The School Board of Brevard County, Florida

DESIGN STANDARDS

Issue Date October 1, 2005
Revised Date April 1, 2007
Revised Date July 1, 2007

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INTRODUCTION

A. INTRODUCTION

1. The School Board of Brevard County's (SBBC) Design Standard is developed to provide the design professional a reference of the acceptable materials and systems which can be utilized in the construction of educational and support facilities. These standards outline the SBBC's requirements for the design of both new construction and remodeled and renovated facilities.

   This manual is divided into divisions that reflect the 2004 Construction Specification Institute (CSI) Master Format. These standards are not intended to replace design efforts or to specify proprietary products. Its sole purpose is to serve as a basis for establishing the minimum quality and standardization of design and construction material and system requirements for the SBBC.

   These standards are to be adhered to in the design of all facilities to be constructed for SBBC. **If any item within this document is in conflict with the design professional's design philosophy, the designer should immediately notify their assigned SBBC Project Manager using the following will comply/will not comply checklist prior to proceeding. Any variances from the items listed herein must be confirmed in writing and accepted by the SBBC Project Manager.** The SBBC will not assume the financial liability for any issues that do not follow these procedures; however, this document does not alleviate the design professional from his responsibilities regarding building code requirements. Should there be any discrepancies between this document and the building code, bring them to the attention of the SBBC Project Manager.

B. CODE CONSIDERATIONS

1. All buildings shall be designed to meet all applicable codes as issued in Section 423 of the current Florida Building Code (FBC) 2004, the 2004 Florida Fire Prevention Code and all referenced codes as stated therein.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

C. SITE REQUIREMENTS

1. Site Design

   a. The site shall be designed to comply with Crime Prevention Through Environmental Design (CPTED).

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Pedestrian access within the site shall not cross vehicular traffic.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Detail clear visual corridors at all vehicular turning locations and pedestrian crossings so that vegetation does not obstruct the view of oncoming vehicular traffic or pedestrians.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Include a property legal description on the civil cover sheet.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

D. BUILDING REQUIREMENTS

1. General Building Requirements

a. The design of each project shall address:

1) Safety of students, faculty, staff and visitors

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

2) Fulfillment of all programmatic requirements and Educational Specifications as approved by the School Board

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

3) Resistance to unauthorized intrusion.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

4) Zoning for different day and evening functions including circulation patterns

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

5) Handicapped Accessibility

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

b. Facilities shall be 'inviting' with a clear, single, centralized point of entry. The main entry shall be a prominent design feature, clearly visible and easily identifiable. All public access should be funneled through this main point of entry. Locate administrative offices with a clear view to this entry for ease of surveillance.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

c. Limit perimeter access openings to those required for Life Safety conformance and as necessary for independent public use (i.e. auditoriums, gymnasiums).

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

d. Provide a separate service access to the Food Service/Kitchen area and Custodial Receiving area.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

e. Spaces shall be designed for maximum visual supervision and be free of obstructions. Columns should be inside walls whenever possible.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

2. Acoustical Requirements:

a. Refer to ANSI/ASA S12.60: *New Standard for Classrooms* established by the Collaborative for High Performance (CHPS) for acoustic performance criteria.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

b. Use volume, geometry, ceiling materials with low STC and high NRC values, acoustical panels, wall treatment, and flooring materials as required for a cost-effective solution to optimize the intended function of the space.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

c. Provide materials having performance characteristics according to the acoustical analysis requirements of each space. Substitutions or revisions during construction must comply with the original analysis or may be used when complying with a revised acoustical analysis of the space involved.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

d. Spaces containing noise-producing activities shall be sound-insulated from above, below, and adjacent spaces.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

e. Design to achieve room criterion (RC) curves for acceptable HVAC noise levels according to ASHRAE.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

3. Walls:

a. Interior wall systems:

1) Demising walls between instructional spaces, between instructional spaces and corridors and walls in assembly spaces (including gymnasium, cafeteria, and music) shall extend full-height to the underside of the structure and be fully insulated with sound attenuation blankets as is practical. All joints shall be taped and bedded.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

2) Corridor, gymnasium and cafeteria partitions/walls shall be designed to resist impact and abrasive abuse.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

E. DOORS AND WINDOWS

1. Individual student toilet rooms should be accessible from instructional spaces or other staff, or controlled spaces and not from corridors or exterior areas.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

F. FINISHES

1. Specify and schedule finish materials to be durable and able to cope with Central Florida coastal weather conditions. Finishes shall allow for cleaning of graffiti or stains with relative ease by the building's custodial staff. The design and selection of building finishes shall be based on the following:

a. Vandal resistance

b. Cost effectiveness

c. Durability

d. Resistance to cracking and peeling

e. Resistance to fading or discoloration during use or from exposure to weather, or acids and other chemicals

f. Weather tightness under hurricane conditions

g. Absence of excessively rough or sharp textures and features

h. Finish materials containing or able to emit harmful substances or particles into the air shall not be used.

i. Building products shall not contain asbestos, lead, formaldehyde, mercury, volatile organic compounds (VOCs), or any other harmful products. Only non-toxic adhesives are to be used

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

END OF INTRODUCTION

DIVISION 00
PROCUREMENT AND CONTRACTING REQUIREMENTS

1. The intent of this division is to establish the contractual, administrative, and documentation requirements for the type of project delivery intended.

2. The project will have one of the following Contract delivery methods:

   a. competitive bid

   b. construction management at risk

   c. design build

   d. continuing service contracts

   Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. Provide the documents listed below for each type of delivery method. The Architect shall be responsible for inserting the appropriate information into the documents, making them project specific. All of these documents shall be included in the Project Specifications including the General Conditions to the Contract.

a. Bid Bond	AIA A310
b. Sample Contract	(SBBC)
c. Performance and Payment Bond	AIA A311
d. Certificate of Insurance	
e. Project Implementation Information	OEF 110A
f. Letter of Transmittal	OEF 208
g. Facility Space Chart	OEF 208A
h. Facility FISH Input Form	SBBC Form
i. Life Cycle Cost Analysis	OEF LCCA
j. Subcontractor Bid Tabulation	SBBC Form
k. List of Subcontractors	AIA G805
l. Payment Application Request	SBBC Facilities Form 3a/3
m. Submittal Log	AIA G712
n. Contingency Use Request	SBBC Facilities Form 8
o. Sales Tax Savings Use Request	SBBC Facilities Form 9
p. Architect's Supplemental Instructions	AIA G710
q. Proposal Request	AIA G709
r. Request for Information (RFI) Form	
s. Construction Change Directive	AIA G714

t.	Certificate of Substantial Completion	AIA G704
u.	Certificate of Occupancy	OEF 110B
v.	Certificate of Final Completion	OEF 209
w.	Consent of Surety	AIA G707
x.	Partial Waivers of Lien	
y.	Waivers of Lien	AIA G706 / AIA G706A
z.	Warranty Request	SBBC Form

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. Under no circumstances will the design team be required to incorporate any asbestos or other hazardous materials abatement requirements into the Contract Documents except to the extent of specifying the contractor to stop work in the area where questionable materials have been found for the SBBC to separately contract for removal.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. Remodeling and Renovation projects are inherently unique to themselves. Specific additional documentation may be required, such as a hazardous materials report, provided by the SBBC.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. The SBBC, under Brevard Schools Policy 1124, “Drug-Free Work Place General Policy” recognizes that alcohol, drugs or any illegal substances are strictly prohibited on School Board property. Employees shall not possess or be under the influence of alcohol, drugs or any illegal substances while on SBBC property.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. The SBBC is committed to the education and safety of its students and employees. The contractor will be required to assure that the personnel assigned to the project, do not possess criminal records that would violate the SBBC’s standard for employment as set forth by the Florida Department of Education. Based on the Jessica Lunsford Act, passed by the Florida Legislature, all employees and consultants under Contract with the SBBC and working on student occupied sites must be level 2 fingerprinted.

   a. The SBBC will determine how the Contractor will receive access to the facility.

   b. The contractor shall strictly prohibit interaction between their employees and the student population.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

   c. Proper behavior and language by all employees of the contractor and sub-contractor on school property is strictly required. The school board will not tolerate behavior which is not conducive to an educational facility.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

   d. The Architect shall specify that the contractor must coordinate his schedule of construction with the SBBC Project Manager and the school around existing school activities and testing including but not limited to FCAT.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

e. If keys are provided to the contractor and lost, the Contractor will be responsible for the cost of replacement keys. If Primus master keys are provided to the contractor and lost, the contractor will be responsible for the actual costs of re-keying.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable ____

8. The SBBC will hire, under separate Contract, a request for a Geotechnical Data Report for the design team. The design team is responsible for providing the soil boring locations and depths to the SBBC for this purpose. This report shall be inserted into the Project Specifications.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. Contracting Forms and Supplements

a. The Architect shall assist the SBBC in writing the contracting agreement for the scope of the work, establishing the anticipated budget and the construction schedule.

b. The Architect shall assist the SBBC in determining the liquidated damage amounts.

c. The SBBC will determine the retainage amounts and they shall be clearly stated in the Contract Documents in accordance with Florida statutes.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. Coordinate the bonding requirements with the SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. Insurance Requirements

a. The Architect shall specify all required insurance amounts as follows and coordinate with SBBC's representative.

1. Workmen's Compensation including Occupation Disease and Employer's Liability Insurance.

a. Statutory - Amount and coverage as required by Chapter 440, Florida Statutes.

b. Employer's Liability - $1,000,000.00

c. Applicable Federal (e.g. Longshoreman's Statutory)

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

2. Comprehensive or Commercial General Liability Insurance (including Premises Operation; Independent Construction Manager's Protective; Products and Completed Operations; Broad Form Property Damage; Written Contractual Liability; Aggregate Limit Per Project Endorsement).

a. Bodily Injury Liability
$1,000.000 Per Person
$2,000,000 Per Incident or Occurrence

b. Property Damage Liability
$1,000.000 Per Person
$2,000,000 Per Incident or Occurrence

c. Personal Injury with Employment Exclusion deleted
   $1,000.000 Per Person
   $2,000,000 Per Incident or Occurrence

d. Regarding Completed Operations and Products Liability, continue Coverage in force for one year after completion of the Work.

e. Regarding Property Damage, include Broad Form Property Damage, Remove "X", "C", or "U" exclusions as applicable (explosion, collapse, underground property damage).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. Comprehensive Automobile Liability Insurance including coverage for owned, non-owned and hired vehicles - with limits stated below, or greater if required by law.

   a. Bodily Injury Liability
      $500,000 Per Person
      $1,000,000 Per Incident or Occurrence

   b. Property Damage Liability
      $100,000 Each Occurrence

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. Umbrella Excess Liability

   a. $2,000,000 over primary insurance, subject to aggregate limits where applicable

   b. $2,000,000 retention for self-insured hazards, per occurrence.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 00
PROCUREMENT AND CONTRACTING REQUIREMENTS

WARRANTY REQUEST

BREVARD PUBLIC SCHOOLS
Facilities Management Services

School Name:

Warranty Request #
Date Issued

Construction Company:
Contact:
Email:

Problem:

Electronic acknowledgement to Beth Walker at WalkerBe@brevard.k12.fl.us must occur within 24 hours of receipt.

Corrective action must be initiated within _____ days. Thank you.

By: **Date:**
(Project Manager or Project Field Coordinator)

Receipt Acknowledgement by Contractor

By: **Date:**

Action Plan:

Completion Statement by Contractor

By: **Date:**

Resolution:

Distribution: SBBC File 11.3
Principal

Construction Manager / Design-Builder / General Contractor Logo

PROJECT NAME
BID TABULATION

Advertised Date:
Bid Opening Date:

PACKAGE # **PACKAGE NAME**

ITEM	ITEM	BUDGET:	BID 1	BID 2	BID 3	BID 4	BID 5
	BASE BID:						
	Negotiation/Clarification Bid Adjustment						
	TOTAL ADJUSTED PRICE:						
ACKNOWLEDGE ADDENDUM							
SALES TAX INCLUDED							
BOND RATE							
CHANGE ORDER RATE							
PERMIT DRAWINGS							
ALTERNATE PRICING:							
	TO BE AWARDED:						
	REVIEWED BY:		PM Signature	PM Name;	Project Manager; Construction Manager / Design-Builder / General Contractor		
	REVIEWED BY:		PM Signature	SBBC PM Name;	Project Manager; School Board of Brevard County		

Brevard Public Schools
THE FUTURE OF FLORIDA'S SPACE COAST

CONTINGENCY USE REQUEST

PROJECT NAME:

_____

OWNER:
School Board of Brevard County
2700 Judge Fran Jamieson Way
Viera, FL 32940

DATE: _____

CONTINGENCY USE NO.: ____

CM / D-B / GC Name:_____

Job No.: _____

CONTINGENCY USE DESCRIPTION:

_____
_____
_____
_____
_____
_____
_____

TOTAL REQUEST: $_____

Project Contingency

☐ **Increase (Credit)** ☐ **Deduct**

CM / D-B / GC:	Architect:	OWNER:
_____	_____	School Board of Brevard County
By:	By:	By:
Date:	Date:	Date:

Facilities Form 8 April 01, 2007

Facility:

Building	Room	Suffix	FISH Code	SF	Student Stations	Condition	Year Const.	Floor Location	Floor Covering

School Board of Brevard County
FISH Input Form
Revised: March 2006

1
Note: Use Florida Inventory of School Houses Manual dated 2006

PAGE 1 OF 3 PAGES

PAYMENT APPLICATION REQUEST
CONTRACT SCHEDULE OF VALUES

PROJECT:
CONTRACTOR:

APPLICATION NO.:
APPLICATION DATE:
PERIOD:
PROJECT NO.:

A	B	C	D	E	F	G	H		I	J
				WORK COMPLETED						
SOV LINE ITEM NO.	DESCRIPTION OF WORK	ORIGINAL SCHEDULED VALUES	REVISED SCHEDULED VALUES	FROM PREVIOUS APPLICATION	CURRENT PERIOD	MATERIALS PRESENTLY STORED (NOT IN E OR F)	TOTAL COMPLETED AND STORED TO DATE (E+F+G)	% COMPLETE (H÷D)	BALANCE TO FINISH (D-H)	RETAINAGE AMOUNT TO DATE (H*0.10)
PART I - EXPENSES										
							$0.00	#DIV/0!	$0.00	$0.00
							$0.00	#DIV/0!	$0.00	$0.00
							$0.00	#DIV/0!	$0.00	$0.00
							$0.00	#DIV/0!	$0.00	$0.00
							$0.00	#DIV/0!	$0.00	$0.00
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							$0.00	#DIV/0!	$0.00	$0.00
							$0.00	#DIV/0!	$0.00	$0.00
							$0.00	#DIV/0!	$0.00	$0.00

SBBC Schedule Of Values Pay Application Request
Facilities Form 3

Feb. 2, 2007

PAYMENT APPLICATION REQUEST
CONTRACT SCHEDULE OF VALUES

Brevard Public Schools

PROJECT:

CONTRACTOR:

APPLICATION NO.:
APPLICATION DATE:
PERIOD:
PROJECT NO.:

A	B	C	D	E	F	G	H		I	J
				WORK COMPLETED						
SOV LINE ITEM NO.	DESCRIPTION OF WORK	ORIGINAL SCHEDULED VALUES	REVISED SCHEDULED VALUES	FROM PREVIOUS APPLICATION	CURRENT PERIOD	MATERIALS PRESENTLY STORED (NOT IN E OR F)	TOTAL COMPLETED AND STORED TO DATE (E + F + G)	% COMPLETE (H ÷ D)	BALANCE TO FINISH (D - H)	RETAINAGE AMOUNT TO DATE (H * 0.10)
PART II - SUMMARY										
PROJECT RECONCILIATION:										
	TOTAL CONTRACT	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	0.000%	$0.00	$0.00
	ODP BUDGET		$0.00							
	ODP PROCESSED TO DATE			$0.00						
	CURRENT CONTRACT VALUE LESS ODP			$0.00						
Section A - OWNER DIRECT PURCHASE ORDERS PROCESSED (not including sales tax) :										
	TOTAL ODP PROCESSED TO DATE		$0.00							
Section B - ODP INVOICES PROCESSED TO DATE (including sales tax) :										
	TOTAL ODP INVOICES PROCESSED TO DATE WITH TAX			$0.00						
Section C - CONTINGENCY CHANGE DIRECTIVE PROCESSED AND APPROVED TO DATE										
	TOTAL CCD INVOICES PROCESSED TO DATE:				$0.00					
Section D - SALES TAX SAVINGS DRAWS APPROVED TO USE/TOTAL EARNED TO DATE							Potential Sales Tax Savings :			
	Total Spent Sales Tax Savings		$0.00	$0.00	$0.00	$0.00	$0.00	#DIV/0!	$0.00	$0.00

SBBC Schedule Of Values Pay Application Request
Facilities Form 3

Feb. 2, 2007

PAYMENT APPLICATION REQUEST
SUMMARY

TO: Facilities Department
2700 Judge Fran Jamieson Way
Viera, Florida 32940-6699

FROM CONTRACTOR:

PROJECT:

VIA ARCHITECT:

APPLICATION NO:
PERIOD:
PROJECT NO:

Distribution to:
- ☐ OWNER
- ☐ ARCHITECT
- ☐ CONTRACTOR
- ☐
- ☐

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
Facilities Form 3, Contract Schedule of Values Sheet **must** be attached to this application.

1. ORIGINAL CONTRACT SUM (Board Approved GMP)	$0.00
2. OWNER DIRECT PURCHASE ORDER BUDGET (Part II CSOV Sheets)	
3. Net change by Change Orders (Includes all Board Approved Amendments on Part I CSOV Sheets)	$0.00
4. CONTRACT SUM TO DATE (Line 1 - 2 + 3)	$0.00
5. TOTAL COMPLETED & STORED TO DATE (Column H on Part II CSOV Sheets)	$0.00
a. APPROVED CONTINGENCY CHANGE DIRECTIVE (Section C on Part II CSOV Sheets)	$0.00
6. APPROVED OWNER DIRECT PURCHASE PAYMENTS (Section B on Part II CSOV Sheets)	$0.00 (Including sales tax)
7. APPROVED OWNER SALES TAX SAVINGS DRAWS (Section D on Part II CSOV Sheets)	$0.00
8. RETAINAGE:	
a. ____10%____ of Completed Work (Column J on Part II CSOV Sheets)	$0.00
b. ____10%____ of Stored Material (Column G on Part II CSOV Sheets)	$0.00
Total Retainage (Line 8a + 8b or Total in Column J on Part II CSOV Sheets)	$0.00
9. TOTAL EARNED LESS RETAINAGE (Line 5 plus Line 7 less Line 8 less Line 8 Total)	$0.00
10. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 9 from prior Certificate)	$0.00
11. CURRENT PAYMENT DUE (Total in Column F on CSOV Sheets or Line 9 minus Line 10)	$0.00
12. BALANCE TO FINISH, INCLUDING RETAINAGE (Total in Column I + Column J on Part II CSOV Sheets must MATCH)	$0.00

(Line 1 plus Line 3 less Line 4 plus Line 7 less Line 8 b less Line 9 equals Line 12)

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR: _____

By: _____ Date: _____

State of: Florida County of: _____

Subscribed and sworn to before

me this _____

Notary Public: _____

My Commission expires: _____

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED: $0.00

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT: _____

By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

SALES TAX SAVINGS USE REQUEST

PROJECT NAME:

_____

OWNER:
School Board of Brevard County
2700 Judge Fran Jamieson Way
Viera, FL 32940

DATE: _____

SALES TAX SAVINGS USE NO.: ____

CM / D-B / GC Name: _____

Job No.: _____

SALES TAX SAVINGS USE DESCRIPTION:

_____
_____
_____
_____
_____
_____
_____
_____
_____

TOTAL REQUEST: $_____

CM / D-B / GC:

_____

By:

Date:

OWNER:

School Board of Brevard County

By:

Date:

Facilities Form 9

April 01, 2007

DIVISION 01
GENERAL REQUIREMENTS

1. The intent of this division is to establish SBBC's requirements for the administration of the contract.

2. The Architect shall specify that all work shall be accomplished in compliance with the Environmental Protection Agency (EPA), state and local environmental laws, and regulations. The Architect shall also specify that the Contractor obtain all required environmental permits required prior to construction. The required building permits shall be obtained through the SBBC Facilities Management's Building Department prior to start of construction. These permits, as well as all environmental permits, shall be posted at the jobsite.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. The Architect shall specify that no asbestos containing building materials be used during the construction of new buildings/structures and or the renovation/remodeling of any existing building or structures. Furthermore, the Architect shall provide the owner with an "Asbestos Exclusion Statement" as prescribed by the AHERA Rule (40 CFR 763). The "Asbestos Exclusion Statement" shall be verification to the owner that no asbestos building materials were used in the construction project.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. The architect shall state in the Contract Documents all permits (ie. Building Permit(s), City or County Permits, Water Management District, Site, Utility, Right of Way Access, Flood Zone Statement, etc) that are applicable to the Project.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. The State Requirements for Educational Facilities (SREF) Document and submittal requirements shall also be included in the Contract Documents by reference.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. Currently there is no SBBC requirement for construction waste management as required by the U.S. Green Building Council's LEED® Rating System; however, for energy efficiency, provide products having "Energy Star" certifications where available.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. In Remodeling and Renovation Projects

   a. Access to and from the site must be coordinated with the SBBC's schedule of operations and instructions included in the project specifications.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. The Architect shall specify that the Contractor coordinate the use of any existing buildings utilities and available areas for the Contractor's use including staging areas with the SBBC's Representative.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. The Architect shall specify safety barrier requirements to keep interactions between students/staff and construction worker's to a minimum. Any barriers directly adjacent to student occupied areas or paths of circulation must be solid to a minimum height of 6'. No barrier shall impede the means of egress.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. The Architect shall require the Contractor to provide the following as part of their site utilization plan.

- Break areas.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- School restroom facilities are not allowed to be utilized by construction personnel without prior authorization from the SBBC Project Manager.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- School equipment of any kind shall not be utilized by construction personnel.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Hours of operation and deliveries shall be coordinated to not impact the opening and closing of the school day. Deliveries shall be made to the construction site and not to the school office.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

8. The Architect shall specify that the project shall have full time, construction representation during all hours of operation. This representation can be in the form of a Project Manager or Superintendent.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. The Architect shall specify the procedures and qualifications required to change the Contractor's Administrative personnel.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. The Architect shall specify that a security program shall be developed for review and acceptance by SBBC. This security program shall specifically address preventing damage, injury, or theft of property at the site or adjacent properties.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. The Architect shall specify that the Contractor is required to ensure that all employees, sub-contractors and their agents or employees, or any other persons performing work while on district property are in compliance with the Jessica Lunsford act. All visitors must conspicuously display their visitor's badge at all times. Sign-in at the School or District Facility Visitor's Station is required prior to the start of work. All personnel shall also sign-out when leaving district property.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. The Architect shall specify control measures to keep snakes, rodents, birds, and other animals from entering in the building(s) during the construction period. The Contractor shall be required to maintain the area, mowed and clear of excessive debris and trash.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. The Architect shall specify the following regarding Owner Direct Purchase Orders (ODP's)

    a. The SBBC will require a ODP program for all projects for material purchases over $5000.00. Direct the Contractor to coordinate with the SBBC's representative and define in project specifications.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. The ODP program shall be accompanied by a Sales Tax Savings Plan. All sales tax savings will be returned to the SBBC or used as an SBBC's contingency to perform additional scope, etc. Direct the Contractor to coordinate with SBBC's representative and define in project specifications.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

14. The use of allowances will be permitted only with prior written approval from the SBBC's representative.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

15. The use of unit prices may be allowed as required by the Scope of Work with not-to-exceed limits. These will be determined by the architect and used under the direction of the SBBC's Representative.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

16. Alternates may be used as required by the Scope of Work. These will be determined by the architect and used under the direction of the SBBC's representative.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

17. Payment Procedures

    a. The Architect shall specify progress payments to be submitted monthly.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. The Architect shall specify that a schedule of values shall be submitted and approved prior to the initial pay request. The Schedule of Values shall be submitted on SBBC Facilities Form 3a/3.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. The Architect shall specify that the "As-Built Documents" will be reviewed monthly as a condition to the Pay Application.

       - The Architect shall specify that an initial copy of the Pay Application shall be submitted as a "Pencil Copy" for review on or before the date scheduled for the field observation

         Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

18. Project Coordination

    a. The Architect shall specify that a daily report be kept by the Contractor and a weekly report be submitted to the SBBC's representative showing current project status, two week look ahead, issues and problems, permit status and percent complete.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. The Architect shall specify that the Contractor is to hold weekly coordination meetings, inviting both the SBBC's representative and Architect.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. The Architect shall specify that all project coordination meetings will have an agenda prepared by and meeting minutes taken by the Contractor.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. The Architect shall specify that the Contractor's Construction Schedule shall be in the form of a CPM type schedule using Primavera software (P3 or SureTrack). A linear bar chart schedule may be acceptable for short duration projects at the SBBC's discretion.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. The Architect shall specify that the Construction Schedule will be updated monthly at each pay request and be reviewed at that time as a condition of the Pay Application.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

19. The Architect shall specify the extent of photographic documentation required for the project. Monthly aerial photographs may be taken. These photographs, taken from three different vantage points from the approximately same view each month, shall also include the time and date stamped on them. Photos may be part of the monthly pay requests or monthly project report.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

20. The Architect shall specify the following regarding Submittal Procedures

a. The Architect shall specify a complete Submittal Requirement matrix for each product listing all anticipated submittals cross referenced with the Section number.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. The Architect shall include the Project Submittal Requirement matrix form in the Specifications.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. The Architect shall specify the quantity of submittals that will be required for the Project including the number of samples, product data and shop drawings required.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. The Architect shall specify that all training videos shall be either digitally recorded or video taped and submitted to the SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. The Architect shall specify that Florida Product Approval numbers shall be submitted by the Contractor for building components such as exterior doors, windows, panels, roofing products, shutters, skylights, louvers, structural components, products comprising the building envelope, and other products as applicable.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

21. The Architect shall specify that the Contractor shall be responsible for contracting with and coordination of materials testing as part of quality assurance.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

22. The Architect shall specify the following regarding Temporary Utilities

    a. For new construction "Greenfield", specify the Contractor will be responsible for all temporary utilities for construction purposes, including site drainage, power, water, sewer, and phone/data for the Staging Areas.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. For remodeling or renovation projects, use of SBBC furnished temporary utilities will be permitted.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

23. The Architect shall specify a Project Construction Sign of water resistant construction. Copy and design of the construction sign shall be reviewed and approved by the SBBC's Representative.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

24. The Architect shall specify that the Contractor preserve and protect all existing vegetation such as trees, shrubs and grass adjacent to the sitework which is not to be removed and which does not interfere with the construction work. The Contractor, at no additional cost to the SBBC, shall replace damaged vegetation resulting from Contractor operations with a comparable specimen. The Contractor shall protect underground and overhead utilities at all times. Care should be taken when the Contractor is required to tie into existing utilities. The Contractor shall notify the SBBC 72 hours in advance to schedule any utility connections. The Contractor, at no additional cost to the SBBC, shall repair any and all damage to utilities resulting from careless operations.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

25. The Architect shall specify the following regarding Common Product Requirements

    a. In general, specify products and materials that are durable, vandal resistant, and easily maintained. Consider life cycle and energy efficiency. All products utilized must have State Product Approvals per the Florida Building Code.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Specify that all substitution requests from the Contractor shall be reviewed by the Architect and accepted by the SBBC's Representative based on the Architect's recommendation prior to incorporation into the Work.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

26. The Architect shall specify final cleaning requirements and note in the specification that the SBBC reserves the right to provide cleaning services when clean-up has not been provided to the satisfaction of the SBBC or the SBBC's Representative. Associated costs will be back charged to the Contractor.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

27. The Architect shall specify the following regarding Inspection and Closeout Procedures

    a. Specify that the Contractor is responsible for providing ladders or other means of access to the authority having jurisdiction (AHJ), Architect, Engineer, and SBBC for required observations and inspections.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Specify a submittal requirement for all MSDS sheets on any hazardous product for filing at the job site. These sheets shall also be included in closeout documentation.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Define in the Contract Documents what conditions will be acceptable to constitute Substantial Completion and Final Completion.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

28. The Architect shall specify the following regarding Close out, Operation and Maintenance Data:

a. The Architect shall specify that the Contractor include four printed copies of the record drawings along with one electronic copy on CD ROM.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. The Architect shall specify that the final submittal shall include three copies of the Operation and Maintenance Data Binders for the SBBC's use that notes Contractor listings, products and warranty information. Where multiple projects exist, three copies shall be provided for each school (1-Maintenance HQ, 1-Zone, 1-School).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. For EHPA shelters, the Architect shall create and provide three copies of the Operation and Maintenance Binders that instruct the emergency management staff how to operate the facility in the EHPA mode. These manuals shall be turned over to SBBC for the SBBC's use.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

29. The Architect shall specify the following regarding Warranties:

a. Specify that the Contractor shall warrant the Project for a term of one year from the Date of Substantial Completion of the entire project regardless of partial occupancy. Phased construction, by design, may have separate substantial and warranty dates.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Specify a 20 year no dollar limit for all roofing. ~~and a 10 year no dollar limit for the building envelope.~~

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Specify any additional warranty requirements including but not limited to additional time periods and response times to a claim in the individual technical specification sections.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Warranty requests will include:

- User's perceived problem/deficiency
- Contractor's receipt acknowledgement
- Contractor's anticipated response time
- Contractor's remedy
- Verification of completion.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

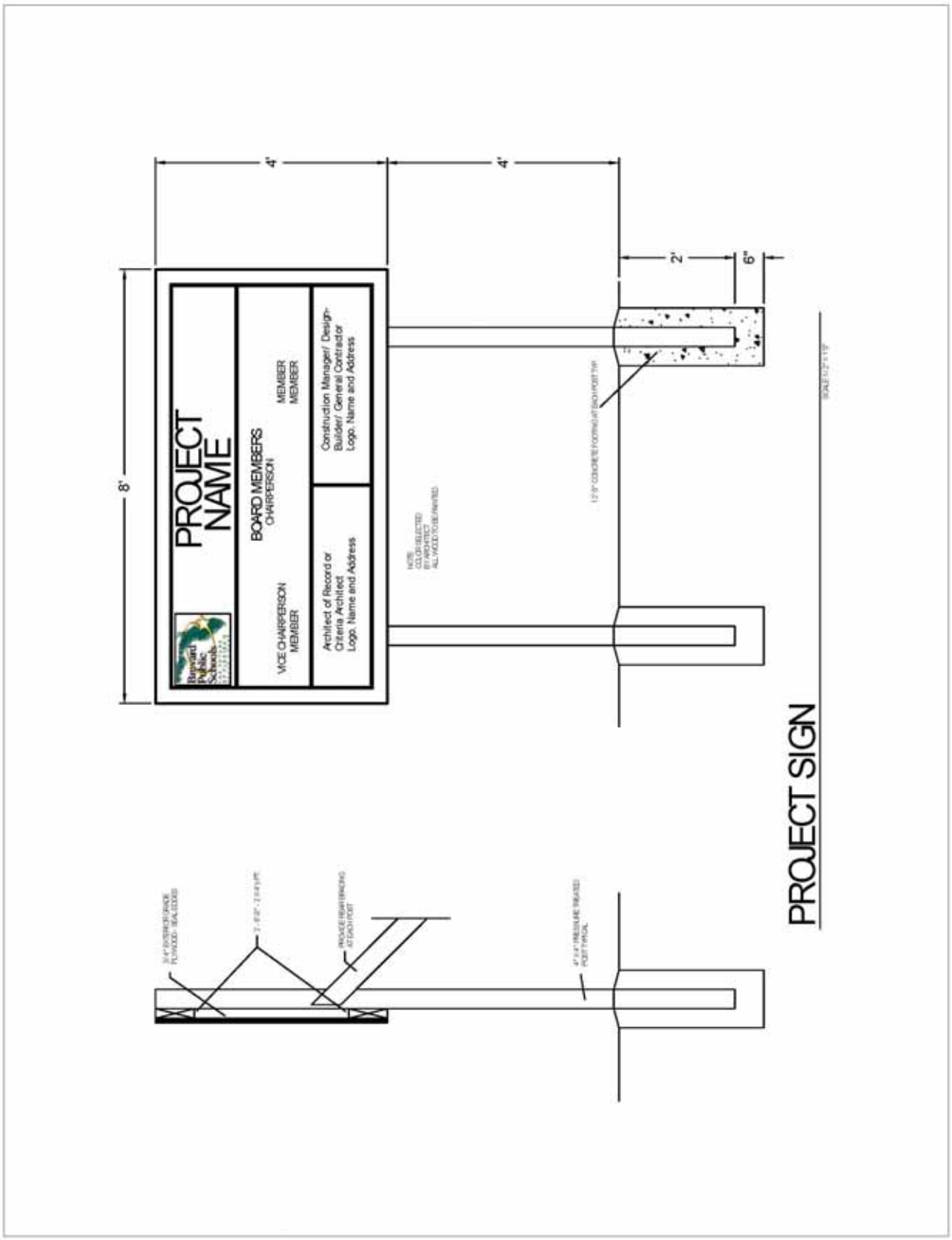
30. The Architect/Engineer shall use standard 24” x 36” drawings.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

31. Obtain County Health Department approval when designing any food serving facility.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

END OF DIVISION 01
GENERAL REQUIREMENTS


4'
4'
2'
6"
8'
PROJECT NAME
BOARD MEMBERS
CHAIRPERSON
VICE CHAIRPERSON
MEMBER
MEMBER
MEMBER
Construction Manager/ Design-Builder/ General Contractor Logo, Name and Address
Architect of Record or Criteria Architect Logo, Name and Address
PROJECT SIGN

DIVISION 02
EXISTING CONDITIONS

1. The intent of this Division is to establish the quality level for hazardous materials, whole building and selective demolition, and remediation.

2. The Architect shall specify that all subcontractors for demolition and remediation shall be licensed to operate in Brevard County, Florida.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. The Architect shall specify that for Hazardous materials abatement, SBBC or his appointed Contractor will remove all hazardous materials including ACM.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. The Architect shall specify the following for Remodeling and Renovation Requirements

   a. Specify (and bring to the attention in all pre-bid meetings) that all employees for the Contractor and all sub-contractors are to wear a shirt and/or hard hat with the company name or logo permanently attached at all times. Shorts are not allowed.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Specify that the SBBC shall retain all salvage rights until the rights are released by the SBBC. Included are items such as electrical lighting fixtures and devices, plumbing fixtures, valves, and suitable soils. The design team will coordinate specific salvage requirements with the SBBC for each project. At no time shall a Contractor assume or be told that the salvage rights have been released to him unless he receives a letter in writing from the SBBC.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Detail demising walls for all interior locations to keep occupied areas free from dust, debris, and fumes (where required) and to maintain separation between the construction and occupied areas, and to prevent visual observation of the construction. Specify a demising wall plan to be submitted indicating the location, construction, and extent of demising walls for dust and fume control. Include details indicating method of installation, and show fume control where required.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Specify that the Contractor is to coordinate with the SBBC when shut-down of fire alarm, HVAC and return air systems in Project work areas is required.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   e. Specify that the Contractor must protect all running HVAC systems from construction operations including dust generating operations. Once construction is complete, the Contractor must replace all filters at no additional cost to the SBBC,

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   f. Specify and detail special dust control systems in each area where construction/ demolition activities are underway.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Provide temporary HVAC systems to maintain the existing level of service during the shutdown period.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Verify outside air intakes are not subject to fumes from vehicles, equipment, etc.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. The Architect shall specify the following for demolition

a. Specify that accurate record documents be recorded for locations of underground structures and utilities.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Specify that structures to remain shall be removed to a minimum of 2' below the new construction or finished grade. Where new structures will replace existing structures, indicate the extent of foundation removal on the drawings.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. For asbestos remediation, the Architect shall specify that asbestos removal shall be performed by the SBBC through a job-specific work order. This work order will summarize the procedures and describe the extent and nature of the asbestos removal or abatement, including schedule and detail any special conditions at the site.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 02
EXISTING CONDITIONS

DIVISION 03
CONCRETE

1. The intent of this Division is to establish the quality level for concrete forming and reinforcement, cast-in-place concrete, precast concrete, tilt-up concrete, and vapor retarders.

2. The Architect shall specify that the Construction Manager or Design-Builder shall be required to contract with and coordinate the activities of independent testing laboratory for testing of concrete work required by the Contract Documents.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. The Architect shall specify that the Contractor follow the practices as described in the Cement Mason's Guide published by the Portland Cement Association as well as abide by all ACI standards and building code requirements.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. The Architect shall specify that the Contractor provide adjacent neighboring communities a three day notice if concrete work will begin earlier than 6:30 AM. Specify that the Contractor must coordinate with City and county jurisdictions to assure that there are no further noise ordinance requirements.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. Specify that the SBBC shall be ~~present for~~ notified of all structural concrete pours. The Contractor shall provide a preferred 48 hour notice but minimum 24 hour notice (excluding weekends and holidays) of the pour to the SBBC. The Contractor shall establish a pre-pour inspection and meeting to ensure the concrete subcontractor is prepared for the pour. Specify that a protection shall be placed under the concrete pump to prevent hydraulic fluid spills.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. The Architect shall specify and detail, within the construction documents, compliance with the Florida Standard for Radon-Resistant New Commercial Building Construction and the EPA Handbook for Sub-Slab Depressurization for Low Permeability Fill Material.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. Radon protection requirements when required shall be specified and detailed in the Contract Documents.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. The Architect shall specify that water shall not be added to any batch plant concrete at the job site under any conditions.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. The Architect shall specify that calcium chloride or admixtures containing chloride ions is not permitted.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. The Architect shall specify that the use of an acid wash for the cleaning of concrete on the building interior is not permitted by the SBBC.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. Stained concrete has limited use to the SBBC and shall be specified only after careful consideration and acceptance by the SBBC project manager.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. In remodeling and renovation projects where the slab-on-grade is removed, partially removed, or trenched, the Architect shall specify the re-treatment of soil poisons for the purpose of termite protection.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. The Architect shall specify the following for Concrete Forming and Accessories

    a. A polyethylene sheet vapor barrier shall be specified under all interior and exterior slabs and sidewalks, 6-mil minimum.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Joints and penetrations are to be sealed. Avoid puncturing of the vapor barrier during placement of concrete.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

14. The Architect shall specify that shoring and formwork shop drawings are required for all elevated concrete work, signed and sealed by a formwork engineer.

    a. Specify the use of “plyform” or equivalent on all form work exposed vertical surfaces.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

15. The Architect shall specify the following for Concrete Reinforcing

    a. Both welded wire fabric and fibrous reinforcement are permitted for concrete slabs.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Plastic tipped supports are required for reinforcing bar supports. Particular care shall be exercised in preparation of specifications and during inspection to insure proper coverage of reinforcement.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

16. The Architect shall specify the following for Cast-In-Place Concrete

    a. All concrete material, products and execution shall conform to ACI 301 and applicable ANSI/ASTM Standards. The design mix, shall comply with ASCE, FBC Chapters 16, 18, 19 and ACI 318-02 and be submitted for approval by the Architect.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Specify that the 28-day strength will be reviewed and approved or rejected by the structural engineer. Any concrete that does not achieve the required 28-day strength may remain as part of the Work if approved by the structural engineer; however, this material (only) will not be invoiced or paid for by the SBBC.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Specify that all exposed concrete other than flatwork shall have a rubbed finish, uniform in color and appearance. Include that the Contractor shall provide mock-ups as quality references for the Architect's and SBBC's approval.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Specify that building slabs and above grade slabs have a level tolerance of 1/4-inch in 10' in any direction, non accumulative as a minimum standard.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Coordinate and specify level tolerances with finish applications including adhesion requirements.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Curing compounds or wet-cure methods must be used on all concrete surfaces that are not in contact with forms or earth. Concrete must be sprayed/rolled if forms are removed within 48 hours.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Detail sidewalk control joints to be saw cut. Do not "picture frame."

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Specify that control joints are to be saw cut within the first 12 hours of concrete placement as soon as sawing will not dislodge the aggregate.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Specify that exterior horizontal walking surfaces shall have a light broom finish.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Expansion joints at sidewalks and adjacent to buildings are to receive sealant.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. Specify that exterior joint sealants used in exterior horizontal walking surfaces are to have a Shore A hardness of 35 or greater.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

l. Specify that the concrete batch time is not to exceed a 90 minute placement limitation or 90 degree F limitation.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

m. Adjusting of the mix design on-site will not be allowed.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

n. Specify and detail galvanized steel angles in all exterior masonry, stone, precast, or tilt-up concrete walls and in all interior walls where used in conjunction with stone. Cutting and or trimming of galvanized metals is not permitted by the SBBC without engineering approval and retreatment.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

17. The Architect shall specify the following for Tilt-Up Concrete:

a. All tilt-up concrete panels shall have a minimum 1/2-inch chamfer, 3/4-inch preferred.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Specify the minimum tolerances to be within the limits recommended by ACI 117, and the following:

- Overall Dimension: Plus or minus 1/8-inch per 10', but not to exceed 3/8-inch within each panel.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Cross-Sectional Dimensions:

  i. Section less than 3": Plus or minus 1/8-inch.

  Will Comply___ Will Not Comply (Indicate Reason) _____ Not Applicable _____

  ii. Section over 3": Plus or minus 1/4-inch.

  Will Comply___ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Deviations from Straight Line: Not more than 1/4-inch per 20' for vertical members; and 1/4-inch per 20' for horizontal members.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Warpage: Not to exceed 1/4-inch per 6'. Maximum differential between adjacent units in erected position shall be 3/8 inch.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Out-of-Square: Not to exceed 1/8-inch.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Location of Anchors and Inserts and Panel Pickup Devices: Not to be more than plus or minus 1/2-inch from centerline location.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 03
CONCRETE

DIVISION 04
MASONRY

1. The intent of this Division is to establish the quality level for concrete masonry and brick construction.

2. Unit Masonry Standard: Specifications and details for Unit Masonry shall comply with ACI 530.1/ASCE 6 “Specifications for Masonry Structures”. All materials, products and execution shall meet appropriate ANSI/ASTM Standards. For quality control, the Contractor shall abide by the NCMA-TEC Manuals.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. The Architect shall specify that it is recommended that all masons complete the Masonry Association of Florida Apprenticeship program.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. Specify and detail running bond for concrete masonry work and for clay unit masonry. The Contractor shall follow the CMU laying method as recommended by the Portland Cement Association as shown in the Recommended Practices for Laying Concrete Block.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. The Architect shall specify that mortar raw materials and masonry units of any kind shall be kept elevated and covered for protection of the weather.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. The Architect shall specify that all CMU joints shall be tooled concave in exposed conditions and struck flush where concealed. Raked joints are not permitted.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. The Architect shall detail and locate (on elevations) all control and expansion joints.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. The Architect shall specify that all CMU shall be culled for chips. No more that 5% of the CMU may have chips smaller than 1” but shall not be exposed to view.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. All exposed external corners which extend to the floor (or to top of base) are to be bullnose corners in public and traffic areas.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. The Architect shall specify that “sponging” is prohibited when working the mortar joints. Mortar cannot be spread into the block work or brick surface.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. For masonry grouting, the specifying of colored grout will not be allowed without the permission of the SBBC’s Representative.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. The Architect shall specify that calcium chloride or admixtures containing chloride ions is not permitted.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. Aerated concrete panels or masonry units are not acceptable without SBBC approval.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

14. The Architect shall specify that the Contractor provide a minimum 6' by 6' mock-up for all masonry types. This mock up shall include all accessories and will be the basis for the minimum acceptable quality of construction and face texture to be accepted on the project. The panel shall not be removed until masonry work is complete or until removal is authorized. The panel can become part of the finished work if properly braced and protected.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

15. The Architect shall specify that interior CMU partitions shall be a full wall mock-up and can remain as part of the Work if accepted.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

16. Where the interior side of an exterior CMU wall is to be furred, specify and detail bituminous damp proofing to be applied on the interior face; troweled on, rolled on, or spray/backrolled application only.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

17. Specify 7 ounce laminated copper or 12 ounce copper through wall flashing.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

18. No PVC or EPDM through wall flashing will be permitted.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

19. The Architect shall specify and coordinate with the MEP specifications and details that all conduit and plumbing lines are placed within the block cores. Channeling the wall face or exterior surface application will not be permitted.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

20. The Architect shall specify and coordinate with the MEP specifications and details that all wall chases and ducts are to be formed or sleeved and lintels provided prior to placement of block units. Saw cutting will not be permitted.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

21. Closure type brick, special fired colors or custom brick/CMU units are not acceptable to the SBBC and shall not be specified unless provisions for additional stock are made.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

22. Detail cavity space behind brick veneer to have a 1"-clear air space regardless of the thickness of the insulation.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

23. Specify and detail hook and eye horizontal reinforcing for masonry veneer anchors.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

24. Provide weeps at all brick and block veneered exterior walls. Place gravel at the foundation to within at least one course below the weeps. Specify either cotton sash cords or approved equal.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

25. Specify that brick veneer joints are to be tooled concave. Raked joints are not allowed.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

26. Specify that all masonry cleaning shall be completed before any aluminum storefront, window units, or curtain wall is installed.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

27. Where split-faced concrete unit masonry is scheduled, specify smooth faced units where any devices will be installed or mounted and at the intersection of all soffits such as wall mounted light fixtures, signage, drinking fountains and hose bibs.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

28. All exposed concrete unit masonry shall have a scheduled finish. The Architect shall refer the Contractor to the appropriate Division 09 section for the final finish system.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

29. The Architect shall specify and detail primed steel angles in all interior and exterior masonry, precast, or tilt-up concrete walls. Cutting and or trimming of galvanized metals will not be permitted without the engineer's approval.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

30. In renovation and remodeling projects, the Architect shall specify that mixer and saw cutting operations shall be conducted in a designated area away from students and faculty and approved as part of the site utilization plan.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

31. Specify that brick cleaning shall be the bucket and hand brush method as specified in the BIA "Technical Note 20, Revised" using a job-mixed detergent solution. Using an acid solution cleaning agent is not permitted by the SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 04
MASONRY

DIVISION 05
METALS

1. The intent of this Division is to establish the quality level for various metal components.

2. In all cases, the Architect shall specify protection of metals from dissimilar metals and other materials that will react with base metal creating premature deterioration.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. The SBBC encourages the use of corrosion resistant materials such as aluminum, stainless steel and hot dipped galvanized steel, in all exterior applications. For structures located east or immediately west of the Intracoastal Waterway, the SBBC only recommends aluminum and stainless steel materials including bolts and screws.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. The Architect shall specify and detail aluminum covers for all building expansion joints over ¾" where exposed to view. Detail rated assemblies at rated partitions.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. All metals shall receive protective coatings in accordance with the Steel Structures Painting Council except that the Architect shall specify and detail that no primers or other coatings shall be applied to any steel that is to receive spray fireproofing.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. For renovation or remodeling projects, specify

   a. Unit pricing may be used for steel deck replacement during re-roofing projects.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Safety and fire protection requirements when working inside buildings shall be part of the Contractor's safety plan.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. The Architect shall specify the following for Structural Steel Framing

   a. That shop drawings shall be signed and sealed by a structural engineer licensed in the State of Florida.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Specify and detail primed steel angles in all interior and exterior masonry, precast, or tilt-up concrete walls. Cutting and/or trimming of galvanized metals will not be permitted unless approved by the engineer and retreated.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Specify all structural steel welds and metals adjacent to welds are cleaned and coated with either zinc chromate or red iron oxide primer.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. Codes and Standards: Specify that the Contractor shall comply with the provisions of the following:

   a. AISC "Code of Standard Practice for Steel Buildings and Bridges."

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. AISC "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings" and including the "Commentary of the AISC Specification", and the current supplements.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. AISC "Specifications for Structural Joints using ASTM A325 Bolts" approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. AWS "Structural Welding Code," AWS D1.1 and its latest revision.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. ASTM A6 "General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piping, and Bars for Structural Use."

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. "Steel Structures Painting Council" and "NACE".

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. For steel joist framing, specify calculations with respect to specified up-lift load requirements per ASCE ~~7-98~~ 7-02. Calculations and shop drawings shall be signed and sealed by structural engineer licensed in the State of Florida.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. For load-bearing steel decking, specify 14 gauge galvanized roof sump pans of adequate size to receive roof drains.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. For pipe and tube railings, specify and detail painted steel handrails and railings on the interior of the buildings and either Class II, clear anodized aluminum or steel with Tnemic paint or powder coating for the exterior.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. All exposed concrete stairs shall have prefabricated metal nosings.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. Field welds shall be cleaned and primed by the end of each day.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 05
METALS

DIVISION 06
WOOD, PLASTICS, AND COMPOSITES

1. The intent of this Division is to establish the quality level for wood used in school construction

2. For finished carpentry, the Architect shall specify that wood shall be back-painted before setting.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. SBBC does not recommend the use of pressure treated wood in roof construction with the new corrosive ACQ chemical solutions containing copper which are being injected into the product. If specifying pressure treated wood with this treatment, stainless steel fasteners and slip sheets must be used.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. Per the Florida Building Code, no wood trusses, wood framing**,** or wood furring, will be allowed in the construction of any school. Exterior wood blocking for roofing systems is acceptable. Wood blocking is acceptable.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. Specify that interior wood blocking shall be sized for the piece of equipment or accessory intended and that the required blocking be shown on Shop Drawings for all fixtures, equipment and accessories requiring concealed blocking.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. The Architect shall specify the following for Architectural Wood Casework:

   a. Floor bases for cabinets are to be height of adjacent baseboard by 1-½“ thick. Note: Porcelain ceramic tile is the SBBC standard for flooring and wall bases. Specify and detail adhesives and bases to eliminate tile “popping off” from the casework toe-kicks.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Elementary schools to have plastic laminated casework cubbies. Specify and detail the size of the opening and location of the units (to be by the front door of every classroom unless approved by the SBBC).

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Specify core material as wheat straw, agrifiber, or other similar type high density particle board, using binders that are free of urea-formaldehyde or exterior grade plywood.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Panel materials are to be balanced from exposed surface to back surface.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Conform to AWI Custom Grade as defined in the latest edition of the AWI Quality Standards document.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Specify that all cabinet doors should be lockable at clinics, laboratories, science rooms, shops, and child care spaces. Provide 50% lockable cabinets at all other spaces.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Specify at door pairs, the active leaf to be locked while the inactive leaf to have a trigger type latch.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 06
WOOD, PLASTICS, AND COMPOSITES

DIVISION 07
THERMAL AND MOISTURE PROTECTION

1. The intent of this Division is to establish the quality level for waterproofing, insulation, roofing, roof accessories, firestopping, and sealants.

2. The Architect shall design roof vents using a manifold design where possible to minimize roof membrane penetrations.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. Roof vents are to be installed so they are hidden from public view as is practical. Where roof vents occur on sloped structures, they should be placed on the backside of the building below the ridge line to hide them from view.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. Roof and roof accessory warranties shall be written to the full design wind speed values as tested for the assembly provided.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. Specify that roofing systems shall be designed with positive slope so that no water ponding occurs. A minimum of ½-inch back slope at all roof edges to scuppers is encouraged.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. Detail base sheet and/or dry-in sheets to sufficiently lap over the side of all eaves to prevent water intrusion until all roofing work is complete.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. Design EHPA facilities with minimum Rooftop Mechanical equipment or fans.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. Provide the appropriate wind and impact protection for equipment on the EHPA shelter roofs.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. Skylight units of any kind are not allowed by the SBBC over conditioned spaces.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. Vermiculite or perlite loose fill insulations are not permitted.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. Provide waterproofing protection at floors and walls below grade to prevent water infiltration caused by hydrostatic pressure or other water conditions.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. Bituminous damproofing shall be specified as a troweled on or spray/backrolled application.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. Provide waterproofing at the inside face of furred masonry or tilt walls, planter walls or planter floors where the outside face is exposed to the elements.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

14. The Architect shall specify field testing of all waterproofing membranes installed under pits or slabs below the water table prior to the concrete being placed. Specify a minimum of 1" of water for a 24 hour period.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

15. The Architect shall specify that all insulations inside the building (non-roof) shall be formaldehyde free. Include the requirement that this insulation have no vapor barrier.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

16. Specify injected foamed-in-place insulation materials in CMU cells only at unfinished wall (interior face) applications such as mechanical rooms.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

17. Specify that the roof insulation is to be warranted as part of the roof system warranty.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

18. EIFS systems shall not be used without prior approval from the SBBC.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

19. Standing seam metal roofs shall be a minimum of 24 gauge for slopes greater than 2 in 12, utilizing concealed fasteners.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

20. Specify metal roofing over board insulation with nail board. Include peal and stick underlayment over 100 percent of the roof area.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

21. The Architect shall specify metal roof finishes as a three-coat, thermo-cured, full-strength 70 percent fluoropolymer resin, 1 mil thick with a 0.5-mil clear coat. Other finishes will require the SBBC's approval.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

22. Roof Panels shall be detailed full length with consideration for deliverability to the site. Field seams are only allowed with the SBBC's prior approval and field rolling will be considered with SBBC's prior approval.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    a. Warranty: Minimum 20 year, No Dollar Limit.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

23. The Architect shall specify all membrane roofing to have the following characteristics:

    a. FM Listing: FM 4450 and FM 4470

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Meet applicable SREF requirements

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Acceptable manufacturers:

- Soprema Roofing and Waterproofing, Inc.
- Siplast, Inc.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Systems shall be granule surfaced, two-ply modified bitumen membrane bonded together with a touch application or cold adhesive. Attachment to the substrate can be mechanical, torch, or cold adhesive.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Warranty: Manufacturer's minimum 20 year, No Dollar Limit. Roofing Contractor shall warrant the installation for a minimum of 5 years.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

24. The Architect shall not design air handler units to be installed on any roof without the SBBC's prior approval. If roof top equipment is allowed, it must meet applicable wind loading requirements and GFCI electrical receptacles shall be required for servicing.

a. Detail traffic pads to form a continuous path between, and completely encircle, roof top elements including but not limited to roof scuttles, roof stairs, roof mounted equipment.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Arrangement of traffic pads shall facilitate safe use by maintenance personnel.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. The traffic pad layout shall follow reasonable traffic routes and access points necessary for maintenance of roof top equipment.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Size traffic pads as necessary to facilitate maintenance of large pieces of equipment.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Clearly indicate the traffic pad layout on the roof plan of the construction documents.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

25. Flashing and sheet metal fabrications shall comply with SMACNA and designed and specified as follows.

a. Scuppers, downspouts, gutters, copings, and similar sheet metal fabrications shall be stainless steel unless other materials are approved by the SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Detail all primary downspouts for new construction to be tied into the storm water drainage system.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Gutters and downspouts should be held 1" from the building wall to allow air to circulate between gutter/downspout and wall surface.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Provide splash blocks at all downspouts that occur at roof to roof surfaces.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Detail downspouts so that they are not climbable.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Specify a heavy gauge downspout from grade to 8'-0" to prevent damage by students and yard maintenance. If aluminum use a 0.125 minimum thickness. Downspout design must be continuous. Do not "funnel" larger downspouts into smaller ones. If this is the case, make the heavy gauge downspout larger.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Place downspouts in areas that limit exposure to hazards, such as lawn equipment. If not possible use materials resistant to physical damage from such equipment.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

26. Specify and detail all roof hatches with either a telescoping safety post or a permanently mounted railing.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

27. Ladder access to roof hatches shall be installed within a secured room.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

28. The Architect shall specify that standard density sprayed on fireproofing is to be used in all locations and high-density fireproofing shall be used in areas subject to damage and in areas regularly occupied by students. It shall be encapsulated when used in a return air plenum.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

29. The Architect shall specify the following regarding firestopping:

a. Specify and detail rated floor, wall assemblies and penetrations through rated assemblies using U.L. (or other nationally recognized testing agency) assembly numbers and descriptions.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Provide a description, test number, and detail of UL fire rated system for each type penetration.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Specify firestopping systems to have the appropriate "F" (flame), "T" (temperature), "L" (smoke), and "W" (water) ratings per UL 2079 and UL 1479.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Specify firestopping to be performed by a specialty Contractor qualified by Firestop Contractors International Association according to FM 4991.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Specify that the Contractor is to inspect firestop and smokeseal systems complying with ASTM E 2174 requirements and sign an affidavit certifying such an inspection.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

30. The Architect shall specify the following regarding joint sealants:

a. Specify compliance with the recommendations of ASTM C 1193 for the use of joint sealants as applicable to materials, applications, and conditions indicated.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Detail and specify the installation of abuse resistant sealant in exposed areas that are within reach of students.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Specify that only 2- or 3-part silicon joint sealant may be used for exterior building applications. Horizontal traffic joints may be pourable urethane.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Exterior walkway expansion joints shall receive sealant over premoulded filler strips. Provide details on the drawings.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Sealant at casework backsplashes and other exposed areas shall match the color of the adjacent laminate.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. All sealants shall have a minimum of a 5 year manufacturer's warranty or ASTM C920 or latest edition.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. GEO-Cell #2300 is one of the various products which may be submitted for approval.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 07
THERMAL AND MOISTURE PROTECTION

DIVISION 08
DOORS and OPENINGS

1. The intent of this Division is to establish the quality level for doors, windows, louvers, shutters, and associated hardware. The SBBC does not recommend the use of louvers in doors if the use compromises the structural integrity of the door.

2. Limit perimeter openings to those required for Life Safety conformance and as necessary for independent public use such as auditoriums, and gymnasiums.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. At least one window will be provided in the Teacher Planning Room when it is adjacent to the classroom. This window will provide visual contact between the teacher and students when the teacher is seated at his/her desk.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. Window sills shall be provided at all window locations.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. Detail separate service access to the Food Service/Kitchen area and Custodial Receiving area. Food Service doors shall be oversized, 4'–0" x 7'-0" to receive equipment.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. Detail elements requiring access by service vehicles to be locally grouped to minimize traffic.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. Specify all exterior doors, windows, and louvers to meet ASCE 7-98 and Florida Product Approval Rule 9B-72. Protect openings, when practical, by canopy or recess to prevent water intrusion.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. Specify that shop drawings for exterior doors and windows shall include the Product Approval Number. Wind load calculations shall be signed and sealed by a professional engineer licensed with the State of Florida.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. All exterior doors, windows, louvers, and shutters must bear a label indicating the names of the evaluation entity (Florida Product Approval or Miami Dade), manufacturer, and load performance rating.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. Installation instructions/specifications which differ from those tested must be signed and sealed by a Florida registered engineer or architect.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. The Architect shall consider all applicable material (i.e.: Type/quality) and function (i.e.: Swing direction) requirements as it relates to the FBC, the Florida Fire Prevention Code, and related references.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. The Architect shall specify that glazing in rated openings shall be fire glass, not wire glass. Wire glass is not permitted.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. Specify laminated glazing in exterior doors in accordance with product approval requirements.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

14. Finishes for aluminum storefronts, entrances, windows, and curtain wall shall be Class II, clear anodized. Other finishes will be allowed only with SBBC's written approval.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

15. Specify peepholes in flush doors where security may be a concern such as kitchen or custodial receiving.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

16. Schedule vision panels in all doors to student occupied spaces. Panels shall be typically 4" wide by 36" high in classroom doors and be shall be above, not behind, locksets.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

17. In doorways or at doors of food service areas, provide 6" high stainless steel spats at doorframes with or without stops.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

18. Do not specify or detail any exterior **wood** doors.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

19. The interior sill of a window shall not be below abutting casework or FF & E as shown on the equipment plan.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

20. The Architect shall specify the following for remodeling and renovation projects:

    a. Knock down frames are permitted at openings for renovation projects where the installation of a fully welded frame is not practical.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Aluminum finishes other than clear anodized will be considered by the SBBC for renovation projects to match existing construction.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

21. The Architect shall specify the following for hollow metal doors and frames:

a. Specify that the manufacturing and installation of hollow metal shall be per the requirements of S.D.I. latest edition, ANSI/SDI A250.8 Recommended Specifications Standard Steel Doors and Frames.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Back prime all hollow metal frames scheduled to be grout filled when installed in concrete or masonry.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Specify that all hollow metal frames shall be fully welded except for remodel or renovation projects which may use knock down frames.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Specify 14 gauge frames throughout with a minimum A-60 galvanizing at frames in exterior locations and in high humidity locations such as kitchens and shower/locker rooms.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Specify all hollow metal doors to be 16 gauge.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. All doors used as mean of egress (including corridors) that require vision panels shall have approved glass panels installed to meet NFPA 80 (latest edition) requirements.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Specify all doors related to classrooms, high traffic areas, food service, and janitorial services shall have minimum 12” high by width less 2” stainless steel kick plate on the push side of the door.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Specify a keyed, removable, center mullion at all paired exterior doors.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Specify all required gauges of reinforcement of doors and frames for hardware mounting.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. All fire rated doors shall be required to be installed to meet NFPA 80 requirements.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. Provide sound rated hollow metal doors at mechanical equipment rooms opening to the building interior. Where possible, open mechanical room doors to the exterior of the building.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

l. Doors and frames shall be stored on dunnage and protected from corrosion.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

22. The Architect shall specify the following for wood doors:

    a. All wood doors shall be specified to meet WDMA I.S. 1-A Industry Specification for Architectural Wood Flush Doors. Specify door quality.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Do not use AWI Standards for Architectural wood doors.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Specify structural composite lumber (SCL-5) core construction:

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Specify Rotary Cut, White (sap wood) Birch veneer, minimum 5" flitch, Grade A. Variations allowed per Section 1300-G-17, AWI Quality Standards, latest edition.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. Finish to be factory stained, AWI grade Custom, using the AWI System TR-6 Catalyzed Polyurethane.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    f. All doors used as mean of egress (including corridors) that require vision panels shall have approved glass panels installed to met NFPA 80 (latest edition) requirements.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

23. The Architect shall specify the following for Entrances and Storefronts:

    a. Holes in storefront framing systems for mounting hinges or other accessories shall have backing material of sufficient thickness and strength to adequately hold the threaded fastener under the conditions to which it is subjected.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Detail proper protection for the glass at all doors where panic exit devices cross glazing. It is preferred that panic devices not cross glazing.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Specify a minimum ten year manufacturer warranty.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

24. The Architect shall specify the following for Aluminum Windows:

    a. All windows shall comply with AAMA Standard HC-50 as minimum requirements.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Specify aluminum window units to be Class II, clear anodized finish.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Detail guardrails at all full height glass panels in accordance with applicable codes.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Specify and detail screens at all operable exterior window units.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

25. The Architect shall specify the following for Door Hardware:

a. For all exterior doors, a lock guard shall be installed for security.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. All weather striping shall be specified as mechanically attached. Glued-on applications are not permitted.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Exterior door thresholds shall be weatherproof and ADA compliant.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Installation shall be done by skilled craftsmen who have applied this trade for a minimum of five (5) years. A pre-installation conference will be scheduled prior to commencement with the manufacturer's representative. A post-conference inspection will be done by the manufacturer's representative.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

26. Acceptable manufacturers and model numbers for door hardware shall be as follows:

a. Exit device: Von Duprin in the following functions:

- 99L – Rim Devices
- 9927L – Surface Rods
- 33L – Rim Devices
- 337L – Surface Rod
- 33 or 99 Series EO, (Exit Only)
- Provide 33 series for aluminum storefronts.
- Acceptable trim packages are as follows: NL, L.
- Provide fire labeled devices at all rated openings.
- Provide 03 levers.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Locksets and Latches: Schlage in the following functions:

- Rhodes Design
- D105 – Passage
- D405 – Privacy (Faculty)
- D445 – Privacy (Students)
- D70PD – Classroom Lock
- D80PD – Storeroom

- Deadbolts – Storeroom
- B600 Series
- All locksets and latches shall have levers.
- Doors into electrical and mechanical equipment rooms shall have tactile warnings on the levers.
- Locksets at exterior doors outside of protective gates shall utilize primus keying

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Flush Bolts:

- Ives – 454 B26D
- Glenn Johnson – 79 Series

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Keys and Keying:

- All locksets and exit devices shall be capable of accepting the Schlage 6-pin cylinder core.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Review keying with SBBC and provide the type required (master, grandmaster or great grand master) either new or integrated into the SBBC's existing system.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

e. Closers: Acceptable manufacturers are LCN, Sargent and Yale

- Basis of design: LCN 4040.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- For hollow metal doors and jambs the preferred closer is the LCN #4115 with hold open.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- The closer must provide 180 degree swing unless the door is recessed. Closer functions shall include closing speed, stop, and back check functions.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- For aluminum storefront doors and jambs the Yale series #SS is preferred.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Specify parallel arms for closers. No perpendicular arm units will be accepted.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Overhead Stops: Glynn Johnson in the following series:

- 79 series at exterior doors.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- 90 series at interior doors.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

g. Avoid floor stops. All wall stops mounted on stud partitions to have sufficient blocking.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

h. Hinge Manufacturers: Hager, McKinney or Stanley:

- Provide hinges as shown for the following uses:

i. Interior and Exterior: Heavy weight, ball bearing, stainless steel with nonremovable pins. 5-Knucle minimum.

ii. Size: 4 ½" x 4 ½" except where door size dictates larger hinges.

Will Comply____ Will Not Comply (Indicate Reason) ___ Not Applicable ____

i. Hardware finishes shall be as follows:

- Exterior openings: US32D.
- Interior openings: US26D.
- Deviations from hardware finishes shall be approved by SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

27. The Architect shall specify the following for Glazing:

a. Specify fire glazing at rated openings, do not use wire glass.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Specify and detail laminated glass as a minimum at all exterior locations throughout the District for wind load and impact protection. Exterior glass shall be impact resistant and resist wind pressures of ASCE7-98 as part of the opening assembly. Verify compliance with Product Approval requirements.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Define each of the glass types in the specifications.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Schedule obscure glass in toilet and bathroom windows.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Window glass should be replaceable from inside the building wherever feasible.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Safety glass shall be used in all hazardous locations to comply with Life Safety Code and FBC.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

28. The Architect shall specify the following for Fixed Louvers:

a. If louvers and vents are specified by the mechanical engineer, the Architect shall coordinate louver finishes and blade styles in the appropriate specification section.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Wall louvers shall not retain water, be drainable, and prevent water intrusion into the building.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Detail the location of all louvers on the exterior building elevations.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

29. The Architect shall specify roof hatches have ladder up safety post as manufactured by Bilco.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 08
DOORS AND OPENINGS

DIVISION 09
FINISHES

1. The intent of this Division is to establish the requirements for interior and exterior finishes.

2. The Architect shall specify and schedule finish materials durable and able to cope with coastal Florida weather conditions. Finishes shall allow for cleaning of graffiti or stains with relative ease by the building's custodial staff. The design and selection of building finishes shall be based on the following:

   a. Vandal resistance

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Cost effectiveness

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Durability

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Resistance to cracking and peeling

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   e. Resistance to fading or discoloration during use or from exposure to weather, or acids and other chemicals.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   f. Weather tightness under hurricane conditions to the minimum wind loading requirements required by F.B.C.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   g. Absence of excessively rough or sharp textures and features.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   h. Finish materials containing or able to emit harmful substances or particles into the air shall not be used.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   i. Building products shall not contain asbestos, lead, formaldehyde, mercury, volatile organic compounds (VOC's), or any other harmful products. Only non-toxic adhesives are to be used.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. All walls between classrooms shall have partitions which extend full-height to underside of structure, fully insulated with sound blankets (if in a stud partition) if practical.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. Ceilings in individual and group toilet rooms shall be a continuous, impervious, hard surface.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. Specify and detail finish installation of gypsum wall board assemblies and plastering per ASTM C 840 and GA-216.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. The Architect shall consider all applicable material for flammability rating requirements as it relates to the FBC, the Florida Fire Prevention Code, and related references. Specify materials that do not require periodic re-treatment to retain code required fire ratings. Where possible, specify inherently fire resistant materials.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. Detail all wall assemblies and penetrations through walls that require a fire-rated system using a UL assembly number and description.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. Lay-in ceilings are not permitted in individual and group toilet rooms including shower and locker rooms.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

a. Schedule a lay-in ceiling in all Systems rooms.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. No open ceilings will be permitted except as follows: Receiving, custodial, electrical, telephone, and mechanical rooms or closets. Unfinished rooms and other similar spaces may have an exposed painted structure if they are not regularly occupied by students and are allowed by fire codes.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. Specify as part of the closeout documents, a list of the manufacturer's recommended maintenance cleaners for the flooring material with instructions for use. Specify that a cleaning and care demonstration to the school's designated representative must be performed.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. Seam sealers and adhesives used in the installation of flooring materials should be the least toxic available and where available, non-toxic. Such sealers and adhesives should also be low-odor.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. Specify and detail that no primers or other coatings be applied to steel scheduled to receive spray fireproofing unless specifically designed for that purpose.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

14. Do not specify or schedule any vinyl or paper wall coverings without the SBBC's permission.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

15. The Architect shall specify the following for renovation and remodeling projects:

    a. Detail and specify the means to reduce or eliminate odors and dust from building occupants during renovation projects by use of demising walls and negative pressure ventilation systems and special filtering.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. When renovating existing wood flooring, prepare concrete substrate, and clean existing expansion joints. Replace backer rod and sealants.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Where previously painted surfaces are to be re-coated, define limits of work. Specify that the existing surface is to be tested to determine the existing thickness with a recommendation for the thickness coverage of the new coating system. Recommendations shall utilize water born type systems to minimize odor issues in areas occupied during the renovations.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Do not detail or specify installation of ceramic tile over existing ceramic tile or VCT.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. In preparation of the concrete substrate for existing wood floors, remove and dispose of the existing wood floor and prepare the concrete substrate which includes the cleaning of the existing expansion joints.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

16. The Architect shall specify metal studs to have a minimum thickness of 24 gauge contingent upon deflection.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

17. The Architect shall specify the following for Portland Cement Stucco:

    a. Plaster accessories shall be zinc alloy or PVC. Zinc coated steel or struck joints are not acceptable.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Specify Lath as expanded metal, minimum 3.4 lbs/square yard, zinc coated.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Specify lath attachment to be designed by a structural engineer in the State of Florida.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Stucco finishes shall be specified as “sand finish.” Other finishes can be accepted provided they do not trap dirt and are easy to maintain.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

18. The Architect shall specify the following for Gypsum Board Systems:

    a. Specify and detail abuse resistant gypsum board**, USA Fiberrock VHI or equal,** in high traffic/high abuse areas to a minimum of 48" AFF. These walls shall have a medium orange peel textured finish. (Sample panel required for approval.)

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Detail metal framing for walls and ceilings, including furring, shall be a **minimum 25 gauge and maximum** of 16" on center.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Tile backer board shall be specified for metal stud walls that are to receive ceramic tile in areas exposed to moisture, such as showers.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. "Green board" shall be used on metal studs for painted application in wet areas.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. Specify that any gypsum board that has become wet at any point prior to the Date of Substantial Completion shall be replaced, including board that has been installed and finished.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

19. The Architect shall specify the following for Porcelain or Ceramic Tile:

    a. Tile installations shall be per the Tile Council of America (TCA) Handbook, latest edition.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Specify a specific TCA installation number for each anticipated installation assembly.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. The primary flooring and base construction in schools is 12" x 12" throughbody, porcelain tile with > .6 COF (wet) and 4" or 6" x 12" porcelain tile base in most areas with the following exceptions:

       - Kitchens and Food Service areas shall be 6" x 6" Quarry Tile.

         Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

       - Restroom flooring shall be 2" nominal square Porcelain Ceramic Mosaic.

         Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

       - Carpet and other specialty flooring will be permitted as appropriate. VCT will be permitted on a limited basis with SBBC's approval and will also be permitted in areas to match existing. See attached sample Room Finish Schedule.

         Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

    d. Specify tile to be from Price Groups 1 and 2 only. 10% accents from Price Group 3

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Detail all desired accents and banding on the Drawings. Random patters are preferred.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Casework toe kicks are to receive tile bases when installed in a room scheduled to receive tile.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Portland cement grout with a latex additive shall be sealed and used in all areas; except, epoxy grout shall be used in restrooms, kitchen tile locations, and other wet floor locations.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Specify and detail expansion joints, cleavage membranes, and other tiling accessories per the TCA Handbook – latest edition.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Detail and schedule marble thresholds at group or single toilet rooms, wet mop rooms, and custodial closets with a sink or mop receptor where adjacent to carpet.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Schedule walls at student toilets to have floor to 4’ ceramic tile finish. Locker rooms to have floor to 6’ tile or epoxy painted CMU.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. Schedule walls behind sinks in custodial spaces to have ceramic tile to a minimum of 4’ above finished floor, for full length of the wall or 3’ beyond fixture.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

l. Schedule walls behind water coolers to have ceramic tile to a minimum of 5’ above finished floor and 1’ beyond fixture.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

m. Restroom and other wet walls shall have 4’ height minimum, 4” or 6” nominal square, glazed wall tile.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

n. Specify a 24 hour water test for all flooring that is to be waterproofed prior to placement of the finish flooring; if leaks occur, retesting is required after repairs are made.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

o. Detail waterproofing at all Shower/Locker Room floors.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

p. Detail waterproofing system for shower room walls.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

q. Always specify a mock-up for any tiling work. Specify a sufficient size and quantity to fully determine quality of installation.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

r. All tile flooring installations shall have at a minimum, one layer of a 15# felt cleavage membrane installed at all joints.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

s. Specify that all tiles are to be sounded after set, replacing any hollow sounding units.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

20. The Architect shall specify the following for Acoustical Ceilings.

a. Specify acoustical ceilings to be white, 24" by 48", maximum 5/8" thick, with a minimum NRC of 0.55, and have the manufacturer's standard humidity-resistant treatment to reduce sagging. Basis of Design: Fine Fissured by Armstrong World Industries #1729.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Kitchens and food prep areas to receive a washable, non-perforated, vinyl faced panel. Basis of Design: Vinylrock X – White CRF by Armstrong Industries #1140; CRF-1.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. CCTV, Cafeterias, and Music rooms shall have a panel with NRC rating of min. .90. Basis of Design: Armstrong Optima #3352.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. The ceiling grid shall be by the same manufacturer as the panels to receive the manufacturer's 15 year warranty.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

21. The Architect shall specify the following for Athletic Wood Flooring:

a. Third Grade Northern Hard Maple for all gymnasiums and stage floors.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Provide expansion joints per the manufacturer's recommendations, but do not allow correction rows.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Specify the preparation of the concrete substrate for new wood floors per the manufacturer's requirements.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Install a hydrotite oakum (rope form) resin grout system to the fill floor expansion joint system. (Strata Tech, Inc. Hydrotite ST-591-Oakum Process or equal.)

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Apply a liquid bonding agent to the concrete substrate for adhesion purposes (Hi Bond by Lambert Manufacturing or equal).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. In areas where water intrusion is of concern, install a pre-molded plasmatic core membrane system over the concrete substrate. The outside edge installation shall be designed in a "tub fashion", where the membrane system meets the surrounding concrete perimeter. (W.R. Meadows Seal Tight, premolded membrane, plasmatic core-butt joint)

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Specify the gym flooring to meet the requirements of DIN 18032, Part II for the following:

- Shock absorption: minimum 53%
- Ball return: minimum 90%
- Friction: Range 0.4 – 0.6 per DIN test method

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. The gym floor substrate finish must be acceptable to the manufacturer of the floor finishing materials and in accordance with the MFMA Guidelines for Gymnasium Floors.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

22. The Architect shall specify the following for Resilient Base and Accessories:

a. Vinyl Cove Base: Specify Mercer Standard Wall Base stock ¼CL, or equal. The product shall be constructed of vinyl or nitrite/rubber, and .080" (approximate) thickness. Base shall be 4" in height and in continuous lengths using roll goods and shall comply with ASTM F1861, type II vinyl. The base shall be coved design. The color shall extend through the thickness of the product and shall be free of objectionable odor, blisters, cracks, and other imperfections which affect the serviceability. Corners shall be pre-molded or field-cut after a mock-up has been approved.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Cove Base Adhesive: Specify Mercer Wall Base Adhesive, Model #WAC, or equal. Adhesive shall be in cartridge tubes (approximately 30 fl. Oz size).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Rubber Stair Tread: Specify Pirelli Hardstep rubber stair tread or equal. Vinyl stair treads are not acceptable. Tread design shall be "diamond" or "raised round" pattern for improved slip resistance. Tread depth (stair run) shall be one piece, but may vary in lengths. Provide detectable warning mat at top of stairs in a contrasting color.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Stair Tread Adhesive: Specify Pirelli ST5000, non-flammable adhesive, or equal. Adhesive shall be recommended for use and compatible with rubber stair treads without voiding the manufacturer's warranty.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Specify the use of preformed corner units or field fabricate corners as recommended by the manufacturer. A mock up for quality assurance shall be required prior to installation for field fabricated corners.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

23. The Architect shall specify the following for Resilient Sheet Flooring:

a. Sheet vinyl flooring: Armstrong Sheet Vinyl flooring, or equal. Sheet flooring shall be filled with vinyl plastic wearlayer and fibrous backing, and shall be FS-L-F-475, Type II vinyl. The minimum sheet width shall be 72", Grade A, have an .080 gauge thickness (approximate), and shall be asbestos free. Sheet flooring shall have a minimum 100 psi static load limit and shall be skid resistant. For wet locations Armstrong Safeguard is the Basis of Design.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Specify a "Calcium Chloride Test" and "Bond and Moisture Test" be conducted prior to installation.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. No head seam installation unless approved by the SBBC's representative.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Sheets shall extend into the spaces, door reveals, closets, and similar openings. Pipes, cabinets, outlets, built-in furniture, permanent columns, and similar items shall have sheets scribed and cut to fit within 1/8" tolerance from edge to sheet.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Install sheet flooring parallel to longest distance of the room.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Transition flooring at the door stops under doors where adjacent floor finish is dissimilar.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Install flooring under movable partitions without interrupting the floor pattern.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Lay flooring with joints and seams to produce the minimum number of seams unless otherwise indicated by designated SBBC representative.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

24. The Architect shall specify the following for Resilient Tile Flooring (VCT):

    a. The use of VCT on new construction projects shall not be used without prior acceptance by the SBBC Project Manager.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. VCT shall be SS-T-312B, Type IV, Comp. 1 tile. VCT shall be 12" x 12" x 1/8" thickness and shall be asbestos free.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Critical Radiant Flux (CRF): Not less than the following rating per ASTM E 648: 0.45 watts per sq. cm.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Flame Spread: Not more than 75 per ASTM E 84.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. Smoke Density: Not more than 450 per ASTM E 84 and ASTM E 662.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    f. Non-skid type VCT shall be specified as a 5' x 5' area at entrances, sink locations in carpeted classrooms, and at water fountains where VCT is scheduled. In new Construction, use porcelain ceramic tile for these areas.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    g. Floor tile adhesive: Shall be Armstrong S-750 Clearset Adhesive, or equivalent.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    h. Specify a "Calcium Chloride Test" and "Bond and Moisture Test" be conducted prior to installation.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

25. The basis of design for Resilient Athletic Flooring shall be TARAFLEX "Sport M" flooring for indoor courts. For Weight Rooms use Mondo Speckleflex flooring. Specify a "Calcium Chloride Test" and "Bond and Moisture Test" be conducted prior to installation.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

26. The Architect shall specify the following for carpeting:

    a. Carpet is only authorized in the following areas: music related spaces, Media Centers, TV Studios, conference rooms and administrative offices. Shaw Industries "Pop Quiz 26 UMP Clueless" is the basis of design.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Construction: Tufted Loop, 12' minimum width; minimum 1/10 gauge; minimum 28 ounces face weight; minimum 9,000 ounces per cubic yard density; and solution dyed branded type 6,6 DuPont or Solutia fibers.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Specify that carpet shall be tested against and must pass the Indoor Air Quality Carpet Testing Program requirements of CRI.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Specify a "Calcium Chloride Test" and "Bond and Moisture Test" be conducted prior to installation.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Attic Stock: Minimum 1 percent of each color and style installed.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Each container shall be labeled with the following information

- Name of item
- Quantity of item contained
- Purchase order number
- Vendor

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Carpet shall extend into the spaces, door reveals and into closets and similar openings. Pipes, cabinets, outlets, built-in furniture, permanent columns, etc. shall have sheets scribed and cut to fit within 1/8" tolerance from edge of sheet to walls, pipes, cabinets, outlets, built-in furniture, permanent columns, etc.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Specify that the Contractor shall measure the areas to be covered to determine the actual number of square yards required to complete the installation and using these measurements, prepare a seam diagram, for approval, for each area to be carpeted.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Upon completion of installation, excess carpet, vinyl sheeting and ceramic tile shall be delivered to the school.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Specify that the Contractor must have successfully completed within the past five (5) years a minimum of ten (10) commercial projects where the Contract amount was $20,000.00 or more.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. Aluminum Moldings: 6063 alloy – High T5, thickness .060. as follows:

- Stair Nosing: Model A399W by Macklanburg Duncan or equal. Size 1 1/16" x 1 1/8".
- Stair Nosing: Model A399Y by Macklanburg Duncan or equal. Size 1 ½" x 2 ½".
- Carpet Bar: Model A368 by Macklanburg Duncan or equal. Size 1".
- Carpet Bar: Model A368A by Macklanburg Duncan or equal. Size 1 ½".

- Carpet Bar: Model A368B by Macklanburg Duncan or equal. Size 2".
- Carpet Edge Guard: Commercial pinless for heavy traffic glue down installations. Size 1 3/8" c ½".
- Aluminum threshold: Mill finish aluminum threshold, handicapped accessible, 36 ½" length, Pemko 200 AV or equal.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

l. Specify the following carpet seaming requirements:

- No seams shall occur at doorways or entries perpendicular to the door or entry.

  Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable ____

- Seams occurring at doors running parallel to the doors shall be centered directly under the doors unless otherwise specified.

  Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable ____

- Seams occurring at a corridor change shall follow the wall line parallel to the carpet direction.

  Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable ____

- Extend carpet under open-bottom and raised bottom obstructions, and under removable flanges of obstructions. Extend carpet into closets and alcoves or rooms indicated to be carpeted, unless another floor finish is scheduled.

  Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

27. The Architect shall specify the following for Painting and Coatings:

a. Specify undercoats to have slightly different tints.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Specify the total thickness of paint by "dry mil" or "wet mil" thickness (according to recommendations of the paint manufacturer).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Specify and detail substrate preparation requirements.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Specify hollow metal door frames shall be back primed <u>at the factory</u> with a water-based, brush applied, emulsion dampproofing.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Exterior stucco surfaces shall be painted with a 100 percent acrylic elastomeric masonry waterproof coating.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Primer coats for cementitious materials shall be alkali resistant acrylic masonry primers.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Interior walls: Typically shall be semi gloss.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Walls and ceilings in restrooms and food service/prep areas are to be painted with epoxy paint where tile is not scheduled. Epoxy paint shall also be used in high abuse areas such as in corridors, cafeterias, gym, and wet locations.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Paint on steel items should be specified on the basis of mill thickness rather than number of coats. For items exposed to the weather a total of six mills is considered necessary; for Work exposed inside a building, five mills is desirable (dry film measurement). This includes structural steel tanks, steel enclosures, and miscellaneous iron and steel items.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Require a submittal for approval on the manufacturer's recommended painting requirements for all stair and balcony railings.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. Coatings on hot dipped galvanized surfaces are unacceptable unless specific circumstances prevail. In such cases complete documentation as to procedures shall be submitted for approval.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

l. Specify that concrete surfaces to be painted are to be tested for moisture and Ph levels. Submit results to the Architect for approval.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

m. Specify the following sheens per area:

- Ceilings: Flat

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Walls: Floor to ceiling semi-gloss

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Trim: Gloss

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Exterior fields: Semi-gloss

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Exterior trim: Gloss

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

n. Specify substrate preparation requirements for all anticipated conditions.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

o. Architect/Engineer shall prepare color boards for SBBC approval upon receipt of submittals from Contractor.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

p. Always specify a mock-up for any painting work. Specify in sufficient size and quantity to fully determine quality of application.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

q. For finished carpentry, the Architect shall specify that wood shall be back-painted before setting to prevent warping.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

r. Follow the attached Room Finish Schedule standard.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 09
FINISHES

Generic Room Finish Schedule

Room Name	FISH Code	Floor	Base	Walls	Doors [2]		Ceiling			Room Lighting
					Frame	Material	Height	Material	Finish	
Admin Storage	308	Porcelain	Porcelain	SG Paint	14 ga.	FSC Wood	9	Acoustic	NRC 55	Fluorescent Prismatic
Arms Room	800	Epoxy	Vinyl	SG Paint	14 ga.	FSC Wood	9	Acoustic	NRC 55	Fluorescent Prismatic
Auditorium/Theater	360	Carpet	Vinyl	SG Paint	14 ga.	FSCL Wood	14+	Acoustic	NRC 90	Dimmed Incandescent/ Fluorescent Prismatic
Art Lab / Classroom	050 052 051	Porcelain	Porcelain	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Parabolic
Chair Storage	349 362	Epoxy Sealed [1] Concrete	Vinyl	SG Paint	14 ga.	FSC Wood / IM	9	Acoustic	NRC 55	Fluorescent Prismatic
Classroom PK-12	001 003 002	Porcelain	Porcelain	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Parabolic
Classroom Storage	807 810 808 813	Epoxy Sealed [1] Concrete	Vinyl	SG Paint	14 ga.	FSC Wood	9	Acoustic	NRC 55	Fluorescent Prismatic
Clinic	307	Porcelain	Porcelain	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Prismatic
Communications (CER)	707	Epoxy Sealed [1] Concrete	Interior - Vinyl	SG Paint	14 ga.	FSC Wood	9	Acoustic	NRC 55	Fluorescent Prismatic
Computer/Skills Lab	010 012 011 312	Porcelain	Porcelain	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Parabolic
Concession	371	Epoxy Sealed [1] Concrete	NA	Epoxy	14 ga.	HM	9	Drywall	Epoxy	Fluorescent Prismatic
Concession Restrooms	815 820 816 822 819 823	Epoxy Sealed [1] Concrete	NA	Epoxy	14 ga.	HM	9	Drywall	Epoxy	Fluorescent Prismatic
Conference Room	306	Carpet	Vinyl	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Parabolic
Control Booth/ Projection Room	367	Carpet	Vinyl	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 90	Fluorescent Parabolic

Generic Room Finish Schedule

Room Name	FISH Code	Floor	Base	Walls	Doors (2)		Ceiling			Room Lighting
					Frame	Material	Height	Material	Finish	
Corridor / Lobby/ Reception	700	Porcelain	Porcelain	Epoxy w/ Corner Guards	Alum.	FGS	9	Acoustic	NRC 55	Fluorescent Prismatic
Covered Patio	351	Concrete	NA	NA	NA		12^{+}	Alum.	Pre-finish	HID
Covered Walkways	701	Concrete	NA	NA	NA	NA	9^{+}	Alum.	Pre-finish	Fluorescent
Custodial Closet / Janitors Work Area	331 332	Epoxy Sealed (1) Concrete	Vinyl	SG Paint / Ceramic Tile around Janitor's Sink	14 ga.	FSC Wood	9	Acoustic	NRC 55	Fluorescent w/Tube guards
Custodial Lounge/Receiving	330	Epoxy Sealed (1) Concrete	Vinyl	SG Paint	14 ga.	RS	9	Acoustic	NRC 55	Fluorescent Prismatic
Dining Area – Cafeteria/ Teacher Lounge	316 340	Porcelain	Porcelain	Epoxy w/ Corner Guards	14 ga..	FSCL Wood	12^{+} / 9^{+}	Acoustic	NRC 90/55	Fluorescent Prismatic
Dining Area Serving Line	341	Porcelain	Porcelain	Epoxy/ Ceramic	14 ga.	FSCL Wood	9	Acoustic	Vinyl Faced	Fluorescent Prismatic
Dressing Room - Stage	365 366	Epoxy Sealed (1) Concrete	Vinyl	SG Paint	14 ga.	FSC Wood	9	Drywall	SG Paint	Fluorescent Prismatic
Equipment Storage	334	Epoxy Sealed (1) Concrete	Vinyl	SG Paint	14 ga.	FSC Wood	9	Exposed	NA	Fluorescent with Tube Guards
Elevator	826	Porcelain	Porcelain	Plastic Laminate	NA	NA	NA	NA	NA	Fluorescent Prismatic
ESE Classroom	060 064 061 065 062 066 063	Porcelain	Porcelain	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Parabolic
Flammable Storage	333	Epoxy Sealed (1) Concrete	NA	SG Paint	14 ga.	RS	9	Drywall	SG Paint	Explosion Proof
Gymnasium (Playing Area)	111 112	Synthetic	Wood/ Synthetic	Epoxy w/ Acoustic Panels	Alum.	FGS	22	Exposed	NA	HID Metal Halide

Generic Room Finish Schedule

Room Name	FISH Code	Floor	Base	Walls	Doors [2]		Ceiling			Room Lighting
					Frame	Material	Height	Material	Finish	
Gymnasium Seating	113	Synthetic	Wood/ Synthetic	Epoxy w/ Acoustic Panels	Alum.	FGS	22	Exposed	NA	HID Metal Halide
Gymnastic/Dance	119	Rubber	Rubber	Epoxy	14 ga.	FSCL Wood	9+	Acoustic	NRC 55	Fluorescent Prismatic
Gym Storage	120	Epoxy Sealed [1] Concrete	Vinyl	Epoxy	14 ga.	FSC Wood	9	Acoustic	NRC 55	Fluorescent Prismatic
JROTC	708	Porcelain	Porcelain	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Parabolic
JROTC Firing Range	801	Epoxy Sealed [1] Concrete	Vinyl	Epoxy	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Prismatic
Kiln	805	Epoxy Sealed [1] Concrete	Vinyl	Epoxy	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Prismatic
Kitchen/Serving Line/Food Prep Area/Dish Washing Area	341 347 346	Quarry	Quarry	Epoxy/ Ceramic	14 ga.	FSCL Wood	9	Acoustic	Vinyl Faced	Fluorescent Prismatic
Kitchen Office	343	Quarry	Quarry	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Parabolic
Kitchen Storage (Dry/Non-food)	342 350 345	Quarry	Quarry	SG Paint	14 ga.	FSC Wood	9	Acoustic	Vinyl Faced	Fluorescent Prismatic
Lobby – Auditorium & Gym	370	Carpet	Vinyl	Epoxy	14 ga.	FSCL Wood	9+	Acoustic	NRC 55	Fluorescent Prismatic
Mechanical / Electrical Room	702 703	Epoxy	Interior - Vinyl	SG Paint	14 ga.	HM	9	Exposed	NA	Fluorescent w/Tube guards
Media Production	387	Carpet	Vinyl	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Prismatic
Multi-purpose Room (Small Auditorium)	361	Carpet	Vinyl	Epoxy/ Acoustic Panels	Alum.	FGS	14+	Acoustic	NRC 90	Dimmed Incandescent/ Fluorescent Prismatic

Generic Room Finish Schedule

Room Name	FISH Code		Floor	Base	Walls	Doors [2]		Ceiling			Room Lighting
						Frame	Material	Height	Material	Finish	
Music – Instrument/Sheet Music Storage	832	836	Carpet	Vinyl	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Prismatic
Music: Ensemble/ Guitar Lab/ Piano Lab	079 080	830 831	Carpet	Vinyl	SG Paint/ Acoustic Panels	14 ga.	FSCL Wood	11+	Acoustic	NRC 90	Fluorescent Parabolic
Music Practice	081		Carpet	Vinyl	SG Paint	14 ga.	FSCL Wood	11+	Acoustic	NRC 90	Fluorescent Parabolic
Music: Band/Vocal/ Orchestra	055 075 076	077 078	Carpet	Vinyl	SG Paint/ Acoustic Panels	14 ga.	FSCL Wood	11+	Acoustic	NRC 90	Fluorescent Parabolic
Music Uniform Storage/Robe	833	834	Carpet	Vinyl	SG Paint/ Acoustic Panels	14 ga.	FSCL Wood	9	Acoustic	NRC 90	Fluorescent Prismatic
Music Studio	835		Carpet	Vinyl	SG Paint/ Acoustic Panels	14 ga.	FSCL Wood	11+	Acoustic	NRC 90	Fluorescent Parabolic
Offices	300 301 302	303 304 314	Carpet	Vinyl	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Parabolic
Outside Storage	811		Epoxy Sealed [1] Concrete	NA	NA	14 ga.	HM	9	Drywall	Epoxy	Fluorescent Prismatic
Nursery	250		Ceramic Porcelain	Ceramic Porcelain	Epoxy	14 ga.	HM	9	Acoustic	NRC 55	Fluorescent Parabolic
PE Dressing Room	090	091	Ceramic Porcelain CPT	Cove Ceramic Porcelain	Ceramic / Epoxy	NA	NA	9	Drywall	Epoxy	Fluorescent Prismatic
PE Lockers	092	093	Ceramic Porcelain CPT	Cove Ceramic Porcelain	Ceramic / Epoxy	NA	NA	9	Drywall	Epoxy	Fluorescent Water-Proof

Generic Room Finish Schedule

Room Name	FISH Code		Floor	Base	Walls	Doors [2]		Ceiling			Room Lighting
						Frame	Material	Height	Material	Finish	
PE Drying Area	096	097	Ceramic Porcelain CPT	Cove Ceramic Porcelain	Ceramic / Epoxy	NA	NA	9	Drywall	Epoxy	Fluorescent Water-Proof
PE Showers	094	095	Ceramic Porcelain CPT	Cove Ceramic Porcelain	Ceramic / Epoxy	NA	NA	9	Drywall	Epoxy	Fluorescent Water-Proof
PE Storage	013 098	121	Epoxy Sealed [1] Concrete	Vinyl	SG Paint	14 ga.	FSC Wood	9	Acoustic	NRC 55	Fluorescent Prismatic
PE Teachers Shower	099	100	Ceramic Porcelain	Cove Ceramic Porcelain	Ceramic / Epoxy	NA	NA	9	Drywall	Epoxy	Fluorescent Water-Proof
PE Training Room	116		Porcelain	Porcelain	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Prismatic
Production Room (Closed Circuit TV)	385		Epoxy	Vinyl	SG Paint	14 ga.	FSCL Wood	10	Acoustic	NRC 55	Fluorescent Prismatic
Production/ Professional Library	382		Carpet	Vinyl	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Parabolic
Reading Room/Stacks	380		Carpet	Vinyl	SG Paint	14 ga.	FSCL Wood	12	Acoustic	NRC 55	Fluorescent Parabolic
Relocatables	001 002	003 301	VCT	Vinyl	SG Paint	14 ga.	IML	8	Acoustic	NRC 55	Fluorescent Parabolic
Resource Room	040		Porcelain	Porcelain	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Parabolic
Restrooms	814 815	824 825	Ceramic Porcelain	Cove Ceramic Porcelain	Ceramic / Epoxy	14 ga.	FSC Wood/ HM	9	Drywall	Epoxy	Fluorescent Prismatic
Restrooms Concession	815 816 819 820	821 822 823	Sealed Concrete Slip Resistant	NA	Epoxy	14 ga.	HM	9	Drywall	Epoxy	Fluorescent Prismatic
School Store	310		Porcelain	Porcelain	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Prismatic
Science Labs	020 021	022 023	Porcelain	Porcelain	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Parabolic

Generic Room Finish Schedule

Room Name	FISH Code	Floor	Base	Walls	Doors [2]		Ceiling			Room Lighting
					Frame	Material	Height	Material	Finish	
Service Closet	331	Epoxy Sealed [1] Concrete	Vinyl	SG Paint	14 ga.	FSC Wood/ IM	9	Acoustic	NRC 55	Fluorescent w/Tube guards
Stage	363	Sealed Wood or Epoxy on Concrete	Vinyl	SG Paint	NA	NA	15	Exposed	NA	Fluorescent w/Tube guards & Dimmed Incandescent
Student Records Vault	309	Porcelain	Porcelain	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Prismatic
Teacher Planning	315	Carpet	Vinyl	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Parabolic
Textbook Storage	368	Epoxy Sealed [1] Concrete	Vinyl	SG Paint	14 ga.	FSC Wood	9	Acoustic	NRC 55	Fluorescent Prismatic
Ticket Booth	372	Epoxy Sealed [1] Concrete	NA	SG Paint	14 ga.	FSC Wood	8	Acoustic	NRC 55	Fluorescent Prismatic
Vocational Lab (classroom)	200 201 202 203 204 210 211 212 220 221 222 223 224 230 231 232 233 234 240 241 242 243 244 245 250 251 252 253 254 260 261 262 263 264 270 271 272	Porcelain or Epoxy	Porcelain or Vinyl	SG Paint	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Parabolic

Generic Room Finish Schedule

Room Name	FISH Code	Floor	Base	Walls	Doors (2)		Ceiling			Room Lighting
					Frame	Material	Height	Material	Finish	
Vocational Work Bay	246	Epoxy	Vinyl	SG Paint	14 ga.	FSCL Wood	12	Exposed	NA	Fluorescent Parabolic
Weight Room	117	Rubber	Rubber	Epoxy	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Prismatic
Wrestling Room	118	Epoxy	Vinyl	Epoxy	14 ga.	FSCL Wood	9	Acoustic	NRC 55	Fluorescent Prismatic

Notes:
(1) Sealed Concrete: Add a floor sealer (epoxy) once the floor has cured. Must be slip-resistant.
(2) All exterior doors shall be 16 ga. galvanized steel.

Legend:

FGS = Full Glass Storefront Door
FSC = Factory Finished Solid Core Door
FSCL = Factory Finished Solid Core Door with Lite
RS = Rolling Steel 18 ga. Metal Door (Factory Primed)
IML = Insulated 18 ga. Metal Door with Lite (Factory Primed)
SG = Semi-Gloss

DIVISION 10
SPECIALTIES

1. The intent of this Division is to establish the quality level for display boards, signage, toilet accessories, fire extinguishers and accessories, lockers, walkway canopies, and other specialties.

2. Coordinate finishes and style of louvers specified by the mechanical engineers. Typically to match door/window frames.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. No accordion partitions shall be specified.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. All metal storage shelving shall be provided by the SBBC.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. Specify and detail products that will not have sharp edges or corners after installation, such as the chalk tray ends.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. Specify marker and tack boards to have a minimum 1" map rail with map hooks at each board and one flag holder per room.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. Designers to coordinate the location of marker and tack boards with all electrical devices. Elevate wall in drawings if necessary.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. The Architect shall specify the following with regard to marker boards:

   a. Marker boards shall not be designed to be used as projector screens in any location.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. No chalkboards shall be specified. Use dry-erase only.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Each classroom shall have two 4' x 10' marker boards similar to US Markerboard or equal.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Conference Rooms and Training Rooms shall have one marker board and one tack board.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   e. Marker boards shall be a minimum 24 gauge enameling grade steel with vitrified porcelain, low gloss white coating.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Specify fired-on music staff lines at appropriate music room locations.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Leizer marker boards or any other brand that require special markers and cleaners shall not be specified.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. The Architect shall specify the following with regard to tack boards:

a. Tack boards shall be vinyl-fabric faced. Each classroom, conference room, and training rooms shall have two 4' x 4' tack boards.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Specify tack boards to have surface burning characteristics in accordance with ASTM E 84, meeting a flame spread of 25 or less and smoke development of 10 or less.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. Specify dedication plaques to be cast bronze when required for the project.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. The Architect shall specify the following with regard to Dimensional Letter Signage:

a. Interior and exterior building letters or numbers, when required, shall be a minimum of 12" tall and be constructed of cast aluminum.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Detail school signage to be of sufficient size to be read clearly from a distance for vehicular or pedestrian use.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. The Architect shall specify the following with regard to Interior Signage:

a. Show the locations and types of signage on the drawings.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. F.I.S.H Signage: The Architect shall coordinate the interior signage with the SBBC's Project Manager, to ensure it is consistent with existing and proposed Florida Inventory of School Houses (F.I.S.H) designation. Separate F.I.S.H signage will not be required or desired. The Architect shall incorporate this F.I.S.H numbering on the construction documents as the room number for each space. The Architect/Engineer and SBBC Draftsman will assign room numbers to all spaces after the review of the Schematic Phase in accordance with F.I.S.H. requirements.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. The Architect shall complete the DOE documents necessary to update the F.I.S.H database as a result of a project's additions, renovations and/or demolition(s) and furnish to the SBBC any revisions/additions. DOE Form 208, DOE Form 208a and F.I.S.H Input Form will be filled out by the Architect showing all school space designations. These forms will be prepared following the F.I.S.H Manual dated 2000."

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. The SBBC shall conduct an in house review of the signage shop drawings for room numbering and space name allocation for each space to be applied to the signage.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Interior signage shall be one piece, raised, pressed two color signage (exterior, photopolymer grade). Vinyl applied lettering is not acceptable for vandalism reasons.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Exterior room signage shall be magnesium or zinc.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Specify that all signage shall meet The Florida Accessibility Code.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. A room emergency evacuation route sign shall be placed at the entrance to every occupied space.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. For new schools, provide a geographical directory for all instructional spaces. This directory shall be located by the Main Office Lobby.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Specify typical room signage attachments to be mechanical using tamperproof fasteners.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. All required safety signage such as Fire Alarm Pull Station Inside, Fire Extinguisher Inside and Secondary Egress, shall be clearly detailed and the locations shown on the construction drawings.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

l. Accessible signage shall be mounted 60” above the finished floor to the centerline of the sign, on latch side of door, out of the way of the door swing.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

m. Detail directional signage for direction of the public through corridors to destinations together with identification of specific functions of rooms such as, MEN, WOMEN, CUSTODIAL CLOSET, MECHANICAL ROOM, DEPARTMENTAL NAMES, HIGH VOLTAGE, etc.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

n. Current ANSI standards shall apply to accessible entrances and to raised letter signage, and shall conform to the required Accessibility Codes and ADA.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

o. All exterior permanent and temporary free standing signs shall comply with ASCE 7-98 for wind loads.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. The Architect shall specify the following with regard to Traffic Signage:

    a. Show locations and types of signage on the drawings. All traffic signage shall comply with FDOT Traffic Sign Standards. Specify signs as required for orderly parking and separation of drives.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Detail all traffic safety and pedestrian signage including those that identify the accessible routes on the drawings. Provide tactile warning strips.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Signs to consider include but are not limited to: no parking; visitor parking; staff parking; student parking; buses only (7:00am – 9:00am & 2:30pm – 3:30pm); student pick up; front office arrow; principal parking; assistant principal parking; secretary parking; 5 MPH sign; one way; right turn only.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

14. The Architect shall specify the following with regard to Toilet Partitions:

    a. Specify solid plastic surfacing for the toilet partitions.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. All exposed fastening devices shall be tamper proof.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Detail partitions to be floor mounted and supported above the ceiling, eliminating the “chin-up”, trapeze, or hanging bar temptation. Provide blocking at the ceiling at support location.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Urinal screens shall run from floor to ceiling with a continuous wall bracket.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. Coordinate and detail the location of the coat hooks for safety and accessibility requirements.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    f. Use a metal fire bottom when solid plastic panels are specified.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

15. Specify and schedule finish hardware for wire mesh partitions using lever handled lock set with core matching building system.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

16. Detail storage pockets for operable partitions so that any means of egress is not reduced.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

17. Detail corner guards to start above the scheduled base to a height of approximately 48” to coordinate with the height of the abuse resistant GWB. Locate corner guards in all heavy traffic areas such as hallways, cafeterias, kitchens and large assemblies.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

18. The Architect shall specify the following with regard to Toilet Accessories:

    a. The following items will be provided by the SBBC and installed by the Contractor. Contact the SBBC's Representative for specific model numbers: Soap Dispenser, Toilet Paper Holders, Paper Towel dispensers.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. All mirrors shall be anchored and secured.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Specify and schedule polished stainless steel mirrors with high reflective values, tempered or safety glass, in a stainless steel frame in student areas (no lexan or plexiglass).

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. The Architect shall coordinate the appropriate placement of vanity mirror units and full length mirror units with sight lines.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. Specify and schedule stainless steel book shelves in all restrooms.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    f. Specify that Shop Drawings are to show in-wall blocking coordination.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    g. Detail toilet room accessories on walls to be surface mounted wherever possible.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    h. Where toilet accessories occur on toilet partitions, place the accessory in the same place on both sides of the partition and through bolt them together with tamperproof sex bolts for anti-vandalism.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

19. The Architect shall specify the following with regard to Fire Protection Specialties:

    a. Specify that all extinguishers shall be UL approved per NFPA 10.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Multipurpose Dry Chemical Type: UL-rated 4-A: 60-B: C, 10-lb nominal capacity, in enameled steel container for typical use.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Wet Chemical Type: UL-rated 2A:1B: C: K, 6-liter capacity in a steel container for use at food prep locations.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Carbon Dioxide Type: UL-rated, Class C, 10-lb nominal capacity, in enameled steel container located in all mechanical spaces. UL-rated, 5-lb nominal capacity in all laboratories.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Dry Chemical Class K extinguishers 5 lb. to be provided in all cooking kitchens.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. All fire extinguishers shall have a current inspection tag and an expiration date of at least eleven months after the Date of Substantial Completion.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Either fully or semi recessed fire extinguisher cabinets shall be used in publicly accessible areas including but not limited to corridors, gymnasiums, media centers, cafeterias, and auditoriums.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Specify fire extinguisher cabinets to be solid metal face panels, glazed with safety glass or Plexiglas.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Provide fire blankets in storage cabinets at all laboratories and applied technology shops.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Locate extinguishers and cabinets in vicinity of exits.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

20. The Architect shall specify the following with regard to Metal Lockers:

a. Lockers shall be provided at all middle and high schools unless declined, in writing, by SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. All lockers shall be galvanized sheet metal. Specify the lockers to be electrostatically spray painted by the fabricator with epoxy enamel and baked to produce a gloss finish. Either bolted or fully welded units are acceptable. Basis of design is AMP Lockers.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Detail lockers on concrete curbs. The height of the curb shall be coordinated and **match the height of the floor base material** but in no case be less than 4".

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Typically specify and detail double tier lockers for student use and physical education.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Kitchen staff lockers shall be half-height 12" x 15" double tier.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Athletic lockers shall be full height 24" x 24" double tier units. All athletic lockers shall be fully welded units.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Island lockers in circulation corridors shall be limited to 4'-6" elevation max with sloped tops or consider solid plastic sides and tops.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Locker Room Benches shall be wood bench with powdered coated steel posts bolted to or embedded in the concrete floor.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

21. The Architect shall specify the following with regard to Walkway Covers:

a. Design covered walkways to be integrated into the architecture of the building such that walkway covers appear to be part of the overall project composition rather than “added on” to it.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Detail all walkway canopies with foundations embedded into concrete footings. No bolted, surface mounted plates will be accepted.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Curbing at bus and car drop-off areas will be a minimum of 6” high. Do not detail a flat transition at drop-off locations unless bollards are used 6’ on center. The curb is intended to protect pedestrians and the walkway columns.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Detail walkway canopies to have a minimum clear height of 9’-0” and to extend 12" beyond each side of the sidewalk.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Detail the location of walkway canopy columns to have a minimum distance of 24” from face of the column to edge of pavement.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Detail bus drop-off canopies with a minimum clear height of 12’-0”.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Design the canopy roofs to be water tight and have enough strength to be able to support a person walking on the roof surface. The structure shall be designed to meet the wind loading requirements of ASCE 7-98.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. The typical finish to be specified for canopy systems shall be clear anodized, Class II.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Electrical conduits shall be placed in the canopy flutes and covered using the manufacturer’s standard snap on covers. If this system is not available for renovation or remodeling projects, then place conduits on the underside of the canopy roof system.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. Specify exposed conduit as Electrical Metallic Tubing (Thin wall) for areas above 8’-0”. Use rigid conduit from ground level to 8’-0”.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

l. Water shall drain internally from the deck to beams to columns. Coordinate the column locations and tie in to an underground storm system where practical. Water shall not be closed to drain from adjacent surfaces onto canopies.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Specify and detail canopy drains so that water is not permitted to drain across a concrete walkway when not tied into an underground storm water system.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

22. The Architect shall specify that all flag holders will be provided by the Contractor as an attachment to the marker board.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

23. Unless school has a master clock system 12" round battery powered clocks are to be provided in each classroom, lab, conference room, mail lobby, clinic, and kitchen.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

24. Architect/Engineer shall design school identification sign and flagpole at entrance.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 10
SPECIALTIES

DIVISION 11
EQUIPMENT

1. The intent of this Division is to establish the quality level for residential equipment, food service equipment, audio-visual equipment, laboratory equipment, theater and stage equipment, and indoor and outdoor athletic equipment

2. The Architect shall specify and detail impact resistant items in gymnasiums such as exit signage, emergency lights, and fire horn/strobes.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. When required, provide dock bumpers of recycled tires and a dock leveler unit.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. All residential equipment shall be provided by the SBBC. Residential ovens shall be provided with exhaust hoods and shall be vented to the outside. (CFCI)

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. The Architect shall specify the following with regard to Food Service Equipment:

   a. Coordinate each project requiring the design of food services, such as kitchens, with the Office of School Food and Nutrition.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Kitchen areas shall have an air conditioning system, separate from the main unit and sized appropriately for food service activities.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. The kitchen hood shall be of the compensating variety.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Provide a door bell for exterior delivery door and fly fan air curtain.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   e. The kitchen manager's office telephone shall be tied to a bell, located in the prep kitchen.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   f. Dry food storage rooms shall have an air conditioning system separate from the kitchen unit.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   g. Electrical receptacles for equipment shall be fed off individual circuits. Provide a minimum of six receptacles under each hood.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   h. Serving lines shall have provisions for water, power, data, and sewer.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Freezer cooler equipment shall have provisions for off site monitoring. Condensers are to be located at floor level, not on top of the units or on the roof.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Gas equipment shall be connected using commercial grade, coated, flex connections (whips).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. The Architect shall specify the following with regard to Book Theft Protection Equipment:

a. Installation of the book detection equipment shall be part of the Contractor's scope of work.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Detail a system at all non-staff entry points to media centers.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. The Architect shall specify the following with regard to Audio-Visual Equipment:

a. Schedule 72" square minimum wall mounted projection screen in all classrooms. Motorized ceiling mounted units may be used in large assembly spaces.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. TV Brackets, when scheduled, are to be center yoke, ceiling mounted with V.C.R. shelf. Wall mounted brackets are not acceptable. Corner, casework, TV stands are preferred and capable of supporting a 32" TV with VCR, DVD, and AV storage.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. The Architect shall specify that all stage curtain fabric will be inherently flame resistant and carry Flame-Resistance Ratings per NFPA 701. The curtains will be labeled describing the type of flame resistance designation.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. The Architect shall specify the following regarding Gymnasium Equipment:

a. All gymnasiums are to be equipped with volley ball equipment, basketball backboards, (including rims and net), and wall protection pads.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Volley ball equipment will include floor sleeves and all necessary installation components.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Use ½" heat tempered glass basket ball backboards for the varsity court and square fiberglass units for the practice courts.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Detail wall padding to be mounted immediately above the floor base, allowing minimum space for proper venting of the flooring system.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. The Architect shall specify the following regarding Interior Scoreboards:

    a. Specify two wall mounted score boards per Gymnasium; a center mounted scoreboard shall not be permitted.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. The scoreboard shall be able to keep score of Basketball, Volley Ball, and Wrestling events.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. The scoreboard controls shall be wireless.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. The Architect shall specify the following regarding Gymnasium Dividers:

    a. The bottom 12' shall be an opaque solid vinyl coated polyester fabric.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. The upper portion shall be a vinyl coated polyester mesh.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. The curtain shall have a self-extinguishing (UL) fire rating.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. The curtain shall be resistant to rot, mildew, and ultraviolet light.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. The gymnasium divider shall be an electrically operated roll-up type.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. The Architect shall specify the following regarding Play Field Equipment and Structures:

    a. Double Flex Rim Mounted Basketball Goals, Model BS 5455xxx by BSN Sports, or equivalent, for all exterior basketball goals.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Detail tennis court equipment as permanently mounted. Portable sleeves are not permitted.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. The Architect shall specify the following regarding Exterior Scoreboards:

    a. Schedule scoreboards for Football, Baseball, Softball, and Soccer events as appropriate for Scope of Work.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. The scoreboard controls shall be wireless.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

14. The Architect shall specify the following regarding Collection and Disposal Equipment:

    a. Specify and detail infrastructure and enclosure for American Trash Management JV Model SC-02-25 trash compactor.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

15. The Architect shall specify the following regarding Portable Stage Platforms and Choral Risers:

    a. Specify sectional risers.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Specify raised sectional platforms to include both a stair and ramp.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

16. The Architect shall specify the following regarding Theatre Lighting and Acoustics:

    a. Consider the installation of lighting pipe grids at all stages.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Consider acoustical requirements at all band, choral, and performing art spaces.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 11
EQUIPMENT

DIVISION 12
FURNISHINGS

1. The intent of this Division is to establish the minimum quality level for window treatment, modular casework, displays, and site furnishings.

2. The Architect shall detail casework of all types, including display cabinets, to be permanently attached to the wall.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. Specify sealant colors to match the adjacent laminate color. Do not use white or clear sealants.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. The Architect shall specify that media center furniture and bookcases shall be provided by the SBBC. Circulation desk and built-in casework shall be by Contractor.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. The Architect shall specify the following with regard to Window Blinds:

   a. Specify and detail vertical blinds using PVC blades, without a bottom chain.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Define in the Contract Documents which window units are to receive verticals.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Do not schedule window blinds where louvered hurricane shuttered windows are scheduled.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. The Architect shall specify the following with regard to Manufactured Plastic-Laminate-Clad Casework:

   a. Floor bases for cabinets are to be a minimum of 3-½" high by 1-½" thick. Note: Porcelain ceramic tile is the SBBC standard for flooring and wall bases. The SBBC has had issues with the tile not adhering to the cabinet bases. Specify performance adhesives and detail bases to eliminate issues of the tile "popping off" from the casework toe-kicks.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Elementary schools to have plastic laminated casework cubbies. Specify and detail the size of the opening and location of the units (to be by the front door of every classroom unless approved by the SBBC).

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Specify core material as wheat straw, agrifiber, or other similar type particle board, using binders that are free of urea-formaldehyde. Specify marine-grade plywood tops as sink areas and below windows.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Panel materials are to be balanced from exposed surface to back surface.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Specify millwork to conform to AWI Custom Grade as defined in the latest edition of the AWI Quality Standards document.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Specify that all cabinet doors should be lockable at clinics, laboratories, science rooms, shops and child care spaces. Provide 50% lockable cabinets at all other spaces.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Specify at door pairs, the active leaf to be locked while the inactive leaf to have a trigger type latch.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Seal perimeter of bases prior to installation of base to prevent water intrusion from floor cleaning operations.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Specify door and drawer pulls to be integral and semi-recessed with door or drawer faces.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Specify the opening force of all doors to have a maximum 5 pound pull force.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. Specify shelving to be adjustable using anti-lift clips.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. The Architect shall specify the following with regard to Laboratory Casework:

a. Specify and detail Red Oak type casework with resin tops and integral sinks for the science labs. Units by Sheldon Laboratory Systems, Collegedale Casework LLC, or equal are acceptable.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. To the greatest extent possible, detail the science casework with 24” bases and 30” tops, leaving a chase between the unit and the wall.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Coordinate casework with the required utilities. Show cross-discipline detailing on Construction Drawings and require same on the Shop Drawings.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Detail the backs of casework to be removable for access to utilities. Use utility chases where practical.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Detail the bases of casework, where utilities penetrate from floor, be factory cut. This will occur particularly at the teacher's station where valves, conduits, and piping for gas, water and drains exist. Create an opening in the base cabinet leaving a nominal 4" shelf on all four sides. Provide a removable panel for field trim.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Specify acid waste piping, sinks and floor drains as a complete system. Provide accessible (ADA) stations within each modular unit. Products from single manufacturer as well as an indirect drain are required.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Laboratory fume hoods shall have an upper shroud between the hood unit and the suspended ceiling.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. Chemical Storage Cabinets, Fume Hoods, Dump Fans, Emergency Showers and Eye Wash, Acid Neutralization Tanks and Acid Waste Piping.

a. Chemical storage cabinets are to be vented to the exterior with sparkless wiring and fans by separate and special corrosion resistant materials. The chemical storage rooms shall also be vented with a system that makes the room negative.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Emergency shower and eyewash installations shall include a floor drain. The floor shall be sloped to drain in all conditions except elevated slabs. The drain shall be located to right, left, or behind, not in front. The drain riser shall be piped to vicinity of drain, but shall not be a trip hazard.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Fume hood supply and return air systems are to be ducted with stainless steel. Stainless steel is also required at above roof locations.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Dump fans are to be provided in labs with gas cocks and/or subject to fumes.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Acid neutralization tanks shall be located in non-traffic areas and flush with grade. Clean outs are to be provided immediately upstream and downstream of the tank. Acid neutralizing p-traps are acceptable

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. Specify wire type lockable doors on music casework when instrument storage is not provided in a room that can be kept secure.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. Provide heel-proof, recessed foot grilles (sand traps) at doors that directly enter onto wood floors such as the Gymnasium.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. For Upholstered Audience Seating, specify tablet arms for 50 percent of the provided fixed seating. Specify a minimum 15 percent of the tablets to be left handed.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. The Architect shall specify molded plastic seating for gymnasium bleacher systems. Detail the bleacher controls in a single, central location and specify the operation to be keyed.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. The Architect shall specify the following with regard to Bike Racks:

    a. Detail the bike racks so that there is direct Administrative surveillance.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Locate the racks to minimize bike traffic crossing pedestrian traffic and to prevent bike traffic crossing any vehicular traffic.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Specify the Ribbon Rack by Brandir as basis of design.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Detail bike racks to be permanently mounted to the concrete paving per manufacturer requirements.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. Detail a 6’ high chain link fence with double 4’ wide gates around bike racks.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 12
FURNISHINGS

DIVISION 13
SPECIAL CONSTRUCTION

1. The intent of this Division is to establish the quality level for grandstand seating.

2. Grandstands and bleachers shall be provided with adequate aisles to preclude having to walk on the seats.

   Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. Concrete or paved sidewalks shall be provided to the grandstands and bleachers from adjacent buildings or parking areas.

   Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. The Architect shall specify that there are to be no gaps in walking surfaces or seating areas. Areas below seating shall be fenced for security.

   Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 13
SPECIAL CONSTRUCTION

DIVISION 14
CONVEYING EQUIPMENT

1. The intent of this Division is to establish the quality level for elevators.
2. Detail the cab size with a 6' by 6' nominal interior dimension.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____
3. The cab call shall be by key activation only.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____
4. Specify and detail the interior finish using the manufacturer's standard plastic laminate or stainless steel panels. Flooring shall match elevator vestibule finish.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____
5. Specify that the elevator manufacturer's authorized representative shall submit a signed letter acknowledging either of the requirements below:

   a. It is the manufacturer's intent to supply the SBBC continuing services maintenance contractor with special tools, instruction, computer programs, and any other items necessary to service and maintain the elevator.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Service or maintenance of the elevator does not require special tools, computer programs, or any other special items.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 14
CONVEYING EQUIPMENT

DIVISION 21
FIRE PROTECTION SYSTEM

1. The intent of this Division is to establish the quality level for the fire protection sprinkler system.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

2. The Architect/Engineer shall specify that fire protection sprinkler systems will be designed in accordance with the requirements of NFPA 13.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. The Architect/Engineer shall specify that the fire protection systems shall be installed by a State of Florida Certified Fire Protection Contractor.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. The Architect/Engineer shall specify that the fire service shall be separate from the potable water service.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. The Architect/Engineer shall specify that for a single building campus, a reduced pressure backflow prevention assembly and a fire department connection will be provided in the fire main.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. The Architect/Engineer shall specify that for a multi-building campus, a reduced pressure backflow prevention assembly will be provided in the campus fire main and that a post indicator valve, check valve, and a fire department connection will be provided in each individual building supply line.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. The Architect/Engineer shall specify that post indicator valves and fire department connections shall be a minimum of 40' from the nearest building.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. The Architect/Engineer shall specify that all equipment, valves, couplings, hangers and devices shall be approved by Underwriters' Laboratory (UL) and Factory Mutual (FM) for use in fire protection service.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. The Architect/Engineer shall specify that underground piping shall be Ductile Iron Class 52, UL/FM approved. Fittings shall be Class 250, Mechanical Joint. All underground pipe lengths and bends shall be rodded and all bends shall have thrust blocks.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. The Architect/Engineer shall specify that 2” or smaller pipe, and all threaded piping shall be black steel, Schedule 40, ASTM A-53. 2-1/2” and larger pipe may be black steel, Schedule 10, ASTM A-135. The use of CPVC or flexible piping of any kind is prohibited.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. The Architect/Engineer shall specify that Schedule 40 black steel pipe be joined by mechanical couplings, threaded or welded fittings; Schedule 10 black steel pipe shall be joined by rolled groove couplings or welded fittings only. Welded branch connections which are at least 2 nominal pipe sizes smaller than the main are permitted. Threaded fittings are acceptable only for piping 2" and smaller.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. The Architect/Engineer shall specify that flanged fittings shall be threaded or welded, cast iron or steel, short body, Class 125. Gaskets shall be full face 1/8" minimum thickness red sheet rubber. Flange bolts shall be hexagon head machine bolts with heavy semi-finished hexagon head nuts, cadmium plated, having dimensions in accordance with ANSI B18.2. Grooved flanges shall not be permitted. Flange gaskets for dry pipe systems shall be made of material specifically listed for air service.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. The Architect/Engineer shall specify that all black steel pipe and fittings exposed to the exterior, moisture or corrosive fumes must have a protective coating, such as factory hot-dipped galvanization; galvanized painting of piping is prohibited.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

14. The Architect/Engineer shall specify that only materials designed for 175 psig CWP shall be used for fire protection piping unless specifically indicated otherwise. All piping materials shall have a corrosion resistance rating (CCR) of 1.0 or greater.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

15 The Architect/Engineer shall specify that pipe hangers on 4" and larger piping shall be clevis-type only. All hanger spacing shall comply with the requirements of NFPA-13.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

16. The Architect/Engineer shall specify the following requirements for valves.

    a. Gate Type Isolation, 2-1/2" and Larger: Isolation valves 2-1/2" and larger shall be gate valves with open screw and yoke. Valve shall have cast iron body with the valve size, pressure rating, manufacturer, and "UL" and "FM" cast into the body. Valve shall have bronze or cast iron double disc and wedge, cast iron handwheel, bolted cast iron bonnet, non-re-lubricatable bronze stem with O-ring seals, and corrosion inhibiting asphalt varnish finish. Valve shall have 175 psig CWP working pressure, 350 psig test pressure, flanged connections, and shall be provided with an integral tamper switch.

        Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Butterfly Type Isolation, 2" and Smaller: Isolation valves 2" and smaller shall be butterfly valves rated for 175 psig CWP. Valve shall have bronze body, type 304 stainless steel disc, type 303 stainless steel stem, Viton disc seal, steel handle with plastic grip, threaded connections, and integral tamper switch assembly.

        Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Butterfly Type Isolation, 2-1/2" and Larger: Isolation valves 2-1/2" and larger shall be cast iron body butterfly valves with the valve size, pressure rating, manufacturer and "UL" and "FM" cast into the body. Valve shall have bronze or cast iron disc, neoprene disc liner, cast iron handwheel with disc position indicator, integral tamper switch, 175

psig CWP working pressure, 350 psig CWP test pressure, and flanged or grooved connections.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Check Valve: Check valves shall be horizontal swing type rated for 175 psig CWP working pressure and 350 psig test pressure. Check valves shall have cast iron body with the valve size, "UL", "FM" and flow directional arrow cast into the body; bronze disc ring with cast iron disc; bronze hinge and hinge plug; malleable iron clapper arm; and bolted cast iron cover. Provide factory paint or hot-dipped galvanized finish.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

17. The Architect/Engineer shall specify the following requirements for sprinkler heads.

a. Upright sprinkler heads shall be manufactured with upright deflectors for installation above the branch line.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Recessed sprinkler heads shall be manufactured for installation below the branch line. Sprinkler shall be chrome-plated and furnished with a chrome-plated recessed escutcheon.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Fire sprinkler frames and bulbs shall be color-coded to identify the temperature rating of the fusible element. Unless otherwise indicated, fire sprinkler heads shall have 1/2" threaded male connection and 1/2" orifice, shall have a temperature rating of 155 degrees F, and brass frame with flat brass finish.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Where heads are exposed to damage, provide sprinkler head open-wire cage guard to protect heads from injury. Cage wire shall be cadmium-plated steel.

e. Do not paint the fusible-link attached covers of concealed sprinklers.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

18. The Architect/Engineer shall specify that a spare fire sprinkler head cabinet be provided per the requirements of NFPA 13. Sufficient spare sprinkler head cabinets shall be provided to store the required quantities of spare sprinkler heads. Storage cabinets shall be red gloss, polyester-coated steel construction. Provide spare heads of each type and each different temperature rating installed; provide installation tools or wrenches with each different type of sprinkler head per NFPA 13. Cabinet shall have catch-lock and continuous piano hinge.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

19. The Architect/Engineer shall specify that an electronic supervisory or tamper switch be provided on each isolation valve, post indicator valves, and backflow preventers in the sprinkler system. Unit shall have a red tamper-proof cover which will activate an alarm or trouble signal when adjusted. Provide unit with single-pole, normally closed microswitch, mounting bracket, and non-resettable lock with removable reset key.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

20. The Architect/Engineer shall specify that an electric flow switch be provided where required. Flow shall be sensed by an immersion paddle, with an adjustable retard setting from 0 to 70 seconds to minimize false alarms. Flow switch shall have 2 separate single pole; double throw microswitches to activate a flow alarm or to indicate a trouble signal if the flow switch housing is tampered. Flow alarm shall be automatically resetting. Provide clamp-on housing to secure unit to pipe, or threaded connection for tee fitting.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

21. The Architect/Engineer shall specify that a sight drain be provided. The sight drain shall have 2 view windows to provide visual observation of water flow, and shall have female threaded connections.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

22. The Architect/Engineer shall specify that an Electric Alarm Bell be provide. The bell shall be a 10” electric bell, 120 VAC.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

23. The Architect/Engineer shall specify that a freestanding Fire Department Connection be provided. The Fire Department Connection shall meet the following requirements: Cast brass angle body, 4" x 2-1/2" x 2-1/2", two-way with clappers, 18" long brass seamless cover sleeve, cast brass identification base plate, cast brass pin lug plugs and chains on each pin lug swivel. Provide with polished chrome finish and 4" concrete base that extends 6" beyond base plate.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

24. The Architect/Engineer shall specify that the entire system shall be flushed with clean water to remove debris resulting from installation. Flush through a burlap bag to retain debris for examination.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

25. The Architect/Engineer shall specify that above ground and below ground piping systems be hydrostatically tested at not less than 200 psi pressure, or at 50 psi in excess of the maximum pressure, whichever is greater, for a period of 2 hours. The test pressure shall be read from a gauge located at the low elevation point of the individual system or portion of the system being tested. The sprinkler piping shall not have leakage exceeding the amounts specified in NFPA 24. Leakage quantities shall be determined by pumping at the specified test pressure from a calibrated container. Repair leaking joints and retest as necessary until all systems have been tested. Test the piping between the check valve in the fire department inlet pipe and the outside connection the same as the balance of the system.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 21
FIRE PROTECTION SYSTEM

DIVISION 22
PLUMBING

1. The intent for this Division is to establish the quality level for Plumbing Work.

2. The Architect/Engineer shall incorporate the following specific area requirements into the plumbing system design:

   a. Mechanical Rooms: Provide floor drain and CW hose bibb

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Kitchens: Provide floor drain and hose bibb. PVC waste lines shall not be allowed in kitchens. Kitchens shall be provided with scullery/level drains. Provide commercial trim on kitchen sinks. Provide grease traps for kitchens with heavy duty traffic lids. Provide indirect safe wastes at kitchen equipment drains.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Building Exterior: Provide hose bibb every 75 linear feet and at competitive ball fields.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Laboratories, Industrial Arts Areas: Provide emergency shower/eyewash and sloped floor drain. Provide individual acid waste naturalization traps for each laboratory sink drain.

   e. Group Restrooms: Provide floor drain and keyed CW hose bibb. Waterless urinals shall be used in public restrooms at stadiums and other non-conditioned venues.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. The Architect/Engineer shall provide the following domestic water services:

   a. Faculty Restrooms: HW, CW

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Student Restrooms: CW

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Clinic: HW, CW

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Laboratory: HW/CW at teacher station and perimeter student stations, CW at island student stations

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   e. Kitchen: HW, CW

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   f. Custodial Closet: HW, CW

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. The Architect/Engineer shall include the following in the stormwater system design:

   a. Provide cleanouts at 75' intervals for 4" and larger pipes, 50' intervals for 3" and smaller pipes, and at the upstream end of all piping mains.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Provide 2-way exterior grade cleanout in 18"x18"x4" thick concrete pad near the junction of the building drain and building sewer.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Secondary emergency roof drain systems shall be independent of the primary drain system and may consist of parapet scupper. Secondary drain system outlets shall terminate above grade.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Stormwater and secondary stormwater drains interior to building shall be insulated.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. The Architect/Engineer shall include the following in the sanitary system design:

   a. Provide cleanouts at 75' intervals for 4" and larger pipe, 50' intervals for 3" and smaller pipes, and at the upstream end of all piping mains.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Provide 2-way exterior grade cleanout in 18"x18"x4" thick concrete pad near the junction of the building drain and building ewer.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Air admittance valves are prohibited on vent stacks.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Provide deep seal traps and trap primers at all floor drains.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   e. Terminate vent piping a minimum of 10' from any door, window, or fresh air intake.

   f. Water closets installed back to back shall be provided with double wye or double combination sanitary fittings.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. The Architect/Engineer shall include the following in the domestic water system design:

   a. Provide shutoff valves to isolate sections of the facility. At a minimum, isolate group restrooms, building wings, and rooms in three-room sections. Water valves should be accessible and labeled.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Design shall include water hammer arresters of the sealed, piston type. Air chambers are not acceptable.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Type "L" copper piping and tubing should be used above slab. Do not specify Type "M."

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Schedule 40 PVC piping may be used for cold water below slab as service entrance piping. Piping within building envelope shall be copper.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Valves shall have brass stems. Plastic stems are not allowed. PVC valves are not allowed.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Provide isolation valves on all fixtures.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Provide escutcheons at all wall penetrations.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. The Architect/Engineer shall include the following in the domestic hot water system design:

a. Water heaters for other than the kitchen shall be sized for a 70°F temperature rise and provided with quarter turn ball valves in lieu of gate valves on the cold and hot water supply lines. In addition, heat traps shall be provided on the CW and the HW lines if they are not already integral with the water heater. Set water heater temperature at 130–140 °F, thermostatic mixing valves shall reduce temperature to 105 °F.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Commercial water heaters for the kitchen shall be sized for a 70°F temperature rise. 140°F hot water shall only be required for the kitchen four compartment pot sink. The kitchen four compartment sink shall also be provided with cold water. 110°F hot water and cold water shall be required in all other kitchen areas. Set kitchen hot water heater at 140°F, thermostatic mixing valve shall reduce temperature to 110°F.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. All water heaters shall be programmed to operate only during occupied periods via Building Management System interlock.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Wall mounted water heaters shall be provided with a safety pan containing a pan drain. Both the 1-inch pan drain and the ¾-inch P&T relief drain shall be made of copper and run separately into a mop sink, floor drain or extend to the building exterior as a last resort. Discharge onto a concrete walkway is **prohibited**.

e. A thermometer and thermostatic mixing valve shall be provided on all water heaters.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. The Architect/Engineer shall specify the following piping requirements.

a. PVC cellular core piping not permitted.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Underground piping locations are to be specified on plans and coordinated with other trades. Installation of gravity systems should precede other disciplines.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Underground copper pipe to be installed in continuous plastic sleeve free of dirt and moisture.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Provide isolation valves outside of each building, for each single and group toilet room, and for each exterior hose bib. Where service riser enters building provide valve 4' above floor and pressure gauge. Gate valves preferred at under ground locations; ball valves preferred at above slab locations.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Gas piping: Underground gas piping to be installed in casing and vented as required per code. Straight lengths of pipe leading directly to the exterior preferred. Above ground gas piping shall not be located over any corridor unless sleeved and vented.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Piping shall not be located within 3" of roof deck where subject to damage from roof fasteners.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. The Architect/Engineer shall specify the following labeling requirements.

a. Continuous lengths of identification tape noting particular system is to be provided above all underground piping. Tape shall be located 12" below final grade.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. All above ceiling piping shall be labeled noting particular system at maximum 20' intervals and in each space. Piping located inside cabinets to be labeled noting particular system. Exposed piping located in rooms to be labeled noting particular system. One inch wide permanent self stick label required where valves located above suspended ceiling.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Concealed isolation valves shall be labeled and their location identified in the interior of the spaces.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. The Architect/Engineer shall specify the following system acceptance testing requirements.

a. New potable water system for buildings, additions, and for civil work shall require two consecutive days water tests performed by an independent testing lab. Quantity and location of samples to be specified and/or determined by scope of work. Reports to be submitted to SBBC upon receipt.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. When water service is disrupted or low water pressure conditions occur, existing potable water system in buildings, additions, and for civil work shall require two consecutive day water tests to be performed by an independent testing lab. Quantity and location of samples to be specified and/or determined by scope of work. Reports to be submitted to SBBC upon receipt.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Test requirements are to be compliant with codes. Minimum test pressures to be specified. Below and above ground sanitary sewer drain and vent piping shall be tested in its entirety.

Smoke testing above ground vent piping permitted. Reports to be submitted to SBBC upon receipt.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. The Architect/Engineer shall specify the following plumbing fixture material requirements.

    a. Provide materials which have been selected for their surface, flatness and smoothness. Exposed surfaces which exhibit pitting, seam marks, roller marks, foundry sand holes, stains, decolorations or other surface imperfections on finished fixtures are not acceptable.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Where fittings, trim and accessories are exposed or semi-exposed, provide bright chrome plated or polished stainless steel products. Provide copper or brass where products are not exposed.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Stainless steel sheets shall be ASTM A167, Type 302/304 of the hardest workable temper.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Finish shall be No. 4, bright, directional polish on exposed surfaces.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. Vitreous china fixtures shall be high quality with glaze exposed surfaces free from fire cracks, spots, blisters, pinholes and specks and tested for crazing resistance in accordance with ASTM C554.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    f. Synthetic stone fixtures shall be high quality with glaze exposed surfaces free from defects and stain resistant.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. The Architect/Engineer shall specify the following plumbing fixture trim and accessory requirements.

    a. General: Trim shall include supply pipes, stop valves, faucets, tail pieces, strainers, wastes, traps, floor and wall escutcheon plates (brass). Exposed trim shall be chrome plated.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Water Outlets: Include manual shutoff valves and connecting stem pipes to permit outlet servicing without shutdown of water supply piping systems.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Vacuum Breakers: Provide vacuum breakers with flush valves wherever required by the governing regulations including locations where water outlets are equipped for hose attachment.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. P-Traps: Provide commercial grade adjustable cast brass removable P-traps where drains are indicated for direct connection to the drainage system. P-traps are to be insulated and installed parallel to the wall on all handicap lavatories.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Fixture Bolt Caps: Provide fixture manufacturer's standard exposed fixture bolt caps finished to match fixture finish.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Escutcheons: Provide chrome plated escutcheons with friction clips.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. The Architect/Engineer shall specify the following acceptable Manufacturers for floor drains

a. Toilets (FD-1): ANSI A112.21.1; Painted cast iron, one piece no-hub body with drainage flange seepage openings, weep holes, 5" round adjustable nickel bronze top, 1/2" trap primer connection; basis of design shall be Zurn #ZN-41 5-BP, acceptable alternates are J.R. Smith #2005A-P and Josam #30000-A-50.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Mechanical Room (FD-2): ANSI A112.21.1; Medium duty painted cast iron no-hub body with sediment bucket round bar grate top; basis of design shall be Zurn #Z-551-Y, acceptable alternates are J.R. Smith #2270Y-B and Josam #32120.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Kitchen (FS-1): ANSI A112.21.1; Painted cast iron no-hub body with drainage flange seepage openings, 5" x 5" square adjustable nickel bronze top; 1/2" trap primer connection; basis of design shall be Zurn #ZN-1960-K-T-23, acceptable alternates are J.R. Smith #3101Y-P and Josam #49000-31.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Under Kitchen Sinks (FS-2): ANSI A112.21.1; Painted cast iron two piece no-hub body with drainage flange seepage openings, 7" round anti-splash funnel type polished bronze strainer head; 1/2" trap primer connection; Zurn #ZB-415-I-P.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Floor Sink (FS-3) ANSI A112.21.1; white acid resisting porcelain enamel coated drain with a 12" x 12" nickel bronze half grate and aluminum anti-splash dome strainer; Zurn Z-1902, 10" deep

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Install trap primers at all floor drains, with the exception of kitchen drains.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

14. The Architect/Engineer shall specify the following acceptable Manufacturers for Cleanouts:

a. Floor Cleanout/Interior Finished Floor Areas (FCO): ANSI A112.21.1; Cast iron two piece body with round adjustable secured nickel bronze top with depressed cover to accept floor finish and closure plug; Zurn #ZN-1400-NH

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Wall Cleanout (WCO): Bronze threaded plug with stainless steel cover and screw; Zurn #Z-1468

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Grade Cleanout/Exterior Paved Areas (ECO): Painted cast iron body with round adjustable scoriated cast iron top and non-tilt tractor cover; Zurn #Z-1400

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Grade cleanout /exterior in Non Paved Areas: PVC acceptable. Provide ECO flush to grade surrounded by 1' by 1' concrete collar.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Provide cleanouts in accordance with codes and at the upstream end of piping runs. Provide cleanouts upstream and downstream of grease interceptors. **Provide cleanouts at 50' intervals for piping of 3" or less and 75' intervals for piping 4" and larger**.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

15. The Architect/Engineer shall specify the following acceptable Manufacturers for Water Hammer Arresters: J. R. Smith Series 5000; Josam Series 75000; Precision Plumbing Products, Type II. Water Hammer Arrester (PDI) shall be ANSI 1010-96; sized in accordance with PDI WH-201, precharged suitable for operation in temperature range - 100 to 300 degrees F and maximum 250 psig working pressure, stainless steel construction. Install water hammer arresters on each non-grip fixture or at the end of supply lines of group of fixtures to prevent water hammer. Provide shutoff valves to isolate each cold and hot water branch line.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

16. The Architect/Engineer shall specify the following acceptable Manufacturers for Wall Hydrant: J. R. Smith #5509QT-SAP; Josam #71010; Zurn #Z-1320. Wall Hydrant/Building Exterior (HB-2) shall be ANSI/ASSE 1011; vandal-proof cast bronze, mild-climate recessed wall hydrant with satin face, self-opening locking cover removable key, 3/4" HPT outlet, integral vacuum breaker; recessed stainless steel box. Install wall hydrants at 100' intervals on building exterior. Provide at least one exterior wall hydrant on small buildings.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

17. The Architect/Engineer shall specify the following acceptable Manufacturers for Hose Bibb: basis of design shall be Zurn #Z-1314; acceptable alternates are J.R. Smith #5609QT-SAP and Josam #71070. Hose Bibb/Building Interior (HB-1) shall be ANSI/ASSE 1011; vandal-proof cast bronze hose bibb with replaceable hexagonal disc, 3/4" HPT outlet, and vacuum breaker.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

18. The Architect/Engineer shall specify the following acceptable Manufacturers for Thermostatic Mixing Valve: Leonard #TM-554-15; Powers #; Symmons. Thermostatic Mixing Valves (TMV) shall be rated at 8-10 GPM at 45 PSI differential pressure with check valve, volume control shutoff on outlet and strainer stop check on inlet.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

19. The Architect/Engineer shall specify the following acceptable Manufacturers for Trap Primer (TP): basis of design shall be Zurn #Z-1022; acceptable alternates are J.R. Smith Series 2699 and Josam #88250. Provide automatic 1/2" trap primer systems for all interior floor drains.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

20. The Architect/Engineer shall specify the following acceptable Manufacturers for Vent Cap: basis of design shall be Zurn #Z-193, and J.R. Smith #1748 and Josam #26700. Vent Caps shall be painted cast iron dome secured with recessed allen socket head set screw.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

21. The Architect/Engineer shall specify the following acceptable Manufacturers for Valve Box: Brooks Products, Inc. Provide underground valve box with traffic cover. Valve box shall be made of concrete.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

22. The Architect/Engineer shall specify the following acceptable Manufacturers for Backflow Preventer: Watts #909RP; Wilkins #RPZ-975. Backflow Preventer shall have bronze body with stainless steel internal parts, coated strainer, oversized relief vent, test cocks, shutoff valves.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

23. The Architect/Engineer shall specify the following acceptable Manufacturers for Urinal (UR-1): Wall mounted: 1 gallon flush, vitreous china water saver, 1" top spud and privacy shields. Kohler #K-4972-T "Stanwell"; American Standard #6601.012 "Lynbrook".

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

24. The Architect/Engineer shall specify the following acceptable Manufacturers for Urinal/Accessible (UR-2): Wall mounted: 1 gallon flush, vitreous china water saver, 1" top spud and privacy shields. Kohler #K-4972-T "Stanwell"; American Standard #6601.012 "Lynbrook"

    Note: Urinal Flush Valve: Exposed chrome plated, diaphragm type with metal oscillating handle, escutcheon, integral screwdriver stop and vacuum breaker. Sloan Royal #180-1.0-YB; Zurn #Z-6001-WS-1-YK.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

25. The Architect/Engineer shall specify the following acceptable Manufacturers for Urinal (UR-1): Wall mounted, waterless: Waterless Co. Kalahari 2003.

    Note: Standard urinal fixture (UR-1) installed at accessible height for urinal fixtures identified as accessible

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

26. The Architect/Engineer shall specify the following acceptable Manufacturers for Water Closet (WC-1): Grades K through 12, Faculty and Public Toilets

    a. Bowl: Floor mounted, siphon jet, 1.5 to 1.6 gallon, vitreous china closet bowl with elongated rim and 1-1/2" top spud: Kohler #K-4350 "Welcome Lite"; American Standard #2234.015 "Madera" EL 1.6

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Flush Valve: Exposed chrome plated, diaphragm type with metal oscillating handle, escutcheon, seat bumper, integral screwdriver stop, vacuum breaker and YK pipe support: Sloan Royal #111-YB; Zurn #Z-6000-WS-1-YK.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Seat: Solid white or black fire-resistant plastic, open front, self-sustaining hinge, brass bolts and without cover: Sperzel #50EW-SSCH; Olsonite #10CC/SS/FR

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

27. The Architect/Engineer shall specify the following acceptable Manufacturers for Water Closet/Accessible (WC-3): Grades K through 3:

a. Bowl: Floor mounted, siphon jet, 1.5 to 1.6 gallon, vitreous china closet bowl with elongated rim and 1-1/2" top spud: Kohler #K-4350 "Welcome Lite"; American Standard #2234.015 "Madera" EL 1.6

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Flush Valve: Exposed chrome plated, diaphragm type with metal oscillating handle, escutcheon, seat bumper, integral screwdriver stop, vacuum breaker and YK pipe support: Sloan Royal #111-YB; Zurn #Z-6000-WS-1-YK.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Seat: Solid white or black fire-resistant plastic, open front, self-sustaining hinge, brass bolts and without cover: Sperzel #50EW-SSCH; Olsonite #10CC/SS/FR.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Water closets for designated accessible toilets in Kindergarten through Grade 3 shall be standard height fixtures.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

28. The Architect/Engineer shall specify the following acceptable Manufacturers for Water Closet/Accessible (WC-2): Grades 4 through 12 and Public Toilets

a. Bowl: Floor mounted, siphon jet, 1.5 to 1.6 gallon, vitreous china closet bowl with elongated rim and 1-1/2" top spud: Kohler #K-4368 "Highcliff Lite"; American Standard #3043.102 "Cadet" EL 1.6.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Flush Valve: ANSI A112.18.1; 5 PSI maximum push pressure, exposed chrome plated, diaphragm type with metal oscillating handle, escutcheon, seat bumper, integral screwdriver stop, vacuum breaker and YK pipe support: Sloan Royal #111-YB; Zurn #Z-6000-WS-1-YK.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Seat: Solid white or black fire-resistant plastic, open front, self-sustaining hinge, brass bolts and without cover: Sperzel #50EW-SSCH; Olsonite #10CC/SS/FR

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

29. The Architect/Engineer shall specify the following acceptable Manufacturers for Lavatory – Cold Water Only (L-1)

    a. Basin: 20" x 18" wall hung with floor-mounted concealed arm carrier, acid-resisting, enameled cast iron lavatory with 4" centers: Kohler #K-2867 "Hudson"

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Faucet: Adjustable slow closing push button metering faucet for CW only, 4" center, deckplate, 2.0 GPM vandal resistant flow control and internal stream regulator: basis of design shall be Chicago 857-E12-VPC-665 vandal proof complete. Acceptable alternate is T & S #B-805.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Supply Riser: 3/8" chrome plated angle stop with loose key stop, rigid riser, escutheon plate and brass chrome plated nipples: McGuire #158LK.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Grid Drain: Lavatory drain assembly with a 1-1/4" tailpiece: McGuire #155-A.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. P-Trap: Chrome plated with swivel joint and cleanout: McGuire #8872.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    f. Carrier: Steel upright with cast iron arms: J.R. Smith #702-M34; Zurn #Z-1236.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

30. The Architect/Engineer shall specify the following acceptable Manufacturers for Lavatory/Accessible – Cold Water Only (L-2)

    a. Basin: 20" x 18" wall hung with floor-mounted concealed arm carrier, acid-resisting, enameled cast iron lavatory with 4" centers: Kohler #K-2867 "Hudson".

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Faucet: Adjustable slow closing push button metering faucet for CW only, 4" center, deckplate, 2.0 GPM vandal resistant flow control and internal stream regulator: basis of design shall be Chicago 857-E12-VPC-665 vandal proof complete. Acceptable alternate is T & S #B-805.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Supply Riser: 3/8" chrome plated angle stop with loose key stop, rigid riser, escutheon plate, and brass chrome plated nipples: McGuire #158LK.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Grid Drain: Offset perforated wheelchair lavatory drain assembly with a 1-1/4" tailpiece: McGuire #155-WC

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. P-Trap: Chrome plated with swivel joint and cleanout: McGuire #8872. P-Trap to be insulated and installed parallel to wall.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Carrier: Steel upright with cast iron arms: J.R. Smith #702-M34; Zurn #Z-1236.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

31. The Architect/Engineer shall specify the following acceptable Manufacturers for Lavatory – Hot and Cold Water (L-3):

a. Basin: 20" x 18" wall hung with floor-mounted concealed arm carrier, acid-resisting, enameled cast iron lavatory with 4" centers.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Kohler #K-2867 "Hudson".

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Faucet: Quarter turn, rear deck mounted fitting for HW and CW with 4" integral spout, 4" center deckplate, 2.0 GPM vandal proof complete. Basis of design shall be Chicago #802-V317-XLCP or equal.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Supply Riser: 3/8" chrome plated angle stop with loose key stop, rigid riser, escutheon plate, and brass chrome plated nipples: McGuire #158LK.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Grid Drain: Lavatory drain assembly with a 1-1/4" tailpiece: McGuire #155-A.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. P-Trap: Chrome plated with swivel joint and cleanout: McGuire #8872.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Carrier: Steel upright with cast iron arms: J.R. Smith #702-M34; Zurn #Z-1236.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

32. The Architect/Engineer shall specify the following acceptable Manufacturers for Countertop Lavatory – Hot and Cold Water (L-4)

a. Basin: 19" diameter countertop, self-rimming, enamel cast iron lavatory with 4" centers: Kohler #K-2916 "Farmington".

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Faucet: Adjustable, slow closing push button mixing faucet for HW and CW, 4" center, deckplate, 2.0 GPM vandal resistant flow control and internal stream regulator: basis of design shall be Chicago Faucet 844-E12-VPC-665. Acceptable alternate is T & S #B-807.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Supply Riser: 3/8" chrome plated angle supply with loose key stop, rigid riser, escutheon plate, and brass chrome plated nipples: McGuire #158LK.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Grid Drain: Lavatory drain assembly with a 1-1/4" tailpiece: McGuire #155-A.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. P-Trap: Chrome plated with swivel joint and cleanout: McGuire #8872.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

33. The Architect/Engineer shall specify the following acceptable Manufacturers for Single Compartment Sink – Cold Water Only (SK-1)

a. Bowl: 15" x 15" single compartment, 20 gauge, Type 302 or 304 stainless steel, self rim sink with rear deck single faucet hole and sound dampening undercoat: Just #SB-1515-B-GR; Elkay #BPSR-15.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Faucet: Quarterturn, rear deck mounted fitting for CW only with rigid gooseneck spout, 1.6 GPM vandal resistant laminar flow control and a 4" wrist blade handle: basis of design shall be Chicago Faucet #350-GN2-FC-317; acceptable alternate is T & S #B-305.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Supply Riser: 3/8" chrome plated angle supply with loose key stop, rigid riser, escutheon plate, and brass chrome plated nipples: McGuire #158LK.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Grid Drain: Chrome plated drain assembly with 1-1/2" tailpiece: McGuire #152.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. P-Trap: Chrome plated with swivel joint and cleanout: McGuire #8912

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

34. The Architect/Engineer shall specify the following acceptable Manufacturers for Single Compartment Sink – Cold Water Only (SK-2).

a. Bowl: 17" x 25"single compartment, 20 gauge, Type 304 stainless steel, self rim sink with rear deck single faucet hole and sound dampening undercoat: Just #CRA-ADA-1725-A-GR.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Faucet: Quarterturn, rear deck mounted fittings for CW only with rigid gooseneck spout, 1.6 GPM vandal resistant laminar flow control, internal stream regulator and a 4" wrist blade handle: basis of design shall be Chicago Faucet #350-GN2-E3-VPC vandal proof complete. Acceptable alternate is T & S Brass #B305.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Supply Riser: 3/8" chrome plated angle supply with loose key stop, rigid riser, escutheon plate, and brass chrome plated nipples.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Grid Drain: Chrome plated drain assembly with 1-1/2" tailpiece: McGuire #152.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. P-Trap: Chrome plated with swivel joint and cleanout: McGuire #8912

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

35. The Architect/Engineer shall specify the following acceptable Manufacturers for Single Compartment Sink – Hot and Cold Water (SK-3).

    a. Bowl: 17" x 22" single compartment, 20 gauge, Type 302 or 304 stainless steel, self rim sink with rear deck single faucet hole and sound dampening undercoat: Just #CSL-2217-B-GR; Elkay #PSR-1722.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Faucet: Quarterturn, rear deck mounted fittings for HW and CW with rigid gooseneck spout, 8" center, 1.6 GPM vandal resistant laminar flow control, internal stream regulator and 4" wrist blade handles: basis of design shall be Chicago Faucet #50-GN2-FC-317-VPC vandal proof complete. Acceptable alternate is T & S Brass #B-300.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Supply Riser: 3/8" chrome plated angle supply with loose key stop, rigid riser, escutheon plate, and brass chrome plated nipples.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Grid Drain: Chrome plated drain assembly with 1-1/2" tailpiece: McGuire #152.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. P-Trap: Chrome plated with swivel joint and cleanout: McGuire #8912.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

36. The Architect/Engineer shall specify the following acceptable Manufacturers for Single Compartment Sink with Bubbler – Cold Water Only (SK-4).

    a. Bowl: 17" x 25" single compartment, 20 gauge, Type 302 or 304 stainless steel, self rim sink with single faucet hole on center on left ledge, bubbler hole on front of right ledge and sound dampening undercoat: Just #CRA-1725-A-GR; Elkay #PSDKR-2517C.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Bubbler: Push-button, self-closing, right deck mounted angle stop bubbler with drain lip, flow control, coupling nut and a maximum of 5 PSIG activating pressure: basis of design shall be Chicago Faucet #748-669; acceptable alternate is T & S Brass #B-2220.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Faucet: Quarterturn, left deck mounted fitting for CW only with rigid gooseneck spout, 4" center, 1.6 GPM vandal resistant laminar flow control, internal stream regulator and 4" wrist blade handle: basis of design shall be Chicago Faucet #350-GN2-AE3-VPC vandal proof complete. Acceptable alternate is T & S Brass #B-300.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Supply Riser: 3/8" chrome plated angle supply with loose key stop, rigid riser, escutcheon plate and brass chrome plated nipples: McGuire #158LK.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. Grid Drain: Chrome plated drain assembly with 1-1/2" tailpiece: McGuire #152.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    f. P-Trap: Chrome plated with swivel joint and cleanout: McGuire #8912.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

37. The Architect/Engineer shall specify the following acceptable Manufacturers for Double Compartment Sink – Hot and Cold Water (SK-6).

    a. Bowl: 33" x 22" double compartment, 18 gauge, type 302 or 304 stainless steel, self rim sink with rear deck single hole center faucet and sound dampening undercoat: Just #SL-ADA-2133-A-GR; Elkay #PSR-3322.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Faucet: Quarterturn, rear deck mounted fitting for HW and CW with swinging gooseneck spout, 8" center, 1.6 GPM vandal resistant laminar flow control, internal stream regulator and 4" wrist blade handles: basis of design shall be Chicago Faucet #350-GN2-AE3-VPC vandal proof complete. Acceptable alternate is T & S Brass #B-301.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Supply Riser: 1/2" chrome plated angle supply with loose key stop, rigid riser, escutcheon plate, and brass chrome plated nipples.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Grid Drain: Chrome plated drain assembly with 1-1/2" tailpiece: McGuire #152.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. P-Trap: Chrome plated with swivel joint and cleanout: McGuire #8912.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

38. The Architect/Engineer shall specify the following acceptable Manufacturers for Service Sink – Hot and Cold Water (SK-7).

    a. Bowl: Nominal 21" x 18" x 12" deep single compartment, 14 gauge, Type 304 stainless steel, wall mounted, seamless welded construction, 12 high sink back, two faucet holes, rounded vertical and horizontal corners, rolled rims, satin luster finish, stainless steel wall brackets: Just #A18665; Elkay #ESSW-2118.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Faucet: Chrome plated, backsplash mounted mixing faucet for HW and CW with swinging gooseneck spout, 8" center, 1.6 GPM vandal resistant laminar flow control, internal stream regulator and 4" wrist blade handles: basis of design shall be Chicago Faucet 897-RCF-VPC vandal proof complete. Acceptable alternate is T & S Brass #B-331.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Grid Drain: Chrome plated drain assembly with 1-1/2" tailpiece: McGuire #152.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Interceptor: In lieu of P-trap use Zurn Z-1180.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

39. The Architect/Engineer shall specify the following acceptable Manufacturers for Shower/Wall Mounted – Hot and Cold Water (SH-1): Leonard (#H-06 Shower Head, #LVC-SB Mixing Valve, #D21 Diverter); Powers (#141-381 Shower Head, #T425C Mixing Valve, #141-701Y Diverter).

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

a. Trim: Concealed shower supply with pressure-balanced single-handle mixing valve, diverter, 2.5 GPM flow control and chrome plated fixed vandal resistant standard height and handicap height shower heads.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

40. The Architect/Engineer shall specify the following acceptable Manufacturers for Shower/Wall Mounted and Handheld – Hot and Cold Water (SH-2): Leonard (#H-06 Shower Head, #501P Handheld Shower Head, #LVC-SB Mixing Valve, #D21 Diverter); Powers (#141-381 Shower Head, #141-318 Handheld Shower Head, #T425C Mixing Valve, #141-701Y Diverter).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

a. Trim: Concealed shower supply with pressure-balanced single-handle mixing valve, diverter, 2.5 GPM flow control and chrome plated fixed vandal resistant standard height showerhead and handicap handheld shower head.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

41 The Architect/Engineer shall specify the following acceptable Manufacturers for Thermostatic Group Shower Mixing Valve: Mixing valve rated at 8-10 GPM at 45 PSI differential with check valve, volume control shutoff valve on outlet and strainer stop check on inlet.: Leonard #TM-15-E-RF; Powers; Symmons.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

42. The Architect/Engineer shall specify the following acceptable Manufacturers for Electric Water Cooler – Building Interior (EWC-1) Fountain: Wall mounted, electric water cooler with stainless steel top, heavy-gauge steel body with baked enamel or vinyl clad finish, elevated anti-squirt bubbler with stream guard, 5 PSI self-closing front and side pushbars, automatic stream regulator, mounting bracket, integral air-cooled condenser; capacity of 8 Gal/Hour of 50 Degree F water with inlet at 80 Degree F and room temperature of 90 Degree F, 1/5 HP compressor. Push bars activated by electrical micro switches shall not be provided. Halsey HAC8F-Q; Oasis #P8AC.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

43. The Architect/Engineer shall specify the following acceptable Manufacturers for Electric Water Cooler/Handicap – Building Interior (EWC-2) Fountain: Wall mounted, ADA compliant, handicap electric water cooler with stainless steel top, heavy-gauge steel body with baked enamel or vinyl clad finish, elevated anti-squirt bubbler with stream guard, 5 PSI self-closing front and side pushbars, automatic stream regulator, mounting bracket, integral air-cooled condenser; capacity of 8 Gal/Hour of 50 Degree F water with inlet at 80 Degree F and room temperature of 90 Degree F, 1/5 HP compressor. Push bars activated by electrical micro switches shall not be provided. Halsey HAC8F-Q; Oasis #P8ACSL.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

44. The Architect/Engineer shall specify the following acceptable Manufacturers for Drinking Fountain – Exterior Wall Mounted/Accessible (EWC-3) Fountain: Wall mounted, ADA compliant, dual-height accessible drinking fountain with stainless steel top, heavy-gauge steel body with baked enamel or vinyl clad finish, elevated anti-squirt bubbler with stream guard, 5 PSI pushbar, automatic stream regulator and mounting bracket. Push bars activated by electrical micro switches shall not be provided. Halsey HAC8FBL-Q; Oasis #MSSLPM.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

45. The Architect/Engineer shall specify the following acceptable Manufacturers for Mop Sink (JR-1) Custodial Closets.

    a. Basin: 24" x 24" x 10" one piece terrazzo stone corner mop sink with 3" stainless steel drain body, dome strainer and lint basket: Fiat #TSB-2424.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Faucet: Chrome plated, wall mounted service faucet for HW and CW with vacuum breaker, integral stops, adjustable wall brace, pail hook, threaded spout, 8" centers, 1.6 GPM vandal resistant laminar flow control and four arm handles: basis of design shall be Chicago #897-CP, acceptable alternate is T & S Brass #B-665-BSTR.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Trim: 5/8" x 30" long plain end cloth reinforced rubber hose, stainless steel mop hanger plate with three rubber mop grips and vinyl bumperguard: Fiat #832-AA and 889-CC.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

46. The Architect/Engineer shall specify the following acceptable Manufacturers for Combination Emergency Shower/Eyewash (EWS).

    a. Shower: 8" diameter yellow impact-resistant ABS plastic deluge shower head with 1-1/4" self-closing ball valve and rigid pull rod: basis of design shall be Chicago #9202, acceptable alternate is Speakman #SE-603.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Eyewash: 18-3/4" x 13" stainless steel receptor with 1/2" stay-open ball valve, stainless steel push handle, six aerated brass spray heads with converging streams and yellow propylene covers, 1-1/4" tailpiece, integral flow control and bowl strainer.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Drain: Drain: ANSI A112.21.1, 10" x 10" x 6" deep, 3" bottom outlet, painted no-hub cast iron body, flanged receptor with seepage holes, acid resistant coated interior, nickel bronze rim and secured grate with sediment bucket, 1/2" trap primer connection. J.R. Smith # 3101Y-P; Josam # 49000-31; Zurn #ZN-415-B-P.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Emergency shower/eyewash shall include floor drain. Floor shall be sloped to drain. Drain to be located to right, left, or behind, not in front. Riser drain shall be piped to vicinity of drain, but shall not be a trip hazard.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

47. The Architect/Engineer shall specify the following acceptable Manufacturers for Emergency Shower (ES).

    a. Shower: 8" diameter yellow impact-resistant ABS plastic deluge shower head with 1" overhead supply, 1" self-closing ball valve and rigid pull rod: basis of design shall be Chicago #9101, acceptable alternate is Speakman #SE-201-SCV.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Drain: ANSI A112.21.1, 10" x 10" x 6" deep, 3" bottom outlet, painted no-hub cast iron body, flanged receptor with seepage holes, acid resistant coated interior, nickel bronze rim and secured grate with sediment bucket, 1/2" trap primer connection: J.R. Smith # 3101Y-P; Josam # 49000-31; Zurn #ZN-415-B-P.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Emergency shower shall include floor drain. Floor shall be sloped to drain. Drain to be located to right, left, or behind, not in front. Riser drain shall be piped to vicinity of drain, but shall not be a trip hazard.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

48. The Architect/Engineer shall specify the following acceptable Manufacturers for Emergency Eyewash (EW): basis of design shall be Chicago #9008; acceptable alternate is Speakman #SE-400WC. Emergency eyewash shall be wall mounted 18 3/4" x 13" stainless steel receptor with 1/2" stay-open ball valve, stainless steel push handle, six aerated brass spray heads with converging streams and yellow propylene covers, 1-1/4" tailpiece, integral flow control and bowl strainer. Install each fixture with trap easily removable for servicing and cleaning. Provide chrome plated rigid or flexible supplies to fixtures with loose key stops, reducers, and escutcheons. Emergency eyewash shall include floor drain. Floor shall be sloped to drain. Drain to be located to right, left, or behind, not in front. Riser drain shall be piped to vicinity of drain, but shall not be a trip hazard.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

49. The Architect/Engineer to indicate washer/dryer connections in main custodial and kitchen.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

50. The Architect/Engineer to indicate non-electric water bubbles at sports fields.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 22
PLUMBING

DIVISION 23
HVAC

1. The intent for this Division is to establish the quality level for HVAC Work. The Architect/Engineer shall incorporate the following requirements into their design.

   a. Contractor shall obtain all necessary permits, meters, and inspections required for his work and pay all fees and charges incidental thereto.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Install work as required to fit structure, avoid obstructions, avoid or provide protection in areas subject to damage, retain clearance, headroom, openings and passageways. Cut no structural members without written approval from the Architect of Record and the SBBC. Isolation devices to control vibration transmission and noise transmission shall be incorporated.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. All materials and equipment shall be installed and completed in a first-class workmanlike manner and in accordance with the best modern methods and practice. Any materials installed which do not present an orderly and reasonably neat and/or workmanlike appearance, or do not allow adequate space for maintenance, shall be removed and replaced when so directed by the SBBC.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Before any equipment is shut down for disconnecting or tie-ins, arrangements shall be made with the SBBC and this work shall be done at the time best suited to the SBBC. Outages must be scheduled through the SBBC at least 72 hours prior to the event. Extent, length, and timing of outages shall be reviewed by the SBBC. Services shall be restored the same day. Provide temporary power or other services as required during outages.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   e. Start each item of equipment in strict accordance with the manufacturer's instructions; or where noted under equipment specification, start-up shall be done by a qualified representative of the manufacturer.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

2. The HVAC system design for new school facilities and full renovations shall incorporate chilled water and shall consist of a central energy plant containing the following minimum criteria.

   a. A minimum of two water cooled chillers shall be included in the design. Include 20% redundancy in chilled water capacity. The chillers shall be suitable for making ice. The chilled water system shall include primary/secondary pumping. The primary and secondary side shall be isolated by a plate and frame heat exchanger. The primary side shall include one primary pump for each chiller. The primary side shall utilize a 30% ethyl glycol solution as the working fluid. The primary pumps shall include variable frequency drives for modulation of primary water flow for optimum ice utilization. The secondary piping system shall include two pumps, each sized for one hundred percent of full system capacity. The secondary side shall utilize water as a working fluid. The secondary pumps shall be equipped with variable frequency drives for secondary loop flow control.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. The cooling towers shall be fiberglass type with variable frequency drives controlling each tower fan. Stainless steel and molded plastic towers may be used with the permission of the SBBC. The towers shall be sized to match each chiller capacity. One tower shall be provided per chiller. The condenser water pumps shall be single speed, constant volume type, with one pump per chiller/cooling tower.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Ice storage shall be provided and shall be sized to provide full load shift on peak days. A plate and frame heat exchanger shall be included as part of the central energy plant and shall be sized as required to satisfy full ice storage capabilities.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. The HVAC air side systems design shall include the following:

a. Air handling units shall be dual path type, providing pre-filtered and pre-cooled outside air. Systems using dedicated OA units in lieu of dual path may be specified with the permission of the SBBC. The air handlers shall be low temperature type, providing a leaving air temperature of 45 – 47 deg F. Filters shall be provided in both the outside air path and return air paths of the unit. Filtration shall consist of 2" MERV 7 pre-filters and 4" MERV 11 final filters in each path.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. The air handlers shall include variable frequency drives for variable volume control (guide vanes shall be prohibited) in all areas except the kitchen. The kitchen shall be provided with a constant volume unit.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. The building HVAC shall be zoned such that Media, Auditorium, Gymnasium, and Administration areas are provided with independent air handling units. Auditoriums and gymnasiums shall be served by at least two air handlers. Air handling units shall not serve more than one floor or building. All air handling units shall be installed in enclosed mechanical rooms.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Separate DX systems shall be provided for Dry Foods/Goods Storage located at the kitchen. Additional areas that shall be provided with DX systems include the Computer Equipment Room and the Main Electrical Room.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Include dehumidification units in addition to regular cooling for Media, Instrument Storage and Uniform Storage areas. Dehumidification units shall be DX stand alone type.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Where possible, install Energy Recovery Ventilators (ERV) to pretreat outside air. ERVs should be of the plate type incorporating semi-permeable membrane technology.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. The HVAC system design for additions and partial renovations shall incorporate the use of chilled water from the existing central energy plant where available. If a central energy plant is not available or does not have sufficient capacity for the proposed addition/ renovation a

dedicated chilled water system shall be provided. The use of DX systems shall require prior approval from the SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. The Architect/Engineer shall specify the following Identification for HVAC Piping and Equipment:

   a. Provide equipment nameplates, equipment markers, equipment signs, access panel and door markers, pipe markers, duct markers, stencils, valve tags, valve schedules, warning tags.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Comply with ASME A13.1, “Scheme for the Identification Piping Systems,” for letter size, length of color field, colors, and viewing angles of identification devices for piping.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Install and permanently fasten equipment nameplates on each major item of mechanical equipment that does not have nameplate or has nameplate that is damaged or located where not easily visible. Locate nameplates where accessible and visible. Include nameplates for the following general categories or equipment::

      - Pumps, compressors, chillers, condensers, and similar motor-driven units.
      - Heat exchangers, coils, evaporators, cooling towers, heat recovery units, and similar equipment.
      - Fans, blowers, primary balancing dampers, and mixing boxes.
      - Packaged HVAC central-station and zone-type units.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Provide continuous lengths of magnetic identification tape noting particular system above all underground piping. Identification tape shall be located 12” below final grade.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   e. All above ceiling piping shall be labeled with the particular system designation and flow arrows at a maximum of 20’ intervals. Labeling shall be included in each space. Exposed piping located in rooms to be labeled with flow arrows noting particular system. Provide a 1” wide permanent self stick label where valves are located above suspended ceilings.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. The Architect/Engineer shall specify the following general hydronic piping system requirements:

   a. Comply with ASME B31.9, "Building Services Piping," for materials, products, and installation. Heat exchangers, air separators and expansion tanks shall comply with the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Provide for chemical treatment of all hydronic systems. Furnish sufficient chemicals, such as coupon racks, shot feeder, etc. for initial system startup and for preventive maintenance for one year from date of Substantial Completion. Water treatment chemicals shall be from the same manufacturer that is currently supplying chemicals to the SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Provide products by one of the following:

- Grooved Mechanical-Joint Fittings and Couplings: Central Grooved Piping Products; Grinnell Corporation; Victaulic Company of America.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Valves: Hills-McCanna; Jenkins; Milwaukee.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Plug Valves: Rockwell-Nordstrom; Reson. Check Valves: Mueller, Nibco.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Relief Valves: Sarco; Watts; Wilkens.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Calibrated Balancing Valves: Armstrong Pumps, Inc.; Griswold Controls; ITT Bell & Gossett; ITT Fluid Technology Corp.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Pressure-Reducing Valves: Amtrol, Inc.; Armstrong Pumps, Inc.; ITT Bell & Gossett; ITT Fluid Technology Corp.; Watts Industries, Inc.; Watts Regulators.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Safety Valves: Amtrol, Inc.; Armstrong Pumps, Inc.; ITT McDonnell & Miller Div.; ITT Fluid Technology Corp.; Kunkle Valve Division.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Expansion Tanks: Amtrol, Inc.; Armstrong Pumps, Inc.; ITT Bell & Gossett; ITT Fluid Technology Corp.; Taco, Inc.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Air Separators and Air Purgers: Amtrol, Inc.; Armstrong Pumps, Inc.; ITT Bell & Gossett; ITT Fluid Technology Corp.; Taco, Inc.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. The Architect/Engineer shall specify the following materials for Chilled Water Piping, Above Ground, 2" and Under: Drawn-Temper Copper Tubing: ASTM B 88, Type L; Annealed-Temper Copper Tubing: ASTM B 88, Type K; Wrought-Copper Fittings: ASME B16.22; Wrought-Copper Unions: ASME B16.22; Threaded Pipe Nipples and Fittings: ANSI B16.15-1985, Schedule 40, hand drawn brass or copper pipe nipples with cast brass or copper fittings.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. The Architect/Engineer shall specify the following materials for Chilled Water Piping, Above Ground, 2-1/2" and Larger: Steel Pipe, NPS 2-1/2 through NPS 12: ASTM A 53, Type E (electric-resistance welded), Grade A, Schedule 40, black steel, plain ends; Forged-Steel Flanges and Flanged Fittings: ASME B16.5, including bolts, nuts, and gaskets of the following material group, end connections, and facings.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. The Architect/Engineer shall specify the following Manufacturers for Chilled Water Piping, Buried. Factory Pre-insulated Steel Pipe: Carrier: ASTM A 53, Type E, Grade A, Schedule 40, black (ERW), plain ends; Fittings: ASTM A 234, forged steel welding type, factory pre-fabricated.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   a. Joints: ANSI/AWS D1.1, welded. Insulate and seal per manufacturer's recommendations.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Casing: PVC Type 1, Grade 1, ASTM D 1785. Minimum thickness shall be as follows: 0.070" for 3" pipe and smaller; 0.080" for 4" and 5" pipe; 0.100" for 6" pipe; 0.120" for 8" pipe; 0.140" for 10" pipe; 0.160" for 12" pipe; 0.180" for 14" pipe.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Insulation: Factory foamed in-place closed-cell polyurethane foam completely filling the annulus between the steel pipe and casing. Minimum thickness shall be 1". For insulation ends, provide factory applied, vapor barrier mastic end seals, with SBBC approval.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Performance specification is based on Pre-insulated Piping Systems, INSUL-TEK 250 Steel. Other pre-insulated piping systems satisfying the specifications are acceptable.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. The Architect/Engineer shall specify the following for Condenser Water Piping (Above and Below Grade) and fittings:

   a. Steel Pipe: ASTM A53 or A120, Schedule 40 black steel.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Fittings: ANSI/ASTM B16.3, long radius, malleable iron or ASTM A234, forged steel welding type.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Joints: Screwed for 2" and under or ANSI/AWS D1.1, welded for pipe over 2".

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Copper Tubing: ASTM B88, Type L, hard drawn.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   e. Fittings: ANSI/ASME B16.23, long radius, cast brass or ANSI/ASME B16.29, solder wrought copper.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   f. Joints: ASTM B32, lead-free solder, 95-5 tin-antimony or tin-silver with melting range of 430 to 535 Degree F; ANSI/AWS A5.8, brazed, BCuP silver/phosphorous/copper alloy with melting range of 1190 to 1480 Degree F.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. The Architect/Engineer shall specify the following for Condenser Water Piping (Above Grade Exterior to Buildings): PVC Pipe: ASTM D1785, Schedule 80, UV inhibited PVC. Fittings: ASTM D2466 or D2467, PVC. Joints: ASTM D2855, solvent cement.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. The Architect/Engineer shall specify the following for Cooling Tower Overflow Drains: PVC Pipe: ASTM D1785, UV inhibited, Schedule 40 PVC. Fittings: ASTM D2466 or D2467, PVC. Joints: ASTM D2855, solvent cement.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. The Architect/Engineer shall specify the following for Equipment Drains:

    a. Copper Tubing: ASTM B88, Type L hard drawn.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Fittings: ASTM D2466.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Joints: ASTM B32, lead-free solder, 95-5 tin-antimony or tin-silver with melting range of 430 to 535 Degree F; ANSI/AWS A5.8, brazed, BCuP silver/phosphorus/copper alloy with melting range of 1190 to 1480 Degree F.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. PVC Pipe: ASTM D1785, UV inhibited, Schedule 40 PVC.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. Fittings: ASTM D2466 or D2467, PVC.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    f. Joints: ASTM D2855, solvent cement.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

14. The Architect/Engineer shall specify the following for Valves, General:

    a. Refer to Part 3 "Valve Applications" Article for applications of valves.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Bronze Valves: NPS 2 and smaller with threaded ends, unless otherwise indicated.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. Ferrous Valves: NPS 2-1/2 and larger with flanged ends, unless otherwise indicated.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Valve Pressure and Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. Valve Sizes: Same as upstream pipe, unless otherwise indicated.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

15. The Architect/Engineer shall specify the following for Valve Actuators:

    a. Chainwheel: For attachment to valves, of size and mounting height, as indicated in the "Valve Installation" Article in Part 3.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Gear Drive: For quarter-turn valves NPS 8 and larger.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Handwheel: For valves other than quarter-turn types.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Lever Handle: For quarter-turn valves NPS 6 and smaller, except plug valves.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Wrench: For plug valves with square heads. Furnish SBBC with 1 wrench for every 10 plug valves, for each size square plug head.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Extended Valve Stems: On insulated valves.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Valve Flanges: ASME B16.1 for cast-iron valves, ASME B16.5 for steel valves and ASME B16.24 for bronze valves.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Valve Grooved Ends: AWWA C606.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Solder Joint: With sockets according to ASME B16.18. Caution: Use solder with melting point below 840 deg F for angle, check, gate, and globe valves; below 421 deg F for ball valves.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Threaded: With threads according to ASME B1.20.1.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. Valve Bypass and Drain Connections: MSS SP-45.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

16. The Architect/Engineer shall specify the following for Hydronic Specialties:

a. Manual Air Vent: Bronze body and nonferrous internal parts; 150-psig working pressure; 225 deg F operating temperature; manually operated with screwdriver or thumbscrew; with NPS 1/8 discharge connection and NPS 1/2 inlet connection.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Automatic Air Vent: Designed to vent automatically with float principle; bronze body and nonferrous internal parts; 150-psig working pressure; 240 deg F operating temperature; with NPS 1/4 discharge connection and NPS 1/2 inlet connection.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Expansion Tanks: Welded carbon steel, rated for 125-psig working pressure and 375 deg F maximum operating temperature. Separate air charge from system water to maintain design expansion capacity by a flexible bladder securely sealed into tank. Include drain fitting and taps for pressure gauge and air-charging fitting. Support vertical

tanks with steel legs or base; support horizontal tanks with steel saddles. Factory fabricate and test tank with taps and supports installed and labeled according to the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Tangential-Type Air Separators: Welded black steel; ASME constructed and labeled for 125-psig minimum working pressure and 375 deg F maximum operating temperature; perforated stainless-steel air collector tube designed to direct released air into expansion tank; tangential inlet and outlet connections; threaded connections for NPS 2 and smaller; flanged connections for NPS 2-1/2 and larger; threaded blowdown connection. Provide units in sizes for full-system flow capacity.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. In-Line Air Separators: One-piece cast iron with an integral weir designed to decelerate system flow to maximize air separation at a working pressure up to 175 psig and liquid temperature up to 300 deg F.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Air Purgers: Cast-iron body with internal baffles that slow the water velocity to separate the air from solution and divert it to the vent for quick removal. Maximum working pressure of 150 psig and temperature of 250 deg F.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Bypass Chemical Feeder: Welded steel construction; 125-psig working pressure; 5-gal. capacity; with fill funnel and inlet, outlet, and drain valves.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Chemicals: Specially formulated, based on analysis of makeup water, to prevent accumulation of scale and corrosion in piping and connected equipment. Chemicals should also control growth of biologicals to less than 10,000 cfu/ml. Chemicals shall be from the same manufacturer that currently supplies chemicals to the SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Diverting Fittings: 125-psig working pressure; 250 deg F maximum operating temperature; cast-iron body with threaded ends, or wrought copper with soldered ends. Indicate flow direction on fitting.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Y-Pattern Strainers: 125-psig working pressure; cast-iron body (ASTM A 126, Class B), flanged ends for NPS 2-1/2 and larger, threaded connections for NPS 2 and smaller, bolted cover, perforated stainless-steel basket, and bottom drain connection.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. Flexible Connectors: Stainless-steel bellows with woven, flexible, bronze, wire-reinforcing protective jacket; 150-psig minimum working pressure and 250 deg F maximum operating temperature. Connectors shall have flanged- or threaded-end connections to match equipment connected and shall be capable of 3/4” misalignment.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

l. Spherical, Rubber, Flexible Connectors: Fiber-reinforced rubber body with steel flanges drilled to align with Classes 150 and 300 steel flanges; operating temperatures up to 250 deg F and pressures up to 150 psig.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

m. Packed, Slip, Expansion Joints: 150-psig minimum working pressure, steel pipe fitting consisting of telescoping body and slip-pipe sections, packing ring, packing, limit rods, flanged ends, and chrome-plated finish on slip-pipe telescoping section.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

n. Pressure-Reducing Valves: Diaphragm-operated, bronze or brass body with low inlet pressure check valve, inlet strainer removable without system shutdown, and noncorrosive valve seat and stem. Select valve size, capacity, and operating pressure to suit system. Valve shall be factory set at operating pressure and have capability for field adjustment.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

o. Safety Valves: Diaphragm-operated, bronze or brass body with brass and rubber, wetted, internal working parts; shall suit system pressure and heat capacity and shall comply with the ASME Boiler and Pressure Vessel Code, Section IV.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

17. The Architect/Engineer shall specify the following requirements for Gate Valves.

a. Up to 2": Bronze body and trim, non-rising stem and handwheel, inside screw, single wedge or disc, threaded ends. Solder ends for copper pipe.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Over 2": Cast iron body, bronze trim, rising stem and handwheel, OS&Y, single wedge, flanged ends.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

18. The Architect/Engineer shall specify the following requirements for Globe Valves:

a. Up to 2": Bronze body and trim, non-rising stem and handwheel, inside screw, renewable composition disc, soldered or threaded ends with back seating capacity.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Over 2": Cast iron body, bronze trim, rising stem and handwheel, OS&Y, plug-type disc, flanged ends, renewable seat and disc.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

19. The Architect/Engineer shall specify the following requirements for Ball Valves:

a. Up to 2": Bronze body, stainless steel ball, full port, teflon seats and stuffing box ring, lever handle, balancing stops, extended neck, soldered or threaded ends.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Over 2": Cast steel body, chrome plated steel ball, teflon seat and stuffing box seals, lever handle, flanged ends.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

20. The Architect/Engineer shall specify the following requirements for Butterfly Valves Over 2":

    a. Cast iron body, bronze or stainless steel disc, resilient replaceable seat for service to 250 Degree F, lug ends, extended neck, ten position lever handle or handwheel and gear drive on valves 6" and larger unless otherwise noted.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Extended neck shall extend beyond insulation for unobstructed operation. Gear operators shall be provided on valves at pumps and chilled water inlet and outlet.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

21. The Architect/Engineer shall specify the following requirements for Plug Valves:

    a. Up to 2": Bronze body, bronze tapered plug, non-lubricated, teflon packing, threaded ends with one wrench operator for every ten plug cocks.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Over 2": Cast iron body and plug, pressure lubricated, teflon packing, flanged ends with wrench operator with set screw.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

22. The Architect/Engineer shall specify the following requirements for Check Valves:

    a. Silent Check Valve: Cast iron body, bronze trim, stainless steel spring, renewable composition disc, threaded or flanged ends.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Swing Check Valve: Up to 2", Bronze body, 22 or 45 degree swing disc, threaded ends. Over 2" cast iron with flange connections.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

23. The Architect/Engineer shall specify the following requirements for Relief Valves:

    a. Bronze body, teflon seat, stainless steel stem and springs, automatic, direct pressure actuated, capacities.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Valves shall be ASME certified and labeled.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

24. The Architect/Engineer shall specify the following requirements for Flanges, Unions and Coupling:

    a. Pipe Size 2" and Under: 150 psig malleable iron unions for threaded ferrous piping; bronze unions for copper pipe, soldered joints.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Pipe Size Over 2": 150 psig forged steel slip-on flanges for ferrous piping; bronze flanges for copper piping.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

25. The Architect/Engineer shall specify the following requirements for Hydronic Specialties Installation

a. Install manual air vents at high points in piping, at heat-transfer coils, and elsewhere as required for system air venting.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Install automatic air vents in mechanical equipment rooms only at high points of system piping, at heat-transfer coils, and elsewhere as required for system air venting. Pipe discharge to floor drain.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Install in-line air separators in pump suction lines. Install piping to compression tank with a 2 percent upward slope toward tank. Install drain valve on units NPS 2 and larger.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Install combination air separator and strainer in pump suction lines. Install piping to compression tank with a 2 percent upward slope toward tank. Install blowdown piping with gate valve; extend to nearest drain.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Install bypass chemical feeders in each hydronic system where indicated, in upright position with top of funnel not more than 48" above floor. Install feeder in bypass line, off main, using globe valves on each side of feeder and in the main between bypass connections. Pipe drain, with ball valve, to nearest equipment drain.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Install expansion tanks on floor on housekeeping pad. Vent and purge air from hydronic system, and ensure tank is properly charged with air to suit system design requirements.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Flexible piping connectors may be substituted with three Victaulic style, grooved mechanical joints at connections to coils, pumps, and other hydronic accessories if recommended by the Architect/Engineer.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Thermometers shall be blue-fluid.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Pressure gauges shall have appropriate scales.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

26. The Architect/Engineer shall specify the following requirements for Valve Applications:

a. General-Duty Valve Applications: Unless otherwise indicated, use the following valve types:

- Shutoff Duty: Ball and butterfly valves;
- Throttling Duty: Ball and butterfly valves.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Install shutoff duty valves at each branch connection to supply mains, at supply connection to each piece of equipment, unless only one piece of equipment is connected in the branch line.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Install check valves at each pump discharge and elsewhere as required to control flow direction.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Install pressure-reducing valves as shown to regulate system pressure.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

27. The Architect/Engineer shall specify the following requirements for Valve Installation:

a. Install valves with unions or flanges at each piece of equipment.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Locate valves for easy access and provide separate support where necessary.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

28. The Architect/Engineer shall specify the following for Refrigerant Piping

a. Refrigeration Piping – Copper Tube and Fittings

b. Drawn-Temper Copper Tube: ASTM B 280, Type ACR.

c. Annealed-Temper Copper Tube: ASTM B 280, Type ACR.

d. Wrought-Copper Fittings: ASME B16.22.

e. Wrought-Copper Unions: ASME B16.22.

f. Bronze Filler Metals: AWS A5.8, Classification BAg-1 (silver).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

29. The Architect/Engineer shall specify the following requirements for Refrigeration Piping – Valves:

a. Diaphragm Packless Valves: 500-psig working pressure and 275 deg F working temperature; globe design with straight-through or angle pattern; forged-brass or bronze body and bonnet, phosphor bronze and stainless-steel diaphragms, rising stem and handwheel, stainless-steel spring, nylon seat disc, and with solder-end connections.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Packed-Angle Valves: 500-psig working pressure and 275 deg F working temperature; forged-brass or bronze body, forged-brass seal caps with copper gasket, back seating, rising stem and seat, molded stem packing, and with solder-end connections.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Check Valves Smaller Than NPS 1: 400-psig operating pressure and 285 deg F operating temperature; cast-brass body, with removable piston, polytetrafluoroethylene seat, and stainless-steel spring; globe design. Valve shall be straight-through pattern, with solder-end connections.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Check Valves, NPS 1 and Larger: 400-psig operating pressure and 285 deg F operating temperature; cast-bronze body, with cast-bronze or forged-brass bolted bonnet; floating piston with mechanically retained polytetrafluoroethylene seat disc. Valve shall be straight-through or angle pattern, with solder-end connections.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Service Valves: 500-psig pressure rating; forged-brass body with copper stubs, brass caps, removable valve core, integral ball check valve, and with solder-end connections.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Solenoid Valves: Comply with ARI 760. Select device compatible with the equipment being serviced. Follow manufacturer's requirements.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Pressure-Regulating Valves: Comply with ARI 770. Select device compatible with the equipment being serviced. Follow equipment manufacturer's requirements.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Pressure Relief Valves: Straight-through or angle pattern, brass body and disc, neoprene seat, and factory sealed and ASME labeled for standard pressure setting.

i. Thermostatic Expansion Valves: Comply with ARI 750. Select device compatible with the equipment being serviced. Follow equipment manufacturer's requirements.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

30. The Architect/Engineer shall specify the following or Refrigerant Piping Specialties:

a. Straight- or Angle-Type Strainers: 500-psig working pressure; forged-brass or steel body with stainless-steel wire or brass-reinforced Model screen of 80 to 100 mesh in liquid lines up to 1-1/8" , 60 mesh in larger liquid lines, and 40 mesh in suction lines; with screwed cleanout plug and solder-end connections.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Moisture/Liquid Indicators: 500-psig maximum working pressure and 200 deg F operating temperature; all-brass body with replaceable, polished, optical viewing window with color-coded moisture indicator; with solder-end connections.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Replaceable-Core Filter-Dryers: 500-psig maximum working pressure; heavy gauge protected with corrosion-resistant-painted steel shell, flanged ring and spring, ductile-iron cover plate with steel cap screws; wrought-copper fittings for solder-end connections; with replaceable-core kit, including gaskets and the following:

- Filter Cartridge: Pleated media with integral end rings, stainless-steel support, ARI 730 rated for capacity.
- Filter-Dryer Cartridge: Pleated media with solid-core sieve with activated alumina, ARI 730 rated for capacity.
- Wax Removal Cartridge: Molded, bonded core of activated charcoal and desiccant with integral gaskets.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Permanent Filter-Dryer: 350-psig maximum operating pressure and 225 deg F maximum operating temperature; steel shell and wrought-copper fittings for solder-end connections; molded-felt core surrounded by desiccant.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Mufflers: 500-psig operating pressure, welded-steel construction with fusible plug; sized for refrigeration capacity.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

31. The Architect/Engineer shall specify the following requirements for Refrigeration Piping Specialty Applications:

a. Select devices compatible with equipment being served. Follow equipment manufacturer's requirements.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Install liquid indicators in liquid line leaving condenser, in liquid line leaving receiver, and on leaving side of liquid solenoid valves.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Install strainers immediately upstream from each automatic valve, including expansion valves, solenoid valves, hot-gas bypass valves, and compressor suction valves.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Install strainers in main liquid line where multiple expansion valves with integral strainers are used.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Install moisture-liquid indicators in liquid lines between filter-dryers and thermostatic expansion valves and in liquid line to receiver.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Install pressure relief valves on ASME receivers; pipe discharge to outdoors.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Install replaceable-core filter-dryers in vertical liquid line adjacent to receivers and before each solenoid valve.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Install permanent filter-dryers in low-temperature systems, in systems using hermetic compressors, and before each solenoid valve.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Install solenoid valves in liquid line of systems operating with single pump-out or pump-down compressor control, in liquid line of single or multiple evaporator systems, and in oil bleeder lines from flooded evaporators to stop flow of oil and refrigerant into suction line when system shuts down.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Install receivers, sized to accommodate pump-down charge, on systems 5 tons and larger and on systems with long piping runs.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. Install flexible connectors at or near compressors where piping configuration does not absorb vibration.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

32. The Architect/Engineer shall specify the following requirements for Refrigeration Piping Installation: Install refrigerant piping according to ASHRAE 15.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

33. The Architect/Engineer shall specify the following requirements for Field Quality Control: Test and inspect refrigerant piping according to ASME B31.5, Chapter VI.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

34. The Architect/Engineer shall specify the following requirements for Air and Water-Cooled Chillers:

a. Warrantees: Special Warranty: Submit a written warranty signed by chiller manufacturer and installer agreeing to furnish parts for compressor and motor failures within special warranty period. Warranty Period: 5 years parts and labor on all components, from date of Substantial Completion. Provide 5 year service agreement to include 3 quarterly PM service visits and one annual PM service visit each year.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Manufacturers: Subject to compliance with requirements, Manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following: McQuay International; Trane Company (The); United Technologies Corp.; Carrier Division; York International Corporation

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Refrigerant material: R-134a (HFC-134a) for high pressure chillers and HCFC-123 for low-pressure chillers. Provide full operating charge of refrigerant and oil. Condenser Coil Coating: Baked epoxy or heresite.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Examination: Examine areas to receive chillers for compliance with installation tolerances and other conditions affecting performance and maintenance of chillers. Examine proposed route of moving chillers into place and verify that it is free of interferences. Verify piping roughing-in locations. Verify branch circuit wiring suitability. Do not proceed with installation until unsatisfactory conditions have been corrected.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Installation: Install chillers according to manufacturer's written instructions. Install chillers plumb and level, and anchor. Anchor housekeeping pads to building floor or equipment pad. Anchor chiller and vibration isolators to housekeeping pad. Install vibration isolators according to isolator manufacturer's written instructions. Maintain manufacturer's recommended clearances for service and maintenance. Provide chilled water system with a make up water line. Provide a back flow preventor in the make up water line.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Field Quality Control: Manufacturer's Field Service: Provide services of a factory-authorized service representative to supervise field assembly of components and installation of chillers, including piping and electrical connections, and to report results in writing. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

35. The Architect/Engineer shall specify the following for Cooling Towers:

a. Quality Assurance: Manufacturer's Certification; Certify cooling tower's thermal performance according to CTI 201. Manufacturers: Subject to compliance with requirements, provide products by one of the following: Baltimore Air Coil; Ceramic Cooling Tower Co., an affiliated company of Baltimore Aircoil Company; Evapco, Inc.; Protec Cooling Towers, Inc.; Marley; Tower Tech; Delta, Reymsa.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Description: Induced-draft, counterflow cooling tower that is factory fabricated and assembled

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Fan: Belt driven, reinforced polypropylene propeller. Bearings: Self-aligning ball bearings or bronze sleeve bearings. Vibration Cutout Switch: De-energize fan motors if excessive vibration occurs.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Hot-Water Distribution System: Header pipe and removable branch pipes for even distribution of water over fill material. Pipe Material: Schedule 80 PVC. Nozzles: Removable plastic, brass, or ceramic nozzles. Maximum Pressure Drop: 12 psig

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Casing: Non-metallic with UV inhibitors; cylindrically formed with bolted sections.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Collecting Basin: Non-metallic. Removable strainer with openings smaller than nozzle orifices. Overflow connection. Makeup water connection. Drain Connection: Side or bottom.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Fill Material: PVC; resistant to rot, decay, and biological attack; with maximum flame spread index of 5 according to ASTM E 84; and fabricated, formed, and installed by manufacturer to ensure that water breaks up into droplets.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Drift Eliminator Material: PVC; resistant to rot, decay, and biological attack; with maximum flame spread index of 5 according to ASTM E 84.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Drift Eliminator Material: Non-metallic.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Louver Material: Fiberglass reinforced plastic.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. Provide make up water line including a hose bib at the cooling tower. Provide backflow preventor in make up water line.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

l. Test and certify cooling towers according to CTI 111 and 201.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

m. Engage a factory authorized service representative to inspect field assembled components and equipment installation, including piping and electrical connections and to supervise start-up. Report results in writing.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

36. The Architect/Engineer shall specify the following requirements for Condensing Units:

a. Manufacturer's warranty in which manufacturer agrees to repair or replace condensing units that fail in materials and workmanship within two years from date of Substantial Completion.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Condensing Units 1 to 5 Tons: Factory assembled and tested, air cooled; consisting of compressors, condenser coils, fans, motors, refrigerant reservoirs, and operating controls. Acceptable Manufacturers: Carrier Corp.; Carrier Air Conditioning Div.; Trane Co. (The); North American Commercial Group; York International Corp

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Condensing Units, Air Cooled, 6 to 120 Tons: Factory assembled and tested, air cooled; consisting of casing, compressors, condenser coils, condenser fans and motors, and unit controls. Acceptable Manufacturers: Carrier Corp.; Carrier Air Conditioning Div.; McQuay International; Trane Co. (The); North American Commercial Group; York International Corp.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Condenser coils shall have corrosion protective coating. The Engineer will decide on the condenser coil coating requirements on project by project basis. Where applicable, provide condenser coil coating process. All coating materials and methods must pass a minimum of 3000 hours of salt spray exposure in a testing performed by an independent laboratory in accordance with ASTM B117.85. The company providing coating process shall also provide a five year coil limited warranty.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Condensing units shall be installed at ground level. Roof top installation will require specific SBBC approval.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

37. The Architect/Engineer shall specify the following requirements for Modular Air Handling Units:

a. ARI Certification: Air handling units and their components shall be factory tested according to the applicable portions of ARI 430, "Central-Station Air-Handling Units," and shall be listed and bear the label of the Air Conditioning and Refrigeration Institute (ARI).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Manufacturers: Subject to compliance with requirements, provide products by one of the following: Trane Company (**Trane Company AHU coils that process outside air**, either single stream or mixed air, *shall be coated to prevent flaking*); York International Corp.; Carrier Division, United Technologies Corp.; McQuay International

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Manufactured Units General Description: Factory assembled, consisting of fans, motor and drive assembly, coils, plenums, filters, drip pans, and accessories as scheduled on design drawings.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Air handling units shall be installed at ground or floor level. Roof top installation will require specific SBBC approval.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Locate units in rooms that allow service on at least three sides, with fourth side accessible for passage. Do not abut units against wall. Climbing under duct sections to access unit not approved. Do not set unit until floor and house cleaning pad concrete have been properly sealed. Position coil in direction that permits replacement without removal of structural wall.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

38. The Architect/Engineer shall specify the following requirements for PTACs:

a. PTAC units shall be heat pumps, 13 SEER minimum efficiency

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Warrantees: Written warranty, executed by manufacturer agreeing to repair or replace components of split-system air-conditioning units that fail in materials or workmanship within specified warranty period. Warranty Period: One year from date of substantial completion (five year manufacturer's warranty on compressors). Condenser coil shall have five year warranty by coating manufacturer.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Manufacturers: Subject to compliance with requirements, provide products by one of the following: Bard, Inc.; CTSI, Inc.; Marvair, Inc.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Filter Section: Two" thick, pleated, disposable filters, MERV 11 minimum efficiency.

e. Specify the following accessories:

- Hot gas reheat.
- Exterior louver and grille collar for fresh air and condenser coil protection.
- Baked epoxy, heresite, or similar corrosion resistant coating on condenser coil.

- Heat recovery energy recovery wheel capable of 70% sensible and latent heat recovery for up to 450 cfm of outdoor air.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Unit shall be controlled via a DDC control module from the building automation system vendor.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

39. The Architect/Engineer shall specify the following requirements for Fan-Coil Units:

a. Manufacturers: Subject to compliance with requirements, provide products by one of the following: Carrier Corp.; Dunham-Bush, Inc.; McQuay International; Trane Company (The); North American Commercial Group; Temspec; USA Coil & Air Inc.; York International; Change Air, Inc.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Configuration: Vertical Units: An assembly for floor-to-floor mounting, including cabinet, filter, chassis, coil, drain pan, fan, and motor in blow-through configuration with hydronic or direct-expansion cooling coil and electric heating coil. Horizontal Units: An assembly including cabinet, filter, chassis, coil, drain pan, fan, and motor in blow-through configuration with hydronic or direct-expansion cooling coil and electric heating coil.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Source Quality Control: Test and rate units according to ARI 440. Test unit coils according to ASHRAE 33

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Locate units at floor level. Roof installations shall require prior SBBC approval.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

40. The Architect/Engineer shall specify the following requirements for Ductwork and Accessories

a. Sheet Metal Materials: Comply with SMACNA's "HVAC Duct Construction Standards – Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods, unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Duct Applications: Static-Pressure Classes: Unless otherwise indicated, construct ducts according to the following:

- Supply Ducts (Upstream of Air Terminal Units): 4" wg.
- Supply Ducts (Downstream of Air Terminal Units): 2" wg.
- Supply Ducts (in Mechanical Equipment Rooms): 4" wg.
- Return Ducts (Negative Pressure): 2" wg.
- Exhaust Ducts (Negative Pressure): 2" wg.
- All ducts shall be galvanized steel except as follows:

  i. Range Hood Exhaust Ducts: Comply with NFPA 96.

- Type 304, stainless steel with finish to match kitchen equipment and range hood. Weld and flange seams and joints.

ii. Dishwasher Hood Exhaust Ducts:
- Type 304, stainless steel with finish to match kitchen equipment and range hood. Weld and flange seams and joints.

iii. Acid-Resistant (Fume-Handling) Ducts: Stainless steel.

- Provide access doors at all locations where devices (coils, detectors, etc) require periodic cleaning or inspection.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

41. The Architect/Engineer shall specify the following requirements for Fans:

a. Manufacturers: Subject to compliance with requirements, provide products by one of the following: Ceiling Mounting Ventilators: Cook, Loren Company; Greenheck Fan Corp.; Penn Ventilation Companies, Inc. In-Line Centrifugal Fans: Cook, Loren Company; Greenheck Fan Corp.; Penn Ventilation Companies, Inc.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Source Quality Control

- Sound-Power Level Ratings: Comply with AMCA 301, "Methods for Calculating Fan Sound Ratings from Laboratory Test Data." Factory test fans according to AMCA 300, "Reverberant Room Method for Sound Testing of Fans." Label fans with the AMCA-Certified Ratings Seal.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Fan Performance Ratings: Establish flow rate, pressure, power, air density, speed of rotation, and efficiency by factory tests and ratings according to AMCA 210, "Laboratory Methods of Testing Fans for Rating."

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Install units with clearances for service and maintenance.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Label units according to requirements specified in Division 15 Section "Mechanical Identification."

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

c. Fans shall be controlled through the building automation system or switched by thermostat.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

42. The Architect/Engineer shall specify the following requirements for Air Terminals:

a. Manufacturers: Subject to compliance with requirements, provide air terminals by one of the following: Titus; Tuttle & Bailey, Hart & Cooley, Inc.; Price Co., Metal Aire, Inc.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Single-Duct Air Terminals

- Configuration: Volume-damper assembly inside unit casing. Locate control components inside protective metal shroud.
- Casings: Steel sheet metal of the following minimum thicknesses: Upstream Pressure Side: 0.0239" steel. Downstream Pressure Side: 0.0179" steel.
- Casing Lining: Minimum of 2" thick, neoprene or vinyl coated, fibrous glass insulation; 1.5 lb/cu. Ft. density, complying with NFPA 90A requirements and UL 181 erosion requirements. Secure lining to prevent delamination, sagging, or settling. Coat liner surfaces and edges with erosion resistant coating or cover with perforated metal.
- Plenum Air Inlets: Round stub connections or S-slip and drive connections for duct attachment.
- Plenum Air Outlets: S-slip and drive connections.
- Access: Removable panels to permit access to dampers and other parts requiring service, adjustment, or maintenance, with airtight gasket and quarter-turn latches.
- Volume Damper: Construct of galvanized steel with peripheral gasket and self lubricating bearings.
- Maximum Damper Leakage: 2 percent of nominal airflow at 1" wg inlet static pressure.
- Damper Position: Normally closed.
- Attenuator Section: Line with 2" thick, neoprene or vinyl coated, fibrous glass insulation.
- Multioutlet Attenuator Section: With collars of sizes shown on plans; each with locking butterfly balancing damper.
- Round Outlet: Discharge collar matching inlet size.
- Electric Heating Coil: Slip-in type, open-coil design with integral control box factory wired and installed. Include the following features:
  i. Primary and secondary overtemperature protection.
  ii. Minimum airflow switch.
  iii. Magnetic contactor for each step of control
  iv. Electrical transformer to power controls.
- Controls: Factory mount, wire, and test controls damper operator.
- Velocity Controller: Multiple-point averaging sensors, factory calibrated to minimum and maximum air volumes, field adjustable; maintains constant airflow dictated by thermostat with 5 percent of set point while compensating for inlet static pressure variations up to 4" wg.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Source Quality Control

- Testing Requirements: Test and rate air terminals according to ARI 880, "Industry Standard for Air Terminals.:

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Identification: Label each air terminal with plan number, nominal airflow, maximum and minimum factory set airflows, coil type, and ARI certification seal.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Inlet duct connections shall be as recommended by air terminal manufacturer to achieve proper performance.

d. Air terminals shall be located over common areas where possible to reduce building occupant interruptions during maintenance operations.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

43. The Architect/Engineer shall specify the following requirements for Air Filters:

a. Extended Surface, Disposable Panel Filters

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Description: Factory-fabricated, dry, extended surface filters with holding frames.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Media: Fibrous material formed into deep V-shaped pleats and held by self-supporting wire grid. 2" thickness for modular air-handling units; 1" thickness for fan foils.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Media and Media-Grid Frame: Nonflammable cardboard.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Duct-Mounting Frames: Welded, galvanized steel with gaskets and fasteners, and suitable for bolting together into built-up filter banks.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Washable Permanent Panel Filters

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Media: 14 mesh stainless steel in alternate layers of flat and herringbone crimp, four layers per inch; rod reinforced; enclosed in 20 gauge stainless steel frame; nominal size 24" x 24" x 2 "thick.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Rating: 400 FPM face velocity, 0.12" wg initial resistance; UL listed Class 1.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Filters used during construction period shall be replaced prior to receiving Certificate of Occupancy (CO) or Certificate of Substantial Completion.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

44. The Architect/Engineer shall specify the following requirements for Instrumentation and Controls:

a. A fully integrated building automation system (BAS), UL listed, incorporating direct digital control (DDC) for energy management, equipment monitoring and control, and environment.

- The new system must be 100% compatible with BAS systems of the same manufacturer installed on SBBC schools which have the Manufacturer's system installed.
- The BAS system must be accessible over the SBBC network with modem backup in case of network failure.
- Complete temperature control system to be DDC in nature and incorporating BACNET and LON technologies.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

b. All wiring, conduit, panels, for all DDC temperature controls.

- All final electrical connection to each stand-alone Application Specific and DDC Controller.
- All electrical work associated for a fully functional BAS control system whether or not shown on the Electrical plans or required by the electrical specifications.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

c. Provide or coordinate provision of the following:

- All wells and openings for water monitoring devices, installation of flow monitoring devices, opening for flow switches and alarms.
- Installation of control valves.
- Installation of smoke dampers; outdoor air, return air, exhaust air and vent dampers; with adjacent access doors.
- Power wiring to temperature control panels.
- Fire Alarm system shutdown of all HVAC air moving devices.
- 120 volt power, 24 volt transformers, and dedicated circuits to provide power to all electrically driven controlled devices.
- Locate placement of BAS network and telephone modem connections.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

d. General Product Description:

- The building automation system (BAS) shall integrate multiple building functions including equipment supervision and control, alarm management, energy management and historical data collection.
- The building automation system shall consist of the following:
  i. Campus Interface DDC Controllers
  ii. Central Plant DDC Controllers
  iii. AHU DDC Controllers
  iv. Equipment Controllers
    a. Terminal Equipment Controllers
    b. Terminal Unit Controllers
  v. Portable operator's laptop or PDA

a. For completely new systems, provide as a minimum, one new laptop including hardware and software acceptable to end user for direct, network and dialup connection. Contractor should request minimal specifications for SBBC before bids.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Quality Assurance

- Materials and equipment shall be catalogued products of Manufacturers regularly engaged in production and installation of automatic temperature control systems and shall be manufacturer's latest standard design that complies with the specification requirements.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Install system using competent workmen who are fully trained in the installation of temperature control equipment. The installation shall be in strict accordance with the national and local electrical codes.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Single source responsibility of supplier shall be the complete installation and proper operation of the BAS and control system and shall include debugging and proper calibration of each component in the entire system.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Supplier shall have an in-place support facility within 100 miles of the site with technical staff, spare parts inventory and all necessary test and diagnostic equipment.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- All electronic equipment shall conform to the requirements of FCC Regulation, Class B, Part 15, Section 15, Governing Radio Frequency Electromagnetic Interference and be so labeled.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- All BAS peer-to-peer network controllers, central system controllers and local user displays shall be UL Listed under Standard UL 916, category PAZX; Standard ULC C100, category UUKL7; and Standard UL 864, categories UUKL, UDTZ, and QVAX and be so listed at the time of bid. All floor level controllers shall comply, at a minimum, with UL Standard UL 91, category PAZX; Standard UL 864, categories UDTZ and QVAX and be so listed at the time of bid.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Design and building all system components to be fault-tolerant.

  i. Satisfactory operation without damage at 110% and 85% of rated voltage and at plus 3 Hertz variation in line frequency.

  ii. Static, transient and short-circuit protection on all inputs and outputs.

  iii. Protect communication lines against incorrect wiring, static transients and induced magnetic interference.

iv. Network-connected devices to be AC coupled or equivalent so that any single device failure will not disrupt or halt network communication.

v. All real time clocks and data file RAM to be battery-backed for a minimum 72 hours and include local and system low battery indication.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Submittals

- Manufacturer's Product Data: All equipment component data sheets.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Shop Drawings:

  i. System wiring diagrams with sequence of operation for each system as specified.

  ii. Submit manufacturer's product information on all hardware items along with descriptive literature for all software programs to show compliance with specifications.

  iii. Valve and damper schedules showing size, capacity, and location.

  iv. System configuration diagram showing panel types and locations as well as communications network and workstations.

  v. Data entry forms for initial parameters. Contractor shall provide English listing of all analog points with columnar blanks for high and low warning limits and high and low alarm limits, and a listing of all fan systems with columnar blanks for beginning and end occupancy periods; and samples of proposed text for points and messages. All text shall be approved prior to data entry.

  vi. Equipment lists of all proposed devices and equipment.

  vii. Sample graphic screens.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Where installation procedures, or any part thereof are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations shall be submitted and approved prior to installation. Installation of item will not be allowed to proceed until the recommendations are received.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Bid Procedures

- There shall be no more than one DDC system manufacturer on the school campus. However, alternate approved Manufacturers may submit pricing to include all work required in the scope of work plus complete design and installation to replace the complete existing DDC control system on campus not required in the scope of work.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- If there is only one acceptable BAS manufacturer on the project, the BAS Contractor shall submit a fully detailed breakout of every product cost and associated labor cost showing unit quantity and labor rates as negotiated with SBBC. This breakout shall be included with the Shop Drawing submittal. If the level of detail is insufficient to validate

negotiated rates are being used, or not in the approved format, the entire Shop Drawing may be disqualified at the SBBC's option.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

h. Manufacturers: Subject to compliance with requirements, provide products by one of the following: Johnson Controls, Inc.; Siemens Building Technologies

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Networking Communications

- The design of the BAS shall network operator workstations via high speed wide area networks to stand-alone school based DDC Controllers. The network architecture shall consist of two levels: a high performance peer-to-peer network and DDC Controller specific local area networks.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Access to system data shall not be restricted by the hardware configuration of the building automation system. The hardware configuration of the BAS network shall be totally transparent to the user when accessing data or developing control programs.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Peer-to-Peer Network Level: Operator workstations and DDC Controllers shall directly reside on a network such that communications may be executed directly between DDC Controllers, directly between workstations, and between DDC Controllers and workstations on a peer-to-peer basis.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Network design shall include the following provisions:

  i. Provide high-speed data transfer rates for alarm reporting, quick report generation from multiple controllers and upload/download efficiency between network devices.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- DDC Controller Local Area Network (LAN):

  i. This level communication shall support a family of application specific controllers and shall communicate bi-directionally with the peer-to-per network through DDC Controllers for transmission of global data.

  ii. Application specific controllers shall be arranged on the LANs in a functional relationship manner with DDC Controllers. For example a VAV terminal unit controller shall be on a LAN from the DDC Controller that is controlling its corresponding AHU.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Telecommunication Capability (Backup):

  i. Auto-dial/auto-answer communications shall be provided to allow DDC Controllers to communicate with remote operator workstations and/or remote terminals on an intermittent basis via telephone lines.

  ii. Dial-up communications shall make use of modems and voice-grade telephone lines. Provide modems rated at a highest available baud rate

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

j. DDC Controller Resident Software Features:

- Alarm management shall be provided to monitor and direct alarm information to operator devices. Each DDC Controller shall perform distributed, independent alarm analysis and filtering to minimize operator interruptions due to non-critical alarms, minimize network traffic and prevent alarms from being lost. At no time shall the DDC Controller's ability to report alarms be affected by either operator or activity at a PC workstation, local I/O device or communications with other panels on the network.

  i. All alarm or point change reports shall include the point's English language description and the time and date of occurrence.

  ii. The user shall be able to define the specific system reaction for each point. Alarms shall be prioritized to minimize nuisance reporting and to speed operator response to critical alarms. Users shall have the ability to manually inhibit alarm reporting for each point.

  iii. Alarm reports and messages will be directed to a user-defined list of operator devices and/or PCs

  Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- A variety of historical data collection utilities shall be provided to manually or automatically sample, store and display system data for points as specified in the I/O summary.

  i. DDC Controllers shall store point history data for selected analog and digital inputs and outputs:

  ii. Trend data shall be stored at the DDC Controllers and uploaded to the workstation when retrieval is desired. Uploads shall occur based upon either user-defined interval, manual command or when the trend buffers are full. All trend data shall be available for use in 3rd party personal computer applications.

  iii. DDC Controllers shall also provide high resolution sampling capability for verification of control loop performance. Operator-initiated automatic and manual loop tuning algorithms shall be provided for operator-selected PID control loops as identified in the point I/O summary. Provide capability to view or print trend and tuning reports.

  Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- DDC Controllers shall automatically accumulate and store run-time hours for digital input and output points as specified.

  i. The totalization routine shall have a sampling resolution of one minute or less.

  ii. The user shall have the ability to define a warning limit for run-time totalization. Unique, user-specified messages shall be generated when the limit is reached.

  iii. DDC Controllers shall automatically sample, calculate and store energy totals on an hourly, daily, weekly or monthly basis for user-selected analog and digital pulse input type points as specified. The user shall have the ability to define a warning limit. Unique, user-specified messages shall be generated when the limit is reached.

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- DDC Controllers shall have the ability to count events such as the number of times a fan system is cycled on and off. Event totalization shall be performed on a daily, weekly or monthly basis for points as specified in the point I/O summary.

    i. The user shall have the ability to define a warning limit. Unique, user-specified messages shall be generated when the limit is reached.

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

k. DDC Controllers

- Each DDC Controller shall have a minimum of 10 per cent spare capacity for future point connection or expansion and additions of remote Application Specific Controllers (ASC). The type of spares shall be in the same proportion as the implemented I/O functions of the system. Provide all processors, power supplies and communication

  controllers complete so that the implementation only requires the addition of the appropriate ASC's and point input/output termination module, sensors, actuators and wiring.

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- DDC Controllers shall provide at least two RS-232C serial data communication ports for operation of operator I/O devices such as industry standard printers, operator terminals, modems and portable laptop operator's terminals. DDC Controllers shall allow temporary use of portable devices without interrupting the normal operation of permanently connected modems, printers or terminals.

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- In the event of the loss of normal power, there shall be an orderly shutdown of all DDC Controllers to prevent the loss of database or operating system software. Upon restoration of normal power, the DDC Controller shall automatically resume full operation without manual intervention.

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Should DDC Controller memory be lost for any reason, the user shall have the capability of reloading the DDC Controller via the local RS-232C port, via telephone line dial-in or from a network workstation PC.

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Each DDC Controller shall be able to extend its performance and capacity through the use of remote Equipment controllers (EC's).

    i. Monitoring of the following types of inputs:

        a. Analog inputs
            1) mA
            2) Vdc
            3) ohm RTDs
            4) Thermistors RTDs may be used for VAV box or heat pump
        b. Dry contact closure
        c. Pulse Accumulator

d. Voltage Sensing

ii. Direct control of pneumatic and electronic actuators and control devices. Each DDC Controller shall be capable of providing the following control outputs:

a. Digital outputs (contact closure)
1) Contact closure (motor starters, sizes 1-4)

b. Analog outputs
1) Psi
2) mA
3) Vdc

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Controllers shall include all point inputs and outputs necessary to perform the specified control sequences. As a minimum, 50% of the point inputs and outputs shall be of the Universal type, allowing for additional system flexibility. In lieu of Universal inputs and outputs, provide a minimum of 20% spare points of each type via additional point termination boards or controllers.

  Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Each controller shall support its own real-time operating system. Provide a time clock with battery backup to allow for stand-alone operation in the event communication with its DDC Controller is lost and to insure protection during power outages.

  Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Each central system local controller shall be programmable with sufficient memory to accommodate point databases, operating programs, local alarming and local trending. All databases and programs shall be stored in non-volatile EEPROM or a minimum of 72-hour battery backup shall be provided. All programs shall be field-customized to meet the control sequences. Central System controllers utilizing pre-packaged or canned programs shall not be acceptable. As an alternative, provide DDC Controllers for all central equipment in order to meet custom control strategy requirements.

  Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Programming of central system controllers shall utilize the same language and code as used by DDC Controllers to maximize system flexibility and ease of use. Should the system controller utilize a different control language, provide a DDC Controller to meet the specified functionality.

  Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Alarming and trending capabilities shall be provided for convenient troubleshooting and system diagnostics. Alarm limits and trend data information shall be user-definable for any point.

  Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Each controller shall have connection provisions for a portable operator's terminal or PDA. This tool shall allow the user to display, generate or modify all operating programs and setpoints. All new values and programs may then be restored to EEPROM via the programming tool.

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- **Terminal Equipment Controllers**: Provide for control of each piece of equipment, including, but not limited to, the following:
  i. Variable Air Volume (VAV), Fan Terminal unit (FTU)
  ii. Unit Conditioners
  iii. Heat Pumps
  iv. D/X Split Systems
  v. Other equipment as specified in Control Sequences.

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Terminal Equipment Controllers shall include all point inputs, outputs and programming capability necessary to perform the specified control sequences. Each controller shall perform its primary control function independent of other DDC Controller LAN communication, or if LAN communication is interrupted.

  i. All control applications shall be field-selectable such that a single controller may be used in conjunction with any of the above types of terminal units to perform the specified sequences of control. This requirement must be met in order to allow for future design and application changes and to facilitate system expansions. Controllers that require factory application changes are not acceptable.

  ii. The controllers shall be powered from a 24 VAC source and shall function normally under an operating range of 18 to 28 VAC (-25% to +17%), allowing for power source fluctuations and voltage drops. The BAS Contractor shall provide a dedicated power source and separate isolation transformer for each controller unable to function normally under the specified operating range. The controllers shall also function normally under ambient conditions of 32° to 122°F and 10% to 95% RH (non-condensing). Provide each controller with a suitable cover or enclosure to protect the intelligence board assembly. Each controller shall have a discharge air sensor located downstream of the electric heater.

  iii. The controller shall interface to a matching room temperature sensor as previously specified. The controller shall function to maintain space temperature to within ±1.0° of setpoint at the room sensor location. Provide connection capability at the related room sensor to access controller information.

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- **Variable Air Volume (VAV) Box Controllers**: Shall support the following types of pressure independent terminal boxes as a minimum:

  i. The VAV box controllers shall be powered from a 24 VAC source and shall function normally under an operating range of 18 to 28 VAC (-25% to +17%), allowing for power source fluctuations and voltage drops. The BAS Contractor shall provide a dedicated power source and separate isolation transformer for each controller unable to function normally under the specified operating range. The controllers shall also function normally under ambient conditions of 32° to 122°F and 10% to 95% RH (non-condensing). Provide each controller with a suitable cover or enclosure to protect the intelligence board assembly. Each controller shall have a discharge air sensor located downstream of the electric heater.

ii. The controller shall include a differential pressure transducer that shall connect to the terminal unit manufacturer's standard averaging air velocity sensor to measure the average differential pressure in the duct. The controller shall convert this value to actual air flow. Single point air velocity sensing is not acceptable. The differential pressure transducer shall have a minimum measurement range of 0 to 3000 fum (0 to 20.4 m/s) and measurement accuracy of +5% at 400 to 3000 fum (2 to 20 m/s), insuring primary air flow conditions shall be controlled and maintained to within +5% of setpoint at the specified parameters. The BAS Contractor shall provide any additional velocity sensor, if required to meet the specified sequence of operations.

iii. Each controller shall include provisions for manual and automatic calibration of the differential pressure transducer in order to maintain stable control and insuring against drift over time. Calibration shall be accomplished by stroking the terminal unit damper actuator to a 0% position so that a 0 cfm air volume reading is sensed. The controller shall automatically accomplish this whenever the system mode switches from occupied to unoccupied. Manual calibration may be accomplished by either commanding the actuator via the POT or by depressing a room sensor switch. Calibration of the transducer at the controller location shall not be necessary.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

I. Central Plant DDC Controller

- Where BACKNET, LON or Gateway Interface specified, the Central Plant DDC Controller shall have access to the following chiller data points, as a minimum including:

Monitor Points
Chilled Water Supply Temperature
Chilled Water Return Temperature
Running kW or Amperage Output
Input Voltage
Condenser Pressure
Evaporator Pressure
Compressor Discharge Temperature/Pressure
System Starts
Operating/Run Hours
Operational/Safety/Alarm Status

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

m. Personal Computer Operator Workstation Hardware

- For completely new BAS systems, personal computer operator workstations shall be provided for command entry, information management, system monitor, alarm management and database management functions. All real-time control functions shall be resident in the DDC Controllers to facilitate greater distribution, fault tolerance and reliability of the building automation control.

i. Provide workstation(s) of equal capability as located at SBBC Rockledge central energy management office. Contractor should request minimal specifications from SBBC before bids.

ii. Workstation shall consist of latest version of BAS software.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Provide a laser jet printer at each workstation location or on the network (Ethernet) for recording alarms, operator transactions and systems reports.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

n. Personal Digital Assistant (PDA)

- Provide industry standard, commercially available portable operator terminals with a LCD display and a full-featured keyboard. The PDA shall be handheld and plug directly into all DDC Controllers, HVAC & Mechanical Equipment Controllers, and Floor Level Network Controllers as described below. Provide a user-friendly, English language-prompted interface for quick access to system information, not codes requiring look-up charts.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Functionality of the portable operator's terminal connected at any DDC Controller:

  i. Access all DDC Controllers and ASCs on the network.

  ii. Backup and/or restore DDC Controller databases for all system panels, not just the DDC Controller connected to.

  iii. Display all point, selected point and alarm point summaries.

  iv. Add, modify and/or delete any existing or new system point.

  v. Command, change setpoint, enable/disable any system point.

  vi. Program and load custom control sequences as well as standard energy management programs.

  vii. Acknowledge alarms

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Functionality of the portable operator's terminal connected to any equipment controller:

  i. Provide connection capability at either the Floor Level Network Controller or a related room sensor to access controller information.

  ii. Provide status, setup and control reports.

  iii. Modify, select and store controller data base.

  iv. Command, change setpoint, enable/disable any controller point.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Connection of a PDA to a DDC or HVAC & Mechanical Equipment Controller, or ASC Controller shall not interrupt nor interfere with normal network operation in any way, prevent alarms from being transmitted or preclude centrally-initiated commands and system modification.

- Personal Digital Assistant (PDA) access to controller shall be password-controlled. Password protection shall be configurable for each operator based on function, points (designating areas of the facility), and edit/view capability.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

o. User Interface

- Provide and program custom graphical user interface.
- Basic Interface Description:

i. Operator workstation interface software shall minimize operator training through the use of English language prompting, English language point identification and industry standard PC application software. The software shall provide, as a minimum, the following functionality:

a) Graphical viewing and control of environment.

b) Scheduling and override of buildings operations.

c) Collection and analysis of historical data.

d) Definition and construction of dynamic color graphic displays.

e) Editing, programming, storage and downloading of controller databases.

f) Provide functionality such that all operations can also be performed using the keyboard as a backup interface device.

ii. The software shall provide a multi-tasking type environment that allows the user to run several applications simultaneously. Microsoft Word™ and Excel for Windows™ must be able to be run simultaneously. The mouse shall be used to quickly select and switch between multiple applications. This shall be accomplished through the use of Microsoft Windows XP Professional™ software that supports concurrent viewing and controlling of systems operations.

a. Provide functionality such that any of the following may be performed simultaneously, and in any combination, via user-sized windows:

1) Dynamic color graphics and graphic control.

2) Alarm management coordinated with section 2.3 A.

3) Time-of-day scheduling.

4) Trend data definition and presentation.

5) Graphic definition.

6) Graphic construction.

7) Summaries shall be provided for specific points, for a logical point group, for a user-selected group or groups or for the entire facility without restriction due to the hardware configuration of the building control system. Under no conditions shall the operator need to specify the address of the hardware controller to obtain system information.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Scheduling:

i. Provide a graphical spreadsheet-type format for simplification of time-of-day scheduling and overrides of building control operations. Provide the following spreadsheet graphic types as a minimum:

1. Weekly schedules – regular school
2. Weekly schedules – summer school
3. Monthly calendars
4. Temporary Override time schedules
5. Outside & exhaust air schedules

ii. Weekly schedules shall be provided for each building control zone (a zone is a room or group of rooms served by an air handling unit) or piece of equipment with a specific occupancy schedule. Occupancy schedules shall be initially programmed as specified, then adjusted one time after school occupancy. Each schedule shall include columns for each day of the week as well as holiday and special day columns for alternate scheduling on user-defined days. Equipment scheduling shall be accomplished by simply inserting occupancy and vacancy times into appropriate information blocks on the graphic. In addition, temporary overrides and associated times may be inserted into blocks for modified operating schedules. After overrides have been executed, the original schedule will automatically be restored.

iii. Monthly calendars for a 24-month period shall be provided which allow for simplified scheduling of holidays and special days in advance. Holidays and special days shall be user-selected with the pointing device and shall automatically reschedule equipment operation as previously defined on the weekly schedules.

iv. All schedules shall reference zone names and equipment tag names.

v. Exhaust fans serving a zone shall be automatically scheduled to operate to maintain a neutral or positive air balance at all times.

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Collection and Analysis of Historical Data:

i. Provide trending capabilities that allow the user to easily monitor and preserve records of system activity over an extended period of time. Any system point may be trended automatically at time-based intervals or changes of value, both of which shall be user-definable. Trend data may be stored on hard disk for future diagnostics and reporting.

ii. Trend data report graphics shall be provided to allow the user to view all trended point data. Reports may be customized to include individual points or pre-defined groups of at least six points. Provide additional functionality to allow any trended data to be transferred easily to an off-the-shelf spreadsheet package such as Microsoft Excel™.

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Dynamic Color Graphic Displays:

i. The first graphic screen shall consist of a site plan showing all buildings on campus (even those not controlled by BAS) including building names and numbers. User can click on the building which will automatically go to the appropriate Building

Screen. Any existing buildings on campus not shown on A/E's site plan shall be drawn by Controls Contractor using SBBC's As-Built information (FISH) and/or site survey.

ii. Each building shall have a building graphic. The Building Screen shall consist of a display of the floor plan showing walls, zones, room numbers, and room names. It shall also show locations of AHUs, VAV boxes, exhaust fans, and space sensors. Any equipment currently in alarm shall be indicated in red. The user can click on a zone (or press a key) on this screen and the schedule shall pop up for editing. If the user clicks on a piece of equipment, an equipment color graphic will appear.

iii. Color graphics for the chiller plant and associated equipment, including air handling units, shall be provided by the BAS Contractor to optimize system performance analysis and speed alarm recognition.

iv. The user interface shall allow users to access the various system schematics and floor plans via a graphical penetration scheme, menu selection or text-based commands.

v. Dynamic chilled water temperature and flow values and status indication shall be shown in their actual respective locations and shall automatically update to represent current conditions without operator intervention.

vi. The windowing environment of the PC operator workstation shall allow the user to simultaneously view several graphics at a time to analyze control operation or to allow the display of a graphic associated with an alarm to be viewed without interrupting work in progress.

vii. Graphic generation software shall be provided to allow the user to add, modify or delete system graphic displays.

viii. The BAS Contractor shall provide libraries of pre-engineered screens and symbols depicting standard chiller components (e.g., compressor, condenser, evaporator, etc.), and complete mechanical systems (e.g., pumps, valves, etc.).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

p. Field Devices

- All devices and equipment shall meet Local and County code requirements for installation.
- Each controller performing space temperature control shall be provided with a matching room temperature sensor. The sensor may be either RTD or thermistors type providing the following minimum performance requirements are met.

Accuracy:	±1.0°F
Operating Range:	35° to 115°F
Set Point Adjustment Range:	55° to 95°F
Set Point Modes	Cooling, Night Setback-Heating, Night Setback-Cooling, Heating
Calibration Adjustments:	None required
Installation:	Up to 100 ft. from Controller

i. Each room temperature sensor shall include a terminal jack integral to the sensor assembly. The terminal jack shall be used to connect a portable operator's terminal to control and monitor all hardware and software points associated with the controller.

ii. Each room sensor shall also include the following auxiliary devices:

LCD temperature display
External Setpoint Adjustment Dial
Override Button

iiii. For Common areas such as Cafeterias, Gyms, Hallways, and Restrooms and as selected by the SBBC, sensors will be flush mounted to match the decor and provided without setpoint, thermometer or override switch.

iv. The setpoint adjustment dial shall allow for modification of the temperature by the occupant. Setpoint adjustment may be locked out, overridden or limited to a range as to time or temperature through software by an authorized operator at the central workstation, DDC Controller, or via the portable operator's terminal.

v. The temperature indicator shall be a digital readout, and shall be visible without removing the sensor cover.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Temperature Sensors:

i. Temperature sensors for duct and pipe installation shall be RTD type, 1000 ohms Industry standard as required by the manufacturer. RTDs shall have a range of minus 40 to plus 240 degrees F. The RTD shall be encapsulated in epoxy, series 300 stainless steel, or a copper sheath. The RTDs shall be provided in either probe mounting, averaging element, or for mounting in a separable well for liquid sensing applications. Thermistors types may be used on split systems, heat pumps and FCUs.

a. Accuracy shall be ± 0.5°F at calibration point.

ii. Provide averaging style for all mixed air applications. OA sensors shall be furnished with sun-shield.

iii. Space sensors as recommended by the manufacturer with features specified.

iv. Water sensors to be provided with stainless steel wells.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Humidity Sensors:

i. Provide a solid-state humidity sensor with a range of 0 to 99 percent relative humidity with an accuracy of plus or minus 5% at 70 degrees F. The sensing element shall be of the non-saturating type. Provide duct mounted versions based on the application required.

a) Accuracy at 77 degrees F shall be as a minimum 5%.

b) Output signal Industry standard 4 to 20 mA or 0 to 10 VDC.

c) Provide Room or duct mounting as required by sequence of operation.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Air Pressure Sensors:

  i. Provide electronic static pressure transmitters for the appropriate ranges as indicated on the plans or in the specifications. The device shall provide for ranges of from 0 to .1" of water column up to 0 to 10" of water column. Accuracy at any range shall be plus or minus 1 percent full scale. Units shall be rated for ten times normal input pressure. Unit shall operate from a 12 Volt DC supply.

     a. Transmitter to be provided with Zero and span adjustments.

     b. Outputs Industry standard 4 to 20 mA or 0 to 10 VDC with built-in polarity protection.

     c. Pressure sensor to utilize 5 stainless steel diaphragms.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Control Dampers:

  i. Provide automatic control dampers as indicated, with damper frames not less than formed 13-ga. galvanized steel. Provide mounting holes for enclosed duct mounting. Provide damper blades not less than formed 16-gauge galvanized steel, with maximum blade width of 8". Equip dampers with motors, with proper rating for each application.

     a. For dampers with CFM's greater than 1500, provide damper end switch for position indication to control system.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Damper and Valve Operators:

  i. Size each motor to operate dampers or valves with sufficient reserve power to provide smooth modulating action or 2-position action as specified.

     a. Provide direct coupled synchronous motors with load independent running time. Provide gear train actuators for large control valves. Actuators to be provided with manual override feature.

     b. Equip motors for low temperature systems, outdoor locations and for outside air intakes with "O-ring" gaskets designed to make motors completely weatherproof, and equip with internal heaters to permit normal.

     c. Furnish non-spring return motors for dampers larger than 25 sq. ft., and for valves larger than 2-1/2", sized for running torque rating of 150 inch-pounds, and breakaway torque rating of 300 inch-pounds. Size spring-return motors for running torque rating of 150 inch-pounds, and breakaway torque rating of 150 inch-pounds.

     d. Valve actuators shall de-energize when controlled position is reached extending life expectancy. Provide manual adjustments and override for all valve actuators 1/2" to 1-1/2". Provide spring return only if required by the control sequences.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Automatic Control Valves:
  i. Provide factory-fabricated electrical control valves of type, body material and pressure class indicated.
     a. The Control Contractor shall furnish all control valves as shown on the plans and/or as specified to perform the control sequence specified.
     b. Valves shall be bronze body, screwed ends 2" and smaller; iron body, flanged ends 2-1/2" and larger. Nominal body rating shall not be less than 125 psi. However, the valve body and packing selected shall be designed to withstand the maximum pressure and temperature encountered in the system.
     c. Valves shall have stainless steel stems, spring-loaded Teflon packing, replaceable seats and discs.
     d. Water Service Valves: Equal percentage characteristics with rangeability of 50 to 1, and maximum full flow pressure drop of 5 psig. Body rated ANSI class 125, screwed globe with screwed union connections, bronze body with stainless steel trim with double O-ring with Teflon wiper for steam seals.
     e. 2-position butterfly valves, ANSI 125 with adequate close off is acceptable for Chiller and cooling tower applications.
     f. Valves shall be pressure-independent characterized control valves.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Air Volume Measurement:
  i. Copper total and static pressure sensing manifold with total and static pressure connection external to the FMS housing.
  ii. The total and static pressures shall be electronically transduced and transmitted to the DDC control panel as a 4 to 20 mA or 0 to 10 VDC signal.
  iii. The transducer shall have a plus or minus 1% repeatable accuracy over the full range velocity between 200 FPM to 5000 FPM.
  iv. FMS shall have air flow straightening vanes where necessary for accurate flow measurement. Pressure drop shall be no greater than 0.2" w.g. at 2800 FPM.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Pressure Switches: Pressure switches shall have a repetitive accuracy of plus or minus one percent of their operating range and shall withstand up to 150 percent of rated pressure. Switch operation shall have a snap-acting Form C contact rated for the application.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Current Switches (CT): Provide a solid state switch that when the current level sensed by the internal current transformer exceeds the adjustable trip point, internal circuits are to be totally powered by induction from the line being monitored. Provide an LED that will show three pieces of information (Rapid Flashing-switch is tripped, Slow Flashing-current is present but below the trip point and No Flashing-current is either off

or below the bottom of the range) and permits setting the trip point adjustment prior to system connection.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Low Temperature Limit Sensors: Provide low-temperature protection thermostats of manual-reset type, with sensing elements 8'-0" or 20'-0" in length. Provide thermostat designed to operate in response to coldest 1'-0" length of sensing element, regardless of temperature at other parts of element. Support element properly to cover entire duct width. Provide separate thermostats for each 25 sq. ft. of coil face area or fraction thereof.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Electric Thermostats: Provide thermostats of bimetal actuated open contact, or bellows actuated enclosed snap-switch type, or equivalent solid-state type; UL-listed at electrical rating comparable with application. Provide bimetal thermostats which employ heat anticipation. Equip thermostats which control electric heating loads directly, with Off position on dial wired to break ungrounded conductors.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Water Flow Switches: Provide differential pressure water flow switches of stainless steel or bronze paddle types. Where flow switches are used in chilled water applications, provide vapor-proof type to prevent condensation of electrical switch. Provide pressure-flow switches of bellows actuated mercury type or snap-acting type, with appropriate scale range and differential adjustment for service indicated.

- Sensors: Provide carbon dioxide sensors where shown on plans. (One per building floor, minimum). Sensing shall be Infrared gas monitor, range 0-2,000 ppm (0.2%) CO_2 with Output signals 4 to 20 mA or 0 to 10 VDC. The repeatability 1%, accuracy 5%, Operating temperatures 32 to 100 degrees F.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

q. Sequence Of Operation

- Provide humidity sensors with a minimum of one (1) per AHU to measure and control humidity levels to a maximum of 60% RH and ASHRAE standards. If humidity levels rise above 60%, alarm shall be indicated.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Thermostats shall have adjustable setpoints with software range overrides as specified.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- For classrooms, outside air intakes shall be closed and exhaust fans turned off during student unoccupied periods. Indicate unoccupied times on school operating schedule.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- To keep buildings positive, make sure exhaust fans are turned off when outside air intakes are closed in their respective zones.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

r. Facilities Monitoring

- The Contractor shall program the system to monitor and record (trend log) the following points and alarms at each air handling system. Data shall be recorded once every fifteen minutes for each pertinent analog data point. Data shall be recorded for fifty intervals on all pertinent digital data points. When database is full, the system shall continuously overwrite the existing data.

  i. Building number and room number.

  ii. AHU system number.

  iii. Date and time.

  iv. Space temperature.

  v. Space relative humidity.

  vi. Any alarm on that AHU system.

  vii. Exhaust fan (serving that zone) status.

  viii. Outside air damper position.

  Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- A maintenance alarm shall be automatically initiated for the following situations:

  i. Chilled Water Systems: The system chilled water temperature is above the allowable upper limit when any AHU system is in the occupied or low occupancy mode and the chiller plant is enabled.

  ii. DX Systems: The AHU leaving air temperature is greater than the acceptable upper limit (58 deg F, or as scheduled) when the DX compressor is on.

  iii. All AHU Systems:

  a) The outside air damper position is closed when scheduled to be open.

  b) Exhaust fan status is off when scheduled to be on.

  c) Space temperature is outside acceptable ranges during occupied periods (Summer: 78, Winter: 68).

  d) Space relative humidity is above acceptable ranges during occupied periods (60%).

  e) Carbon dioxide levels exceed acceptable upper limit (1000 ppm, or as specified)

  Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

s. Electrical Installation

- All wire shall be stranded copper and shall meet the minimum wire size and insulation class listed in strict accordance with NEC requirements. Where different wiring classes terminate within the same enclosure, maintain clearances and install barriers per NEC.

  i. Perform all wiring in accordance with all local and national codes.

  ii. All wiring in Mechanical Rooms and other concealed inaccessible areas shall be in conduit. All concealed accessible wiring shall be in plenum rated cable strapped to structure. Wiring to space sensors shall be in conduit from sensor to 24" above wall with 90 degree turn.

iii. Surge transient protection shall be provided with the system to protect electrical components in all DDC Controllers, Equipment Controllers and operator's workstations. As a minimum, each building shall be isolated from other parts of the system using a fiberoptic cable to connect between buildings.

iv. Control transformers shall have internal circuit breaker protection with reset buttons.

v. To reduce maintenance costs and maintain standards in the District, wire color shall be as follows:

Designation	Common	Positive
Low Voltage Power:	White	Black
Communications:	Red/White	Black
Transformer Power:	Blue	Yellow

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

t. On-Site Commissioning

- Provide Engineer-approved operation and acceptance testing and commissioning of the complete system. The SBBC's representative will witness all tests. All tests shall be documented in writing and provided as a part of the closeout documents.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Field Test: When installation of the system is complete, calibrate equipment and verify transmission media operation before the system is placed on-line. All testing, calibrating, adjusting and final field tests shall be completed by the installer. Provide a detailed crosscheck of each sensor within the system by making a comparison between the control command and field-controlled device. Verify that all systems are operable from local controls in the specified failure mode upon panel failure or loss of power. Submit the results of functional and diagnostic tests and calibrations to the Engineer for final system acceptance.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

u. Off-Site Commissioning

- Provide SBBC-approved operation and acceptance testing and commissioning of the complete system. The system will not be considered complete until all network, modem and other interface connections have been completed and all graphics, trending, alarms and schedules have been setup and are operational. The SBBC will witness all tests. All tests shall be documented, printed and provided as a part of the closeout documents

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

v. Service And Guarantee

- General Requirements: Provide 1-year warranty and 1-year maintenance contract to include all services, materials and equipment necessary for the successful operation of the entire BAS system for a period of one (1) year after completion of successful performance test. Provide necessary material required for the work. Minimize impacts

on facility operations when performing scheduled adjustments and non-scheduled work.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Description of Work: The adjustment and repair of the system includes all computer equipment, software updates, transmission equipment and all sensors and control devices. Provide the manufacturer's required adjustments and all other work necessary.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Personnel: Provide qualified personnel to accomplish all work promptly and satisfactorily. SBBC shall be advised in writing of the name of the designated service representative, and of any changes in personnel.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Schedule of Work: Provide a total of 2 inspections at 6-month intervals. Schedule major inspections with one in the cooling and one in the heating season. Inspections shall include visual checks and operational tests of all equipment delivered and the following work:

  i. Clean all equipment, including interior and exterior surfaces.

  ii. Perform signal, voltage and system isolation checks of system workstations and peripherals.

  iii. Check and calibrate (if necessary) each field device. Check all analog points and digital points.

  iv. Run all diagnostics and correct all previously diagnosed problems.

  v. Resolve and correct any previous outstanding problems.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Emergency Service: SBBC will initiate service calls when the system is not functioning properly. Qualified personnel shall be available to provide service to the complete system. Furnish SBBC with a telephone number where service representative can be reached at all times. Warrantee service shall be provided during normal business hours Monday through Friday however, service personnel shall be at the site within 24 hours after receiving a request for emergency service. Restore the control system to proper operating condition within 3 days.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Systems Modifications: Provide any recommendations for system modification in writing to SBBC. Do not make any system modifications, including operating parameters and control settings, without prior approval of SBBC. Any modifications made to the system shall be incorporated into the operations and maintenance manuals, and other documentation affected.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Software: Provide all software updates and verify operation in the system. These updates shall be accomplished in a timely manner, fully coordinated with the system

operators, and shall be incorporated into the operations and maintenance manuals, and software documentation.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

w. Training

- The Contractor shall provide competent instructors to give full instruction to designated personnel in the adjustment, operation and maintenance of the system installed rather than a general training course. Instructors shall be thoroughly familiar with all aspects of the subject matter they are to teach. All training shall be held during normal work hours of 7:30 a.m. to 2:30 p.m. weekdays as follows:

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Provide eight (8) hours of training for SBBC's operating personnel. Training shall include:

  i. Explanation of drawings, operations and maintenance manuals.

  ii. Walk through of the job to locate control components.

  iii. Operator workstation and peripherals.

  iv. DDC Controller and ASC operation/function.

  v. Operator control functions including graphic generation and field panel programming.

  vi. Operation of portable operator's terminal.

  vii. Explanation of adjustment, calibration and replacement procedures.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Since the SBBC may require personnel to have more comprehensive understanding of the hardware and software, additional training must be available from the Contractor. If such training is required by the SBBC, it will be contracted at a later date. Provide description of available local and factory customer training.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

x. Equipment Point Lists

- SEE FOLLOWING PAGES

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

EQUIPMENT POINTS LIST

	HARDWARE																					SOFTWARE														
	OUTPUT							INPUT									ALARMS														GRAPHICS					
	DIGITAL				ANALOG			DIGITAL					ANALOG				DIGITAL			ANALOG																
	CONTROL RELAY	FLOATING CONTROL	CONTACTOR		4-20 ma	0-10 VOLTS	E/P TRANSDUCER	CURRENT SWITCH	AUXILIARY CONTACTS	MOTION SENSOR	DIFFERENTIAL PRESSURE		TEMPERATURE	HUMIDITY	STATIC PRESSURE	CFM		EQUIPMENT STATUS	MAINTENANCE		HIGH LIMIT	LOW LIMIT	RUNTME		SCHEDULE START/STOP	DAY/NIGHT SETBACK	ECONOMIZER	TEMPERATURE CONTROL	REHEAT COIL RESET	VAV CONTROL	LIGHTING CONTROL	NOTE #	STATUS	VALVE	SETPOINT	POSITION	OCCUPIED/UNOCCUPIED
MULTIZONE AHU																																				
SUPPLY FAN	X							X										X	X				X		X							X				X
CHW VALVE						X																						X						X		
COLD DECK													X								X	X						X					X	X		
RETURN AIR													X	X							X	X											X			
HOT DECK													X								X	X											X			
ZONE CONTROL																																				
ROOM													X								X	X						X						X	X		X
DISCHARGE													X								X	X						X						X	X		X
ZONE DAMPER		X				X																														
ELECTRIC HEAT			X																																	

EQUIPMENT POINTS LIST

	HARDWARE																							SOFTWARE													
	OUTPUT							INPUT										ALARMS																			
	DIGITAL				ANALOG			DIGITAL					ANALOG					DIGITAL			ANALOG											GRAPHICS					
	CONTROL RELAY	FLOATING CONTROL	CONTACTOR		4-20 ma	0-10 VOLTS	E/P TRANSDUCER	CURRENT SWITCH	AUXILIARY CONTACTS	MOTION SENSOR	DIFFERENTIAL PRESSURI		TEMPERATURE	HUMIDITY	STATIC PRESSURE	CFM		EQUIPMENT STATUS	MAINTENANCE		HIGH LIMIT	LOW LIMIT	RUNTMIE		SCHEDULE START/STOP	DAY/NIGHT SETBACK	ECONOMIZER	TEMPERATURE CONTROL	REHEAT COIL RESET	VAV CONTROL	LIGHTING CONTROL	NOTE #	STATUS	VALVE	SETPOINT	POSITION	OCCUPIED/UNOCCUPIED
CONST VOLUME AHU																																					
SUPPLY FAN	X							X										X	X				X		X								X				X
CHW VALVE						X	X																					X						X			
HW VALVE						X	X																					X						X			
OUTSIDE AIR													X																					X			
RETURN AIR													X	X																				X			
DISCHARGE AIR													X								X	X						X						X	X		
MIXED AIR													X								X	X						X						X	X		
OA/RA DAMPER						X																											X				

EQUIPMENT POINTS LIST

	HARDWARE																							SOFTWARE													
	OUTPUT							INPUT									ALARMS															GRAPHICS					
	DIGITAL				ANALOG			DIGITAL					ANALOG				DIGITAL				ANALOG																
	CONTROL RELAY	FLOATING CONTROL	CONTACTOR		4-20 ma	0-10 VOLTS	E/P TRANSDUCER	CURRENT SWITCH	AUXILIARY CONTACTS	MOTION SENSOR	DIFFERENTIAL PRESSUR		TEMPERATURE	HUMIDITY	STATIC PRESSURE	CFM		EQUIPMENT STATUS	MAINTENANCE		HIGH LIMIT	LOW LIMIT	RUNTMIE		SCHEDULE START/STOP	DAY/NIGHT SETBACK	ECONOMIZER	TEMPERATURE CONTROL	REHEAT COIL RESET	VAV CONTROL	LIGHTING CONTROL	NOTE #	STATUS	VALVE	SETPOINT	POSITION	OCCUPIED/UNOCCUPIED
VAV AHU																																					
SUPPLY FAN								X										X	X				X		X								X				X
CHW FAN						X																						X						X			
HW VALVE						X																						X						X			
RETURN AIR													X	X																				X			
MIXED AIR													X																					X			
DISCHARGE AIR													X								X	X						X						X	X		
VANES OR VFD						X																						X						X	X		X
DISCHARGE STATIC															X						X	X						X						X	X		

EQUIPMENT POINTS LIST

	HARDWARE																						SOFTWARE													
	OUTPUT							INPUT									ALARMS													GRAPHICS					
	DIGITAL			ANALOG				DIGITAL				ANALOG					DIGITAL		ANALOG																	
	CONTROL RELAY	FLOATING CONTROL	CONTACTOR	4-20 ma	0-10 VOLTS	E/P TRANSDUCER	CURRENT SWITCH	AUXILIARY CONTACTS	MOTION SENSOR	DIFFERENTIAL PRESSURE	TEMPERATURE	HUMIDITY	STATIC PRESSURE	CFM		EQUIPMENT STATUS	MAINTENANCE		HIGH LIMIT	LOW LIMIT	RUNTMIE		SCHEDULE START/STOP	DAY/NIGHT SETBACK	ECONOMIZER	TEMPERATURE CONTROL	REHEAT COIL RESET	VAV CONTROL	LIGHTING CONTROL	NOTE #	STATUS	VALVE	SETPOINT	POSITION	OCCUPIED/UNOCCUPIED
VAV BOX CONTROL																																				
ROOM													X							X	X					X		X				X	X		X
ELECTRIC HEAT	X	X																									X					X			
SUPPLY AIR													X			X																			
DAMPER		X														X	X											X				X	X		
REHEAT CONTROL																																				
ROOM													X							X	X					X						X	X		X
ELECTRIC HEAT	X	X														X	X										X					X			
SUPPLY AIR													X																						
FAN COIL																																				
ROOM													X							X	X					X						X	X		X
SUPPLY FAN	X							X								X	X				X			X							X				X
CHW VALVE		X				X																				X						X			
ELECTRIC HEAT	X		X																							X									
SUPPLY AIR													X																						

EQUIPMENT POINTS LIST

	HARDWARE																						SOFTWARE												
	OUTPUT							INPUT									ALARMS													GRAPHICS					
	DIGITAL				ANALOG			DIGITAL					ANALOG				DIGITAL			ANALOG															
	CONTROL RELAY	FLOATING CONTROL	CONTACTOR		4-20 ma	0-10 VOLTS	E/P TRANSDUCER	CURRENT SWITCH	AUXILIARY CONTACTS	MOTION SENSOR	DIFFERENTIAL PRESSURE		TEMPERATURE	HUMIDITY	STATIC PRESSURE	CFM		EQUIPMENT STATUS	MAINTENANCE		HIGH LIMIT	LOW LIMIT	RUNTME		SCHEDULE START/STOP	DAY/NIGHT SETBACK	ECONOMIZER	TEMPERATURE CONTROL	REHEAT COIL RESET	VAV CONTROL	LIGHTING CONTROL	NOTE #	STATUS	VALVE	SETPOINT	POSITION	OCCUPIED/UNOCCUPIED
CHILLED WATER PLANT																																			
CHILLER	X							X										X	X				X		X							X			X
CHILLED WATER SUPPLY													X								X	X											X			
CHILLED WATER RETURN													X								X	X											X			
COND WATER SUPPLY													X								X	X											X			
COND WATER RETURN													X								X	X											X			
CHILLED WATER PUMP	X							X										X	X				X		X							X			X
COND WATER PUMP	X							X										X	X				X		X							X			X
COOLING TOWER FAN	X							X										X	X				X		X							X			X
SECONDARY LOOP PUMP	X							X										X	X				X		X							X			X
SECONDARY LOOP SUPPLY													X								X	X											X			
SECONDARY LOOP RETURN													X								X	X											X			
TWO PIPE HTG/CLG SWITCH							X																										X	X			
OUTSIDE AIR													X	X																					

EQUIPMENT POINTS LIST

	HARDWARE																							**SOFTWARE**													
	OUTPUT							INPUT										ALARMS														GRAPHICS					
	DIGITAL				ANALOG			DIGITAL					ANALOG					DIGITAL			ANALOG																
	CONTROL RELAY	FLOATING CONTROL	CONTACTOR		4-20 ma	0-10 VOLTS	E/P TRANSDUCER	CURRENT SWITCH	AUXILIARY CONTACTS	MOTION SENSOR	DIFFERENTIAL PRESSURE		TEMPERATURE	HUMIDITY	STATIC PRESSURE	CFM		EQUIPMENT STATUS	MAINTENANCE		HIGH LIMIT	LOW LIMIT	RUNTMIE		SCHEDULE START/STOP	DAY/NIGHT SETBACK	ECONOMIZER	TEMPERATURE CONTROL	REHEAT COIL RESET	VAV CONTROL	LIGHTING CONTROL	NOTE #	STATUS	VALVE	SETPOINT	POSITION	OCCUPIED/UNOCCUPIED
HEATING PLANT																																					
BOILER	X							X										X	X				X		X								X				X
HOT WATER SUPPLY													X								X	X												X			
HOT WATER RETURN													X								X	X												X			
HOT WATER PUMP	X							X										X	X				X		X								X				X

y. Completely new system installed at new site or retrofit at existing site.

- New Laptop as specified.
- New POT or PDA as specified.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

z. Renovation work where existing controls are relocated.

- Upgrade existing hardware and software.
- Return unused DDC controls to SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

aa. Expansion of existing system to new facilities at the same campus.

- Upgrade existing hardware and software.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

bb. BACKNET or LON interface installed with chillers.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

45. The Sequence of Operations is project specific and will be developed as a collaborative effort among the SBBC, Engineer, and Controls provider.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

46. The Architect/Engineer and SBBC shall specify all the requirements pertaining to, but not limited to, all Testing, Adjusting and Balancing (TAB) of all HVAC Systems, and all it's subcomponents to produce and deliver HVAC Systems design objectives inclusive of the following:

a. TAB Agency will balance all air/water distribution systems including mains, submains, branches, and various terminal systems, to all indicated design air/water flows quantities. Any air/water flow quantities that cannot be achieved per all design documents and blue print drawings must be so noted in the preliminary and final TAB Report.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

b. TAB Agency will pe4rform Pilot Tube Duct Traverses on all HVAC Air Moving Equipment to determine total air volume delivery and not static pressure. Once total air flow delivery is established off each piece of equipment, the TAB Agency shall make the necessary calculations so fixed drives can be installed in place of variable pitch drives. TAB Agency shall install fixed drives at no cost to the SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

c. TAB Agency will Test, Adjust, and Balance all HVAC Systems and subcomponents to provide design documents and blue print drawings air/water flow quantities. Record design, initial and final test readings on appropriate TAB Forms approved by Architect, Engineer, and SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

d. TAB Agency must record any and all HVAC System equipment name plate data, such as Air Moving Equipment, Cooling/Heating Coils (chilled/hot water and electric), Variable Volume Air Terminal Boxes, Fan Powered Air Terminal Boxes, Exhaust, Supply, Return and Relief Fans, Water Pumps of various types, Chillers, and Cooling Towers and their subcomponents as set fort in AABC and NEBB national standards and testing procedures.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

e. TAB Agency must test all HVAC System cooling and heating coils. TAB Agency must record both dry bulb and wet bulb on/off any cooling coils, energy recovery coils, energy recovery wheels, heat wheels, and heat exchangers. TAB Agency must record dry bulb temperatures on/off hot water and electrical heating coils. TAB Agency must record chilled/hot water temperatures on/off coils. TAB Agency must calculate performance total BTU and tonnage off all cooling/heating coils, energy recovery coils, energy recovery wheels, and heat wheels.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

f. TAB Agency will measure and record all electrical performance data on all HVAC Equipment and subcomponents on appropriate TAB forms approved by Architect, Engineer, and SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

g. TAB Agency will verify and record all automatic control devices are functioning properly. Automatic control devices to include, but not limited to, supply, return, outside air, fire/smoke, volume, relief dampers, and etc.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

h. TAB Agency will perform and record sound and vibration measurements on any HVAC equipment and subcomponents directed by the Architect, Engineer, and SBBC. All sound and vibration measurements must be recorded on appropriate TAB sound/vibration forms approved by Architect, Engineer, and SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

i. Quality Assurance that TAB Agency is certified by to be either AABC or NEBB. Agency must have been in business a minimum of three years or show that TAB work has been performed on a minimum of ten projects similar in size. Documentation must be submitted to Architect, Engineer, and SBBC for approval prior to starting any TAB procedures.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

j. TAB Agency's testing, adjusting, and balancing report must be submitted on AABC or NEBB registered forms approved by Architect, Engineer, and SBBC. All report forms must be certified by TAB Agency's National Certification stamp. All Test, Adjust, and Balancing forms must be approved by SBBC before the commencement of any TAB work.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

k. TAB Agency will review any and all documentation and blue print drawings before the commencement of any TAB work. The TAB Agency must record and report any

and all deficiencies that may cause delays in completion of TAB work. Report must be submitted to Architect/Engineer, and SBBC's TAB acting representative.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

l. TAB Agency will perform a minimum of three (but not less than once per month) field investigations while HVAC Systems and all subcomponents are being installed. Before any field investigations are performed by TAB Agency, they must notify the Architect, Engineer and SBBC's TAB acting representative of date and time of field investigation. Upon completion of field investigation, a written report must be submitted to the Architect, Engineer, and SBBC's TAB acting representative.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

m. Instrumentation Type: Any and all equipment used in performing HVAC Total System Balance per AABC or NEBB standards must be calibrated and their accuracy certification submitted to Architect, Engineer, and SBBC's TAB acting representative. All TAB Agency testing equipment must have been calibrated and certified by a national testing lab six months prior to commencement of any TAB procedures.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

n. Coordination: The installing mechanical and controls contractor must provide an approved factory authorized service representative to assist and support the TAB Agency in the operation and testing of all HVAC Systems, Controls, and EMS Systems and all its subcomponents to ensure Total System Balance can be achieved without lengthy delays.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

o. Before TAB Agency starts any testing, adjusting, and balancing work, the Mechanical and Control Contractor must verify and validate all HVAC Equipment, Controls, and subcomponents are functioning per all design documents and blue print drawings. Validation of Mechanical and Control Systems must be in writing and submitted to Architect, Engineer, and SBBC's TAB acting representative.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

p. TAB Agency must witness and certify all duct leakage test rates and pressure tests on any piping performed by Mechanical Contractor. All test certified by TAB Agency must be recorded and submitted in writing to Architect, Engineer, and SBBC's TAB acting representative.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

q. Warranty: The TAB Agency must provide a "National Project Performance Guarantee" as prescribed by AABC or NEBB testing procedures and standards that state AABC or NEBB will assist in completing the requirements of the Contract Documents if the TAB Agency fails to comply with the Contract Documents.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

r. Additional Tests: Within 60 days of completing any and all TAB "Total System Balance" work and additional testing, adjusting, and balancing is needed to verify report parameters are being maintained, any and all work will be done at the TAB

Agency's expense. Any test the TAB Agency is asked to perform will be submitted in writing to the Architect, Engineering, and SBBC's TAB acting representative.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

s. Seasonal Periods: If initial testing, adjusting, and balancing procedures were not performed during near-peak summer and winter load occupancy and outside air conditions, the TAB Agency must perform the following tests: summer occupancy and outside design load conditions; winter occupancy and outside design load conditions. Before the TAB Agency performs any opposed seasonal test, he must first notify the Architect, Engineer, and SBBC's TAB acting representative in writing. Any and all opposed season test performed by TAB Agency will be at their expense. Any and all opposed season test performed by the TAB Agency must be recorded and submitted to Architect, Engineer, and SBBC's acting TAB representative.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

t. Test and balance services for HVAC systems **shall** be provided by a company employed by the Design-Builder or Construction Manager (or the SBBC Board in absence of the aforementioned.)

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

47. The Architect/Engineer to locate temperature sensors and thermostats away from primary entrances, corridors, and unsupervised areas.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

48. The Architect/Engineer shall provide FPL TES study and commissioning to obtain rebate for SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 23
HVAC

DIVISION 26
ELECTRICAL

1. The intent for this Division is to establish the quality level for Electrical Work. The Architect/Engineer shall incorporate the following guidelines into the electrical design.

2. Remodeling Renovation Requirements

   a. Buildings will be occupied by SBBC during construction. Lock out, tag out, and other safety related requirements shall be monitored by the Contractor with daily reporting. Where portions of buildings are altered, and remainder of building continues in operation, temporary wiring shall be provided to maintain all necessary building functions. Provide all equipment, material, labor for a continuous functional system.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Unless otherwise specified, all equipment and materials shall remain the property of the SBBC except as that judged obsolete and unusable by the SBBC. Property of SBBC shall be delivered to a location where directed by the SBBC and all other items shall be promptly removed from the job site. All other materials shall be removed from the site and legally and properly disposed of by the Contractor. The Contractor shall provide portable waste storage bins at his own expense for waste materials which will not be removed from the site in a 24 hour period. The Contractor shall not use the SBBC's waste storage facilities.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. The Architect/Engineer shall incorporate the following requirements into their design.

   a. Contractor shall obtain all necessary permits, meters, and inspections required for his work and pay all fees and charges incidental thereto.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Install work as required to fit structure, avoid obstructions, avoid or provide protection in areas subject to damage, retain clearance, headroom, openings and passageways. Cut no structural members without written approval from the Architect of Record and the SBBC.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. All materials and equipment shall be installed and completed in a first-class workmanlike manner and in accordance with the best modern methods and practice. Any materials installed which do not present an orderly and reasonably neat and/or workmanlike appearance, or do not allow adequate space for maintenance, shall be removed and replaced when so directed by the SBBC.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Before any equipment is shut down for disconnecting or tie-ins, arrangements shall be made with the SBBC and this work shall be done at the time best suited to the SBBC. Outages must be scheduled through the SBBC at least 72 hours prior to the event. Extent, length, and timing of outages shall be reviewed by the SBBC. Services shall be restored the same day. Provide temporary power or other services as required during outages.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Start each item of equipment in strict accordance with the manufacturer's instructions; or where noted under equipment specification, start-up shall be done by a qualified representative of the manufacturer.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. The Architect/Engineer shall comply with regulations and codes of suppliers or utilities.

a. The following codes shall be incorporated into the design:

- Florida Building Code
- Florida Fire Prevention Code
- National Electrical Code (NFPA 70)
- National Electrical Safety Code (NESC)
- Florida Administrative Code, Chapter 69A-58

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. All electrical materials, installation and systems shall meet the requirements of the following standards, including the latest addenda and amendments:

- American National Standards Institute (ANSI)
- Institute of Electrical and Electronics Engineers (IEEE).
- National Electrical Manufacturer's Associations (NEMA)
- National Fire Protection Association (NFPA)
- Occupational Safety and Health Act (OSHA)
- Underwriter's Laboratories, Inc. (UL)
- Electronic Industry Association (EIA)
- Telecommunication Industry Association (TIA)

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. The Architect/Engineer shall incorporate the following Grounding and Bonding for Electrical Systems requirements in their design.

a. Grounding conductors shall be copper. Equipment grounding conductors shall be insulated with green-colored insulation. Underground conductors shall be bare, tinned, and stranded. Use only copper conductors for both insulated and bare grounding conductors in direct contact with earth, concrete, masonry, crushed stone and similar materials. In raceways, use insulated equipment grounding conductors.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Ground rods shall be sectional type; copper-clad steel, ¾" in diameter by 20'.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Provide exothermic-welded connections for connections to structural steel and for underground connections, except those at test wells. Equipment Grounding Conductor Terminations shall be bolted pressure clamps.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Underground grounding conductors shall be tinned-copper conductor, No. 4/0 AWG. Bury at least 24" below grade or bury 12" above duct bank when installed as part of the duct bank.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Install insulated equipment grounding conductors with circuit conductors for the following items, in addition to those required by NEC.

- Feeders and branch circuits
- Lighting circuits
- Receptacle circuits
- Single-phase motor and appliance branch circuits
- Three-phase motor and appliance branch circuits
- Flexible raceway runs
- Armored and metal-clad cable runs

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. For telephone, alarm, voice and data, and other communication systems, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. At Service and Central Equipment Locations and Wiring Closets, terminate grounding conductors on a ¼"-by-2"-by-12" grounding bus.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. At poles supporting outdoor lighting fixtures, provide a grounding electrode in addition to installing a separate equipment grounding conductor with supply branch circuit conductors.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Bond electrical power system ground directly to lightning protection system grounding conductor at closet point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor, and install in conduit.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Make connections so galvanic action or electrolysis possibility is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells. Measure ground resistance not less than two full days after the last trace of precipitation, and without the soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance. Perform tests, by the fall-of-potential method according to

IEEE 81. Submit test reports upon receipt. Provide a grounding system with the following impedance level:

- Equipment Rated 1000 kVA and Less: 5 ohms
- Equipment Rated More Than 1000 kVA: 3 ohms
- If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. The Architect/Engineer shall provide fire barrier penetration seals meeting the following requirements.

   a. Provide UL listed firestop assembly for any opening through floors and fire-rated walls or ceilings used as passage for electrical components such as conduit or electrical boxes.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Cracks, voids, or holes up to 4" diameter shall be filled with putty, caulking, or one-piece intumescent elastomer which is non-corrosive to metal, compatible with synthetic cable jackets, and capable of expanding 10 times when exposed to flame or heat.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. For openings 4" or greater use sealing systems capable of passing a 3-hour fire test in accordance with ASTM E-814. Sealing system shall consist of wall wrap or liner, partitions, and end caps capable of expanding when exposed to temperatures of 250 to 350 degrees F.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Contractor is responsible for the safety and conditions of the materials and equipment installed until final acceptance. Where conduits pass through floors, corridor walls or other fire rated walls or ceilings, install a UL listed firestop assembly that has the same or greater rating as the floor, wall or ceiling in which it is installed.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   e. At all other conduit penetrations of walls or ceilings completely seal clearances around the conduit with caulking.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. The Architect/Engineer shall provide for a raceway system design and installation to meet the following requirements:

   a. EMT conduit shall be installed only in interior spaces, utilizing compression fittings.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Raceways below grade shall be heavy wall PVC, Schedule 40. All bends and raceways penetrating concrete slab shall be rigid metal conduit. Risers through grade or slab shall be rigid metal conduit with 2 coats of bitumastic.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Raceways shall be supported by approved types of galvanized wall brackets, ceiling trapeze with threaded rod support, or heavy duty two hole pipe straps. Conduit shall not

be supported at any point by wire or wire clips. Boxes shall be secured to wall framing to restrict movement. Support on opposite sides of box is preferred.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Job cut threads shall be given a coat or rust resistant paint such as zinc chromate or equal.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Expansion fitting shall be provided for raceways to compensate for thermal expansion and contraction and at building expansion joints. Bonding jumpers shall be provided for electrical continuity of the raceway system at the expansion fittings. Expansion fittings shall be installed in conduit runs exceeding 100'. Expansion joints shall be installed in intervals no greater than 100'.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Conduits shall not be located within 3" of roof deck as subject to damage from roof fasteners.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Flexible metal conduits are not to be specified but may be offered as an alternate with approval subject to value engineering process.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Underground raceway locations are to be specified on plans and coordinated with other trades. Installation should follow gravity systems.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Continuous lengths of magnetic identification tape noting particular system is to be provided above all underground raceways and tape to be located 12" below final grade.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. All above ceiling conduits to be labeled noting particular system at boxes and maximum 20' intervals. Cabinets shall be labeled noting particular system and where fed from. All panelboards shall have at least hand written circuit directories prior to power energized. Typed directories required prior to system acceptance. One inch wide permanent self stick labels are required where disconnects located above suspended ceiling

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. Architectural, surface-mounted conduit and boxes may be used for remodel or renovation work.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

l. Spare raceways shall be installed for future portables and future additional power requirements to preclude future demolition. Spare raceway for speaker wire is desirable.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. The Architect/Engineer shall provide in their design for the following Transient-Voltage Suppression for Low-Voltage:

   a. Obtain suppression devices and accessories through one source from a single manufacturer.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Comply with IEEE C62.41, "IEEE Guide for Surge Voltages in Low Voltage AC Power Circuits," and test devices according to IEEE C62.45, "IEEE Guide for Surge Suppressor Testing." Comply with NEMA LS 1, "Low Voltage Surge Protective Devices." Surge protective devices shall be listed in accordance with UL 1283 and 1449 Second Edition. Surge protective devices shall be marked with a short circuit current rating and shall not be installed at a point on the system where the available fault current is in excess of that rating. (Note that this is 2002 NEC, Article 285.6. This is the consultant's requirement, regardless of whether or not the authority having jurisdiction adopts the 2002 Code.)

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Written warranty, executed by manufacturer agreeing to repair or replace components of surge suppressors that fail in materials or workmanship within five years from the date of Substantial Completion.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. The equipment specified shall be:

      - Square D
      - Atlantic Scientific Corp.
      - Innovative Technology, Inc.
      - Current Technology, Inc.
      - Powerlogics

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   e. Provide TVSS at all electrical panels.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   f. Signal line protection (telephone) shall be solid state, silicon avalanche diode circuitry for protection from over voltages on 2 or 4 wire signal lines such as balanced pair telephone, metallic pair telephone, buried and overhead field cable, remote radio equipment, and control systems. Connect unit ground lug or wire to protected equipment grounding system with a No. 12 green insulated stranded ground wire as short as possible.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   g. 75 ohm coaxial cable protectors shall be solid state, silicon avalanche diode circuitry for non-interrupting over-voltage protection of RG-59/U coaxial cable. Unit shall be provided with one female input connector for "F" series male connector, one output RG-59/U coax cable terminated with an "F" series male cable end connector and a #16 stranded 18" long grounding wire on output end of unit or similar arrangement. Securely mount adjacent to protection equipment and ground to equipment or local building ground if an equipment ground is not available.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Install devices at service entrance on load side, with ground lead bonded to service entrance ground. Install devices for panelboard and auxiliary panels with conductors between suppressor and points of attachment as short and straight as possible. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. The Architect/Engineer shall provide a Facility Lightning Protection per the following requirements:

a. Engage an experienced installer who is NRTL listed or who is certified by LPI as a Master Installer/Designer.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Provide UL Master Label.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Coordinate installation of air terminals attached to roof systems with roofing manufacturer and installer.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Manufacturers shall be one of the following:

- Erico
- Harger Lightning Protection, Inc.
- Thompson Lightning Protection, Inc.
- East Coast Lightning Protection

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Roof-Mounting Air Terminals shall be NFPA Class I solid. Material shall be selected based on roofing component materials.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Conceal system conductors, down conductors, interior conductors and conductors within normal view from exterior locations at grade within 200' of building.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Use approved exothermic-welded connections for all conductor splices and connections between conductors and other components, except those above single-ply membrane roofing.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Provide a ground loop encompassing the entire structure. Ground loop shall be composed of #4/0 bare copper conductor.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Do not combine materials that can form an electrolytic couple that will accelerate corrosion in the presence of moisture unless moisture is permanently excluded from junction of such materials.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. An Early Streamer Emission Lightning Protection system may be provided, with prior SBBC approval.

- Installation of equipment shall be done under the direct supervision of a manufacturer certified installer.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Coordinate installation of lightning protection with installation of other building systems and components, including electrical wiring, supporting structures and building materials, metal bodies requiring bonding to lightning protection components, and building finishes.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- The warranty has been developed by the manufacturer's attorneys to protect against material failure, not improper installation. The lightning protection Contractor shall provide a two-year warranty. The warranty shall cover all materials, insulation and possible roof leaks caused by improper installation.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Subject to compliance with requirements, furnish and install products by the following:

  1) Erico

  2) Preventor Systems

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Bare copper material shall not be installed on dissimilar metals. Corrosion resistant copper or bronze equipment shall be utilized where these conditions exist. Corrosion resistant copper conductors and fittings shall be utilized where corrosive atmospheres are present.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Mast shall be roof mounted metal poles as provided by ESE system manufacturer. Coordinate installation with other Contractors.

10. The Architect/Engineer shall incorporate the following conductor requirements.

a. All Conductors and Cables shall be copper, type THHN-THWN

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Type MC, metal-clad cable, may be used for branch circuits only using manufactured connectors and only in concealed locations.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. All single phase power circuits shall have a dedicated neutral.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Cord Drops and Portable Appliance Connections shall be Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Class 1 and Class 2 Control Circuits shall be Type THHN-THWN, in raceway.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. All underground wiring shall be continuous without splices.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Circuit Limitations For General Use: maximum four receptacles per circuit.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Circuit Limitations For Computers: maximum two receptacles per circuit and/or station.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Circuit Limitations For Labs: maximum of two student stations per circuit.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Where power shut down required at labs, interruption by switch shall be to each individual lab. Interruption may be restored by keyed switch to relays in keyed box properly labeled. Shunts in panels are to be avoided.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. The Architect/Engineer shall incorporate the following Electrical System Identification:

a. Underground Labeling: Continuous lengths of magnetic identification tape noting particular system is to be provided above all underground piping and tape to be located 12” below final grade.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Aboveground Labeling: All above ceiling conduits to be labeled noting particular system at boxes and maximum 20’ intervals. Cabinets to be labeled noting particular system and where fed from. All panelboards must have at least hand written circuit directories prior to power energized. Typed directories required prior to system acceptance. One inch wide permanent self stick label required where disconnects located above suspended ceiling.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Color Identifications shall be provided by painting junction boxes and conduit 5’ OC x 12” and both sides of walls as noted below. Paint at rough in. Circuit numbers and system identification to be noted on unpainted junction box covers using indelible ink markers, minimum 1” high letters.

- 277/480 volt – brown
- 120/208 volt - black
- Fire Alarm Systems – red
- Intercom Systems – light blue
- Telephone, Voice Data - blue
- CATV – light pink

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. The Architect/Engineer shall incorporate the following requirements for panelboards and switchboards.

a. All phase and ground buses shall be copper.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Panelboards shall be fully rated to interrupt symmetrical short-circuit current available at terminals.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Branch-Circuit Panelboards shall utilize bolt-on circuit-breaker type.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Transient Voltage Suppression shall be provided in all panelboards.

- Minimum Single-Impulse Current Ratings: Line to Neutral: 100,000 A; Line to Ground: 100,000 A; Neutral to Ground: 50,000 A.
- EMI/RFI noise attenuation.
- Maximum Category C Combination Wave Clamping Voltage: 600 V, line to neutral and line to ground on 120/208 V, 1000 V, line to neutral and line to ground on 277/480 V systems.
- Maximum UL 1449 Clamping Levels: 400 V, line to neutral and line to ground on 120/208 V, 800 V, line to neutral and line to ground on 277/480 V systems.
- Withstand Capacities: 3000 Category C surges with less than 5 percent change in clamping voltage.
- Accessories include; Form-C contacts; Audible alarm; Six-digit transient counter.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Provide infrared scanning and submit a report for all panelboards.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Disconnects required at air handling units, fan coil units, and all other equipment regardless if integral switch provided.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Disconnects from service protecting underground feeders shall be fused.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Shunt trip units are required at all new services.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Disconnect switches are required outside of relocatable classrooms.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Panelboards and switches shall not be located in student occupied spaces including corridors.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. The Architect/Engineer shall provide a design with the following requirements for dry –type transformers (600 V less).

a. Cores shall be grain-oriented, non-aging silicone steel. Coils shall be copper, continuous windings without splices, except for taps.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Distribution Transformers: Factory assembled and tested, air cooled; NEMA ST 20.

- Ventilated Enclosure
- Insulation Class: 220 deg C.
- Taps for Transformers Smaller Than 3 kVA: One 5 percent tap above normal full capacity.
- Taps for Transformers 7.5 to 24 kVA: Two 5 percent taps below rated voltage.
- Taps for Transformers 25 kVA and Larger: Two 2.5 percent taps above and four 2.5 percent taps below normal full capacity.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Transformers supplying computer panel boards shall have a K-13 rating.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

14. The Architect/Engineer shall incorporate the following interior lighting requirements

a. Lighting levels shall be provided per SREF (Florida Building Code, Section 423 and IES Guidelines). Light level averages shall be within +20%, -10% of guidelines. Provide a typical classroom photometric plan.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. General purpose and classroom lighting shall be 277 volt lay-in type fluorescent lights with large 18-cell parabolic louver utilizing (3) T-8 lamps, 28 W 4100 degree Kelvin, with electronic ballasts having <10 percent total harmonic distortion.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Ballasts shall be high efficiency type as manufactured by GE (Instant Start Triad) or Sylvania/Osram (Quicktronic). Sound rating: A.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Ballasts for Linear Fluorescent Lamps shall be electronic type; instant start; have Category A or better Transient Voltage Protection; have a Lamp Current Crest Factor of 1.7; and a Power Factor of 0.95 or higher.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Use of U-lamps, circular lamps, or biax lamps is unacceptable.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Lenses on fluorescent fixtures shall be a minimum of .125” thick.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Fluorescent strip fixtures where approved shall be provided with tube guards.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Fluorescent night lights shall have a fuse in the ballast circuit.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Lighting fixtures shall not use a ceiling grid as the sole means of support under any circumstances.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Use of incandescent lighting is discouraged with the exceptions of Media CCTV production and Theatrical lighting.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. Local area switching of lighting circuits shall be utilized.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

l. In classrooms, provide minimum of two (2) levels of lighting by switching of alternating fixtures. The use of low voltage switching controls is discouraged. Dimming of fluorescent lighting may be used for specific applications with written approval from SBBC. Switching of fixtures for projector viewing should be considered for prime importance.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

m. Linear fluorescent lighting fixtures shall be as manufactured by:

- Lithonia
- Daybright
- Or Equal

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

n. Emergency lights mounted below 9' to be protected by cages (20' Gym) in unsupervised areas/corridors.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

15. The Architect/Engineer shall incorporate the following exterior lighting requirements:

a. Where fluorescent lighting is utilized for exterior applications ballasts shall be rated for low temperature operation.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. All exterior florescent lighting shall utilize polycarbonate lenses; shall be UL listed for damp locations; and shall be fully gasketed for dust and moisture resistance. Hardware and fasteners shall be vandal resistant.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Campus security lighting shall be of an H.ID. source and achieved with recessed canopy fixtures and/or wall mounted fixtures (wallpack). Raceways for canopy lights shall be installed on top of the canopy; manufacturer' standard cover provided. All H.ID. ballasts shall be rated for low temperature operation. All wall mounted fixtures shall be mounted as high on building façade as possible to prevent excessive vandalism. Fixtures that must be mounted less than 10'-0"' AFF shall have vandal resistant wire guards or polycarbonate shields installed.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Exterior parking area lighting poles shall be direct buried precast concrete with pole top tenon for fixture mounting. All pole mounted fixtures shall be fused. Fusing shall be

located at the base of the pole behind the hand hole access plate for ease of maintenance.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Exterior lighting systems shall be controlled by the campus energy management system or through photocells. Lighting contactors shall be mechanically held with coil by-pass circuitry. The use of time clocks with battery backups for lighting control is acceptable.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. High intensity discharge lighting fixtures shall be as manufactured by:

- Lithonia
- Daybright
- General Electric
- Hubbell
- McGraw Edison

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Lighting Contactors to be used to switch sports lighting.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Sports lighting to maximize use of poles wherever possible.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

16. The Architect/Engineer shall incorporate the following gymnasium lighting requirements:

a. Gymnasium lighting fixtures shall be enclosed type Metal Halide as manufactured by Musco.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Fixtures shall be mounted above beam height with a minimum mounting height to bottom of fixtures of 20'-0" AFF.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Fixtures shall be mounted directly to the structure. Pendant or threaded rod mounting methods are discouraged.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Gymnasium emergency lighting and exit signage shall have polycarbonate shielding within playing court areas where impact damage is possible.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

17. The Architect/Engineer shall incorporate the following exit lighting requirements:

a. Wall mounted exit lights shall be used whenever possible. Where necessary to install ceiling mounted exit lights, e.g., at corridor intersections, the exit lights shall be wedged shape with emergency battery pack mounted remote from the unit.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Exit signs shall be internally lighted, utilizing 70,000-hour light-emitting diodes.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Exit lighting fixtures shall be UL listed and polycarbonate construction with an LED light source. Fixtures shall have nickel-cadmium emergency battery packs factory installed.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

18. The Architect/Engineer shall incorporate the following emergency lighting requirements:

a. Emergency lights shall be provided for all occupiable spaces and mechanical and electrical rooms.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Wall mounted self contained emergency battery pack lighting fixtures shall be the preferred method of emergency lighting.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Fixtures shall be of a low profile design and utilize sealed beam lamps installed within the housing limits.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Protruding lamp designs (“bug-eyes”) shall be used only in supervised areas to avoid excessive vandalism.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Mount fixtures as high as possible.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Wire cage vandal guards shall not be used.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Fluorescent lighting fixtures with integral battery packs are discouraged.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Emergency lighting and exit signage shall be wired to the lighting circuit serving the immediate area.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Dedicated circuits for emergency light are not allowed.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

19. The Architect/Engineer shall incorporate the following switchgear guidelines into their design.

a. Switchgear shall be metal-enclosed, low voltage, power circuit-breaker type rated 600 V for use in AC systems. Switchgear shall be factory assembled and tested and complying with IEEE C37.20.1. The basis of design shall be Square D, with Cutler Hammer as an acceptable alternate.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Bus bars shall connect between vertical sections and between compartments. Neutral Bus shall be rated 100 percent of phase-bus ampacity. Phase, Neutral and ground bus shall be copper. Provide potential transformers, and current transformers as required.

Provide a multifunction digital-metering monitor, with indication for voltage, amperage, kW, kVA, and power factor as a minimum. Control power shall be supplied by a dry-type transformer, 120 V, with protective fusing.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Circuit breaker operating mechanism shall be mechanically and electrically trip-free, stored energy type. Circuit breakers shall have the following:

- Solid-state trip devices
- Auxiliary contacts
- Padlocking provisions
- Shunt-trip devices
- Indicating lights

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Circuit-breaker removal apparatus shall be an overhead device, track mounted.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

20. Typical Power Requirements for Structured Cable in Standard Classrooms and Science Classrooms

a. Projector Support Plate (one location per classroom) -Provide quad power outlet mounted in 2 gang factory knockout in plate. Designer shall provide detail of SBBC standard projector support plate (Chief CMS-445) which replaces a 2' x 2' ceiling tile. Electrical engineers need only indicate circuiting, quad power outlet, and associated faceplate.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Additional coordination required for projector support plates. Designer shall indicate the distance required from the projector screen to the center of the projector support plate with tolerances. The distance varies with screen size. The support plate must be centered pretty much exactly on the screen. This requires integration of the support plate into the reflected ceiling plan and lighting layout by the Architect and Electrical Engineer. The projector support plate location shall take priority over all other ceiling mounted fixtures and devices.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. TV - wall mount duplex power outlet. Always mount separately from TV coax outlet - recessed in new/newly furred walls, in small surface raceway for existing walls. Electrical Engineer specifies separate small surface raceway for this application. Designer shall specify Tyton TSR series small raceway color office white for the TV coax outlet - electrical engineer may wish to specify the power rated equivalent of this in the same color for sake of appearance.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Teacher Station (one location per classroom) - In new/newly furred walls, provide recessed quad power outlet. On existing walls, provide two duplex power outlets in large surface raceway shared with data/voice and Audio/Visual. Designer shall provide detail of SBBC standard large surface raceway including mounting brackets for power outlets.

Electrical Engineers need only indicate circuiting, two duplex receptacles, and associated faceplates.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Student Stations (six student computers per classroom) - In new/newly furred walls, provide recessed quad power outlet for every two student stations (total of three quads for six student computers). On existing walls, provide six duplex power outlets in large surface raceway shared with data. Designer shall provide detail of SBBC standard large surface raceway including mounting brackets for power outlets. Electrical Engineers need only indicate circuiting, six duplex receptacles, and associated faceplates.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Classroom Circuiting - Classroom power shall total ~~four~~ three 20 amp dedicated circuits distributed as follows - ~~two~~ one 20 amp circuit at ~~the six~~ four student computers, one 20 amp circuit at the teacher station, and the ~~fourth~~ third 20 amp circuit serving the TV and the projector plus the remaining two computer stations. ~~with reserve for future needs~~.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

21. Typical Power Requirements for Structured Cable in Computer Labs

a. Computer lab power circuits shall be similar to classroom student station circuits - one 20 amp circuit for every three student computers. In new/newly furred walls, provide recessed quad power outlet for every two student stations. On existing walls, provide one duplex power outlet for each student computer in large surface raceway shared with data. Designer shall provide detail of SBBC standard large surface raceway including mounting brackets for power outlets. Electrical Engineers need only indicate circuiting, duplex receptacles, and associated faceplates. Computer labs also often incorporate projectors and teacher stations. The requirements for these are the same as for standard classrooms.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

22. Typical Power Requirements for Structured Cable in Communications Equipment Room, Closets, Cabinets and Panels

a. Designer shall detail all Communications Cabinets or Closets (CCs), Communications Panels (CPs), and the Communications Equipment Room (CER) including power outlet placement. Electrical Engineers need only reference these details for power outlet mounting height/placement requirements and show the power outlets, faceplates, and circuiting. Please note that the CER typically includes two to three special 240 volt 30 amp outlets for rack mount 3000 VA UPSs in addition to several standard quad power outlets. SBBC also requires that one duplex GFI power outlet be provided in the CER for maintenance purposes. Each project has different requirements for these applications. Designer shall provide custom layouts for each project.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 26
ELECTRICAL

DIVISION 27

SECTION 27000
COMMUNICATIONS STRUCTURED CABLING SYSTEM

1. Introduction

   a. All telecommunications design work for any facility owned and operated by the SBBC shall be done in accordance with the most recent SBBC approved revision of these standards.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. The intent of this section is to provide the Architect/Engineer guidance in the design of Communications Structured Cabling Systems (SCS). The SCS consists of conduit, cabling, terminal equipment, racks, backboards, wire management and the like that make up the infrastructure serving various technologies including:

      - Data Local Area Networks (LANs).
      - Data Wide Area Networks (WANs).
      - Telephone service distribution.
      - Current and future services offered by the local telephone exchange carrier.
      - Related systems such as Instructional Television (ITV) and Intercom/PA share common communications spaces and pathways with the SCS.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

2. Design Requirements

   a. The Architect/Engineer is responsible for a fully developed SCS design. This section provides overall guidance in specific SBBC requirements, but is not intended to provide an exhaustive design methodology. The Architect/Engineer shall provide a competent designer who, in the judgment of the SBBC, is sufficiently experienced to design the SCS in accordance with these guidelines and all applicable standards. The services of a BICSI certified RCDD is required for all design services.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. The Architect/Engineer shall provide detailed drawings and specifications that fully document the SCS. The Architect/Engineer shall not rely upon the installing Contractor to develop the SCS design or to provide detailed drawings for the system.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. The types of drawings and level of detail indicated below are mandatory requirements for each telecommunications design project for the SBBC. A custom design shall be provided for each school.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Key design requirements are as follows:

      - Develop and indicate specific topology for the SCS including location and sizing of equipment rooms, backbone conduit sizes and configuration, and backbone cabling pairs or strand counts and configuration.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Provide dimensionally accurate site floor plans indicating location of all buildings and rooms, correct FISH room numbers, location of all equipment rooms and communications outlets, conduit routing, and other pertinent information.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Indicate all cable types and sizes, including end connections and terminal equipment. Provide detailed single line riser diagrams of all voice and data systems indicating manufacturer and model number for each system component.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Provide detailed layout elevations of all backboards and racks, including all wire management, drawn to scale.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Data equipment is typically SBBC Furnished and Contractor Installed (OFCI) unless otherwise directed by the SBBC's Project Manager. Coordinate all data equipment with the SBBC and properly integrate into the structured cabling system including high speed backbone interconnections. Clearly delineate responsibilities of the Structured Cabling System Contractor for cabling interfaces to data equipment. Incorporate into riser diagrams and indicate all patching. Detail location and mounting of equipment. Incorporate into rack elevations.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Telephone equipment is typically provided by others (the Telephone System Provider) under separate contract with the SBBC unless otherwise directed by the SBBC's Project Manager. Coordinate all telephone equipment with the SBBC and the Telephone System Provider and properly integrate into the structured cabling system. Clearly delineate responsibilities of the Structured Cabling System Contractor for cabling interfaces to telephone equipment. Incorporate into riser diagrams and indicate all patching and cross-connects. Detail location and mounting of equipment. Incorporate into backboard and rack elevations. Provide secondary surge protection for all trunk, station and special voice circuits.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- See Section 27100 for related Instructional Television System requirements. The ITV system shall share communications spaces and pathways with the Communications Structured Cabling System (SCS).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- See Section 27300 for related Intercom/PA System requirements. The Intercom/PA system shall share communications spaces and pathways with the Communications Structured Cabling System (SCS).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. Standards

a. All work shall be designed in accordance with the most recent School Board approved revision of these standards. Where there is a perceived conflict between a listed standard and this guideline, the Architect/Engineer shall design the work as directed by the SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. NFPA (National Fire Protection Association)

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. TIA/EIA-568-B.2 Telecommunications Industry Association / Electronic Industries Association "Commercial Building Telecommunications Cabling Standard"

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. EIA/TIA-569-A Electronic Industries Association / Telecommunications Industry Association "Commercial Building Standard for Telecommunications Pathways and Spaces"

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. TIA/EIA-607 Telecommunications Industry Association / Electronic Industries Association Commercial Building "Grounding and Bonding Requirements for Telecommunications"

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. TIA/EIA-606-A Administration Standard for Commercial Telecommunications Infrastructure

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. IEEE 802.3 Institute of Electrical and Electronics Engineers - LAN Standard for Ethernet

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. IEEE 802.5 Institute of Electrical and Electronics Engineers - LAN Standard for Token Ring

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. BICSI Building Industry Consulting Service International "Telecommunications Distribution Methods Manual"

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. AT&T "Outside Plant Engineering Handbook"

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. All materials and equipment shall be UL listed for the intended application.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. Abbreviations

a. SCS - Communications Structured Cabling System

b. CER - Communications Equipment Room

c. CC - Communications Closet or Cabinet

d. CP - Communications Panel

e. CO - Communications Outlet

f. PR - Power Receptacle

g. BICSI - Building Industry Consulting Service International

h. RCDD - Registered Communications Distribution Designer

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. Existing Technologies

   a. The design for new networks shall include detailed provisions for integration with or replacement of all existing networks as directed by SBBC level personnel.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. The SBBC provides WAN interface equipment, but each design must conveniently accommodate such interfaces.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. SCS TOPOLOGY

   a. The general design of the SCS shall be in accordance with TIA/EIA-568A and shall be a hierarchical star. Horizontal cabling shall extend from the CER, CCs and CPs to COs and shall not exceed 90 meters (295') in actual length except as provided for in applicable TIA standards. Backbone cabling shall extend without splices or intermediate terminations from the CER to CCs and CPs.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. The SCS shall be designed to support telephone services as well as data services. Data and telephone equipment is typically SBBC furnished. Coordinate all requirements for SBBC furnished equipment with the SBBC's Project Manager.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. Communications Spaces And Pathways

   a. Communications Equipment Room (CER)

      - The Communications Equipment Room is the central equipment space to which all star wired segments of the network attach. There shall be only one CER for each Local Area Network (LAN). The CER shall be a minimum of 300 SF or larger as required to suit the application at high schools and other large facilities. CERs at middle and elementary schools may be sized smaller depending on the facility size and service requirements. CERs shall not be located in rooms that house HVAC, plumbing, electrical power, or other equipment. CERs shall be provided with dedicated independent split system HVAC service that shall operate to control temperature and humidity 24 hours per day 365 days per year. Do not locate CERs in a perimeter space with vented doors. Cover all walls of CER with 8'-0" high 3/4" exterior grade AC plywood with all joints and fastener holes filled smooth, sanded, primed and finished with two coats of gray fire retardant semi-gloss enamel paint. Provide CERs with lay-in ceiling at minimum 9'-0" height above floor and epoxy painted floor finish. Provide lay-in lighting to 50 foot-candles. Provide surge protected and filtered power as required for convenient service to all devices requiring power. As a minimum, provide one quadraplex power receptacle (PR) on each wall. Indicate specific location of PRs relative to equipment served. All PRs shall be surge suppression type. Provide racks, cable tray, and wire management as required for a uniformly organized installation.

        Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Communications Closet (CC)

      - Communications Closets shall be star attached to the CER unless special topologies are needed and approved by the SBBC. CCs shall be a minimum of 80 SF or larger as required to shut the application. CCs shall not be located in rooms that house HVAC,

plumbing, electrical power, or other equipment. CCs shall be provided with HVAC service equivalent to that in the surrounding areas. Separate HVAC systems are not required for CCs. Do not locate CCs in a perimeter space with vented doors. Cover all walls of CCs with 8'-0" high 3/4" exterior grade AC plywood with all joints and fastener holes filled smooth, sanded, primed and finished with two coats of gray fire retardant semi-gloss enamel paint. Provide CCs with lay-in ceiling at minimum 9'-0" height above floor and epoxy painted floor finish. Provide lay-in lighting to 50 foot-candles. Provide surge protected and filtered power as required for convenient service to all devices requiring power. As a minimum, provide one quadraplex power receptacle (PR) on each wall. Indicate specific location of PRs relative to equipment served. All PRs shall be surge suppression type. Provide racks, cable tray, and wire management as required for a uniformly organized installation.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Communications Panel (CP)

- A Communications Panel is a mini-CC enclosed within a NEMA 4 Panel (Hoffman C-SD series with wood backpanel) or a specific purpose cabinet (Great Lakes GL series). All components of the CP, including a surge protected and filtered power source, surge suppression type power receptacle, and telephone terminal blocks, shall be enclosed within the panel or cabinet. CPs shall be star attached to the CER unless special topologies are needed and approved by the SBBC. Provide slotted wireway and wire management as required for a uniformly organized installation.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Communications Backbone Conduit

- Design in accordance with all applicable standards and the following specific requirements:

  i All backbone cabling shall be run continuously in conduit. Provide backbone conduits between the CER and CCs and between the CER and CPs.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

  ii Exterior underground: Direct burial grade schedule 80 PVC electrical conduit. Elbows turning up to aboveground shall be rigid galvanized threaded and factory coated. Identify all buried conduit with continuous detectable warning and identification tape.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

  iii Exterior aboveground: Rigid steel conduit galvanized with all threaded fittings (RMC).

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

  iv Indoors carrying indoor or riser grade cable (CM, CMR or CMP jacket) not requiring surge protection and grounding: EMT with set steel screw fittings where concealed and steel compression fitting where exposed.

  Note that all copper cables passing between buildings (whether above ground or below ground) require surge protection and grounding and shall be considered outside plant backbone cable in accordance with the following paragraph.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

  v. Indoors carrying outside plant backbone cable and extending more than 50' into a

building to the point of termination: Galvanized rigid steel conduit with all threaded fittings. Steel IMC conduit with all threaded fittings may be used in such applications, but only where located inside buildings. Note that all copper cables passing between

buildings (whether above ground or below ground) require surge protection and grounding and will be considered outside plant backbone cable.

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

vi. Size conduit as required to prevent excess tension on cabling while being pulled using proper equipment and methods. Analyze each pull segment separately. A fill rate of 30% or less will allow for a reasonable amount of future expansion as well as ease of service.

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

vii. Require that a pull tape with sequential footage markings such as Carlon TL382 be pulled in along with cables, unless a conduit is designed with no spare capacity.

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

viii. Require that all underground conduit be cleaned and verified with a test mandrel. Spare underground conduits should then have pull tape installed and closed at each end with a conduit plug with rope tie. Identify all buried conduit with continuous detectable warning and identification tape.

Will Comply____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

e. Horizontal Cabling Supports and Sleeves

- Free route cabling above ceiling, supported with CADDY "CableCat" Category 6 cable support hangers at 4’ on center minimum. Free routed cabling shall not be supported by any other means than Category 6 J-hooks.

  Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Provide sleeves at all penetrations of all walls and floors. Firestop penetrations of all floors and fire rated walls.

  Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Size sleeves as required to prevent excess tension on cabling while being pulled using proper equipment and methods. Analyze each pull segment separately. A fill rate of 30% or less will allow for a reasonable amount of future expansion as well as ease of service. Higher fill rates may be employed at the Architect/Engineer's sole discretion with SBBC approval.

  Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Exposed Conduits: Provide EMT conduit with steel compression fittings where exposed conduit is required in harsh environments such as locker rooms.

  Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Surface Raceway: Tyton ‘TSR’ series with TIA/EIA Category 6 compliant fittings for small raceways. Tyton ‘INFOSTREAM’ series for large raceways.

  Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. Horizontal Cabling And Terminal Devices

a. Horizontal cabling shall be UL or ETL verified TIA Category 6 UTP, enhanced grade. Provide plenum or riser jacket to suit application. Provide horizontal cable as follows:

- General Cable 'GenSpeed 6500'
- CommScope 'Ultrapipe'
- Superior Essex 'Nextgain'
- Hitachi 'Hi-Net Supra'
- Mohawk 'GigaLAN'
- Molex CAA-0183X series

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Terminate Category 6 cabling on UL or ETL verified 48 port Category 6 patch panels, Molex 'PowerCat 6'. Terminate 4 pairs per patch panel port, TIA T568A pinout. Provide printed and color coded identification of all patch panel ports based on unique consecutive port numbers together with outlet room numbers and colored blank tabs.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Copper patch cords shall be Molex Category 6, color gray for equipment room voice connections, black for equipment room data connections, and yellow for the workspace.

- Provide quantity of equipment room data patch cords (color black) equal to the quantity of LAN equipment ports provided plus 25 percent extra.
- Provide quantity of work area data patch cords (color yellow) equal to the quantity of LAN equipment ports provided plus 25 percent extra.
- Provide quantity of CER voice patch cords (color gray) equal to the quantity of telephone system station ports plus 25 percent extra. Provide quantity of CC and CP voice patch cords (color gray) equal to the number of connections required to be served from each, plus 25 percent extra.
- Provide various lengths of each type of patch cords to suit each CER, CC and CP and to make all connections required without excess length.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Workspace Communications Outlets shall be Molex WSY series with angled Category 6 jacks with spring door. Unless specifically directly otherwise by the SBBC's project manager, provide 6 jacks per classroom for student computers and printers, and two jacks per classroom for a teacher station (one jack for data, one jack for teacher telephone). Provide printed and color coded identification of all jacks based on unique consecutive patch panel port numbers together with outlet room numbers and colored blank tabs.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. Fiber Optic Backbone Cabling:

a. Fiber optic backbone cabling shall be multimode, 50 micron, 10 Gigabit Ethernet optimized. Minimum performance requirements for all fiber optic cabling shall be 3.0 dB/km and 2000 MHz-km @ 850nm, 1.0 dB/km and 500 MHz-km @ 1300 nm. Fiber optic cabling shall support Gigabit Ethernet for distances up to 2000 meters and 10 Gigabit Ethernet for distances up to 300 meters. Provide a minimum of 24 fiber strands from the CER to each CC and cabinet based CP, and a minimum of 12 fiber strands from the CER to each small panel based CP. Terminate all stands with 3M Hotmelt 'SC' connectors. Install all cabling

continuous in conduit with no intermediate splices. Provide fiber optic cable as follows:

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Exterior underground in conduit: Loose tube gel filled outside plant grade, General Cable G10X series fiber, cable product code BE0244M1A-DWB or engineer approved equal by CommScope, Hitachi or Superior Essex. Tight buffered indoor/outdoor cable is not allowed.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Exterior always aboveground in conduit and indoors in conduit: Tight buffered jacketed indoor premises grade, General Cable G10X series fiber, cable product code BE024P1R or engineer approved equal by CommScope, Hitachi or Superior Essex.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Fiber optic patch cords shall be Molex or equal, color orange. Provide with 'ST', 'SC' or 'MT-RJ' ended patch cords, or combinations thereof, as required to suit new and existing LAN equipment and fiber optic terminal cabinets at each school. Provide quantity equal to the number of connections required to fully interconnect all fiber optic equipment, plus 25 percent extra. Provide various lengths of each type of fiber patch cords to suit each CER, CC and CP and to make all connections required without excess length.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. Telephone Backbone Cabling:

a. Telephone backbone cabling shall be tested and certified by the manufacturer to TIA Category 3 performance. Install all cabling continuous in conduit with no intermediate splices. Provide telephone backbone cabling as follows:

- Exterior underground in conduit: Avaya, General Cable or Essex ANMW Category 3 multi-pair direct burial grade gel-filled cable. Ground shield and provide primary surge protection at each end mounted in CER, CC or CP. Primary protectors shall be Avaya 489ACA1 series with 110 block input and 110 block output. Provide with Avaya 4C1S solid state protector units.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Exterior aboveground in conduit: Avaya, General Cable or Essex ARMM Category 3 multi-pair shielded cable. Ground shield and provide primary surge protection at each end mounted in CER, CC or CP. Primary protectors shall be Avaya 489ACA1 series with 110 block input and 110 block output. Provide with Avaya 4C1S solid state protector units.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Indoors in conduit: Avaya 1010 or equal by General Cable or Essex Category 3 multi-pair cable.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. General Cabling Requirements:

a. Provide wire management on backboards to organize, protect, and conceal all cabling.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Provide horizontal wire management equal to Panduit 'WMP' series on racks to organize, protect, and conceal patch cords. Provide vertical wire management equal to Chatsworth 'CCS' on sides of racks for vertical routing of patch cords.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Provide slack at each end of each cable to allow for a minimum of five future re-terminations without rerouting or replacing cable.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. Classroom Audio-Visual Systems

a. Each classroom or other instructional space including computer labs shall be equipped with infrastructure to support a classroom audio-visual system. The classroom A/V infrastructure shall include the following components:

- At the ceiling mounted projector location, provide a lay-in projector support plate with infinite projector position adjustment, one single gang electrical knockout, one double gang electrical knockout, and factory support kit, Chief Manufacturing CMS-445.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- At the teacher/presenter location, provide raceway rough-in consisting of a double gang 3.5" deep device box with a 2" conduit stubbed up to the ceiling space in new walls. At existing walls, provide a large surface raceway combining power, A/V and voice data services in one raceway extending up to the ceiling.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- At the teacher/presenter location, provide a double gang A/V faceplate custom built for the application, with bulkhead connectors for VGA, S-video, and composite video (RCA) to the projector, an 'F' connector for television distribution, an 'F' connector for the classroom sound reinforcement system infrared wireless transmitter, and two Neutrik 'Speakon' connectors, each supporting two speakers (for a total of four classroom speakers). Faceplate shall be 1/8" thick aluminum with beveled edges, black anodized finish, and silk-screen custom labels for each connector ("speakers front", "speakers rear", "video", "S-video", "Infrared", "TV") and shall be RCI 'PEG51209' or Panelcrafters 'LIBER-CQ55997-1'.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Provide high-quality factory connectorized VGA cable and S-video cables from the A/V faceplate to the projector location. Provide field or factory connectorized coaxial cables from the A/V faceplate to the projector for composite video (RCA connectors), to the projector for television signal ('F' connectors), and to the center of the classroom for infrared wireless ('F' connectors). Provide 18 gage stranded speaker cables from the A/V faceplate (terminate on 'Speakon' connector captive screw terminals) to the four quadrants of the classroom with 10 feet slack. Factory connectorized cables shall be Extron or Kramer.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. Wireless LAN Systems

a. Provide infrastructure to support a wireless LAN in each facility to include wiring, outlets, patch panels and mounting attachments for SBBC furnished Wireless Access Points (WAP). Cabling to each WAP location shall be the same as required for a standard two port Category 6 communications outlet. WAPs shall be ceiling mounted in locations with lay-in ceilings not exceeding 9'-0" in height and wall mounted in other locations. Provide physical

protection for WAPs located in areas subject to damage such as gymnasiums. Provide mounting for each WAP consisting of a double gang box with single gang plaster ring and cover with stainless steel single blank plate. Provide WAPs at approximately every third standard classroom, every science classroom, every computer lab, and at all common areas such as media centers, dining/multipurpose rooms, auditoriums, gymnasiums, and outdoor gathering areas. Provide complete coverage of administrative areas and additional coverage as directed by the SBBC Project Manager.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

14. Uninterruptible Power Supply (UPS)

a. Provide four 3000 VA rack mounted uninterruptible power supplies for power backup to rack and cabinet mounted data equipment and telephone system equipment in the CER. Each UPS shall be American Power Conversion APC Smart-UPS SU3000RMNET. Mount in rack or cabinet and coordinate with project electrical engineer to provide 30 amp 120 VAC L5-30R power receptacle.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

15. Safety

a. Firestopping - The Architect/Engineer shall require that the Contractor firestop all penetrations of all floors, all fire rated walls, and all fire rated ceilings. Firestopping shall be accomplished using UL classified systems with a fire rating equal to or greater than the floor, wall or ceiling penetrated. Firestop systems shall be installed in accordance with the manufacturer's standard detail for the each type of floor, wall or ceiling penetration encountered. The Architect/Engineer shall require that the Contractor submit the manufacturer's standard details that he proposes to use for approval.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Asbestos Containing Materials (ACMs) – The Architect/Engineer shall incorporate the following instructions regarding asbestos containing materials into the Contract Documents:

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- No asbestos or asbestos-bearing materials in any form shall be used in the construction of the SCS.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Prior to the commencement of work, the SBBC will identify known asbestos containing materials (ACMs) at the site in the presence of the Contractor. All ACM abatement required to complete work under this Contract will be performed by an Asbestos Abatement Contractor employed directly by the SBBC outside of this contract. The Contractor shall coordinate the location of ACMs, which require abatement with the Asbestos Abatement Contractor.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- The Contractor shall instruct his employees not to disturb any ACMs identified by the SBBC or the Asbestos Abatement Contractor. When ACM abatement is in progress, the Contractor shall limit his activities and location within buildings as directed by the Asbestos Abatement Contractor. Any violation of directions provided by the Asbestos Abatement Contractor shall be at the risk of and the sole responsibility of the Contractor.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

16. Contractor Qualifications

a. The Architect/Engineer shall specify and enforce the following qualifications for SCS Contractors:

- The Structured Cabling System Contractor shall be an experienced firm regularly engaged in the layout and installation of structured cabling systems of similar size and complexity as required for this installation. The Structured Cabling System Contractor, under the same company name, shall have successfully completed the layout, installation, testing and warranty of not less than five Structured Cabling Systems of the scope of the largest system on this project for a minimum period of three years prior to the bid date, and shall have been regularly engaged in the business of Structured Cabling Systems contracting continuously since. The Structured Cabling System Contractor shall have an existing permanent office located within 100 miles of the job site from which installation and warranty service operations will be performed.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- The Structured Cabling System Contractor shall be in good standing with the Structured Cabling System Manufacturer as a Molex Certified Installer. The Structured Cabling System Contractor shall complete the Structured Cabling System Manufacturer's Certified Installer training program. The Structured Cabling System Manufacturer shall require that not less than two permanent employees of the Structured Cabling System Contractor each complete the full certification program. Each Certified Installer shall attend re-certification classes every two years. The Structured Cabling System certified employees shall include not less than one designer and one installation supervisor. The Structured Cabling System Contractor shall present, with his bid, the names and credentials of the Molex certified installers who will be responsible for this project.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- In addition, the Structured Cabling System Contractor shall present, with his bid, the name and certification number of a BICSI certified Registered Communications Distribution Designer (RCDD) who is a permanent employee of the Structured Cabling System Contractor. The Structured Cabling System Contractor shall maintain this RCDD, or another RCDD approved by the Architect/Engineer, in his permanent employment throughout this project. The RCDD shall have overall responsibility for certifying that the installed structured cabling system conforms to these Contract Documents and to the referenced EIA/TIA, IEEE, BICSI, and UL standards. Specific requirements for the RCDD are as follows:

  i. The RCDD shall be, in the judgment of the Architect/Engineer, thoroughly experienced in the design, layout, and installation of structured cabling systems of similar size and complexity as required for this installation. The RCDD shall submit evidence of these qualifications to the Architect/Engineer upon request.

     Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

  ii. The RCDD shall affix his stamp to the Contractor's pre-installation submittal drawings, indicating that he has reviewed and approved the drawings for conformance to the Contract Documents and to the referenced codes and standards.

     Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

  iii. The RCDD shall periodically visit the site and inspect the work in progress. RCDD site visits shall be made not less than once per month when the job is in active progress. The RCDD shall prepare a field report for each site visit for submission to the Architect/Engineer and SBBC Facilities.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

iv. The RCDD shall sign off on all copper and fiber optic cable test results, indicating that he was in responsible charge of all cable testing procedures and that all cables were tested in compliance with the Contract Documents and met or exceeded the requirements stated therein.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

v. The RCDD shall affix his stamp to the Contractor's as-built drawings, indicating that he has reviewed and approved the drawings as being complete, accurate, and representative of the system as actually installed.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

vi. The RCDD shall be present for and participate in not less than four hours of user training.

Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

b. Instructional Television System Installation:

- The Structured Cabling System Contractor shall assign a lead technician to oversee the installation of the Instructional Television (ITV) System for this project. The ITV System lead technician shall be thoroughly skilled and experienced in the installation and configuration of the ITV components required for the project. The ITV System lead technician shall attend the pre-construction conference, construction progress meetings as required, and all close-out and training meetings.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- The ITV System lead technician shall periodically visit the site and inspect the work in progress. Lead technician site visits shall be made not less than once per month when the job is in active progress. The ITV System lead technician shall prepare a field report for each site visit for submission to the Engineer.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- The ITV System lead technician shall sign off on all cable and system test results.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- The ITV System lead technician shall be present for and participate in not less than four hours of user training.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Conduit Installation:

- All conduit and related work shall be provided by a licensed Electrical Contractor using tradesmen who are skilled and experienced in the types of conduit installations indicated in the bid documents.

  Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Proof of Contractor Qualifications:

- The Structured Cabling System Contractor shall provide the following documentation, to be presented with his bid, as evidence that the requirements for Structured Cabling System Contractor qualifications listed above are satisfied. If the bidder does not meet the requirements of this specification section for structured cabling system work, he shall

provide the following documentation, to be presented with the bid, as evidence that the requirements listed above are satisfied by the Structured Cabling System Contractor he proposes to use as a subcontractor to perform work under this section. In either case, all work under this section shall be performed by permanent employees of the Structured Cabling System Contractor listed on the bid form, and shall not be performed by another subcontractor, employees of another company, or by temporary employees. The only exception to this requirement shall be for conduit work, which may be performed by an Electrical Contractor meeting the minimum requirements stated above.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Provide a list of not less than five (5) references for jobs of similar size and complexity including project name, location, contact person and phone number.

  Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Provide RCDD name, BICSI certification number, and qualifications.

  Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Provide location of existing permanent office from which installation and warranty work will be performed.

  Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Provide copies of certificates issued by Structured Cabling System Manufacturer proving that the Structured Cabling System Contractor is in good standing with the manufacturer as a Certified Installer, and that the Structured Cabling System Contractor can offer the SBBC a 20 year system warranty in partnership with the Structured Cabling System Manufacturer.

  Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 27
SECTION 27000
COMMUNICATIONS STRUCTURED CABLING SYSTEM

DIVISION 27
SECTION 27100
INSTRUCTIONAL TELEVISION SYSTEM

1. The intent of this Division is to establish the quality level for the Instruction Television System (ITV).

2. Introduction

   a. All telecommunications design work for any facility owned and operated by the SBBC shall be done in accordance with the most recent SBBC approved revision of these standards.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. This section is intended to provide the Architect/Engineer guidance in the design of Instructional Television Systems (ITV). The ITV Headend for all projects shall be provided by the SBBC under separate contract and shall be identified as being SBBC Furnished and SBBC Installed on the Contract Documents. The Architect/Engineer shall be responsible for identifying all required interfaces between the ITV cabling system and the ITV Headend.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. Design Requirements

   a. The Architect/Engineer is responsible for a fully developed ITV design. This section provides overall guidance in specific SBBC requirements, but is not intended to provide an exhaustive design methodology. The Architect/Engineer shall provide a competent designer who, in the judgment of the SBBC, is sufficiently experienced to design the ITV in accordance with these guidelines and all applicable standards. The services of a BICSI certified RCDD is required for all design services.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. The Architect/Engineer shall provide detailed drawings and specifications that fully document the ITV. The Architect/Engineer shall not rely upon the installing Contractor to develop the ITV design or to provide detailed drawings for the system.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. The types of drawings and level of detail indicated below are mandatory requirements for each ITV design project for the SBBC. A custom design shall be provided for each school.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Key design requirements are as follows:

      - Develop and indicate specific topology for the ITV including location and sizing of equipment enclosures, backbone conduit sizes and configuration, and backbone cabling configuration.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Indicate all cable types and sizes, including end connections and terminal equipment. Provide a detailed single line riser diagram of the ITV indicating manufacturer and model number for each system component.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Provide detailed layout elevations of ITV enclosures, including all wire management, drawn to scale.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Coordinate all ITV equipment with the SBBC and properly integrate into the structured cabling system. Clearly delineate responsibilities of the Structured Cabling System Contractor for cabling interfaces to ITV Headend equipment. Incorporate into riser diagrams and indicate all patching. Detail location of equipment.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- See Section 27000 for related Communications Structured Cabling System requirements. The ITV shall share communications spaces and pathways with the Communications Structured Cabling System (SCS).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. Standards And Abbreviations

a. Standards - All work shall be designed in accordance with the most recent SBBC approved revision of these standards. Where there is a perceived conflict between a listed standard and this guideline, the Architect/Engineer shall design the work as directed by the SBBC.

- NFPA National Fire Protection Association
- SCTE Society of Cable Television Engineers
- NCTA National Cable Television Association
- UL 467 Underwriters Laboratories
- All materials and equipment shall be UL listed for the intended application.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Abbreviations

- ITV Instructional Television System
- SCS Communications Structured Cabling System
- CER Communications Equipment Room
- CC Communications Closet or Cabinet
- CP Communications Panel

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. ITV Topology

a. The general design of the ITV shall be a tap based distribution system with amplifiers

selected and located for optimum efficiency and signal to noise ratio. Backbone cabling shall be star wired from the Headend Equipment to the CER, from the CER to CCs and from the CER to CPs. In the CER, CCs and CPs taps are typically used for distribution cabling to outlets. Outlet cabling shall homerun from the CER, CCs and CPs to ITV outlets. The design shall provide a signal strength of 3-10 dB flat at each ITV outlet across the full range of system frequencies from Channel 2 to Channel 78. The design shall compensate for cable tilt across the full range of system frequencies. Signal into amplifiers shall be at optimum dB level and flat. Amplifiers shall be Blonder-Tongue 55A series with integral return path. The system shall comply with CFR 47 Part 15 and CFR 47 Part 76.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. System Overview

a. ITV Headend Equipment is typically SBBC furnished and SBBC installed. The SBBC furnished ITV Headend Equipment will be housed within a cabinet and shall typically provide the following minimum services:

- A CATV service provider input.
- A satellite TV input (where applicable).
- A TV production studio input (where applicable).
- A remote sub-band origination input.
- VCRs – Quantity as selected by the SBBC for each project.
- DVD players – Quantity as selected by the SBBC for each project.
- Modulated output channels – quantity and channel assignments as selected by the SBBC for each project.
- A combiner.
- A main distribution signal amplified output.
- A LAN based media retrieval interface.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. The system designer shall provide conduit infrastructure, coordinate power supplies and power protection, and provide a coaxial cabling system with interfaces for each input and output service provided by the ITV headend equipment cabinet for each project.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. ITV coaxial cabling systems shall consist of cabling, jumpers, connectors, surge protectors, grounding, splitters, taps, equalizers, attenuators, amplifiers and all related conduits, raceways, cabinets, boxes, and accessories required for a complete working system.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Coordinate with the project electrical engineer to provide surge protected and filtered power as required for convenient service to the ITV headend and all amplifiers.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Provide wire management as required for a uniformly organized installation.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. Communications Spaces And Pathways

a. Refer to Section 27000. The ITV shall share communications spaces and pathways with the Communications Structured Cabling System (SCS).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. All backbone cabling shall be run continuously in conduit along with SCS backbone cables. Backbone conduit shall comply with Section 27000 paragraph "Communications Backbone Conduit".

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Outlet cabling shall be run in horizontal cabling supports and sleeves along with SCS horizontal cabling. Supports and sleeves shall comply with Section 27000 paragraph "Horizontal Cabling Supports and Sleeves".

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. Outlet Cabling

a. Outlet cabling shall be RG-6/U coaxial cable. Provide plenum or riser jacket to suit application. Provide outlet cable as follows:

- Riser Jacket – Belden 9116 or CommScope 5726.
- Plenum Jacket – CommScope 2275K.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. At the workspace terminate ITV outlet cabling on Thomas & Betts Snap-N-Seal 'F' connectors mounted in Molex 'WSY' series non-angled faceplates.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. Backbone Cabling

a. Backbone cabling shall be RG-11/U coaxial cable. Install all backbone cabling continuously in conduit with no intermediate splice. Provide backbone cable as follows:

- Exterior underground in conduit extending to point of termination indoors in conduit: Belden 1525A or CommScope 5914 direct burial grade gel filled. Surge protect at termination point on both ends with Edco CATV-145A surge protectors mounted in CER, CC or CP.
- Exterior aboveground in conduit: Belden 1523A or CommScope 5913. Surge protect at termination point on both ends with Edco CATV-145A surge protectors mounted in CER, CC or CP.
- Interior aboveground in conduit: Belden 1523A or CommScope 5913.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. General Cabling Requirements

a. In the CER and Communications Closets, route outlet cabling into a NEMA 4/12 hinged junction box. In Communications Cabinets and CPs route outlet cabling directly onto the

backboard.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Terminate all cables with Thomas & Betts Snap-N-Seal 'F' connectors or Engineer approved equal with 360 degree compression termination process and integral o-ring and plastic sleeve providing equal environmental protection and RF signal leakage rating.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Provide slack at each end of each cable to allow for a minimum of five future re-terminations without rerouting or replacing cable.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. Safety – refer to Section 27000.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. Contractor Qualifications: The Architect/Engineer shall specify and enforce the following qualifications for ITV Contractors:

a. The ITV Contractor shall be an experienced firm regularly engaged in the layout and installation of ITVs of similar size and complexity as required for this installation. The Contractor, under the same company name, shall have successfully completed the installation, testing, and warranty of systems of the scope of the largest system on this project at least two years prior to the bid date, and have been regularly engaged in the business of ITVs contracting continuously since. The Contractor shall have a permanent office located within 100 miles of the job site.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. The ITV Contractor shall assign a project manager to oversee the installation of the ITV for this project. The ITV project manager shall be certified by the manufacturer in the installation and configuration of the ITV equipment furnished for the project. The ITV project manager shall attend the pre-bid conference, all construction meetings, and all close-out and training meetings.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. The ITV project manager shall periodically visit the site and inspect the work in progress. ITV project manager site visits shall be made not less than once per month when the job is in active progress. The ITV project manager shall prepare a field report for each site visit for submission to the Engineer.

d. The ITV project manager shall sign off on all cable and system test results.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. The ITV project manager shall be present for and participate in not less than four hours of user training.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Proof of Contractor Qualifications:

- Each bidder shall provide the name and qualifications of the ITV Contractor he

proposes to use as a subcontractor for work under this section. The ITV Contractor shall provide the following documentation, to be presented with the bid, as evidence that the requirements for ITV Contractor qualifications listed above are satisfied.

- A list of not less than five (5) references for jobs of similar size and complexity.

- ITV project manager name and certificate of manufacturer certification.
- Location of office from which installation and warranty work will be performed.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 27
SECTION 27100
INSTRUCTIONAL TELEVISION SYSTEM

DIVISION 27

SECTION 27300
INTERCOM/PA SYSTEM

1. The intent of this Division is to establish the quality level for the Intercom/PA System.

2. This section is intended to provide the Architect/Engineer guidance in the design of Intercom/PA Systems. The basis of design shall be Rauland-Borg: Telecenter® ICS System for Elementary and Middle schools campuses; and Telecenter IV for High School campuses. The Intercom/PA Headend for all projects shall be provided by the Contractor. The Architect/Engineer shall be responsible for identifying all required interfaces between the Intercom/PA cabling system, the Intercom/PA System Headend, the telephone, and PABX system.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. Design Requirements

   a. The Architect/Engineer is responsible for a fully developed Intercom/PA System design. This section provides overall guidance in specific SBBC requirements, but is not intended to provide an exhaustive design methodology. The Architect/Engineer shall provide a competent designer who, in the judgment of the SBBC, is sufficiently experienced to design the Intercom/PA System in accordance with these guidelines and all applicable standards. The services of a BICSI certified RCDD is required for all design services. The designer shall visit the sites and familiarize themselves with the existing conditions and field requirements prior to submitting a design/proposal.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Key design requirements are as follows:

      - Develop and indicate specific topology for the Intercom/PA System including location and sizing of equipment rooms, backbone conduit sizes and configuration, and backbone cabling pairs.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

      - Indicate all cable types and sizes, including end connections and terminal equipment. Provide a detailed single line riser diagram for the Intercom/PA System indicating manufacturer and model number for each system component.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. Standards

   a. All work shall be designed in accordance with the most recent SBBC approved revision of these standards. Where there is a perceived conflict between a listed standard and this guideline, the A/E shall design the work as directed by the SBBC.

      - NFPA- National Fire Protection Association
      - TIA/EIA-568-B.2 Telecommunications Industry Association / Electronic Industries Association "Commercial Building Telecommunications Cabling Standard"
      - EIA/TIA-569-A Electronic Industries Association / Telecommunications Industry Association "Commercial Building Standard for Telecommunications Pathways and Spaces"

- TIA/EIA-607 Telecommunications Industry Association / Electronic Industries Association Commercial Building "Grounding and Bonding Requirements for Telecommunications"
- BICSI Building Industry Consulting Service International "Telecommunications Distribution Methods Manual"
- All materials and equipment shall be UL listed for the intended application.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. Provide new surge suppression PB-CLN (for call-in) and PBSKP (for speaker) for all or new circuits.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. Provide floor mount rack.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. The Telecenter ICS system will be interfaced to the school's existing telephone system. Contractor will require two (2) unrestricted analog ports for accessing the Intercom System (IC). The telephone provider shall program the identified Administrative phones for accessing the IC system via an IC button on the telephone handset.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. All items of equipment including wire and cable shall be designed by the manufacturer to function as a complete system and shall be accompanied by the manufacturer's complete services notes and drawings detailing all interconnections.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. The Contractor shall be an established communications and electronics contractor that has had and currently maintains a locally run and operated business for at lest five (5) years. The Contractor shall utilize a duly authorized distributor of the equipment supplied for this project location with full manufacturer's warranty privileges. A copy of the authorized dealer letter must accompany submittals for review.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. Installation and start up of all systems shall be under the direct supervision of a local agency regularly engaged in installation, repair, and maintenance of such systems. The supplier shall be accredited by the proposed equipment manufacturers and be prepared to offer a service contract for system maintenance upon completion of the guarantee period. The suppler shall provide the names, locations, and size of ten (10) recent successful installations in the area.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. The Contractor shall guarantee availability of local service by factory-trained personnel of all specified equipment from an authorized distributor of all equipment specified under this section. On-the-premise maintenance shall be provided at no cost to the purchaser for a period of one (1) year (parts and labor) from date of acceptance unless damage or failure is caused by misuse, abuse, neglect, or accident. The warranty period shall begin on the date of acceptance by the SBBC/Architect/Engineer.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. The supplier shall visit the sites and familiarize themselves with the existing conditions and field requirements prior to submitting a proposal.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. The system shall provide state-of-the-art technology for all internal telephone and intercom communications, emergency call-in notification, life safety paging and evacuation tones, secondary clock corrections, and bell schedule. The system shall be easy to learn and operate. All standard system programming shall be user friendly to allow the system administrator the ability to easily program system features.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

14. Features offered by this system shall be implemented and controlled by software programs that can be changed and expanded as SBBC's needs evolve.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

15. The system shall allow monitoring and administration from a local Windows XP PC or remove Windows XP PC via a modem.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

16. The system shall be an electronic system consisting of one amplified intercom channel, classroom speakers, call switches, digital wall display, digital readout for display of call origination, and solid state logic and sensing.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

17. The system shall have the ability to initiate life-safety paging announcements, evacuation tones, and take cover tones to any location within the facility.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

18. The system shall have the ability to selectively communicate or monitor individual classrooms in emergency situations.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

19. The system shall lend itself to expansion by simple addition of modules.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

20. The central switching system shall provide for switching of the intercom talk path to a telephone mode during the course of a call.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

21. The system shall be equipped with voice prompting to identify the calling station and respective call priority.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

22. The system shall be capable of two-way communication between any telephone and any room speaker.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

23. Room speakers and call switches shall be programmable and may be assigned any three, four, or five digit number. Any room number may be reassigned at any time.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

24. Amplified two-way voice communication shall be available from any dial phone in the system

through any speaker in the system. This shall allow hands-free communication to any classroom or any individual loudspeaker unit. A programmable pre-announce tone shall sound immediately before the intercom path is opened and a supervisory tone shall continue to sound at regular intervals when speaker monitoring is active.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

25. The system shall allow room or area security monitoring features by simply adding the security module. This shall include the ability to support motion detectors, door/window contacts, or any normal open alarm input.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

26. The system shall be UL listed to the UL 1950 Third Edition standard.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

27. The Central Control Unit shall provide an RS-232 port for the connection of on-site or of-site diagnostics by distributor or factory-trained personnel. This port shall be usable for the programming and saving of all programmed data for each system with the utilization of an on-site or off-site computer.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

28. Power amplifiers shall meet all specifications exactly as specified herein, including power capacity and count. B1 Amp 250.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

29. Normal Call Switches indicated on the drawings shall provide functions as scheduled below:

    a. Provide one (1) “Normal” call switch that shall activate a distinctive “NORM” level call from a single button activation. Button shall be clearly marked “NORM” and shall route call to any one or more Administrative telephones and/or displays for quick and easy response from an Administrative telephone. In accordance with the Americans with Disabilities Act (ADA), the “Normal” call shall provide a steady call assurance LED confirming that the call has been placed in the system.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

30. No external switch panels shall be provided.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

31. Program Distribution System: The system shall provide facilities to distribute program material (i.e. cassette tape, CD, radio broadcasts) via the remote location PMI module to be installed as depicted on the drawings.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

32. Speakers and horns shall be RB ACC1400 speaker/baffle assembly with the ACC1104 backcan and the ACC1014 tile support. Provide weather resistant speakers for exterior of buildings.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

33. Equipment racks shall be located in a climate-controlled area/room.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

34. For Renovation/Replacement projects:

    a. Intercom Contractor shall terminate the existing IC field above ceiling in a hinged terminal box-on punch blocks in proximity to its current location.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Intercom Contractor shall provide and install one 50-pair 22AWG Cat 5 cable per existing switch bank to accommodate the existing circuits from the new terminal box above ceiling to the new intercom headend location.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

35. Wiring:

    a. Color code for intercom system

    b. Alpha 517680 independent shield

    c. 517681 Alpha Overall Shield

Pair No.	Color Combination		Pair No.	Color Combination
1	Black paired with Red		27	Brown paired with Yellow
2	Black paired with White		28	Purple paired with Red
3	Black paired with Green		29	Purples paired with White
4	Black paired with Blue		30	Purple paired with Green
5	Black paired with Brown		31	Purple paired with Blue
6	Black paired with Yellow		32	Purple paired with Brown
7	Black paired with Orange		33	Purple paired with Yellow
8	Red paired with Green		34	Purple paired with Orange
9	Red paired with White		35	Purple paired with Slate
10	Red paired with Blue		36	Purple paired with Black
11	Red paired with Yellow		37	Slate paired with Red
12	Red paired with Brown		38	Slate paired with White
13	Red paired with Orange		39	Slate paired with Green
14	Green paired with Blue		40	Slate paired with Blue
15	Green paired with White		41	Slate paired with Brown
16	Green paired with Brown		42	Slate paired with Yellow
17	Green paired with Orange		43	Slate paired with Orange
18	Green paired with Yellow		44	Slate paired with Black

Pair No.	Color Combination		Pair No.	Color Combination
19	White paired with Blue		45	White/Black paired with Red
20	White paired with Brown		46	White/Black paired with Green
21	White paired with Orange		47	White/Black paired with Blue
22	White paired with Yellow		48	White/Black paired with Brown
23	Blue paired with Brown		49	White/Black paired with Yellow
24	Blue paired with Orange		50	White/Black paired with Orange
25	Blue paired with Yellow		51	White/Black paired with Purple
26	Brown Paired with Orange			

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

36. Use Belden 8723 cable or equal. Use direct-buried wire in all underground conduit.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

37. Splices, taps, and terminations are allowed only at devices.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

38. The Intercom Contractor shall furnish and install a dedicated isolated earth ground from the central equipment rack and bond to the incoming electrical service ground buss bar.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

39. Field Quality Control Testing: Verify by the system test that the total system meets the Specifications and complies with applicable standards. Provide written test results for all new intercom circuits. All existing circuits will be tested prior to the install headend and after the install. No repair or corrections will be done; just reporting

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

40. Commissioning: Train SBBC's maintenance personnel in the procedures and schedules involved in operating, troubleshooting, servicing, and preventative maintenance of the system. Provide a minimum of 4 hours training. Operators Manuals and Users Guides shall be provided at the time of this training.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

a. Schedule training with SBBC through the Engineer, with at least seven business days advance notice.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

41. Occupancy Adjustments: When requested by the Architect within one year of date of Substantial Completion, provide on-site assistance in adjusting sound levels, resetting matching transformer taps, and adjusting controls to suit actual occupied conditions. **Provide two visits to the site for this purpose.** A complete written list of problems must be provided with the associated problem.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

42. Cleaning and Protection: Prior to final acceptance, clean system components and protect from damage and deterioration.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 27
SECTION 27300
INTERCOM/PA SYSTEM

DIVISION 28
ELECTRONIC SAFETY AND SECURITY (FIRE ALARM SYSTEM)

1. The intent for this Division is to establish the quality level for Electronic Safety and Security. The Architect/Engineer shall specify the following Fire Detection and Alarm requirements.

2. This guideline includes providing, installing, connecting, wiring, and testing of new fire alarm systems components and/or modifications of existing systems, main control panel, manual stations, detectors, signal equipment, controls, surge protection and peripheral devices. The existing system may be replaced at the SBBC's discretion, when modifications exceed 30% impact on the existing system. Coordinate with the SBBC prior to commencement of design for SBBC's direction on existing system modifications. Coordinate all wiring and device interfaces with SBBC's Authorized Representative prior to starting any work. The Fire Alarm System shall meet all State of Florida Department of Education (SREF) NFPA Divisions 70 and 72, Federal "ADA" requirements. Equipment as manufactured by Notifier will be the basis for design of fire alarm systems components. Materials may be purchased via SBBC Direct Purchase Agreement. New systems shall have a minimum spare capacity of 30%, for future portable classrooms.

   a. Confirm with SBBC regarding basic design intent as indicated below prior to starting design:

      - Build-out configuration to existing system
      - Determine with SBBC type of system required, based on size of campus and number of buildings.
         i. Notifier 640 for Network System Configuration
         ii. Notifier 3030 for Stand-Alone, Single Panel Systems

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. Where applicable, the Contractor shall provide as an integral part of the Scope of this Project, the removal of the existing building fire alarm system components, including all control panels, auxiliary annunciators, controllers, devices, junction boxes, cabinets, wiring and conduit. The Contractor shall remove all obsolete wiring and conduit and install new concealed conduit to facilitate the new fire alarm system and wiring. The Contractor shall patch and paint all openings left by the removal of existing devices from walls, ceilings, or HVAC ducts. Contractor shall match the existing wall paint color, texture and finish in areas exactly.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. Work associated with this replacement shall be performed while the existing fire alarm system is in operation, i.e., conduit installation, wire pulling, device installation, etc. When the new fire alarm system is ready to be put in operation, and down time anticipated, this work shall be performed during school off hours and the system shall be back in operation by the time school is in session. At no time shall the campus and/or individual buildings be unprotected by a new or existing fire alarm system.

Will Comply____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. Provide a complete, noncoded, addressable, analog, microprocessor-based fire/smoke detection and alarm system with manual and automatic alarm initiation. The system shall utilize multiplex signal transmission dedicated to fire alarm service only. Alarm Indication shall be by sounding of horns, illumination of strobes and voice evacuation where applicable (assembly

spaces). System connections and conduit and wiring for alarm indicating circuits shall utilize Style "Y" Wiring. System connections and conduit and wiring for alarm-initiation circuits shall utilize Style "4" wiring. Provide wiring to automatically route a coded alarm, supervisory, and trouble signals to the remote central station service transmitter located in main fire alarm control panel using listed and approved equipment.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. A system general alarm shall include:
   a. Indicating the general alarm condition at the FACP and the integral annunciator.
   b. Identifying the device that is the source of the alarm at the FACP and the annunciator.
   c. Initiating audible and visible alarm signals throughout the building.
   d. Stopping HVAC supply and return fans.
   e. Initiating transmission of alarm signal to remote central station.
   f. Shut off of gas valves
   g. Close doors.
   h. Peripheral Devices (where applicable):
      - Pull Station
        i. Notifier NBG 12LX
        ii. Notifier NBG Flash Scan 12LX
        iii. Notifier NBG 12L
      - Horn Strobe
        i. Gentex Horn/Strobe GEC 324WR
        ii. Gentex Strobe GES 24-75WR
        iii. Gentex Weather Proof WG EC 24-75WR
      - Door Holder Appliance Edwards #IS04-AQNS

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. Manual station operation, water-flow alarm switch operation, smoke or heat detection initiates a general alarm and kitchen hood fire suppression system activation shall initiate a general alarm.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. A certified factory-trained technician is to perform the Work, making up all terminal cabinets, installing all surge suppressors, and including landing and testing each wire, mounting and connecting all devices, programming the main FACP, trouble shooting and certifying the final system. The Contractor shall be currently licensed by the State of Florida for Fire Alarm work, and shall be a certified factory-trained technician. The qualifying company must be located within a 50 mile radius of the school.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. All devices shall be provided for and manufactured by Notifier or SBBC prior approved equals except for those non-Notifier devices specified herein. Modification to existing “non-

Notifier" systems shall incorporate Notifier compatible equipment if possible, else match existing. Equipment as manufactured by Notifier will be the basis for design of fire alarm systems components for projects. All Notifier devices shall be of the "Flash Scan" type. All in field wiring, junction box and device differences required to match the specified product must be provided as an integral part of the system.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. Manual Pull stations shall be double-action non-break glass, addressable type, fabricated of metal or plastic, and finished in red with molded, raised-letter operating instructions of contrasting color. Address of unit shall be field-settable without special tools. Mount semi-flush in recessed back boxes with operating handles as indicated. Provide protective guards for devices located in gymnasium areas. Mount pull stations at exits no farther than 60" from egress.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. Smoke detectors shall be photo electric type, with an operating voltage of 24-VDC to 28-VDC, and self-restoring, detector and associated encapsulated electronic components are mounted in a module that connects to a fixed base with a twist-locking plug connection. Detectors shall include a communication transmitter and receiver having a unique identification and capability for status reporting to the FACP. Device shall contain an integral LED which shall flash each time the device is interrogated. Device shall be capable of field setting without special tools. Install ceiling-mounted detectors not less than 4" from a side wall to the near edge. Install detectors located on the wall at least 4" but not more than 12" below the ceiling. For exposed solid joist construction, mount detectors on the bottoms of the joists. On smooth ceilings, install detectors not over 30' apart in any direction. Install detectors no closer than 5' from air registers.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. Addressable Duct Smoke Detectors shall be photoelectric-type, with sampling tube of design and dimensions as recommended by the manufacturer for the specific duct size and installation conditions where applied. Provide unit with alarm indicator mounted on closest adjacent wall with top 2" from ceiling. Label each alarm indicating as to unit served. Remote alarm indicators shall be wall-mounted in lieu of ceiling-mounted. Units shall be located where accessible for maintenance. Coordinate location and final installation of duct smoke detectors with existing conditions. Installation of detectors shall be by this Contractor. Existing detector locations which are deemed inaccessible per the NFPA requirements shall be removed; the ducts patched or repaired; and the new detectors installed in an accessible location.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. Heat detectors shall be Addressable Thermal Detector type, rate-compensated / fixed temperature type with plug-in base and alarm indication lamp. Field coordinate the exact location of heat detectors in mechanical spaces with ductwork and other obstructions as to provide unobstructed access to all fire alarm devices.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

14. Fire Alarm Horns shall be Electric Piezo, 24-VDC – 28-VDC, type. When operating, provide a sound pressure level of 90 dB (min), measured 10' from the horn and/or 15 dB above field tested ambient sound level. Provide flush-mounted, gasketed weatherproof and waterproof units specifically designed for outdoor use. Combination Audio/ Visual Alarm Devices shall mount on cover of Horn and share common enclosure. Install at 80" to the bottom of device,

above the finished floor per ADA requirements. Install bells and horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille or as indicated. Combine audible and visual alarms at the same location into a single unit. Provide wire guards for devices located in gymnasium and as indicated on drawings. Audio/visual alarm units installed in entrance locations shall be mounted at 96" AFG. (Gentex Model GEC3-2YWR Combination. Gentex Model GES24-75WR Strobe only shall be exclusively used.)

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

15. Arrange to monitor and/or control system components that are not otherwise equipped for multiplex communication. Units transmit identification and status to the FACP using a communication transmitter and receiver with unique identification and capability for status-reporting to the FACP. Provide separate 24 volt power conductors where required. Unit shall be Notifier; addressable monitor modules shall be Notifier.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

16. Visual Alarm Devices shall be A.D.A. approved strobe lights with clear polycarbonate lens and xenon flash tube. Mount lenses on an aluminum face plate. The word "FIRE" is engraved in minimum 1-inch-high letters on the lens. Lamps shall have a minimum peak intensity of 75 candela. Strobe leads are factory-connected to screw terminals.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

17. Classroom building gas valves shall have manual reset type valve, with 24 to 28 V DC solenoid. Valves shall be equipped with manual position indicator and specifically designed for fuel gas service. Coordinate with SBBC for exact requirements. Field coordinate the exact connection point prior to bidding. Gas valves shall be installed on gas lines per SREF requirements. Gas valves for kitchen areas shall be manual reset type rated at 24 to 28 V DC with a separate FCPS power supply for battery backup capability.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

18. New fire alarm control panels shall be provided as an addressable system as manufactured by Notifier. Provide complete system coordination with manufacturer's representative prior to bidding.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

19. Provide field-programmability through the use of SBBC's portable computers. The program shall be capable of field updates without factory programmed hardware or firmware. Programming will be by this Contractor with the SBBC's representative present during all phases of programming. Provide the FACP with the latest software revision.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

20. Provide a typewritten instruction card mounted behind a glass cover in a stainless steel frame. Install the frame in a location observable from the FACP. Include interpretation and appropriate response for fire alarm displays and signals, and briefly describe the functional operation of the system under normal, alarm, and trouble conditions. A map shall also be provided indicating the campus buildings and rooms with initiation devices and their loop number and address number shown, matching the device address.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

21. Data Monitoring (Via Internet): For all new systems installations and for modifications of existing systems where remote signal monitoring is not present in the system, install the following Data Monitoring Equipment:

    a. OCP<-SL (Internet Router)

    b. Large Cabinet 340R

    c. 377 Trouble Module

    d. Patch Cord

    e. RJ-45 Jack

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

22. All programming to existing fire alarm control panels shall be performed and certified by the Contractor. All programming shall be performed with the SBBC's authorized representative present during all phases.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

23. Fire alarm system batteries shall be gel cell type, and include, charger, and an automatic transfer switch. Battery and charger shall be provided by this Contractor with strict coordination with the FACP manufacturer and SBBC. All signal expander power shall be supplied from an emergency generator source or tapped ahead of the campus main disconnect switch.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

24. Line voltage conductors shall be solid copper conductors with 600 V-rated insulation. Provide #10 gauge minimum, with adjustments for long runs. Preferred initiation loop conductors are West Penn. Signal circuits shall be #14 AWG THWN 19 strand copper. Annunciator Circuits shall be #16 AWG THWN 19 strand copper. All wire shall be installed in new concealed conduit, minimum conduit 3/4". NOTE: Wire AWG sizes shall be adjusted to a larger size as required by the manufacturers' voltage drop recommendations and the load served.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    Color Code:

		Positive	Negative
Audio/visual	#14 AWG (THWN)	+blue	-yellow
Relay circuit	#14 AWG (THWN)	+purple	-gray (NC)
Door holders	#14 AWG (THWN)	+brown	-orange
Gas shutoff	#14 AWG (THWN)	+blue	-yellow
24 – 28 VDC	#14 AWG (THWN)	+red	-black
Automatic (non addressable)	#14 AWG (THWN)	+yellow	-brown
Manual (non addressable)	#14 AWG (THWN)	+blue	-purple

25. All new fire alarm junction boxes shall be painted bright red, including inside, outside and cover prior to installing conductors.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

26. All indicating, monitoring, and control devices shall be labeled with its loop and address number permanently attached to the device in plain view. All labels shall be typewritten with an approved label maker utilizing protected coverings; hand labeling is not acceptable.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

27. Each and every wire shall be labeled at each end with SLC #, channel # or signal #. Each separate circuit, initiation, signal and auxiliary shall have a specific number. Label each conductor by this circuit number at the control connections and at each terminal connection in the terminal cabinets.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

28. Provide complete signal, data loop and power side surge suppression modules on all wiring entering or leaving each FAJB, and at the FACP. The Contractor shall repair any damaged components or wiring due to transient voltage surges for a period of three years from substantial completion date at no additional cost.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

29. At the main existing FACP, install surge suppression devices in a separate lockable metal enclosure which is located directly adjacent to the main FACP. The enclosure shall match the cabinet of the Notifier FACP exactly in size and type, color, etc. Provide a #6 AWG ground wire on all surge suppressors to the individual building grounding electrode system. All signal, data, and d/c power supply surge suppressors shall be EDCO with base and hold-down connection clips. All 120 VAC devices shall be EDCO. Contractor shall follow the manufacturer's instructions for installing and connecting surge suppression devices exactly.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

30. Install surge suppression at all building fire alarm terminal cabinets. Terminal cabinets shall be with integral key lock with plywood backboard. All connections within cabinets shall be made on identified screw type terminals. Mount junctions no higher than 60" AFF to top.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

31. Provide relays for other local control such as HVAC shutdown. Relays shall be Notifier. Upon activation of the campus fire alarm system, the relay shall activate and shutdown the controlled equipment. Locate all relays within 36" of equipment controlled.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

32. Provide remote audio/visual power supply and battery charger in a self-contained lockable cabinet. Provide (2) Style Y/Style Z notification circuits, and an integral battery charger. Provide unit with integral 120 VAC power and integral battery. Unit shall be Notifier 120 VAC. Provide surge suppression for 120 VAC branch circuit and provide a 20 amp 125 VAC specification grade key type switch to control the power to the signal expander for maintenance. Identify the 120 VAC circuit serving the switch (i.e. panelboard and branch circuit number). Provide signal expander at all kitchen solenoid gas valves.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

33. The 120-VAC circuit serving the signal expander and the main FACP shall be connected to the on-site generator system or to an electrical system connected ahead of the campus electrical main per SREF requirements.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

34. Provide fire alarm signage at each egress door where a manual pull station is located directly inside of doorway. Signs shall read *"Fire Alarm Pull Station Inside*". Signs shall be permanently fastened to wall with stainless steel tamperproof screws. Sign shall be 5" high x 15" long with .125" acrylic red matte background, white letters (sized proportionately). Provide Braille pictogram on each sign. Unit shall be equal to Volmar 18T Series.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

35. Bundle, lace, and train the conductors to terminal points with no excess. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with the fire alarm system to terminal blocks. Mark each terminal according to the wiring diagrams of the system. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors, utilizing approved tool specific for crimp on connections. Leave a minimum of 8" wire make-up length at each device and splice. Tee tap connections are strictly prohibited. No wire nut connections are acceptable in any location. No splices shall be installed in any fire alarm junction box except to that individual device. Shields on "SLC" wire shall be made up, twisted together, and taped behind devices at all device locations. SLC drain wire located in FAJB's and FACP shall be surge protected at the main fire alarm cabinet and at all other remote terminal cabinets, and shall be terminated on a terminal strip.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

36. No fire alarm conductors shall be installed below grade with the exception of direct buried rated conductors routed from building to building, as noted, or where absolutely necessary and with prior written permission of the SBBC. All other wiring shall be overhead installed in concealed conduit minimum 3/4". No underground, on ground or underground splices in pull boxes will be allowed. Conductor splices shall only be permitted in the device, the terminal cabinets, and the equipment headend. No intermediate splices shall be permitting. Splices underground shall not be allowed under any circumstances. Only the SBBC's Director of Maintenance or his/her designee shall approve (in advance and in writing) any request for intermediate splicing based on special site conditions.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

37. Use fiber optic connections between buildings when designing a "Network" system.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

38. All conduits used or unused connected to FACP or FACP terminal cabinets shall be identified and labeled as to conduit destination.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

39. Cell of masonry block in which door hold open device boxes are located shall be filled with concrete. If unit is installed in a stud wall, location of device shall be securely installed to building structure with auxiliary backing materials sufficient to hold door plus 200% additional weight.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

40. Mounting boxes for horn/strobes, control and monitor modules shall be deep junction boxes with extension ring attached.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

41. Contractor shall provide a conduit run to the existing portable classroom field sized in order to accommodate fire alarm conductors extending to all portables and new devices. Install a weatherproof, lockable fire alarm terminal cabinet in the proximity of the portables with a nameplate. Field coordinate the exact location. Provide an addressable data loop from the FACP and provide modules to integrate all zone-based portable classrooms into the addressable systems.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

42. Ground equipment surge suppression. For audio circuits, minimize to the greatest extent possible ground loops, common mode returns, noise pickup, cross talk, and other impairments. Measure, record, and report ground resistance. Ground resistance shall not exceed 3 ohms. Provide a #6 AWG grounding conductor in concealed conduit from the individual building electrical grounding electrode system to the FACP and each remote Fire Alarm terminal cabinet from the individual building electrical grounding electrode system where cabinet is located. Terminate ground conductor on multi-conductor copper lug secured within the cabinet.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

43. Power breaker shall be independent, labeled, and have a “Breaker Lock” place over the actual breaker switch.

    Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

44. Test the system according to the procedures outlined in NFPA 72. Minimum required tests are as follows:

    a. Verify the absence of unwanted voltages between circuit conductors and ground.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    b. Test all conductors for short circuits utilizing an insulation-testing device.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    c. With each circuit pair, short circuit at the far end of the circuit and measure the circuit resistance with an ohmmeter. Record the circuit resistance of each circuit on the record drawings.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    d. Test initiating and indicating circuits for proper signal transmission under open circuit conditions. One connection each should be opened at not less than 10 percent of the initiating and indicating devices. Observe proper signal transmission according to class of wiring used.

       Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

    e. Test the system for all specified functions according to the manufacturer's operating and maintenance manual. Systematically initiate specified functional performance items at each station including making all possible alarm and monitoring initiations and using all communications options. For each item, observe related performance at all devices required to be affected by the item under all system sequences. Observe indicating lights,

displays, signal tones, and annunciator indications. Observe all voice audio for routing, clarity, quality, freedom from noise and distortion, and proper volume level.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Test both primary power and secondary power. Verify, by test, the secondary power system is capable of operating the system for the period and in the manner specified.

45. Contractor shall provide the following upon completion:

- Installation and Program Manual
- CD of System Software (capable of read/write and **loading** for laptop computer).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

46. When requested within one year of date of Substantial Completion, provide on-site assistance in adjusting sound levels and adjusting controls and sensitivities to suit actual occupied conditions.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

47. Provide the services of a factory-authorized service representative to demonstrate the system and train SBBC's maintenance personnel. Provide 4 hours training. Training shall include a complete project walkdown with SBBC's authorized representative to identify device locations, junction box locations and surge suppression module locations.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 28
ELECTRONIC SAFETY AND SECURITY
(FIRE ALARM SYSTEM)

DIVISION 31
EARTHWORK

1. The intent of this Division is to establish the quality level for earthwork, site clearing, excavation, soil treatment, and special foundations.

2. The SBBC shall furnish all site survey information for the project. The Architect shall provide to the SBBC what necessary items should be shown on the survey for the specific project.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. The Architect shall specify the protection of all SBBC property including facilities, utilities, site conditions, and existing vegetation including all grassy areas. All items damaged beyond the designated Contract limits shall be repaired by the Contractor at no additional cost to the SBBC.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. The SBBC shall furnish boring and subsurface investigation. The Architect shall provide plans showing the required test boring locations to the SBBC's Project Manager.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. Boring locations and sections through borings showing all soil conditions shall be provided in the Contract Documents. Specifications shall contain statements to the effect that information shown is for the Contractor's use and that the SBBC shall in no way be held responsible to the accuracy of the information.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. The Architect shall coordinate traffic circulation and parking with the SBBC's planning and program departments.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. The Architect shall specify the following with regard to site clearing:

   a. The design team shall be responsible for the water management district's application and permitting.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. No construction shall proceed until all permits have been secured.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Detail existing trees to remain and specify that these trees be protected at the drip-line of the canopy.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Grubbing shall include the removal of stumps and roots to the extent that all roots within ten' of an underground structure, utility line or under footings and paved areas are to be removed. Grubbing in open areas shall include the removal of stumps and all roots within three' of finished grade elevations.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Burning grubbed waste is acceptable provided that the local fire marshal has issued the proper permitting documents.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Specify that no clean fill dirt is to leave the site unless approved by the SBBC's Project Manager. Surplus soil will be referred to the Office of Plant Operations and Maintenance for removal and storage. Balanced sites are preferred.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. The Contractor is responsible for pulling the Construction Dewatering Permit.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. The Architect shall specify that dewatering may be necessary to lower and control the groundwater levels and hydrostatic pressures during construction. Excavation and construction is to be performed in dry conditions. Staging areas are to be kept dry.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. The Architect shall specify the following with regard to Erosion and Sedimentation Control:

a. All sites over one acre shall reference NPDES for permitting.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Specify Bahia sod for all retention pond banks.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Specify that all seeded and sodded areas are to be maintained by the Contractor until the sod or seed bed is 80% established or until substantial completion, whichever is longer. This may include additional time beyond the date of Substantial Completion.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. The Architect shall specify the following with regard to Earthwork:

a. Specify control measures to limit sources of imported soils to keep proctor testing to a minimum.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. For soils testing, select a geotechnical engineer that is currently under a continuing services agreement with the SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Grading minimums and maximums:

- Minimum slopes in open fields: 1%
- Maximum slope in open fields: 1/20
- Maximum +/- 0.1 of design grade
- Maximum 4/1 side slope for embankments

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Maintain a minimum 5' both sides of fence max 10% slope.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Specify compaction at non pavement/non building pad areas to be 92%.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Design retention ponds as remotely from the building(s) as possible.

- Where retention ponds are to be fenced, detail at 6' high with a pair of 4' wide access gates

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. The drawings are to clearly show (and have appropriate spot elevations) finish grades in the areas of structures/buildings and be designed to shed surface runoff away from the structures/buildings. Ensure that the finish floor elevations shall be a minimum of 8" above adjacent finish site grades to ensure positive runoff away from the structures/buildings.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Renovation projects shall be designed to make modifications to spaces and adjacent grades such that the above criteria are met. Swales and runoff collection systems shall be designed and clearly shown on the Drawings to ensure drainage away from all buildings.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Test the soil for Radon and if Radon is found:

- Follow the Florida Standard for Radon-Resistant New Commercial Building Construction, or the EPA Handbook for Sub-Slab Depressurization for Low Permeability Fill Material.
- As an alternate, remove the contaminated material.
- Radon protection requirements, when required, shall be specified and detailed in the Contract Documents.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. The Architect shall specify the following with regard to Soil Treatment:

a. The chemicals and application shall conform to the EPA Federal Insecticide, Fungicide and Rodenticide Act.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Specify the following statement be submitted from the pest control company: "The building [or] areas of displaced concrete has/have received a complete treatment for the prevention of subterranean termites. Treatment is in accordance with the rules and laws established by the Florida Department of Agriculture and Consumer Services."

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Specify that all termite chemicals will be mixed on site and observed by the Contractor.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Specify that the Applicator is to document the materials used; the percent of the solution, and the area applied during each visit and submit a report to the SBBC before leaving the site.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Specify that soil treatment is not to be applied at interior areas of displaced concrete during times when the building is occupied by the SBBC. Coordinate application times with the SBBC's Representative.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Specify a five year warranty with a 5 year renewal option.

- If termite activity is discovered during the warranty period, the Contractor will re-treat the soil and repair or replace the damage caused by termite infestation, without cost to the SBBC. The Contractor shall pay the entire cost of retreatment if required, including the costs of providing access to the soil, repair of resulting damage to concrete, and finishes.
- The service agreement shall state that in the event of damage during the guarantee period, the Contractor shall make repairs to structurally damaged surfaces to a dollar value based on the size of the building. An independent testing laboratory shall certify that the treatment meets the requirements of the Specifications.
- An independent testing laboratory shall certify that the treatment meets the requirements of the Specifications

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 31
EARTHWORK

DIVISION 32
EXTERIOR IMPROVEMENTS

1. The intent of this Division is to establish the quality level for paving, athletic field surfacing, fencing, retaining walls, irrigation, planting, and wetlands conservation.

2. Design the site drainage to be in compliance with the Florida Building Code and the St. Johns Water Management District.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. Design the site to comply with Crime Prevention through Environmental Design (CPTED) principles.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. Provide access to athletic facilities, physical educational instructional areas, and playgrounds via interconnected paved walkways, placed to coincide with the natural flow of pedestrian traffic and comply with FBC Accessibility requirements.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. Provide fences for athletic facilities in accordance with Facilities Planning for Physical Activity and the National Federation “Court and Field Diagram Guide”.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

6. Site design considerations:

   a. Allow for the possibility of future building expansion.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. Develop circulation patterns that separate pedestrian from vehicular traffic; the bus drop off from parent drop off; and staff parking from student parking.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Provide handicapped accessibility to all areas of the site including but not limited to all buildings, athletic areas, and parking.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Athletic areas should be easily accessible from parking for after hours use.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   e. Consider building orientations that conserve energy and allow for natural light and ventilation.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   f. Identify and preserve natural site features.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Provide concrete pads and gates for up to four dumpsters. Also provide the same for a trash compactor. Coordinate the location of the dumpsters with the local sanitation service.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Detail the orientation of all ball fields and play equipment with consideration to the sun.

- The sun should be the batters back at Baseball and Softball fields.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Football and Soccer fields should run North-South.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Play equipment should be oriented on a North-South axis.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Tennis courts should be oriented on a North-South axis.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Take into account safety issues such as foul balls being able to fly into traffic of adjacent thoroughfares.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Provide for drinking water at all playgrounds, physical education instructional areas, play or sports fields, if not within 250' of another facility. Detail a non-chilled drinking fountain.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. Design and detail playgrounds and equipment to be in compliance with the SBBC's Document "Pre-kindergarten Playgrounds" available through the Office of Exceptional Education Program Support.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

l. Detail a restroom for each sex, on the exterior of the building that is accessible to recreational play fields to eliminate the need for teacher escorting of a student to an interior restroom during outdoor activities.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

m. Detail recreational play areas a minimum of 100 yards away from the physical education instructional areas.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

n. The physical education instructional areas are to be a minimum of 1600 SF, shaded or covered by a pavilion. Coordinate with the Facilities List approved by the SBBC.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

o. Detail electrical power to the physical education instructional areas if offices are not to be provided.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

p. Detail mulch at play areas to be raised above grade by 12" with batter board or other style curbing and under drains to prevent mulched areas from flooding.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

q. Perimeter fencing shall be 6' high and encompass the rear yard of the building(s) starting at the outer most front corners of the building or campus and leaving the front of the building or campus open. Do not provide any gate locations that open directly to adjacent properties

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

r. Specify that exterior horizontal walking surfaces shall have a minimum coefficient of friction of 0.60.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

s. Detail the fencing, drinking fountain, curbing or edge banding, and drainage system for all playgrounds. Playground equipment and ground cover shall be provided by the SBBC in Furniture, Fixture and Equipment (FF&E).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

t. Do not use planters as part of a finished wall or ceiling assembly.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

7. The Architect shall specify the following for Asphalt Paving:

a. The design of the asphalt paving system shall be site specific and follow the recommendations of the geotechnical engineer.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Wheel stops are not to be specified or detailed except at accessible spaces and as protection for light poles and other items that may be in the field of a parking lot.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Detail curbing and curb cut ramps at parking locations next to sidewalks. No flat or flush curbing will be allowed unless bollards are installed at 6' on center.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Detail the athletic track as asphalt paving with line work applied to DOT standards. Do not specify synthetic track surfacing.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Pedestrian access within the site shall not cross vehicular traffic.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Detail clear visual corridors at all vehicular turning locations and pedestrian crossings such that vegetation or structures do not obstruct the view of oncoming vehicular traffic or pedestrians.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Specify the moisture content of the base is not to exceed 90 percent of optimum to obtain adequate penetration for the prime coat.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Specify tack coats shall only be required on primed bases in areas that have become excessively dirty and cannot be cleaned, or in areas where the prime has cured to the extent that it has lost adequate bonding. Generally, a tack coat will be required on bituminous base or leveling courses before placing the surface course. No traffic shall be allowed on the tacked surface.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Specify the depth of each layer to be checked by the Contractor at intervals not to exceed 25'. All deviation from the required thickness in excess of the allowable tolerance shall be corrected immediately.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

j. Detail surface courses of thickness greater than 2" to be constructed in approximately equal layers and of less than 2" compacted thickness.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

k. Specify that no skin patching shall be allowed.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

l. Specify the density required for asphaltic concrete pavement, after final compaction, shall be at least 95 percent of the laboratory compacted density of the paving mixture. Tests shall be performed every 500' for roadways and 50,000 SF for parking areas.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

m. Specify the following: While rolling is in progress, the surface shall be tested continuously and all discrepancies corrected to comply with the surface requirements. Should any depressions remain after the final compaction has been obtained, the full depth of the mixture shall be removed and replaced with sufficient new mixture to form a true and even surface. All high spots, joints, and honeycomb shall be corrected. Any mixture remaining unbonded after rolling shall be removed and replaced. Any mixture which becomes loose or broken, mixed, or coated with dirt, or in any way defective, prior to laying the wearing course shall be removed and replaced with fresh mixture which shall be immediately compacted to conform with the surrounding area.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

n. Where sand-asphaltic shoulders are constructed within the limits of curb and gutter, specify that compaction shall be done by light weight rolling equipment which will not displace the previously constructed curb and gutter.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

o. Specify the finished surface shall not vary more than 3/16" when measured by a 15' rolling or manual straightedge applied parallel to the center line of the pavement.

Any surface irregularities exceeding such limits shall be corrected. A manual straightedge shall be furnished by the Contractor and shall be available at all times during the course of the work.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

p. Specify that corrections made by replacement of the full thickness shall extend to at least 50' past each side of the defective area.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

q. Specify that the Contractor shall protect the pavement against damage during shoulder construction. Vehicular traffic shall not be permitted until the pavement has set sufficiently to prevent rutting or other distortion.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

r. Specify the following maximum allowable deficiencies from the specified thickness and serious deficiency thicknesses.

- 1-1/2" or less
  i. Maximum allowable deficiency 3/16" or more
  ii. Serious deficiency 1/4" or more
- Greater than 1-1/2" but less than 2-1/2"
  i. Maximum allowable deficiency 1/4" or more
  ii. Serious deficiency 3/8" or more
- 2-1/2" or greater
  i. Maximum allowable deficiency 1/2" or more
  ii. Serious deficiency 3/4" or more

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

s. Specify the following tests be provided by the Contractor as part of Base Bid and submitted to the Architect and SBBC's representative.

- Determination of the job mix formula
- Tests of the asphalt cement
- Sieve analysis of the aggregate
- Determination of bitumen content of the asphalt concrete

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

8. The Architect shall specify the following with regard to Concrete Paving:

a. Specify concrete paving to be Class A concrete with a minimum compressive strength of 3,000 psi in 28 days.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Expansion joints shall be specified and shown on the drawings and shall be recessed with a caulk strip seal.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. When utilities are required to cross existing paved areas, saw-cutting finished surfaces should be used only as a last resort. The SBBC recommends boring as the standard procedure for crossing streets/roads. Concrete walks shall be cut and replaced from joint to joint and doweled to the remaining slab.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Detail and specify concrete sidewalks shall be a minimum, 6' wide, and 4" thick with 6 x 6 # 10 or Fibermesh reinforcement.

- All sidewalks subjected to heavy vehicular traffic or crossing shall be a minimum 6" thick and 10'-0" wide where required.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

9. The Architect shall specify the following with regard to Athletic Surfacing:

a. Detail and specify outdoor basketball and tennis courts shall have an asphalt base with a game court coating and line paint.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Ball field clay surfaces:

- Specify a 60% sand / 40% clay mixture for the following areas: Home plate and batter's boxes, pitcher's mound, on-deck circles, and coach's boxes.
- Specify an 80% sand / 20% clay mixture for the following areas: Warning track and all infield areas not scheduled for the 60/40 mix.
- Detail a 6" depth of material at the home plate area, pitcher's mound and around the bases. The remainder of the areas shall be detailed to a depth of 4".

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

10. The Architect shall specify the following with regard to Fencing and Gates:

a. Materials - Chain Link

- Fabric:

i. 9-gauge, aluminum coated steel fabric, woven in a 2" mesh. Top and bottom selvages shall be knuckled. The fabric shall conform to the requirements of ASTM Designation A 491. The aluminum coating shall conform to the requirements of ASTM Designation A 817 for Type I coating with a minimum of 0.40 ounces per square foot of wire surface for fabric having a minimum tensile strength of 75,000 psi. Wire diameter should be a minimum of .148" after coating. Minimum breaking strength of 9 gauge-coated wire shall be 1,290 lbs. The weight of the coating shall be determined by the strip test as defined in ASTM Designation A 428. Fabric shall have a minimum ~~25-year~~ 12-year written warranty against failure due to rust or corrosion. 6-gauge fabric (specified for special uses such as baseball backstops, etc.) shall meet all applicable ASTM Designations as stated above.

ii. Vinyl coated fabric (repair/replacement only): All standards for Vinyl Coated fabric(s) shall conform to and be applied in the same manner as described for aluminized fabric above.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Posts and Other Appurtenances: All posts and other appurtenances used in the construction of this fence shall be:

  i. Hot dipped galvanized with a minimum of 1.8 ounces per square foot of surface. Pipe sections shall conform to the requirements as in ASTM Designation F-1083-90 (Sch. 40). (Class 1, Grade A)

Outside Diameter, Inches	Wall Thickness, Inches	Weight, Foot
1.66	0.140	2.27
1.90	0.145	2.72
2.375	0.154	3.65
2.875	0.203	5.79
4.00	0.226	9.11
6.625	0.280	18.97

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Sizes of Posts, Rails and Gate Frames:

POST TYPE	FABRIC HEIGHTS	POST SIZE, O.D.
Terminal	Up to 6’	2.375”
	Over 6’	2.875”
Line	Up to 6’	1.900”
	Over 6’ to 10’	2.375”
	Over 10’	2.875”
Top Rails & Bracing	ALL	1.660”

POST TYPE	FABRIC HEIGHTS	GATE LEAF WIDTH	POST SIZE, O.D.
Gate	6’ or less	4’ or less	2.375”
		Over 4’ to 7’	2.875”
		Over 7’ to 11’	4.000”
		Over 11’	6.625”
	Over 6’	6’ or less	2.875”
		Over 6’ to 12’	4.000”

POST TYPE	FABRIC HEIGHTS	GATE LEAF WIDTH	POST SIZE, O.D.
		Over 12' to 18'	6.625"
		Over 18' to 24'	8.625"
Gate Frames	ALL	6' or less	1.900"
		Over 6'.	1.900"
Gate Bracing		Vertical bracing at maximum intervals of 8'. Horizontal bracing for fabric heights 5'. and over.	1.900"

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Gates:

  i. Swing gates shall conform to the requirements of ASTM Designation F-900. Welded frames of same material as fence framework, all welds thoroughly cleaned and coated with a suitable rust preventive coating. Gate frames to have interior horizontal and/or vertical bracing wherever the height of the gate exceeds 5 ft. or the width exceeds 8 ft., and additional diagonal bracing for gate frames over 8 ft. wide. The gate fabric is to match that used for the fence.

  ii. Gate Hardware: Hinges, latches and all other moving parts of gates shall be of certified malleable cast iron, with all components hot-dip galvanized. Hinges shall be an Industrial style 180-degree two-piece or Industrial bulldog style to permit a full 180" swing from the closed to the open position.

  NOTE: The rear wheels and axles on sliding gates shall be malleable iron, Hearne Steel or equal.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Top Rail: To be swedged or plain end. If plain end, provide couplings approximately every 21 ft. Couplings shall be the outside sleeve type, at least 6"long and shall be galvanized steel.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Concrete: Concrete shall have a minimum compressive strength of 2,500 psi at 28 days. Acceptable products: ready mix or equal and quick set (hydraulic) cement.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Hardware: Miscellaneous hardware shall be of steel, malleable iron, ductile iron of standard design as specified. The hardware shall conform to the requirements of the ASTM Designation F 626.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Arrangement

- All arrangement and installation must conform to ASTM Designation F 567-8-84 for Chain Link Fencing unless otherwise stipulated.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Posts shall be uniformly spaced, not to exceed 10' on centers. Intermediate posts shall have waterproof tops that have integrally cast openings through which the top rails shall pass. Terminal posts shall consist of end, corner and pull posts.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Braces shall be provided for each corner; pull and end post for fencing 6' and higher, and shall consist of a round tubular brace, (same as top rail) extending to each adjacent post at approximately mid-height of the fabric and truss consisting of a rod not less than 3/8" nominal diameter from the line post back to the corner, pull, or end post, with turnbuckle or other equivalent provision for adjustment.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Braces shall be provided at each gatepost.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Top Rails or Top Tension Wire: The top rails shall pass through the line post tops and form a continuous brace from end to end of each stretch of fence. The top rails shall be securely fastened to the terminal posts by 12 gauge 3/4" pressed steel beveled brace bands and malleable iron or pressed steel rail ends. If top tension wire specified to be of same material as bottom tension wire see section D.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- The bottom tension wire shall be 7 gauge crimped spring coil wire. The tension wire shall be stretched taut between terminal posts and securely fastened to each intermediate post 6" above the finish grade line. Tension wire shall be attached to the fence fabric with 9 gauge steel hog rings every 18".

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Tension bar shall be no less than 3/16" in cross section x 3/4 width and shall have a minimum length 2" shorter than the fabric height. Tension bars shall be used for attaching the fabric to the posts with 12 gauge x 3/4" pressed steel, beveled tension bands, spaced at 14" centers. One tension bar shall be provided for each gate and end post and two for each corner and pull post.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Installation

- Post Setting: Line posts shall be set in holes 4 times diameter of post. The depth shall be a minimum of 24" plus an additional 3" for each 1' increase in the fence height over 4'. Ready mix concrete shall cure a minimum of twelve (12)

hours prior to hanging fabric. Quick setting (hydraulic) cement shall cure a minimum of two (2) hours.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Terminal and Gate Posts: Terminal post which exceed 5' and all gate posts shall be set as specified above. Terminal post that exceed 5' and all gate post shall be braced to the nearest post with a galvanized horizontal brace used as a compression member and a galvanized 3/8" steel truss rod and truss tightened used as tension member.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Fabric shall not be stretched until concrete footings have cured. Chain link fabric shall be placed on the side designated by the SBBC and shall be stretched taut no more than 2" above finish grade and securely fastened to all posts. Rolls of wire fabric shall be joined by weaving a single strand into the ends of the foils to form a continuous mesh. Fabric shall be fastened to line posts at intervals not to exceed 12" and to top rail or tension wire at intervals not exceeding 18".

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Cantilever Slide Gates (for large openings)

- Gates frames shall be made of hot dip galvanized steel, be of modular design, and fully adjustable.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Typically provide a double, 4' wide swing gate for maintenance access. Coordinate larger size with SBBC's requirements and equipment sizes.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. Provide sewn or laced top rail pads at the outfield fencing for all base ball and softball fields when an outfield fence is provided.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Specify and detail a 4'-0" high vinyl coated fence at Kindergarten play areas.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Areas below bleachers shall be fenced for security and storage, if desired.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

i. Ornamental aluminum fence will be used to secure the front of schools.

- All fence components shall be as manufactured by Ideal Aluminum Productions, LLC, in Deland, Florida, 32724 or equal. Installation shall be in strict accordance with manufacturer's plans and specifications. Basis of Design: Industrial #203 6' high x 6' post spacing.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

- Materials:

  i. Extruded Aluminum Post: 6061 T6 alloy with a powder coated finish that passes 3 year Florida fade test.

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

  ii. Pickets and Channels: 6063 T5 alloy with ultimate strength 38,000 – 22,000 respectively

  Will Comply_____ Will Not Comply (Indicate Reason) ____ Not Applicable _____

- Cast aluminum accessories and tamperproof stainless steel screws, welded gates.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

11. The Architect shall specify the following with regard to Irrigation:

a. Detail irrigation systems only at featured landscape areas and varsity game fields.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. The irrigation system shall be designed to eliminate water spray on pedestrian walkways and buildings.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. The basis of design for sprinkler heads shall be Rain Bird products.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Irrigation systems shall be designed by the design team and clearly detailed on the Contract Documents. Irrigation systems designed by the installer are not acceptable.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Detail all sprinkler lines shall be self-draining.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. The irrigation system shall be designed and operated to prevent or minimize runoff of irrigation water onto roadways, driveways, walks, and adjacent properties.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Provide as-built drawings noting service, pump, solenoids, zones, and auto sprinkler head schedule. Specify a copy of the drawing shall be mounted in a glass covered frame and install on wall as directed by the SBBC representative.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

12. The Architect shall specify the following with regard to Planting:

a. Detail mulch beds a minimum 24” (3” deep) from all building perimeters where landscaping abuts buildings. Specify a horizontal weed barrier shall be installed along with vinyl, plastic, or aluminum vertical edging.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Specify that all seeded and sodded areas shall be maintained by the Contractor until the sod or seed bed is 80% established. This may include additional time beyond

the date of Substantial Completion. All sod shall be rolled including dry retention ponds.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Warranty trees and shrubs for a period of one year after date of final acceptance against defects including death and unsatisfactory growth, except for defects resulting from neglect by SBBC, abuse, damage by others, unusual phenomena, or incidents which are beyond Landscape Installer's control.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Require the Contractor to offer a one-year maintenance contract for SBBC's consideration.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

e. Specify root ball wraps to be cut and completely removed prior to planting.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

f. All plant material shall be nursery grown, except where specified as collected material, and shall comply with all required inspections, grading standards, and plant regulations as set forth by the latest editions of the Florida Department of Agriculture's "Grades and Standards for Nursery Plants."

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

g. Specify that all plant material shall be Florida No. 1 or better until the expiration of the required maintenance period.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

h. Invasive non-native plants shall not be specified or detailed.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

13. The Architect shall specify the following with regard to Turf and Grasses:

a. Sodding is acceptable. Using Bahia seeding is acceptable only when approved by SBBC and adequate establishment time has been considered.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

b. Specify that all seeded and sodded areas shall be maintained by the Contractor until the sod or seed bed is 80% established. This may include additional time beyond the date of Substantial Completion.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

c. Bahia sod or seed is to be used in all locations except sports fields. Bermuda is to be used for Baseball, Softball, Football, and Soccer fields with appropriate irrigation.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

d. Sod shall be strongly rooted sod, not less than two years old, free of weeds and undesirable native grasses and machine cut to minimum pad thickness of 3", excluding top growth and thatch. Provide only sod capable of vigorous growth and development when planted (viable not dormant).

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

14. Retention ponds shall have minimum 10' < 1:10 slope inside fence for access on all sides and maximum 1:3 slope for embankment.

Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 32
EXTERIOR IMPROVEMENTS

DIVISION 33
UTILITIES

1. The intent of this Division is to establish the minimum level for underground plumbing, electrical, and communications utilities.

2. Require certified surveys upon the completion of all storm water systems, water and sewer systems, building slabs, and utility services. Also, at project completion show the location and elevations of all structures including sidewalks and drives.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

3. For water utility distribution piping, detail isolation valves at each individual building for "building shut-down" purposes.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

4. For sanitary sewer utilities, detail cleanouts at all changes in direction and every 75'.

   Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

5. The Architect shall specify the following with regard to Storm Drainage Utilities:

   a. Detail iron grates for all yard drains.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   b. At new construction, detail all rain leaders to be tied into the storm water system. For renovations, tie into the storm water system when available. Coordinate renovations with SBBC's representative.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   c. Specify and detail concrete (RCP) piping to be used in paved areas.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   d. Specify and detail HDPE pipe to be used in open fields.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   e. Detail all storm sewer piping to terminate in structures to prevent erosion. Exposed piping shall not be allowed.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

   f. Use traffic-rated utility boxes throughout.

      Will Comply_____ Will Not Comply (Indicate Reason) _____ Not Applicable _____

END OF DIVISION 33
UTILITIES