK
SECTION 4: ARCHITECTURAL STANDARDS

3" UNDERCLEAT AT ALL CABINET BULKHEADS & COUNTERTOP ENDS.

OVERLAP UNDERCLEAT FRONT TO BACK & MIN. 12" EACH SIDE OF BUTT JOINT TO SUPPORT COUNTERTOP.

BUTT FIT COUNTERTOP & FRONT EDGING, SEAM SEAL WITH SILICON CAULKING.

1-1/4" SCREW

3" UNDERCLEAT ALONG FRONT & BACK EDGE OF COUNTERTOP.

COUNTERTOP BUTT JOINT CONSTRUCTION
Appendix 4-H - Broadcast Studio Floor Plan
### Section 5: Athletic Standards

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A. OUTDOOR ATHLETICS

1) GENERAL INFORMATION
   a) All facilities to be provided for both males and females according to Title IX.
   b) Handicap parking according to ADA guidelines and ADA seating and accessibility at all new facilities.
   c) Team locker rooms and official rooms should be located within a reasonable distance to fields.
   d) Field sizes and markings shall be according to NFHS standards.
   e) Appropriate directional and safety signage shall be provided at each venue.
   f) All fields, courts and tracks will be designed according to NFHS Standards.
   g) Provide 7 ft. high perimeter chain link fence for security.
   h) Contractors must be pre-approved for athletic construction projects.

2) FOOTBALL – HIGH SCHOOLS
   a) One full size irrigated grass practice field with drinking water at each site.
   b) One full size multi-purpose (football/soccer) synthetic field with team benches, scoreboards, electricity and drinking water at each site.

3) STADIUM FIELDS – HIGH SCHOOLS
   a) Football/soccer stadiums shall have synthetic multi-purpose turf. Turf spec shall be as specified by the Owner on East, South, Northwest and Height High Schools.
   b) Permanent Seating capacity for 5,000.
   c) Stadiums shall have play clocks, and sound systems.
d) Stadiums shall have combined concession stand, public restrooms, ticket booth, and storage at stadium entrance. Building shall be utilitarian-i.e. concrete block, concrete floor.

e) Stadiums shall have a press box sized at a maximum of 500 square feet total area. The press box shall include two separate coaches spaces for home and away (four coaches each) at opposite ends with a space in the center for the media personnel. The center space shall have work counters for a PA system, spotters, clock operator (two), and media personnel (provide two phone and two computer lines). Provide console lighting in all spaces so overhead lights can be turned off to prevent glare on window. Windows in all spaces shall have capability of sliding from side to side.

f) Stadiums shall have proper lighting as required by NFHS standards.

g) Provide paved parking and sidewalk from parking to stadium entrance.

h) Install 3 spare 2” conduits underground from outside of home bleachers to outside of visitor bleachers at the 50 yard line.

4) TRACKS – HIGH SCHOOLS

a) Eight lane, 400-meter track with striping and dimensions according to NFHS standards. Color of track will be red.

b) Track surface shall be asphalt base with polyurethane sandwich system, concrete curbing and appropriate drainage. Approved track products are: Hellas Sport Track 1000, Beynon BSS 300 and Fisher Poly Mat 20K.

c) Combination long jump, triple jump and pole vault runways will be located outside the track oval with concrete center and wooden take offs and 4 landings.

d) High jump will be within the “D zone” inside the track/oval area, with asphalt base.

e) Steeplechase pit included within track area.

f) Provide throwing area for two shot put pits and one practice pit.

g) Provide one javelin runway that will be included in same area with all other throwing events.

h) Provide one discus cage with netting/fencing and one practice discus ring.
i) Install 4” conduit under track at each corner of track. Install elbow and cap as needed so conduit is at track surface level.

j) Install 2” removable marker post at inside corners of track at each corner (100 meter, 200 meter, and 300 meter).

k) Provide storage facility for track equipment (i.e. high jump pit, pole vault pit, etc.).

l) Provide 4 foot chain link fence around perimeter of track for crowd control.

5) **TRACKS – MIDDLE SCHOOLS**

   a) Eight lane, 400-meter track with striping and dimensions according to NFHS standards. Color of track will be red.

   b) Track surface systems will be “base matt system” with the application of two coats of structural spray sealer, concrete curbing and appropriate drainage. Approved track products are: Hellas Sport Track 200, Beynon BSS 100 and Fisher Poly SS10K.

   c) Combination long jump and triple jump runways will be located inside the track oval with concrete center and painted take offs and 4 landings.

   d) High Jump will be within the “D zone” inside the track/oval area, with asphalt base.

   e) Provide throwing area for two shot put pits.

   f) Elevated bleacher seating for 275.

   g) Install 4” conduit under track at each corner of track. Install elbow and cap as needed so conduit is at track surface level.

   h) Install 2” removable marker post at inside corners of track at each corner (100 meter, 200 meter, and 300 meter).

   i) Provide storage facility for track equipment (i.e. high jump pit, etc.).

   j) Provide 4 foot chain link fence around perimeter of track for crowd control.

   k) Provide electricity and drinking water.

6) **SOCCER – HIGH SCHOOLS**
SECTION 5: ATHLETIC STANDARDS

WICHITA PUBLIC SCHOOLS

FACILITY STANDARDS

a) One full size practice field at each site.
b) Provide one full size multi-purpose (football/soccer) synthetic field at each site.
c) The multi-purpose synthetic field will serve as competition field with sound system and bleacher seating for 1,000.
d) Provide elevated platform for filming at synthetic fields.
e) If master plan space allows, add a second practice field.

7) TENNIS COURTS – HIGH SCHOOLS

a) Eight full size tennis courts at each site.
b) Each court will have cloth netting, perimeter fencing with wind screens, practice wall, shelter, storage and electricity.
c) Post tension concrete pads with markings and stripping according to USTA standards. Color of courts shall be green with red perimeter.
d) School colors can be utilized on shelter and windscreens.
e) Fencing shall be black vinyl chain link when budget allows.
f) Tennis court specifications shall be as specified by the owner at South, East and Heights.

8) BASEBALL – HIGH SCHOOLS

a) Regulation baseball field at each site with grass infield, irrigation and outfield fencing. Include bullpens, scoreboard, and wood frame dugouts.

9) SOFTBALL – HIGH SCHOOLS

a) Practice field at each site with grass infield, irrigation and fencing. Include bullpens, scoreboard, and wood frame dugouts.
B. INDOOR ATHLETICS

1) GENERAL INFORMATION

a) Gyms AND Supplemental gym spaces (including locker rooms and team rooms and coaches offices) are to be air conditioned.

b) Based on Title IX, all amenities provided for males shall also be provided for females.

c) Water fountains shall be located in corridors adjacent to gyms and not in rooms with wood floors.

2) HIGH SCHOOL GYMNASIUMS

Each comprehensive high school shall have 2 full size multi-purpose wood floor gyms:

Functions: school and community multi-purpose use to include: Physical Education, interscholastic practices and competitions, pep assemblies, all school assemblies, Health Fairs, dances, conferences, ROTC, and public events (graduation.)

a) Main gym

(1) Size per Ed Specs

(2) Shall include one full court (94’ for basketball) and two 84’ cross courts with court dividers; VB set up to play side by side with descending systems and full court volleyball shall be sleeved.

(3) Gym competition equipment

(a) Provide wireless gym PA systems with ceiling/wall mount speakers, hand held capability, technologically friendly, and access points to plug in on both sides of competition floor. Product shall be: See Appendix 5-D

(b) Scoreboards: BB/VB/WR compatible, 2 wall hung in each main gym; 2 wireless controllers with ability to separate boards for distinct competitions or run as one game (Daktronics approved): (See Appendix 5-E)

(c) 6 electric fold up basketball goals with a key wall switch for each goal, with safety straps (prefer 8 goals, if space available). Two (2) main goal steel backboards with rectangular glass.
(d) Divider curtains for court dividers; bottom 10 feet vinyl; top net; key wall switch; curtain separates two 84’ cross courts.

(e) Dual swing up volleyball nets to allow side by side competition with key wall switch.

(f) Provide “Full Cycle Safety Belt” for each ceiling-suspended volleyball system.

(g) Crash pads in school colors; minimum 12’ width.

(h) All key wall switches shall be located together and away from pads and bleachers.

(i) Electronic text message board by Daktronics.

(j) Video feed capability to alternate location on site to accommodate over flow. Cameras shall be installed at midcourt above bleachers.

(k) Phone lines (minimum of 2) located in facility for media. One shall be at scorer’s table and one at upper track.

(l) Data available at multiple locations: on each wall on the upper track and on the floor area. At track & gym levels, student data at center wall and all 4 walls.

(m) Electrical outlets along track.

(4) Gymnasium Scoreboards

(a) Manufacturer: Daktronics, Inc. (no substitutions).

(b) Main Scoreboard: “BB-3126 Color Smart” four-sided center hung basketball scoreboard rotated 45 degrees from the main basketball court-with 4-sided corner shrouds with school name.

(c) Dual operations control panel; adapter for dual control, and plugs required for complete installation. With controller carrying case.

(d) 2.4 GHz spread spectrum radio control.

(e) Double bonus indicators.
(f) Programmable team name message centers.

(g) 1’-6” Logo/Sponsor Non-Backlit, 4-sided panels.

(h) Trumpet horn

(i) Time outs left

(j) Timing display: Backboard mounted (main court backboards, 2 locations) “BB 3115”

(k) 2.4 GHz spread spectrum radio for timing display control.

(l) Protective screen.

(m) Scorer’s Table: Model “ST-3001 Color Smart”.

(n) Possession indicator.

(o) Logo/sponsor graphics 9x24 at two locations.

(p) End pads with logo @ 2

(q) Scoring Console: Provide two, “All Sport 5510” controller’s

   1. 2.4 GHz spread spectrum radio for controlling all scoreboards and timing display.

(r) Provide menu inserts for wrestling and volleyball.

(s) Carrying case.

(t) Future Message Board: two locations offset behind each main basketball goal.

(u) Provide 120v power at each location.

(v) Provide empty junction box and conduit at each location.

(5) Gym bleachers

(a) Capacity-2400 recommended.

(b) Set up to allow folding team chairs between court and front row of bleachers (teams do not sit on front row of bleachers).
(c) Scorer’s table to sit on floor in front of bleachers.

(d) Approved bleacher manufacturers: Hussey and Interkal (plastic).

(e) First row removable seating operation shall be both manual and electric.

(f) 6 rows and over shall be motorized.

(g) Electric operation with a pendant.

(h) Larger bank of bleachers on one side of gym than other (1500/900).

(i) Bleachers shall be 10” deep without backs; 26” deck spacing with plastic seats.

(j) 9 5/8’ rise.

(k) NO expansion plates below bleachers.

(l) Bleachers shall be straight wall attached with enclosed vinyl curtain on ends.

(m) Provide band platform accessory in bleacher unit.

(n) Provide media bench in each gym with 2 phone lines and internet access.

(o) Minimum distance from front of bleachers to court line is 26”.

(6) Wooden Floors

(a) Marked for current NFHS specifications. Include KSHSAA coaching box.

(b) All painted lines for all activities. (See Appendixes 5-A and 5-B)

(c) Logo at center court

(d) School names or mascot names along baselines.

(e) GWAL logo included at each end or side.

(f) Floor ends may be solid concrete pad with recessed lip (concrete at least 8 feet from court baseline).
(g) Plywood underlayment with two layers cross laid; cushion; and topped with ‘1st grade ¾” maple floor strips’ equal to Pro-Action Thrust. Wood shall be ¾” thick.

(h) Flooring must be DIN certified by Action Floor Systems or Horner Flooring System (BPS-HP) or Robbins Flooring System (Bio-Cushion).

(7) Gymnasium Painted Line Work:

(a) Basketball Perimeter should be:
   1. 2” Game Line (Black), 50X84 or 44X84
   2. 1” void,
   3. 6” wide painted line (in school color)

(b) Volleyball (High School may have 2-courts)
   2” wide Game Lines (Light Blue)

(c) Basketball rectangles – Cross court free throw
   1” wide (Light Tan)

(d) Badminton: 1” wide lines (Light Gray)

(e) High School Name and Mascot Name
   1. 24”-high, Font: Vineta BT (in school colors)
   2. $1000 HS-Allowance for Center Court School Logo
   3. “GWAL” – 12” 2-places on BB court
   4. Alternate – Can have “void” School and Mascot name in 3’ wide slid end zone. (Painted words are additional cost per letter).

(f) Player “X” on center court line in front of officials table.

(g) DO NOT paint solid areas on the game courts: too much wear.

(8) Two batting cages (12’ high, 14’ wide, 75’ long) to be located behind upper bleachers (or in Wrestling room)
b) **Auxiliary Gym**

(1) Seating for 500 on one side of gym.

(2) Scoreboards (2) Required Manufacturers (23' wide from left corner of gym by 11' 10" AFF to bottom of scoreboard) (6' wide from left corner of gym by 11' 10" AFF to bottom of scoreboard)

   (a) Daktronics - Model BB-2103-13 and Scoring Console All Sport 5500 Controller or newest comparable controller.

(3) Sound system. (See Appendix 5-D)

(4) 6 goals (ascend/descending)

(5) Volleyball floor sleeves.

(6) Wall to wall wooden floor with painted markings. (See Appendix 5-A)

(7) Phone/data lines.

(8) Appropriate electrical access.

c) **Wrestling rooms**

(1) Size minimum of 50' x 100'.

(2) No interior columns, room shall be free of obstructions.

(3) Wall padding (5' high pads, standard, vinyl, wood backed 2", school colors; do not put on furring strips, tap con pad directly to wall and trim with aluminum trim on top).

(4) All electric conduit and boxes shall be recessed until above pads.

(5) Interior finishes: concrete floor shall be sealed; concrete block walls shall be painted.

(6) Fluorescent lighting per Standard.

(7) Temperature control.
d) **Weight Rooms**

(1) 5000 sq. ft.

(2) No interior columns, room shall be free of obstructions. Minimum height 14’ to ceiling or exposed structure.

(3) Interior finishes: concrete floor shall be sealed; concrete block walls shall be painted in school colors; rubber floor pads (Mondo or architect approved equal).

(4) 8’ bank of mirror on walls (two sides).

(5) Fluorescent lighting per Standard.

(6) 10 pull up bars along wall.

e) **Training Rooms**

(1) Size per Ed Specs.

(2) 2 whirlpools

(3) 4 Training tables

(4) 10’ full height cabinets for storage.

(5) Sink

(6) Phone/data access

(7) Ice Machine

(8) Freezer

(9) Located close to locker rooms

f) **Locker Rooms**

(1) Male and female locker rooms shall have similar facilities in quality and amenities with equal number of lockers for each gender preferred.

(2) 2 PE locker rooms, size per Ed Specs.

(3) 2 Team locker rooms with large white boards. Size per Ed Specs.

(4) Interior finishes: concrete block wall painted in school colors; sealed concrete flooring.

(5) PE lockers: 6 stacked box design with (2) two common lockers between stacks; individual small box lockers should not allow interior contents to be visible from exterior. Box lockers shall have a minimum of 37% ventilation with an 11 gauge stationary latch welded securely to the frame. On large (2) common lockers door shall be 1 inch by 1 inch angle iron frame welded with 13
g) **Swimming Pools**

(1) Designed and bid on separate contract to be assigned as a sub-contractor to the General Contractor at each site.

(2) Sound systems shall be installed in swimming pools. (See Appendix 5-D)

(3) Concrete floor shall be sanded cement finish with clear sealer.

h) **Coaches’ offices**

(1) per Ed Specs
(2) Male offices
(3) Female offices
(4) Meeting space
(5) Data and phone access
(6) White boards

i) **PE Offices**

(1) per Ed Specs
(2) Males offices
(3) Female offices
(4) Data and phone access.
(5) White boards.
(6) PE Offices shall have visibility into locker rooms.

j) **Officials’ Room**

(1) per Ed Specs
(2) Adjacent to main gym
(3) 8 lockers and/or open cabinets
(4) Restroom
(5) Showers
(6) Sink

k) **Athletic Rooms**

(1) per Ed Specs
(2) Team meeting space
(3) Technologically friendly
(4) Large white boards
(5) AD Office
(6) AD conference room

l) **Ticket booth**

(1) In lobby; near facility entrance
(2) Provide phone line
(3) Provide four points of sale

m) **Concession Stand**

(1) Size per Ed specs
(2) Coolers/freezer
(3) Storage
(4) Adequate electrical
(5) Serving counter for 6 selling points
(6) Prep Counter

n) **Storage**

(1) Team storage for all programs in separate room is preferred. However, moveable compact shelving is acceptable.

o) **Laundry Room**

(1) 2 commercial washing machines
(2) 2 commercial dryers
(3) Folding table
(4) Shelving/cabinets
p) **Trophy and Display Cases/boards**

(1) Near competitive gym
(2) Interior wood finish
(3) Glass front
(4) Record boards in gymnasiums/pools

q) **Gymnasium Painted Line Work**

(1) **Basketball Perimeter** should be:
   
   - 2” Game Line (Black), 50X84 or 44X84
   - 1” void,
   - 6” wide painted line (in school color)

(2) **Volleyball** (High School may have 2-courts)
   
   - 2” wide Game Lines (Light Blue)

(3) **Basketball rectangles** – Cross court Free Throw
   
   - 1” wide (Light Tan)

(4) **Badminton**
   
   - 1” wide lines (Light Gray)

(5) **Four Square** (4-minimum places 16’)
   
   - 1” wide (White) 8 places

(6) **High School Name and Mascot Name**

   1. 24”-high, Font: Vineta BT (in school colors)
   2. $1000 HS-Allowance for Center Court School Logo
   3. “GWAL” – 12” 2-places on BB court
   4. Alternate – Can have “void” School and Mascot name in 3’ wide slid end zone. (Painted words are additional cost per letter).
   5. Player “X” on center court line in front of officials table.
6. DO NOT paint solid areas on the game courts – too much wear.

3) **Middle School Gymnasium and K-8 Schools**  
Functions: school and community multi-purpose use to include: Physical Education, interscholastic practices and competitions, pep assemblies, all school assemblies, Health Fairs, dances, conference, ROTC and public events (graduation.)

Size per Ed Specs

Shall include one full volleyball court with sleeved standards.

a) **Gym competition equipment**

1) Provide wireless gym PA systems with ceiling/wall mount speakers, hand held capability, technologically friendly, and access points to plug in both sides of competition floor. Product shall be (See Appendix 5-D)

2) Scoreboards: BB/VB/WR compatible, 2 wall hung 2 controllers, wireless with ability to separate boards for distinct competitions or run as one game (Daktronics).

3) 6 basketball goals with a key wall switch for electric fold up goals with safety straps (prefer 8 goals, if space available). Two (2) main goal backboards to be steel with rectangular glass. Side goals to be steel with rectangular glass.

4) Divider curtains for court dividers; bottom 10 feet vinyl; top net; key wall switch; curtain separates two 84’ cross courts.

5) Sleeved volleyball nets to allow full court competition. Volleyball standards shall be Senoh 3” Aluminum Double D as provided by Sports Imports. Aluminum volleyball standards package shall include: volleyball uprights (Model AL7 and Model HDNR), Volleyball floor plate and sleeves (Model KA25), Volleyball upright protective padding (Model FPI-three sides pad), Volleyball net (Model HM50), Volleyball net antennae (Senoh Model NA2) and official stand and pads (Model PSI and PSPI). Detail of volleyball standards is included. (See Appendixes 5-H and 5-I)

6) Crash pads in school colors; minimum 12’ width.

7) All key wall switches shall be located together and away from pads and bleachers.
b) **Gym Bleachers**

(1) Set up allow folding team chairs between court and front row of bleachers (teams do not sit on front row of bleachers).

(2) Scorer’s table to sit on floor in front of bleachers.

(3) Approved bleacher manufacturers: Hussey and Interkal (plastic).

(4) First row removable seating operation shall be both manual and electric.

(5) 6 rows and over shall be motorized.

(6) Electric operation with a pendant.

(7) Bleachers shall be 10” deep without backs; 26” deck spacing with plastic seats.

(8) 9 5/8” rise.

(9) NO expansion plates below bleachers.

(10) Bleachers shall be straight wall attached with enclosed vinyl curtain on ends.

(11) Provide band platform accessory in bleacher unit.

c) **Wood Floors**

(1) All painted lines for all activities (See Appendix 5-A)

   (a) Basketball Perimeter should be:

   2” Game Line (Black), 50X84 or 44X84

   1” void

   6” wide painted line (in school color)

   (b) Volleyball

   2” wide Game Lines (Light Blue)

   (c) Basketball rectangles – Cross court Free Throw

   1” wide (Light Tan)

   (d) Badminton
SECTION 5: ATHLETIC STANDARDS

1" wide lines (Light Gray)

(2) Logo at center court ($800 allowance for school logo)

(3) School names or mascot names along baselines. 18" high font: Vineta BT in school colors.

(4) DO NOT paint solid areas on game courts.

(5) Plywood underlayment with two layers cross laid: cushion; and topped with 2-2 ½ 'maple floor strips' equal to Pro-Action Thrust. Wood shall be ¾" thick.

(6) Flooring must be DIN certified by Action Floor Systems or Home Flooring System (BPS-HP) or Robbins Flooring System (Bio-Cushion).

(7) Player “X” on the center court line in front of officials table.

d) Miscellaneous

(1) Provide DeBourgh athletic and team room lockers.

(2) Secondary Middle School gyms shall have sound systems.

4) Elementary Schools

a) Volleyball floorplate and sleeves – Model KA25 or equivalent

(1) Floorplate shall be solid brass of 6 5/8" outside diameter with hinged access cover, with 3 15/16" inside diameter of opening.

(2) Removable, threaded or pin swivel covers are unacceptable

(3) Plate shall be .219" think and shall be designed to be compatible with all floor surfaces. In a wood floor, the plate shall be fastened only to the wood floor so that it can move with any expansion or contraction of the floor.

(4) Sleeve shall be tubular steel of .140" thickness, 9 ½" long and 3 1/16" internal diameter. Sleeve shall have three pre-drilled flanges for attachment to the plate during the installation in accordance with manufacturer’s instructions.
(5) The bottom of the sleeve shall be 10" from the floor surface.

b) See Appendix 5-H and 5-I

c) Projectors needed in all gymnasiums

(1) NEC NP-M283XXGA DLP or equivalent.

(2) Protective cage needed around the projector (Chief PG1A Large Projector Security Cage preferred)

(3) Cable to projector should be VGA and HDMI, with the drop location on the wall adjacent to one of the sound system input locations

(4) 3.5mm input jack needed at the sound system input
Appendix 5-A – Court Lines
SECTION 5: ATHLETIC STANDARDS

FACILITY STANDARDS

4 ELEMENTARY SCHOOL COURT LINES

PERIMETER COLOR MAY BE DECIDED BY EACH SITE

TYPICAL VOLLEYBALL INSERT (6 TOTAL)

2" BLACK BASKETBALL COURT BORDER LINES

2" BLACK BASKETBALL COURT LINES

TYPICAL VOLLEYBALL INSERT (6 TOTAL)

COURT LINE NOTES:

1. MOST OF THE INLAID VINYL STRIPING SHALL BE 2" WIDE BLACK LINES; REFER DRAWING ABOVE FOR ADDITIONAL INFORMATION.
2. TICK MARKS REPRESENT CORNERS AND ATTACK LINE FOR A STANDARD VOLLEYBALL COURT.
3. FREE THROW LANE MEETS STANDARD BASKETBALL GUIDELINES.
4. JUM-BALL CIRCLE IS 6'-0" RADIUS OUTSIDE LINE.
5. MATCH VCT COLORS FOR COLOR TILES AS NEARLY AS POSSIBLE TO THE FOLLOWING:
   - A) ARMSTRONG IMPERIAL TEXTURE STANDARD EXCELON:
     1) BLUE - 51821 CARIBBEAN BLUE
     2) RED - 51816 CHERRY RED
     3) YELLOW - 51878 GOLDEN
     4) GREEN - 51824 SEA GREEN
     5) ORANGE - 51813 PUMPKIN ORANGE
     6) PURPLE - 51944 TYRAN PURPLE
   - NOTE: OTHER MANUFACTURERS ARE ACCEPTABLE PROVIDED THEIR COLOR MATCHES THE ABOVE COLORS AS NEARLY AS POSSIBLE.
SECTION 6

FINE ARTS STANDARDS

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Traditional Photo Lab

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Appendix A - Sound and Light Booth – New Construction
Appendix B: Typical Instrument, Music Uniform Needs
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A. NEW AUDITORIUM

1) General - for High Schools and Middle Schools

a) Auditorium should work as a single, coordinated unit and shall be multi-use for performance and classroom instruction.

b) Size shall be as identified in Ed Specs.

c) ADA accommodations shall be provided by a level platform on the back row in the existing aisle (see Ed Specs for wheelchairs and companion seating folding chairs). In addition, all aisle seats shall have flip up arms. All work shall comply with current applicable ADA codes.

d) ADA for stage shall be achieved by platform from stage along outside walls with exiting at the aisle on level surface. All work shall comply with current applicable ADA codes.

e) Seats shall be Hussey Quattro seating with fabric seats. Irwin Millennium may be bid as an alternate approved seat. For remodels in historic settings use Hussey Quattro Nostalgia series.

f) The vendor shall perform a line of sight study to confirm proper seat viewing based on stage height and seating locations.

g) Auditorium seating, stage lighting and rigging vendor must respond to warranty items with 48 hours.

h) Auditorium seat vendor must provide stock kits with product. Stock kit includes:

- **HOME**
(1) Quantity of 2 aisle end panels
(2) Quantity of 2 seats
(3) Quantity of 2 intermediate standards
(4) Quantity of 2 backs
(5) Quantity of 2 aisle legs
(6) Quantity of 2 center legs
(7) Quantity of 2 aisle arm rests
(8) Quantity of 2 center arm rest
(9) Quantity of 50 complete sets of hardware (nuts, bolts, washers, etc.)

(10) All of the above will be labeled with brand name and phone number/contact information for replacement parts.

i) Auditorium shall have access so that it can be used after hours while preventing access to the rest of the school. Auditorium should be adjacent to a large commons area for group gathering following performances. Commons area should also have adjacent access to reception area, restrooms and drinking fountains.

j) Handicap (H/C) parking shall be located conveniently adjacent to H/C access to auditorium. All work shall comply with current applicable ADA codes.

k) Back hall access to stage, dressing area and stage craft room shall be separate from public access.

l) Provide 9’ wide X 12’ tall overhead door at stage craft room to outside for delivery/loading access. Door installation shall be sensitive to noise issues (no rattling).

m) Provide for exterior loading on grade to OH access door. No dock required.

n) Auditorium house lighting shall be dimmable. Provide switch locations at every main entrance to auditorium for classroom light switching. Function shall be provided to lock out these lights during a performance. For balcony exit paths, lights shall be installed at wall of stairs accessing balcony. Provide low wattage light fixture at wall to light exit path. Preferred fixture shall be: Lithonia W5LIF-13 DTT 120 or approved equal.

o) Projectors and screens (provided and installed by District.)

2) High Schools Only

a) Mezzanine seats shall be riser mounted.

b) Auditorium Seat Lettering:
SECTION 6: FINE ARTS STANDARDS

(1) Standard Row Letters: Black text with gray background on a 23/32”x2-7/32” elliptical Lexan plate. Plate fitted in a vandal resistant recess located in the rear of the armrest and secured with adhesive.

(2) Standard Seat Numbers: Same as Standard Row Letters. Symbol of accessibility shall be on all chairs with flip up arm rests, and securely fastened and clearly visible from top.

(3) Application: Row letters will be used on all aisle ends, starting with letter A on the first row. Letter 1 and 0 will not be used for row letters. A true balcony starts with letter AA on the first row. Seat numbers will be used on all seats. Number 1 will be used on the far left (as you are standing at the front of the auditorium looking back at the seats) and continue sequentially across all sections.

B. AUDITORIUM STAGE

1) Back stage access from music suites should include 42” wide doors and floor should be at the same level.

2) Off stage storage and doors to storage shall be adequate to accommodate a grand piano. Additional storage shall be readily accessible in an adjacent room for storage of riser and choral shell.

3) Stage curtains shall be fire treated.

4) Pit cover shall be designed in sections that are sized so the section covers can be manually lifted and moved for performances. Pit cover top shall be at stage floor elevation for extension of stage during times of non-use. All work shall comply with current ADA codes applicable. Wenger pit cover preferred.

5) Duplex receptacles and microphone jacks shall be located every ten foot at front of stage.

6) Wood pine stage floors shall be painted theatrical matt black.

7) Illuminate structural features such as at stage edge, stair treads and thresholds with reflective strips.

8) High School

a) MINIMUM SIZE:
   • 17’ proscenium height opening
   • 15’ additional height for raised scenery + fly space
   • (10’ additional height for rigging needs)
   • (Minimum 42’)
   • Stage Width: (proscenium) 50’ minimum, 60’ maximum
   • Stage Depth: (proscenium) 35’ minimum
SECTION 6: FINE ARTS STANDARDS

WICHITA PUBLIC SCHOOLS

6-5

FACILITY STANDARDS

- Additional wing space: 20 foot minimum (each side)
- Stage height: 30”

b) In High Schools only - Pit shall be 7’ below stage floor level. The pit shall provide capacity for a 30 member orchestra. Wenger pit cover shall be capable of supporting 1200 pound grand piano on 3 wheels = 400 pounds rolling

9) Middle School

- Minimum Size
- 17’ proscenium height opening
- (10’ + additional height for rigging needs
- (Minimum 27’
- Stage Width: (proscenium) 45’ minimum, 60’ maximum
- Stage Depth: (proscenium) 30’ minimum
- Additional wing space: 20 foot minimum (each side)
- Stage height: 30”

C. STAGE RIGGING:

1) Rigging is to be provided for stage curtains, tracks and for additional pipe battens for scenery, etc. Include:

   a) Valance
   b) Act Curtain (Wide enough to completely clear the proscenium opening)
   c) 1st Border
   d) 1st Legs
   e) 1st Electric
   f) Scrim
   g) Empty Batten
   h) 2nd Border
   i) 2nd Legs
   j) 2nd Electric
   k) Empty Batten
   l) Empty Batten
   m) Traveling Mid Curtain
   n) 3rd Border
   o) The following items (o – w ) are needed at High Schools only
   p) 3rd Legs
   q) 3rd Electric
   r) Empty Batten
   s) 4th Border
   t) 4th Legs
   u) 4th Electric
   v) Rear Traveler
   w) Cyclorama
SECTION 6: FINE ARTS STANDARDS

2) 12' x 22' Multimedia screen shall have electrical operation. Motor operable roll up unit shall be mounted to a fixed position batten at the back of the stage. The screen will be controlled by a key switch on the stage wall. All other items shall have manual counterweight/cable operating system mounted to block wall at one side of the stage area. Loading platform must be included in the design. Training shall be provided to the staff on the proper operation and repair of the counterweight/cable system.

3) RIGGING AND FRAMING
   a) High School – Use counter weight and fly system.
   b) Middle School – Dead hung system.
D. **CATWALK: High Schools and Middle Schools**  

1) Provide single cat walk at the appropriate distance for 45 degree angle to lighting. Provide access to as many lights as possible from cat walk.

E. **CONTROL BOOTH:**

1) (See Appendix A) Control booth for lights and sound shall be located in the back of the auditorium, slightly elevated and open to the auditorium space; 15’ wide; sound person set 10’ off center.

2) Partial height walls may be constructed to contain the space if they don’t hinder sight lines. Line of site to stage from seated position is required.

3) Provide counter space with seating behind to accommodate lighting board, sounds board, computer and document camera. Line of site to stage from seated position is required.

4) Handicap access shall be provided remotely, no lift or wheelchair opening required. Sound and lighting system shall have capability for remote boards for accessibility. All work shall comply with current applicable ADA codes.

5) Locking cabinet shall be provided to secure equipment.

6) Control booth will be provided by owner. Preferred booth design includes a lockable room with open counter top open to the house above the counter top.

F. **STAGE LIGHTING**

1) Provide microprocessor-based, modular system consisting of rack mounted dimmers and control modules operated from remote-control stations and a control console.

2) System Operation: Console features include electronic patching of control signals for up to 192 theatrical dimmers, (open dimmer spaces allow for future growth) and off-line data storage using internal USB ports. Operational capability includes the following:

   a) 1 – 96 rack needed for Middle Schools; 2-96 racks needed for High Schools

   b) 96 Dimmers needed for Middle Schools; 144 dimmers needed for High Schools

   c) Live and blind programming.
SECTION 6: FINE ARTS STANDARDS

d) Special effects programmability for automatic operation of lights in pulsating, sequential dimming and brightening and other special operating modes. Special effects menu displays operator guidance for programming and individual step levels.

e) Signal from fire alarm control panel that automatically brings selected circuits to fully on or fully bright condition, overriding normal dimming and on-off controls.

f) Inserting cues between designated cues without renumbering.

g) Out-of-sequence playback of cues.

h) Lights controlled from stations by assigning their dimmers or non-dim on-off controls to a channel.

i) Memory retention of programmed cues for minimum of one year after power outage.

j) Automatic sequential execution of programmed cues.

k) Printing cues using parallel or serial printer port, cable, and printer. Cable and printer are not included with this system.

3) Dimmers: Modular solid-state units that operate smoothly over their operating ranges without audible lamp noise or radio-frequency interference at any setting. Units incorporate two consecutive dimmers per phase, each with circuit breaker. Modules shall be dead front; draw-out mounted in a steel cabinet and is removable without use of tools.

4) Controls:
   • Fader stations: 4 faders with 7 buttons for Middle schools; 7-faders with 12 buttons for High Schools; Located at two locations (one at control booth and one at stage left or right.)
   • Lighting Console: ETC 2496 Smart Fade plus ETC SR-48 for Middle schools, and ETC ION 1000 or approved current model needed for High Schools.
   • Entry stations: two button on/off.
   • Control module built-in to dimmer panel.
   • 15" Flat screen monitor.

5) Connector Strips:

Connector Strip shall be fabricated from 18 gauge galvanized steel 6.25"H x 3.3"D with length specified in increments of 6" and shipped fully wired in a minimum of 6"0" sections with all splicing hardware included. They shall be finished with fine-textured, scratch-resistant, black powder coat. Outlets shall be mounted on individual 3" panels. There shall be no external terminal boxes for units with 28 or fewer circuits unless otherwise specified. Connector strips shall be placed above stage in a manner that distributes the light evenly over the usable surface.
6) Lighting instruments
   a) Provide a combination of ellipsoidal spotlights, (25) middle school (50) high school panel stage lights, (25) middle school (50) high school cyclorama lights (12) with safety cables.
   b) One row of lights in front of stage and four rows above the stage.
   c) All stage lighting must be accessible to be changed or replaced without the use of scaffolding.
   d) All house lights shall be selected and installed in a way that only requires one person working from the bottom or from catwalk to replace lamps.
   e) Selected house lighting shall be connected to the emergency generator via an Emergency Lighting Transfer Switch (ELTS). This ELTS shall be provided by the dimming system manufacturer and shall also connect to the fire alarm system. In the event of a power outage or fire alarm, selected house lighting will be automatically brought up to full brightness.

7) Work Lights
   a) The stage area shall be equipped with T5HO fluorescent lighting to provide an average of 50fc on the stage floor. These fixtures shall be connected to a non-dimmed module in the dimming rack to allow on/off control from the lighting booth in addition to stage entrances.

G. AESTHETICS
   1) Infrastructure CAN BE exposed with painted flat black ceiling.
   2) Side walls and back wall of stage area to be painted flat black to 5’ above sight line. Light gray above.

H. ACOUSTICS
   1) Auditorium will be used as a multi-use performance space and must be designed acoustically to accommodate the varied uses. Provide acoustically designed shape (i.e. angled, perforated, rear wall diffusion/absorption, curved sound reflective ceiling) in addition to acoustical wall and ceiling treatments. Attention should be given to the mechanical system design so that unwanted low frequency noise is not transferred to the auditorium. Auditorium acoustician must be involved in design.
2) Floor finishes shall be sealed concrete under seats with carpet in aisles. In remodeled or areas where appearance under chairs is not acceptable, tinted sealer or epoxy can be used to make uniform appearance. Carpet metal on edges is preferred; Rubber edging and bound carpet are acceptable also.

I. SOUND SYSTEM

1) Installation should be flexible, able to accommodate a wide variety of events including theatre (plays and musicals), vocal and instrumental concerts, lectures, variety shows, assemblies, video presentations, debate, forensics, and other events held in high school auditorium/theaters.

2) Post installation training on proper use of the equipment shall be presented and videotaped (allowing for future users to receive the same training).

3) During the period of warranty, a representative will be available on-site within 24 hours of request to deal with technical problems.

4) Installation should include all needed accessories, cords and connectors to hook up and operate all new equipment.

5) Specific equipment may vary due to size of space but shall include:

6) Assisted listening devices shall be provided to fully accommodate ADA recommendations for size of room and occupants.

7) Digital Mixer: The mixer shall be manufactured by Shure, Yamaha or Roland such as:
   a) Yamaha LS9-48 Station Digital Mixer with Yamaha MY16-AT card; two PreSonus Digimax FS Mic Preams; Drawmer M-Clock Lite master clock PM-Light Gooseneck light.
   b) The sound system shall also include the equipment and connections required to record/play performances from CD or USB device.

8) Microphones:
   a) Sixteen (16) Shure QLXD1485 Lavalier Wireless Systems with (5) Shure wireless handheld microphones, (5) Shure UA844SWB Antenna/Distributions Systems and (2) Shure UA870X UHF antennas or approved current model.
   b) Four (4) Crown PCC-160 boundary microphones
   c) Four (4) Shure SM58s microphones
   d) Four (4) Shure MX202B/C Hanging Microphones

Note: The Shure QLXD installation should also include placement of wall plates for hanging microphone inputs.
9) Stage Connection – Provide Roland RSS S01608 and Yamaha SB168-ES Digital Snake System and required accessories or approved current model, and required accessories.

10) Speakers
   a) Cluster; may need to add speakers at back on larger auditoriums.
   b) Speakers should be Bose, Community, EV, JBL or QSC.
   c) Central cluster of speakers capable of projecting high volume signal with a pair of speakers mounted on either side of the proscenium to create a stereo image. The system should have an operating range of 38 Hz-18 kHz, with a sustained max output of 100 dBA (decibel) at the console and no more than +/-10 dBA throughout the house.

11) Amplifiers & Speaker Control
   a) Provide enough amps to adequately power above speakers with headroom.
   b) Amps should be QSC, EV, or Yamaha.

12) Monitors
   a) (4) Middle School, (6) High School: Community MVP1ZM or Yamaha SM12V Powered Floor Monitors or preapproved equal.

13) Power Conditioner
   a) One (1) Surge X Power Conditioner and Sequencers with surge eliminator or preapproved equal.

14) Installation should include all needed accessories, cords and connectors to hook up and operate all equipment.

15) Processors: Bose Control Space/w Bose Controller or Biamp Flex/w Red1 controller or approved current model.

16) 15 Hearing Impaired: Listen LT-800 Systems or approved current model. Assisted listening devices shall be provided to fully accommodate ADA recommendations for size of room and occupants.

17) 16 Netgear FS108p with POE or approved current model

J. STAGE CRAFT ROOM (High School Only)
1) One classroom space designated as a stage craft room which is adjacent to stage shall have high ceilings (minimum 20’), open trusses, cement floor. An 8’ W x 16’ H OH access door shall be provided in the stage craft room to the hall and from the hall to the stage with unobstructed scene transport access to stage floor. Overhead door shall be sensitive to noise issues (no rattling).

2) Provide structure and space for flat storage.

3) Provide custodial sink (tub type sink).

4) Provide counter space. Provide storage cabinetry which includes top and base cabinets.

5) Provide lockable paint cabinet.

6) Provide adequate receptacles for power tools.

K. DRAMA STORAGE

1) Storage room shall have built-ins for costume and prop storage (high school only).

2) General storage areas shall be sufficient to accommodate the following items:
   - Riser/Platforms
   - Grand Piano
   - Choral shell
   - Rack for chairs
   - Rack for music stands
   (Equipment provided by owner).

L. DRESSING ROOMS WITH RESTROOMS

1) Provide male and female dressing rooms with private restroom facilities, multiple sinks, mirrors with Broadway lighting, large counter space, costume storage area with hanging rods. Location must be accessible and convenient to stage.

2) Counter top receptacles shall be controlled by the switch that controls the lights in the room. When the lights are on, the receptacles are on; when the lights are off; the receptacles are off.

M. MUSIC SUITES

GENERAL:

1) Provide infrastructure for smart boards and wall mounted projectors in all classrooms. Includes: Vocal/Instrumental/rehearsal and ensemble practice room. It is preferred that at least one white board in each classroom have one half musical staff factory installed on the writing surface and the other half open standard white board surface.
2) Provide proper acoustical design for spaces. Acoustician must be involved in design. All walls shall extend to deck and be sand filled block or precast concrete. All rooms to be sound isolated from each other. See table for numbers of instruments, uniforms and music for storage needs.

3) Each room shall have a classroom function Columbine style door lock.

4) If feasible restrooms should be located as close to the hallway doors in suite.

N. INSTRUMENTAL REHEARSAL ROOM

1) Instrument rehearsal rooms shall be sized per the Ed Specs.

2) Counter, sink & drinking fountain shall be located in the rehearsal room.

3) Wenger pre-engineered acoustical door is preferred. Room shall meet a minimum STC rating of 48.

4) Provide doors and walks to loading area and service drive adequate size (minimum 42”) to transport instruments.

5) Provide Wenger storage units for small instrument storage within the room. Units shall have lockable grill front doors.

6) Provide sound system speakers and related wiring.

7) Provide carpet floors.

O. INSTRUMENT / UNIFORM STORAGE

1) Rooms shall be temperature controlled.

2) Size per the Ed Specs.

3) Provide Wenger open storage units for large instrument storage: bass racks, tuba racks, cello racks, shelving for saxophones/low brass. (Numbers of instruments provided (See pages 6-28 Appendix B).

4) Provide Wenger Robe and uniform cabinets; double decker.

5) Room shall be lockable.

P. INSTRUMENT OFFICE / LIBRARY

1) Office and library can be in a shared space.
2) Provide Wenger music library system (8 sections) for sheet music storage. Need VCT flooring under this library system, no carpet. Exposed concrete is acceptable in lieu of VCT.

3) Provide sound reduced windows to rehearsal room. Room shall meet a minimum STC Rating of 48.
Q.  PRACTICE ROOMS

1) 2 rooms @ 50 square feet; 1 room @ 100 square feet.
2) 1 ensemble room @ 600/square feet for 20 people.
3) Practice rooms shall have observation windows in doors.
4) Rooms shall meet a minimum STC Rating of 48
5) Practice rooms shall have data drops (3 in ensemble room).
6) Provide adequate power for 16-keyboard lab in ensemble room.
7) Provide carpet floors.

R.  TIERED VOCAL REHEARSAL ROOM

1) Built in vocal room risers shall be 48” deep x 7” high risers (Framing should be wood or metal with 4” concrete slab topping.)
2) 5 risers; carpeted
3) Provide robe storage in back of room; use Wenger Robe and uniform cabinets; single tier; 11 cabinets (48’ x 80") for approximately 150 robes. Choir Robe Storage Cabinets should have solid wood doors (not metal grates)
4) Rooms shall meet a minimum STC Rating of 48
5) Provide carpet floors

S.  VOCAL OFFICE / VOCAL MUSIC LIBRARY

1) Office and library can be in a shared space
2) Provide Wenger music library system for sheet music storage – 8 sections. Need VCT flooring, not carpet under this library system. Exposed concrete is acceptable in lieu of VCT.
3) Provide sound reduced window to rehearsal room.

T.  STORAGE ROOM

1) Room shall be temperature controlled.
2) Room shall be lockable.
3) Storage areas shall be sufficient to accommodate the following items:
   a) Riser/Platforms
   b) Grand Piano
   c) Choral shell
   d) Rack for chairs
   e) Rack for music stands

U. DRESSING ROOMS WITH RESTROOMS

1) Provide male and female dressing rooms with private restroom facilities, multiple sinks, mirrors with Broadway lighting, and large counter space. Costume storage area with hanging rods. Location must be accessible and convenient to stage.

2) Counter top receptacles shall be controlled by the switch that controls the lights in the room. When the lights are on, the receptacles are on; when the lights are off, the receptacles are off.

V. Storage Room

1) Room shall be temperature controlled.

2) Room shall be lockable.

3) Storage areas shall be sufficient to accommodate the following items:
   a) Riser/Platforms
   b) Grand Piano
   c) Choral shell
   d) Rack for chairs
   e) Rack for music stands
   (Equipment will be provided by owner.)

W. TIERED MIDDLE SCHOOL VOCAL REHEARSAL ROOM

1) Built in vocal room riser shall be 48" deep x 7" high risers (Framing should be wood or metal with 4" concrete slab topping)

2) 3 risers; carpeted

3) Room shall meet a minimum 48 STC (Sound Transmission Class) Rating

3) Provide carpet floors

X. MIDDLE VOCAL OFFICE/VOCAL MUSIC LIBRARY
1) Office and library can be in a shared space

2) Provide Wenger music library system for sheet music storage – 4 sections. Need VCT flooring under this library system, no carpet; exposed concrete is acceptable in lieu of VCT.

3) Provide sound reduced window (insulated double paned) to rehearsal room.

Y. MIDDLE SCHOOL INSTRUMENT OFFICE/LIBRARY

1) Office and library can be in a shared space

2) Provide Wenger music library system (4 sections) for sheet music storage sections. Need VCT flooring under this library system, no carpet; exposed concrete is acceptable in lieu of VCT.

3) Provide sound reduced windows to rehearsal room (insulated double paned).

Z. ART SUITES/ROOMS

1) GENERAL
   a) Provide infrastructure for smart boards and projectors, wall mounted projector and projector surface in all classrooms. Includes: Drawing, Ceramics, and Digital Photo.

   b) Provide natural lighting/windows in all rooms.

   c) Specific programs/art classrooms shall be site specific.

   d) Provide for display of various types of artwork.

2) ART CLASSROOMS

   1) Art rooms shall be sized per the Ed Specs.

   2) Counter and sinks shall be located in all art rooms – to accommodate 24-30 Students

   3) Provide VCT floors except in ceramic classroom provide concrete w/slip resistant surface.

   4) Provide storage, counters, work space, and electrical for equipment for programmed spaces as follows:

High School - Ceramics Studios:
a) Size per the Ed Specs

b) Shall be adjacent to the ceramic room and with easy access to outside.

c) Provide double door to exterior for future replacement of kilns if location allows.

d) Provide venting for gas kiln and proper ventilation for clay mixing. Space shall meet all applicable ventilation and filtered

e) Interior Kiln Room

   (1) Two (2) - medium to large electric kilns (Skutt KM1227-3) with Enviro Vent 35” wide, 6-50 receptacle; single phase 208. (EnviroVent II shall be interconnected and tied to kiln).

   (2) 1-2 Enameling kilns – (Paragon XPRESS-E-14A – These are small, set on countertop with fire proof surface

f) Exterior Kiln Room

   (1) One (1) Gas fired Olympic DD17 with hood

   (2) Gas fired Olympic DD-17 must be in a totally separate structure from the main school building. The room must include- easy access from main ceramics classroom, preferably a direct line of site.

   (3) Room must have one outlet and work light, Remote gas shut off.

   (4) Room shall have one double door and one man door to allow easy access in and out. Double doors must be lockable and chain link to provide ventilation.

   (5) Floor shall be concrete with slip resistant surface.

   (6) Room should be minimum of 250 square feet with adequate room for shelving.

g) Shelving shall be 16”-18” wide.

h) Clay Mixing Room

   (1) 1 - Clay Mixer (Soldner Professional Model Clay Mixer – 208v, single phase)

   (2) 1 – Peter Pugger clay mixer/ deairer for recycling clay
(3) 1 – Glaze Mixing Table (Northstar TGM10)

i) Classroom

(1) 1 - Slab roller: Northstar 30” Standard Package (includes 30” Slab Roller, 14 gauge steel table, canvas & wagon wheel handle)

(2) 1 - 4 Person Wedging table (M-402-22)

(3) Peter-Pugger pug mill for recycling Model VPM-60 140 lb. batch.

(4) 12 - pottery wheels with electric cords from the ceiling (Shimpo RK-Whisper)

(5) 1 - Standard Stainless Extruder Package (Item 950) with Stainless steel Barrel and Basic Die Set & Accessory Die Set

(6) 1 - Spray booth with proper ventilation (Laguna Pro-V Seamless)

(7) 1 – Bandsaw 14” with Model 10-320

(8) 1 – Table Saw – Delta 10” Left Title Contractors Saw (#36-980)

(9) Adjustable shelves for storage for larger work

(10) 4-8 classroom computers

(11) Color Printer / scanner

(12) Projector – mounted

(13) Smartboards / screen

(14) 2 classroom digital cameras

(15) Wide tables for hand building

(16) Student storage – built in.

(17) Separate rooms for 2D and ceramics classes

(18) Individual student storage for supplies
SECTION 6: FINE ARTS STANDARDS

High School Drawing / Painting Studios:

(a) 12-24 Easels
(b) Light table
(c) 36 inch mat cutter
(d) 8-12 classroom computers
(e) Color Printer / scanner
(f) Projector – mounted
(g) Smartboard / screen
(h) Software- Adobe Creative Suite Photoshop, In-Design 2
classroom digital cameras
(i) 36 inch paper cutter
(j) Individual student storage for supplies
(k) 1 Printing press – traditional
(l) Drying racks

Digital Photo Lab / Graphic Arts Lab:

a) 24-30 computers
b) 25 - SLR Digital Cameras. 4 - 72-200 zoom lenses
c) High quality photo printer
d) Scanner
e) Projector- mounted
f) Smartboard / screen
g) 4 Video cameras
h) 24-30 Electronic Drawing Pads
i) Software - Adobe Creative Suite Photoshop, In-design, etc.
j) Backdrop stand and fabric or paper
k) 4 studio lights and stands
l) 4 tripods
m) 36 inch mat cutter
n) 16x20 dry mount press
o) 36 inch paper cutter
p) Photo Trimmer
q) Canon Speed Light Flashes, need drawer space for 6 total flashes
r) Studio Light Kit for off camera
Traditional Photo Lab:

a) 16 Enlargers and supplies  
b) 1 10 ft. darkroom sink  
c) Photo trays  
d) 2 6 ft. film developing sinks  
e) 20 35mm cameras  
f) Tanks, lids and reels for processing  
g) Timers  
h) 2 – 20 inch slide paper photo trimmer  
i) 36 inch paper cutter  
j) 16x20 dry mount press  
k) 36 inch mat cutter  
l) Backdrop stand and fabric or paper  
m) Light table  
n) 4 tripods  
o) Individual student storage for supplies

(Equipment to be provided by owner).
Appendixes

Appendix A - Sound And Light Booth (Remodels)
SECTION 6: FINE ARTS STANDARDS

WICHITA PUBLIC SCHOOLS

FACILITY STANDARDS

SECTION 6: FINE ARTS STANDARDS

WICHITA PUBLIC SCHOOLS

FACILITY STANDARDS

ROLL TOP SECTION

SOUND AND LIGHT BOOTH – YAMAHA & ROLAND SOUND BOARD
SECTION 6: FINE ARTS STANDARDS

FACILITY STANDARDS

LOW WALL – 2 X 4'S AT 18" ON CENTER WITH 5/8" GYPSUM BOARD EACH SIDE REFER ABOVE

CAP ON LOW WALL BEYOND

COUNTER TOP BEYOND

3/4"x 1 1/2" RED OAK FRONT EDGE WITH 1/4" RADIUS FILLET

SEMI-EXPOSED SURFACES TO BE RED OAK VENEER

3/4" RED OAK VENEER PLYWOOD DOOR

VINYL COVE BASE

2 X 4 BLOCKING

FINISH FLOOR

SOUND AND LIGHT BOOTH – YAMAHA & ROLAND SOUND BOARD
SECTION 7

MECHANICAL STANDARDS

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GENERAL INFORMATION

1) Mechanical systems shall be provided including heating, ventilating, air conditioning, air tempering, exhaust air, control systems, plumbing, compressed air, sanitary waste, industrial waste and all other necessary mechanical systems required to provide for fully functional instructional spaces, rest rooms, educational support spaces, etc.

2) All mechanical systems shall comply with current federal, state and local codes and standards including ADA, ASHRAE, IESNA, SMACNA, NFPA, EPA, KCC, AWS, and ASME requirements, etc.

3) The criteria for room design temperatures shall be 76°F cooling, and 70°F heating. The outside conditions shall be: Cooling 98DB / 73WB; Heating: 0°F.

4) Motors for mechanical equipment shall comply with ASHRAE/IESNA standards, be American made, and have variable frequency drives on variable air volume air handling units of three (3) HP and over. Manual reset three-phase protection must be installed on each piece of three-phase equipment.
   a) Provide “soft-start” on any mechanical equipment, pumps and air handlers that do not have a VFD currently where motors are 3 hp and larger.

5) Heating systems are to be maintained in working order from October 15th through April 15th. Cooling systems are to be maintained in working order from April 15th to October 15th.

6) Dummy Units can not be installed for any reason.

7) Filter replacement must be easily accessible. Ceiling hung units need easy access to filter. Filter panel should not be blocked by water lines, drain lines, electrical conduit or block by placing unit against a wall.

B HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS

1) General
   a) The purpose of HVAC is to provide an environment conducive to learning (i.e. appropriate air temperature, noise level and air quality). Cooling is not required in high school gymnasiums, corridors, or restrooms. However, HVAC systems should be designed with the capacity for the High School gyms to be air conditioned in the future if the owner chooses to do so.

   b) The mechanical systems for educational buildings and support facilities shall be designed and installed according to applicable codes, to minimize the cost of owning, operating, and maintaining the system while sustaining a controlled satisfactory environmental comfort level. System/Equipment shall be selected on simplicity of operations and
c) Mechanical equipment rooms and/or spaces shall be readily accessible and adequate in size to provide for ease of maintenance including replacement. Rooms and/or mezzanines are preferred, if feasible. If exterior installations, ground mount is preferred over roof-top installations.

d) Provide single manufacturer, district approved, building automation environmental controls with site and remote monitoring capabilities. At existing sites, use system or additions to match original system or change the controls to all be of the same control vendor.

e) Maintain indoor air quality (IAQ) in all district buildings. All HVAC systems shall follow the ASHRAE standards and applicable codes concerning the outside air quantities required to maintain the IAQ.

ASHRAE Standard 62.1.2007 is to be used. Ventilation rates as shown in Table 2 are to be utilized. Section 6.1.3.4 is to be utilized for typical classrooms, multi-purpose rooms, commons, etc. This section permits spaces with intermittent or variable occupancy to have the outdoor air quantity adjusted. This allows spaces with peak occupancy of less than three (3) hours duration to reduce outdoor airflow rate, determined on the average occupancy of the space, but not less than 50%. Since the classrooms are unoccupied during recesses, planning periods, lunch, etc., the occupancy used for ventilation can be reduced to 50% of the maximum occupancy (i.e., a classroom of 30 people can be sized at 15 people for ventilation purposes). Ventilation for offices, administration areas, and special education classrooms are to be sized at full occupancy. In the case of the special education classrooms, it may be desirable to size the ventilation for both the special education needs and as a regular classroom, and utilize the worst case (i.e. if occupancy of the special education room is less than 15 people), because the space may revert back to a general classroom. Fans are to operate continuously during the occupied period.

f) If heavy and sizable pieces of mechanical equipment, which cannot be disassembled, are specified, building design must include access for removal from the building. Such items as a sub-grade knockout panel in the foundation wall, or other planned egress for heavy pieces of equipment must be provided to the exterior of the building.

g) The project architect and engineer shall coordinate the requirement for space above ceilings for mechanical systems taking into account structural conditions. Sections drawn to a minimum of ¼” scale shall be incorporated into the construction documents to show the location of each system.

h) Mechanical systems should be as self-sufficient as possible and still provide a modern environmental system to meet present standards. Maintenance crews should not have to pamper highly sophisticated maintenance, economics (life cycle and initial cost), serviceability, (initial purchase and parts(264,118),(740,198), availability, useful life expectancy, capability of performance, and compliance with applicable standards and regulations.
SECTION 7: MECHANICAL STANDARDS

unreliable systems. The intent is to provide up-to-date equipment with a proven history of reliability. Low cost systems, which later become expensive due to excess maintenance, are not acceptable.

i) Provide starters and disconnects on package equipment. Preferred manufacturer for starters and disconnects is Square D. All motor starters shall have melting alloy overload relays on each phase leg.

j) All condensing coils shall have hail protection.

k) Provide the following extended warranties (parts and labor):

   1) Minimum of five (5) years on air conditioner compressors.

   2) Minimum of five (5) years on all chillers on entire unit including parts, labor, and refrigerant.

   3) Minimum of two (2) years on variable frequency drives.

   4) Minimum of ten (10) years on gas heat exchanger equipment.

   5) Minimum of three (3) years on automated controls system.

   6) Minimum of three (3) years manufacturers warranty on damper and valve actuators.

   7) All warranty dates are to be clearly marked on each piece of equipment and are to be from date of Substantial Completion.

   8) 5 year warranty on fire smoke damper motors.

l) No hot water tanks/vents in boiler flues.

m) Air vents shall not be placed at locations that will disturb the educational function of the facility (i.e. do not place vent in treads of the library story telling area).

n) Provide signage for hot and chilled water systems. Signage shall be located next to glycol feed tanks. Signage shall include percentage of glycol in system, water balance static pressure of system and total volume of glycol and water in both hot and chilled water loops.

2) Preferred HVAC Systems

a) System preferences:

   The VAV system (system 1) is to be used in all buildings unless physical space will not permit installation of equipment and ductwork. Systems 2, 3, and 4, need to have prior approval of the district prior to implementing.
SECTION 7: MECHANICAL STANDARDS

ALL systems are to utilize and enthalpy based economizer, chilled water reset and heating water reset. An economizer is preferred over fluid coolers.

Economizer should be designed for 80-100% refilled cfm.

(1) Four (4) pipe FPVAV with either AHU’s with an air cooled chiller and boiler, or rooftop units and boiler plant.

(2) Four (4) pipe unit ventilator, blower coil, and fan coils with air cooled chiller and boiler plant.

(3) Unit ventilator, blower coil, and fan coils with DX and boiler plant.

(4) Single zone rooftop systems.

b) An air-water, four (4) pipe system with chemical corrosion protection is preferred.

(1) The preferred cooling packages are:

(a) 100 tons and larger: Air-cooled chillers with screw compressors, at ARI conditions, minimum EER 9.2 at full load with a minimum IPLV of 11.9. Approved manufacturers are: Trane, and McQuay.

(b) 100 Tons: Air-cooled chillers with scroll compressors at ARI conditions, minimum EER 9.8 at full load with a minimum IPLV of 13.5. Approved manufacturers are: Trane, Carrier, and McQuay.

(c) All chillers shall have vibration isolators with 1” minimum clearance to allow for dirt/debris removal

(d) Flow switches and pressure differential switches shall be installed in-between either two ball valves or two butterfly valves for ease of replacement.

(2) The preferred heating package is Hot water heat with a package boiler / burner.

(3) The preferred boiler/burner package is:

Steel corrugated fire tube, dry-back, scotch marine type, low-pressure boiler with two (2) handholds in the front head of the boiler and one on each side of the furnace. Burner mounted and wired at the factory. All non-condensed boilers must have low fire hold. Fully insulated and covered with metal jacket, front doors to be interior insulated and insulation to cover smoke box and smoke turnarounds. Rear door to be davited. Provide segmented refractory block in rear shell extension to allow repair or
replacement of individual refractory blocks. Stack thermometer shall be installed in the smoke outlet. Tubes shall be 12 gauge, 2 ½” diameter steel. Tube sheet minimum thicknesses: 5/8”. Furnace minimum thickness: 3/8”

(a) Vertical tube boilers (condensing and high efficiency) may be allowed at building addition projects. USD 259 shall make decisions where allowed.

(b) Burners shall be full modulation for natural gas fuel; also provide for No. 2 fuel oil back up at District emergency sites or sites currently with fuel oil. (List of emergency sites attached).

(c) All boiler burner installations shall be designed in compliance with the State Boiler code of Kansas, which includes CSD-I, UL, and other items. The specifications/drawings shall require the watersides of all boilers to be opened and cleaned for the owner and the owner’s insurance company to inspect at the time of commissioning. The contractor shall bear all cost of such work.

(d) Approved manufacturers are: Superior, Hearst, William & Davis Dry Back and Burnham. If site conditions are such that the approved boilers are not feasible; the owner will consider granting Bryan hot water boilers approval for LES brand boilers. Condensing or high efficiency boilers may be allowed to fit special conditions on building additions. USD 259 shall make decisions where allowed. Otherwise, new buildings must follow standard scotch marine type dry back low pressure boiler standard. All hot water heating boilers should be equipped with a low fire hold temperature controlled.

(e) A High efficiency modular boiler system shall be provided for low load heating operation. The boilers shall be Lochinvar “Knight XL”, Camus “DynaMax” or Raypak “Xfyre” type condensing or boilers with stainless steel heat exchanger, fully modulating burner with 5:1 turndown capability, integral system controller capable of hot water reset control of the building water supply temperature. Multiple boilers shall be installed with each boiler having 800,000 to 850,000 BTUH input capacity and shall be controlled via the boilers integral controller for cascade type operation. The total capacity of the high efficiency boilers shall be selected as required to meet the calculated building load at 40° F differential temperature. The boilers shall be furnished with a 10 year heat exchanger warranty, 5 year burner warranty and a 1 year warranty on the remaining parts.
(f) Boilers shall be piped for primary secondary operation and Schedule 40 PVC vent and combustion air piping installed to roof terminals per the boiler manufacturer’s instructions. The building temperature control system shall be programmed to operate the high efficiency boilers when OA ambient is above 35°F and to operate the fire tube boiler when the OA ambient is below 35°F. The fire tube boiler mixing valve shall be controlled to provide full flow of hot water through the fire tube boiler when the high efficiency boilers are in operation so the fire tube boiler is held at operating temperature when enabled. (It is intended that the high efficiency boilers will operate along until the ambient temperature falls below approximately 35°F at which time they shall be cycled off and the fire tube boiler shall be operated).

(g) If any operations software or specialized equipment is needed to service or perform general maintenance of condensing boilers, to be provided by the contractor; at least 2 copies of software.

(h) Boiler gas piping must be supported on stands. Cap at end of gas line must be removable or a valve tee must be installed near bottom of pipe for removal of debris from pipe.

(4) VRF System (variable refrigerant flow) systems: All installers must have factory certification and training from either (Mitsubishi or LG):

(a) Provide an extra set of filters for all indoor equipment

(b) Provide shut off valves at all ports for individual isolation and service without disrupting the system.

(c) All vendors must be able to respond within 24 hours on site to address any issues.

(d) Heat Recovery Type – R2-Series

(e) Heat Pump – U Series

(f) Heat Pump Hyper-Heating – Y-Series H2i

(g) Single Phase Heat Pump – S-Series
SECTION 7: MECHANICAL STANDARDS

3) Boiler Breeching
   a) Double or triple wall to meet current UL Standards.

4) Fuel Oil Tank (Emergency Sites Only)
   a) The contractor should install above ground fuel tanks (AST) or underground storage tanks (UST) based on criteria that includes:
      (1) The size of the tank
      (2) Proximity to building structures
      (3) Safety and environmental concerns
      (4) Aesthetic considerations
      (5) Available space
   b) Generally speaking, an AST is preferable to a UST under most conditions. The AST has fewer monitoring and testing requirements, and is much easier to detect a leak in a timely manner. A UST is appropriate when it is not possible to control access to the tank with fences or other structures, or when there is not enough space to construct an AST.
   c) AST requirements:
      (1) The tank must be double-walled construction.
      (2) Be a Fireguard TM tank.
      (3) Must meet UL-2085 requirements.
      (4) The State Fire Marshal and local fire authorities must approve the tank.
      (5) The tank must have a concrete pad with a concrete berm.
      (6) The tank must have overfill and spill protection.
      (7) If the lines from the tank run underground, the piping must be of fiberglass construction.
      (8) The tank must be tapped for fuel oil supply, return, and vent line.
      (9) Construct a fence or screen wall around the tank installation to control access to the tank and equipment.
   d) Underground Storage Tank (UST) requirements:
SECTION 7: MECHANICAL STANDARDS

(1) The tank and piping must be of fiberglass construction.

(2) The tank must have overspill and fill protection.

(3) Must have the required vapor monitoring well.

(4) Tank shall be complete with 30-inch diameter manhole.

(5) Fill cap with locking hasp and watertight cover.

(6) Tapping for fuel oil supply.

(7) Return and vent line.

(8) Coordinate the installation of the UST’s with USD 259, Environmental Services. At a minimum, provide Environmental Services with the following information with no more than five days after any of the following events:

(a) The date of installation

(b) The date the tank is initially filled with fuel and the initial fuel depth as well as the inches of water in the tank.

(c) The date and the fuel depth in inches before additional fuel is added to the tank for any reason and the fuel depth in inches immediately after fuel is added to the tank as well as the inches of water in the tank.

(d) The date and the fuel depth in inches before any fuel is withdrawn from the tank (i.e. test firing of a boiler, testing an emergency generator, drawing fuel into fuel lines) and the fuel depth in inches after fuel is withdrawn from the tank.

(e) Copies of all applications, tank tightness results, and correspondence with the Kansas Department of Health and Environment, Environmental Remediation, Storage Tank Section.

e) All tanks

(1) The tank must be installed with a Veeder-Root TS-350 or equivalent monitor that has the capability of performing tank tightness testing.

(2) The tank shall be installed per manufacturer’s instructions.

(3) Shall meet all State, Federal and local regulations.

(4) Size the tank to nearest typical size to hold a 144-hour supply at full burner capacity.
5) **Direct Expansion Split Systems**

If DX is used, Refrigerant must be either R134a or R410. No R22 systems are allowed. If system is being moved and reused it is okay to be R22, if approved by USD 259. Provide:

a) **Condensing units:**

   (1) **Less than 10 tons:**

   (a) 1750 rpm compressor (if available)
   (b) 460/480 volts; three (3) phase if possible
   (c) Service valves on liquid and suction lines
   (d) Hi-Lo pressure switches
   (e) Crankcase heaters on all units with low ambient operating requirements.
   (f) Pipe sized to manufacturer’s recommendations with runs as short as possible and minimal horizontal runs. Make silphos joints.
   (g) The distance from the thermo-expansion valve to the first turn in the liquid line piping should be less than 18 inches.
   (h) Pipe Insulation as per ASHRAE Standards but with minimum ½”.
   (i) Equipment 7 ½ tons and over will be two (2) or more compressors with only one (1) compressor per refrigerated circuit. Scroll compressors preferred.
   (j) Units shall have low ambient lockout to prevent compressors running in cold weather, only on stand alone units. Units controlled through the DDC system will be locked out through the controls.
   (k) Install sight glass on liquid line
   (l) Minimum 10.0 EER at ARI conditions

   (2) **10 tons and greater:**

   (a) 1750 rpm compressor (if available)
   (b) 460/480 volts; three (3) phase if possible
   (c) Service valves on liquid and suction lines
   (d) Hi-Lo pressure switches
   (e) Suction line filter with replaceable core. Install isolation ball valves.
SECTION 7: MECHANICAL STANDARDS

(f) Crankcase heaters
(g) Pipe sized to manufacturer's recommendations with runs as short as possible and minimal horizontal runs. Make silphos joints.
(h) The distance from the thermo-expansion valve to the first turn in the liquid line piping should be less than 18 inches.
(i) Pipe Insulation as per ASHRAE Standards but with minimum ½".
(j) Equipment 7 ½ tons and over will be two (2) or more compressors with only one (1) compressor per refrigerated circuit. Scroll compressors preferred.
(k) Units shall have low ambient lockout to prevent compressors running in cold weather
(l) Install sight glass on liquid line
(m) Minimum 10.0 EER at ARI conditions

6) Roof Top Units:

a) 1750 rpm compressor (if available)
b) 208/230 or 460/480 volts; 3-phase if possible
c) Service valves on liquid and suction lines
d) Hi-Lo pressure switches
e) Suction line filter with replaceable core. Install isolation ball valves.
f) Crankcase heaters
g) Equipment 7 1/2 tons and over will be two (2) or more compressors with only one (1) compressor per refrigerated circuit.
h) Scroll compressors preferred
i) Heat rejection equipment shall be rated at 105 degrees ambient
j) Units shall have low ambient lockout to prevent compressors running in cold weather
k) Install sight glass on liquid line
l) Economizer for outside air control with enthalpy control to be through the automated controls system.
m) RTU unit must have a base rail which aids in roofers flashing the unit to prevent rainwater from entering through the base of the unit.
n) Units should be mounted on a metal curb of at least 14 inches tall that has wood mounted around the top to ease installation of roof flashing material.
o) Easy access to filters; filters should be disposable high efficiency pleated filters to protect the coils from a build up of dirt.
p) These units should be equipped with a manual reset three phase protection
q) Aluminized Heat Exchanger
r) AGA & UL approved
SECTION 7: MECHANICAL STANDARDS

s) Electrical pilot ignition

t) Minimum 80% AFUE

u) Over 200,000 BTU, provide with two-stage gas valve.

v) Minimum 9.0 EER at ARI conditions

w) Hot and chill water coils must have isolation valves on supply return lines so they can be shut off and maintenance performed on the unit. This also includes control valves.

x) When roof top units are provided, similar heat loads may be zoned together to reduce the number of rooftop units with prior approval of the district. If economics allow, it is preferred that each room have single zones, using VAV boxes.

y) Approved manufacturers are: Trane, Carrier, McQuay, , Arcoaire, AAON and Bryant.

7) Server hub room units (Node Room A):

Provide cooling and de-humidification, air-cooled, stand alone, mini-splits with 0 degree low ambient capability. Units to provide room temperature and dehumidification control. Provide room temperature, discharge air temperature and fan status interface with the automated control system. Should be 410a refrigerant. Products are:

a) EMI, 12 mbh fan coil unit with 3 kW electric heat.

b) EMI, 12 mbh air cooled condensing unit.

C ADDITIONAL MECHANICAL EQUIPMENT

1) The Pro-Press or Mega-Press system is acceptable as an alternate system on plumbing and mechanical systems on District projects. However, some additional items will be required when utilizing the Pro-Press or Mega-Press system.

a) If this type of system is chosen, the mechanical and plumbing contractors must provide an additional written two year warranty (three years total) starting from the date of substantial completion

b) The installing contractor must also be certified for installation with Viega, renewed yearly, and must provide that certification upon request to USD 259.

c) Mega Press is acceptable for gas piping ½ to 2 inches. All gas piping over 2 inch must be welded per district standards. This system cannot be used inside wall cavities or other areas not easily accessible in case of leaks. Pro Press is acceptable for copper piping only from ½” to 4” on domestic and HVAC hydronic piping only.
SECTION 7: MECHANICAL STANDARDS

On Mega press projects, we will require a 50% and 100% inspection by a USD 259 Supervisor of Plumbing or designee. Please contact 316-973-2118.

d) The Pro-Press system is acceptable as alternate system on plumbing and mechanical systems on District projects. However, some additional items will be required when utilizing the Pro-Press system. The mechanical and plumbing contractors must provide an additional two year warranty (three years total) if they choose to use this system. The installing contractor must also be certified for installation with Viega, renewed yearly and must provide that certification upon request to USD 259. This system cannot be used inside wall cavities or other areas not easily accessible in case of leaks or be used for gas piping. It is only acceptable on pipe size of ½” to 4”. Any removable mechanical equipment components must have unions on both sides of the component for repair purposes. All installations shall conform to city and county building codes and regulations.

2) All pipe, fittings, & valves shall be American made.

3) Steam piping shall be schedule 40 with cast iron threaded fittings through 2”; 2½-6” shall be schedule 40 with welded fittings; 8”+ shall be standard weight pipe with welded fittings (Certified Welders Only).

4) Condensate return piping shall be schedule 80. Fittings through 2” shall be cast iron threaded. Fittings 2 ½” and above shall be welded schedule 80.

5) Welded or Victaulic joints on all new construction. Chilled and heating water supply and return piping shall be same as steam piping, type L copper pipe and fitting with 95/5 solder on piping 2” and smaller. Silphos on 2 ½” and larger or schedule 40 steel pipe with grooved fittings on 2 ½” and larger piping (hooker and fast-tees are not allowed, Victaulic style 921, 923, 924, & 925 are allowed). All Victaulic work needs to be performed by factory rep trained personnel with proof provided to USD 259.

6) Refrigerant piping shall be ACR copper with silphos joints.

7) Condensate drain piping shall be schedule 40 PVC with solvent weld joints or Type L copper with soldered joints. Provide cleanout at each 90-degree turn.

8) Put valves on air separator on inlet and within 20’ of the outlet.

9) Insulate steam pipe, and hot water supply and return with minimum 1 ½” fiberglass insulation with vapor barriers. All chill water lines are to be wrapped in flexible elastomeric foam insulation and not fiber glass insulation.

10) Isolaton ball valves, full port (globe on steam), will be installed on supply and return piping next to each piece of equipment and at each main trunk of a building zone. Dielectric unions are to be provided at all connections of dissimilar metals.
11) On all heating/cooling systems, ball valve to be installed between air separator and air vent. Air vent to have minimum 3/8" copper run to appropriate glycol tank.

12) No branch lines on heating and cooling line to come off at less than 45° from vertical on main lines without approval from USD 259.

13) All piping from air bleeds on air separator to go to proper glycol tank, not to floor drain when possible.

14) Valves:

   a) Approved control valve vendors:
      (1) Professional Series
      (2) IA Series T.A.C.
      (3) Belimo

   b) Control Valves:
      (1) Ball valves: ½ - 2" with characteristic disc for linear flow.
      (2) Globe valves: 2 ½" – 6"
      (3) Butterfly valves 8” and larger
      (4) Must be installed in an upright position (no greater than 45 degrees)

   c) Control valves must be able to receive one of the following signals:
      (1) PWM
      (2) 4 – 20 ma
      (3) 2 – 10V and 0-10 volt.

   d) Gate Valves (steam applications only)
      (1) Up to 2", bronze body, bronze trim, rising stem, hand wheel, inside screw, single wedge or disc, solder or threaded ends, 150 psi.
      (2) Over 2", iron body, bronze trim, OS&Y, single wedge, flanged ends, 150 psi.

   e) Ball valves:
      (1) Up to 4" for copper pipe, bronze two-piece body, chrome plated full port steel ball, Teflon seats and stuffing box seals, lever
SECTION 7: MECHANICAL STANDARDS

handle, solder, threaded or grooved ends, 150 psi.

(2) Over 2” for steel pipe, cast steel body, chrome plated steel ball, Teflon seat and stuffing box seals, lever handle through 6”, gear drives 8” and over, 150 psi.

f) Butterfly valves:

(1) Iron body, aluminum bronze disc, EPDM seats, lug end, extended neck, 10 position lever handle up to 6”, hand wheel and gear drive over 6”, 150 psi.

g) Swing check valves:

(1) Up to 2”, bronze body, 45-degree swing disc, renewable set and disc, solder or screwed ends, 150 psi.

(2) Over 2”, iron body, bronze trim, 45 degrees swing disc, renewable seat and disc, flanged ends, 150 psi.

(3) Spring loaded check valves: Iron body, bronze trim, stainless steel spring, renewable composition disc, and silent operation, screwed or flanged ends.

h) Plug cocks:

(1) Up to 2”, bronze or iron body, bronze tapered plug, non-lubricated, Teflon packing, threaded ends.

(2) Over 2”, Cast iron body and plug, pressure lubricated, Teflon packing, flanged ends, with wrench operator with setscrew.

i) Relief valves: UL or ASME certified and labeled for capacity and usage.

j) Balancing valves

(1) Calibrated balancing valves are to be equal to Armstrong CBV. Automatic or manual valves are allowed. Balancing valves are to be provided on the return side of all coils. Valves are to have pressure differential read-out ports on both sides of the valve body. The balancing valve is not to be utilized as a shut-off valve; a separate valve is to be provided. Valve to provide multi-turn, 360-degree adjustment with indicating scale; 90-degree turn adjustment is not acceptable. Approved brands: Armstrong, Taco, Griswold and B & G.

14) Pumps:

a) All pumps will be installed with isolation valves on the inlet and the outlet.
b) All pumps and their respective starters or disconnects will be labeled.

c) All pumps will have mechanical seals appropriate for the intended service.

d) Where possible, all heating or cooling pumps will be parallel or have standby pumps installed.

e) All heating and cooling pumps will have appropriate balancing valves installed with check valves incorporated to prevent off pump reversal.

f) Condensate return and boiler feed pumps will be a duplex package with copper bearing steel tanks and control panel mounted and wired for duplex operation. Tanks 100 gallon and over will have a bolted and gasketed man-way installed in the top. Pumps will be 2 stage where required.

g) All domestic water recirculating pumps will be of bronze construction.

h) Pumps will be easily repairable and parts will be available within 24 hours.

i) Insulation on pumps will be easily removed and replaced without cutting and gluing. Will except approved spray insulation.

j) Provide controls on pumps that allow for fluid circulation in freezing weather. Pumps to run for 10 minutes each hour when outside temperature is less than 32º.

k) Approved Manufacturers – Armstrong and B & G.

15) Steam Specialties:

a) Steam traps will be Dunham Bush for parts inventory. F&T traps will be 30 or 40 series and radiator traps will be 1E, 2E, or 3E.

16) Fan Coil units:

a) Shall have 1” standard size throw away filters.

b) Shall have galvanized-coated drain pan.

c) Shall have 1” neoprene coated internal fiberglass insulation.

d) Motor and fan to be mounted in vibration isolators.

e) Motor to be multiple speeds with internal overload protection.

f) Exterior visible cases to be 16 gauges with baked enamel finish.
SECTION 7: MECHANICAL STANDARDS

**g)** Coils to be appropriate for steam, hot water, and/or chilled water.

**h)** Ceiling hung units shall have bottom surface flush with ceiling and with hinged access.

**i)** A piping mock up must be approved of chilled and hot water piping including control valves.

**17)** Unit ventilators:

**a)** No face and/or bypass dampers shall be used, except in steam.

**b)** Shall have 1" standard size throw away filters for return and fresh air with hinged filter access.

**c)** Shall have galvanized-coated drain pan.

**d)** Shall have 1" neoprene coated internal fiberglass insulation.

**e)** Motor and fan to be mounted in vibration isolators.

**f)** Motor to be multiple speed with internal overload protection.

**g)** Exterior visible cases to be 16 gauges with baked enamel finish.

**h)** Coils to be appropriate for steam, hot water, and/or chilled water. Must be protected by an automatic low limit.

**i)** Ceiling hung units with bottom surface flush with ceiling and with hinged access and pump for condensate. It is also acceptable to detail with exposed surface, but install above ceiling elevation to accommodate condensate drain.

**j)** Outside and return air dampers to be low leak.

**k)** Outside air louver to be of double breaks construction and installed to prevent water carry over.

**l)** Door locks to be Allen head.

**m)** Self-contained unit ventilators will have the refrigeration unit on casters.

**n)** Self-contained unit ventilators will have the outside air louver sized and split for condensing unit inlet and outlet air, and unit fresh air.

**o)** Self contained units to have compressor isolated and in a sound absorbing enclosure.

**p)** Approved manufacturers are: Trane, AFF, and McQuay
SECTION 7: MECHANICAL STANDARDS

q) All Univent packages must include valve box extensions for control valves. Hot water on the right hand outlet and chilled water on the left hand outlet.

r) Units of high speed shall have an acoustical rating of 65 bb or less.

s) A piping mock up must be approved of chilled and hot water piping including control valves.

18) Convector radiators:

a) Convector radiators to have sloping front tops.

b) Fronts and liners to be 16 gauges with baked prime coat finish.

c) Headers to be cast brass with top and bottom tapings.

d) Coils to have 6 aluminum 0.010” fins per inch.

e) Tubes will be mechanically expanded into collars.

19) Air handling units:

a) Disposable high efficiency pleated filters with a maximum face velocity of 350 feet per minute shall be installed in unit. Filter access shall be easy.

b) Unit coils to be steam, hot water, and/or chilled water appropriate for use and coils to have isolation and balancing valves. Pressure and temperature sensing shall be provided. Hot coils to have a maximum face velocity of 650 feet per minute and cold coils maximum face velocity to be 500 feet per minute. Coils to be removable without unit or duct disassembly. Steam coils to be non-freeze with cast iron headers.

c) Spring or rubber internal and external vibration isolators will be provided.

d) Variable frequency drives will be installed on units three (3) hp and higher where appropriate. All VFD’s to be provided with a bypass.

(1) Temperature control contractors will provide variable frequency drives.

(2) Approved variable frequency drive brands: Graham or ABB

e) Mixed air sensors will be incorporated to provide proper discharge air temperature.

f) Freeze thermostats are to be installed to shut down fan at a predetermined temperature. Determine manual per job conditions. Close outside air and open hot water valve. All air handlers are to be manual reset; univent and fan coils are to be automatic reset.
SECTION 7: MECHANICAL STANDARDS

g) Outside casing to be 18-gauge minimum with 16-gauge frame minimum. Inside casing to be minimum 20 gauges with 2", 1½ pound fiberglass insulation between two (2) casings.

h) Stainless steel drain pans.

i) Damper sections to be low leakage type.

j) Belt drives to have a service factor of 150%.

k) Bearings to be L50 – 400,000 hour rated.

20) VAV boxes:
   a) Unit casing minimum 22-gauge. Leakage to be a maximum of 3% of the unit’s maximum rated cfm or 10 cfm, whichever is greater, at 3.0 inches water column inlet static pressure.

   b) Interior insulation shall be ¼ inch, 1 ½ pound per cubic foot dual density insulation complying with UL181 and NFPA-90A. All exposed insulation edges shall be coated with an NFPA-90A sealant.

   c) An electrical damper assembly shall be constructed of two 24 gauge galvanized steel blades sandwiched around an integral elastomeric seal to provide minimum leakage. Damper leakage shall not exceed 2% of maximum terminal airflow or 10 cfm, whichever is greater, at up to 5” water column static pressure.

   d) The airflow sensors for a pressure independent system shall be accurate to ± 5% through the entire operating range.

   e) VAV boxes equipped with heating or cooling coils shall have a removable access panel so that the coils can be cleaned.

   f) Equipped for use with an electric actuator. Provide EP switch for existing pneumatic systems.

   g) On fan-powered VAV’s, provide a custom, field built, filter housing so that only one size of filters is required for all boxes.

21) Filters:
   a) Filters to be Merv 7 pleated 1” or 2” throwaway filters.

   b) Filters on all units to be standard dimensions.

   c) Provide additional filter housing for FPVAV’s to provide the same size filter for all FPVAV sizes.
d) Contractor shall install new filters following final clean-up and prior to occupancy.

22) Propylene Glycol:
   a) Provide 30% glycol in chilled and heating water system for burst protection down to –20 degrees. Clearly mark and/or tag system to indicate glycol amounts. Provide a 3 year service contract with a bi-annual service done with a Mechanical Systems person on cooling and heating loops.

D DUCTWORK

1) General
   a) All supply, fresh air, and exhaust shall be ducted. Return air can be plenum return or ducted. [Exception: For supply and return air only, self-contained, unitary equipment (i.e. unit ventilators, fan coil units, unit heaters) fully exposed in space may not require ductwork.]
   b) Install per SMACNA Standards.

2) Sheet Metal Construction
   a) Building supply and return air ducts shall be of sheet metal construction; for most applications, it will be galvanized steel. Fiberboard ducts are not acceptable for any air duct application. Flexible duct shall not exceed 6’ in length and shall attach to diffuser or grille.

3) Insulation
   a) It is preferred that the duct will be insulated on the interior of the ducts with 1”, 2 lb./cu ft. duct liner with protected coating.
   b) Install per SMACNA Standards.

4) Supply Diffusers or Registers and Return Grilles
   a) No perforated supply diffusers or return grilles. Eggcrates are preferred on return air grilles.
   b) Prefer lay in ceiling supply diffusers. (No aluminum)
   c) Prefer cone diffuser, constructed of one-piece stamped cones with smooth appearance without miter joints. The progressively small cones protrude downward from the ceiling line. Prefer design with four-way deflection 24 x 24 drop-in with a low to moderate throw, and 360-degree discharge pattern. This ceiling diffuser can be only used as a supply air
SECTION 7: MECHANICAL STANDARDS

d) If required, provide sidewall double deflection supply grille with two (2) rows of deflection blades.

e) Return Grille: provide fixed return grille with fixed deflectors on ¾” center.

f) Ducted aluminum eggcrates return air grilles are acceptable with inside of duct painted black.

g) The following are acceptable Grilles, Registers, and Diffusers:

(1) Titus
(2) Krueger
(3) Price
(4) Tuttle Bailey
(5) Hart and Cooley

5) Fire Dampers and Specialties

a) Provide as per code. Make accessible to corridors, workrooms, etc. in lieu of in classrooms. Acceptable brands are:

(1) Ruskin
(2) Air Balance
(3) Louvers & Dampers, Inc.
(4) Nailor
(5) Prefco
(6) Cesco
(7) United Air
(8) Greenheck

6) Filter

a) Need access to fresh air filters without walking on ducts. Need platform over duct with steps on each end, mounted on floor.

7) Exhaust Fans

a) Provide fans for the type, capacity and size as scheduled on drawings. Provide complete wiring diagrams for field wiring and controls connections. Heavy-duty 1750 RPM motor drive as scheduled. All fans shall be AMCA certified for air and sound performance. Acceptable brands are:

(1) Cook
(2) Penn
(3) Jen Air
(4) Greenheck

c) All fans shall be supplied with internal anti-vibration mounts.

d) All roof fans shall be supplied with disconnect switches. All prefabricated factory curbs shall be minimum 12” high. Curbs shall match roof slope and be compatible with roof construction and shall be insulated (see architectural plans).

e) See electrical drawings for fan interlocks and control of fans. All line voltage electrical wiring by Electrical Contractor.

E HVAC CLOSE-OUT PROCEDURES

1) Balancing
   a) An independent balancing company, which is not a subsidiary of any project installer, architect, engineer or contractor, shall provide mechanical balancing as a separate sub-contract within the general contractor bid.
   b) Company and Technician shall adhere to NEBB Standards.
   c) Full report will be supplied to owner after balancing is completed.

2) As Built Drawings
   The architect/engineer should furnish “as-built drawings” upon completion of the contract and prior to final payment. Verification on boiler boil out and start up shall be done with notification to Mechanical Systems.

3) Commissioning
   a) The contractor shall perform commissioning activities with the owner. This shall include a manufacturer’s service technician representative to start-up equipment and verify that it meets all manufacturer guidelines. The contract documents shall spell out the scope of the commissioning process. The commissioning process will occur prior to Final Acceptance. (Even if balance reports are not provided until after completion.) Contractor is responsible for obtaining State Certification from the State Boiler Inspectors.
   b) The intent is to obtain a more rapid “shakedown” of project HVAC systems to prevent the multi-year problems, with the intended goal being a fine-tuned fully functional project HVAC system for the district. At a minimum, the following will be a part of the commissioning:
(1) Starting equipment
(2) Balancing equipment
(3) Education of owner: Organize training with Supervisor of Mechanical Projects.

c) Verify installation meets design requirements
   (1) Is everything shown on the control plan in place?
   (2) Are the sensors and devices installed correctly and in the proper locations?
   (3) Are all the sensors and devices working? Are the control valves modulating? Are the pumps, fans and dampers responding when a signal is given to them?
   (4) Have the sequence of controls been programmed correctly for the DDC computers?
   (5) Have the DDC controls graphics been set up properly and completely?

d) Operational training:
   (1) On-site engineer or custodian
   (2) DDC operator assigned to the site
   (3) Minimum of two SSC maintenance personnel
      (a) SSC Maintenance Supervisor

e) Maintenance training:
   (1) Minimum of two SSC maintenance personnel
   (2) SSC Maintenance Supervisor

4) Required Submittals
   a) Operation and maintenance manuals
   b) Equipment shop drawings
   c) Control layout and operations
   d) Schedule of equipment warranties
   e) Balancing report
F AUTOMATED SYSTEM CONTROLS

1) General Notes
   a) At each USD 259 facility site, a single manufacturer’s DDC system shall control the entire site. Thus, in the design / bid, any existing software and controllers must be modified or replaced over the entire site to be interoperable with the proposed version of software to be installed.
   b) Each site system must be capable of future expansion to include controlling of lighting, video cameras, security, utility meters, proximity locks, etc.
   c) The installed system must be capable of connecting with Ethernet TCP/IP to communicate with the district’s network.
   d) Control vendors must supply two (2) connections to the WAN/LAN backbone, supply a router and necessary cabling at each site and must be installed per District WAN/LAN Standards.
   e) Verify final design with owner.
   f) DDC contractor shall program equipment operation to the following default operational time schedule:

<table>
<thead>
<tr>
<th>Building Type</th>
<th>M-F On Times</th>
<th>M-F Off Times</th>
<th>Saturday On/Off</th>
<th>Sunday On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior High Schools</td>
<td>6:00 A.M.</td>
<td>10:00 P.M.</td>
<td>Off unless requested</td>
<td>Off unless requested</td>
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<tr>
<td>Middle Schools</td>
<td>6:00 A.M.</td>
<td>9:00 P.M.</td>
<td>Off unless requested</td>
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<tr>
<td>Elementary Schools</td>
<td>6:00 A.M.</td>
<td>8:00 P.M.</td>
<td>Off unless requested</td>
<td>Off unless requested</td>
</tr>
</tbody>
</table>

2) System Configuration
   a) The DDC control system shall consist of a Master controller / sub-controllers, or pier-to-pier controllers as required. The controllers shall include an LCD touch pad, which allows access to point summary from all LAN controllers. The controllers must be expandable. The controllers must be accessible from both a modem/local PC, and a WAN/LAN internet connection.
   All hardware and wiring to accomplish connection must be provided. Provide a drawing of the WAN/LAN routing and repeater locations and end of the line locations. Include on map: duct pressure transducers and...
chilled and hot water pressure sensors.

b) All hardware to accomplish connection shall be provided. The controllers shall have inputs and outputs. Identified items will be allowed to be ASC. Other more sophisticated equipment shall require freely programmable controllers to allow for custom programming. All outputs must allow for an analog output signal (minimum PWM output) for the purpose of modulating control strategy.

c) If existing pneumatic valves and actuators are in good condition, there is no need for replacement with electric controls. A transducer may be used to control the pneumatic actuator.

3) Approved Vendors

a) Due to system monitoring and maintenance issues, a maximum of three companies have been approved to provide DDC controls. Only the three vendors will be allowed to bid. The three vendors have been determined by an interview process, which allowed all vendors to be considered.

b) The approved control vendors are: Kansas Trane Control Company (Trane), Sandifer Engineering and Controls (CSI), and C & C Group (Invensys). The approved vendors’ prices will be stated as alternate bid for each project.

4) Control wire specifications

a) All DDC control wires shall be a minimum of two pairs, plenum rated, shielded, and with a drain wire. The LAN wire must be a 20-gauge stranded wire conforming to the above standard as a minimum. All other wire must be eighteen- (18) or twenty- (20) gauge conforming to the above standard as a minimum. The wire cover shall be a bone or ivory color. The LAN/WAN color to be Ivory with Purple stripe.

b) Review and verify existing network system at the site to establish the most appropriate location of the controller.

c) All control wiring shall be independently supported in its own raceway supported at minimum 4’0” centers, or per EIA/TIA or District WAN/LAN Standards or whichever is most stringent. All penetrations are to be in conduit with protective bushings on both ends of the conduit. Do not crimp or bind wiring; wiring found so will be replaced. Shall be installed no less than 12” away from intercom wiring and call switches. No splices shall be used on the LAN/WAN.

5) Power supply specifications

a) The main controllers and sub controllers will each be powered with a minimum of a 40 VA transformer; a separate 40 VA transformer will be installed for miscellaneous power. Fuse the secondary side of all transformers and use resetable transformers.
b) A separate circuit shall be provided for the controllers. A single 20 amp isolated ground circuit can feed multiple units (approx 8-10).

6) Typical Control Points on mechanical systems. (This list is not meant to be inclusive; control points shall be identified on a job-by-job basis.)

a) All units will have individual room wall thermostat / sensor

   (1) Control setpoint
   (2) Override button
   (3) Occupied light
   (4) Room temperature indicator

b) Unit ventilators

   (1) Discharge air temperature sensor
   (2) Low temperature sensor – mixed air with averaging element
   (3) Fan: Start / Stop
   (4) Fan status (current switch)
   (5) Outside air actuator (with spring return)
   (6) Fan speed control (high and low speed)
   (7) Hot water valve-spring return open
   (8) Chilled water valve
   (9) Freeze stat (automatic)
   (10) On steam unit only: Face and bypass actuator

c) Fan Coil Unit

   (1) Same standards as Unit Ventilators without face and bypass actuator and outside air actuator.

d) VAV and Constant VAV

   (1) CO2 sensor
   (2) Outside air temperature sensor
   (3) Return damper
   (4) Outside air damper
   (5) Outside air monitor (CFM)
   (6) Freeze stat
   (7) Mixed air sensor
   (8) Hot water valve-spring return open
   (9) Chilled water valve
   (10) Discharge air sensor
   (11) Static air sensor (may need multiple)
   (12) Building zone pressure

e) Supply Air Handling Unit’s VFD:

   (1) Start / Stop
   (2) Speed control
   (3) Amps
SECTION 7: MECHANICAL STANDARDS

(4) Alarms

f) Relief Fan with VFD

(1) Relief damper
(2) Start / Stop
(3) Speed control
(4) Amps
(5) Alarms

(4) Alarms

(4) Alarms

(4) Alarms

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SECTION 7: MECHANICAL STANDARDS

(9) House hot water loop temperature
(10) Return hot water temperature

l) Miscellaneous

(1) Global outside air humidity
(2) Global outside air temperature
(3) Building electrical voltage and phase
(4) Exterior lights
   (a) Two relays (parking lot lights, and building lights)
   (b) Exterior lights will be tied in with analog photocells.

m) Domestic Hot Water with Circulating Pump

(1) Hot water temperature
(2) Start / Stop
(3) Pump status (current switch)

n) Fan Powered VAV Box

(1) Same points as the Room Thermostat / Sensor
(2) Start / Stop
(3) Status (current switch)
(4) Hot water valve
(5) Discharge air temperature sensor
(6) CFM sensor

o) Rooftop Units

(1) Economizer control
(2) Return and outside air dampers
(3) Start / Stop
(4) Call for heat (gas valve: may be controlling a modulating gas valve
   – hot water valve – steam valve)
(5) Call for cooling (output for each compressor)
(6) Freeze stat (used only in hydronic systems)
(7) Mixed air sensor
(8) Fan start / stop
(9) Fan status (current switch)
(10) Discharge air temperature sensor

p) Furnace: Same standards as Rooftop Units without the mix air controls.

q) Steam Converters

(1) Steam valves
(2) Hot water supply temperature
(3) Hot water return temperature

r) Air-conditioning Condenser Units
SECTION 7: MECHANICAL STANDARDS

(1) Start / Stop
(2) Status (amps)

s) Cooling Towers

(1) Three-way bypass valve
(2) Supply water temperature
(3) Return water temperature
(4) Fan – High and low speed with status or VFD
(5) Pumps start / stop with status (amps)
(6) Three-way at chiller
(7) Head pressure control

t) Walk-in Freezers

(1) Temperature
(2) High temperature alarm

u) Exhaust Fans for Restrooms

(1) Start / Stop
(2) Status

v) Valves and dampers

(1) All valve and damper actuators are to be fully modulating except on VAV units where floating with position potentiometer or fully modulating actuators are both acceptable on valves; dampers to be floating.

(2) Two (2) position valves are allowed in unoccupied spaces (i.e. halls, corridors, storage rooms, etc.) ONLY.

(3) Hot water valves and outside air dampers are to be provided with spring return (normally open on valves, normally closed on dampers).

7) Typical Control Programming Examples:

a) Hot water/chilled water pumps

(1) Either a low outside air temp or a call for heat will enable the hot water pumps. Pumps will run continuously at any temp below 55 degrees.

(2) Either a high outside air temperature, a call for cooling, or a low outside air temperature (for freeze protection), will enable the chilled water pumps. A H921 current sensor or equal will monitor pump status. Pumps to run for 10 minutes each hour when outside temperature is less than 32º.
b) Hot water/chilled water loop
   
   (1) Hot water / chilled water loop status will be monitored by well type sensors with a range of 0 to 230 degrees located on the supply and return pipes in owner defined locations.

   (2) Hot water / chilled water coils shall be protected by a serpentine averaging sensor which covers the full face of the coil where the possibility of freezing exists.

c) Outside air sensor
   
   (1) Must install an outside air sensor /humidity sensor to allow outside air, free cooling based on enthalpy (18-22 enthalpy) and to assist in any other calculations needed for control of the building.

   (2) Sensor must be mounted outside in a continuously shaded area.

d) Other sensors as required by the systems installed.

e) Other safety sensors as required.

f) Sensors Standards

   (1) All temperature sensors must match the application they are used for. The minimum resolution on temperature sensors shall not be more than .3 degrees

   (2) A blank stainless steel plate sensor shall be used in all commons areas, restrooms and gyms.

8) Grounding

   a) A ground shall be installed to ground all DDC controllers and panels throughout the building. This will help prevent any disruptions or loss of database from lightning. To help prevent damage or loss of database from surges or spikes, surge protection of some form shall also be installed. Subcontrollers / control cabinets shall have separate input and output ground bars that are connected to a ground by using a number 12 gauge wire connection to the nearest grounded breaker box.

   b) Temperature control vendors will install APC / UPS with minimum 30 minute battery backup for master controller surge protection.

9) Master Controller Standards

   a) Memory: minimums are as follows 256KB static ram, 32KB EPROM, 512KB NOVRAM. Memory shall be large enough to cover fully expanded
master controller and maintain all necessary trends, functions etc. Battery backup shall be provided in order to maintain ram for a minimum of 96 hours. Master controller shall be able to trend all connected points and be able to store over 1000 samples of critical points. The master controller shall provide direct on-line edit capability via a local, remote or portable PC for instant modification of all parameters. Must have removable screw type connectors.

10) DDC Sub Controller Standards

a) The sub controllers shall equal the minimum number of inputs and outputs as required. The sub controllers shall be freely programmable, allowing for custom programming with universal inputs and relay outputs. All outputs shall allow for an analog output signal (minimum PWM output) for the purpose of modulating control strategy. Subcontrollers shall allow for:

(1) Heating and cooling set point and heating and cooling band adjustment

(2) Hardware configuration and modification

(3) Stat adjustment range

(4) Point control

(5) The sub controllers shall be able to perform control sequences such as PID, Floating, 2 Position, Reset, Relay, and Calculation. All subcontrollers shall be able to be configured from a PC, laptop, or thermostat. Sub controllers shall have a minimum of an 8-bit resolution. All output relays shall be Form C type, single pole double throw, rated at a minimum 10 amps, 125 volts. Shall have removable screw type connectors.

11) Spare points and system expandability:

a) Controllers utilized for boiler plants, chiller plants, and AHU’s shall have a minimum 10% spare capacity for future point connection. The type of spares shall be in the same proportion as the implemented I/O functions of the panel, but in no case be less than two (2) spares of each implemented I/O type. Provide all accessories, power supplies, and communication controllers complete so that the implementation of a point only requires the addition of the appropriate point input/output termination and wiring. Spare points shall be provided per controller(s) for each piece of equipment.

b) LAN capacity shall be limited to 80% to allow for the addition of future controllers. It is preferred to be able to connect future controllers anywhere on the LAN.
12) Wire color code for various devices
   a) Cable jacket for temperature control cable shall be ivory
   b) Wire color for DDC coding shall remain consistent throughout installation.
   c) The following colors are preferred if feasible:
      (1) DDC LAN wire shall always be black and white.
      (2) Temperature sensors shall always be white and green.
      (3) DC powered devices shall always be red for positive and green is common.
      (4) AC powered devices shall be red for positive and black is common.
   d) Provide receptacle on master controller for modem power, all others shall have one receptacle located nearby for laptop power etc.

13) Software specifications
   a) Must provide site license for up to 25 users. Provide and install upgrades for the life of the installed software’s current version.
   b) Minimum of five (5) copies of fully integrated software
   c) Integrated software to include graphics interface, graphics editor, point summaries and control, alarms, messages, and transactions and all Invensys operating programs (Trane rover and transfer summit, Niagara workplace tech and Microsoft Visio and to include workplace pro.
   d) Software integration shall include on board integrated dial and auto-dial / auto-answer dialing, and TCP/IP connectivity.
   e) Shall be compatible with the district’s operating systems (Current Windows).
   f) Shall be the most current software available from control manufacturer.
   g) Software shall support automatic time scheduling, special day and temporary day scheduling.
   h) Controller communication shall support TCP/IP for district wide communication with owners WAN/LAN. It is the vendor’s responsibility to research and provide upgrades for compatibility.

14) Graphic pages
SECTION 7: MECHANICAL STANDARDS

The graphic pages shall include a minimum of:

a) Floor plans showing the location of the temperature sensors located in the building and live values from those temperature sensors. Use owner’s AutoCAD floor plans as available.

b) Live values shall be able to be put in test or otherwise modified from the graphic pages. These graphics should also include room numbers and or location to identify each individual sensor. By looking at the floor plan, we shall be able to determine which piece of equipment controls what room or area.

c) A graphic page depicting the layout of the boiler room, mechanical equipment rooms, roof top units, etc., showing the location of the boilers, pumps, air handlers, and any other related equipment. This page shall include live values from equipment start/stops, hot/chilled water temps, equipment Automatic Time Schedules, position of the valves/actuators, hot/chilled water pumps start/stops amps of the pumps, outside air temp, humidity, supply and return loop temps, and hot/chilled water reset values.

d) A time schedule graphic page shall be provided where ATS (Automatic Time Schedules) can be readily accessed and changed as necessary.

e) A graphic page shall be provided with a map of Wichita showing the location of each of the sites controlled by the individual temperature control contractor, including the ability to point and click to access each site’s graphic page. Upon start up of the DDC software, this page shall automatically boot up. Access to system pages shall be protected by password security.

f) The graphic pages shall conform to color legend provided by USD 259:

(1) Automatic time schedule pages background to be blue.

(2) Equipment pages background to be yellow.

(3) Floor plan background to be a pale blue.

(4) Hot water coils and piping shall be red.

(5) Chilled water coils and piping shall be blue.

(6) On graphic pages, live data shall be in different color boxes to set it aside from other text.

(7) In the case of equipment pages and floor plans, live data will be in green boxes.

(8) In time schedule pages, live data will be in white boxes.
g) The graphics software shall interface with Revit or AutoCAD 2015 or above for use with district drawings.

h) Shall have point control (manual, automatic, and test) from live points on the graphic pages.

i) The completed graphic package for new, remodel &/or additions, needs to be completed and delivered to USD 259 at or before substantial completion.

15) Provide job book or CD for Project (CD is preferred)
   a) Provide software specifications
   b) Technical Manuals
   c) Copy of site license
   d) Shop drawings
   e) Printed copy of database
   f) Copies of all data base equipment programs
   g) DDC valve and actuator schedule for entire building.

16) Training
   a) Minimum eight (8) hours of on site or local training (required on new schools). Size of project may increase required number of training hours.
   b) Train USD 259 maintenance personnel on procedures and schedules for starting and stopping, troubleshooting, servicing and maintaining equipment and schedules.
   c) Provide operator training on data display, alarm and status descriptions, requesting data, executing commands, calibrating and adjusting devices, resetting default values, and requesting logs.
   d) Vendor is responsible for arranging training sessions with the owner.
   e) Factory training:
      (1) One week of factory training (acceptable to owner) per project for one USD 259 Mechanical Systems employee.
      (2) Sessions to be held at manufacturer’s training site.
      (3) Sessions to be free of charge to owner.
SECTION 7: MECHANICAL STANDARDS

(4) Owner will pay for travel and lodging.

17) Computer
   a) Shall provide one laptop computer per each new school. In addition, new High Schools will require on site PC or laptop.
      (1) 1 G minimum
      (2) 750 mhz
      (3) 80 gb hard drive
      (4) 3 com ethernet card
      (5) 56k or faster modem
      (6) Printer (USD technologies personnel prefer incoming data to be compiled in spooler first). Three (3) individual printers preferred by temperature control vendors.

18) Warranty
   a) Warranty period shall be three (3) years parts & labor. All equipment items shall be clearly marked with warranty dates.

F PLUMBING

1) Gas, Water, and Sanitary Sewer Service (See Site work/Utilities):
   The mechanical contractor shall install all required gas, water, and sewer services from metered or utility connections.
   a) The Gas Company serving the area will furnish the gas meter and connection to the gas main. The owner shall pay fees for main extensions. The mechanical contractor will install the meter loop as directed by the Gas Company. The gas service shall be run in approved non-metallic piping and shall be all welded or fused construction as required. Provide a lubricated plug valve shut-off outside building entrance.
   b) Install a water meter, meter box, and water service as per utility requirements. All schools shall have a meter sized appropriately for building needs. The water service pipe shall be installed with sand, 6” minimum sides, top, and bottom per code requirement. The required material is Type K hard copper for all sizes up to 4”, C900 is allowed on 4” and above, minimum of 36” below grade. Provide tracer wire accessible at both ends on all piping Copper piping in the ground requires silphos rod. NO GLUED PIPE OR FITTINGS.
c) The sewer service shall commence two (2) feet from the building and shall be schedule 40 PVC to the sewer main serving the area, a two way cleanout shall be installed two (2) feet from the building. Cleanouts shall be installed after 135° of change in direction, and at seventy-five (75) foot intervals. The cleanouts shall be PVC and brought to grade level with an 18”x18”x6” concrete slab at non-paved surface. Cleanouts shall be the same size as the sewer line. Provide tracer wire accessible at both ends on all plastic pipes.

d) Gas and water service for the building shall have a single metering location. Tie new service into existing meter locations.

2) The Pro-Press or Mega-Press system is acceptable as alternate system on plumbing and mechanical systems on District projects. However, some additional items will be required when utilizing the Pro-Press system. If they choose to use this system, the mechanical and plumbing contractors must provide an additional two year warranty (three years total) starting from the date of substantial completion. The installing contractor must also be certified for installation with Viega, renewed yearly and must provide that certification upon request to USD 259. This system cannot be used inside wall cavities or other areas not easily accessible in case of leaks. It is only acceptable on pipe size of ½” to 2”. Copper is acceptable from ½” to 4”. Any removable mechanical equipment components must have unions on both sides of the component for repair purposes. All installations shall conform to city and county building codes and regulations. On Mega press projects, we will require a 50% and 100% inspection by a USD 259 Supervisor of Plumbing or designee. Please contact 316-973-2118.

3) Plumbing/Piping within the Building

a) All water, air and gas lines are to be run above the ceiling if possible (new buildings). Do not install in air ducts. If a tunnel is available at existing buildings, run plumbing lines in tunnels.

b) All gas piping within the building shall be Schedule 40 black steel pipe and shall be installed exposed. All piping 21/2” in size and larger shall be welded. The gas line serving the boiler shall drop adjacent to the boiler and shall rest upon the floor. The pilot lines and manifold shall be taken from this vertical line. A quarter turn lubricated cut-off cock and union shall be installed at each piece of equipment. Gas piping on roof shall be supported by a Miro steel pipe support (or () or equivalent (with pipe minimum 18” above roof) or Caddy adjustable height roller or equivalent (with pipe minimum 18” above the roof). DO NOT use wood blocking. See Appendix A.

c) Domestic water piping shall be Type K soft copper under floor slabs with no joints. All other water piping shall be rigid, Type L, copper. Provisions shall be made whereby constant water pressure is maintained at all drinking fountains. No lead containing solder or brazing materials will be used. 95/5, solder to be used on all copper piping 2” and smaller; silphos rod ONLY on copper piping over 2”. All cut pipe shall be reamed to the
full internal diameter. After completion of soldering, the exterior of all fittings shall be cleansed with a wet rag to remove all excess residues from surface of the pipe. (PIPE WHERE GREEN CORROSION IS VISIBLE ON THE OUTSIDE SURFACE WILL NOT BE ACCEPTED.)

d) Provide a hose bibb drain on the low points in the water piping and install all water piping to drain to these low points.

e) All waste lines below slabs, within the building and to a point two (2) feet from the building shall be either Solid wall schedule 40 PVC or service weight cast iron with tyseal joints below grade. No hub joints may be used above grade. Waste lines that run under the boiler floor shall not pass under the boiler. Waste lines shall not be run in air ducts. Generally, cavities within framed walls, between suspended ceilings and roof decks, and tunnels are considered to be easily accessible. (Solid wall Schedule 40 PVC waste lines are acceptable in areas above grade and easily accessed, only in buildings of combustible construction.) PVC piping is not permitted by code in return air plenums. The City of Wichita does not allow wrapping PVC with insulation to meet the 25150 flame-smoke spread requirements on sanitary or roof drains. (NO FOAMCORE PVC ALLOWED).

f) Cleanouts shall be provided at the upper terminal of all horizontal branches. Interior cleanouts shall be provided after 135° of change in direction and in fifty (50) foot intervals, at all points where shown as necessary to clean any portion of the soil lines. Cleanouts shall be full size of the lines served, located in an easily accessible place in a non-concealed location. Cleanouts in floors shall have polished brass cover plates set flush with finish floors. Wall cleanouts shall have stainless steel cover plates. Cleanouts in vertical risers shall be installed 6” above the flood line of the fixture. Cleanouts shall be Wade, Josam, JR Smith, or Zurn.

g) Vent lines shall be service weight cast iron or no hub cast iron pipe and fittings at accessible locations. (Solid wall Schedule 40 PVC vent lines are acceptable in areas above grade and easily accessed, only in buildings of combustible construction.)

h) Laboratory waste piping shall be polypropylene joined with appropriate couplings or fusion welded. Laboratory waste piping shall not be run within ducts or return air plenums.

(1) Acid waste neutralizing tanks, run neutralizing tanks to exterior of building, no tanks inside building, and make easily accessible for inspection, maintenance and cleaning of tank.

(2) All art room solids interceptor’s need to install readily assessable and should be able to have maintenance performed on them without being removed. See appendix A
SECTION 7: MECHANICAL STANDARDS

i) Air pipe shall be scheduled 40 black steel pipes with black malleable fittings or Type L copper fittings. Use minimum Type L copper when smaller than 2”. Extend existing compressed air, if possible.

j) All storm water piping (roof and overflow roof drains) below slabs within the building and to a discharge point outside the building shall be either service weight cast iron or Solid wall Schedule 40 PVC with solvent welded joints. Below grade piping shall not run directly under any equipment pads. All storm water piping above grade to be service weight cast iron with no hub joints. Roof drains are to daylight preferably either at a headwall or connect to an existing storm sewer. Overflow roof drain piping to daylight above ground either at a headwall or at the building exterior wall independent to the roof drain. Provide cleanouts after each 135° of change in direction and in straight runs at seventy-five foot (75’) intervals and 12” above finished floor where piping goes below grade. Cleanouts are to be the same size as pipe. Piping is to be sized as a gravity drainage system per the -2009 International Plumbing Code at a 4”/hr rainfall rate.

k) Roof drains and overflow drains are to have a cast iron body, combination membrane flashing clamp and gravel guard and a low silhouette cast iron dome strainer. Overflow drains are to be located so the inlet to the drain is 2” above the roof drain. 2” height difference is to be achieved with either the roof slope or by providing a 2” internal water dam as part of the drain. See Appendix A

l) All wall discharge outlets for roof or overflow drains are to be provided with a bronze downspout nozzle. - Nozzle to be located 12” above finished grade. Provide a concrete splash block with energy dissipation for a minimum distance of 5’-0” from face of building.

m) All storm drainage piping and bottom side of roof drain sumps located within the building are to be insulated with 1” fiberglass insulation with a vapor barrier.

n) At points of discharge, provide for erosion control.

4) Plumbing Fixtures

a) Provide required number of fixtures needed for school use but at a minimum the number required by code.

b) When providing ADA fixtures in student restrooms and health rooms, provide as per proposed children’s standards. See fixture heights in section “H”- Fixture Heights.” (Page 7-41)

c) Water closets: In single fixture toilet rooms used by Pre-K and Kindergarten, provide an auto-flush valve, floor mount toilet with elongated bowls, with open front seat cover with 15” rim height. Water closets in single fixture toilet rooms such as teacher restrooms, provide an auto-flush valve, floor mount toilet with elongated bowl, with an open
SECTION 7: MECHANICAL STANDARDS

front seat cover with appropriate rim height to accommodate for ADA as necessary. See appendix A.

d) Water closets: Bathrooms with multiple toilets, provide wall-hung, elongated bowl, siphon-jet, with open front seat. Provide a separate, easily accessible shut-off valve for the water. For wall mount top spud toilets use American Standard or Zurn ONLY. For standard height floor mount top spud use Zurn or American Standard model (or For ADA floor mount top spud use Zurn or American Standard. For standard height tank type water closets use American Standard or Toto model. For ADA tank type water closets use American Standard model or Toto model. See appendix A.

e) Urinals: Wall mounted with no exposed traps. Use either Zurn or American Standard ONLY. See appendix A.

f) In high school and middle school restrooms, manual flush valves are to be used on water closets and urinals. Water closet flush valves shall be Zurn) or Sloan Royal and urinals shall be Zurn or Sloan Royal model. Elementary school restrooms, shall have flush valves with battery powered side mount sensors that shall be used on water closets and urinals. Water closet flush valves shall be Zurn or Sloan Royal model - and urinals shall be (Zurn or Sloan Royal model Zurn side mount battery powered sensors or Sloan ONLY. NO HARD WIRED FLUSH VALVES. See appendix A.

g) Lavatory: All lavatories shall be wall-hung with splash back. Lavatory carriers are to be floor mounted with concealed arms. Lavatory faucets for high school and middle school shall be Delta or Zurn ONLY. Elementary faucets shall be automatic Zurn aqua sensor or Sloan with grid drain and chrome plated P-Trap (minimum 17 gauge ONLY), No one hole lavatories or wash fountains, single toilet rooms such as teacher restroom that have only one lavatory shall use a Zurn-Wilkins mixing valve and install under the lavatory. For multiple lavatory installations such as in a gang bathroom use a Zurn-Wilkins Install above ceiling, easily accessible with ball valves on both sides of mixing valve for maintenance or replacement. Where mixing valves are used on multiple lavatories, such as gang bathrooms put one mixing valve in for the girl’s side and one for the boy’s side, don’t run entire bathroom on one mixing valve. All lavatories shall have temperature set at 100-105 degrees. NO HARD WIRED FAUCETS.

h) Electric Water Coolers: All exposed piping trim shall be chrome plated. Install only surface mounted units. Pad bar type drinking fountains are preferred at all locations. Preferred Manufacturer: Oasis. Use ONLY 1-1/2 chrome plated P-traps 17 gauge minimum, NO 1-1/4 P-traps. See appendix A.

i) Sinks in teachers’ workrooms and classrooms: 18 gauge stainless steel, single compartment, and self rimming sink. Mount sink in cabinet. Trim shall be deck-type faucet mounted on the sink pan with swing spout,
stainless steel crumb cup strainer, and a chrome-plated 1-1/2 P-trap (minimum 17 gauge). Faucets can either be Delta or Zurn. See appendix A.

j) Custodian’s Service Sink: Floor mounted. Trim shall be exposed type, with splash back and sides where applicable. Provide bucket hook with brace and hose connection with vacuum breaker. Check valve on hot side that is accessible and can be isolated with a ball valve to service or replace.

k) Floor Drains: Cast iron with weep holes and flange. Strainer shall be minimum 6” square; nickel/bronze or polished brass, and shall be adjustable. Pipe size shall be two inches minimum. NO trap guards or pressurized trap primers allowed. Use tailpiece trap primer to keep trap primed.

(1) Floor drains shall be provided in every restroom and every serving kitchen. No trap guards.

(2) Mechanical Room – One floor drain shall be installed adjacent to rear of each boiler, one floor drain adjacent to circulating water pump, one floor drain in the vicinity of the water heater, and one floor drain at all tunnel entries. These floor drains shall be cast iron with flange and weep hole. Strainer shall be medium or heavy-duty cast iron. Outlets shall be 4” cast iron with a P-trap. Floor drains shall be accessible and not located under equipment. Floor drains shall not be located in air handling units unless the drains go to an indirect waste outside the unit.

l) Sill Cocks: Install sill cocks at one hundred (100) ft. intervals on exterior walls of building and within 25 ft of roof mounted mechanical equipment, and within fenced area around chillers. Sill cock connections shall be accessible. Sill cocks shall be Woodford on exterior wall locations, rooftop hydrants shall be Woodford, 48” long freeze-less hydrant. Sill cocks shall be key operated, anti-freeze type, with ¾” supply line openings and back flow preventer. Supply lines shall be sized to provide full flow. See appendix A.

m) Water Heater: Water heaters shall be 199,000 or less btu input. Provide multiple water heaters as required. Water heater for domestic hot water to be sized accordingly to use requirements, (including kitchen) but in no case less than 50- gallons. Kitchen water temperature shall be a minimum of 130 degrees. Water heater shall be Bradford White or American.

(1) Hot water circulating pump shall be a Taco, B&G or Grundfos, bronze body, direct drive, self lubricating, wet rotor, circulating pump with ¾” universal flanged connections. Pump shall be sized accordingly, controlled by an electric strap-on aquastat to circulate hot water. See appendix A.
(2) Use Clearflow di-electric waterway nipples with each water heater and install at the water piping system connections to the water heaters. (Steel to copper di-electric unions are prohibited). If water heater already has this nipple factory installed an additional nipple is not necessary.

n) Water Heater Location: Water heaters shall be installed so that maintenance and new installation is possible when water heaters need to be replaced. Kitchen water heaters are to be in the kitchen area or next door to the kitchen. MUST be dedicated to kitchen ONLY.

o) Kitchen 3 or 4 compartment sink—see Appendix A-Elementary and B-Secondary of Architectural Section for sink specifications. Use Zurn faucet only. On a 3 compartment sink, drain needs to be indirect wasted into a floor sink. On a 4 compartment sink, first compartment with garbage disposal needs to be direct wasted and remaining 3 compartments indirect wasted into a floor sink. See appendix A.

p) General Requirements:

(1) Faucets shall be mounted on sink pan, not through counter top.

(2) All plumbing fixtures shall have a quarter turn stops ONLY on both hot and cold water, no keyed or stem type stops.

(3) Preferred roof drainage is gutters and downspouts or scuppers. Internal roof drain piping is to be discouraged. If required, provide cast iron or solid wall schedule 40 PVC, same as waste and vent with cast iron drains with dome strainer and flashing clamp. On parapet walls with scuppers, provide a secondary separate overflow.

(4) All domestic water shall be insulated with a minimum of ½” fiberglass or Armaflex insulation and shall include an integral vapor barrier.

(5) All exposed fixture trim and piping to be chrome plated.

(6) All plumbing fixtures and materials shall be American made.

(7) Proper wall backing and support shall be provided for all urinals, water coolers, lavatories, etc.

(8) All branch lines off trunk lines shall have isolation valves.

(9) All P-traps shall be 1-1/2” minimum (17 gauge) no 1-1/4” p-traps.

(10) Full port ball valves bronze two-piece body chrome plated full port steel ball, Teflon seats, lever handle, solder or threaded ends ISO psi 3” and smaller. 4” and larger butterfly Iron Body Aluminum Bronze disc FPDM seats lug end extended neck.
SECTION 7: MECHANICAL STANDARDS

(11) All PVC is to be minimum solid wall schedule 40 PVC, NO cell core or foamcore permitted.

(12) Viega Pro-Press is the only approved press type fitting.

(13) Use Clearflow di-electric waterway fittings where connections between dissimilar metals occur.

G  FIXTURE HEIGHTS

1) Water closets
   a) Pre-K through 3rd grade – 15” height to seat. This height works for children’s ADA.
   b) 4th through 12th grade – 15” height to rim.
   c) ADA 4th through 12th grade – 17” – 19” height to the seat.

2) Lavatories
   a) Pre-K and Kindergarten – 26” to rim
   b) 1st through 12th grade – 30” to rim. This height works for children’s ADA, if traps and supplies are insulated grades Pre-K through 3rd grade.
   c) ADA adult, and 4th through 12th grade – 34” to rim (27” clear beneath). Insulate the traps and supply lines.

3) Drinking fountains –Elementary classroom
   a) Elementary classroom wings 27” only.
   b) Elementary Commons Areas– 27” and 34” height to bubbler fixture at each fountain location. (Two heights at each location).
   c) Middle and High schools – 34” and 42” height to bubbler fixture at each fountain location. (two heights at each location).

4) Urinals
   a) Pre-K and Kindergarten – 15” to rim.
   b) 1st through 3rd grade – 20” to rim
   c) 4th through 12th grade – 24” to rim
   d) ADA is maximum 17” to rim with valve maximum 44” above finished floor.
5) Showers
   a) Middle schools – 6’0” to head.
      High schools and adult- 6’6” to head.
Appendix A - Plumbing Approved Products List

Gas pipe roof supports:
   a) Miro model 5 SB H P or model 6 H

Roof drains:
   a) Zurn RD 2131-NHA or equal to

Toilet seats:
   a) Bemis open front less cover 1955 CT 047 Or equal to

Water closets flush valve type:
   a) Zurn floor mount top spud Z-5655
   b) Zurn floor mount top spud ADA Z-5665
   c) Zurn wall mount top spud Z-5615
   d) American Standard floor mount top spud 2234001020
   e) American Standard floor mount top spud ADA 3043001020
   f) American Standard wall mount top spud 2257101020

Water closet tank type:
   a) American Standard 221CA1040202
   b) American Standard ADA 5221AA104020
   c) Toto CST244EF01
   d) Toto ADA CST244EF

Urinals:
   a) American Standard 6590001020
   b) Zurn Z-5750
   c) Flush valves:
      d) Zurn closet Z-6000 WS1 YB
      e) Zurn urinal Z-6003 WS1 YB
      f) Sloan closet 110
      g) Sloan urinal 186

Automatic flush valve side mounts:
   a) Zurn CPM
   b) Sloan SMO

Lavatories:
   a) American Standard 0355012.020
   b) Zurn Z-5244
SECTION 7: MECHANICAL STANDARDS

Faucets:

a) Zurn 6930-XL-CP4
b) Sloan Optima EBF650
c) Delta 501
d) Zurn Z81000
e) Delta 100
f) Delta 400
g) Zurn Z84200 with Z1 and ZH Handles and spout

Drinking fountains:

a) Oasis P8AC-STN
b) Oasis P8AC-SLSTN

Hydrants:

a) Woodford model 67
b) Woodford model 67B
c) Woodford model RHY2
d) Zurn model Z-1321
e) Zurn model Z-1320

Circulating pumps: Sized accordingly these are the preferred manufactures

a) Grundfos
b) Taco
c) B&G
# SECTION 8

## ELECTRICAL & WAN/LAN STANDARDS

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A ELECTRICAL SERVICE & DISTRIBUTION EQUIPMENT

1) The main service and distribution equipment for each facility shall be a circuit breaker type by the manufacturers listed in Appendix A. Fusible service and distribution equipment will not be acceptable.

2) Power meters shall be provided on all new services. Provide Square D circuit monitor as listed in Appendix A, Ethernet card, and input/output card and required CT’s and PT’s. Contractor shall install externally, on line side, in a pre-wired factory assembled meter enclosure. Connect power meter to LAN with CAT 6 cable with one drop network drop.

3) Service entrance equipment shall be provided with a single circuit breaker main disconnect whenever possible, and shall be determined on a case by case basis.

4) All branch circuit panelboards shall be rated a minimum of 200-amperes, have a minimum of 42 pole spaces, be equipped with a main circuit breaker and be supplied from a minimum 200-ampere source. Exception may be approved by Director of Design & Construction.

5) Each branch circuit panelboard shall be provided with spare circuit breakers or spaces for future circuit breakers with not less than 20% of the total breaker space allocated for these future use branch circuits. Each recess-mounted panelboard shall be provided with one (1) empty 3/4” conduit stubbed to the ceiling cavity and floor cavity (if tunnel is available) above for each group of four (4) spare circuit breakers or each group of four (4) circuit breaker spaces.

6) Branch circuit panelboards shall be located such that the distance between adjacent panelboards measured in the horizontal plane along a direct line-of-sight, does not exceed 200 feet. Additionally, the maximum horizontal length of any branch circuit shall not exceed 100 feet, measured in the horizontal plane. The intent is to minimize the length of the branch circuits supplied by each panelboard to avoid excessive voltage drop when additional loads are added to the branch circuits in the future. Exceptions to this, in unique situations, may be approved by owner on a site by site basis.

   a) TVSS – Approved manufacturers and rating criteria: (Service – 240KA minimum. Panel – 160KA minimum.) Listed in Appendix A.

7) Main service grounding shall be accomplished with two (2) exterior 20’ x ¾” diameter ground rods driven at least 40 feet apart. Provide bonding conductor from main service disconnect to cold water pipe where it enters the building.
SECTION 8: ELECTRICAL STANDARDS

B  BRANCH CIRCUIT REQUIREMENTS

1) All branch circuits shall utilize #12 AWG stranded minimum copper conductors type THHN or THWN. Each branch circuit shall be rated 20-amperes minimum.

2) All branch circuits shall be routed within a minimum 3/4” conduit between the supply panelboard and the first outlet location assigned to the circuit (homerun). The remainder of the branch circuit may be routed within 1/2” conduit.

3) Each branch circuit raceway shall be provided with a full-length “green” insulated copper grounding conductor with stingers.

4) All wire-to-wire connections shall be twisted prior to assembly of insulated coverings (wire nuts).

5) All conductors which are abandoned shall be removed complete back to their source of supply.

6) Provide separate computer distribution when possible. When new panels are installed, two grounding wires should be installed. One for isolated ground with isolated ground bar in panel. The other for mechanical ground. When isolated ground is available isolated ground outlets should be used. When isolated ground is not available, regular outlets may be used. In both cases the cover plates should be marked with ‘COMPUTER ONLY’.

7) Panelboard labels shall be per USD 259 room numbering and NOT architectural/engineering documents provided for construction.

C  RACEWAYS

1) Additional empty conduits: At each point electric/electronic services (120/208/480) electrical, intercom, network, phone, DDC, clocks, fire alarm, cable TV, etc) transition from an existing building to a new building addition, additional empty conduits shall follow the same path. The electrical contractor shall install two empty ¾” conduits, and one empty 2” conduit.

2) All interior raceways above grade shall be metallic conduit or two-piece surface mounted assemblies.

3) PVC raceways shall only be used in pools and freezer/coolers.

4) All conduit fittings shall be steel. Tap-on or indenter type fittings, die cast or sand cast fittings will not be acceptable. All surface mounted raceway assemblies shall be installed utilizing only factory manufactured fittings; field fabricated fittings will not be acceptable.

5) All conduits routed exposed (above grade) on the exterior of the buildings shall be GRS. IMC raceways will not be permitted where exposed on the building exterior.
SECTION 8: ELECTRICAL STANDARDS

6) All raceways routed underground shall be schedule 40 PVC conduit. All vertical wells and risers from the underground run shall be PVC coated GRS.

7) Where raceways are installed on strut type support assemblies, a minimum of 6” additional strut space shall be provided on each strut to permit the addition of future conduit runs.

8) Raceways, outlet boxes, panelboards, etc. shall not utilize plastic anchors for attachment to building elements. Plastic anchors will not be permitted for use at any location. Each outlet box shall be secured to the building structure such that the attachment will safely support a minimum load of 50 pounds.

9) Where lighting fixtures are installed in lay-in ceilings, each such fixture shall be supplied from a junction box mounted on the structure above with a flexible “whip” assembly. Whip assemblies shall be of sufficient length to permit relocating the associated light fixture to any of the eight (8) adjacent ceiling tile spaces. Light fixtures in accessible ceilings shall not be connected in a “daisy chain” fashion.

10) All raceways routed exposed or within accessible ceiling cavities, crawl spaces and tunnel spaces shall be routed parallel and/or perpendicular to the building elements.

11) No surface mounted raceway shall be allowed in finished areas of new buildings.

D CONDUIT INSTALLATION

1) Exterior

   a) All buried cable shall be installed in sealed electric PVC conduit, schedule 40. Telephone cable and fiber cables will not be buried or otherwise placed outside of a building except when all of below requirements are met:

      (1) An additional Node Room cannot be accommodated;
      (2) The engineer determines that an outside building route is the only way to meet distance limitations.
      (3) Prior approval is obtained from USD 259 Design Review Team.
      (4) Lightning arrester must be installed on all copper conductors.

   b) All 90’ and risers and entries to building shall be galvanized rigid conduit, PVC coated.

   c) Provide exterior junction boxes at entries to buildings.

   d) Tracer wire and pull string MUST be included in all buried installation for future locates of pipe. Both wire and pull string must be accessible at both ends.
e) If an existing, empty conduit exists sized and located appropriately, it can be used for installation in lieu of installing a new conduit.

f) Any time a pull string is used, another pull string must be drawn with the new cable.

2) Interior

a) Non-painted electric metallic tubing and steel fittings may be used in boiler rooms and concealed spaces (i.e. closets).

b) On visually exposed walls in classroom, office, corridor, etc., provide “ivory” wiremold and fittings.

c) Cable can be free-aired ONLY in tunnels and above suspended ceilings. Support all free-aired cable every four (4 feet) with B-line or with Caddy hooks with clips. No free aired cable will be installed other than tunnels and above ceilings.

d) On new schools with multiple cable installations, cable trays are preferred.

e) Provide steel Tele-Power poles (two-compartment pole) for interior visible locations without walls for installations. Size as according to site need.

3) Procedures

a) Arrange conduit to maintain headroom and present a neat appearance.

b) Route exposed conduit parallel and perpendicular to walls and adjacent piping.

c) Maintain minimum 6-inch clearance between conduit and heat sources such as flue, steam pipes, and heating appliances.

d) Support all PVC and flexible conduit with 2-hole straps at a maximum of four feet on center.

4) Installation

a) Fasten conduit securely. To fasten securely, no plastic anchors are to be used. Acceptable anchors are listed in Appendix A.

b) Use conduit hubs or sealing locknuts for fastening conduit to cast boxes, and/or fastening conduit to sheet metal boxes.

c) Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 2-inch size.
d) Avoid moisture traps where possible; where unavoidable, provide junction box with drain fitting at conduit low point.

e) Where free-aired cable penetrates fire-rated walls and floors, provide pipe sleeve large enough for cable (40% fill) and fill void of sleeve with fire-resistant compound to draft-proof. Where conduit penetrates firewalls and floors, provide opening large enough for conduit (40% fill) and fill void with fire-resistant compound to draft-proof. Fill conduit on ends only. ½” on each end with fire resistant compound such as Firestop Pillow Cat. No. SSB26. Must be easily removable.

f) Install 700-wiremold with two-hole straps a maximum of four (4) feet on center with V704 straps.

g) All conduit ends shall have couplings and fiber bushings.

h) When using wiremold, provide factory fittings ONLY (i.e. end caps, boxes to appropriate size raceway, fittings, etc.) When using 700-wiremold, use 5751 boxes to make all turns.

E TRANSFORMER GROUNDING & BONDING

1) Where step-down transformers are to be used to translate service voltages to a lower value, such as 480 volts to 120/208 volts, the District requires the application of special grounding/bonding techniques. The intent is to minimize the possibility of voltage potentials existing between various components of the electrical distribution system with respect to the ground reference for the electrical system.

2) Each transformer station shall have its secondary neutral connected to an insulated grounding electrode conductor, which shall be routed with the primary phase conductors serving the transformer. The grounding electrode conductor shall be terminated on the ground bus of the equipment from which the primary to the transformer is derived. This grounding electrode conductor shall be sized per Table 250-66 of the NEC.

3) An insulated equipment-grounding conductor shall be routed with the secondary conductors derived from the transformer. This equipment-grounding conductor shall be sized per table 250-122 of the NEC. All components of the derived secondary system shall be provided with an interconnecting insulated equipment grounding conductor.

4) Each transformer shall be provided with individual primary and secondary overcurrent protection (breakers).

5) NEMA TP1 compliant, as per NEMA TP2 test procedures.
SECTION 8: ELECTRICAL STANDARDS

F NON-LINEAR LOADS

1) Panels supplying non-linear loads (50% or more of their total rated load) shall be rated for application with non-linear loads.

2) Maximum average temperature rise rating shall not exceed 115°C.

G SURGE SUPPRESSION EQUIPMENT

1) Where DDC temperature controls and LAN/WAN systems are to be used, the associated receptacle outlet shall be provided with integral TVSS capabilities. Each such receptacle shall be distinctively marked and be provided with integral audible/visual signals to indicate the loss or failure of the TVSS protection system. Line-to-neutral, line-to-ground, and neutral-to-ground protection modes shall be provided.

2) Refer to WAN / LAN section for specific requirements relative to electrical power supply methods to power WAN / LAN equipment.

3) Refer to the Automated Systems Controls section of this Standard for specific requirements relative to electrical power supply methods to power HVAC control equipment.

H EMERGENCY POWER SYSTEMS

1) For all new facilities, all emergency rated loads will be supplied from an on-site standby emergency generator. At other projects, the system designer shall carefully consider the relative cost (initial and life-service maintenance) of providing emergency power via self-contained battery-powered units or a central standby generator and emergency distribution system. Approved manufacturers are listed in Appendix A. Vendor must be local (within 25 miles of Wichita) in order to provide parts and service.

2) Standby generator shall consist of a weather enclosed, self-contained, packaged natural gas engine driven generator set. Generator sets shall be the standard product of a manufacturer having a factory authorized service organization located within 50 miles of the city limits of Wichita, Kansas - NO EXCEPTIONS.

3) Automatic Transfer Switch(es) shall be provided to control the standby generator and to transfer the emergency loads to and from the generator. Each transfer switch shall provide in-phase monitoring, and/or programmed transition, so that emergency loads may be transferred for routine testing of the system with minimum load interruption. All automatic transfer switches shall have a programmable exercise clock with load and no load options.

All transfer switches shall provide 3 phase sensing for both utility and generator sources.
Transfer switch control panels will provide metering to indicate electrical load characteristics, IE: (Volts, AMPS, KW, KVA, ECT), also contain an events log to access recent events, IE: utility power failure, generator running, and transfer switch position change, with date and time stamp.

All transfer switches shall provide a dry set of customer contacts to indicate generator source voltage is available. Transfer switch manufactures are listed in Appendix A.

4) Remote annunciation shall be provided within the main office of the associated facility to clearly indicate the status of the emergency generating and distribution system. This remote annunciation shall indicate when the base tank fuel level is at or below 40% of its total capacity, so that additional fuel may be procured prior to exhausting the generator’s fuel supply. The presence of liquids within the fuel rupture basin must also be annunciacted as a separate and distinct signal.

5) The packaged generator set and its installation shall include, as a minimum, the following generally defined items.

a) Residential exhaust silencer, mounted above the weatherproof enclosure.

b) Provide 120-volt power circuit for integral battery charger.

5) Dedicated power circuit(s) for coolant jacket heater(s).

d) Engine driven battery charging alternator to replenish starting batteries in the event of frequent and repeated start sequences.

e) Inlet and discharge air louvers for combustion air and ventilation air to generator set.

f) Engine control panel with metering to indicate electrical load characteristics (volts, amps, kW, KVA, etc.)

g) Base-mounted fuel tank with double-walled rupture basin and leak detection system for interior of rupture basin.

h) Engine and alternator shall rotate at 1800 rpm. No gear reduction allowed.

6) Emergency system load assignments shall include the following generally defined load groups as a minimum.

a) All code-required emergency exit and egress illumination.

b) Fire alarm system power.

c) Intercom system power.

d) Security system power.
SECTION 8: ELECTRICAL STANDARDS

e) Mechanical equipment items identified as critical for building freeze-up protection. Refer to Mechanical Plans.

f) Telephone system power outlet located in main telephone node room “A” of the facility. Refer to the LAN / WAN sections of this Standard for detailed requirements.

g) Ability to provide minimal heat in multipurpose room or other large gathering space.

7) Emergency generators shall be located such as not to contaminate outside air intakes to the buildings with the engine exhaust when the generator set is operating during an emergency situation or during an operational test of the generator set. At locations without generators, individual battery back-up exit signs and emergency egress lighting shall be provided. Central battery systems shall not be used for emergency illumination power sources.

8) Generators 150kw or less shall be fueled by natural gas.

9) Automatic transfer switches shall be manufactured by Cummins or Asco.

FIRE ALARM SYSTEMS

1) New fire alarm systems shall be provided with an electronically supervised automatic fire alarm system. System shall include manual stations, area smoke detectors, air duct smoke detectors, addressable audible/visual signal devices (including strobes in classrooms), magnetic door hold-release devices, etc. as required by the applicable codes for the facility under consideration. Where fire protection sprinkler systems are provided for the facility, or portion thereof, the fire alarm system shall signal the flow of water within the sprinkler system. There shall be at least one outside fire alarm horn (more may be required on large buildings).

2) New fire alarm systems shall provide for individually addressable initiating devices and be capable of annunciating the address of any device initiating an alarm or trouble condition.

3) At elementary sites with new fire alarm control panels; locate the new panels within main office area of facility so that administrative personnel may monitor its functions with a quick response time. If office area available is extremely limited, the main panel can be located in a mechanical / electrical space IF an annunciator panel is located in the main office. At middle school and high school sites with building engineers, the fire alarm panel shall be located in the mechanical room with an annunciator panel located in the main office. An annunciator panel shall be located in the main office and at the fire access entrance door.

4) All fire alarm system wiring shall be routed within metallic conduits. On remodels, wiremold (or equal) surface metallic raceways shall be used where necessary to route fire alarm wiring exposed over building surfaces.
5) All fire alarm system components shall be Simplex-Grinnell, and will be purchased by the contractor on the pricing allowed in the State of Kansas contract #0914. The Electrical Contractors bidding the construction for the project will contact the Simplex office in Wichita for a per project quote for these services and materials to be provided by Simplex. Additionally, all labor, raceways, electrical power supply connections, etc. normally provided by the installing Electrical Contractor will be included within the Construction Contract bid amount.

6) When existing fire alarms are modified, the existing systems shall be kept operational during attendance times. Remove old devices and provide cover plates.

7) Smoke control panels, when required, shall be a #4100ES Simplex-Grinnell panel, and shall be connected to the building’s fire alarm system (if not Simplex). General alarm both ways.

8) Pull stations shall be double-action, push / pull type.

9) All wiring shall be installed in power limited, UL listed fire alarm cable. All fire cable shall be color coded per USD 259 standards.

10) Wiring to central station transmitter:
   a) Two (2) four pair 24 AWG cables between fire alarm control panel and the building’s phone node room.
   b) USD 259 will monitor all building fire alarm systems.
   c) The primary line will be a land line. Secondary shall be a microwave line.
   d) The FACP shall **NOT** be connected to the building’s security panel.

11) Portables shall be determined on a site-by-site basis. If portables are included in the building fire alarm system they shall have lightning suppression for all wiring leaving the building.

12) Junction box lids will be red, or clearly marked as fire alarm system, to denote restricted access.

13) Spare parts included in the fire equipment bid shall be delivered to the owner at the completion of the project.

14) Cox:
   a) The point of demarcation should be located in the same room as the PBX system (normally Node Room “A”).
**SECTION 8: ELECTRICAL STANDARDS**

b) Lightning arrester / protector should be located in the same room as the PBX system, and a tie cable should be placed between the protectors and an M-150-66 CAT5 block on the telephone terminal backboard. This block should have an orange cover with each circuit clearly marked on the inside. The tie cable can be one or more CAT5E cables, green in color.

c) Cox shall **NOT** be allowed to locate protectors or terminal blocks of any kind on the outside of any building.

d) The electrical engineer and architect should coordinate with Cox to provide a conduit that will facilitate Cox cable from the outside of the building to the PBX, Node Room “A”. (See WAN/LAN Appendix G for district’s contact for phones.)

Inside telephone CAT5E cables and jumpers will be the following colors:

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>CAT 6</th>
<th>Jumper Wire</th>
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<tbody>
<tr>
<td>Fire alarm telephone line</td>
<td>Red</td>
<td>Red / White</td>
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<tr>
<td>Gas meter</td>
<td>--</td>
<td>Orange / White</td>
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<tr>
<td>Security alarm</td>
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<td>Green / White</td>
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<tr>
<td>Boiler automation control</td>
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<tr>
<td>Elevator telephone</td>
<td>--</td>
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</table>

All of the above devices will have home run CAT 6 cables to the PBX, Node Room “A”, and be terminated on a M-150-66 CAT 5 block equipped with a red cover. Each circuit will be clearly marked on the inside of the red cover.

15) When building plans are released for bids, approximate dates will be indicated for the following fire alarm system tests (for purpose of scheduling of owner’s personnel only):

a) A preliminary test of the telephone lines to verify the wiring is installed and required equipment is on site. This will normally be one week before the Fire Marshal’s occupancy test.

b) Fire Marshal’s occupancy test.

16) All electric utilities must be maintained in working order. For instructions on transfer of power see “Sitework Standards” Section D.
PBX ROOM NODE (NODE ROOM)

- FIRE ALARM PANEL
- SECURITY SYSTEM
- ELEVATOR TELEPHONE
- GAS METER
- BDC

M150-66 CAT 5E BLOCK
BUILDING SERVICES (RED)

M150-66 CAT5E BLOCK
COX (ORANGE)

COX LIGHTNING ARRESTER PROTECTOR
### SECTION 8: ELECTRICAL STANDARDS

#### FIRE ALARM SYSTEMS

**M-150-66 CAT 6 BLOCK**

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SECTION 8: ELECTRICAL STANDARDS

INTERIOR ILLUMINATION

1) The District utilizes a Black-out program which blacks out all interior illumination during un-occupied periods. Thus all lighting shall be tied to a single-pole light switch and all emergency lights shall be on by-pass switches.

2) Interior building spaces shall generally be illuminated with fluorescent lamp systems. Specifically lay-in ceiling troffers in suspended ceiling grids where feasible. Lithonia or Williams are preferred. The use of incandescent light sources is not approved for general illumination.

3) Fluorescent lighting systems shall use only luminaries that are painted after fabrication. Luminaries using pre-painted metal components will not be acceptable. All standard size fluorescent lamps shall be T-8, with a color temperature of 4100°K. Where compact fluorescent lamps are used, efforts shall be made to maintain the 4100°K color temperature.

All light fixtures using T-8 lamps shall be equipped with rotating collar, enclosed contact lamp sockets with audible locking click. These sockets are available from all major fixture manufacturers. These sockets shall be supplied in all troffers, strips, and wraps. This type of socket is standard in all Lithonia SP8 troffers for lay-in ceilings.

4) All fluorescent lamp ballasts shall be electronic for use with parallel lamp operation and provide a THD of not more than 20% with a sound rating of “A”.

5) Fluorescent light fixtures designed for use with one or three linear fluorescent lamps greater than 30W each shall use two-lamp, tandem-wired ballasts in place of single-lamp ballasts when two or more luminaries are in the same space and on the same control device.

Exceptions:

a) Recessed luminaries more than 10’ apart when measured center to center.

b) Surface-mounted or pendant luminaries that are not continuous.

c) Luminaries using single-lamp, high-frequency electronic ballasts.

d) Luminaries using three-lamp, high-frequency electronic ballasts.

e) Luminaries on emergency circuits.

f) Luminaries with no available pair.

g) Indirect lighting can be used in libraries and cafeterias only.

6) All exit lights shall utilize LED’s for their illumination sources. In gymnasium spaces, exit lights shall be provided with wire guards.
SECTION 8: ELECTRICAL STANDARDS

7) Battery-powered emergency lights shall be provided with LED. Where used in spaces illuminated by HID sources, each emergency light shall be provided with a time delay relay (5 minutes minimum) so that HID lamps may have ample time to restrike in the event of a momentary power dip which causes the HID lamps to extinguish. In gymnasium spaces, emergency lights shall be provided with wire guards.

8) Lighting fixtures used for general illumination shall be controlled via local light switches. Night-lights (unswitched and operational full-time) will not be permitted. Classrooms shall be switched for three (3) different light levels:

a) The first switch turns on a single lamp in a fixture.

b) The second switch turns on two lamps.

c) Both switches turn on all three lamps.

9) In gymnasiums and multipurpose rooms provide TL-5 florescent fixtures with locking covers on switches. (LL801).

10) Where surface mounted wrap-around fluorescent luminaries are to be used, Lithonia LB series shall be specified. The intent is to preclude the necessity of stocking many styles and types of replacement lens assemblies.

11) Illumination levels for the various interior spaces shall be in conformance with the standards established by the District as presented below. These required illumination levels are considered maintained foot-candle levels (not initial levels) at the elevations indicated. Initial maximums shall not exceed 20% of the stated values.

<table>
<thead>
<tr>
<th>Space</th>
<th>Illumination Level</th>
<th>Height</th>
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<tbody>
<tr>
<td>a) Classrooms</td>
<td>50</td>
<td>30 inches above finished floor.</td>
</tr>
<tr>
<td>b) Administration</td>
<td>50</td>
<td>30 inches above finished floor.</td>
</tr>
<tr>
<td>c) Gymnasiums</td>
<td>50</td>
<td>36 inches above finished floor.</td>
</tr>
<tr>
<td>(with provision (hi-lo lighting) for 80 FC’s for competition)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Multipurpose Rooms</td>
<td>50</td>
<td>36 inches above finished floor</td>
</tr>
<tr>
<td>e) Corridors</td>
<td>30</td>
<td>at floor level</td>
</tr>
<tr>
<td>(with provision (hi-lo lighting) for 30 FC’s for passing periods, 10 FC’s for alternate times)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) Boiler Rooms</td>
<td>40</td>
<td>at floor level</td>
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<tr>
<td>g) Cafeterias</td>
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<td>30 inches above finished floor.</td>
</tr>
<tr>
<td>h) Locker Rooms</td>
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<td>30 inches above finished floor.</td>
</tr>
<tr>
<td>i) Storage Rooms</td>
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<td>30 inches above finished floor.</td>
</tr>
<tr>
<td>j) Library Spaces</td>
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<td>30 inches above finished floor.</td>
</tr>
<tr>
<td>k) Node Rooms</td>
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<td>30 inches above finished floor.</td>
</tr>
<tr>
<td>l) Rest Rooms</td>
<td>30</td>
<td>30 inches above finished floors</td>
</tr>
<tr>
<td>m) Swimming Pools</td>
<td>80</td>
<td>with provisions for high/low lighting</td>
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</table>

A photometric design sheet shall be included in the electrical engineer’s design to verify appropriate FC levels.
SECTION 8: ELECTRICAL STANDARDS

12) In high volume specialty spaces (libraries, cafeterias, entries) – Interior, pendant mounted, remote ballasted, Holophane Prismglo series.

13) Other specialty fixtures must be approved by the owner on a fixture by fixture and site by site basis. Interior architectural fluorescent fixtures shall not be used unless specifically approved by the owner.

14) Do not locate any light fixtures directly over the steps or stairways. Locate fixtures so that standard ladders may be set up on flat floor spaces in order to maintain the light fixtures.

15) Surface mounted fluorescent fixtures installed in multipurpose rooms, gyms, and other locations subject to impact / abuse shall be Kenall Millenium Stretch series using impact resistant acrylic lens, NOT polycarbonate.

K EXTERIOR ILLUMINATION

(1) The District utilizes a Black-out program which “blacks out” all exterior illumination during un-occupied periods. Thus, all lighting shall be tied to a single pole light switch.

(2) All exterior entry areas to each building and all parking areas shall be provided with illumination. All exterior luminaries shall utilize LED or metal halide lamps. Exterior entry fixtures shall be surface mounted and not recessed. Exterior surface mounted fixtures used in soffits and wall mounted fixtures lower than 12’ shall be Kenall Millenium MR Series LED Exterior wall mounted higher wattage light fixtures; mounted at heights greater than 14’ shall be Lithonia TWH series with metal halide lamps or LED.

(3) All exterior luminaries are to be controlled via combination mechanical photocell and DDC controls shall have multiple DDC zone controls. Shall also have a manual override 6 hour twist timer located in the boiler/mechanical room for maintenance. The design of these DDC controls schemes shall be addressed on an individual building project basis with the input of District staff. Contact District DDC expert and District Energy expert.

(4) Parking area luminaries (at 1FC illumination level) are to be mounted on steel poles with the top of the concrete base elevated to 30 inches above the parking surface for protection from vehicular traffic. Each pole shall be provided with one (1) 10’ X ¾” cad weld ground rod driven to a depth not less than 4 foot below finish grade and connected to the pole ground lug with a #6 (min.) copper conductor. Pole height shall be based on site conditions.

(5) Pole heights, pole locations, fixture types, and aiming orientation shall be carefully selected to avoid light trespass on adjacent property or public rights-of-way. Glare control for vehicular traffic safety is of prime importance.

(6) See Appendix A for approved fixtures for exterior illumination
L  ELECTRICAL DEVICES AND CIRCUITS

1) All electrical devices (receptacles and switches) shall be specification duty rated. Each receptacle and switch shall be provided with a grounding terminal and all devices shall be connected to ground reference via an insulated “green” grounding conductor routed with the power supply circuit. The use of self-grounding devices will not negate the use of the required grounding conductor.

2) All branch circuit devices (switches, receptacles, etc.) shall be connected to supply circuit with “pigtails”. Through-wire or feed-through connections will not be acceptable.

3) Duplex receptacle devices shall be rated 20-amperes and be provided with back and side wired terminals. Receptacles equipped with factory installed wiring pigtails (3 #12 conductors) may be used if so specified.

4) All devices shall be provided with high-impact plastic coverplates matching the style and color of the associated device or with stainless steel coverplates. Where light switches are provided with key-locking covers or coverplate is to be engraved, provide stainless steel coverplates.

5) Each classroom shall be provided with at least one (1) general-purpose receptacle circuit serving only that classroom.

6) At any point along the perimeter wall of the classroom, an outlet shall be available within six (6) feet of any potential computer station. Exceptions to be approved by owner.

7) Refer to the LAN/WAN section of this Standard for computer outlet configurations and supply circuit requirements.

8) No exceptions to the Wichita/Sedgwick County Unified Building & Trade Code article 4 will be permitted for any portion of the electrical systems installed at USD #259 facilities.

9) No roof receptacles will be mounted to an exhaust fan.

M  CABLE TELEVISION (CATV)

1) Equipment – Cable, splitters, and amplifiers should be a minimum 1000mhz capable. Cable should be RG-6, double-shielded (braid and foil), CommScope #F690-BVV or pre-approved equal. For plenum rated RG-6, use #2275K. Contact CommScope for specifications.

2) New Building
   a) The cable, splitters, amplifiers and SNS F connectors for each facility are to be provided and installed by the contractor for a complete operational
SECTION 8: ELECTRICAL STANDARDS

system. A 2" conduit will be provided from the CATV terminal box in the Library workroom to the utility easement for routing of the service cable.

b) Coax cables shall be provided to each classroom in 2 gang plate on same wall as smartboard from the CATV terminal box. CATV outlets will be installed in each classroom, library (for group viewing), library office (for recording), multipurpose room (for large group viewing), and administrator's offices. Each drop shall run uninterrupted from the classroom to the cable TV DMark.

c) In elementary classrooms, provide a second coax cable in each classroom in 2 gang plate for LCD projector. Coax shall land in projector terminal plate.

d) Any new library built should be provided with a means of sending locally generated video and audio back over the school CATV system on Cable channel 15. This will require the following parts (or equivalent):

1) Channel 15 notch filter (#5258B), available from Microwave Filter Company, 6743 Kinne Street E., Syracuse, NY, 13057, (800)448-1666.


3) Additions to existing Buildings:

a) Working CATV outlets should be installed in each new classroom and in library in 2 gang plate. Working CATV outlets should be installed in library office and multipurpose room in single CATV plate.

b) CATV outlets added shall be connected to the existing CATV System. Splitters and/or amplifiers shall only be installed in node rooms.

c) Most schools have only a few existing CATV outlets. New CATV outlets should be added in accordance with (3b) above.

N CCTV CAMERA SYSTEM – (See Appendix D)

1) General: Camera Assumptions

a) USD 259 Design and Construction Office and/or Capital Electrical Office will be involved in the design and placement of cameras as well as placement of DVR and associated equipment. MIS must be involved in placement of equipment in any node room space. All camera placements shall be approved by the Chief Operations Officer or designee.
No camera shall be placed in any restroom space including any transition hallway between the restroom and the main hallway it is connected to.

Any camera placed in a classroom **MUST** have prior approval by the Chief Operations Officer, or designee, building principal, and the director of Safety Services.

CCTV camera shall be installed over the teacher’s prep area in the Culinary Arts area. Electrical outlets shall be installed at the prep areas in the Culinary Arts area for tvs to show cooking demonstrations.

Work shall be done in a neat, clean and professional manner.

**2) DVR Equipment Installation Layout**

a) One (1) 4x4x3/4 fire rated plywood installed and positioned in a location that is readily accessible to the rack supplying the DVR.

b) On the plywood, an 8 camera power supply should be hard wired in and enough room should be allowed for more power supplies to be added in the future.

c) The 120v surge suppression (power strip) should be mounted on the plywood.

d) 2” D – rings should be used to manage wires on plywood to provide a neat and clean installation.

e) A 120v duplex receptacle shall be installed in a position that would allow access to the rack holding the DVR equipment as well as the 120v surge suppression (power strip).

f) A teacher drop shall be installed within 4’ feet of DVR and yet allows technician access.

g) A #8 THHN equipment grounding conductor shall be ran from the nearest panel and connected to the surge suppressors as well as the rack supplying the DVR. If a ground bar exists in the room housing the DVR, the new ground wire can be attached to the existing ground bar.

h) A computer monitor supplied by the building shall be installed on the keyboard tray.

**3) Camera and Wire Installation**

a) Outdoor cameras shall be mounted at least 14’ above ground level and no higher than 18 feet above ground level or have prior approval from Design and Construction Office and/or USD 259 Electrical Capital Department Office.
b) Interior Cameras shall be mounted on the ceiling and in a location that would prevent physical damage. Any other location shall have prior approval from Design and Construction and/or USD 259 Electrical Department. A piece of plywood to bare on ceiling grid structure should be mounted above the ceiling tile to securely support the camera below the ceiling tile.

c) No plastic anchors are to be used on any installation. Provide 10’ service loop at above each camera above ceiling tile.

d) Conduit and wire installation are to be installed according to NEC standards as well as District WAN/LAN standards.

e) Any camera wiring running across or through a boiler room or Mechanical room shall be installed in conduit.

f) Any camera wiring ran across a roof shall be run in rigid conduit supported at least 18” off the roof using an UL approved conduit support structure.

g) All conduits ran on the outside of the building shall follow the following standards.

(1) Any conduits below 12’ measured from finish grade shall be rigid metal conduit, or PVC coated rigid conduit.

(2) All conduits ran above 12’ measured from the ground up can be ran in EMT conduit using compression fittings.

h) When running conduits underground the following shall be used:

(1) From the building out, and from the structure the conduit is going to, the first 10’ shall be PVC coated rigid conduit.

(2) Everything else in the ground shall be schedule 40 PVC conduit.

i) All wiring done above suspended ceilings shall be done according to district WAN/LAN standards.

j) 2” J – hooks will be used for all raceways above suspended ceilings and where applicable in tunnels. No 2” J – hook will be filled no greater than 60% fill.

k) All exposed conduits in classrooms, hallways, and offices shall be done in wiremold.

l) When using 700 wiremold factory 90 degree bends are NOT acceptable. If bends can not be obtained using a wiremold one shot bender junction boxes (such as 5751 or larger) shall be used in lieu of 90’s.
SECTION 8: ELECTRICAL STANDARDS

m) All penetrations thru the exterior walls of a building will be a minimum of ¾ EMT conduits.

n) All cameras mounted outside should be made water resistant, by way of sealing all holes penetrating the building with silicone.

o) While penetrating thru an interior wall to establish a pathway to the DVR, a minimum 2" EMT sleeve with protective bushings on both ends, shall be required to provide for future growth. All penetrations made on the interior of the building are to be fire stopped according to code with a removable fire stopping material.

p) Surge protectors are too be used at both ends of the wire. A coax/power surge protector must be installed at the camera and a coax only surge protector must be installed at the head end.

q) The DVR must be plugged into the surge suppressor at the head end.

r) At the head end, it is recommended that a UPS be used for added protection for the DVR

4) Project completion

a) Upon completion all wires should be marked as to the location at which they are terminated, as well as the channel it is terminated on at that DVR. Example: camera 2 NW corner front of building. Camera 2 represents channel 2 on the DVR.

b) Cameras will be set and focused. USD 259 Electrical Department Staff will do all DVR programming.

c) Prints will be delivered to the USD 259 Electrical Department and/or Design and Construction. Prints must depict all cameras locations and where they have been terminated on the DVR.

0 LCD PROJECTORS

1) Infrastructure for Smartboards and LCD projectors shall be installed in every classroom, conference room and library.

2) All installations shall include the use of an interactive projection board (Smartboard). The cable plate location shall be adjacent to the teacher drop and match receptacle, and network jack AFF height.

3) Include a Cat-5e cable with RJ45 connectors (cable and connectors to be yellow) on each end (point to point) from the Smartboard to the projector/Smartboard, which is located near the Teacher drop/desk location. Smart Technologies #CAT5-XT (Cat 5 to USB Extender) shall be supplied for each Smartboard installation as part of the contract.
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4) Wall plate for the low voltage connections shall have HDMI connector for computer monitor video and 1 3.5 mm through connector for audio, one Cat-5e connector for the USB extender, and one active coax F connector for CATV. Plate shall be Panel Crafters by Liberty Cable or equivalent. (Refer to Appendix C)

5) A teacher network drop shall be located within 5' of the projector cable jack location.

6) HDMI cables shall be installed from the projector down to the wall plate. A 3.5mm audio cable to be run from wall plate to amplified ceiling speaker.

7) 1 ½” steel threaded pipe nipple, painted white (preferred) shall be used from the ceiling to the projector mount (Chief RPA-U) (mounting height dictates pipe length). Installation from T-grid shall use Chief CMA-450 or Chief CMA-455.

8) Low voltage cables shall be installed inside the 1 ½” support pipe to above the T-grid ceiling.

9) Ideally the projector height is at the same height of the projection surface (screen or Smartboard), with a minimum AFF height of 80” to the bottom of the projector. Locate the project 8’9” (+/-4”) in front of the Smartboard,

10) Free air cable support above drop ceiling should comply with network cabling specifications.

11) 120 volt receptacle shall be installed per NEC and Facilities Standards within 18” of the mounting pipe location.

12) Conduit installation shall be per Facility Standards Electrical, Section C & D.

13) Every projector shall include OWI (Brand) Model AMP1S64MVC (four speaker combination) and an AMP-STCOMB adapter. Distribute the four 6” speakers evenly in the room.

14) Projector and smart board (See Appendix D).

P INTERCOM

1) General:
   a) Intercom systems are required at every building with capability in every classroom, office and assembly space. All existing buildings have intercom systems. See section P3 Additions to Existing Intercom.
   b) Separate intercom and clocks systems are preferred in lieu of combined systems.
c) Wichita School District intercom systems are by Board of Education policy a safety and security item at each school. As such, the intercom systems must be in working order AT ALL TIMES, or, if in need of repairs, they must be repaired on an immediate basis. The expansion or replacement of school intercom systems is discussed in design review meetings. It is the responsibility of the Project Architect and their electrical engineer to evaluate the existing intercom system, determine if it can be expanded or upgraded or if it needs to be replaced. The plans and specifications in the bid documents shall direct the project contractor and their subs as to the intercom work required. The proper installation of the intercom system is the contractor’s responsibility. If they have questions, they should direct them to the project architect/electrical engineer and not to the District. If the assistance of District Facilities personnel is required, a formal request must be made. Because intercoms are a safety/security item, school principals and Construction Review Team members will keep the pressure on until the system is fully functional. If the District’s Facilities personnel must be brought into the school to help the contractor/sub install, expand, or upgrade the intercom system, under the contract documents the contractor will be back charged for the District’s costs to do so. It is not the goal of the District to collect money from contractors but it is their goal to have safe and secure schools.

d) If it is determined that the existing intercom is not capable of handling the additional stations as required in the remodel/addition, and must be replaced, then all associated components throughout the building will be replaced as a part of the project, including wiring (if existing wiring does not meet specifications of the system being installed), speakers, and call switches. Only existing conduits may be reused.

e) All intercom raceway, wiring, components, and connections will fall within the scope of work for the electrical subcontractor.

f) All existing intercom systems will be considered to be in working order at the beginning of a project. It will be the responsibility of the general contractor to meet with owner’s representative to test the existing system prior to construction/demolition, and document any areas of the system that are not working properly, which will relieve those areas from his responsibility. Otherwise, it will be the responsibility of the general contractor to maintain the existing intercom in working order throughout construction, and in the event of a failure in any part of the system due to construction, and in the event of a failure in any part of the system due to construction related activities he will be expected to make all necessary repairs to make the system fully operable immediately.

2) Product Requirements:

a) The Central Equipment shall be Dukane Care-Hawk CH-1000 Call, Dukane MCS 350, Rauland ICS, and Telecor XL Series. These systems can be installed in any district building i.e. (Elementary, Middle School and High Schools).
b) Two administration phones are required for intercom installs.

c) Upon completion of this project all call switch and speaker locations currently connected to the intercom system shall work with the new system even if it means the contractor must replace all the call switches.

d) The system shall protect classroom privacy through the following features:

(1) Each classroom shall be equipped with a call switch having a “Privacy” position. Placing the switch in that position will prevent monitoring of that classroom.

(2) The system shall sound a tone in any station selected for monitoring and shall periodically repeat that tone as long as monitoring continues.

e) The system shall include all necessary equipment to generate, amplify, and selectively distribute a minimum of six (6) separate channels of classroom tones. The system shall have external connecting points allowing control of these tones by an external Master Clock and/or it shall be possible to automatically synchronize the system Master Clock with the external Master Clock at least daily. All intercoms will come with internal automatic Daylight Savings Time correction.

f) The central equipment shall be programmable remotely through a Wan/Lan modem. This programming shall include room number assignment, tone circuit and zone assignment, tone schedule changes, priorities and other normal day-to-day programming needs. Provide teacher drop adjacent to the intercom equipment.

g) The system shall contain self-diagnostics to continually monitor the systems integrity and shall have a RS-232 port for system programming and diagnostics. The programming shall be Windows based and shall run on any IBM compatible that supports Windows 3.1 or higher. It shall be possible to upload or download complete system configuration data and store such system data on a diskette storage device i.e. (usb memory stick or cd) for future use. This data may be reloaded at any time on-site or off-site through a modem our network. Also Current patches or fixes must be sent in timely manner thru email or hard copy to electronics department.

h) Emergency announcements shall be easily accomplished at a preset level to all remote stations by the operation of a single button on any Administrative telephone or by operation a single switch on a “Principal’s microphone”. This emergency announcement feature shall override all other functions or programs currently in progress.
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i) Master control of the system shall be accomplished through the use of Administrative telephone(s) or ordinary telephone(s) with a display attached. This telephone shall display up to three calls waiting and shall have an indicator showing if more than three calls are waiting. This telephone shall have a pleasant tone or ring announcing a classroom call-in. Communications between a classroom and this Administrative Telephone shall be clearly understandable at both ends whether the classroom is empty or not.

j) The system shall have a programmable “Emergency call-in” feature. If this feature is enabled, a double hit of the classroom call switch will move that call to the head of the list of calls waiting and will cause a different call-in tone or ring to be sounded.

k) The system shall have inputs available for one (1) low-Z source and one (1) high-Z auxiliary source. These inputs shall be distributable through the program channel.

l) The system shall have one (1) AM/FM CD player and the ability hook up via usb/sd card unit built in. Connections of this unit shall not decrease the available inputs listed above. Distribution of these program sources shall be through programming by the Administrative Telephone, or by the use of room switches.

m) Classroom wire connections to the system shall be through plug or other quick connect terminations allowing easy installation and removable of classroom wiring without special tools.

n) The Contractor shall provide transient/surge protection and battery backup on the AC power feed to all components of the Central Equipment rack.

o) Minimum audio power availability shall be as follows for ordinary sized classrooms and other special locations. The amplifying equipment supplying this audio power shall be sized so that the maximum power possible for the system is available, with a 15% minimum reserve.

   (1) Rooms of 900 square feet (an ordinary classroom = 840 square feet) and under shall have a minimum of one (1) watt RMS available per room.
   
   (2) Rooms of 900 square feet (an ordinary classroom = 840 square feet) and under shall have a minimum of one (1) watt RMS available per room.
   
   (3) Rooms over 900 square feet and/or especially noisy locations (cafeterias, gyms, multi-purpose rooms, shops, etc.) shall have a minimum two (2) watts RMS per 900 square feet available.
   
   (4) Outdoor horns shall have a minimum 10 watts RMS available.
p) All stations shall have ordinary talkback capability except hallways and outdoor horns. If talkback capability is lost due to the use of an amplifier or amplified speaker i.e. (multi-purpose room or cafeterias), one (1) additional one (1) watt RMS intercom station with call switch must be installed in that room in the location most favorable for talkback operations.

q) The system shall have a minimum 15% over capacity of stations or ports for future use.

r) The system will vary per site. The following minimum amounts per site will be addressed on a project-by-project basis. Contact owner for specifics:

   (1) Number of stations.

   (2) Number of call switches (Must match the intercom being bid)

   (3) One (1) AM/FM CD unit mp3 or wave file usb/sd card player support.

   (4) The intercom unit shall be a minimum twelve (12) watts RMS per station.

   (5) The system shall be installed in a lockable rack with casters wheels.

s) All hardware and necessary terminals for connection of room wires and complete and proper operation of unit shall be included.

t) A schematic diagram of all equipment purchased shall be included. Operator installation instructions shall be included.

u) The intercom shall be under warranty for a period of one year after completion. The warranty shall cover parts and labor, and the service provider must be on site within 24 hours of a warranty call.

v) The equipment shall be completely assembled, wired, and tested before delivery. All equipment requiring UL approval shall be approved and shall be listed by Underwriters Laboratories Re-examination Service.

w) Provide operational demonstrations of the system (total time involved to be limited to a maximum of eight (8) hours) including describing the function, operation, and maintenance of each component.

x) Wires must not be spliced or interrupted between the call station and the main unit.
SECTION 8: ELECTRICAL STANDARDS

3) Additions To Existing Intercom
   a) Each room add-on location shall have a separate speaker, call switch, and wire to the central intercom unit.
   b) Speakers, call switches, and wiring must match existing equipment and be installed with no splices. If room additions exceed the available spare switches, equipment must be added to this intercom, or the intercom must be replaced. Contact owner for details. Owner shall provide.
   c) Nearly all systems are 25 volt (audio) and use Belden 8724 (or equivalent) connecting cable. Most systems are four (4) conductor 22 AWG stranded wire with shield. All wiring to outside horns must be unshielded wire and homeruns to Central Unit. Acceptable products are West Penn 357 or pre-approved equal installed per manufacturer’s specifications.

Q SECURITY

1) The preferred security equipment system manufacturer for New Buildings is Napco. At all times equipment being added to an existing facility shall be specified to match and integrate with existing equipment of that facility.

2) Provide Ademco Model 128FBP with 4208U zone cards, (250 FBP if building exceeds 100 zones with 4208 SN zone card) and 6160 Honeywell keypads in all new installations, NO ALTERNATES ACCEPTED. NOTE: Keypad wire and system wiring are different cables. For keypad wiring use: Genesis 18/4 STSR CM/CL 2.

All external circuits are normally closed and create an alarm when the circuit opens. Each security circuit installed should have a separate four (4) conductor wire (West Penn 357 or equivalent) which is uninterrupted between the device and the security terminal box. A listing of commonly used parts provided as a guide (equivalent parts may be used) follows:

<table>
<thead>
<tr>
<th>Security Equipment – Existing Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ademco</td>
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<tr>
<td>Sentrol</td>
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<tr>
<td>Sentrol</td>
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<tr>
<td>Sentrol</td>
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<tr>
<td>Aleph</td>
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### SECTION 8: ELECTRICAL STANDARDS

<table>
<thead>
<tr>
<th>Honeywell</th>
<th>DT-7435 IS-2560</th>
<th>For classroom For hallway</th>
</tr>
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<tbody>
<tr>
<td>Key Pad</td>
<td>6160</td>
<td>Honeywell (White only)</td>
</tr>
<tr>
<td>Moose</td>
<td>CH12AC</td>
<td>Power Supply (has Transformer &amp; battery)</td>
</tr>
<tr>
<td>Moose</td>
<td>CHA</td>
<td>Power Supply (when Transformer &amp; battery already exist)</td>
</tr>
<tr>
<td>Cable</td>
<td>8724 or 8723</td>
<td>West Penn 357 or approved equal</td>
</tr>
</tbody>
</table>

3) **New Building Installation:** Provide Napco X255 – 255 zone panel, GEM-EZM8 zone card, and GEM-RP1CAe2 keypads in all new construction installations. The contractor will be responsible for installing all of the above equipment plus all security circuits, keypads, wiring, end-of-line resistors, terminal boxes, etc. The district will make final connections at the Ademco control panel and will program the system. The contractor will be responsible for correcting any wiring problems for the warranty period.

### SECURITY EQUIPMENT – NEW CONSTRUCTION FACILITIES

<table>
<thead>
<tr>
<th>Napco</th>
<th>GEMINI-P9600</th>
<th>Control Panel (No substitute)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentrol</td>
<td>1055</td>
<td>¼” magnetic door switch (for wood)</td>
</tr>
<tr>
<td>Sentrol</td>
<td>1078 C</td>
<td>¾” magnetic door switch (for steel)</td>
</tr>
<tr>
<td>Napco</td>
<td>GEM-EZM8</td>
<td>Zone Card</td>
</tr>
<tr>
<td>Napco</td>
<td>C-100STE</td>
<td>Motion detector for classrooms</td>
</tr>
<tr>
<td>Napco</td>
<td>M7300STE</td>
<td>Motion detector for halls</td>
</tr>
<tr>
<td>Napco</td>
<td>GEM-RP1CAe2</td>
<td>Keypad (White Only)</td>
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<td>Moose</td>
<td>CH12AC</td>
<td>Power Supply (has Transformer &amp; battery)</td>
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<tr>
<td>Moose</td>
<td>CHA</td>
<td>Power Supply (when Transformer &amp; battery already exist)</td>
</tr>
<tr>
<td>Napco</td>
<td>NL-MOD-UL</td>
<td>Network Module</td>
</tr>
<tr>
<td>Cable</td>
<td>8724 or 8723</td>
<td>West Penn 357 (Orange Color)</td>
</tr>
</tbody>
</table>

4) **New buildings and additions to existing buildings.**

i. Motion detectors shall protect hallways.
ii. Any ground floor room with outside access should be protected with motion detector and door switch (exterior door).

iii. Typical classrooms (approx. 30’x30’) and / or any room with easy outside access (windows and doors) shall be protected by a minimum of one motion detector and should be aimed across windows.

iv. Door switches and motion detectors should protect all outside entrances.

v. All motion detectors must be mounted on a finished wall. Mount detectors on walls at 7'-6" above the floor. Do not attach to suspended ceilings.

vi. 12V DC power must be supplied from the main security junction box to each motion detector installed.

vii. All new security circuits should have an end-of-line resistor installed (10K) on buildings with Ademco and (2.2) on Napco at or near the security device (switch, relay, or motion detector). This resistor should be accessible for replacement or testing.

viii. Duress alarm switches should be installed, in administrator’s office and main office.

ix. Any existing equipment removed during construction shall be replaced with new motion sensors.

x. Additions to existing buildings will normally have more security circuits per room than the existing building due to an increased emphasis on security.

xi. Wiring devices should be as follows:

   Green – common   Red – positive
   White – N/C    Black - negative

5) One (1) keypad shall be installed near main entry door and one (1) in boiler/mechanical room by door to exterior. It is preferred that keypads not be installed in main hallways, accessible to large numbers of students.

6) The following building circuits shall be monitored on the security system with a separate cable each one home runned and supplied by the contractor with a 2K end of the line resistor.

   a) Boilers
   b) Building power
   c) Emergency power generator
d) Walk-in freezers and coolers

e) Elevators

f) Any other item designated by the owner

g) Duress alarm switch (main office and administrator’s office)

7) Water bug (one in each boiler room)

Additions to existing buildings (only):

a) The contractor will install keypad wiring between any needed sites in the new addition and the security terminal box (usually located in the boiler room). Contact the owner to select keypad locations in new additions and to verify the location of the security terminal box.

b) The contractor will be responsible for adding a security terminal box if the existing box is full, and will be responsible for installing adequate conduits to connect the existing and new terminal boxes if needed.

c) The district will make every effort to have the new Ademco control panel installed prior to the completion of the new building addition, thus eliminating many of the security installation questions and problems.

R  CLOCKS

1) The District has numerous buildings with various clocks used in each. Contact the Supervising Leadperson of Electronics for special details about a specific building.

2) New Clock Systems

Clock installation in all new buildings should be a clock system with master clocks & controlled room clocks.

a) Master Clock Specification

The Master Clocks shall have the following minimum features:

(1) Minimum: Six (6) circuits for timed tones.

(2) Three (3) schedules with minimum 128 events per schedule.

(3) Seven (7) day battery backup capacity.

(4) Pluggable relays for the bell circuits with minimum 10 amp contacts.

(5) Pluggable clock correct relays with minimum ten (10) amp contacts that are interchangeable with the bell circuit relays.
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(6) Quartz crystal timekeeping base for accurate timekeeping independent of the input line frequency.

(7) A “lock-out” feature that prevents unauthorized schedule changes without the use of a key, a special switch sequence or other normally inaccessible method.

(8) 1" LCD readout.

(9) An automatic Daylight Savings Time adjustment, should support Central Time Zone requirements. This adjustment should take place at 02:01 AM on the day of change feature that will allow the necessary information to be programmed into the Master Clock at least one week ahead and will then automatically correct the Master Clock and the room clocks bid at the proper time.

(10) The master clock should be capable of being connected tied to the intercom for time synchronization and bell tone throughout the building.

b) Room Clock Specification

The room clocks shall: (with the exception of wireless clocks)

(1) Operate correctly with the Master Clock installed.

(2) Be synchronous wired, 110 VAC run and correct.

(3) Correct their minute hands hourly.

(4) Correct their hour hands twice daily at 6:00 AM and 6:00 PM.

(5) Use as their major replacement part the Hansen 33-1111 motor and movement.

(6) Clock will be Simplex 6310 series or Lathem SS series or approved equal.

(7) Rooms over 900 sq. ft. shall have 15" clocks installed (cafeteria’s, gym’s multipurpose rooms, auditorium’s)

(8) All clocks installed in gym/multipurpose rooms require cage to protect clock.

c) Digital readout clocks are not acceptable.
SECTION 8: ELECTRICAL STANDARDS

3) Additions to existing Clock Systems
   a) Additional clocks installed must match the existing clocks.
   b) A few buildings have more than one clock type in parts of the building. Contact owner for details.
   c) All wiring must be in raceway even in buildings where some existing wiring is not presently in raceway.

S   BELLS

1) General (Bells should only be added when there is not an intercom that supports tones with adequate speaker placements).

2) a) Some buildings have class change tones (from the intercom). Some buildings have class change bells. Some buildings have both bells and tones. Most bells are 100 VAC but some are 24 VAC. Call 973-2064 for specific details.

3) New Buildings
   a) Class change tones are preferred. Bells should not be required as the new intercom can be sized to provide adequate speakers and power to cover halls, large rooms, and outdoor play areas, as well as all classrooms.

4) Additions to existing buildings
   a) Bells should be added as follows:
      (a) One 6” bell in each 100 feet of hallway
      (b) One 6” bell in each large or noisy room (gyms, etc.)
      (c) One 10” bell outside, as close as possible to play areas.
   b) Bells installed in building additions do not need to be wired directly to the existing bell clock; may be wired to the nearest existing bell.
   c) Bells shall be Edwards Adaptable, catalog number 340-6N5 (6”) or 340-10N5 (10”) or equivalent.

T   CABLE

All cables shall have the following color coding:

1) Data – Blue
2) Telephone – Green
SECTION 8: ELECTRICAL STANDARDS

3) Intercom – Gray
4) Television – Black
5) Fire – Red
6) Security – Orange
7) Cameras - White
8) Building Control – Ivory or Bone
9) Smartboard point to point – yellow

U  SOUND SYSTEMS

Sound systems should be provided and install at the following locations:

1) High School
   1 – Primary gyms (see athletic standards)
   1 – Secondary gyms (see athletic standards)
   2 – Natatoriums (see athletic standards)

2) Middle School
   1 – Primary gyms (see athletic standards)
       Secondary gyms (see athletic standards)

3) Elementary
   Multipurpose Room

V  ELECTRICAL CLOSEOUT PROCEDURES

1) As Built Drawings
   a) The architect/engineer should furnish “as built drawings” upon completion of the contract and prior to final payment for each electrical system.

2) Commissioning
   a) Commissioning of electrical systems shall follow the HVAC commissioning plan when the systems are interconnected or related.
   b) All electrical systems shall be specified in detail to follow a commissioning plan which shall be similar in format to the HVAC Commissioning Plan when they are not interconnected with the HVAC systems and thus not covered by that Plan.
This Electrical Systems Commissioning Plan shall require the following as a minimum:

1) Testing required by the NEC.
2) Trip testing of all ground fault systems/equipment.
3) Point-by-point demonstration and test of all special electrical systems.
4) Point-by-point readout and calibration testing of all electrical monitoring systems and the details of this commissioning will be defined in the design process.

3) Training
   a) Provide Operational training for:
      1) On-site engineer or custodian
      2) Supervising Lead person of Electronics
      3) Minimum of two SSC maintenance personnel
      4) SSC Maintenance Supervisor
   b) Provide Maintenance training for:
      1) Minimum of two SSC maintenance personnel
      2) SSC Maintenance Supervisor
   c) Provide Factory Training:
      Provide factory training for one week for one person as determined by the Supervisor of Building Equipment and Grounds.

4) Warranties
   a) Minimum of one year on total system.
   b) Minimum of two years on intercoms and clocks.
   c) Permanently mark all equipment with warranty expiration date.

5) Required Submittals
   a) Operation and maintenance manuals.
   b) Equipment shop drawings.
   c) Schedule of equipment warranties.
d) Certification and labeling of LAN and related drawings and documentation.

6) Panel Labeling

Contractor shall use district provided room numbers for panel labeling. The numbers shown on the Architect’s construction documents are NOT the district provided room numbers. Obtain room numbering drawings from 973-2055.
WAN/LAN REQUIREMENTS

1. General Requirements
   a) All projects shall have a minimum of two Student drops per classroom.
      1. Student Drops are three (3) blue CAT6 wired back to the data patch panels.
   b) As required, provide special use single run phone lines such as: fire alarm, intercom, Ademco, elevator phone, and gas lines; shall be the only lines terminated on CAT5M-150 66 blocks.
   c) TIA/EIA 568A Standards will be followed unless otherwise specified in this document or approved by IST.
   d) At least one (1) student drop will be placed in every workable space/room.
   e) This standard is to be used for all new constructions and all remodels.
   f) This standard is to be used for all redesign of existing networks.
   g) This standard is to be used for all requests for additional network/phone wiring.
   h) Adequate electrical services will be provided.
   i) IST Division must be involved in any projects for network/phone consideration; including design, design changes, and walk-through with sign off responsibility for each stage. (WAN/LAN Appendix G)
   j) For each data cable provided there needs to be a switched port provided using Cisco POE switches. All switches shall be connected together using a gigabit link. Fiber must be used to connect all node rooms. At all new construction and remodeled areas, networking switches and patch cords will be provided by USD259 and installed by the contractor. USD 259 IST Department will provide a list of the quantity and model of CISCO switches, wireless access points and other miscellaneous equipment (i.e. patch cords, etc.) to be included in the bidding documents. In the event that the IST department deems a site suitable for wireless, the equipment list will also include wireless parts necessary for contractor installation.
   k) Only a Leviton certified person will be used. The contractor shall submit to the owner, prior to start of construction, the Project Registration Form and written approval from Leviton to start installation of the project. At completion of the job, the completed, signed, Project Registration Form shall be submitted to the Owner, indicating minimum 15 year warranty, prior to final payment. See sample Project Registration Forms attached.
l) Patch cables to be provided by USD259 and installed by contractor (using standard certified cable as specified in WAN/LAN Appendix I for racks between patch panels and switches.

m) A fiber connection between buildings/facilities needs to be coordinated with IST for specifications and approval. All references to fiber in this document refer to internal local build fiber and nothing exterior.

n) All sites shall have wireless for entire building as determined by a site survey performed by USD 259 IST department. See attached information explaining the operation and installation of “Wireless Networks”.

o) All schools should have a cabinet/storage room provided with three dedicated receptacles for laptop carts. Size of carts is 30”x35”. This can be in the library media storage area.

p) Schools are responsible for purchasing their own carts.

2) WAN/LAN Phone System

a) The telephone system for USD259 uses an IP network carried throughout the district via microwave and fiber. Each site has a PBX/ATM unit located in a node room at the site. For any project, contact owner for WAN/phone requirements.

b) USD 259 is their own telephone service provider. For any phone issues/questions contact owner.

c) USD 259 WAN consists of microwave communications at each site. The integrity of the network is critical. Therefore, all new installations and moves of existing microwave equipment on towers or roof mounts must be coordinated with Marvin L. Williams at 480-797-1345.

d) Microwave equipment must be fully compatible with existing microwave equipment and microwave monitoring software. To ensure this, all equipment proposals must be approved in writing with the existing microwave service provider, Marvin L. Williams.

3) Network General Design Standards

a) Node Room

Node rooms shall be labeled alphabetically. All Node Room “A’s” shall be the PBX/ATM equipment location and preferably where the main network distribution is located (see WAN/LAN Appendix K). If the main network distribution rack is at a different location than the PBX/ATM rack, label it “B”. Label remaining node rooms alphabetically.
1. Environmental / Physical Conditions to avoid:
   (a) Water Pipes
   (b) Windows
   (c) Dust /Gasses/Vapor
   (d) Drainage/Water/Humidity
   (e) EMF Sources
   (f) Equipment must be at least six feet from any building electrical service points. Breaker boxes will require additional space to be provided for proper clearance (30 inches minimum).

2. Electrical Service:
   (a) Node room “A” requires a minimum of two dedicated 20-amp circuits and additional dedicated 20-amp circuit for each LAN rack. Each circuit to be distributed to one four-plex outlet per circuit. Additional circuits may be required for any additional equipment such as air conditioners or any other approved electrical equipment that will be located in the room. Provide one general-purpose duplex outlet.
   (b) Grounding and bonding shall meet the National Electrical Code (NEC) requirements and practices, except where other authorities or codes impose a more stringent requirement or practice. Additional, grounding and bonding may be required for telecommunication equipment, refer to TIA-607 for requirements.

3. Physical Layout:
   (a) The physical room layout shall follow TIA/EIA 568A standards.
   (b) The node rooms are for LAN/telephone equipment only. Other equipment such as Fire Systems, DDC, Cable TV and Security Systems are not to be located in the Node rooms.
(a) Mechanical equipment condensate lines, ductwork, piping, etc., should not be located inside or routed through node rooms.

(b) If it is necessary to install AC distribution panels in a node room additional space should be added. The FR plywood backboards are to be used for telephone terminals only. Nothing but telephone terminations will be placed on the backboard including conduit and AC outlets.

(c) Wall Areas: Each Node Room “A” requires a 4’ x 4’ x 3/4” FR plywood (mounted horizontally) backboard with adequate clearance for mounting and maintenance of phone equipment.

4. All CAT6 cable runs in school must be homeruns less than 90-meters to the network node room. All data cables are to be certified at TIA/EIA 568A Standards on a basic link test. All vertical and horizontal pathways must be considered at time of drawing by engineer.

5. When the 90-meter distance cannot be met for all cable runs, multiple node rooms will be added and connected with enhanced fiber optic cable and appropriate sized feeder cable for phone service as defined in this document.

6. Provide for appropriate airflow and temperature. On new schools, node rooms with PBX/ATM equipment shall have separate units to maintain a maximum 78°F temperature with 20 – 30% humidity in the node room. Refer to WAN/LAN – Appendix F.

7. Provide for proper security:

(a) All new node rooms shall be a single purpose node room and corridor accessible.

(b) All Node Rooms shall be keyed to the Node Room Master Key.

(c) No access by students.

(d) Limited access by staff. Also, provide for easy access by technicians and WAN/LAN support personnel.

i. For existing buildings, server room, teacher workrooms, library workrooms, etc. may be considered for node rooms. Do not use electrical/mechanical rooms or custodial storage. On all new node room selections, classrooms, toilets, boiler rooms, shower areas, pools, gym
locker areas, and other high humidity areas or high dust areas are not allowed.

ii. At all new designs/installation, all backbones shall be designed / installed as collapsed backbone/star topology using fiber optic cable; no exceptions. All telephone feeder cables must terminate in Node Room “A”.

b) Location of wall jacks for all new designs/installations:

(1) In all classrooms, there will be two drops which will be student drops. Student drops shall have three (3) CAT 6 cables and (3) data jacks (See Appendix K). Recommendations for the location for placement and height of drops will be coordinated with the building administrator and review team.

(2) Any space with dedicated lab area such as Computer Lab or Media Center must use enough student drops to have one (1) data per computer.

(3) Every node room shall have one (1) student drop.

(4) Every workable space shall have a student drop (gym, storage, kitchen, custodial rooms, etc.) Office(s) and large rooms, i.e. libraries, computer labs, multipurpose rooms, etc., shall have more than one drop.

(5) Places to avoid when designating drop locations if possible:

(a) Near chalkboards
(b) Near windows
(c) Near radiators
(d) Student/staff pathways
(e) Any water sources
(f) Near/next to appliances

(6) All jacks at all drops shall be “hot.”

(a) Smart board point to point CAT6 will not be hot, but must use yellow jacks and cables and be labeled for its use.

(7) Provide necessary power for all computer needs at locations of all new drops:

(a) Computers shall not be used on general-purpose outlets.

(b) Maximum three four-plex outlets on one 20-amp circuit.

(c) Dedicate one 20-amp circuit per drop with a minimum of two four-plex outlets (isolated ground if available).
(d) Power shall be “computer only” four-plex outlets (provide number of outlets as defined by the number of drops installed).

4) NETWORK ACCESSORIES – Follow 568A Standards

a) Cable

(1) Use 4-pair, Category 6 cable, 150 ohm UTP. Any cable buried underground shall be gel-filled. Where gel-filled installations are required, and runs are in interior spaces, gel filled cable shall be installed in EMT conduit. All interior cable on existing buildings shall be plenum rated. Cable runway or cable ladder will be installed connecting all enclosed cabinets and relay racks together and bracing them to nearest wall(s). See WAN/LAN Appendix E – Acceptable Products List.

(2) On new network cable installation use the same manufacturer on all CAT 6 cable throughout an entire site. Acceptable Cat 6 cables are noted in WAN/LAN Appendix E – Acceptable Products List.

(3) All data and phone cables should be home runs and terminated in the nearest network node room.

(4) A minimum of twelve (12) pair CAT 3 or better feeder cable to be provided between node rooms terminating in Node Room “A”. Feeder cables should not exceed the eighty-percent fill rate. (See section G for termination instructions.)

(5) For add/moves/changes of phone cables shall be terminated in the nearest network node room if being used for phone distribution point or terminate at PBX/MDF. (See section G for termination instructions.)

(6) Contractor will place and terminate two CAT 6 cables for the FIRE ALARM SYSTEM. One cable will connect the Fire Alarm System to Node Room “A” (for PBX dial tone) and the second cable will connect the Fire Alarm System to Cox point-of demarcation. In Node Room “A”, the cable will be terminated on a 66M-150 CAT 5E block with a red cover marked with the designation “BUILDING SERVICES”. The inside of the red cover will be marked “FIRE ALARM PBX 973-XXXX” or “FIRE ALARM COX XXX-XXXX” in the appropriate place.

(7) Contractor will place and terminate two CAT 6 cables for the DDC SYSTEM. One cable will connect the DDC to Node Room “A” (for PBX dial tone) and the second cable will connect the DDC System to the WAN. In Node Room “A”, the cable will terminate on a 66M-150 CAT 5E block with a red cover marked with the
SECTION 8: WAN/LAN

designation “BUILDING SERVICES”. The inside of the red cover will be marked “DDC PBX 973-XXXX” in the appropriate place. The second CAT 6 cable will terminate on a patch panel in the appropriate Node Room and be marked DDC System. NOTE: If there is not a “BUILDING SERVICES” Block in Node Room “A”, the contractor should provide and install one.

b) Fiber Optic Cable and Accessories

(1) Fiber optic cable shall be 50 microns multi-mode. Use the same manufacturer on all fiber optic cable throughout an entire site. See WAN/LAN Appendix E – Acceptable Products List.

(2) See WAN/LAN Appendix E for fiber termination.

(3) Use appropriate fiber patch and distribution panels. See WAN/LAN Appendix E – Acceptable Products List.

(4) The EC will provide place, terminate and certify test all fiber optic cables. This includes providing the cable, fiber tray, terminal ends and a relay rack when needed. All fiber cables will be marked at both ends.

5) RACKS AND RACK EQUIPMENT

a) Racks shall be provided with vertical management on both sides.

(1) Seven (7) foot open face racks will be used in dedicated and secured node rooms. See WAN/LAN Appendix E – Acceptable Products List.

(2) Secure racks at top using ladder rack or cable tray.

b) Provide the following Rack Equipment:

(1) Provide sufficient patch panels and management panels to accommodate all users at site, with 80% maximum rack fill. (No more than 8 patch panels per rack.) See WAN/LAN Appendix J.

(2) Only 24 port-patch panels may be used. See WAN/LAN Appendix E – Acceptable Products List.

(3) Patch cord management panels must be used see WAN/LAN Appendix E – Acceptable Products List.

(4) Surge protectors must be provided in each rack. See WAN/LAN Appendix E – Acceptable Products List.

(5) Install student drop in each node room (3 data, phone).
SECTION 8: WAN/LAN

(6) Install one (1) dedicated 20-amp circuit with a four-plex receptacle at each rack.

(7) Feeder cable in all Node rooms should be wall mounted on a backboard, using CAT 5 M-150 66 blocks. These blocks should be installed on (B-89) standoff brackets with spools or other approved wire management devices. See WAN/LAN Appendix E – Acceptable Products List.

(8) In existing building using racks, telephone phone lines and feeder cables may be installed in existing open racks or additional adjacent open racks. Where extenuating circumstances exist such as security or environmental issues enclosed relay racks may be used. See WAN/LAN Appendix E – Acceptable Products List.

6) CONDUIT INSTALLATION

a) Exterior

(1) All buried cable shall be installed in sealed electric PVC conduit, schedule 40. Telephone cable and fiber cables will not be buried or otherwise placed outside of a building except when all of below requirements are met:

   (a) An additional Node Room cannot be accommodated;
   (b) The engineer determines that an outside the building route is the only way to meet distant limits;
   (c) Prior approval is obtained from USD 259 Design Review Team.
   (d) Lightening arrestor must be installed on all copper conductors.

(2) All 90’s and risers and entries to building shall be galvanized rigid conduit, PVC coated.

(3) Provide exterior junction boxes at entries to buildings.

(4) Tracer wire and pull string must be included in all buried installation for future locates of pipe. Both wire and pull string must be accessible at both ends.

(5) If an existing, empty conduit exists sized and located appropriately, it can be used for installation in lieu of installing a new conduit.
(6) Any time a pull string is used, another pull string must be drawn with the new cable.

b) Interior

(1) Provide dedicated conduit or armored cable for all fiber optic installations. Non-painted electric metallic tubing and fittings may be used in boiler rooms and concealed spaces (i.e. closets).

(2) On visually exposed walls in classroom, office, corridor, etc., provide “ivory” wiremold and fittings.

(3) In tunnels and above suspended ceilings, cable can be free aired. Support all free-aired cable every four (4 feet) with 2” B-line or Caddy hooks with clips. No free aired cable will be installed other than tunnels and above ceilings.

(4) On new schools with multiple cable installations, cable trays are preferred.

(5) Provide steel Tele-Power poles (two-compartment pole) for interior visible locations without walls for installations. Size as according to site need.

c) Procedures

(1) Fiber backbones shall be installed in dedicated conduit, minimum 1 ¼” or armored cable in B-line or Caddy J hooks.

(2) Use NEC #8 AWG wire standard for sizing conduit for CAT 6 cable. Size conduit for type and number of cables installed.

(3) Arrange conduit to maintain headroom and present a neat appearance.

(4) Route exposed conduit parallel and perpendicular to walls and adjacent piping.

(5) Maintain minimum 6-inch clearance between conduit, PVC piping, electrical EMF and heat sources such as flue, steam pipes, and heating appliances.

(6) Support all conduits at a maximum of four feet on center.

d) Installation

(1) Cut conduit square using a saw or pipecutter, de-burr cut ends.

(2) Fasten conduit securely. To fasten securely, no plastic anchors are to be used. Acceptable anchors are as follows:
(1) Concrete/concrete block:
   (a) Tapcon
   (b) Redheads
   (c) Expandable lead anchors

(2) Sheetrock:
   (a) Toggle bolts
   (b) Z-screws

(3) Use conduit hubs or sealing locknuts for fastening conduit to cast boxes, and/or fastening conduit to sheet metal boxes.

(4) On 700-wiremold conduit, 90-degree bends between boxes are acceptable. If 90-degree turns are required in the installation, provide junction boxes for the turn. No flat, internal or external fittings are allowed.

(5) Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 2-inch size.

(6) Avoid moisture traps where possible; where unavoidable, provide junction box with drain fitting at conduit low point.

(7) Where free-aired cable penetrates fire-rated walls and floors, provide pipe sleeve large enough for cable (40% fill) and fill void of sleeve with fire-resistive compound to draft-proof. Where conduit penetrates firewalls and floors, provide opening large enough for conduit (40% fill) and fill void with fire-resistive compound to draft-proof. Fill conduit on ends only. ½” on each end with fire resistant compound such as Firestop Pillow Cat. No. SSB26. Must be easily removable.

(8) Install 700-wiremold with two-hole straps.

(9) All conduit ends shall have couplings and fiber bushings.

(10) All conduit runs must meet National Electrical Code (NEC) specifications.

(11) Junction boxes shall be equal to wiremold 5751 or deeper; all junction boxes must be covered.

(12) When using 3000-wiremold, provide factory fittings ONLY. (i.e. end caps, boxes to appropriate size raceway, fittings, etc.) When using 700-wiremold, use 5751 or larger boxes to make all turns.
7) CABLE INSTALLATION METHODS

a) Follow EIA-TIA 568 Standards.

b) Wire cable shall not be damaged in any way. The cable shall not be kinked at any time. Avoid sharp bends or changes in direction. Pulling tension shall not exceed 25 LB/Ft. per cable. Avoid twisting of cable or tight cinching.

c) Fiber Optic cable shall not be damaged in any way. The Fiber Optic cable shall not be kinked at any time. Must be installed per manufacture specification and industry standards EIA-TIA 568 A especially for bends and pulling tension. Avoid twisting of Fiber Optic cable or tight cinching.

d) When cable must be wrapped. Velcro shall be loose enough to freely turn around the cables. NO ELECTRICAL TAPE OR PLASTIC TIE WRAPS. See WAN/LAN Appendix E - Acceptable Products List.

e) Neatly train and lace wiring inside boxes, equipment and panel boards.

f) Marking/Labeling

(1) All labeling should use computer printed labels. See WAN/LAN Appendix E - Acceptable Products List.

(2) Telephone jacks will be marked with the room numbers on both ends. The room numbers used will be district provided room numbers. The numbers shown on the Architectural drawing is typically not the district provided room numbers. Verify with CRT prior to labeling.

(3) Mark and label as follows:

a) On face plate:

Mark faceplate on back with permanent marker with the alphanumeric scheme denoting the Node Room letter, wiring type and port number. Example: AD1

Label faceplate on front. Using the alphanumeric scheme denoting the Node Room letter, cable type and port number.

Top window will be the key for jack use.
Example:

<table>
<thead>
<tr>
<th>BLUE DATA</th>
<th>GRN PHONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA</td>
<td>PHONE</td>
</tr>
</tbody>
</table>

Bottom window will be the key for port use.

Example:

<table>
<thead>
<tr>
<th>DATA AD1</th>
<th>DATA AD2</th>
<th>PHONE AP1</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA</td>
<td>DATA</td>
<td>PHONE</td>
</tr>
</tbody>
</table>

b) On **CAT 6 patch panel**:

Label patch panel with room number and alphanumeric scheme denoting the Node Room letter, wiring type and port number.

Example:

<table>
<thead>
<tr>
<th>RM 101 ADA</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 ADA</td>
</tr>
</tbody>
</table>

Reminder: Room Number needs to be designated District’s not construction drawing room number (if different).

c) On **Fiber patch panel**:

Using the port identification label supplied with patch panel label each fiber denoting its origination. i.e. Node A

<table>
<thead>
<tr>
<th>Panel #</th>
<th>Node A</th>
<th>PORT IDENTIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-12</td>
<td>Node B</td>
<td></td>
</tr>
<tr>
<td>13-24</td>
<td>Node C</td>
<td></td>
</tr>
</tbody>
</table>

d) On **cable**

Mark both ends of the cable with the alphanumeric scheme denoting the Node Room letter, wiring type and port number. Example: AD1

e) On **66 block**

Working from top to bottom and left to right of the 66 block using “designation strip” labeling each white/blue wire lug with alphanumeric scheme denoting the Node Room letter, wiring type and port number.
f) On Rack
Provide phenolic label for each rack. Print “RACK ____”, use black with white letters. Ex. RACK A

(7) On Smartboard Faceplate:

Cable wrap on both ends shall read: Smartboard

8) TERMINATIONS

a) Terminate all cables at both ends (jack end and rack end).

   (1) At the jack end, leave all three cables terminated at the same length (about six inches from box face.) Terminate jacks as close as possible to the cable jacket leaving no more than ½ inch of outer jacket exposed between jack and outer jacket.

b) Network Data/Phone jacks shall be terminated using B configuration using manufacture’s recommended procedure.

c) Phone jacks shall follow manufacture’s recommended procedure.
d) Terminate feeder cable distribution block as follows:

(1) Bring cables into B-89 bracket (bracket 66 M -150 sets on) in from the bottom, from either side, using a d-ring directly under each row of 66 blocks, for wall mounted blocks. If rack is used, cables may not be suspended from wall to rack. Do not make this tight; racks are usually mounted to the ground. Mount cables from left to right, always bringing cables up from bottom. See Appendix WAN/LAN A – Acceptable Products List.

(2) Preferred location of cables for terminating in B-89 brackets at other node rooms "A":

Telephone peripherals on left side  
Jack cables in the middle  
Intermediate Feeder cable on right side

Preferred location of cables for terminating in B-89 brackets at other node rooms:

Telephone jack cables on left.  
Feeder cables on right.

Terminate 12 cables per 66 block, 6 each side. The first white wire should feed over the top of the 66 block used. When done correctly, there will be two unused pins at the bottom on each side of every 66 block.

(3) When connecting multiple node racks to rack “A”, connect with appropriate size feeder cable to accommodate jack locations. Terminate feeder cable on 66 M-150. Jacket should be stripped just above bottom of 66 blocks. If larger than 25 pair is used, cinch off the color wrap around the cable to identify each 25 pair bundle. Follow standard telecommunication color code.

(4) If additional information is needed. Contact Supervisor of Telecommunications.

(5) Feeder cable in Node Room “A” should be mounted to backboard. All other node rooms should be mounted to backboard unless the room is non-secured then terminate in enclosed rack.

9) PROJECT CLOSEOUT

a) Inspection / Testing

(1) Inspect wire and cable for physical damage and proper connection.
(2) Perform TSB95 perminate link certification test on all data cables.

(3) Fiber should be test as 568A Standard.

(4) Perform certification test on all phone cables including continuity, shorts, grounds and crosses.

(5) Provide IST with certification tests results on CD.

b) As-built drawings/records

(6) Provide as built drawings at close of job. Provide drawings showing locations of installations of all cable runs and labeling codes.

(7) Indicate on drawings cable designation for each and every cable and each and every jack in each and every room by code. (Including node rooms.)

(8) Provide patch panel elevation sheets, patch panel port assignment sheets, and phone cable documentation sheets for each site.

(9) Warranty

All network cables shall be guaranteed for performance by complying with the vendor’s certification project registration procedure. See WAN/LAN Appendix E – Acceptable Products List.
Appendix A – Electrical: Approved Products List

POWER METERING

Square D Circuit Monitor, CMD-VF LCD display, 4 line x 20 character, vacuum fluorescent display with I/R port and proximity sensor, Ethernet card, and an IO card, and required CT’s and factory installed wiring.

PANEL BOARDS AND SWITCH GEAR MANUFACTURERS

1. Square D
2. ITE/Siemens
3. General Electric
4. Cutler Hammer

TVSS – Approved manufactures and rating criteria:
(Service – 240KA minimum. Panel – 160KA minimum.)

1. Square D
2. General Electric
3. Liebert
4. Siemens
5. Cutler Hammer

APPROVED FASTENERS

1. Concrete/concrete block;
   a) Tapcon
   b) Expandable lead anchors
   c) Sleeve anchors/wedge anchors
   d) 2 part epoxy anchoring system

2. Sheetrock:
   a) Toggle Bolts
   b) Z – screws
   c) E-Z anchors
   d) Wall Dogs white pan had Phillips
   e) Course thread drywall screws

EMERGENCY POWER SYSTEMS

1. Generators
   a) Kohler
   b) Cummins

2. Transfer Switches
   a) Asco
   b) Cummins
INTERIOR ILLUMINATION

1. Interior Luminaries
   a) Williams
      1) 2-Lamp Troffers, .125 lens, Advance Ballast (50G-S24-232-SA12125-EB2-UNV)
      2) 3-Lamp Troffers, .125 lens, Advance Ballast (50G-S24-332-SA12125-EB2/2-UNV)
      3) 4-Lamp Troffers, .125 lens, Advance Ballast (50G-S24-432-SA12125-EB2/2-UNV)
      7) T5 Fluorescent 4 Lamp Fixture (GL-4-454T5H-EB4-UNV)
      8) T5 Fluorescent 8 Lamp Fixture (GL-8-854T5H-EB4/4-UNV)
      9) Wire Guard for T5 (WG-GL11)
   b) Spec Lite
      1) T5 Fluorescent 4 Lamp Fixture (FGB164-4-S1-X12-MVOLT-ACRB-PAFAL-TCWG WIRE GUARD AS NEEDED, Accessories as needed on page #2 of Manufacturer’s Spec Sheet
      2) T5 Fluorescent 6 Lamp Fixture (FGB-24-654T5H0-S1-X12-MVOLT-1/41/2 ACRB-PAFAL-TC WG- wire guard as needed
   c) Lithonia (Wrap-around Luminaries may be used in new and existing buildings)
      1) 2 Lamp Wrap-around Luminaries (LB232MVOLT-ACNP)
      2) 4 Lamp Wrap-around Luminaries (TLB432MVOLT-ACNP)
      3) 2 Lamp Troffers (2SP-G-2-32-A12125-MVOLT-ADV-PAF)
      4) 3 Lamp Troffers (2SP-G3-32-A12125-MVOLT-ADV-PAF)
      5) 4 Lamp Troffers (2SP-G-4-32-A12125-MVOLT-ADV-PAF)
   d) Pool Lighting
      1) Williams Lighting Part Number ICEAL5-150S-35K-FLD/CG1-(JOB-02)-WHT
      2) Lead jumper-Park Number ICELLJ-XX
e) Rab Lighting
   1) T5 fluorescent 4 Lamp Fixture RB4T5
   2) T5 fluorescent 6 Lamp Fixture RB6T5

EXTERIOR ILLUMINATION

a) Kenall Millenium MR – Metal Halide (wall mount purpose only)
b) Lithonia TWH Series – Metal Halide (wall mount purpose only)
c) Parking lots shall be Outdoor Rated Metal Halide Fixtures
d) Rab LED wall packs
Appendix B - Panelcrafter Plate

(A) VGA CONNECTOR-
VGA TO BNC CABLE
(TO PROJECTOR)

(B) AUDIO CONNECTOR-
3.5 MM FEMALE
THRU CONNECTOR
(TO CEILING SPEAKERS)

(C) CAT 5 TO USB
EXTENDER
(TO SMART BOARD)

(D) THRU
F-CONNECTOR
(CATV SIGNAL-
FROM ACTIVE SOURCE)
Appendix C - Smart Board Specification

APPENDIX C

SPECIFICATIONS – SMART BOARD INTERACTIVE WHITEBOARD –
MODEL 680

Physical Dimensions

Wall Mounted
Cut Away View

Wall Mounted
Side View

Wall Mounted
Front View

Recommended
wall-mounted
installation height
to top of SB680
for average sized
adults is 81 3/4"
(207.6 cm)

USB Connection
Location

Distance from the bottom of the
wall mount bracket to the top of
an installed interactive
whiteboard is 4 1/4" (10.8 cm)

Leave at least 5/8" (1.6 cm)
headroom to wall mount
the SB680

5 1/8" (13.0 cm)

38 1/4" (97.2 cm)

46 1/8" (117.2 cm)

46 1/8" (117.2 cm)

61 5/8" (156.5 cm)

65 1/4" (165.7 cm)

17" (43.2 cm)

50 1/2" (127.3 cm)

2" (5.1 cm)
Appendix D - Acceptable Products List for CCTV Camera System

Pricing for these products must be at best price available, equal to, or better than the State bid contract price, and/or education discounts.

A  CAMERAS-Analog

1) Bosch Mini Dome (inside and under eves)
   (a) Surface mount location part number is VDC-455V03-10S
   (b) Ceiling mount option part number VDC-455V03-10
   (c) Wall mounted installation part number VDC-455V03-10W
   (d) Outdoor camera VDC-455VO3-20S
   (e) Mounting bracket VDA-WMT-AODOME

2) Outdoor cameras shall consist of one each of the following:
3) Bosch LTC 0455/20
4) Lenses LTC 3364/50
5) Mount Bosch LTC 9215/00
6) Housing Bosch HSG9483/20 Housing, outdoor, heater, 24vac, 50/60 hertz
7) Power/video surge suppression DTK – PVP27B
8) Tamper resistant kit LTC 9080/00

B  RACK

1) Hubbell 7’ 19” open rack HPW84RR19
2) Hubbell 4” wire management both side of racks. Hubbell VC76
3) Keyboard and keyboard tray with pad for mouse all one unit. (Shelve 34-105035 and keyboard 98-BTC9110) as a unit Gruber 34*105040CGENIK
4) Rack mounted surge suppression DTK – RM16NM

C  TERMINATION BOARDS

1) 2” d-RINGS Caddy or B-line
2) 4’x4’x3/4” Plywood painted with fire resistant white paint
3) 8 port Altronix power supply ALTV248300
4) Surge suppression strip DTK – 8FF

D  WIRE

1) RG – 59 Plenum solid copper core 95% copper braided
2) Plenum 2 wire non-shielded twisted cable rated 24 volts and sized according to NEC standards or voltage drop
3) RG – 59 3 piece BNC plenum crimp connectors—Klein BNC Compression Connector – VDV 813-619
4) Any underground installations will be gel filled.
5) All gel gilled wire must be transitioned to plenum cable no more than 50 feet inside the building
E  PENETRATORS

1) On outdoor cameras a 3/4” conduit with protective bushings on each end shall be used to penetrate walls

2) Penetrators shall be fire stopped and/or sealed

3) Indoor penetrators shall be no less than 2” fire stopped with protective bushings on each end.

4) Any time 700 wiremold is used to penetrate a floor, wall, etc. protective bushings must be used on unprotected end.

F  DVR

1) Aventura DHC-16 (Aventural Technologies)

G  Mega Pixel Cameras

Aventura Technologies

Dome-Cam-IPM-2D-21P
Box-Cam-IPM-2X-DNP and associated mount heated housing (for outdoor) 24 Vac

IP Camera: Aventura CAM-IP-3D-29P-IRV
Dome Camera: VDC-455V03-20S (Dome cameras need to be indoor / outdoor and tamper resistant.)
Mounting Bracket- CAM-BKT-IP-WM
Appendix E - WAN/LAN Acceptable Products List

Cable and Racks

A. NETWORK CABLE

1) Acceptable Cable Manufacturers

4-pair CAT 6 23awg blue as manufactured by BerkTek, Mohawk or Superior Essex only.

2) Acceptable Cable Wrap: Velcro

3) Acceptable Fiber Optic Cable

Use 12 strand 50 microns premium (aqua rated) plenum multi-mode cable manufactured by Berk-Tek, Mohawk or Superior Essex only. If not in conduit, a 12 strand 50um MM laser optimized Aqua Plenum will be acceptable from Mohawk or Berk-Tek.

B. RACKS AND RACK EQUIPMENT

1) Acceptable Racks

a) Seven (7) foot open face racks will be Hubble 7’ Relay rack.

b) Vertical Management Hubble 6 inch Z-channel.

2) Acceptable Rack Equipment

a) CAT6 Patch Panel – for all Data wire and Phone
Use only Leviton 24 port-patch panels. No other size allowed.

b) Fiber Optic Patch panel Leviton rack mount with sliding tray, use appropriate size to support the number of strands terminated in the rack

c) Patch cord management panels:

(1) Patch panels:
One (1) Leviton horizontal manager 2 rack U with 4” rings single sided for every two (2) patch panels used.

(2) Switches:
One (1) Leviton horizontal manager 2 rack U with 4” rings single sided for every one (1) switch used. (Both in open and enclosed racks)

d) Rack mounted surge protectors: replace with Wire mold and power strip supporting a minimum of 6 outlets.
C. TERMINATION

1) Cable Termination
   a) Plates – Install 3 port wall plates – Leviton 42080-3-IS
   b) Data Jacks – Leviton Cat6.

2) Fiber Optic
   a) 3M 6300 SC hot melt connectors for all fiber termination.
   b) Leviton pig tale must be used and installed with fusion splices.

Appendix F - Heat Generation Table

<table>
<thead>
<tr>
<th>Node Room Equipment</th>
<th>Small School Size</th>
<th>Larger School Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBX (Phone Equipment)</td>
<td>IVS 2543</td>
<td>IMX 4950</td>
</tr>
<tr>
<td>ATM (Network Equipment)</td>
<td>2500</td>
<td>4100</td>
</tr>
<tr>
<td>Microwave Equipment</td>
<td>700</td>
<td>1500</td>
</tr>
<tr>
<td>Network Equipment</td>
<td>1300</td>
<td>2000</td>
</tr>
<tr>
<td>UPS Equipment</td>
<td>1300</td>
<td>5300</td>
</tr>
<tr>
<td>Server Equipment</td>
<td>3000</td>
<td>5000</td>
</tr>
<tr>
<td>Total Heat Estimate:</td>
<td>11,343 BTU / hr.</td>
<td>28,850 BTU / hr.</td>
</tr>
</tbody>
</table>

Appendix G - IST Contact List

<table>
<thead>
<tr>
<th>Who to Contact</th>
<th>For What</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor of Network Services</td>
<td>• Network related issues/questions</td>
</tr>
<tr>
<td>Work phone: 316-973-4223</td>
<td>• Network review of requirements</td>
</tr>
<tr>
<td></td>
<td>• Questions with product list (Appendix E)</td>
</tr>
<tr>
<td></td>
<td>• All projects new / expansion /remodels /etc.- require review with IST Team.</td>
</tr>
<tr>
<td>Supervisor, Production Control - IST</td>
<td>• Phone related issues/questions</td>
</tr>
<tr>
<td>Work phone: 316-973-4204</td>
<td>• Phone review requirements</td>
</tr>
<tr>
<td>Network Technician</td>
<td>• Phone related issues/questions</td>
</tr>
<tr>
<td>Work phone: 316-973-4200</td>
<td>• Phone review of requirements</td>
</tr>
<tr>
<td></td>
<td>• Questions with product list (Appendix E)</td>
</tr>
</tbody>
</table>
A. FLOOR SPACE

1) 8’ x 6’ (minimum size) X 8’ ceiling (or greater).
2) 48 square feet at 150 lbs. per square foot floor load.
3) 1 each 4’ X 4’ X ¾” ad grade plywood backboards.
4) Working areas around racks shall be 42” from the center of the rack going front and back.

B. POWER

1) 1 each 20 amp, 120 volt, 1 phase AC outlet (minimum) dedicated with isolated ground.
2) 4 each 20 amp, 120 volt, AC outlet per rack with a dedicated circuit (minimum).

C. LIGHTING

1) Two (2) 4’ florescent 2 lamp fixture, 5 feet apart, recommended.

D. ENVIRONMENT

1) Floor: Tiled (recommended)
2) Walls: Painted (recommended)
3) Ceiling: Painted (recommended)

E. AIRCONDITIONING

1) Sufficient to maintain room temperature at all times between 50 and 80 degrees Fahrenheit. Relative humidity between 15% and 65%, with switch heat dispersion at 3000 BTU’s per hour for the system as proposed.
Appendix H - Node Room “B-Z”

PBX

A. FLOOR SPACE

1) 6’ x 6’ (minimum size) X 8’ ceiling (or greater).
2) 48 square feet at 150 lbs. per square foot floor load.
3) 1 each 4’ X 4’ X ¾” ad grade plywood backboards.
4) Working areas around racks shall be 42” from the center of the rack going front and back.

B. POWER

1) 1 each 20 amp, 120 volt, 1 phase AC outlet (minimum) dedicated with isolated ground.
2) 4 each 20 amp, 120 volt, AC outlet per rack with a dedicated circuit (minimum).

C. LIGHTING

1) Two (2) 4’ florescent 2 lamp fixture, 5 feet apart, recommended.

D. ENVIRONMENT

1) Floor: Tiled (recommended)
2) Walls: Painted (recommended)
3) Ceiling: Painted (recommended)
Appendix I - Patch Panel Example
Appendix J – Rack Configuration Example
Appendix K – Jacks Example

Appendix L - WIRELESS NETWORKS

Networks will be designed using 802.11AC standard. Design shall consist of Cisco Access Points (AP’s), per USD 259 hardware standards. Wireless coverage area to be determined by site survey by IST. The complete building must have wireless coverage including any additions and remodels.

One data wire will be needed for each access point. Terminations will be Leviton Cat6 jack at one end and the other end will be on a patch panel in the closest node room. All locations to be determined by IST. Contractors will need to coordinate with IST for mounting of AP’s, preferably flat on ceiling or grid, after the construction is complete and before the data wiring is completed.
SECTION 9

CAD STANDARDS

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CAD STANDARDS ..................................................................................................................................... 1

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B Construction Drawings .......................................................................................................................... 3

C Floor Plan Drawing ................................................................................................................................ 5

D Site Utility Drawing .................................................................................................................................. 6

E As-Built Drawings .................................................................................................................................. 7
Introduction

All drawings submitted to the Owner will be drawn and submitted according to the District’s CAD standards. The requirements for submitting floor plans, site utility plans, and construction drawings are as follows:

When developing construction drawings for bidding purposes, project architects/engineers may utilize their own company conventions. However when Revit or AutoCAD construction drawings are submitted to the owner they must meet the requirements identified in this CAD Standards section.

The architect/engineer shall provide drawings to the Owner at the time of bidding. This will include construction drawings, floor plans, and site utility drawings. Electronic files shall be submitted by the architect/engineer via FTP or other electronic file transfer system. One (1) set of paper copies shall be submitted on 11” X 17” and bound in a booklet. The architect/engineer is responsible for complete submittal of all consultants work. If modifications are made during construction, the architect/engineer will submit new drawings in both formats. Electronic CAD and PDF files of final As-Built documents will be submitted at completion of construction and prior to final payment.

The architect/engineer firms shall relinquish to the District ownership claims of all drawings. (See A.I.A. contract)

A General Information

1) These guidelines establish standards, which must be met in the submission of Computer-Aided Design (CAD) files and similar electronic data for all USD259 projects.
2) These standards are not meant to dictate the in-house methods or means by which each architect/engineer creates construction documents or CAD files. They are intended to establish standards for submission of the construction drawings, floor plans, and site utilities plans.
3) Submit the construction documents (both electronic and paper) as soon as possible following bidding as described in the CAD Standards.
4) The project architect/engineer is responsible for proper submittal and accuracy of all consultants work.
5) Contact the Director of Design and Construction for any clarification regarding these submittal requirements.
6) Drawings shall be field verified with a walk through performed by the project architect/engineer at the building.
B  Construction Drawings

1) CAD Files - Drawing files will be submitted in AutoCAD (.dwg) and Revit (.rvt) if Revit is available.

a) AutoCAD

(1) File Naming Conventions

(a) The site name
(b) The site’s three-digit number
(c) Character defining discipline:
   1. Architectural – A
   2. Civil – C
   3. Mechanical – M
   4. Electrical – E
   5. Structural – S
   6. Architects/engineers page number (if applicable)

(d) Example: Adams 201 A1.2

(2) Support Files

(a) Include all support files needed to accurately plot the drawing files.

(b) All xref files shall be bound.

(3) All .dwg files to be audited and purged resulting in all errors fixed and all unused items removed.

b) Revit

(1) File Naming Conventions

(a) The site name
(b) The site’s three-digit number
(c) Character defining discipline if applicable
SECTION 9: CAD STANDARDS

1. Architectural – A
2. Civil – C
3. Mechanical – M
4. Electrical – E
5. Structural – S

(2) Support Files
(a) All dependent files including families shall be included.
(b) All IFC files shall be included.

(c) PDFs
(1) PDFs of each sheet will be provided.

(2) File Naming Conventions
(a) The site name
(b) The site’s three-digit number
(c) Character defining discipline:
1. Architectural – A
2. Civil – C
3. Mechanical – M
4. Electrical – E
5. Structural – S
6. Architects/engineers page number (if applicable)
(d) Example: Adams 201 A1.2

2) CAD File Content and Accuracy

a) It will be the responsibility of the architect to verify and provide the Construction Drawings with accurate site and as-built conditions.
C  Floor Plan Drawing

1) The purpose of the floor plan drawing is to provide USD 259 with a simple floor plan of the entire building.
   a) The floor plans will not have the detail of the construction drawings.

2) General Information
   a) AutoCAD
      (1) The floor plan drawings will have no xrefs.
      (2) The floor plans will be a .dwg file and will be the entire floor plan drawing (no segmented drawings).
   b) Revit
      (1) Floor plans submitted with the Revit files shall have their own view and sheet.
      (2) Floor plan views will be exported into AutoCAD by architect/engineer.

3) Contents of floor plan shall be as follows:
   a) The floor plan will depict features at a reasonable distance beyond the building line; including porches, courtyards, stairs, docks, and covered walkways.
      (1) Exterior building features such as entrances, windows, wing walls, and all other contiguous elements of building will be shown.
      (2) When preparing a floor plan of just a portion of the entire building footprint, such as a third floor penthouse or basement, the outline of the entire building shall be shown.

3) Drawing parameters for building floor plan
   a) The Floor Plan Layering Convention will be provided on a .dwg template.
   b) The extreme left of the building drawing and the extreme bottom of the building drawing shall be aligned with the 0, 0 point of origin.
   c) Nominal sizes are acceptable for wall thickness.
   d) Each drawing shall include the standard layers, text styles, dimension styles, line types, etc. available with the project kick-off material.
   e) Label floor plan features:
(1) Main Entrance
(2) Main Office
(3) Cafeteria
(4) Auditorium
(5) Gymnasium
(6) Multipurpose / Gymnasium
(7) Shelter
(8) Courtyard
(9) Elevators
(10) Library
(11) Exterior door numbers

4) Floor Plan sheet naming convention:
   a) The site name
   b) The site’s three- (3) digit number
   c) The word “Floor Plan”
   d) Example: Adams 201 Floor Plan

5) CAD File Content and Accuracy
   a) It will be the responsibility of the architect to verify and provide the Site Utility drawings with accurate site and as-built conditions.

D Site Utility Drawing

1) The purpose of the site utility drawing is to provide USD 259 with a site plan showing all current & abandoned utilities on the property above and below grade.
   a) The site utility drawing will not have the detail of the construction drawings.

2) General Information
   a) AutoCAD
(1) The site utility drawing will have no xrefs.

(2) The site utility drawing will be a .dwg file and will be the entire site (no segmented drawings).

b) Revit

(1) The site utility drawing submitted with the Revit files shall have their own view and sheet.

(2) Site utility views will be exported into AutoCAD by architect/engineer.

3) Contents of site plan shall be as follows:

   a) The site utility drawing will depict features not limited to USD 259 utilities including property lines, city utilities, pipelines, easements, right-of-ways, etc.

4) Drawing parameters for site utility drawing

   a) The Site Utility Drawing Layering Convention will be provided on a .dwg template.

   b) The extreme left of the building drawing and the extreme bottom of the building drawing shall be aligned with the 0, 0 point of origin.

5) Site Utility Drawing naming convention:

   (1) The site name

   (2) The site’s three- (3) digit number

   (3) The word “Site Utility Drawing”

   (4) Example: Adams 201 Site Utility Drawing

6) CAD File Content and Accuracy

   b) It will be the responsibility of the architect to verify and provide the Site Utility drawings with accurate site and as-built conditions.

E As-Built Drawings

1) All as-built drawings shall be provided to USD 259 in PDF form.

2) A final set of AutoCAD or Revit drawings showing as-built conditions shall be provided to USD 259 no later than the end of the 1-year warranty period.