Facility Standards

for
Design, Construction
Maintenance and Operations

2009 Edition

Revised March 1, 2009

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INTRODUCTION

Palm Beach State College (PBSC), a richly diverse, comprehensive institution with a history of achievement since 1933, is dedicated to serving the educational needs of the residents of Palm Beach County by providing the associate in arts, associate in science and associate in applied science degrees, professional certificates, workforce development and lifelong learning. Originally founded as a two-year junior college in 1933, PBSC was approved in 2008 to offer four-year baccalaureate degrees in critical shortage fields of study and will soon be designated as a State College.

The mission of Palm Beach State College is to provide an accessible and affordable education through a dedicated and knowledgeable faculty and staff, a responsive curriculum and a strong State partnership, which together will enable students to think critically, demonstrate leadership, develop ethical standards and compete effectively in the global workplace.

In keeping with the mission of Palm Beach State College, the mission of the Facilities Department is a commitment to maintaining, operating, planning, constructing and creating a safe working and learning environment for students, faculty, staff and members of the State.

The purpose of this document is to provide "GUIDANCE" to design professionals, contractors, subcontractors, vendors, suppliers, and others involved in the design, construction, furnishing, maintenance and operations of college facilities.

This is a living document, intended to be continuously edited and updated by Facilities staff to maintain the most current technology and recommendations for college facilities design and development. It has been organized in general conformance with CSI *MasterFormat*™ 2004 Edition, but it is not and should not be considered as a college "Specification Manual". Project specifications are and will continue to be the responsibility of project design professionals. However, each design professional and construction manager/contractor under direct contract with the Owner will be contractually responsible for compliance with these guidelines in development of plans, construction, furnishing, maintenance and operations of college facilities.

TRANSITION MATRIX – for Specification Division Numbering

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00 00 00 PROCUREMENT AND CONTRACTING REQUIREMENTS

00 01 00 – General Introductory Information

00 01 01 – Owner Entity – Palm Beach State College is a political subdivision of the State of Florida. The College is officially governed by our State-appointed District Board of Trustees, who legally approve and authorize all contracts.

00 01 02 – Campuses/Centers – All of Palm Beach State College's campuses and centers are located in Palm Beach County, Florida.

1. Lake Worth Campus (Site 1) is located at 4200 Congress Avenue, Lake Worth, Florida 33461.
    - The Count and Countess de Hoernle Historic Building located at 812 Fern Street, West Palm Beach, Florida 33401, is a singular property, maintained as an extension of the Lake Worth Campus.
2. Palm Beach Gardens (Site 4) also known as the Edward M. Eissey Campus is located at 3160 PGA Boulevard, Palm Beach Gardens, Florida 33410.
3. Belle Glade Center (Site 6) is located at 1977 College Drive, Belle Glade, Florida, 33430.
4. Boca Raton Campus (Site 9) is leased land, located on the FAU (Florida Atlantic University) Campus at 3000 Saint Lucie Avenue, Boca Raton, Florida 33431.

00 01 03 – Departmental Organization – For purposes of soliciting, contracting, planning, permitting, constructing, maintaining and repairing all existing and new "Facilities", departmental responsibility is divided primarily between two departments – (1) Facilities and (2) Facilities Planning. Refer to Appendix A for a complete listing of departmental staff contact information.

1. Facilities Department – The PBSC Facilities Department is the umbrella department overseeing all PBSC District campuses in the planning, design, construction, maintenance and operations of new and existing facilities including grounds, sports fields, buildings and private utility systems.
    - Facilities Department organization and key personnel:
        - District Director – John Wasukanis
        - District Maintenance Supervisor – Tony Milici
        - District Grounds Supervisor – Chris Ward
        - Lake Worth Campus Plant Manager – Terry Bernhardt
        - Boca Raton Campus Plant Manager – Don Ulbricht
        - Palm Beach Gardens Campus Plant Manager – Frank Atkins
        - Belle Glade Campus Plant Manager – Brandon Langenwalter
2. Facilities Planning Department – The PBSC Facilities Planning Department is a division of the Facilities Department, managing and overseeing the District's planning, design, permitting, construction and fire safety compliance for all new and existing grounds and facilities. These responsibilities include self-

permitting and code required inspections for all maintenance and new construction. Refer to "Chapter 01 41 00 Regulatory requirements" for additional information.

- Facilities Planning Department organization and key personnel:
  - Manager of Facilities Planning – Kirk Stetson
  - Assistant Manager – James Storms
  - Chief Building Official – Paul Cassidy
  - District Fire Official – Claude Edwards Jr.
  - Construction Project Manager – Debra Holliday

00 01 04 – Web Access – An accessible website for information on the Facilities and Facilities Planning Departments is available by following links from the PBSC Home Page at www.palmbeachstate.edu – Visitors/Business/State Partners – About PBSC – Facilities.

00 01 05 – Administrative Requirements – Reserved

00 10 00 – Procurement and Solicitation Requirements

1. All companies and individuals doing business with PBSC are required to have a current "Vendor Application Form" on file prior to issuance of any purchase orders from the College. This form is available upon request from the Facilities, Facilities Planning or Purchasing Departments. See Appendix B.
2. All Architects, Engineers, Contractors and Subcontractors are required to be currently licensed in the State of Florida and carry liability insurance as required by the project.
3. Services, equipment, furnishings and supplies are intended to be procured through competitive selection, including available "State Contracts" for goods and services. The College has contractual limitations for all contracts issued which are available upon request from the Purchasing Department.
4. The division of responsibility for procurement is generally shared among the Purchasing, Facilities and Facilities Planning Departments.
   - Purchasing – oversees all purchase orders (PO) issued, but is primarily responsible for generating POs for services and goods associated with the general operations of the College.
   - Facilities – primarily generates requisitions for POs on equipment, services, goods, and supplies involving the maintenance and operations of the College facilities.
   - Facilities Planning generates requisitions for POs primarily on services relating to the planning, design and construction of College facilities.
5. Reserved

00 11 00 – Advertisements and Invitations

00 11 13 – Advertisement for Bids

1. All services, equipment, furnishings and supplies are publicly advertised for competitive bidding unless outside of the statutory limits established, or

available from State Contracts through state, county, municipal purchase orders of like value.

2. All advertisements are noticed in (1) The Palm Beach Post and (2) PBSC Facilities/Purchasing websites for a minimum of three (3) consecutive weeks. Occasionally, construction related services are noticed through construction clearing houses, but these are not official nor initiated by PBSC.
3. Qualification based professional design and construction services are generally advertised by the Facilities Planning Department in accordance with the guidelines outlined in 00 11 53 – Request for Qualifications.

00 11 16 – Invitations to Bid

1. Invitations to bid are prepared and advertised by the Purchasing, Facilities or Facilities Planning Departments as appropriate for the services or goods under consideration.

00 11 19 – Requests for Proposals

1. Requests for proposals are currently not used to procure services, equipment, furnishings or supplies for design or construction related projects advertised by the Facilities Planning Department.
2. Qualification based professional design and construction services are generally advertised by the Facilities Planning Department in accordance with the guidelines outlined in 00 11 53 – Request for Qualifications.

00 11 53 – Requests for Qualifications

1. The standard method of competitive selection for design and construction services is through the public advertisement of "Requests for Qualifications". It is the intent of the College to advertise, procure and contract for these services based upon qualifications, not cost.

00 11 53.1 – Design and Construction Selection

1. Design Professionals, Construction Managers, Contractors, Subcontractors, Vendors and Suppliers are typically competitively selected for services, construction or products exceeding $50,000 in value. Each category is publicly advertised accompanied with written selection guidelines and criteria as well as milestone schedules and estimated budgets. The primary areas of consideration for this document are targeted towards (1) Design Professionals, (2) Construction Managers, and (3) Contractors. The College strives to select both an Architect and Construction Manager concurrently for larger scale projects establishing the project team as early as possible and promoting partnership on the Owner's behalf.

00 11 53.2 – Professional Design Services

1. This category is primarily applicable to Architects and Engineers (A/E Services)

00 11 53.2.1 Continuing Services Contracts

1. This category is for individual projects under $1,000,000 in total construction value.
2. Architects, Civil, Structural, and MEP (Mechanical/Electrical/Plumbing) Engineering firms are competitively selected in conformance with guidelines and State statutes outlined in the Consultants Competitive Negotiation Act.

3. PBSC publicly advertises for these contracts based upon Requests for Qualifications, publishing guidelines and supplemental information outlining the requirements of each continuing contract and the submittal documents required of each applicant.
4. Each Professional Design Services firm successfully selected will be eligible for design/construction projects for a one (1) year term, with two (2) additional one year renewals at the discretion of both parties – total maximum term before re-advertisement and selection is three (3) years.
5. Selected firms must be approved by the PBSC District Board of Trustees based upon recommendations submitted by the College's Selection Committee at completion of the RFQ process.
6. Individual design/construction projects are identified and prioritized by the PBSC Facilities/Facilities Planning Departments based upon funding allocations received from the State Department of Education in conformance with the College's annual Capital Improvements Program (CIP), academic need and optimal schedule for completion.
7. Individual "first" design/construction projects are awarded to selected A/E firms on an equitable size/cost basis by the PBSC Facilities/Facilities Planning Department at their discretion. Subsequent construction projects are awarded to those A/E firms demonstrating superior efforts in the quality, management and cost effectiveness of the work performed on that "first" project at the discretion of the Facilities/Facilities Planning Departments.
8. There is an annual "Master A/E Contract", which is amended for each individual project approved by the PBSC District Board of Trustees. The Facilities/Facilities Planning Department is responsible for reporting the distribution and award of A/E contracts to the District Board of Trustees to demonstrate equity distribution as well as performance evaluations at completion.
9. Refer to Appendix C for a copy of the PBSC Standard Owner/Architect/Engineer Contract.

00 11 53.2.2 - Competitively selected Architectural/Engineering Contracts

1. This category is for individual projects over $1,000,000 in total construction value.
2. Primarily Architects, including appropriate supplemental engineering services are competitively selected in conformance with guidelines and State statutes outlined in the Consultants Competitive Negotiation Act.
3. PBSC publicly advertises for these individual projects based upon Requests for Qualifications, publishing guidelines and supplemental information outlining the requirements of each design/construction contract and the submittal documents required of each applicant.
4. Selected firms must be approved by the PBSC District Board of Trustees based upon recommendations submitted by the College's Selection Committee at completion of the RFQ process.
5. Each project will require an Owner/Architect Contract approved by the PBSC District Board of Trustees.

6. Each O/A Contract is typically based upon a “Fixed Fee” for services, generally utilizing the currently recommended State Professional Services Fee guideline/calculator as determined and negotiated by the Facilities/Facilities Planning Department. If a successful fee cannot be negotiated by the Facilities/Facilities Planning Department with the selected Architect, the Facilities Planning Department will recommend Contract termination, and will attempt negotiation with the next-ranked Architect in the RFQ Selection recommendations order approved by the Board.
7. Refer to Appendix C for a copy of the PBSC Standard Owner/Architect Agreement.

00 11 53.3 – Construction Contracting Services

1. PBSC utilizes two primary methods of construction delivery – (1) Construction Management at risk and (2) Competitive Bid Projects. Each of these methods requires compliance with PBSC Administrative and Regulatory requirements listed in detail above.

00 11 53.3.1 – Construction Management at Risk Projects

1. Continuing Construction Management (CCM) Contracts for individual projects under $1,000,000 in total construction value.
    - Construction management firms are competitively selected in conformance with guidelines and State statutes outlined in the Consultants Competitive Negotiation Act.
    - PBSC publicly advertises for these contracts based upon Requests for Qualifications, publishing guidelines and supplemental information outlining the requirements of each continuing contract and the submittal documents required of each applicant.
    - Each Continuing Construction Management firm successfully selected will be eligible for construction projects for a one (1) year term, with two (2) additional one year renewals at the discretion of both parties – total maximum term before re-advertisement and selection is three (3) years.
    - Selected firms must be approved by the PBSC District Board of Trustees based upon recommendations submitted by the College’s Selection Committee at completion of the RFQ process.
    - Individual construction projects are identified and prioritized by the PBSC Facilities/Facilities Planning Departments based upon funding allocations received from the State Department of Education in conformance with the College’s annual Capital Improvements Program (CIP), academic need and optimal schedule for completion.
    - Individual “first” construction projects are awarded to selected CM firms on an equitable size/cost basis by the PBSC Facilities/Facilities Planning Department at their discretion. Subsequent construction projects are awarded to those CM firms demonstrating superior efforts in the quality, management and cost effectiveness of the work performed on that “first” project at the discretion of the Facilities/Facilities Planning Departments.
    - There is no annual “Master CM Contract”. Each individual project will require a new and separate Owner/Construction Management Contract approved by the PBSC District Board of Trustees. The Facilities/Facilities

Planning Department is responsible for reporting the distribution and award of CM contracts to the District Board of Trustees to demonstrate equity distribution as well as performance evaluations at completion.

- Each individual project CM Contract will require a GMP (Guaranteed Maximum Price) amendment at completion of competitive bidding or at a time as determined and negotiated by the Facilities/Facilities Planning Department. If a successful GMP cannot be negotiated with the assigned CM, the Facilities Planning Department will recommend Contract termination, requiring Board approval and award to an alternate CM.
- Refer to Appendix D for a copy of the PBSC Standard Owner/Construction Management Contract.

2. Competitively selected Construction Management (CM) Contracts for individual projects over $1,000,000 in total construction value.
    - Construction Management firms are competitively selected in conformance with guidelines and State statutes outlined in the Consultants Competitive Negotiation Act.
    - PBSC publicly advertises for these individual projects based upon Requests for Qualifications, publishing guidelines and supplemental information outlining the requirements of each continuing contract and the submittal documents required of each applicant.
    - Selected firms must be approved by the PBSC District Board of Trustees based upon recommendations submitted by the College's Selection Committee at completion of the RFQ process.
    - Each project will require an Owner/Construction Management Contract approved by the PBSC District Board of Trustees.
    - Each O/CM Contract will require a GMP (Guaranteed Maximum Price) amendment at completion of competitive bidding or at an alternate time as determined and negotiated by the Facilities/Facilities Planning Department. If a successful GMP cannot be negotiated by the Facilities/Facilities Planning Department with the selected CM, the Facilities Planning Department will recommend Contract termination, and will attempt negotiation with the next-ranked CM in the RFQ Selection recommendations order approved by the Board.
    - Refer to Appendix D for a copy of the PBSC Standard Owner/Construction Management Contract.

00 11 53.3.2 - Competitive Bid Projects

1. Traditionally referenced as Competitive Low Bid, the College may utilize this delivery system for any complete or selective scope construction project at its discretion. This delivery system is based strictly upon competitive cost proposals provided by licensed General or individual trade Subcontractors as applicable for the specific project.
    - Each project in excess of $50,000 will be publicly advertised by the PBSC Purchasing Department in conformance with State statutes.
    - One (1) set of complete Bid documents will be provided to each Bidder through the PBSC Purchasing Department by the PBSC Facilities Planning Department.

00 30 00 – Available Information

1. Information regarding existing and proposed facility design and construction projects may be obtained by contacting the PBSC Facilities Planning Department.

00 31 00 – Available Project Information

1. Information regarding existing and proposed facility design and construction projects may be obtained by contacting the PBSC Facilities Planning Department.
2. The Facilities Planning Department is the repository for all existing project archives and information pertaining to completed projects.
3. Much of this information is archived electronically and may be accessed by contacting the Manager of Facilities Planning.

00 31 13 – Project and Construction Schedules

1. Existing and estimated future project information may be obtained by contacting the Manager of Facilities Planning.
2. The Facilities Planning Department is responsible for preparing the annual Capital Improvements Program (CIP) which establishes design and construction "capital" project priorities, estimated costs and schedules.
3. For projects under construction, an individual "campus" construction project manager is assigned from the Facilities Planning Department. Information regarding specific campus project scheduling may be obtained by contacting the office of Facilities Planning.

00 40 00 – Procurement Forms and Supplements

00 41 13 – Bid Forms – May be obtained for individual projects by contacting the Purchasing Department after project advertisement.

00 42 00 – Proposal Forms

00 42 13 – Proposal Forms – May be obtained for individual projects by contacting the Purchasing Department after project advertisement.

00 42 23 – Proposal Form - Construction Management (Single Prime Contract) – No standard form, examples may be obtained by contacting the office of Facilities Planning.

00 42 63 – Proposal Form – Purchase Contract - May be obtained for individual projects by contacting the Purchasing Department after project advertisement.

00 43 00 – Procurement Form Supplements – The following documents are typically required for all Construction Management or Competitive Bid "construction" projects. Unless otherwise noted, the Contractor may use his company's standard project forms after review and approval of the office of Facilities Planning for submission of the following forms:

00 43 13 – Bid Security Form – not required for CM projects.

00 43 21 – Allowance Form

00 43 22 – Unit Prices Form

00 43 23 – Alternates Form

00 43 33 – Proposed Subcontractor Form

00 43 39 - Minority Business Enterprise Statement of Intent Form

- Palm Beach State College encourages and supports diversity and small/minority business growth and success.
- Although no project goals or quotas are stated or required for small/minority project participation, each construction management project is encouraged to consider and support qualified businesses to participate with the College in mirroring the diversity of our State.
- Each Construction Manager (CM) shall be required to provide a pre-project statement of intent submitted for each project identifying and stating the goals for minority participation before bidding.
- Minority participation on each project shall be tracked by the CM and reported to the Facilities Planning Construction Project Manager at completion of the project.

00 43 73 – Proposed Schedule of Values Form
00 43 83 – Proposed Construction Schedule Form
00 43 93 – Bid Submittal Checklist

00 50 00 – Contracting Forms and Supplements – Contracting forms and supplements are typically provided on a per project basis. Unless otherwise noted, the Contractor may use his company's standard project forms after review and approval of the office of Facilities Planning or Purchasing as applicable

00 51 00 – Notice of Award – Notice of award of contracts will be made by the Department issuing the RFQ, RFP or competitive bid package, typically Purchasing or Facilities Planning. Each department is responsible for reviewing competitive submittals, evaluating bid or qualification packages and preparing a "Recommendation of Award". Official approval must be ratified by consent of the PBSC District Board of Trustees. Upon their approval, a Purchase Order will be issued. In the case of competitively selected design professionals (Architects/Engineers) or Construction Managers, Board approval authorizes the Facilities Planning Department to "negotiate" a contract with the highest ranked firm. If a contract cannot be successfully negotiated with the highest-ranked firm, the Department will move to the next-highest ranked firm and attempt negotiation with that firm, and so on, until successful.

00 52 00 – Agreement Forms

00 52 23 – Construction Management Contract – refer to Appendix D.
00 52 63 – Agreement Form – Purchases – Contact the Director of Purchasing for agreement forms.

00 55 00 – Notice to Proceed – Construction "Notice to Proceed" will be issued by the Facilities Planning Department - Construction Project Manager after successful bidding and negotiation of the Project GMP (Guaranteed Maximum Price). Approval will include and be contingent upon receipt of the following supplemental documents:

1. Executed Owner-Construction Manager Contract.
2. Approved GMP Amendment, including:

- GMP breakdown by Division
- Competitive bid analysis (minimum 3 bids/division)
- Fixed Fee breakdown
- Reimbursable General Conditions Breakdown
- W/MBE statement of intent
- Minimum Tax savings statement of intent
- List of construction documents and specifications
- List of Owner allowances
- List of alternates for consideration
- List of value engineering items for consideration
- Master CPM schedule
- Organizational chart of CM employees and resumes of key personnel
- Subcontractor/Suppliers list
- Qualification, clarifications and exclusions
- Preconstruction RFIs

3. Approved Construction Schedule including (a) Start date, (b) Substantial Completion, and (c) Final Completion, and total calendar days.
4. Performance and Payment Bond.
5. Liability Insurance certificate.
6. Owner's Construction Permit

00 60 00 – Project Forms – Contact the Facilities Planning Department for other forms which may be applicable for specific projects.

00 61 00 – Bond Forms

00 61 13 – Performance and Payment Bond – Required for all projects. A 100% Performance and Payment Bond is required from each CM or General Contractor under direct contract with the Owner.

00 61 16 – Lien – Not required. As a division of the State, liens cannot be filed against this Owner. However, all construction projects will require the low bidder or CM to provide partial lien releases from each subcontract within his master CM contract prior to release of any scheduled payment. At construction completion, each subcontract shall submit a final release of lien prior to release of the final payment and retainage.

00 61 23 – Retainage – All construction projects will have 10% of the scheduled application for payment withheld until the project has been substantially completed.

00 62 00 – Certificates and Other Forms

00 62 16 – Certificate of Insurance Form – Required for all construction projects. Liability insurance coverage is required from each CM or General Contractor under direct contract with the Owner.

00 62 23 – Construction Waste Diversion Form – Not required unless mandated by specific project contract requirements.

00 62 33 – Products Form – Required for all construction projects to meet SREF/MSDS/PBSC Permit requirements.

00 62 34 – Recycled Content of Materials Form – Required for all LEED-certified projects.
00 62 39 – Minority Business Enterprise Certification Form – Required for all CMs, contractors, subcontractors, vendors, suppliers and material-men certifying minority business participation in a particular project.
00 62 73 – Schedule of Values Form – Required for all construction projects, AIA Form preferred.
00 62 76 – Application for Payment Form - Required for all construction projects, AIA Form preferred.

00 62 76.13 – Sales Tax Form – Not required, but all construction projects will conform and comply with the Owner's desire to maximize the Direct Owner Purchase of materials associated with each project for Sales tax savings.

00 62 79 – Stored Material Form – Required for all projects considering request for materials payment in advance of installation through a monthly application.
00 62 83 – Construction Schedule Form – Required for all projects including minimum monthly updates, the Owner does not currently mandate a specific form.
00 62 89 – Construction Equipment Form – Required for all CM projects for small tools and equipment purchased through the CM-Contract for tracking and return to Owner at project completion.

00 63 00 – Clarification and Modification Forms

00 63 13 – Request for Interpretation Form – Required for all construction projects, CM or Contractor may use his own standard form.
00 63 19 – Clarification Form - Required for all construction projects, CM or Contractor may use his own standard form.
00 63 25 – Substitution Request Form (During Construction) - Required for all construction projects, CM or Contractor may use his own standard form.
00 63 33 – Supplemental Instruction Form - Required for all construction projects, CM or Contractor may use his own standard form.
00 63 36 – Field Order Form - Required for all construction projects, typically initiated by the Architect or Engineer, standard AIA for preferred.
00 63 43 – Written Amendment Form – Not typically used.
00 63 46 – Construction Change Directive Form - Required for all construction projects, typically initiated by the Architect or Engineer, standard AIA for preferred.

00 63 46.1 – Contingency Change Order – Required for all CM construction projects, initiated by CM/Contractor - letter form provided by Owner for use on CM/Contractor's letterhead, approval by Architect/Engineer and Owner.

00 63 49 – Work Change Directive Form – Not typically used.
00 63 53 – Request for Proposal Form - Required for all construction projects, CM or Contractor may use his own standard form.
00 63 54 – Proposal Worksheet Summary Form - Required for all construction projects, CM or Contractor may use his own standard form.
00 63 55 – Proposal Worksheet Detail Form - Required for all construction projects, CM or Contractor may use his own standard form.

01 00 00 – GENERAL REQUIREMENTS

01 11 00 – Summary of Work – Required for all construction projects. Typically this is provided by a Design Professional (Architect/Engineer) under direct contract with the Owner describing the scope of work for each construction project in technical documents permitted for construction by a CM or Contractor.

01 11 13 – Work Covered by Contract Documents - Required for all construction projects. This is provided by a Design Professional (Architect/Engineer) under direct contract with the Owner describing the scope of work for each construction project in technical documents permitted for construction by a CM or Contractor.

01 11 16 – Work by Owner – Each construction project should clarify in the Contract Documents any work to be performed by the Owner.

01 14 00 – Work Restrictions – Nearly all construction projects will be taking place on active, occupied campuses. Coordination with PBSC Facilities Planning/Construction Department and considerations for the safety of students, faculty, staff and visitors should be a high priority.

01 14 13 – Access to Site – Construction access to all sites must be secured through the PBSC Facilities Planning Department. This is typically authorized through a formal construction Notice to Proceed, defining the construction schedule as well as work hours. Any work outside of the defined project parameters must be requested by the CM/Contractor and approved by the PBSC Construction Project Manager, Campus Plant Manager and Campus Security.

01 14 16 – Coordination with Occupants – All coordination with occupants of a PBSC facility will be provided by the PBSC Construction Project Manager.

01 14 19 – Use of Site – Typical construction sites shall be completely secured via 6' high chain-link fencing with locked man and vehicle gates. Each construction site is under the direct authority of the CM/Contractor for insurance liability issues and no unauthorized PBSC faculty or staff are allowed. No unescorted PBSC students, faculty, staff or visitors allowed on any secured construction site without approval of Facilities Planning.

01 18 00 – Utility Authorities - Utility Authorities having jurisdiction are located within Palm Beach County, but vary by campus and include the following:

1. Lake Worth Utilities – Electric, Water and Sanitary Sewer. (Lake Worth Campus only).
2. City of West Palm Beach – Water and Sewer. (Historic Building).
3. Seacoast Utilities – Water and Sewer. (Palm Beach Gardens Campus).
4. City of Belle Glade – Water and Sewer. (Belle Glade Center).
5. Palm Beach County Water Utilities Department – Water and Sewer (Belle Glade Campus).
6. City of Boca Raton – Water and Sewer. (Boca Raton/FAU Campus).
7. Florida Power and Light (FPL). (P.B.Gardens, Historical, Boca/FAU, Belle Glade Center and Wellington).
8. Acme Water Improvement District – Water and Sewer (Wellington).

01 20 00 – Price and Payment Procedures - Reserved

01 21 00 – Allowances – Typically accepted and provided on all construction projects for specifically itemized elements of the work, approved in advance by the PBSC Construction Project Manager.

01 21 16 – Contingency Allowance – Required for all PBSC-CM construction projects. This is a "Project" contingency typically ranging from 3-5% of the "Cost of Work" associated with a GMP. Any use of the Project Contingency must be approved by the PBSC Construction Project Manager and Architect/Engineer in writing following submission of proposal requests, worksheets, pricing, etc.

01 21 19 – Testing and Inspecting Allowances – Pre-construction Geotechnical, Survey/Civil, construction materials, threshold and inspection costs are typically provided by the Owner. Other required testing shall be itemized by allowance within the GMP as approved by the PBSC Construction Project Manager.

01 22 00 – Unit Prices – Typically not used, but acceptable in specific project applications and should be established for inclusion within the approved GMP Amendment prior to construction start.

01 22 12 – Unit Price Measurement – Shall be predetermined through agreement among the O-A-C Team (Owner-Architect-Construction Manager) using current cost data for our local geographic area.

01 23 00 – Alternates

1. A limited number of alternates may be used as a means of ensuring base bids within the available construction funds. The Design Professional shall consult the College regarding the priority of alternates. Alternates should be described as additive, but may be deductive upon approval.
2. Proposals should be clearly defined, listed in priority of need and held to not more than six separate items, preferably less.

01 24 00 – Value Analysis - Value Analysis (or Engineering) shall be used to reduce the GMP (Guaranteed Maximum Price) after review and acceptance of the GMP proposal by the Owner. It is not intended be used as a tool to achieve the Owner's construction budget.

01 24 13 – Value Engineering -

1. The CM shall provide during the Project Design phase services and prior to purchase of subcontracts a list of constructability review comments and suggestions to reduce the cost of construction by proposing alternative means, methods and materials without altering the aesthetic, functional or use of the Project.
2. Each issue shall be assessed by the Project Team including the Owner, Design Professional and CM to determine the viability of each item. The final decision on acceptance of value analysis issues will rest solely with the Owner.

01 25 00 – Substitution Procedures – Advent of the Construction Management at risk construction delivery system by PBSC was intended to increase quality within all aspects of a construction project. Consequently, with a CM involved throughout a project from pre-design through final completion, we would expect substitutions during construction to be minimal. However, substitutions are allowed.

01 25 13 – Product Substitution Procedures

1. CM/Contractor shall submit a product substitution to both Owner (PBSC-Construction Project Manager) and Architect/Engineer simultaneously for review and comment.
2. Upon review and approval at this level, submission to PBSC Building Department as well as PBSC Maintenance & Operations is provided for review and comment.
3. If approved by all Owner departments, CM/Contractor may proceed with requested changes.

01 26 00 – Contract Modification Procedures

01 26 13 – Requests for Interpretation (RFI) – Initiated by CM/Contractor responded to by Architect/Engineer. CM/Contractor shall maintain a log of RFIs/responses.

01 26 36 – Supplemental Instructions – Initiated by Architect/Engineer/Owner, response by CM/Contractor.

01 26 39 – Field Orders – Initiated by Architect/Engineer, approved by Owner, executed by CM/Contractor.

01 26 43 – Amendments – Not typically used.

01 26 46 – Construction Change Directives – Requested by CM/Contractor/Architect/Engineer/Owner, approved by Owner.

01 26 49 – Work Change Directives – Initiated by CM/Contractor RFI, documented by Architect/Engineer, approved by Owner CPM

01 26 53 – Proposal Requests - Initiated by CM/Contractor responded to by Architect/Engineer. Submitted to Owner with worksheet backup.

01 26 54 – Proposal Worksheet Summaries – CM/Contractor backup with subcontractor/vendor cost estimates.

01 26 57 – Change Order Requests – Initiated by CM/Contractor, reviewed and approved by Architect/Engineer and Owner, recommended for Change Order.

01 26 63 – Change Orders

1. **Contingency Change Order** (CCO) - Any use of the Project Contingency must be approved by the PBSC Construction Project Manager and Architect/Engineer in writing following submission of proposal requests, worksheets, pricing, etc. This contingency should be tracked and updated monthly by the CM/Contractor. This Contingency Change Order is an internal GMP adjustment, not formally modifying or changing the contract GMP, thus does not require a Contract Change Order or PBSC District Board of Trustees approval.
2. **Contract Change Order** – This is a formal modification of the Contract GMP primarily used to adjust (a) Cost of the Work or (b) Time. All

Contract Change Orders require PBSC District Board of Trustees approval prior to authorization.

01 29 00 – Payment Procedures – All construction applications for payment are processed through the PBSC Facilities Planning CPM. PBSC Finance Department – Accounts Payable reviews each application prior to recommending payment.

01 29 73 – Schedule of Values – Every application for payment should be submitted with an AIA supplement itemizing the project schedule of values.

01 28 76 – Progress Payment Procedures

1. CM prepares monthly Application for Payment using standard AIA form with supplemental schedule of values. Additional documents to be submitted for review and approval for each periodic application include:
   - General Conditions - Itemized accounting of monthly GC estimates including all receipts.
   - Direct Owner Purchases – Itemized accounting of monthly purchases for materials, including PBSC-approved tax savings.
   - Lien releases – partial lien releases for all contracts for work performed in the period requested.
   - Construction schedule - monthly update
2. CM submits three (3) original signed and notarized applications for payment "packages" to A/E for review, approval and signature.
3. CM submits three (3) A/E executed applications for payment to PBSC-CPM for review and approval, including co-signature from PBSC Building Inspector.
4. PBSC-CPM submits three (3) approved applications for payment to Facilities Planning – Construction Administrative Specialist for coordination/processing.
5. Construction Administrative Specialist submits application for payment to PBSC Finance – Accounts Payable.
6. PBSC – Accounts Payable reviews and approves pay applications for disbursement of payment (check) which may be mailed or picked up in person from PBSC Cashier, located on the Lake Worth Campus.

01 30 00 – Administrative Requirements – Reserved.

01 31 00 – Project Management and Coordination – Each PBSC Capital Project is typically initiated with selection of an A/E-CM team to work in concert with the Owner for total project design and development, identified as the OAC Team.

01 31 13 – Project Coordination – Each PBSC Capital Project is Owner-directed by an assigned CPM (Construction Project Manager) from PBSC Facilities Planning. The PBSC-CPM is responsible for all Owner project coordination and direction to the OAC team.

01 31 19 – Project Meetings – A complete project schedule will be developed by the OAC Team identifying project milestones and generally establishing Design/Preconstruction meeting schedules.

- 01 31 19.13 – Design/Preconstruction Meetings – This phase of project development is generally driven by the A/E design professional, who will be responsible for setting the meeting frequency schedule, providing "minutes" documentation and submission of periodic document submittals for team review and input.
- 01 31 19.16 – Site Mobilization Meetings – Prior to initiating construction, the CM/Contractor shall request a meeting to discuss site mobilization. In additional to typical OAC Team, it is required to include (1) PBSC Chief Building Official, (2) PBSC Chief Fire Official, (3) Facilities Director, (4) Facilities Maintenance & Operations Supervisor and (5) Campus Plant Manager.
- 01 31 19.23 – Construction Progress Meetings - This phase of project development is generally driven by the CM/Contractor, who will be responsible for setting the meeting frequency schedule, providing "minutes" documentation and submission of periodic document submittals for team review and input. Each construction project shall be evaluated by the OAC team to determine the frequency of progress meetings required. Typically, these meetings are bi-weekly, but may be required more frequently depending upon scope and work complexity.
- 01 31 19.33 – Pre-installation Meetings – Some special aspects of project construction may require coordination through separate/additional meetings. These required meetings may include, but are not limited to:
  1. Site mobilization – Underground utilities
  2. Foundations/slabs-on-grade
  3. Tilt wall construction/casting slabs
  4. Building envelope NOA installation requirements
  5. Roofing

01 31 23 – Project Web Site – Not required, acceptable upon approval of PBSC.

01 32 00 – Construction Progress Documentation – Construction Management at risk was initiated as PBSC's primary construction delivery system in an effort to improve quality, construction schedules and project management. Our intention is to charge the CM to take the primary leadership role in all capital projects including documentation and reporting.

01 32 13 – Scheduling of Work – CM responsibility.
01 32 16 – Construction Progress Schedule – CM responsibility.
01 32 19 – Submittals Schedule – CM responsibility.
01 32 23 – Survey and Layout Data – CM responsibility.
01 32 26 – Construction Progress Reporting – CM responsibility.
01 32 29 – Periodic Work Observation - Both Owner and A/E will provide periodic observations of the work in addition to the CM's supervisory responsibility. PBSC Building Department will provide all required as well as periodic courtesy inspections for Code and quality compliance.

01 32 33 – Photographic Documentation – CM responsibility.

1. Preconstruction video or still photography is required for existing conditions, buildings and surface areas adjacent to new work.
2. All project construction shall be adequately documented with digital photography, especially underground utilities and concealed construction work.
3. Large, new construction projects shall include aerial photography (typical 3 views) taken each month over the entire course of construction.

01 32 43 – Purchase Order Tracking – Reserved.

01 33 00 – Submittal Procedures – The submittals process is extremely important to PBSC and we take a more active role than most owners. In addition to requirements in our General & Supplemental Conditions (Appendix E), procedures will require simultaneous submissions to both Owner and A/E design professional for review and approval. Typical process follows these steps:

1. CM assembles submittals, logging, checking for accuracy and compliance.
2. CM submits project-required sets to A/E for review and comment
3. CM submits one (1) set to PBSC-CPM for review and comment
    - PBSC-CPM logs submittals, reviews for compliance, submits to PBSC Building/Maintenance/Ops Department for review/comment.
    - PBSC-CPM prepares and submits comments to A/E-CM team for correction/comment prior to A/E approval.
    - PBSC may require additional information on submittals for materials, design, calculations and installations.
4. CM submits A/E reviewed/approved sets to PBSC-CPM
5. CM is then approved to proceed with installation

01 33 13 – Certificates – Required – CM submits to PBSC-CPM for review and distribution, conform to submittal process outlined above.

01 33 16 – Design Data – Required as applicable.

01 33 19 – Field Test Reporting – Required as applicable.

01 33 23 – Shop Drawings, Product Data, and Samples - Required – CM submits to PBSC-CPM for review and distribution, conform to submittal process outlined above.

1. The Owner may request additional information for submissions on specified products, materials, and/or design.
2. Review of shop drawings, materials, catalog cuts, etc., does not imply that the Owner has assumed any responsibility for final approval. Final approval of design, materials, and specifications shall remain the sole responsibility of the Design Professional, regardless of input from the College representatives.
3. A minimum of one copy of the shop drawing submitted to the Design Professional shall be submitted to the CPM at the same time they are submitted to the Design Professional.
4. Original submittals shall be provided and transmitted to the Owner prior to approval by the design professional.
5. The PBSC Building Department shall have the same period for review as the Design Professional.

6. Shop drawings shall be submitted and approved prior to fabrication or installation of systems or equipment.

01 33 29 – Sustainable Design Reporting – Required for all LEED projects – CM submits to PBSC-CPM for review and distribution, conform to submittal process outlined above.

01 35 00 – Special Procedures

01 35 53 – Security Procedures – Each PBSC Campus has internal Security personnel, most 24/7. Any construction access "after hours" shall require coordination and notification to PBSC Security.

01 35 63 – Hurricane Preparation – When Hurricane "**Watch**" is issued for Palm Beach County, any active CM/Contractor shall initiate a pre-planned and approved initiative for securing and protecting any construction site or facility including:

- Cleanup/pickup/securing of all site construction materials.
- Removal of all waste dumpsters.
- Securing and boarding up of facility "openings".
- Securing of any temporary construction facilities.
- Removal of all construction equipment and vehicles.
- Distribution of company contact information for post-hurricane evaluation, report and remediation as required.

01 40 00 – Quality Requirements – Reserved, see sections 01 43 00/01 45 00.

01 41 00 – Regulatory Requirements – Palm Beach State College is a "Self Permitting" Authority for all building, site and utility construction occurring within the boundaries of their State-designated properties exclusive of any legally authorized utility easements or drainage district boundaries.

01 41 13 – Regulatory Codes and Requirements –

1. Florida Building Code (FBC) – currently adopted edition with Palm Beach County amendments.
2. SREF – State Requirements for Educational Facilities – Architectural and Engineering design must be in conformance with the space standards and requirements mandated in the most recent edition of the State Requirements for Educational Facilities (SREF).
3. Life Safety Code NFPA 101 – 2000 Edition.
4. Florida Fire Prevention Code Chapter 69A-58 – currently adopted edition for Fire Safety in Educational Facilities and fire protection requirements for Educational and Auxiliary Facilities.
5. Florida Building Code (FBC) required Product Approvals – Notices of Acceptance (NOA):
   - Shall comply with all requirements of ASCE 7-04, currently adopted edition for 140 mph wind loading on all campuses.
6. Structural certification – ALL new and existing buildings undergoing "extensive" remodeling shall be required to be certified in conformance with

current FBC structural design requirements for current conformance with ASCE 7-04 for “Wind-Borne Debris” regions. PBSC will require Engineering “design analysis” to determine the extent of structural modification or “protection” required for compliance.

01 41 23 – Fees – All permitting fees for internal PBSC construction permits are waived. Exterior permitting authority fees shall be reported, confirmed and approved by PBSC prior to authorization of payment.

01 41 26 – Permits - PBSC Permitting Authorities – PBSC will issue Construction Permits for all construction as required by the Florida Building Code (FBC) and Florida Department of Education (DOE) to the Owner.

1. PBSC Chief Building Official (CBO) – Palm Beach State College has a District “Authority having Jurisdiction” (AHJ) as a Board-designated Chief Building Official performing and overseeing all of the administrative, review, inspection and occupancy certification requirements mandated by the Florida Building Code.
2. PBSC District Fire Official (DFO) - Palm Beach State College has a District “Authority having Jurisdiction” as a Board-designated Fire Official performing and overseeing all of the administrative, review, inspection and occupancy certification requirements mandated by the Florida Fire Prevention Code.
3. Each of these AGJs are fully licensed and certified by the State and carry the same powers and authorities as any other State, county or municipal building/fire official within this State.
4. Their Code decisions or interpretations cannot be officially challenged except through formal petition to the State’s Florida Building Commission.

01 41 26.1 – Supplemental Permitting Authorities - Supplemental Permits from other governmental authorities may be required for designated projects including but not limited to:

1. Palm Beach County Planning and Zoning.
2. Municipal Permits – Cities of Lake Worth, Boca Raton, Palm Beach Gardens, West Palm Beach, Belle Glade or Village of Wellington for Zoning issues.
3. Fire Protection Code Permit/Review.
4. South Florida Water Management District.
5. Lake Worth Drainage District.
6. Florida Atlantic University (FAU) for Boca Campus projects only.
7. Department of Transportation
8. Palm Beach County Engineering.
9. Palm Beach County Department of Emergency Management.
10. Palm Beach County Health Department.
11. Palm Beach County Utilities
12. Department of Environmental Resources Management (DERM).Federal EPA.
13. Florida Public Utilities (LW, Boca)
14. Seacoast Utility Authority (P.B.Gardens)
15. TECO (P.B.Gardens)

16. AT&T/Bellsouth – Special exceptions, typical
17. Cellular/Wireless Communications – separate permitting requirements
18. Municipal or County interagency Building Departments
19. Village of Wellington
20. Acme Improvement District

01 41 26.2 – PBSC Plan Review, Permit Process and Guidelines – Each Design Professional, Construction Manager or Contractor shall contact the PBSC Facilities Planning Department for each project's specific plan review and permit requirements. Each Project Team consisting of Owner's Project Manager, CM/Contractor and Architect/Engineer shall be required to attend a mandatory Permit/Pre-Construction Conference with the PBSC Building and Fire Officials to review all permitting, submittals, shop drawings, inspection and closeout procedures prior to issuance of a construction permit. The basic PBSC Plan Review and Permit process may be outlined as follows:

01 41 26.3 – PBSC Facilities Plan Review Process – Depending upon the scope, complexity and schedule for each project, the following benchmark reviews should be generally included for planning and scheduling purposes. Document submittals are identified for PBSC only, but consultants should recognize that each phase review is typically concurrent with CM constructability and cost updates, requiring document submittals to the CM simultaneously.

1. Conceptual/Schematic Design
   - Two sets of documents – (1) Owner, (2) Consultant markup
   - Sit down, In-House review – one day.
   - Architect/Engineer, CM, PBSC Facilities and academic/staff user group review.
2. Design Development/Outline Specifications
   - Two sets of documents – (1) Owner, (2) Consultant markup
   - Sit down, In House review – one day.
   - Architect/Engineer, CM, PBSC Facilities and academic/staff user group review.
   - Written comments from Facilities Planning Project Manager
3. 50% Construction Documents/Specifications
   - Two sets of documents – (1) Owner, (2) Consultant markup
   - PBSC Facilities, IT, MTIS staff review
   - One week, written comments from Facilities Project Manager
   - Concurrent review by CM for preconstruction cost updates, constructability and value engineering
4. 75% Construction Documents/Specifications
   - Two sets of documents – (1) Owner, (2) Consultant markup
   - PBSC Facilities staff review
   - One week, written comments from Facilities Project Manager
   - Concurrent review by CM for preconstruction cost updates, constructability and value engineering
5. 100% Construction Documents/Specifications

- Two sets of documents – (1) Owner, (2) Consultant markup
- PBSC Facilities, IT, MTIS staff review
- One week, written comments from Facilities Project Manager
- Concurrent review by CM for preconstruction cost updates, constructability and value engineering

6. Construction Permit Plan Review
   - Six (6) sets of documents – see process outlined below.
   - Two weeks, written comments from reviewers

01 41 26.4 – Permit Plan Review Process

1. Architect/Engineer submits six (6) sets of required construction plans and specifications to PBSC (Facilities Planning Department – Construction Project Manager).
2. PBSC Facilities Planning/Building Department coordinates Code-required plan reviews typically outsourced to individual, certified reviewers for:
   - Owner (1)
   - Civil Engineering (2)
   - Structural Engineering (3)
   - Architectural (4)
   - MEP (Mechanical/Electrical/Plumbing) Engineering (5)
   - Other Review (6)
3. PBSC Building Department issues Code compliance comments generated by Reviewers to the Architect/Engineer for comment and correction.
4. Architect/Engineer resubmits four (4) complete sets of revised construction plans and specifications to PBSC (Facilities Planning/Building Department).
   - Note: All corrections must be "clouded" and dated.
   - ONLY complete sets of revised drawings will be accepted – no slip-sheeting.
5. PBSC Facilities Planning Construction Project Manager prepares "Owner Permit" application including all licensed design professionals and CM licensed qualifier information and submits to PBSC Chief Building Official.
6. PBSC Chief Building/Fire Officials review and approve revised, final Permit Construction Plans and Specifications and distribute:
   - Construction Manager/Contractor – official Permit Construction set.
   - PBSC Building Department Permit set.
   - PBSC Planning Department archive Permit set.
   - PBSC Facilities Department Permit "stick" set.
7. Construction Manager reviews Permit Construction set, prepares, reviews, approves and submits all required NOAs and product approvals for review and approval by:
   - Architect/Engineer of record
   - PBSC Chief Building Official
8. Upon approval of all NOAs by both Architect/Engineer and PBSC Building Official, an "Owner/Builder" Permit will be prepared and submitted to the PBSC Facilities Planning Construction Manager.

9. PBSC Facilities Planning Project Manager will issue a letter of authorization transferring construction responsibility to an appropriate Construction Manager, licensed General Contractor or licensed Subcontractor.

01 42 00 – References

01 42 13 – Abbreviations and Acronyms

1. A/E – Architect/Engineer
2. AHJ – Authority having Jurisdiction
3. AIA – American Institute of Architects
4. CBO – Chief Building Official
5. CM – Construction Manager
6. CPM – Construction Project Manager – primary individual representing PBSC Facilities Planning for all aspects from design through final completion of a construction project.
7. CCO – Contingency Change Order
8. DFO – District Fire Official
9. DOP – Direct Owner Purchase
10. DBOT – District Board of Trustees – Palm Beach State College's governing body and contract authority.
11. FDOT – Florida Department of Transportation
12. FFE – Furniture, Fixture and Equipment – typically provided and installed by Owner.
13. GCs – General Conditions of the Contract
14. GMP – Guaranteed Maximum Price
15. NOA – Notice of Acceptance
16. OAC – Owner-Architect-Construction Manager/Contractor
17. PBSC – Palm Beach State College

01 42 19 – Reference Standards

01 42 19.1 – Accessibility Requirements –

1. Palm Beach State College promotes and requires that buildings shall be made accessible to all persons wanting to use College Facilities. This institution is composed of buildings and facilities of various ages and conditions including "Historic" structures. Our goal is to continue to upgrade, renovate, and remodel existing facilities and to construct new buildings which maximize access for those individuals with disabilities in consideration of constructability and practicality within the requirements of current codes.
2. Code requirements shall generally conform to FBC – Chapter 11 Florida Accessibility Code for Building Construction.
3. PBSC-specific accessibility requirements shall include:
    - Caution Yellow, adhesive-applied, detectible warning pads at all exterior site pedestrian/vehicular walkway crossings.
    - The standard minimum single door size shall be 36 inches wide by 84 inches high.

01 43 00 – Quality Assurance – Qualifications - Quality control shall be of major importance in each College construction project. To better meet standards, include

requirements for “compliance with” rather than simply referencing standards in the specifications, whenever possible.

01 43 33 – Manufacturer’s Field Services – Field services for quality assurance may be required for a variety of construction applications on a project, which may include, but not be limited to:

1. All building envelope elements required for compliance with FBC requirements for NOA submissions including/not limited to:
   - Impact frames, doors and hardware
   - Impact frames and glazing
   - Louvers
   - Roof-mounted equipment
2. Roofing and insulation fastening
3. HVAC Equipment and systems
4. Program-specific equipment

01 43 36 – Field Samples – Samples of proposed construction fabrications, materials, finishes and colors are required on all typical projects.

01 43 39 – Mockups - Field mockups/samples of proposed construction fabrications, materials, finishes and colors are selectively required on project as determined by the OAC team.

01 45 00 – Quality Control - Quality control shall be of major importance in each College construction project.

01 45 16 – Field Quality Control Procedures/Contractor – Each CM/Contractor shall be responsible for understanding and supporting the Owner’s desire for “Quality” by incorporating written guidelines and procedures into each project. These guidelines should include monitoring systems, checks and balances to continually insure that the Owner’s quality standards are maintained.

01 45 23 – Testing and Inspecting Services – Typically provided by Owner. Re-tests for failed materials testing will be charged to the CM/Contractor.

01 45 29 – Testing Laboratory Services – Provided by Owner.

01 45 33 – Code-Required Special Inspections and Procedures – Provided by Owner. Refer to CPM for individual special inspection scope and procedures.

01 50 00 – Temporary Facilities and Controls – For most projects, temporary field/office facilities will be provided by CM/Contractor as part of the project costs. The Owner will encourage savings on interior office fit-up by recommending Owner inventory for furniture, copier, computers, etc. See 01 52 00 below.

01 51 00 – Temporary Utilities - For projects on existing campuses, most temporary utilities will be provided by Owner without additional charge to CM/Contractor.

01 51 13 – Temporary Electricity – Typically provided by Owner.

01 51 13.1 – Temporary Lighting – Provided by CM/Contractor

01 51 16 – Temporary Fire Protection – Typically not required nor provided. Refer to CPM for individual project scope requirements.

01 51 23 – Temporary Heating, Cooling, and Ventilating - Typically not required nor provided. Refer to CPM for individual project scope requirements.
01 51 33 – Temporary Telecommunications – basic services typically provided by Owner. Special requirements for high speed telecommunications will be by CM/Contractor. Connection to PBSC District Telephone/Data systems must be approved by PBSC Facilities Planning and PBSC Director of Information Technology.
01 51 36 – Temporary Water - Typically provided by Owner. Connection locations and approval must be secured through the PBSC Facilities Planning Department, Campus Plant Supervisor and District Maintenance Supervisor.

01 52 00 – Construction Facilities – Provided by CM/Contractor

01 52 13 – Field Offices and Sheds

1. Temporary construction trailers utilized for project supervision/management are permitted and may be used on any PBSC Campus with approval of PBSC Facilities Planning, Campus Plant Supervisor and PBSC District Maintenance Supervisor.
2. Structural integrity, tie-downs and anchors shall be in compliance with Florida Department of Transportation (FDOT) for "mobile" transportable facilities, inspected and approved by PBSC Building Official.
3. Location of temporary facilities shall be designated on construction plans by the Design Professional. Any deviations from the designated locations shall be resubmitted for approval.
4. Utility connections shall not be made to any temporary facility without approval of PBSC Facilities Planning, Campus Plant Supervisor and District Maintenance Supervisor.

01 52 16 – First Aid Facilities – shall be provided and maintained by CM/Contractor for all construction projects.

01 52 19 – Sanitary Facilities – Provided by CM/Contractor

- Temporary Facilities shall be provided "on site" and shall be maintained on a regular schedule.
- PBSC Campus Bathroom and Toilet Facilities **shall NOT be used by any construction personnel AT ANY TIME and are specifically OFF LIMITS.**

01 52 21 – Trash and Waste Disposal – shall be provided by CM/Contractor.

1. All construction debris and trash removal shall be accommodated on site as part of the Project under construction.
2. The CM/Contractor or Subcontractor responsible for managing the construction of any project shall be responsible for providing and maintaining trash collection facilities through an outside vendor approved by Facilities Planning.
3. No PBSC dumpsters, re-cycling containers or other trash facilities may be utilized for any construction project unless specifically approved by the PBSC Facilities Planning Department.

01 53 00 – Temporary Construction – Provided by CM/Contractor as required with approval of PBSC Building Department.

01 53 16 – Temporary Decking - Provided by CM/Contractor as required with approval of PBSC Building Department.

01 54 00 – Construction Aids - Provided by CM/Contractor as required with approval of PBSC Building Department, and may include but are not limited to the following:

01 54 13 – Temporary Elevators

- New Elevators shall not be used for transportation of materials or Contractor's workers without expressed, written permission of Owner.
- Existing Elevators shall not be used during construction without expressed, written permission of the College Project Inspector.

01 54 16 – Temporary Hoists – As required by project scope.

01 54 19 – Temporary Cranes

- Cranes – the use of cranes for construction on any PBSC Campus shall be coordinated through the PBSC Facilities Planning Department, PBSC Plant Supervisor, and PBSC Security.

01 54 23 – Temporary Scaffolding and Platforms – As required by project scope

01 54 26 – Temporary Swing Staging – As required by project scope

01 55 00 – Vehicular Access and Parking – Design professional shall coordinate with CM/Contractor and provide as part of construction documents a "Staging Plan" identifying the specific construction area as well as adjacent areas and buildings including provisions including, but not limited to:

- Temporary fencing
- Construction field office/trailer
- Temporary roadway access
- Parking
- Subcontractor storage/staging areas
- Dumpster/waste handling areas
- Temporary sanitary facilities

01 55 13 – Temporary Access Roads – As required by project scope, coordinate with Facilities Planning CPM.

01 55 19 – Temporary Parking Areas

- Parking at campus is subject to regulations established by the College Security/Parking Services at the particular campus.
- Employees of the Contractor and subcontractors must park cars in areas assigned to them.
- Parking on streets or in restricted areas is prohibited.
- At the beginning of the Work, the Contractor shall report to the Facilities Planning CPM the approximate number of parking spaces which will be required for all employees, including employees of Subcontractors.

01 55 26 – Traffic Control – Coordinate with Facilities Planning CPM, PBSC Security and Campus Plant Manager for any construction-related traffic control measures which may affect vehicular circulation or parking on any campus.

01 55 29 – Staging Areas – Approval by Facilities Planning CPM required prior to mobilization.

01 56 00 – Temporary Barriers and Enclosures – provided by CM/Contractor and required for all projects unless waived by Facilities Planning CPM.

01 56 23 – Temporary Barricades – provided by CM/Contractor as required, fencing preferred, see 01 56 26 below.

01 56 26 – Temporary Fencing

1. A six-foot high chain link fence with gates shall be erected around the project site or construction staging area. For major remodeling projects provide dust/debris fabric full height and width.
2. Fence and location shall be subject to the Owner's approval. The Design Professional shall show construction fence location and limits of work on drawings.
3. Some construction projects may require additional barrier protectives. Detailed requirements for these construction barricades shall be the responsibility of the design professional in conformance with SREF guidelines and Owner directives.
4. Except during working hours, the Contractor shall keep gates locked at all times.

01 56 29 – Temporary Protective Walkways – provided by CM/Contractor as required.

01 56 39 – Temporary Tree and Plant Protection - provided by CM/Contractor as required. Refer to Division 32 90 00.

01 57 00 – Temporary Controls – shall be provided and maintained by CM/Contractor as required for project, including permits required from outside agencies.

01 57 13 – Temporary Erosion and Sediment Control

01 57 23 – Temporary Storm Water Pollution Control

- All catch basins and storm drain lines in the vicinity of the site shall be protected at all times from the entry of mortar, concrete spoil, and other construction debris. The residue from the cleaning of concrete trucks, wheelbarrows, concrete buggies, etc., must be prevented from entering the drainage system.
- If cleaning is done, it must be contained and the Contractor must remove the residue from the campus with other construction refuse.

01 58 00 – Project Identification

01 58 13 – Temporary Project Signage – provided by CM/Contractor.

1. Unless waived by Owner, a sign shall be required on all projects.
2. When a sign is required, the location shall be approved by the College and shall be shown on the drawings provided by the design professional, together with details of the sign.
3. The Contractor shall be required to provide the sign based on an approved shop drawing showing layout of the text.

4. One print of the shop drawing shall be supplied to the Facilities Planning CPM.
5. The Design Professional must inspect and approve the finished sign before erection at the site with the attendance of the CPM.

01 60 00 – Product Requirements – Reserved.

01 64 00 – Owner-Furnished Products – Project specific Owner-furnished products shall be itemized on the documents by the Design professional, coordinated by the Facilities Planning CPM and provided to the CM/Contractor by the Owner according to his construction schedule. This is non-exclusive of FFE (Furniture, Fixtures and Equipment) which shall be provided and installed by the Owner at completion of construction.

01 65 00 – Product Delivery Requirements – Coordinate any deliveries not specified to the Project Construction site with PBSC-CPM and PBSC District or Campus Receiving.

01 66 00 – Product Storage and Handling Requirements - The Owner shall not be responsible for materials and substances brought to the site by any Contractor. Each Contractor is responsible for the proper storage and management of hazardous materials in accordance with Federal, State and Local requirements. Further, each Contractor is responsible for the removal and disposition of all surplus chemicals that they bring on-site as part of the work. No Contractor shall use any drain, pipe or plumbing fixture for the disposal of any waste materials. No chemicals that the Contractor brings on-site shall remain on College property at the completion of the work without the written consent of the Owner.

01 66 13 – Product Storage and Handling Requirements for Hazardous Materials

1. The General Contractor shall store, manage, and dispose of all hazardous materials in accordance with all applicable federal, state, and local regulations, including but not limited to the Florida DEP Waste regulations, the Resource Conservation and Recovery Act (RCRA), 40 CFR Part 260, including any required agency notifications regarding the generation of hazardous waste.
2. The Contractor must provide owner with a list of all hazardous materials to be used and stored and actual and potential hazardous waste(s) to be generated during a project. Hazardous waste generated by a Contractor as part of its work is the responsibility of the Contractor.
3. The Contractor shall have primary generator responsibility for all such hazardous waste, except for waste that is abated from PBSC property.
4. The General Contractor shall develop a Hazardous Waste Plan that identifies all procedures for the safe handling of hazardous waste in accordance with applicable regulatory requirements. The Hazardous Waste Plan shall describe the Contractor's responsibilities related to hazardous wastes and shall include, but is not limited to the following: identification of those wastes classified as hazardous waste in accordance

with all applicable regulations; proof of registration with EPA as a generator of hazardous waste and/or waste oil; and certification of appropriate hazardous waste training for all Employees.

5. The Contractor shall establish and manage hazardous waste storage area(s) in accordance with the applicable regulatory requirements. These areas will be designated to safely store hazardous wastes and shall be equipped with adequate signage, secondary containment, and an appropriately sized and compatible spill kit. Additional requirements may be necessary in accordance with the regulatory requirements.
6. Containers of hazardous waste shall be properly labeled, stored in/on a secondary containment device, maintained in good condition and kept closed at all times and managed in accordance with the regulatory requirements.
7. Each Contractor shall be responsible for coordinating the shipment of all hazardous waste where they have primary Generator responsibility, including signing all hazardous waste manifests. A copy of all hazardous waste manifests shall be provided to the owner at the conclusion of the work and made available during the project upon request.

<u>01 66 13.1 – Product Storage and Handling Requirements for Compressed Gas Cylinders</u>

1. All cylinders shall be marked with the name and CAS identification number of their contents.
2. Cylinders, when in use, shall be positively secured in the upright position. Where carts are used, the retaining device or chain shall be used.
3. Cylinder Storage:
    - Shall consist of manufactured cages (open-ventilation type) with roofs.
    - Cages shall be stored in the area designated by the General Contractor for compressed gas storage, and shall be no closer than twenty-five (25) feet from the building.
    - Cylinder storage areas shall be protected against physical damage from vehicles and equipment.
    - Cylinders shall be separated according to their hazard classes, and signs shall be posted at each storage area, warning employees of the hazards (i.e. no smoking, flammable gas storage, non-flammable gas storage, etc.).
    - Oxygen and flammable gasses shall be separated by at least twenty (20) feet.
    - Cylinders shall be stored upright, positively secured, and valve caps shall be on.
    - Cylinders shall be removed from the work area and returned to the cylinder storage area after each work shift. Under no circumstances shall cylinders be stored in gang boxes, shanties, trailers, etc.
4. The General Contractor shall provide a minimum of one twenty (20) pound ABC dry chemical fire extinguisher at each cylinder storage area.
5. Cylinders shall not be hoisted using slings, chains, ropes, or by the valve cap. Use only carts or racks specifically designed for hoisting.

6. The use and storage of liquefied petroleum gas (propane) gas shall comply with the requirements listed in 29CFR Part 1926.153, as well as local fire department regulations.

01 66 13.2 – Product Storage and Handling Requirements for Flammable and Combustible Liquids - Flammable and combustible liquids use and storage shall comply with 29CFR Part 1926.152 and the manufacturer's recommendations and requirements, except where noted below. Flammable and combustible liquids include, but are not limited to: gasoline, diesel fuel, kerosene, oil, spray paints, solvents, paint thinners, etc. When not in use, liquids shall be stored in cabinets.

1. Flammable and Combustible Liquid Container Storage:
    - Shall consist of UL-listed metal storage cabinets. No more than sixty (60) gallons of flammable liquid or one-hundred and twenty (120) gallons of combustible liquids shall be stored in any single cabinet.
    - Cabinets shall be stored in the area designated by the General Contractor for flammable/combustible storage, and shall be no closer than twenty-five (25) feet from the building.
    - Flammable/combustible storage areas shall be protected against physical damage from vehicles and equipment.
    - Secondary containment shall be provided at each flammable and combustible liquid storage area. The secondary containment shall be sized so as to contain the amount of liquid stored in the storage area. Rain water or snow shall not be allowed to accumulate within the secondary containment.
    - A spill kit shall be provided adjacent to each storage area.
    - Signs shall be posted at each storage area, warning employees of the hazards (i.e. no smoking, flammable liquid storage, etc.).
    - Only metal containers (safety can as defined by 29CFR Part 1926.155) shall be used to handle flammable and combustible liquids.
    - Where storage tanks or drums are used for dispensing flammable and combustible liquids, the tank or drum shall be electrically grounded and a bonding wire shall be attached from the tank/drum to the container into which the liquid is being dispensed.
    - Flammable and combustible liquids shall be removed from the work area and returned to the storage area after each work shift.
2. Contractor shall provide a minimum of one twenty (20) pound ABC dry chemical fire extinguisher at each storage area.

01 66 13.3 – Transporting Hazardous Materials and Waste

1. Only Contractors licensed to transport hazardous materials/waste (under EPA and FL DEP regulations) shall be permitted to transport hazardous materials/waste. Transportation of hazardous materials/waste shall also comply with US DOT regulations and requirements.
2. At no time shall the Contractor transport hazardous materials via public or private roads in a manner that could result in an unsafe condition for personnel or the environment.

3. Transportation of hazardous materials shall be conducted in accordance with all applicable regulations for proper packaging, marking/labeling, handling, and documenting.

01 66 16 – Product Storage and Handling Requirements for Toxic Materials – See sections above

01 70 00 – Execution and Closeout Requirements

01 71 00 – Examination and Preparation

01 71 13 – Mobilization – CM/Contractor mobilization shall not occur on any site until a Notice to Proceed has been issued and a Preconstruction conference has been held among the full O-A-C Team including PBSC Building Official and Inspectors.

01 71 16 – Acceptance of Conditions – Refer to Division 02 "Existing Conditions" for detailed requirements of CM/Contractor responsibilities.

01 71 23 – Field Engineering – various levels of field engineering will be required for all PBSC projects and are the responsibility of the CM/Contractor, including:

01 71 23.13 – Construction Layout

01 71 23.16 – Construction Surveying

01 71 33 – Protection of Adjacent Construction – is required by the CM/Contractor for all PBSC projects. Refer to Division 02 22 00 "Existing Conditions Assessment" for assessment and documentation procedures.

01 71 33.1 – Restoration of Construction Site

1. Restoration of Construction Site - PBSC requires the Contractor to return all grounds, shrubbery, etc., surrounding construction projects to their original condition as determined by the Design Professional, the Campus Plant Supervisor and the CPM upon completion of construction.
2. Returning the area to the original state will be a requirement of the Contract for all construction whether noted on construction documents and permits or not.

01 73 00 – Execution – is the responsibility of the CM/Contractor based upon the scope of work defined in the construction documents and specifications, including the following methods, subject to review and approval by the PBSC Building Department for Code compliance and safety:

01 73 19 – Installation

01 73 23 – Bracing and Anchoring

01 73 29 – Cutting and Patching

01 74 00 – Cleaning and Waste Management – Most construction will take place on active, multi-building campuses. The CM/Contractor shall maintain both interior building and exterior site conditions in a clean and orderly state at all times.

01 74 13 – Progress Cleaning – Regularly scheduled cleaning shall be required by all CM/Contractors, subcontractors, vendors, etc.

01 74 16 – Site Maintenance – Required.

01 74 19 – Construction Waste Management and Disposal - Refer to 01 52 21 Trash and Waste Disposal

01 74 23 – Final Cleaning – It is expected that several stages of "final cleaning" will be required for construction completion on PBSC projects, including:

1. Substantial Completion
2. Owner post-FFE Installation
3. Final Completion

01 75 00 – Starting and Adjusting – Required by CM/Contractor.

01 75 13 – Checkout Procedures - Reserved

01 75 16 – Startup Procedures – All projects will require startup procedures to be coordinated by the CM/Contractor after notifying CPM for instruction to PBSC Maintenance and Operations staff.

01 76 00 – Protecting Installed Construction – Both new and existing "Installed" construction shall be protected at all times by the CM/Contractor. Damages resulting from negligence by the CM/Contractor, subcontractors, vendors, installers or materialmen shall be corrected or replaced at the Owner's discretion at the expense of the CM/Contractor

01 77 00 – Closeout Procedures – CM/Contractor shall coordinate with CPM to establish "Project-specific" closeout procedures in addition to typical requirements outlined below.

01 78 00 – Closeout Submittals – the following items are typically required for all PBSC construction projects:

01 78 13 – Completion and Correction List

01 78 19 – Maintenance Contracts

01 78 23 – Operation and Maintenance Data

01 78 29 – Final Site Survey

01 78 33 – Bonds

01 78 36 – Warranties

01 78 39 – Project Record Documents

- The Contractor is required to update As-Built plans on a weekly basis.
- The Contractor shall make As-Built plans available upon request of the PBSC Building Department, inspector or CPM.
- If As-Built plans are not updated on weekly basis, payment requisitions may be delayed until plans correctly reflect As-Built conditions.
- Upon reaching substantial completion, the Contractor shall be required to submit a Finish Schedule that includes the following information on all building systems: **Bldg. Finish**, **Description**, **Location**, **Manufacturer**, and **Model No.** for each finish type. Refer to 01 78 50 – Final Finishes.
- Upon completion of project construction and prior to release of retainage, the Contractor shall submit Project Record Documents to the College.
- As-Built drawings shall consist of one set of reproducible Mylar's, two sets of black line prints, and one set of AutoCADD electronic files.

- As-Built drawings shall be reviewed, and accepted or rejected for clarity by the Design Professional and the College CPM.
- As-Built information shall be shown to scale and use standard symbols listed in the legend.
- Project Record Documents shall be in CADD form on Compact Disk (CD). Acceptable file types in order of preference, are:
- AutoCADD (current release)
- The Design Professional shall not be liable for changes, additions, modifications and/or deletions made by the College and/or their representatives to CADD system drawing files.

01 78 43 – Spare Parts - Reserved

01 78 46 – Extra Stock Materials – requirements for extra stock shall be designated by the Design Professional in the contract documents as recommended by the Owner for the project scope, and shall be coordinated for delivery to the Owner based upon a schedule submitted by the CM/Contractor during construction.

01 78 50 – Final Finishes – A complete and comprehensive list of final interior and exterior finishes shall be prepared by the Design Professional and CM/Contractor. This inventory shall be submitted to the Owner using a standard PBSC-CPM provided Project Finishes Form, see Appendix I.

01 79 00 – Demonstration and Training – Shall be required for most projects. CM/Contractor shall prepare a list of proposed equipment for training, submitted to CPM, District Maintenance Supervisor and Campus Plant Manager for coordination and scheduling.

01 80 00 – Performance Requirements

01 80 13 – Construction Management Project Expectations may be categorized according to the following prioritized listing:

1. Quality
2. Service/Owner advocacy
3. Experience
4. Code Compliance
5. Schedule
6. Safety
7. Cost effectiveness

01 81 00 – Facility Performance Requirements

01 81 13 – Sustainable Design Requirements – PBSC has committed to the design and construction of sustainable facilities. The Owner will pursue these goals through implementation and compliance with the currently “industry standard” LEED certification criteria.

01 81 13.1 – LEED Project Implementation Criteria

1. General Information Requirements.
    - All new construction projects shall be designed according to the U.S. Green Building Council LEED® (Leadership in Energy and

Environment Design) Rating System for New Construction and major Renovations, Version 2.2.

- Architect/Engineer contract documents will be prepared to meet the performance standards of the LEED pre-requisites and credits as outlined on the attached PBSC LEED®-NC Goals Scoresheet.

2. Responsibilities of the Design Professional:
   - All projects shall be designed to achieve the minimum level of LEED®-NC **Silver** by pursuing the designated credit points identified in the "Easy" column of the Goals Scoresheet. Credits identified as "Medium" and "Difficult" shall be pursued on a project-by-project basis to allow for pursuit of LEED® Gold if applicable.
   - LEED®-Related Specification Sections: At a minimum, the attached specification sections (LEED Requirements, Construction Waste Management and Disposal, Indoor Air Quality Requirement, and Commissioning for LEED Certification), or the equivalent thereof, shall be provided as part of the Architect/Engineer's Contract Documents.
   - LEED® Kick-off Meeting: At the request of the Owner, the Architect shall meet with the Owner, Construction Manager, and Subcontractors within ten (10) days of the award of the Contract to discuss LEED® responsibilities of each party during the course of construction. This meeting may be held in conjunction with the Pre-Construction meeting.
3. Responsibilities of the Construction Manager
   - The Construction Manager shall implement the LEED® requirements as outlined in the Architect/Engineer's Contract Documents.
   - One project team member shall be designated as the Construction Manager's LEED® representative. This person shall be responsible for the quality and completeness of all LEED® submittals outlined in the Contract Documents and shall serve as the primary contact for the Owner and the Architect on all related matters.
   - The Construction Manager shall be responsible for effectively communicating all LEED® requirements to all Subcontractors. Where appropriate the Construction Manager shall require each Subcontractor to do the same with all Sub-subcontractors.
4. Responsibilities of the Owner
   - The owner shall assist with the LEED® documentation efforts as necessary, in particular with respect to Section 15990 of the General Building Specifications and Standards, "Testing & Balancing" and the attached Specification Section "Commissioning for LEED Certification"
5. For additional information on LEED Construction Specification criteria, refer to PBSC – LEED Requirements for Facilities Development and Appendix H – LEED Certification Checklist.

01 81 16 – Facility Environmental Requirements - Reserved

01 81 19 – Indoor Air Quality Requirements - Reserved

01 90 00 – Life Cycle Activities – All major construction projects shall be required to provide and submit a Life Cycle Cost Analysis by the Design Professional in compliance with PBSC and SREF requirements.

01 91 00 – Commissioning – Refer to PBSC-LEED Requirements for Facilities Development.

01 91 13 – General Commissioning Requirements – Refer to PBSC-LEED Requirements for Facilities Development.

02 00 00 – EXISTING CONDITIONS

02 01 00 – Maintenance of Existing Conditions - Reserved

02 01 50 – Maintenance of Site Remediation - Reserved

02 01 80 – Maintenance of Facility Remediation - Reserved

02 06 00 – Schedules for Existing Conditions – Both design professionals and contractors shall be responsible for field verification of existing conditions.

1. Owner will provide copies of existing facilities inventory.
   - Facilities inventory of existing structures are internally created AutoCADD dwg.files, not field-verified construction documents.
2. Owner will provide copies of archive construction documents for new, remodeled and renovated facilities.
3. Consultants/contractors shall be responsible for evaluating existing conditions including:
   - Field measuring for verification.
   - Digital still or video photography
   - Schedules of existing conditions

02 06 50 – Schedules for Site Remediation – shall be provided by consultants/contractors as needed.

02 20 00 – Assessment – Various assessments may be required, depending upon project scope of work. Typically, Owner will provide these assessments, which may be based upon recommendation of consultant/contractor.

02 21 00 – Surveys -

02 21 13 – Site Surveys

02 21 13.13 – Boundary and Survey Markers

02 21 16 – Measured Drawings

02 22 00 – Existing Conditions Assessment

02 22 10 – Structural Assessment – Each existing college facility constructed before 2001 shall be assessed for compliance with current FBCode for wind-load, hurricane/impact resistance. This assessment shall be provided by Owner, typically as an additional service through the Architect's structural engineering consultant.

02 22 19 – Traffic Assessment – Existing campuses do not typically require traffic assessments, but may be provided by the Owner if required to meet project parameters.

02 22 23 – Accessibility Assessment – PBSC encourages accessibility to all existing as well as new facilities. Design consultant shall provide due diligence in their "existing facilities assessment" to identify accessibility deficiencies, scheduled and reported in writing to Owner.

02 24 00 – Environmental Assessment

02 24 13 – Natural Environment Assessment – Undeveloped campus sites or site areas for new building construction will be evaluated by Owner and assessed as necessary for environmental impact analysis.

- The Contractor shall be responsible for avoiding all endangered species habitats located in and around the limits of construction. Where possible, endangered species habitats shall be indicated by sprinkler flags or stakes per environmental survey.
- The College will provide environmental and other surveys required by Design Professional to complete the defined scope of work.

02 24 23 – Chemical Sampling and Analysis of Soils – will be provided by Owner as required.

02 25 00 – Existing Material Assessment – will be provided by Owner as required when requested by Design Consultant or CM/Contractor.

02 25 29 – Existing Thermal and Moisture Protection Assessment – will be provided by Owner as required when requested by Design Consultant or CM/Contractor.

02 25 29.13 – Waterproofing Investigations – will be provided by Owner as required when requested by Design Consultant or CM/Contractor.

02 25 29.23 – Roofing Investigations – Owner maintains an inventory survey of roof condition assessments for all buildings on each campus which is available for review upon request. Each existing facility considered for remodeling or addition should be field-assessed independently by Design Consultant or CM/Contractor prior to initiating any work and condition reported to Owner.

02 26 00 – Hazardous Material Assessment – Typical hazardous materials assessments will be provided by the Owner for existing facilities during pre-programming phases of project development. This pertains primarily to asbestos and lead, but may apply to biological assessments.

1. The Contractor shall ensure that a hazardous materials survey has been conducted. The Contractor shall review all contract documents (specifications, drawings, referenced reports, etc.) and ensure that they are aware of the presence and locations of the hazardous materials that have been identified by the Owner. In the event any Contractor encounters previously unidentified material that is reasonably believed to be a hazardous substance or condition, including but not limited to, asbestos or polychlorinated biphenyls (PCBs), lead-based paint, oil or other petroleum products, pollutants, hazardous materials, contaminants, Bio Hazardous Materials, Mold, objectionable odors or noxious or odorous substances, the Contractor shall immediately stop work in the affected area and immediately report the condition to the owner.

02 26 23 – Asbestos Assessment – Referenced above.

02 26 26 – Lead Assessment - Referenced above.

02 26 33 – Biological Assessment – including mold will be provided by Owner for all new construction if required. Costs for assessment and remediation will be by Owner, unless conditions are the result of CM/Contractor actions.

02 26 33.13 – Mold Assessment – will be provided by Owner as required.

02 30 00 – Subsurface Investigation - will be provided by Owner as required.

02 31 00 – Geophysical Investigations – not typically required nor provided.

02 32 00 – Geotechnical Investigations – All of the following soil testing and evaluation will be provided by Owner as required for a specific project:

02 32 13 – Subsurface Drilling and Sampling
02 32 16 – Material Testing
02 32 19 – Exploratory Excavations
02 32 23 – Geotechnical Monitoring Before Construction
02 32 23.13 – Groundwater Monitoring Before Construction

02 40 00 – Demolition and Structure Moving

1. Any relocatable or temporary structures required to be "moved" for project development will be provided by Owner. Otherwise, no permanent State facilities will be moved for project development. Demolition of State facilities is prohibited without approval of the Florida Department of Education.

02 41 00 – Demolition – Most of PBSC's capital projects associated with Remodeling, Renovation, Sitework, HVAC, Electrical or Mechanical construction projects will require typical selective demolition. The Design Professional and CM/Contractor will be responsible for identifying the scope of demolition for review and approval by Owner prior to construction.

02 41 13 – Selective Site Demolition – Most capital projects will require minor site demolition, particularly as related to underground utilities. Based upon campus/location, the Design Professional and CM/Contractor shall coordinate carefully with the Owner regarding location and excavation of existing concealed elements prior to construction

02 41 13.13 – Paving Removal – Paving removal associated with new construction, additions or remodeling will be identified and described in scope by the design professional and included in the construction scope by the CM/Contractor.

02 41 13.23 – Utility Line Removal

1. Design professional and CM/Contractor shall evaluate the location of all existing utilities in the vicinity or required for new or remodel construction.
2. Design professional and CM/Contractor shall coordinate with Owner to identify any existing utility easements on campus sites. Utility authorities having jurisdiction on any sites shall not be contacted without authorization of Owner. Utility lines within recorded easements are typically owned and maintained by the utility authority and cannot be disturbed without their approval.

3. Any Electrical Utility line removal or relocation shall be identified and described by the design professional and will be typically coordinated and provided by the Utility Authority under authorization and payment by the Owner.
4. Other "on-site" utilities, unless in recorded easements, are typically part of "Private" systems under jurisdiction and maintenance of the Owner. As such these utilities will be under the CM/Contractor's scope of work.

02 41 16 – Structure Demolition – See 02 40 00 (1) above.

02 41 16.13 – Building Demolition - See 02 40 00 (1) above.

02 41 19 – Selective Structure Demolition - Some capital projects will require minor selective structural demolition, particularly as related to remodeling or Code upgrades. The Design Professional and CM/Contractor shall coordinate carefully with the Owner regarding selective structure demo during preconstruction. Any structural support demolition shall be identified, described with appropriate structural engineering recommendations, re-shoring, etc., approved by the PBSC Building Department prior to construction start. All costs shall be included in the design professional's and CM/Contractor's scopes of work.

02 41 19.13 – Selective Building Demolition – same as above.

02 42 00 – Removal and Salvage of Construction Materials – Preconstruction assessment of existing site area and facilities by the design professional and CM/Contractor shall identify and document all elements of construction scheduled for removal. The Owner reserves the right to review, identify and direct the CM/Contractor regarding all items intended for salvage. These items shall be clearly identified and scheduled by the design professional and CM/Contractor for removal by the CM/Contractor and delivery to the Owner at a designated location on campus.

02 43 00 – Structure Moving - See 02 40 00 (1) above.

02 50 00 – Site Remediation – Virtually all construction will require some level of site remediation for disturbed site areas adjacent to existing buildings. It shall be the CM/Contractor's responsibility to document preconstruction conditions and to coordinate with the Owner for remediation to preconstruction conditions unless otherwise specified by the design documents. Costs for this work shall be included in the CM/Contractor's scope and GMP.

02 60 00 – Contaminated Site Material Removal – If discovered during the course of construction by the CM/Contractor no action on removal is to be undertaken by the CM/Contractor. The CM/Contractor is responsible to immediately notify the PBSC-CPM and Campus Plant Manager before barricading and securing the area. Owner will assess and contract independently for removal as required.

02 70 00 – Water Remediation – Reserved, not typically required.

02 80 00 – Facility Remediation - Virtually all construction may require some level of facility remediation for disturbed areas within or adjacent to existing buildings. It shall be the CM/Contractor's responsibility to document preconstruction conditions and to coordinate with the Owner for remediation to preconstruction conditions unless otherwise specified by the design documents. Costs for this work shall be included in the CM/Contractor's scope and GMP.

02 82 00 – Asbestos Remediation - will be provided by Owner as required.

1. Although many of the older Lake Worth campus buildings have been abated, there may still be some undisturbed areas of construction containing asbestos or other hazardous materials.
2. The PBSC Facilities Planning Department maintains an inventory of all buildings which have been surveyed and/or abated for hazardous materials, which is available upon request for preconstruction assessments.
3. The PBSC Facilities Planning Department has a continuing contract with a local consultant company for assessment and abatement as well as procedures for removal and disposal.
4. Typically, all asbestos abatement required as part of a construction project will be the Owner's responsibility, coordinated with the CM/Contractor's schedule for construction.

02 82 13 – Asbestos Abatement – will be provided by Owner as required.

02 82 13.13 – Glovebag Asbestos Abatement – will be provided by Owner as required.

02 82 13.16 – Precautions for Asbestos Abatement - will be provided by Owner as required.

02 82 13.19 – Asbestos Floor Tile and Mastic Abatement - will be provided by Owner as required.

02 82 16 – Engineering Control of Asbestos Containing Materials - will be provided by Owner as required.

02 82 33 – Removal and Disposal of Asbestos Containing Materials - will be provided by Owner as required.

02 83 00 – Lead Remediation - will be provided by Owner as required.

02 84 00 – Polychlorinate Biphenyl Remediation

02 84 16 – Handling of Lighting Ballasts and Lamps Containing PCBs and Mercury

02 85 00 – Mold Remediaton - It is the responsibility of the CM/Contractor to ensure that work is conducted and phased so that water and moisture do not pose a threat to either the project Employees or the building occupants. Water and moisture infiltration shall be considered when planning and phasing activities on the project. The Contractor is responsible for mold remediation required as a result of the project. The identification of mold prior to the start of the project should be reported to the owner and mold remediation will be provided by the owner as required.

02 85 13 – Precautions for Mold Remediation

1. Where water or moisture has intruded into the building or structure, the cause of the infiltration shall be determined and corrected. The water shall be removed immediately, and the area dried. Contractor must respond to moisture intrusion within 24 hours.
2. Where water has contacted materials or equipment, the material must be completely dried and inspected prior to installation. The equipment or materials shall be monitored daily for a period of one week following the event to ensure that no mold growth is present.
3. Where mold growth is observed, the affected areas shall be removed and disposed by qualified Environmental Contractors working under a remediation plan, specific to the event.
4. Mold growth shall be reported to the owner upon observation. An inspection of the affected area, including the cause(s) related to the intrusion, shall be conducted by the General Contractor and owner.
5. Documentation of water intrusion events, including descriptions of affected areas, abatement actions, and photographs shall be submitted by the Contractor to the owner upon completion.

02 85 16 – Mold Remediation Preparation and Containment - Preparation and containment procedures must comply with State standards and codes for Mold Remediation currently in effect.

02 85 19 – Mold Remediation Clearance Air Sampling - Clearance Air Sampling must comply with State standards and codes for Mold Remediation currently in effect.

02 85 33 – Removal and Disposal of Materials with Mold - Removal and disposal of materials with mold must comply with State standards and codes for Mold Remediation currently in effect.

03 00 00 – CONCRETE

03 00 00 – General Provisions

1. No Concrete product or concrete shall contain fly-ash.
2. The floor on the inside and the outside of each doorway shall be level for a distance of not less than five (5) feet in each direction. A 2% slope and cross slope is acceptable outside for drainage purposes and ADA compliance.
   - Sharp inclines and abrupt changes in level shall be avoided at doorsills. Allow for drainage at the outside of exterior doors.
3. At an out-swinging door, the platform shall be not less than five (5) feet by five (5) feet and shall extend not less than one (1) foot beyond each side of the door.
4. At an in-swinging door, the platform shall be not less than three (3) feet by five (5) feet, and shall extend not less than 1-foot beyond each side of the door.
5. TESTS: A minimum of four (4) test cylinders prepared in accordance with ASTM C495 shall be taken during each day's placement and every 50 cubic yard thereafter. Tests shall be made by a testing laboratory employed and approved by the Consultant. Written reports of the tests shall be sent directly to the Consultant with a copy of the college. Laboratory shall make tests for wet density, dry density, and compressive strength of each specimen.
6. CODES AND STANDARDS: Comply with provisions of the following codes.
   - American Concrete Institute (ACI) 301, "Specifications for Structural Buildings."
   - American Concrete Institute (ACI) 318, "Building Code Requirements for Reinforced Concrete."
   - Concrete Reinforcing Steel Institute (CRSI), "Placing Reinforcing Bars – Recommended Practices."
   - American Concrete Institute (ACI) 305, "Hot Weather Concrete."
   - American Concrete Institute (ACI) 308, "Standard Practice for curing Concrete."
   - American Concrete Institute (ACI) 309, "Guide for Consolidation of Concrete."
   - All poured in place concrete shall be tested for ponding problems and any problems identified shall be remedied prior to the relevant subcontractor leaving the site.
   - All interior building floor slabs shall meet the following standards for flatness and level – F50 minimum floor flatness, F50 floor level as determined by FF/FL test procedures.
   - For floor slabs at grade and walkway system applications is the preferred reinforcing material shall be with 6x6 10/10 welded wire fabric over 6 mil visqueen. Wire and or steel shall be supported with sand chairs or other approved method. Concrete shall be regular or pump mix approved by owner. Fibermesh is prohibited.

- Minimum thickened edge for concrete slabs at grade, including sidewalks shall be 8" x 8" reinforced with (1) # 5 minimum and 6" x 6" 10/10 welded wire fabric. Building floor slabs shall have foundations designed by the Engineer of Record.
- In ADA applications, Pavers, or textured concrete finished may be finish-stamped or tooled.
- Finish on concrete shall be appropriate for building structural finish and type and application.
- The Contractor shall slope mechanical room floor to drains. The Design Professional shall coordinate floor slope with floor drain locations.
- Typical PBSC Standard exterior concrete walks, sidewalks and driveways shall be minimum 6" thick, reinforced with 6x6 10/10 welded wire mesh over 6 mil visqueen or polyethylene vapor barrier. Required expansion joints shall be full thickness pressure-treated wood (typical 1x6). Expansion joints against buildings where required shall be full thickness pressure-treated wood. Sawcut expansion joints shall be placed as designated on construction plans, but not closer than 5'-0" centers. Areas anticipating heavy traffic or machinery shall use (road Mesh) instead of 6x6 10/10 welded wire mesh.

03 10 00 – Concrete Forming and Accessories

03 11 00 – Structural Cast-in-Place Concrete Forming

03 11 13 – All formwork for foundations and floor slabs on grade shall be rigid board forms only. No (free form) bare earth formwork is allowed.

03 11 16 – Architectural Cast-in-Place Concrete Forming

- 03 11 16.13 – Concrete form liners. Avoid use high density form liners for concrete formwork.

03 24 00 – Fibrous Reinforcing

1. Carbon fiber reinforcing materials are prohibited for interior applications until such time as materials pass tests already in Florida Building Code ASTME 136 & ASTME 84.

03 30 00 – Cast-in-Place Concrete

1. Test Reports: A copy of all concrete test reports shall be furnished to College Construction Coordinator.
2. Miscellaneous Requirements
   - Strengths: All concrete designs strength shall be determined by the project A/E; however, in no case shall the compressive strength be less than 3,000 psi in 28-days; except that 2,500 psi concrete may be specified for filling over excavations for footings.
   - Air Entrained Concrete: An approved air-entraining admixture shall be used for all concrete exposed to weather. Minimum strength shall be 3,000 psi.

- Hardener Treatment: All finished floors, which will be left exposed, shall receive hardener treatment applied when concrete is still green.
- Protection for Nosings on concrete steps shall be provided by imbedded rounded metal cast nosing with non-slip surface.
- Non Slip Surfacing. Ramps, treads, and platform of stairs shall have non-slip surface when not covered with finish flooring materials.

03 33 00 – Architectural Concrete: A sample four (4) feet by eight (8) feet in size shall be erected at the site when cast-in-place architectural concrete is to be used. Panel shall be protected from construction operations, but shall be left exposed to the elements. Panel shall be left in place until all architectural concrete has been approved by the College. Include samples of exposed built-in materials and finished openings.

03 40 00 – Precast Concrete

03 41 00 – Precast Structural Concrete: Base design and specifications on recommendations of the American Concrete Institute, ASTM tests.

03 47 00 – Site-Cast Concrete

1. Precast Concrete Panels: Base design and specifications on recommendations of the American Concrete Institute, ASTM tests.

03 50 00 – Cast Deck and Underlayment

03 51 00 – Insulating Concrete Roof Decks: Concrete shall be applied per manufacturer's specifications.

03 53 00 – Concrete Toppings

1. This section includes concrete floor toppings applied over previously placed (hardened concrete). ARDEX is preferred. **No gypsum based products.**
2. Comply with requirements of Section 03300, Cast-in-Place Concrete.
3. Cement and Aggregates
   - Portland Cement: ASTM C150, Type 1.
   - Normal Weight Aggregate: ASTM C33.
   - Reinforcement: ASTM A185, Welded Steel Wire Fabric.
   - Use ready-mixed topping complying with ASTM C94. ARDEX is preferred.
   - Performances: Failure of concrete topping to bond to substrate, disintegration or other failure of topping to perform as a floor finish will be considered failure of materials and workmanship. The Contractor shall replace toppings in areas of such failures, as directed.

03 55 00 – Cementitious Decks

1. Include the following general requirements in the specifications.
2. Certificate from Manufacturer of Materials: Upon completion of the installation, a certificate from the manufacturer of insulating materials used, stating that materials were installed by an approved applicator and that materials were installed in accordance with the drawings and specifications, shall be furnished to the Consultant.

04 00 00 – MASONRY

1. SPLIT COURSING: Only full coursing will be permitted at the head of any type of opening.
2. OVERHANGING MASONRY: Construction where the masonry units are suspended using mechanical devices, or where the units extend beyond lower courses and mechanical support devices are required, are not to be used. Buildings being renovated/restored, which have such overhanging structures, shall be examined for safety and a report of condition provided.
3. USE OF INK MARKING PENS ON SURACES of any kind of material is prohibited. Experience has shown that such marks bleed through paint and other finishes.
4. ACID FOR MASONRY CLEANING. The cleaning solution must be included in applicable sections of the Specifications. Type of solution shall be approved by the University Architect's Office, and Environmental Health and Safety Department.
5. BRICK SURFACE TREATMENT: Treating of brick surface with stain or other surface treatment or simulation to obtain a color blend is prohibited.
6. CODES AND STANDARDS: Comply with provisions of the following codes:
   - American Concrete Institute (ACI) 530, "Building Code Requirements for Masonry Structures."
   - American Concrete Institute (ACI) 530.1, "Specifications for Masonry Structures."
7. QUALITY ASSURANCE: Engage a masonry work certified technical inspector to supervise, on a full-time basis, all masonry work.

04 05 00 – Common Work Results for Masonry

04 05 13 – Masonry Mortaring

1. MORTAR FOR LAYING MASONRY: May be ready-mixed or job mixed. Specify by types listed in ASTM C-270. Do not specify mortar which may corrode steel reinforcement or structure (i.e., Sara-bond). Use Type S Mortar for above grade and Type M Mortar for below grade.
2. PINTING MORTAR: Pointing mortar for clay facing tile masonry shall be made with white silica sand and white Portland cement.

04 05 19.16 – Masonry Anchors

1. PLUG ANCHORAGE by use of wood, lead, or plastic is prohibited

04 05 23 – Masonry Accessories

1. JOINT REINFORCEMENT: Wire mesh type is prohibited

04 05 23.19 – Masonry Cavity Drainage, Weedholes, and Vents

1. WEEP HOLES: Stamped aluminum louvered vents of size to fit head joints in brick work or plastic tubing are preferred over treated sash cord or rope. If cord or rope is specified, specify that the material be left in place and cut off flush with the joint.

04 22 00 – Concrete Unit Masonry

Concrete block should be used wherever feasible for interior wall finish in student areas. ASTM tests shall be indicated on all materials used below per SBBC requirements.

1. CINDER BLOCK: The use of cinder block is prohibited.
2. CONCRETE BLOCK, TYPES AND USES
    - LOAD BEARING – normal weight, standard size.
    - NON-LOAD-BEARING – normal weight, standard size.
    - EXPOSED EXTERIOR – washed crushed limestone coarse aggregate and washed limestone sand, only, shall be used.
    - CONTROL JOINTS – to control cracking, follow recommendations of the Concrete Masonry Handbook published by the Portland Cement Associate.
    - Fire rated masonry must be accompanied by documentation or identification stamped on the block showing UL certifications.

05 00 00 – METALS

05 10 00 – Structural Metal Framing

05 12 00 – Structural Steel

05 12 23 – Include a complete section in the specifications for this part of the work, in addition to the Structural Consultant notes on the drawings. The Consultant is responsible for complete coordination of statements in the specifications and the notes on drawings. Structural steel shall comply with the American Institute of Steel Construction (AISC), "Code of Standard Practice for Steel Buildings and Bridges.

1. AFFIDAVIT FROM ERECTOR: The General Contractor shall be required to provide an affidavit, at the completion of the job, to the effect that the structural steel frame is plumb and level within the normal tolerances specified in the code.

05 16 00 – Structural Cabling

1. MISCELLANEOUS METAL FRAMING FOR ELECTRICAL SUPPORT SYSTEMS: If electrical equipment is attached to support framing, the Electrical Contractor will provide and install that metal framing.

05 20 00 – Metal Joists

1. MANUFACTURER'S CERTIFICATE of compliance with Steel Joist. Institute Specifications is required.
2. PRIME COAST AND TOUCH-UP PAINTING, complying with SJI Specifications, will be considered adequate for joists, except where subjected to moisture or where exposed to view.

05 30 00 – Metal Decking

1. MANUFACTURER'S CERTIFICATE of compliance with Steel Deck Institute Specifications is required.
2. PRIME COAT AND TOUCH-UP PAINTING will be considered adequate for metal deck, except where subjected to moisture of where exposed to view. Use galvanized metal deck for all roof applications.
3. VENTED METAL DECKING – shall be used, when topped with insulating concrete roof decks.

05 40 00 – Cold-Formed Metal Framing

05 41 00 – Structural Metal Stud Framing

1. COLD-FORMED METAL STUD SYSTEM: "C" shaped load bearing steel studs and furring strips shall be spaced 16 inches on center, maximum. Wind load calculations by a State of Florida registered structural engineer is required for exterior wall application. Wire tying of framing components is not permitted. Use qualified welders and comply with the American Welding Society (AWS).

05 50 00 – Metal Fabrications

1. WELDER CERTIFICATION: The General Contractor or Construction Manager is responsible for obtaining and retaining welder certifications for any person performing on-site welded steel fabrication or erection. The certifications must be current and validated by welding logs or certification test(s) conducted with the last two (2) years.
2. GALVANIZING REQUIREMENTS: All exterior ferrous metals shall be hot-dip galvanized after fabrication.

05 51 19 – Metal Grating Stairs

1. Ferrous grating shall be hot-dip galvanized. Galvanized hardware cloth shall be installed under all areaway grating.

05 52 00 – Handrails and Railings

1. All required handrails shall be designed and installed in conformance with ADA requirements.
2. PBSC preferred material for exterior and interior handrails and guardrails shall be aluminum. Galvanized railing shall not be used on the exterior of buildings.
3. Finish on railings shall be consistent with PBSC Campus standards for consistency and compatibility.
4. Design Professional shall be required to design handrails to discourage skateboarders.
5. Handrails shall be anchored as approved during design review and submission.

05 55 00 – Metal Stair Treads and Nosings

1. STAIR TREADS FOR PUBLIC-ACCESS STAIRWAYS shall be concrete with cast metal nosings.
2. STAIR TREADS AND NOSINGS: Steps shall conform to existing step formulas but shall not have risers that exceed seven (7) inches or treads that exceed eleven (11) inches. Nosings shall not extend past the face of the riser.

06 00 00 – WOOD, PLASTICS and COMPOSITES

06 10 00 – General

1. This section contains the requirements relating generally to wood and plastics used in construction; including rough carpentry, prefabricated structural wood, finish carpentry, wood treatment, architectural woodwork, and plastics.
2. Rough Carpentry.
    - Interior Walls: Metal Framing shall be used for interior wall partitions, as wood framing is not acceptable.
    - Exterior Walls: Wood framing shall not be used in exterior walls.
    - In all Type-I Construction (per NFPA 220) buildings, the use of wood in wall construction is prohibited, with the exception of:
        - Blocking for the installation of cabinets, shelving, and wall hung equipment.
        - Nailing strips for the installation of wood base, chair rails, and crown molding.
    - In all Type-I Construction (per NFPA 220), the use of wood above suspended ceilings is prohibited.
    - Wood utilized as part of a low slope roof membrane system: All wood blocking, nailers, and cant strips shall be pressure treated and certified (with the appropriate stamp) for use in roofing applications.
    - All pressure treated wood shall be certified Arsenic Free.

06 22 00 General

1. This division contains the following elements:
    - Architectural Woodwork.
    - Plastics
2. Elements of this division shall comply with Florida Building Code (FBC) and any other applicable building, fire, or safety codes.
3. Termites, moisture, and heat are factors to be considered in the use, selection, and treating of woods.
4. Deal with environmental issues. Emissions of volatile organic compounds (VOCs) are a concern to PBSC and shall be properly addressed. Adhesives containing formaldehyde or other VOCs are harmful and prohibited from use.
5. Do not specify types of woods coming from rain forest areas of the world or other environmentally sensitive regions.
6. Laminated plastics shall not contain toxic adhesives. Recycled materials are preferred over virgin materials.
7. Oriented strand board and particleboard are not allowed for use.
8. Wood construction shall be limited to miscellaneous blocking, trim, stage and gymnasium flooring and casework.

06 40 00 Architectural Woodwork

1. General requirements: The PBSC objective is to maintain a high degree of flexibility in the arrangement and potential use of all interior spaces. To this end, the use of custom made “built-in” cabinets, desks, book cases, counter tops and

such is to be avoided where ever there is the option of utilizing manufactured products that are moveable and/or relocatable. Where use of built-in furniture is necessary, the design and construction shall be modular and relocatable.

2. Custom Casework:
   - Plastic laminate work shall be A.W.I. “Custom” grade.
   - Fine woodwork and special plastic laminate work shall be A.W.I. “Premium” grade.
   - The use of particleboard in the construction of laboratory casework, or in millwork to be located in wet use areas, is prohibited.
3. Counter Tops:
   - Plastic Laminate Counter Tops:
     - Counter tops shall be a minimum of ¾” plywood with 1/16” general purpose grade high pressure decorative laminate surfacing.
     - Plywood for use in sink cabinets and counter tops shall be minimum AC-EXT-DRPA grade. In all other areas, use minimum AD or AA-INT-DFPA grade.
     - Particleboard is not acceptable for use in the construction of plastic laminate counter tops.
   - Wood Counter Tops: Hardwood as a counter top finish is discouraged and can only be utilized with the approval, on a case-by-case basis.
   - Solid surfacing countertops are PBSC-Preferred for all “wet” locations – bathroom, kitchen, workroom areas.
   - Epoxy countertops shall be used in all science laboratories for chemical/acid resistance.
4. Cabinetwork:
   - General:
     - The design and construction of all cabinetwork shall be a minimum A.W.I. “Custom Grade”, in accordance with the latest edition of the American Woodwork Institute “Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program” guide book.
     - The use of particleboard in the construction of laboratory casework, or in millwork to be located in wet areas, is prohibited.
   - Cabinet and Drawer Hardware:
     - Specify only cabinet hardware that complies with ANSI A156.9, “American National Standards for Cabinet Hardware” and, verify compliance in shop submittals and by inspection of installations.
     - Drawer slides shall be side-mounted type rated for intended use but in no case carrying less than a 100 lb. load rating. File drawer slides shall carry a minimum 150 lb. load rating.
       - Acceptable Manufacturers: Grass America, Stanley, or Blum, Inc.
     - Cabinet hinges shall be flush overlay, concealed self-closing, all metal, 165 degree opening.

        - Acceptable Manufacturers: Grass America, Stanley, or Blum, Inc.
    - Wood cabinet design should use industry standard modules.
    - Comply with accessibility requirements of FBC, program requirements, and ADA.
    - Design and specify architectural woodwork according to Architectural Woodwork Institute (AWI) custom grade standards for quality of labor and materials.
    - Design and detail cabinets, blocking, fasteners, and supports for an assumed load of each shelf stacked to full paper capacity.
        - Provide minimum ¾" thick plywood construction at shelving and shelving divider walls at intervals not to exceed 3 feet on center.
        - Provide minimum 1" thick plywood construction at shelving and shelving divider walls at intervals exceeding 3 feet on center.

06 41 00 – Interior Architectural Woodwork

1. Cabinets
    - PBSC preferred shop fabricated casework material shall be ¾" multi-ply cabinet grade hardwood plywood. Particleboard and hard board shall not be allowed in the construction of cabinets. AWI premium-grade Medium Density Fiberboard (MDF) may be considered for substitution upon submission of samples and approval of PBSC Facilities Planning. Base cabinets and countertops in wet areas shall use marine grade plywood substrates.
    - Backing in walls for cabinets shall be appropriate for application.
        - PBSC preferred backing material is ¾" or 1-1/2" pressure treated wood.
    - All required door and drawer locks shall be keyed alike within the same area. Locking mechanisms shall be coordinated with College Locksmith.
    - In typical restroom applications, PBSC preferred countertop finish shall be ¾" solid surfacing, premium color finish with minimum 4" backsplash, all edges eased. PBSC preferred solid surfacing material shall be WIlsonArt Gibraltar. Countertops with lavatories are also preferred in solid surfacing – typical oval lavatory shape in standard color – white, cream or gray for lavatories only as applicable.
    - Hinge hardware, locks, and concealed hardware shall be standardized as follows:
        - All hinges for cabinet doors shall be institutional, heavy duty, concealed "European: style fully adjustable hinges.
        - All drawer slides shall be heavy duty, full extension, stainless steel/ball bearing units. PBSC preferred manufacturers are Knapp & Vogt and Blum.
        - Drawer and doors locks are preferred to be Schlage, keyed to classroom or office keyway.

06 41 16

- Plastic laminate shall conform to NFPA, UL, and NEMA LD3-1993 for high pressure laminate.
- Plastic laminate use and minimum material thicknesses shall be as follows:
    - **0.050”** – Exposed surfaces and edges of drawer fronts, door fronts, counter tops, backsplash, and all other remaining exposed exterior horizontal and vertical surfaces.
    - **0.027”** – Exposed interior surfaces of door backs, cabinet sides, backs, and shelving and all other remaining exposed interior horizontal and vertical surfaces.

07 00 00 – THERMAL AND MOISTURE PROTECTION

07 10 00 – Dampproofing and Waterproofing

1. Provide the appropriate damp proofing or waterproofing at all areas, as may be required to eliminate water intrusion into the building interiors or building areas.
2. Provide waterproofing protection at floors and walls below grade to prevent water infiltration to the building interior caused by hydrostatic pressure or other water conditions.
3. Exterior surfaces of walls constructed below finish grade shall be waterproofed, not damp proofed. Walls with stone or brick veneer constructed below grade shall have the cavities grouted to a line approximately 12 inches above finish grade. Flashing and weeps shall be installed to approximately 12 inches above finish grade. Attention should be paid to termination of below grade waterproofing and its incorporation into the building envelope.
4. Bentonite panel waterproofing and accessory products or approved equal shall be used for positive side below grade applications where hydro static pressure is suspected such as elevator pits.
5. Provide modified bituminous sheet waterproofing at the inside face of planter walls or planter floors where the outside face is exposed or part of a finished wall or ceiling assembly.
6. At concrete covered walkways, canopies use accepted fluid applied waterproofing systems with stainless steel edge drips and fabric reinforcement or other accepted roofing systems complying with roofing requirements.
7. Provide waterproofing below wet area floor tiles on all slabs above ground floors.
8. Provide waterproofing at other areas, as may be required to eliminate water intrusion into building or building areas.

07 11 00 – Dampproofing – Above grade wall surfaces that are concealed by masonry wall panels shall be damp proofed or water proofed to resist water intrusion. The type of material to be used depends on the condition and the amount of water intrusion anticipated. A brushed on coat of bituminous paint may be adequate for slight dampness or for more severe cases a Modified Bitumen Sheet waterproofing for above grade applications would be more appropriate.

07 12 00 – Built-Up Bituminous Waterproofing - Reserved.

07 13 00 – Sheet Waterproofing

07 13 13 – Bituminous Sheet Waterproofing

1. PBSC-Preferred - modified bituminous self adhering type.

07 13 26 – Self-Adhering Sheet Waterproofing

1. PBSC-Preferred modified bituminous sheet waterproofing.

07 13 52 – Modified Bituminous Sheet Waterproofing

1. Preferred modified bituminous self adhering type.

07 13 53 – Elastomeric Sheet Waterproofing – Not typically used

07 13 54 – Thermoplastic Sheet Waterproofing – Not typically used

07 14 00 – Fluid – Applied Waterproofing

07 14 13 – Hot Fluid-Applied Rubberized Asphalt Waterproofing

07 14 16 – Cold Fluid-Applied Waterproofing

1. Used where metal flashing is not practical. PBSC prefers Hydro Stop waterproofing or approved equal.

07 17 00 – Bentonite Waterproofing

1. Preferred for below grade applications such as elevator pits or where hydro static pressure is suspected.

07 17 13 – Bentonite Panel Waterproofing

07 17 16 – Bentonite Composite Sheet Waterproofing

07 18 00 – Traffic Coatings - Reserved.

07 19 00 – Water Repellents - Reserved.

07 20 00 – Thermal Protection - Reserved

07 21 00 – Thermal Insulation

1. Insulation materials shall comply with the Florida Building Code and ASHRAE 90.1. Additional insulation or improved thermal performance materials and systems may be required to achieve energy efficiency goals associated with LEED certification requirements.
2. Design the thermal insulation system to fully protect the building's envelope, including under-building slab areas which are elevated above ground with ground floor parking underneath. Evaluate for appropriate insulation type for differing conditions within same plan.
3. At reroofing projects, coordinate insulation installation with FPL roofing insulation rebate program when applicable.
4. Accepted thermal wall insulation materials include:
    - Plastic rigid foam board wall insulation such as EPS (expanded polystyrene) or Polyisco (Polyisocyanurate) are acceptable depending on particular application. Preferred manufacturers are Dow Corning, and Celotex.
    - According to the Florida Building Code (FBC), Latest Edition, foam plastic insulation requires separation from the building interior by a thermal barrier or unpainted finished ½" gypsum wallboard or accepted equivalent. Lay-in ceilings do not qualify as an accepted thermal barrier.
    - Un-faced fiber of fiberglass blanket insulation between wall furring.
    - Other insulation materials or methods at locations where blanket or board insulation can be used if accepted by PBSC Building Department on a per condition basis.
    - Fiber glass insulation shall not be used in plenum ceiling or inside duct work as lining.
    - Foamed in-place insulation, in-core Styrofoam inserts, or loose fill insulation at concrete block cores are not allowed.

5. Accepted roofing insulation materials include:
   - On lightweight concrete roofing applications PBSC prefers EPS (expanded polystyrene) insulation such as Holey-Board or approved equal.
   - Glass fiberboard roof insulation permanently bonded to fiberglass roofing felt facer sheets can be used on a limited basis with PBSC Building Department Approval.
   - Lightweight insulating concrete according to Division 3.
   - HCFC isocyanurate foam board insulation permanently bonded to roofing felt facer sheets.
   - Perlite is not allowed. Use a glass faced gypsum roof board such as DensDeck Prime® Roof Board or approved equal as a recover or overlayment board.
   - Particle board, wood fiber, fire treated wood or wood composite boards shall not be used in any roofing assembly.
6. LEED-Certified Facilities: Certain PBSC facilities will be designed and constructed according to Leadership in Energy and Environmental Design (LEED) criteria, including all newly constructed facilities. Generally, the roof system designs for these facilities will require reflective surfacing materials that comply with Energy Star guidelines to allow the systems to qualify for LEED credits.

07 21 13 – Board Insulation - Reserved

07 21 16 – Blanket Insulation

1. Fiberglass insulation shall not be installed where it is exposed to airflow for the HVAC system.

07 21 19 – Foamed-in-Place Insulation

07 21 23 – Loose-Fill Insulation

1. Foamed in-place insulation, in-core Styrofoam inserts, or loose fill insulation at concrete block cores are not allowed.

07 21 29 – Sprayed Insulation – Not typically used, use only on approval of PBSC Facilities Planning and Construction.

07 22 00 – Roof and Deck Insulation

07 22 13 – Asphaltic Perlite Concrete Deck – Not used

07 22 16 – Roof Board Insulation – See 07 21 00 (5) above.

07 24 00 – Exterior Insulation and Finish Systems

1. **Any finishing material on internal walls that creates a vapor barrier shall not be used.**
2. The use of Exterior Insulated and Finish Systems (EIFS) shall not be used as components of exterior walls. EIFS materials may only be used to repair existing EIFS systems.

07 25 00 – Weather Barriers - Reserved

07 26 00 – Vapor Retarders - Reserved

07 27 00 – Air Barriers

1. Air and vapor barriers shall be detailed, specified and installed so that condensation will not occur within the wall assembly.
2. Air barrier system performance standards shall be consistent with those established by the Air Barrier Association of America (ABAA), www.airbarrier.org

07 30 00 – Steep Slope Roofing - Reserved

07 30 91 – Canvas Roofing – may be used only in limited applications with approval of PBSC Facilities Planning primarily for sun shading or weather protection, should not be considered as a permanent building material/solution, and must meet all Code requirements.

07 31 00 – Shingles and Shakes – Seldom used except in special applications. Refer to Project Program (Educational Specifications) for scope of work.

1. The asphalt roofing shingles as well as all accessories and appurtenances shall comprise the "Roofing System" and shall be part of a single source warranty.
   - Roofing system shall be part of a single source warranty and meet all required FBC Product Approval System.
2. Approved Source Manufacturers: Provide one of the following asphalt shingle roofing systems, modified to meet the characteristics specified herein if required:
   - ELK Corporation: Prestique I
   - GAF: Timberline Series
   - Owens Corning: Duration Series
   - Other pre-approved manufacturer
3. Materials:
   - Underlayment: Non-perforated 30# asphalt saturated felt, ASTM D226.
4. Approvals: Roofing system must meet current FBC Product Approval System in compliance with ASCE 7 wind requirements for the roofing system.

07 32 00 – Roof Tiles - Not typically used, only with approval of PBSC Facilities Planning.

07 33 00 – Natural Roof Coverings - Not typically used, only with approval of PBSC Facilities Planning.

07 40 00 – Roofing and Siding Panels - Not typically used, only with approval of PBSC Facilities Planning.

07 41 00 – Roof Panels - Not typically used, only with approval of PBSC Facilities Planning.

07 42 00 – Wall Panels - Not typically used, only with approval of PBSC Facilities Planning.

07 44 00 – Faced Panels - Not typically used, only with approval of PBSC Facilities Planning.

07 46 00 – Siding - Not typically used, only with approval of PBSC Facilities Planning.

07 50 00 – Membrane Roofing

1. Approved Roofing Materials
   - The selection of roofing materials shall be limited to those manufacturers with a 15-year history of satisfactory manufacture and installation of at least 250,000 squares of their roof system, and who provide a minimum no dollar limit 20-year unlimited warranty/guarantee for labor and materials, including metal finishes. Standard for comparison shall be JM (John Mansville) 4PLD or equivalent.
2. Membrane system manufacturers: Acceptable manufacturers include:
   - Johns Manville
   - Polyglass USA Inc.
   - Mule-Hide Products Inc.
   - Soprema

   Other manufacturers may be added during design with prior written approval from the PBSC Facilities Planning and Construction Department.
3. Roofing Felts to be used in renovations and/or new installation of roofs shall be fiberglass felts only.
4. Roofing Vents shall be aluminum one- way type. Polyethylene type vents are not acceptable.
5. A minimum roof slope of ¼" per foot is required on all new construction and re-roofing projects.
6. The Contractor shall install a 2 foot square (Preferred) or 2 foot radius sump around all roof drains.

07 51 00 – Built-Up Bituminous Roofing

1. Where built-up roofing systems are specified, four ply systems are required. Single ply membrane systems are prohibited.

07 51 13 – Built-Up Asphalt Roofing

1. The use of gravel or slag surfacing or loose stone ballast is prohibited.

07 51 13. 13 – Cold-Applied Built Up Asphalt Roofing - Not typically used, only with approval of PBSC Facilities Planning.

07 51 16 – Built-Up Coal Tar Roofing - Not typically used, only with approval of PBSC Facilities Planning.

07 51 23 – Glass-Fiber-Reinforced Asphalt Emulsion Roofing - Not typically used, only with approval of PBSC Facilities Planning.

07 52 00 – Modified Bituminous Membrane Roofing – PBSC-preferred flat roof system.

1. Consisting of a minimum of a four-ply modified bitumen membrane system (one mechanically fastened base sheet, two modified bituminous interplay sheets, and one modified bituminous cap sheet). Two ply base flashing is a part of the system and shall match the field membrane material. The following application methods may be used:

- Hot mopped asphalt
- Torch application – can be used on a limited application with PBSC building department approval.
- Cold adhesive, cold process, or self adhering.

07 52 13 – Atactic-Polypropylene-Modified Bituminous Membrane Roofing
07 52 16 – Styrene-Butadiene-Styrene Modified Bituminous Membrane Roofing
07 52 19 – Self-Adhering Modified Bituminous Membrane Roofing

1. PBSC preferred vendors are:
   - Polyglass USA Inc.
   - Mule-Hide Products Inc.

07 53 00 – Elastomeric Membrane Roofing – Not Used

07 54 00 – Thermoplastic Membrane Roofing - Not typically used, only with approval of PBSC Facilities Planning.

07 55 00 – Protected Membrane Roofing - Not typically used, only with approval of PBSC Facilities Planning.

07 56 00 – Fluid-Applied Roofing - Not typically used, only with approval of PBSC Facilities Planning.

07 57 00 – Coated Foamed Roofing - Not typically used, only with approval of PBSC Facilities Planning.

07 58 00 – Roll Roofing - Not typically used, only with approval of PBSC Facilities Planning.

07 60 00 – Flashing and Sheet Metal

07 61 00 – Sheet Metal Roofing

1. Metal Roofs may be used for special conditions with prior written approval from the PBSC Facilities Planning Project Manager. Metal roofs shall have true standing seams with concealed clips and fasteners and a high performance coating. The use of panels with exposed fasteners is discouraged. Design and construction of longer panels must accommodate expansion and contraction. Flashings shall be isolated from copper flashings required by other sections of this specification.

07 61 13 – Standing Seam Sheet Metal Roofing

1. Preferred Metal Roof with concealed clips and fasteners and a high performance coating.

07 61 16 – Batten Seam Sheet Metal Roofing
07 61 19 – Flat Seam Sheet Metal Roofing

07 62 00 – Sheet Metal Flashing and Trim

1. Metal Flashing and Trim shall be anchored to meet ASCE-7-05 and shall be constructed of aluminum, copper or stainless steel only. Stainless Steel is preferred.
2. Plastic or galvanized material is not permitted.
3. Coordinate with PBSC Facilities to specifying painting.

07 65 00 – Flexible Flashing

07 65 13 – Laminated Sheet Flashing – Not used.
07 65 16 – Modified Bituminous Sheet Flashing – Acceptable
07 65 19 – Plastic Sheet Flashing – Prohibited
07 65 23 – Rubber Sheet Flashing – Prohibited
07 65 26 – Self-Adhering Sheet Flashing – Preferred modified bituminous.

07 70 00 – Roof and Wall Specialties and Accessories

07 71 00 – Roof Specialties

07 71 13 – Manufactured Copings

1. All new copings shall be 24 gauge stainless steel with 22 gauge clips.
2. All coping systems shall be engineered and anchored to meet ASCE-7-05.
3. Copings shall have outer hold-down cleats as follows:
   - Provide hold-down cleats on both sides of a parapet or wall where copings are visible from building exterior.
   - Hold-down cleats can be used on the outside face of the coping only and the interior roof side face of the coping face fastened with stainless steel fasteners.
4. Slope top of parapets down to interior face towards the roof top.
5. Roof membrane flashing shall wrap the top of the parapet, and be covered by a stainless steel coping cap.
6. Stucco is not an acceptable material for copings.
7. Parapet walls shall be minimum height of 18 inches above the finished roof deck unless accepted by PBSC on a per condition basis. Parapets over 18 inches shall be flashed according to reroofing procedures.

07 71 16 – Manufactured Counterflashing Systems

1. Counterflashing shall be two-piece with the receiver attached into the wall. Stop the wall finish above the counterflashing receiver.
2. Existing buildings may require a surface applied reglet to be fastened to the existing wall construction. Where surface mounted flashings are necessary provide double flashing, one installed over the other.

07 71 19 – Manufactured Gravel Stops and Fascias - Reserved

07 71 23 – Manufactured Gutters and Downspouts

1. Gutters and downspouts shall be constructed of stainless steel only. Plastic or galvanized material is not permitted.
2. All roofs that slope to edge of buildings shall have gutters and downspouts.
3. Gutters shall be sized based on drainage calculations. At a minimum, the width shall be 6”, with anchors 16” on center slope 1/8” per foot. Long gutter lengths shall have expansion joints.

4. Downspouts shall be sized based on drainage calculations. Mount at least 1" out from the building wall. Provide brass or stainless steel hardware cloth strainers at the top and splash blocks or underground drainage at the bottom. Water from downspouts shall not be directed into the roof drainage system except through roof drains. Provide access to allow for cleaning of downspout/underground connection.

07 71 26 – Reglets – Not used, not preferred, use only with approval of PBSC Facilities Planning and Construction.

1. Provide surface mounted reglets only.

07 71 29 – Manufactured Roof Expansion Joints

1. Roof expansion shall be carefully considered, especially in membrane roofs. Locate membrane joints above plane of roof, with copper or stainless steel expansion cover instead of bellows type covers. Detail termination of expansion joints carefully. Structural expansion joints occurring in new construction shall be located at high points in the structure or roof insulation to the maximum extent practicable to allow water to flow away from them on the roof surface. Under no circumstances are expansion joints to be placed such that roof water must flow across them to reach drains.

07 71 33 – Manufactured Scuppers

1. Architects shall provide large scale construction details for scuppers indicating all flashing clearly in conformance with current SMACNA industry standards and specifically coordinated to the roof system.

07 72 00 – Roof Accessories

07 72 13 – Manufactured Curbs

1. Roof curbs and roof top equipment shall be shown on roof plans. Coordinate location of fully enclosed curbs and roof penetrations for rooftop equipment with roof plan and division specifying equipment.
2. Roof Curbs shall be 12" above the adjacent roof surface and a minimum distance of 16" from a wall or parapet to allow for proper flashing.
3. For roof-mounted equipment PBSC prefers pre-manufactured roof curbs compatible with equipment requiring product approval.
    - Roof-Mounted equipment is not acceptable if other locations for placement can be found. All roof-mounted equipment shall be provided with roof surface walkway access rated for the heaviest piece of removable equipment to allow ease of maintenance and minimize roof surface damage. If necessitated by design, roof-mounted equipment shall be consolidated to minimize number of roof penetrations.
4. All roof-mounted equipment when approved, including skylights, shall be set on curbs, and attached to resist area wind loads.
    - Flat skylights are not allowed.
    - Skylights are typically discouraged and should only be designed and specified after approval of PBSC Facilities Planning.
5. Roof-mounted antennae and satellite/cellular dishes, lightning protection anchorage, lab equipment and exhaust fans, or scientific devices shall be located in areas specifically designed for that purpose. Roof loads, walking

surfaces, anchoring devices, mounting pads, equipment stands, curbs, or utility needs shall be designed and provided using appropriate details, adapted as required, from the NRCA Roofing and Waterproofing Manual and will meet ASCE-7-05 wind load requirements. The number of roof penetrations shall be kept to a minimum.

6. Pitch Pockets.
    - Stainless steel pitch pockets including case urethane curbs with pourable sealers or urethane coatings with reinforcing fabrics may be used provided they are installed according to the manufacturer's written recommendations and specifically included in the roof membrane manufacturer's warranty.

07 72 23 – Relief Vents - Reserved

07 72 26 – Ridge Vents - Reserved

07 72 33 – Roof Hatches

1. Access Ladders to the roof shall have safety poles such as "Ladder Up" by Bilco Company or approved equal.
2. Roof Hatches shall be lockable from the inside.
3. Roof hatches and access door thresholds shall be 12" above the adjacent roof surface. An acceptable walking surface shall be installed immediately adjacent to the roof hatch or outside the access door threshold on the roof system.
4. Handrails may be required to meet the OSHA requirements.

07 72 36 – Smoke Vents

1. Shall have product approval and meet the requirements of ASCE-7-05

07 72 43 – Roof Walk Boards - Reserved

07 72 46 – Roof Walkways

1. Provide walk pads from roof access to all roof-mounted equipment. Pads shall extend around each piece of equipment, wide enough for workmen to lay out tools and work. Pads shall be compatible with the roof membrane systems.

07 76 00 – Roof Pavers - Reserved

07 80 00 – Fire and Smoke Protection - Reserved

07 81 00 – Applied Fireproofing

1. Fireproofing and fire stopping methods shall be UL approved and shown with UL listings on construction documents.
2. Interior steel structural surfaces requiring fireproofing shall receive non-fibered spray applied fire resistive materials.
3. Specify fire resistive sealers at all penetrations through fire rated assemblies as required by applicable codes.

07 82 00 – Board Fireproofing – Used only in specific applications for conformance with Code requirements.

07 84 00 – Firestopping

1. Firestopping materials shall have Underwriters Laboratory (UL) ratings consistent with the rating of the wall or floor system. Comply with ASTM E-814, "Standard Method of Fire Tests of Through Penetration Fire Stops". Penetration details shall be approved by UL or other approval agency and shown on drawings.
2. Expandable polyurethane foam is not acceptable for sealing penetrations through rated assemblies.

07 84 53 – Building Perimeter Firestopping - Used only in specific applications for conformance with Code requirements.

07 84 56 – Fire Safing - Used only in specific applications for conformance with Code requirements.

07 86 00 – Smoke Seals Used only in specific applications for conformance with Code requirements.

07 87 00 – Smoke Containment Barriers - Used only in specific applications for conformance with Code requirements.

07 90 00 – Joint Protection - Used only in specific applications for conformance with Code requirements.

07 91 00 – Preformed Joint Seals - Reserved

07 92 00 – Joint Sealants - Reserved

07 95 00 – Expansion Control - Reserved

08 00 00 – OPENINGS

08 10 00 – Doors and Frames

08 11 00 – Metal Doors and Frames

1. Typical exterior doors – General:
   - PBSC preferred materials for exterior doors and frames shall be **Aluminum**.
   - The Design Professional shall place exterior doors under an overhang without direct exposure to driving rain.
   - Typical standard door shall be 3'-0" x 7'-0" unless written approval is given by the College.
   - All door jambs shall be prepared for LCN door closers with a minimum thickness of 3/8" backing of same material as door jamb. ¼-20 fasteners are to be minimum ¾" in length.
   - Where fasteners for door jamb are exposed, they must have a minimum backer thickness of 3/8" so that counter sinking can be accomplished.
   - Anchoring for doors shall be double.
2. Exterior flush metal door – Applications:
   - PBSC preferred exterior door construction shall be of aluminum equal to Cline or ALUTEC dark bronze color.
   - Hollow metal doors and frames may be permitted only when approved for application by PBSC Facilities Planning. Exterior hollow metal door frames where approved shall be 14 ga.
   - Design Professional shall verify requirements for "impact resistant" construction with PBSC Building Department. PCR FAC 92B
   - Design Professional shall specify complete units including frames, door and glazing using product tested components only.
   - Exterior openings requiring fire-rated doors and frames shall be noted by the Design Professional and coordinated with PBSC Facilities Planning for appropriate materials.

08 11 13 – Hollow Metal Doors and Frames

08 11 13.13 – Standard Hollow Metal Doors and Frames

- Limited usage for project-specific applications, only with approval of PBSC Facilities Planning.
- NOTE: Typical "interior" doors for equipment, storage, custodial, etc., are SC wood unless otherwise required.

08 11 13.16 – Custom Hollow Metal Doors and Frames

- Custom "wood grained" HM fire doors are used on special applications with approval of PBSC Facilities Planning.

08 11 16 – Aluminum Doors and Frames

- **PBSC preferred** application for exterior doors and frames.

08 12 00 – Metal Frames

08 12 13 – Hollow Metal Frames

- when approved for exterior use, use heavy 14 gauge frames.
- Typical interior HM door frames shall be 16 ga.

08 12 13.13. – Standard Hollow Metal Frames – Not typically used.

08 12 13.53 – Custom Hollow Metal Frames – Not typically used

08 12 16 – Aluminum Frames – **PBSC preferred** application with aluminum doors.

08 13 00 – Metal Doors

08 13 13 – Hollow Metal Doors – see notes above.

08 13 16 – Aluminum Doors – See notes above

08 14 00 – Wood Doors

1. Typical interior doors shall be 5-ply industrial quality or medium density fiberboard doors with rift-sawn Red Oak veneer face, solid Red Oak hardwood vertical stiles, top and bottom rails. PBSC preferred finish for natural red oak doors shall be clear finish unless otherwise noted.
2. Standard interior wood door size shall be 3'-0" x 7"-0" x 1-3/4".
3. Standard interior door frame shall be 16 Ga. hollow metal, labeled and rated for one hours opening C-Label (20 min.). All door frames shall be painted. Other required rated opening shall match frame/door rating to opening requirement.
4. The Design Professional shall specify doors on all Electric, Data and Telephone Rooms swinging out.
5. Vision lites – Typical student occupied spaces including, but not limited to classrooms, Faculty offices and student services areas shall have vision lites in all doors unless otherwise specified by PBSC.
   - PBSC preferred vision lite shall be clear glazing, rated if required using wire glass or "Firelite".
   - PBSC preferred vision lite size is 6" wide x 34" high, located 5" from lock rail and 5" from top of door.

08 14 16 – Flush Wood Doors – typical PBSC application, see notes above

08 14 23 – Clad Wood Doors – Not typically used.

08 15 00 – Plastic Doors – Not used.

08 16 00 – Composite Doors - Not used.

08 30 00 – Specialty Doors and Frames – Not typically used, refer to project specific requirements in program (Ed Specs).

08 31 00 – Access Doors and Panels

1. All access panels in hard ceilings shall be (keyed), and a minimum of 2' x 2' in size.
2. Access doors shall be flush mounted, constructed of steel and painted to match adjacent surface.

3. Access doors shall be located at valves, switches, equipment, etc. to allow access in first 4' x 2' section. If required, a suitable maintenance catwalk shall be installed.

08 32 00 – Sliding Glass Doors - Not typically used.
08 32 13 – Sliding Aluminum-Framed Glass Doors - Not typically used.
08 32 16 – Sliding Plastic-Framed Glass Doors - Not used.
08 32 19 – Sliding Wood-Framed Glass Doors - Not used.

08 33 00 – Coiling Doors and Grilles - Not typically used, refer to project specific requirements in program (Ed Specs).
08 33 13 – Coiling Counter Doors - Not typically used, refer to project specific requirements in program (Ed Specs), typical only at fire-rated openings.
08 33 16 – Coiling Counter Grilles - Not typically used, refer to project specific requirements in program (Ed Specs).
08 33 23 – Overhead Coiling Doors - Not typically used, refer to project specific requirements in program (Ed Specs). Applications are typically for ancillary or auxiliary uses, including warehouse, garage, or vocational program requirements.
08 33 26 – Overhead Coiling Grilles – Not typically used
08 33 33 – Side Coiling Doors – Not used.
08 33 36 – Side Coiling Grilles – Not used.

08 34 00 – Special Function Doors
08 34 36 – Darkroom Doors - Not typically used, refer to project specific requirements in program (Ed Specs).
08 34 49 – Radiation Shielding Doors and Frames - Not typically used, refer to project specific requirements in program (Ed Specs).
08 34 53 – Security Doors and Frames - Not typically used, refer to project specific requirements in program (Ed Specs).
08 34 56 – Security Gates – used for campus security and vehicular controls, refer to project specific requirements in program (Ed Specs).
08 34 59 – Vault Doors and Day Gates – Not typically used
08 34 73 – Sound Control Door Assemblies - Not typically used, refer to project specific requirements in program (Ed Specs).

08 35 00 – Folding Doors and Grilles
08 35 13 – Folding Doors
08 35 13.13 – Accordion Folding Doors - Not typically used, refer to project specific requirements in program (Ed Specs).
08 35 13.23 – Folding Fire Doors – Not used.
08 35 13.33 – Panel Folding Doors – Not used.

08 36 00 – Panel Doors – Not used.

08 38 00 – Traffic Doors – Not used.

08 39 00 – Pressure-Resistant Doors - Not typically used, refer to project specific requirements in program (Ed Specs), including all of the following:

08 39 13 – Airtight Doors
08 39 19 – Watertight Doors
08 39 53 – Blast-Resistant Doors

08 40 00 – Entrances, Storefronts, and Curtain Walls

08 41 00 – Entrances and Storefronts

1. Typical PBSC preferred door shall be tubular aluminum "wide stile", including mid-rail.
2. Glazing shall be tempered or impact resistant at all door locations.
3. PBSC preferred glazing color shall be Bronze in areas not directly exposed to sunlight and Bronze Solarcool in exposed areas.

08 41 13 – Aluminum-Framed Entrances and Storefronts – PBSC preferred
08 41 19 – Stainless-Steel-Framed Entrances and Storefronts – Not typically used.
08 41 23 – Steel-Framed Entrances and Storefronts – Not used.
08 41 26 – All-Glass Entrances and Storefronts – Not used without approval of PBSC Facilities Planning.

08 42 00 – Entrances

08 42 26 – All-Glass Entrances - Not used without approval of PBSC Facilities Planning.
08 42 29 – Automatic Entrances

1. Coordinate location and number of power-assisted doors with PBSC Facilities Planning, prior to specifying. ADA requirements do not mandate power-assisted doors.
2. The Design Professional shall place doors under an overhang without direct exposure to driving rain.
3. Automatic doors shall comply with ANSI/BHMA A156.10 – most recent edition.
4. Power-Assisted Doors and Low-Energy Power-Operated Doors shall comply with ANSI/BHMA 156.19 – more recent edition. Such doors shall not open to back check faster than 3 seconds and shall require no more than 15 pounds to stop door movement.
5. Doors shall be actuated by the approved signaling device as determined by the door application and as approved by the College.
    - PBSC preferred signaling device for "automatic sliding doors" is infrared sensor. Electric actuated, wall mounted switches are preferred for "swing doors". Pedestal switches are acceptable when approved by PBSC Facilities Planning.
    - Verify all locations for switches and range of motion with PBSC prior to specifying.
    - Walkpad actuated doors are the least preferred signaling device.
6. PBSC preferred "swing" door closers shall be LCN 4041 (fire-rated).

08 42 29.13 – Folding Automatic Entrances – Not used.
08 42 29.23 – Sliding Automatic Entrances – Not typically used.
08 42 29.33 – Swinging Automatic Entrances – **PBSC preferred** application.
08 42 33 – Revolving Door Entrances – Not used.
08 42 36 – Balanced Door Entrances – Not used.

08 43 00 – Storefronts
08 43 13 – Aluminum-Framed Storefronts – **PBSC preferred** application.
08 43 19 – Stainless-Steel-Framed Storefronts – Not typically used.
08 43 23 – Steel-Framed Storefronts – Not used.
08 43 26 – All-Glass Storefronts – Not used without approval of PBSC Facilities Planning.
08 43 29 – Sliding Storefronts – Not used.

08 44 00 – Curtain Wall and Glazed Assemblies
08 44 13 – Glazed Aluminum Curtain Walls – Not typically used.
08 44 19 – Glazed Stainless-Steel Curtain Walls – Not typically used.
08 44 26 – Structural Glass Curtain Walls – Not used.
08 44 33 – Sloped Glazing Assemblies – Not typically used, design applications discouraged without prior approval of PBSC Facilities Planning.

08 45 00 – Translucent Wall and Roof Assemblies Not used without approval of PBSC Facilities Planning.

08 50 00 – Windows
- Typical PBSC applications are for “fixed glass”, aluminum-framed windows.
- Operable windows are discouraged except in special egress required openings.
- All new window frame and glazing construction shall be “impact resistant” in compliance with Code requirements.
- Refer to 08 80 00 for glazing recommendations

08 51 00 – Metal Windows
08 51 13 – Aluminum Windows
1. PBSC preferred application – aluminum framed fixed glass windows.
2. Aluminum windows shall be wind and impact rated with product approvals.

08 51 19 – Stainless-Steel Windows – Not used.
08 51 23 – Steel Windows – Not used.
08 51 66 – Metal Window Screens – Not used.
08 51 69 – Metal Storm Windows – Not used.

08 52 00 – Wood Windows – Not used.

08 53 00 – Plastic Windows – Not used.

08 54 00 – Composite Windows – Not used.

08 55 00 – Pressure-Resistant Windows – Typically, all new window installations are “pressure/impact resistant” in compliance with Code requirements.

08 56 00 – Special Function Windows - Not typically used, refer to project specific requirements in program (Ed Specs), including all of the following:

08 56 19 – Pass Windows
08 56 49 – Radiation Shielding Windows
08 56 59 – Service and Teller Window Units

08 60 00 – Roof Windows and Skylights – See notes below

08 61 00 – Roof Windows – Not used.

08 62 00 – Unit Skylights

1. Skylights are discouraged except in special project applications as approved by PBSC Facilities Planning.
2. PBSC prefers no skylights over conditioned interior spaces.
3. Where skylights are planned, they must be double-insulated type and be impact and wind rated with an NOA.
4. Glazing materials for skylights shall be glass or plastic.

08 63 00 – Metal-Framed Skylights – If used, **PBSC preferred** applications include metal (Aluminum) framed skylight units with integral curbs and flashing.

08 64 00 – Plastic-Framed Skylights - Not used.

08 67 00 – Skylight Protection and Screens – Not used.

08 70 00 – Hardware – Refer to sections below.

08 71 00 – Door Hardware

1. Locks and Key Systems
    - All door locks shall be manufactured by Schlage (sole source item approved by District Board of Trustees):
        - Classroom Functions & Offices with General Student Body Access: Series D-70PD 626 – 6 pins.
        - Office Function: Series D-53PD 626 – 6 pins.
        - Mechanical/Storage/Custodian Storeroom Function: Series D-80PD 626 – 6 pins.
        - Privacy Function for Single User Rest Rooms: Series D-40PD 626 – 6 pins.
        - Passage Function for Non-Secured Areas: Series D-10D 626 – 6 pins.
        - Multitude Occupied Rest Room Function: Series DB-663P 626 – 6 pins.
    - All locks shall be master keyed to existing master key system at PBSC and construction keyed. Substitutes may **not** be made by the Contractor or Design Professional.

- BITTING:
  - Submit factory proposed key cut numbers to Owner for approval. Submit this confidential information directly to Owner from hardware manufacturers through the hardware supplier.
  - List door numbers on bitting sheet opposite each bitting number in accordance with the following example:

Dr#	Room#	Description	GGMK	GMK	MK	Chg.	Key	Bitting
105	20	Classroom	Yes		A	AA	35	723146

  - Deliver to Owner, through the Owner's authorized representative, cut and blank keys, factory bitting list and Construction Key used on the project in Contractor's possession at time of project acceptance.
  - Stamp Keys, cut or blank, with the words **"DO NOT DUPLICATE"** unless otherwise directed.
  - Project shall remain in Grand Master Key (GMK) system until accepted by Owner. The Contractor shall "knock-out" GMK system when so directed by the Project Design Professional. Perform "knock-out" in presence of the Owner's representative.

2. Panic Hardware/Other Door Hardware
   - Exterior doors shall have stainless steel hardware and ball bearing hinges.
   - Offset "pivot" hinges are not used.
   - All panic hardware shall be Von Duprin 620 Stainless Steel or Aluminum.
   - Push plates and kick plates shall be stainless steel.
   - Door closers shall be manufactured by L.C.N. commercial grade, and be recommended by manufacturer for the type and installation where they are to be used. Concealed and floor mounted closers will **not** be accepted.
     - Type 4040 for doors 40" wide or greater, and over 7'6" in height.
     - Type 4041 for doors 40" wide or less, and up to 7'6" in height, plus all automatic swing doors.
   - Security guard plates are to be installed on all exterior doors where single exterior doors are specified. Security guard plates must be compatible with door and frame specified.
   - Window lites shall be installed in all interior and exterior faculty office doors.
3. Hardware Substitutes
   - Substitutes cannot be made by the Contractor or the Design Professional without written approval of the Director of Physical Plant and the Manager of Facilities Planning.

08 71 13 – Automatic Door Operators

- Coordinate location and number of power-assisted doors with PBSC Facilities Planning, prior to specifying. ADA requirements do not mandate power-assisted doors.
- The Design Professional shall place doors under an overhang without direct exposure to driving rain.
- Automatic doors shall comply with ANSI/BHMA A156.10 – most recent edition.
- Power-Assisted Doors and Low-Energy Power-Operated Doors shall comply with ANSI/BHMA 156.19 – more recent edition. Such doors shall not open to back check faster than 3 seconds and shall require no more than 15 pounds to stop door movement.
- Doors shall be actuated by the approved signaling device as determined by the door application and as approved by the College.
    - PBSC preferred signaling device for "automatic sliding doors" is infrared sensor. Electric actuated, wall mounted switches are preferred for "swing doors". Pedestal switches are acceptable when approved by PBSC Facilities Planning.
    - Verify all locations for switches and range of motion with PBSC prior to specifying.
    - Walkpad actuated doors are the least preferred signaling device.

7. PBSC preferred "swing" door closers shall be LCN 4041 (fire-rated).

08 74 00 – Access Control Hardware - Not typically used, refer to project specific requirements in program (Ed Specs), including all of the following:

08 74 13 – Card Key Access Control Hardware
08 74 16 – Keypad Access Control Hardware
08 74 19 – Biometric Identity Access Control Hardware

08 75 00 – Window Hardware – Not used, all typical window applications are "fixed glazing", except special purpose egress openings.

08 80 00 – Glazing

1. The Design Professional shall not rely on water sealants to prevent water intrusion at windows.
2. The Design Professional shall not locate window or accent glass in areas that are inaccessible from inside or outside.
3. Where buildings have direct exposure to the sunlight, windows shall be either tinted or reflective to provide maximum energy efficiency with fixed sash.
4. All exterior windows shall have aluminum frames with stainless steel hardware.
5. Insulating glass separators to be same color/finish as frames.

08 81 00 – Glass and Glazing

1. Design Professional shall consider building orientation, energy conservation, LEED requirements and impact resistance when selecting and specifying exterior glazing for windows.
2. PBSC preferred application for large openings with very heavy solar exposures shall be insulated, Low-E, impact-resistant glazing.
3. Typical interior glazing applications are clear, tempered glass.
4. Firelite is the preferred glazing where fire ratings are required.

08 83 00 – Mirrors

1. Typical applications are at restrooms, above lavatories or vanities.
2. PBSC preferred applications include continuous stainless steel frames around mirrors.
3. Mirrored walls are discouraged except in special applications approved by PBSC Facilities Planning for project-specific requirements.

08 84 00 – Plastic Glazing – Not used, except in skylight applications when approved.

08 87 00 – Glazing Surface Films – Not typically used, especially on impact glazing, in accordance with manufacturers recommendations.

08 88 00 – Special Function Glazing

08 88 19 – Hurricane-Resistant Glazing

- All glazing shall be impact rated.

08 90 00 – Louvers and Vents

1. All louvers and vents shall have product approval for dry rooms.
2. Provide product approval data for protection of all louvered openings with complete NOA submittal data in compliance with Code requirements.

08 91 00 – Louvers – As mentioned above, all typical ventilation louvers should completely protect the room or equipment behind from water intrusion.

08 92 00 – Louvered Equipment Enclosures – Exterior open-air louvered equipment enclosures “screened enclosures” shall meet Code requirements for exterior envelope criteria, but are not required to be water resistant.

08 95 00 – Vents – All wall and soffit vents/louvers are required to comply with 08 90 00 above, including the following:

08 95 13 – Soffit Vents

08 6 16 – Wall Vents

09 00 00 – FINISHES

09 20 00 – Plaster and Gypsum Board

09 21 00 – Plaster and Gypsum Wallboard Assemblies

09 21 13 – Plaster Assemblies

- Plaster shall not be used in the construction of interior stud walls or partitions unless written approval is given by the College.

09 21 16 – Gypsum Board Assemblies

- **PBSC preferred -** All standard interior wall partitions for classrooms, offices and other spaces occupied by students, faculty or staff shall be constructed using metal studs and gypsum wallboard.

09 21 16.23 – Gypsum Board Shaft Wall Assemblies

- Gypsum Board shaft wall assemblies are permitted in conformance with UL labeled construction for fire-rated assemblies.

09 21 16.33 – Gypsum Board Area and Separation Wall Assemblies

- Gypsum Board area and separation wall assemblies are permitted in conformance with UL labeled construction assemblies.

09 22 00 – Supports for Plaster and Gypsum Board

09 22 13 – Metal Furring

- Furring shall be standard for suspended exterior plaster/stucco framing systems.
- Furring shall not be used for typical "interior" gypsum wallboard and metal stud framing systems.
- Resilient channels may be used for specific supplemental interior metal stud/gypsum wallboard applications with approval of PBSC Facilities Planning – sound walls.

09 22 13.13 – Metal Channel Furring

- Approved for use in plaster/stucco framing applications

09 22 13.23 – Resilient Channel Furring

- Approved for specific supplemental interior metal stud/gypsum wallboard applications with approval of PBSC Facilities Planning.

09 22 16 – Non-Structural Metal Framing

09 22 16.13 – Non-Structural Metal Stud Framing

- All metal framing shall be minimum 20 ga., spaced at 16"o.c.
- Typical stud framing shall be 3-5/8".
- Typical exterior and interior concrete masonry walls shall be "furred" using 1-5/8" metal studs at 16"o.c. prior to sheathing with wallboard.
- Hat channel furring is not allowed at exterior/interior masonry walls.
- On exterior framed walls, the Design Professional shall use wall assemblies using structural metal studs or steel framing designed and approved per Code for the application and use.

09 22 26 – Suspension Systems

1. PBSC typically discourages the use of “suspended” ceiling or soffit systems using plaster/stucco and requires strict compliance with Code requirements for uplift and bracing.
2. PBSC prefers “rigid framed” ceiling/soffit systems

09 22 26.23 – Metal Suspension Systems – Reserved.

09 22 26.33 – Plastic Suspension Systems – Not used.

09 22 26 – Lath - Reserved

09 22 36.13 – Gypsum Lath – Not typically used

09 22 36.23 – Metal Lath

- Approved for use in exterior applications as required.
- Type, weight and application fastening shall be as specified by the Design Professional.

09 22 39 – Veneer Plaster Base – Not typically used

09 23 00 – Gypsum Plastering - Reserved, not typically used.

09 24 00 – Portland Cement Plastering

1. Plaster Accessories:
   - Comply with installation provisions of ASTM C1063-94.
   - All plaster accessories shall be pure zinc or PVC.
2. Cement Plaster Materials (Stucco) – Job mixed stucco – Mix Bondcrete or Mortaseal mason’s lime with Portland cement and sand according to ASTM C926 in Portland cement: lime: sand ratios as follow:
   - Scratch coat: One bag of pre-mixed stucco, 15 to 16 shovels of sand, with five gallons of liquid. Liquid is to be three parts water to one part acrylic admixture.
   - Brown coat: One bag of pre-mixed stucco, 17 to 18 shovels of sand, two shovels of lime with five gallons of water.
   - Finish coat: Same as brown coat – Where the surface is to receive a sprayed-on textures finish, the mix for the sprayed-on application shall have Perlite added to increase the texture of the finish.
3. Bonding Agents – Comply with application recommendations of manufacturer.
   - Polyvinyl acetate: Use brushed on application for areas protected from the rain and the elements.
   - Polyvinyl acrylic: Mix with stucco mix for exterior applications. Acrylic admixture shall be acrylic polymer latex which is added to the scratch coat only.
4. Preparation for Plastering:
   - Apply dash coat on concrete surfaces indicated for direct plastering, and moisture-cure for two days.
   - If the substrate is not suitable (true and level), the application of stucco mix with bonding agent added, can be applied in layers to the point that the surface is ready to be scratched.
   - No metal lathe should be added to the substrate prior to the stucco application.

- Patching layers applied to this material should be a scratch coat mix and must be applied in layers 3/8" to ½" thick.
- Apply bonding agent on interior concrete surfaces indicated for direct plastering; comply with manufacturer's instructions.
- Polyvinyl acetate shall be used for brushed on application in areas protected from the rain and the elements.
- Polyvinyl acrylic bonding agent mixed with stucco shall be used for exterior stucco applications. Acrylic admixture shall be acrylic polymer latex which is added to the scratch coat only and applied within 20 minutes of mixing bonding agent.
- Installing plastering accessories shall be as follows:
- Control joints shall be tooled into stucco finish ¼" to 3/8" deep.
- Do not use metal to control stucco cracking at joints and in the stucco field. The expansion coefficients of metal and stucco are different and a crack will appear in the stucco. To control or reduce stucco cracking, use a fiberglass mesh with ¼" mesh width and six inches wide at butt joints of block and concrete.
- To localize any cracks that may occur in the stucco field, apply a struck joint with a tool suitable to achieve a joint of the depth and width desired.
- To achieve a true straight line in certain applications, such as columns, use a metal (pure zinc) corner bead.

5. Installation of Cement Plaster:
   - Mechanically mix plaster materials with acrylic bonding agent at the project site just prior to application to surface per manufacturer's recommendations.
   - The scratch coat is to be applied to a clean substrate, allowed to set and then scarified with required tool designed to produce a bonding surface. Do not use a wire broom or metal wire rake to achieve the bonding surface.
   - The brown coat cannot be applied until scratch coat is cured and firm. Application of the brown coat should be done as soon as the scratch coat has set and after scratching.
   - The finish coat cannot be applied until brown coat is cured and firm. With sprayed on textured finish, the brown coat must be finished as true and level as a finish coat.
6. Finish Cement Plaster:
   - Do not apply elastomeric type paint as a first coat that will trap moisture and form bubbles in the stucco. Use a latex based paint.
   - After the stucco has completely dried, apply a flat acrylic masonry paint to fill any cracks that may develop and then two coats of finish.

09 25 00 – Other Plastering - Reserved

09 25 13 – Acrylic Plastering – Not used.

09 26 00 – Veneer Plastering – Not used.

09 27 00 – Plaster Fabrications – Not used.

09 28 00 – Backing Boards and Underlayments

09 28 13 – Cementitious Backing Boards

- PBSC preferred base for interior tiled wall finishes at wet locations, similar or equal to 5/8" Dur-Rock
- PBSC preferred base for exterior, vertical metal-framed systems for gypsum plaster (stucco) applications.
- Exterior horizontal overhead applications are prohibited.

09 28 16 – Glass-Mat Faced Gypsum Backing Boards - Reserved

09 28 19 – Fibered Gypsum Backing Boards - Reserved

09 29 00 – Gypsum Board

1. Typical interior gypsum wallboard applications use 5/8' Type X (fire-rated).
2. **No ½" wallboard allowed**.
3. All gypsum finishes shall be minimum Level 4 finish as set forth by the National Gypsum Council.

09 29 82 – Gypsum Board Fireproofing

- May be used in accordance with UL rating construction assemblies.

09 30 00 – Tiling

1. The primary PBSC use of tile occurs in the following applications:
   - Building interior common area flooring
   - Bathrooms
   - Lockers
   - Kitchens
2. Building interior common area flooring
   - 12"x12" porcelain tile – PBSC preferred material.
   - 4"x12" porcelain tile base matching floor – PBSC preferred, including factory bull-nosed edge, square edge acceptable.
3. Bathroom Floor Tiles
   - Floor tile shall be minimum 6"x6" (or larger) non-slip. PBSC preferred material is porcelain tile, matching "common" area flooring.
   - White grout in any toilet room floor – **not allowed**.
   - The Contractor shall provide a minimum of 5% of surplus floor tile (and no less than one complete box) following completion of the project for use by the College.
   - Grout sealer shall be used following grout application as recommended by the manufacturer.
   - Floor level application shall be floor leveling material shall be as recommended by manufacturer and be of Cementitious Base.
4. Bathroom Wall Tiles
   - Porcelain tile - PBSC preferred, ceramic acceptable.

- Where ceramic tile is used, install over 5/8" thick, water resistant cement board from floor to ceiling. Cement board applications in any area less than 4' by 8' shall have no seams or joints.
- PBSC discourages the use of "Greenboard" for use in any "wet" locations.
- Where ceramic tile is used on ceilings install over Denshield frame for additional weight.
- In public restrooms, walls shall be finished with ceramic or porcelain tile full height. As an alternate, the walls may be finished with porcelain tile to a minimum of 48" high or to top of toilet partitions and painted gypsum board above.
- In single user, non-public restrooms, walls may be constructed of gypsum board assemblies finished with an impervious paint finish.
- The Contractor shall provide a minimum of 5% of surplus wall tile (and no less than one complete box) following completion of the project for use by the College.
- Grout sealer shall be used following grout application as recommended by the manufacturer.

5. Exterior Floor Tiles with proper skid resistive finish may be used including pavers, ceramic tile, and porcelain tile.

09 31 00 – Thin-set Tiling – PBSC preferred application over properly prepared and leveled sub-floors.

09 32 00 – Mortar-bed Tiling – Limited applications on PBSC projects, but approved as required.

09 33 00 – Conductive Tiling – Not typically used.

09 34 00 – Waterproofing-Membrane Tiling – Not typically used.

09 35 00 – Chemical-Resistant Tiling – Not typically used, even in science lab applications.

09 50 00 - Ceilings

1. Typical interior ceilings of all PBSC facilities shall be "**accessible**".
2. Accent ceiling soffits framed and finished with wallboard are acceptable, but large wallboard ceilings are discouraged by PBSC.

09 51 00 – Acoustical Ceilings

09 51 13 – Acoustical Panel Ceilings – Not typically used.

09 51 23 – Acoustical Tile Ceilings – Typical preferred PBSC application.

1. Typical PBSC interior ceiling tiles shall be standard, flush-mount, 24"x24" panels. PBSC preferred tile shall be Armstrong 896, fire-rated. This type tile is to be used regardless of whether the ceiling is planned to be fire-rated or not.

2. Tegular tile may be used in office areas. PBSC preferred interior "office" ceiling tile shall be 24"x24" Armstrong 815.
3. PBSC preferred ceiling tile for restrooms and custodial closets shall be flush-mount Armstrong 1728 Humigard.
4. Other ceiling tile may not be substituted.
5. The Contractor shall provide a minimum of 5% of surplus acoustic tile ceiling (in full cases) for use by the College following completion of the project.

09 51 33 – Acoustical Metal Pan Ceilings – Not typically used.

09 51 33.13 – Acoustical Snap-In Metal Pan Ceilings – Not used.

09 51 53 – Direct-Applied Acoustical Ceilings – Not used.

09 53 00 – Acoustical Ceiling Suspension Assemblies

09 53 13 – Curved Profile Ceiling Suspension Assemblies – may be used with approval of PBSC Facilities Planning for special applications.

09 53 23 – Metal Acoustical Ceiling Suspension Assemblies - PBSC-preferred manufacturers – Armstrong, Chicago Metallic, Celotex Architectural Ceilings.

1. Wide face, capped, double-web steel suspension system.
2. Structural classification – intermediate-duty system.
3. End condition of cross runners – override (stepped) or butt-edge type.
4. Face design – flat, flush.
5. Typical cap material – steel, cold-rolled sheet.
6. High humidity cap material – aluminum
7. Cap finish – painted white

09 53 33 – Plastic Acoustical Ceiling Suspension Assemblies – Not used.

09 54 00 – Specialty Ceilings – Not typically used except in special applications pre-approved by PBSC Facilities Planning.

09 54 13 – Open Metal Mesh Ceilings – Not used.

09 54 16 – Luminous Ceilings – Not used.

09 54 19 – Mirror Panel Ceilings – Not used.

09 54 23 – Linear Metal Ceilings

1. Linear metal ceilings shall have proper wind load bracing as recommended by the manufacturer and as required by code for exterior applications.
2. The minimum number of joints shall be used in assembling the linear metal ceiling.
3. Access doors shall be installed a maximum of 30 feet between access doors.
4. No splices in area less than 16'.
5. PBSC preferred manufacturer shall be USG Paraline.
6. The contractor shall provide a minimum of 3% surplus of unopened material.

09 54 26 – Linear Wood Ceilings – Not used.

09 54 33 – Decorative Panel Ceilings – Not used.

09 54 36 – Suspended Decorative Grids – Not used.

09 54 43 – Stretched-Fabric Ceiling Systems – Not used.
09 54 46 – Fabric-Wrapped Ceiling Panels – Not used.

09 56 00 – Textured Ceilings – Not used.

09 57 00 – Special Function Ceilings – Not used.

09 58 00 – Integrated Ceiling Assemblies – Reserved.

09 60 00 – Flooring – PBSC generally adheres to a limited selection of flooring materials for typical interior applications used for the majority of functional interior spaces including, but not limited to the following:

1. Building interior entry lobbies and common interior corridors – Porcelain tile.
2. Classrooms – Carpet.
3. Instructional Labs including science – VCT (Vinyl Composition Tile).
4. Vocational "Trade" Labs – Polished concrete.
5. Faculty and staff offices – Carpet.
6. Athletic flooring – Wood.
7. Bathrooms, Lockers, Showers – Porcelain/Ceramic tile.
8. Interior data equipment/storage/work rooms – VCT.
9. Mechanical/Electrical equipment rooms – Concrete.
10. Custodial rooms – VCT.

09 61 00 – Floor Treatment – Reserved.

09 62 00 – Specialty Flooring – Reserved.

09 63 00 – Masonry Flooring – Not used.

09 64 00 – Wood Flooring

09 64 66 – Wood Athletic Flooring –Solid Hardwood athletic flooring may be used as "Project specific", specified by Design Professional, installed by CM/Contractor.

1. Uses are very limited, primarily competitive gymnasium flooring or aerobics/dance flooring.
2. Performance stage flooring.

09 65 00 – Resilient Flooring – see applications above.

09 65 13 – Resilient Base and Accessories

1. PBSC-preferred typical 4" high vinyl, cove base, 0.125 "thick (1/8").
   - **NOTE**: Wood baseboards are not acceptable for any college design/construction project unless specifically requested by PBSC Facilities Planning.
2. Smooth surface.
3. Pre-molded outside corners.
4. Job-formed inside corners.

5. Typical manufacturers include – Burke Mercer, Armstrong World Industries, Azrock, Roppe, Johnsonite.
6. Contractor shall provide minimum 1% surplus stock vinyl baseboard in full lengths only, for use by the College following completion of the project.

09 65 16 – Resilient Sheet Flooring – may be used for project-specific specialty applications, primarily related to instructional, medical-related program requirements.

1. Armstrong "Medintech" is PBSC-preferred material with matching weld rods and integrally formed base.

09 65 19 – Resilient Tile Flooring

1. 12"x12"x1/8" Vinyl Composition Tile (VCT) is typical PBSC-preferred application.
2. Armstrong , standard "Excelon" is PBSC-preferred manufacturer. Others include Azrock, Congoleum, Tarkett.
3. Prior to application of resilient tile flooring, the Contractor shall perform a calcium chloride test.
4. Resilient floor tile shall be applied **only** with adhesives as recommended by the manufacturer of the floor tile.
5. The Contractor shall provide a minimum of 3% of surplus resilient tile flooring in full cases only, for use by the College following completion of the project.

09 65 33 – Conductive Resilient Flooring – Not used.

09 65 36 – Static-Control Resilient Flooring – Not used.

09 65 66 – Resilient Athletic Flooring

1. Limited applications for PBSC projects, primarily used for athletic training rooms.
2. PBSC-preferred manufacturers include Robbins Inc, "Free Weight", Action Floor Systems, Connor Sports Flooring.
3. Minimum 3/8" thick, minimum 80% recycled rubber tire granules, encapsulated with approved zero-mercury polyurethane binder.
4. 24"x24" tiles of 4' roll goods are acceptable.

09 66 00 – Terrazzo Flooring – Not typically used.

09 66 13 – Portland Cement Terrazzo Flooring – Reserved, not typically used.

09 66 13.16 – Monolithic Terrazzo Flooring – Reserved.

09 66 16 – Terrazzo Floor Tile – may be used on limited applications with approval of PBSC Facilities Planning.

09 66 16.13 – Portland Cement Terrazzo Floor Tile – Reserved.

09 66 16.16 – Plastic-Matrix Terrazzo Floor Tile – Reserved.

09 66 23 – Resinous Matrix Terrazzo Flooring – Reserved.

09 67 00 – Fluid-Applied Flooring – Not typically used.

09 68 00 – Carpeting – Typical PBSC interior applications utilize 6' sheet, roll goods with releasable backing.

09 68 13 – Tile Carpeting

1. Carpet tile applications are acceptable for certain program-specific uses with approval of PBSC Facilities Planning.
2. PBSC-Preferred manufacturers include Interface, Collins & Aikmen.

09 68 16 – Sheet Carpeting

1. Unless otherwise directed by the Owner, all new carpeting shall be as manufactured by Collins & Aikmen Powerbond Cushionback RS, Collins & Aikmen Sentinal R.S. or approved equal.
2. The Contractor shall be required to submit a seam diagram for carpet laying based on the Design Professional's seam plan for review by the Project Design Professional and Owner. The Contractor shall not allow carpet installation until an approved seam diagram has been returned to the Contractor.
3. Adhesion of carpet backing shall be warranted for ten year minimum.
4. The Contractor shall provide a minimum of 2% of surplus carpeting in full-width material, roll goods only (pieces are not acceptable), for use by the College following completion of the project.

09 69 00 – Access Flooring

1. Access flooring applications are limited to specifically recommended uses for PBSC Information Technologies only, and should not be considered for instructional or staff spaces unless required by the building program Educational Specifications.
2. Complete system specifications are required including floor bearing capacity for equipment supports.

09 70 00 – Wall Finishes

1. Typical PBSC interior wall finishes are **paint**.
2. Restrooms, lockers and "wet" areas may be "tiled" – see 09 30 00 Tiling above.

09 72 00 – Wall Coverings – Not typically used.

1. **Interior vinyl wall coverings are not allowed** on any PBSC design/construction project.

09 73 00 – Wall Carpeting – Not used.

09 74 00 – Flexible Wood Sheets – Not typically used.

09 75 00 – Stone Fencing – Not used.

09 76 00 – Plastic Blocks – Not used.

09 77 00 – Special Wall Surfacing – not used unless required by the building program Educational Specifications.

09 77 23 – Fabric-Wrapped Panels – Not typically used except in specially-required acoustic applications.

09 80 00 – Acoustic Treatment - Reserved.

09 81 00 – Acoustic Insulation – Not typically used except in special applications.

09 81 13 – Acoustic Board Insulation – Reserved.

09 81 16 – Acoustic Blanket Insulation – Reserved.

09 81 29 – Sprayed Acoustic Insulation – Not used.

09 83 00 – Acoustic Finishes - Not typically used except in special applications.

09 83 13 – Acoustic Wall Coating – Not used.

09 83 16 – Acoustic Ceiling Coating – Not used, PBSC-preferred application uses “Acoustic” ceiling systems, not applied coatings.

09 83 22 – Acoustic Drapery – Not typically used.

09 84 00 – Acoustic Room Components – Reserved.

09 90 00 – Painting and Coating

09 91 00 – Painting

1. PBSC preferred material is **Porter Paint and Products**.
2. The Contractor shall provide a minimum of one unopened gallon of each paint material, for use by the College following completion of the project.
3. Opened material must be properly disposed of by the Contractor.

09 91 13 – Exterior Painting

1. Exterior wall paint colors shall be ”Campus-specific” as determined and selected by PBSC Facilities Planning.
2. Elastomeric coating is not allowed on exterior walls.
3. First primer/sealer coat; Porter Paints – “Porterlock” Sealer or approved equal.
4. Second coat: Flat acrylic latex masonry paint Porter – “Acrishield” 519 – min. 20 mils wet.
5. Third coat: Flat acrylic latex masonry paint Porter – “Acrishield” – 519 min. 12 mils wet.
6. All exterior metal on buildings shall be painted with PBSC-preferred Porter “Glibtex” or approved equal.
7. Exterior caulking
    - Caulking shall be one part polyurethane eucalastic by Porter Paints or equal.

09 91 23 – Interior Painting

1. Interior Floors
   - All interior concrete floors, including mechanical and custodial floors, shall be sealed after acid etching with two coats of quality clear sealer. “Tufftop Floor Enamel” by Porter Paint or equal are PBSC-preferred products.
   - The Contractor shall seal concrete floors immediately after curing and at substantial or final completion of project only after consulting the Owner with the schedule.
2. Interior Walls
   - First coat primer/sealer: Acrylic latex – Porter “Blanket” sealer.
   - Finish coat: Acrylic Egg Shell latex enamel – Porter “Ji-Hide”
   - No Flat acrylic will be allowed.
3. Metal Door Frames
   - First coat: Metal alkyd primer – Porter “U-Prime”.
   - Second coat: Metal alkyd sating finish enamel – Porter “Glibtex”.
   - Finish coat: Metal alkyd satin finish enamel – Porter “Glibtex”.
   - No flat acrylic will be allowed.
4. Restrooms, Kitchens, Laboratories
   - First coat primer/sealer: Acrylic latex – Porter “Blanket” sealer.
   - Finish coat: Hi-Hide Eggshell (walls) as approved by PBSC.
   - No flat acrylic will be allowed.
   - Standard color for painting walls, interior shall be PBSC-custom Porter Paints color, **Antique White**.
   - Other paint colors will be considered as approved by the Owner.

09 93 00 – Staining and Transparent Finishing - Applications for staining/transparent finishes shall be limited to special applications as recommended by PBSC Facilities Planning.

09 94 00 – Decorative Finishing – Not used.

09 96 00 – High-Performance Coatings – Not typically used.

09 97 00 – Special Coatings – Reserved.

10 00 00 – SPECIALTIES

10 10 00 – Information Specialties – PBSC utilizes a variety of information specialty display devices, primarily specified and purchased through the PBSC Facilities Planning Department when associated with existing building facilities. New facilities

10 11 00 – Visual Display Surfaces – provided and installed by CM/Contractor.

10 11 13 – Chalkboards

1. Traditional "Green" chalkboards are used minimally in current instructional classroom applications. Refer to facility program Educational Specifications for use and locations.
2. Typical size shall be one-piece 4'x16' with integral chalk tray.
3. PBSC-preferred manufacturer is Claridge.

10 11 16 – Markerboards

1. White markerboards are the typical, primary-use classroom instructional multipurpose board.
2. Typical size shall be one-piece 4'x16' with integral marker tray.
3. Location is centered on front classroom teaching wall. Refer to Ed Specs for supplemental "side-wall" markerboard location.
4. PBSC-preferred manufacturer is Claridge.

10 11 23 – Tackboards

1. Each classroom is typically specified with one 4' high x 36"-48" wide aluminum-framed tackboard.
2. PBSC-preferred manufacturer is Claridge.
3. Cork face boards and fabric face boards are prohibited.

10 11 33 – Sliding Visual Display Units – Not typically used.

10 11 36 – Visual Display Conference Units – Not typically used.

10 11 39 – Visual Display Rails – Not typically used.

10 11 43 – Visual Display Wall Panels – Not typically used.

10 12 00 – Display Cases - provided and installed by CM/Contractor.

1. Display cases are used at interior applications as specified in the facility program, Educational Specs.
2. All glass-front directories or display cases shall be "safety glass".

10 13 00 – Directories

1. Building directories are typically provided by Owner in conformance with PBSC "Signage Standards" – see Appendix G.
2. Vendor-provided directories are PBSC-preferred over "custom" fabricated units.

10 14 00 – Signage

1. PBSC has a comprehensive District Signage Standards Manual created to establish consistent, user-friendly wayfinding standards for all campuses and facilities.

2. Refer to Appendix G for detailed specifications and requirements.
3. The District Signage Standards Manual covers the following categories of signage types:
    - Exterior Sign Types
        - Primary Campus Entry Identifier
        - Secondary Campus Identifier
        - Boundary marker
        - Banners
        - Vehicular Directional
        - Parking lot Identifier
        - Canopy Identifier
        - Building Entrance Identifier
        - Pedestrian map/Events Sign
        - Overhead Directional
    - Interior Sign Types
        - Building Directory/ Map
        - Wall Directionals
        - Destination Identifiers
        - Overhead Destination Identifiers
        - Regulatory
4. The Owner, through PBSC Facilities Maintenance & Operations will be primarily responsible for providing and installing most typical exterior site and building signage.
5. The Design Professionals are responsible for coordinating and specifying the following signage in the contract documents, conforming to the PBSC District Signage Standards Manual:
    - Destination Identifiers – these are typical “room” identifier signs, to be installed adjacent to the entry doors of all interior spaces.
    - Regulatory signage – Stairs, Men, Women, Restrooms, etc.
    - Emergency egress signage shall be designed and printed by the Design Professional based upon conformance to PBSC standards. Owner will provide frames and install.
    - Building Directories – Optional at Owner’s discretion by project.
    - Destination/Overhead Identifiers - Optional at Owner’s discretion by project.
6. The CM/Contractor is responsible for providing and installing all interior signage specified in the contract documents.
7. New signage and mounting must comply with latest Federal, State and Local codes relative to A.D.A. and other applicable rules, laws, and regulations.
8. Where specified, a building dedication plaque must be approved by the President or Vice President of Administration & Business Affairs prior to fabrication.
9. The Contractor shall submit a signage plan to the College for approval prior to fabrication or installation of signs.

10. Room names and numbers shall be assigned/confirmed by PBSC Facilities Planning staff.
11. In general, rooms shall be numbered in a clockwise manner from the main entry.
12. First floor rooms shall be 100 series room numbers, 200 series for second floor rooms, and 300 series for third floor rooms, etc.
13. The Design Professional is required to submit a final room number plan to the Facilities Planning Department for approval at completion of 75% construction documents.
14. Traffic and Stop Signs - provided and installed by CM/Contractor.
    - Mount the bottom of all traffic and stop signs at 7'-0" above finished grade per Palm Beach County Code requirements.
    - Sizes of traffic and stop signs shall comply with DOT standards.

10 17 00 – Telephone Specialties

1. Typical telephone communication devices, booths, or kiosks have been discontinued with the advent of wide-spread cellular phone service.
2. PBSC currently operates a private telephone system not affiliated with any national provider.
3. Remote campus areas and parking lots are provided with "Code Blue" 2-way communication systems for safety and security.

10 18 00 – Informational Kiosks – Not typically provided, refer to Signage Standards.

10 20 00 – Interior Specialties – Reserved.

10 21 00 – Compartments and Cubicles

10 21 13 – Toilet Compartments

1. All restroom partitions and urinal screens shall be constructed of fire-resistant/fire-proof solid plastic materials or acrylic, preferably Wisonart Gibralter, solid surfacing.
    - Floor-to-ceiling attachments are preferred. Overhead bracing of partitions is required, but should not "bridge" across compartments.
    - Plastic laminate is prohibited.
2. Provide urinal screens between all urinals. Wall and floor-mounted attachments are preferred.
3. All typical partition hardware and fasteners shall be of quality stainless steel.
4. Mounting bases/boots shall be acrylic or plastic to prevent corrosion from cleaning products.

10 21 16 – Shower and Dressing Compartments – Not typically provided as prefabricated compartments. Standard wall/tile-finished construction is PBSC-preferred.

10 21 23 – Cubicles – Not typically provided.

10 22 00 - Partitions

10 22 26 – Operable Partitions - Not Preferred, seldom used except in special applications.

1. PBSC-preferred interior wall construction is permanent, full height walls, not using operable, movable or sliding partitions.
2. Operable partitions are used in special applications only if specifically identified in the facility program, Educational Specifications.

10 26 00 – Wall and Door Protection – Not typically used in normal classroom/office facilities.

10 26 13 – Corner Guards – uses confined as specified in facilities program, Educational Specifications.

10 26 16 – Bumper Guards – uses confined as specified in facilities program, Educational Specifications.

10 26 23 – Protective Wall Covering – Not typically used.

10 26 33 – Door and Frame Protection – uses confined as specified in facilities program, Educational Specifications.

10 28 00 – Toilet, Bath, and Laundry Accessories

1. Toilet accessories shall be provided and installed in all PBSC facilities.
2. Responsibility for providing and installing shall be shared among the Owner, Design Professional and CM/Contractor as noted below.
3. All accessories shall be installed by the CM/Contractor.
4. Typical accessories shall be stainless steel.
5. Provide stainless steel shelving where required.
6. Provide adequate backing material for the mounting of all toilet accessories.

10 28 13.1 – Toilet Accessories – **Owner provided**, Designer "Noted/Located", CM/Contractor installed:

1. **Toilet Tissue/Paper Dispenser**
   - Tissue dispenser with capacity for a 9" jumbo roll and key locking mechanism.
   - Hinged cover shall be see-through smoke gray.
   - Standard toilet tissue dispenser shall be similar to unit manufactured by Kimberly Clark, Escort Jumbo Roll Tissue Dispenser. Verify current model number in use with PBSC.
   - Handicapped toilet paper dispenser shall be similar to unit manufactured by Kimberly Clark, Junior Twin Jumbo Roll Tissue Dispenser. Verify current model number in use with PBSC. ADA accessible dispenser shall be mounted at appropriate height above grab bar.
2. **Paper Towel Dispenser**
   - Roll towel dispenser shall accommodate two 8" diameter rolls.
   - Dispenser shall be made of heavy gauge steel and high impact plastic.

- Dispenser shall be similar to unit manufactured by Kimberly Clark Roll Towel Dispenser in smoke gray plastic. Verify current model number in use with PBSC.

3. **Soap Dispenser**
   - PBSC provided soap dispensers (liquid) similar to unit manufactured by Gojo FMX-20 #5255-06 Soap Dispenser. Verify current model number in use with PBSC.
4. **Paper Towel Waste Receptacles**
   - PBSC provided waste receptacles, locations to be noted on plans by Design Professional.

10 28 13.2 – Toilet Accessories – **CM/Contractor provided**, Design Professional specified:

1. **Vanity Mirrors**
   - PBSC-preferred – individual, stainless steel framed units above each lavatory, including ADA accessible toilet stalls.
   - All mirrors are fixed.
2. **Grab Bars**
   - Typical stainless steel conforming to all ADA requirements for locations and height.
3. **Convenience wall shelving**
   - Stainless steel wall shelving shall be provided as specified in the facility program, Educational Specifications.
4. **Sanitary napkin disposal units**
   - Typical stainless steel "partition-mounted" units in each toilet stall.

10 40 00 – Safety Specialties – Reserved.

10 41 00 – Emergency Access and Information Cabinets – Reserved.

10 41 13 – Fire Department Plan Cabinets – Not required.

10 41 16 – Emergency Key Cabinets

1. Key cabinets for emergency service providers shall be provided for all new PBSC facilities unless otherwise specified.
2. Typical PBSC-preferred applications are "Knox Box" in-wall installations.
3. Size and location shall be confirmed with PBSC Facilities District Fire Official.

10 43 00 – Emergency Aid Specialties

10 43 13 – Defibrillator Cabinets – are provided, installed and maintained by PBSC at appropriate locations throughout all campuses.

10 43 16 – First Aid Cabinets – are provided and installed by PBSC as required.

10 44 00 – Fire Protection Specialties – Fire protection is required in all PBSC facilities.

10 44 13 – Fire Extinguisher Cabinets

1. PBSC preferred applications are fully or semi-recessed units in conformance with ADA “wall projection” requirements.
2. Typical units are non-alarmed.

10 44 16 – Fire Extinguishers

1. All cabinets shall be provided with fire extinguishers in compliance with type of hazard area protected. Confirm extinguisher type with PBSC Fire Official.
2. Extinguishers and cabinets shall be provided and installed by the CM/Contractor.
3. Utility service areas, mechanical, electrical, and storage rooms may utilize wall-mounted extinguishers without cabinets.

10 50 00 – Storage Specialties – Reserved.

10 51 00 – Lockers

10 51 13 – Metal Lockers - Project specific, specified by Design Professional, installed by CM/Contractor. Refer to Project Program (Educational Specifications) for scope of work.

10 51 53 – Locker Room Benches - Project specific, specified by Design Professional, installed by CM/Contractor. Refer to Project Program (Educational Specifications) for scope of work.

10 55 00 – Postal Specialties – Reserved.

10 56 00 – Storage Assemblies – Reserved.

10 70 00 – Exterior Specialties – Reserved.

10 71 00 – Exterior Protection

10 71 13 – Exterior Sun Control Devices - Project specific, specified by Design Professional, installed by CM/Contractor. Refer to Project Program (Educational Specifications) for scope of work.

10 71 13.43 – Fix Sun Screens - Project specific, specified by Design Professional, installed by CM/Contractor. Refer to Project Program (Educational Specifications) for scope of work.

10 71 16 – Storm Panels – Provided and installed by Owner if required.

10 73 00 – Protective Covers

10 73 13 – Awnings - Project specific, specified by Design Professional, installed by CM/Contractor. Refer to Project Program (Educational Specifications) for scope of work.

10 73 16 – Canopies - Project specific, specified by Design Professional, installed by CM/Contractor. Refer to Project Program (Educational Specifications) for scope of work.

10 73 26 – Walkway Coverings - Project specific, specified by Design Professional, installed by CM/Contractor. Refer to Project Program (Educational Specifications) for scope of work.
10 73 43 – Transportation Stop Shelters – Not provided or installed by PBSC, typically constructed in accordance with interlocal agreements with transportation authority.

10 74 00 – Manufactured Exterior Specialties – Reserved.

10 75 00 – Flagpoles

1. All authorized Florida state facilities are required to display the state and national flags.
2. Flag poles and accessories are typically provided in a single prominent location at each PBSC campus.
3. Requirements for new flag poles are typically project specific, specified by Design Professional, installed by CM/Contractor. Refer to Project Program (Educational Specifications) for scope of work.

10 80 00 – Other Specialties – Reserved.

11 00 00 – EQUIPMENT

11 10 00 – Vehicle and Pedestrian Equipment – Typically provided by Owner, but could be project specific. Refer to Project Program (Educational Specifications) for scope of work.

11 11 00 – Vehicle Service Equipment - Typically provided by Owner.

11 12 00 – Parking Control Equipment – Not required.

11 13 00 – Loading Dock Equipment - Typically provided by Owner, but could be project specific. Refer to Project Program (Educational Specifications) for scope of work.

11 14 00 – Pedestrian Control Equipment – Not required.

11 15 00 – Security, Detention and Banking Equipment – Not typically required.

11 16 00 – Vault Equipment - Not typically required.

11 17 00 – Teller and Service Equipment - Not typically required.

11 20 00 – Commercial Equipment - Not typically required.

11 24 00 – Maintenance Equipment - Typically provided by Owner, part of Maintenance and Operations, including all of the following:

11 24 13 – Floor and Wall Cleaning Equipment
11 24 16 – Housekeeping Carts
11 24 19 – Vacuum Cleaning Systems
11 24 23 – Window Washing Systems

11 28 00 – Office Equipment – Provided by Owner.

11 40 00 – Foodservice Equipment - Typically provided by Owner, but could be project specific. Refer to Project Program (Educational Specifications) for scope of work.

11 50 00 – Educational and Scientific Equipment – Provided by Owner.

11 51 00 – Library Equipment - Typically provided by Owner, but could be project specific. Refer to Project Program (Educational Specifications) for scope of work.

11 52 00 – Audio-Visual Equipment

11 52 13 – Projection Screens – Specified by Design Professional, installed by CM/Contractor, typical screens shall be "wall mounted".

1. Minimum size for projection screens shall be 84” x 84” unless otherwise specified.
2. All projection screens shall be manually operated unless specifically authorized by the CPM, and the Manager of Facilities Planning.
3. PBSC preferred projection screens shall be manufactured by Da-lite, model C heavy duty wall screen 84x84 matte white or approved equal.
4. Screens shall be wall-hung to a finished back board that is wider than the screen attached to wall in multiple locations. CM/Contractor shall coordinate detailing, backing and location with CPM prior to installation.

11 52 16 – Projectors – Provided and installed by Owner, including mounting brackets and security.

11 52 19 – Television Equipment

1. Brackets for Wall-Mounted Televisions - PBSC preferred brackets are Bretford yoke style TV mount. Refer to education specification for required locations.
2. Audio-Video Equipment Supports - PBSC preferred ceiling mounted brackets shall be Bretford ceiling style mount to feature 0-30 forward tilt and 360 degree swivel and utilizes 1.5 inch threaded NPS for installation.

11 53 00 – Laboratory Equipment – Typically provided by Owner, but could be project specific. Refer to Project Program (Educational Specifications) for scope of work.

11 53 13 – Laboratory Fume Hoods – Project specific, specified by Design Professional, installed by CM/Contractor.

11 53 16 – Laboratory Incubators – Project specific, provided and installed by Owner, Design Professional/CM/Contractor to provide utility provisions per Owner equipment specifications.

11 53 19 – Laboratory Sterilizers - Project specific, provided and installed by Owner, Design Professional/CM/Contractor to provide utility provisions per Owner equipment specifications.

11 53 23 – Laboratory Refrigerators - Project specific, provided and installed by Owner, Design Professional/CM/Contractor to provide utility provisions per Owner equipment specifications.

11 53 33 – Emergency Safety Appliances - Project specific, provided and installed by Owner, Design Professional/CM/Contractor to provide utility provisions per Owner equipment specifications.

11 53 43 – Service Fittings and Accessories – shall be specified by Design professional and installed by CM/Contractor.

11 53 53 – Biological Safety Cabinets - Project specific, provided and installed by Owner, Design Professional/CM/Contractor to provide utility provisions per Owner equipment specifications.

11 57 00 – Vocational Shop Equipment - Project specific, provided and installed by Owner, Design Professional/CM/Contractor to provide utility provisions per Owner equipment specifications.

11 60 00 – Entertainment Equipment – Not typically required, by Owner.

11 65 00 – Athletic and Recreational Equipment - Project specific, specified by Design Professional, installed by CM/Contractor.

11 66 00 – Athletic Equipment - Project specific, specified by Design Professional, installed by CM/Contractor.

11 67 00 – Recreational Equipment – typically provided and installed by Owner.

11 68 00 – Play Field Equipment and Structures – typically provided and installed by Owner.

11 70 00 – Healthcare Equipment - Project specific instructional equipment, specified by Design Professional, installed by CM/Contractor.

11 71 00 – Medical Sterilizing Equipment - Typically project specific instructional equipment, provided and installed by Owner, Design Professional/CM/Contractor to provide utility provisions per Owner equipment specifications.

11 72 00 – Examination and Treatment Equipment - Project specific instructional equipment, specified by Design Professional, installed by CM/Contractor.

11 73 00 – Patient Care Equipment - Project specific instructional equipment, specified by Design Professional, installed by CM/Contractor.

11 74 00 – Dental Equipment - Typically project specific instructional equipment, provided and installed by Owner, Design Professional/CM/Contractor to provide utility provisions per Owner equipment specifications.

11 75 00 – Optical Equipment – not typically required.

11 76 00 – Operating Room Equipment – Typically project specific instructional equipment, provided and installed by Owner, Design Professional/CM/Contractor to provide utility provisions per Owner equipment specifications.

11 77 00 – Radiology Equipment - Typically project specific instructional equipment, provided and installed by Owner, Design Professional/CM/Contractor to provide utility provisions per Owner equipment specifications.

11 79 00 – Therapy Equipment - Typically project specific instructional equipment, provided and installed by Owner, Design Professional/CM/Contractor to provide utility provisions per Owner equipment specifications.

11 80 00 – Collection and Disposal Equipment – Provided by Owner.

11 82 00 – Solid Waste Handling Equipment – Provided by Owner.

11 90 00 – Other Equipment

11 90 13 – Instructional Display Equipment

- A method of displaying instructional materials must be provided in most college facilities. The Design Professional shall consult the educational specifications for required locations.
- Typical installations are standard in size and may be specified as equipment.
- PBSC preferred display cases shall be as manufactured by Claridge.
- Some exceptionally large installations may require custom-fabricated built in casework fabrications.

11 93 00 – Horticultural Equipment - Typically project specific instructional equipment, provided and installed by Owner, Design Professional/CM/Contractor to provide utility provisions per Owner equipment specifications.

12 00 00 – FURNISHINGS

12 10 00 – Art - Owner will provide and install any artwork associated with new, remodeled, renovation or site facilities. The Owner does not include an "Art Allowance" for any facility construction.

12 20 00 – Window Treatments – All interior window treatments will be provided and installed by the Owner. Construction Manager shall carry a line item designated as "by Owner", no cost identified.

12 21 00 – Window Blinds -

12 21 13 – Horizontal Louver Blinds – Not Preferred, seldom used except in special applications.

12 21 16 – Vertical Louver Blinds – Preferred, typical fabric-backed, black-out type, mounted inside fixed window opening. Designer shall incorporate sufficient interior jamb and head dimensions to accommodate installations in all classrooms and offices.

12 21 23 – Roll-Down Blinds - Not used by PBSC.

12 21 26 – Black-Out Blinds - Not used by PBSC.

12 22 00 – Curtains and Drapes - Not Preferred, seldom used except in special applications.

12 24 00 – Window Shades

12 24 13 – Roller Window Shades - Not Preferred, seldom used except in special applications.

12 30 00 – Casework - Conceptually, PBSC prefers to use and specify portable "furniture" for classroom and office interior storage and workstation applications in lieu of "built-in" millwork or casework. Specialty casework should be provided only when specified and recommended in the Owner's Program "Educational Specifications".

12 31 00 – Manufactured Metal Casework - Not Preferred, seldom used except in special applications.

12 32 00 – Manufactured Wood Casework

1. The preferred substrate material for all interior built-in casework shall be ¾" A/C plywood or ¾" multi-layer furniture grade plywood.
2. The preferred substrate for casework at wet locations shall be ¾" Marine grade plywood.

3. Particle board is not an acceptable material for constructing cabinets, countertops, and shelving in College projects. Engineered MDF (Medium Density Fiberboard) may be used with approval of CPM.
4. Plywood shall be of the grade and thickness specified by the Design Professional for the application specified.
5. Cabinets which are specified with locks shall have indicated the type of keying system in a given area.
6. At all restrooms (both public and private) and other "wet" locations, countertops shall be solid surfacing, PBSC preferred material is Gibralter by Wilsonart or similar material with integral sinks.
7. In offices, cabinets shall be mica faced as a standard finish. Wood finished cabinets must be required by program Education Specifications or as authorized by Facilities Planning.
8. The Design Professional shall provide adequate open shelving for supplies in janitorial rooms.

12 34 00 – Manufactured Plastic Casework – Not used by PBSC.

12 35 00 – Specialty Casework - Project specific instructional equipment, specified by Design Professional, installed by CM/Contractor, may include the following:

12 35 50 – Educational/Library Casework
12 35 53 – Laboratory Casework
12 35 59 – Display Casework – refer to 11 90 13 – Instructional Display Equipment.

12 36 00 – Countertops

12 36 13 – Concrete Countertops - Not Preferred.
12 36 16 – Metal Countertops - Not Preferred, seldom used except in special applications, primarily commercial/food service kitchen areas.
12 36 19 – Wood Countertops – Not Preferred, seldom used except in special applications for executive furniture.
12 36 23 – Plastic Countertops – Not used, except for Plastic laminate.
12 36 40 – Stone Countertops - Not Preferred, seldom used except in special applications.
12 36 53 – Laboratory Countertops – typical black, solid epoxy resin, honed finish shall be specified by the Design professional and installed by the CM/Contractor.
12 36 61 – Simulated Stone Countertops
12 36 61.16 – Solid Surfacing Countertops – **PBSC-Preferred** surfacing for countertops at all wet areas and other interior areas.

12 40 00 – Furnishing and Accessories – All interior Furniture, Fixtures and Equipment (FFE) will be provided and installed by the Owner.

1. PBSC shall provide and install all interior classroom and office furniture unless otherwise directed to the Design Professional.

2. The Design Professional shall provide interior furniture, fixture and equipment floor plan layouts for all interior spaces of all renovation, remodeling or new construction. These FFE layouts shall indicate the correct size and location of all proposed furnishings based upon Education Specification program requirements provided by PBSC Facilities Planning. The Design Professional shall minimize the use to of built-in custom millwork components in lieu of furniture and contract casework.
3. All Clocks are provided and installed by PBSC.
    - All clocks located in the facility shall be quartz with individual battery power as manufactured by Howard Miller, Model #622-821 Schoolmate I.
    - Clocks shall be consistent design throughout the facility, and shall be consistent with existing campus clocks.

12 48 00 – Rugs and Mats – Typical rugs and mats will be provided by Owner except as specified below:

12 48 13 – Entrance Floor Mat and Frames – Entrance floor/walk-off mats will be provided for all new construction, including remodeling.

- Provide mats at all primary, ground floor building entries.
- Typical mat size shall be 4' x 6', surface applied within porcelain floor tile recess area.
- Typical mat shall be Tandus/C&A carpet tiles.

12 50 00 – Furniture - All interior Furniture, Fixtures and Equipment (FFE) will be provided and installed by the Owner.

12 60 00 – Multiple Seating - All movable interior Furniture, Fixtures and Equipment (FFE) will be provided and installed by the Owner.

12 61 00 – Fixed Audience Seating – Fixed seating shall be specified by the Design professional and installed by the CM/Contractor.

12 61 13 – Upholstered Audience Seating - Project specific instructional equipment, specified by Design Professional, installed by CM/Contractor.

12 62 00 – Portable Audience Seating - All movable interior Furniture, Fixtures and Equipment (FFE) will be provided and installed by the Owner.

12 90 00 – Other Furnishings – Reserved.

12 93 00 – Site Furnishings - All movable exterior Furniture, Fixtures and Equipment (FFE) will be provided and installed by the Owner.

13 00 00 – SPECIAL CONSTRUCTION

13 12 00 – Fountains – Not preferred. Although exterior fountains may be selectively approved for some campus applications, interior fountains are not allowed without Administrative recommendation and approval.

13 12 13 – Exterior Fountains – Selective applications only, refer to Project Program (Educational Specifications) for project-specific recommendations. Typical recommendations are accompanied with appropriate supplemental funding, usually private donor-driven for first costs as well as maintenance.

13 21 00 – Controlled Environment Rooms - Reserved

13 21 48 – Sound-Conditioned Rooms - Reserved

13 24 66 – Athletic Rooms - Project specific instructional facilities or equipment, specified by Design Professional, installed by CM/Contractor.

13 31 23 – Tensioned Fabric Structures – Not preferred. Selective applications primarily limited to “Shade Structures”.

1331 33 – Framed Fabric Structures - Not preferred. Selective applications primarily limited to “Shade Structures”.

13 32 00 – Space Frames – Not Preferred.

13 32 13 – Metal Space Frames – Not preferred.

13 34 00 – Fabricated Engineered Structures – Not preferred. See 13 34 19 below.

13 34 13.13 – Greenhouses - Project specific instructional facilities or equipment, specified by Design Professional, installed by CM/Contractor. Refer to Project Program (Educational Specifications) for scope of work.

13 34 16 – Grandstands and Bleachers – Typically provided by Owner for exterior athletic field applications using pre-engineered fabrications.

13 34 16.53 – Bleachers – Interior athletic bleachers shall be specified by the Design Professional to meet Owner’s needs, installed by CM/Contractor.

13 34 19 – Metal Building Systems – Not preferred. Selective applications based upon cost evaluations and Owner’s Project Program may be allowed. Special permitting and approvals will be required for all applications.

13 34 23 – Fabricated Structures – Not preferred.

13 48 00 – Sound, Vibration, and Seismic Control – Not typically required, but may be applicable to specific projects. Refer to Project Program (Educational Specifications) for scope of work.

13 49 00 – Radiation Protection - Not typically required, but may be applicable to specific projects including medical radiography instructional applications. Refer to Project Program (Educational Specifications) for scope of work.

14 00 00 – CONVEYING EQUIPMENT

14 10 00 – Dumbwaiters – Not used.

14 20 00 – Elevators - Elevators will be provided in accordance with Code requirements and College policies to provide accessibility to all facilities. Most multi-story college facilities are three (3) stories or under. Consequently, most typical PBSC elevator equipment is specified as "Hydraulic".

14 21 00 – Electric Traction Elevators

1. Not preferred, except for mid/high rise applications.
2. May be considered for sustainability applications, reducing energy consumption by smaller motor sizes, etc.

14 24 00 – Hydraulic Elevators - Preferred. Coordinate with PBSC District Facilities for annual Elevator Maintenance contracts before selecting and recommending manufacturers for new installations.

14 27 00 – Custom Elevator Cabs

14 27 13 – Custom Elevator Cab Finishes

1. Typical standard interior finishes shall all be Class A rated and include:
   - 12"x12" Porcelain tile flooring
   - Plastic laminate wall finish panels over ¾" plywood
   - Stainless steel doors, frames and front control panels
   - Suspended lay-in ceiling with integral lighting
2. Service elevators shall be specified with removable, protective pads.
3. Lights on elevator cabs shall be high-efficiency, low maintenance type elevator lights.
4. Provide handicap signage on elevator controls in accordance with A.D.A. and other regulatory agencies.

14 28 00 – Elevator Equipment and Controls

1. Provide solid state controls for all equipment applications.
2. Provide elevator recall feature on all elevators for power outages.
3. Where available, elevators shall be tied into standby power, otherwise they shall be maintained on emergency circuit for Life Safety/recall.

14 30 00 – Escalators and Moving Walks - Not used.

14 40 00 – Lifts - Not used.

14 41 00 – People Lifts - Not used.

14 42 00 – Wheelchair Lifts – Typically not used.

14 43 00 – Platform Lifts - Not used.

14 44 00 – Sidewalk Lifts - Not used.

14 45 00 – Vehicle Lifts - Project specific instructional facilities or equipment, specified by Design Professional, installed by CM/Contractor. Refer to Project Program (Educational Specifications) for scope of work.

14 80 00 – Scaffolding – Used only in conjunction with temporary construction activities performed on College facilities, not used as permanent equipment.

14 90 00 – Other Conveying Equipment – Reserved.

14 91 00 – Facility Chutes - Not used.

14 92 00 – Pneumatic Tube Systems - Not used.

21 00 00 – FIRE SUPPRESSION

21 00 10 – Fire Sprinkler Systems

1. New construction – PBSC requires complete, fully automatic fire suppression system to be provided and installed in all new buildings.
2. Major remodeling – PBSC encourages Design Professionals to provide complete, fully automatic fire suppression systems in all major construction remodeling projects.
3. Minor remodeling and renovation of existing facilities without automatic fire suppression systems may be designed without fire suppression systems when approved by the PBSC Building Official. All installations shall comply with NFPA 13.

21 05 29 – Hangers and Supports for Fire-Suppression Piping and Equipment

1. New construction shall conform to all Code requirements.
2. PBSC does not allow sprinkler piping and equipment to be supported from any construction except the structural building components.

21 05 53 – Identification for Fire-Suppression Piping and Equipment

1. All exterior exposed piping shall be identified by painting using universal color coding for fire suppression systems.
2. Primary piping main lines traversing interior mechanical or other spaces shall also be color coded.

21 07 19 – Fire-Suppression Piping Insulation – Reserved.

21 11 00 – Facility Fire-Suppression Water-Service Piping – Reserved.

21 13 39 – Foam-Water Systems – Not used in PBSC Facilities.

22 00 00 – PLUMBING

22 10 00 – Plumbing Piping and Pumps – Reserved.

22 11 00 – Facility Water Distribution

22 11 13 – Facility Water Distribution Piping

1. On-site PBSC domestic water distribution systems are typically "private" systems, owned and maintained by the College.
2. Public water service is metered at the property line and protected with backflow prevention devices as required by the service utility and code.
3. On site domestic water distribution "protection" is not additionally required unless so determined by the PBSC Building Official.

22 11 16 – Domestic Water Piping

1. All buildings connected directly to public water services shall be protected with reduced pressure backflow preventers, as well as connection to equipment as required. Potable water supplied by PBSC water service line shall be protected as determined by the Building Official.
2. All Facility interior potable water piping shall be minimum type "L" seamless copper up to 2" in size above ground. Piping 2" or greater in size shall be minimum type "K". Regardless of size, no lead solder shall be used.
3. Potable water piping shall be type "K" below grade, with silver solder on joints below grade.
4. Water hammer arrestors (bladder type) shall be installed on each fixture and group of fixtures, and at the end of supply lines to prevent water hammer in pipes, whether or not they are shown on construction documents.
   - Use water hammer arrestor in accordance with PDI Standard, WH201.
   - Do not use air chambers.
5. All banks or restrooms shall have an accessible separate valve control.
6. Dedicated fire service connections need not have back flow or detector checks installed. Fire service lines connected directly to public supply services shall be protected.

22 12 00 – Facility Potable-Water Storage Tanks – Not typically used in PBSC facilities except in EHPA-required applications.

22 12 13 – Facility Roof-Mounted, Potable-Water Storage Tanks – Reserved.

22 12 16 – Facility Elevated, Potable-Water Storage Tanks – Reserved.

22 12 19 – Facility Ground-Mounted, Potable-Water Storage Tanks – Reserved.

22 12 23 – Facility Indoor Potable-Water Storage Tanks – Reserved.

22 13 00 – Facility Sanitary Sewerage

22 13 13 – Facility Sanitary Sewers – Reserved.

22 13 16 – Sanitary Waste and Vent Piping

1. All sanitary plumbing pipes may be spun cast iron to 5 foot beyond the edge of the slab. PVC may be used upon approval of the Facilities Department.
2. Sanitary piping should be cast iron bell and spigot below grade and NO-HUB above grade. PVC may be used when approved by the Building Department.
3. Copper drainage tube (type L) shall be used for waste arms and traps above grade.
4. Laboratory sanitary plumbing pipes shall be determined by the intended usage as specified by the College program.
5. Exposed traps and piping at fixtures shall be chrome plated 17 ga. brass pipe. PVC traps and waste arms shall be permissible when approved by the Facilities Department. Must have mechanical fitting on the outlet side of the waste arm.

22 13 19 – Sanitary Waste Piping Specialties – Reserved.
22 13 23 – Sanitary Waste Interceptors – Reserved.
22 13 26 – Sanitary Waste Separators – Reserved.
22 13 29 – Sanitary Sewerage Pumps – Reserved.
22 13 43 – Facility Packaged Sewage Pumping Stations – Reserved.
22 13 53 – Facility Septic Tanks – Not used, all PBSC systems shall be tied to public utility sanitary sewer systems.

22 14 00 – Facility Storm Drainage

22 14 13 – Roof Drains

1. Dome strainers on roof drains shall not be constructed of plastic material.

22 14 16 – Rainwater Leaders

1. The Design Professional shall review conditions to determine if storm water piping should be insulated.
2. When required, storm water pipes shall be insulated with fiberglass for all horizontal piping in occupied spaces with or without ceilings.

22 14 26 – Facility Storm Drains – Reserved.

22 15 00 – General Service Compressed-Air Systems – Reserved.

22 30 00 – Plumbing Equipment – Reserved.

22 32 00 – Domestic Water Filtration Equipment – Reserved.

22 33 00 – Water Heaters

1. Water Heaters
   - Water heaters shall be ASHRAE 90 rated, ASTM approved and as manufactured by A.O. Smith; Ruud; Rheem; or approved equal.
   - Water heaters shall be electric or natural gas-fired when approved for a specific use. Liquid propane or oil-fired heaters will not be allowed.
2. Water Heater Applications:

- Where possible, the Design Professional shall use point-of-use water heaters.
- Generally, the Design Professional shall use electric units up to 85 gallons and gas-fired heaters for larger tanks where applicable.
- High hot water use areas shall be designed with circulating systems.

22 33 13 – Instantaneous Electric Domestic Water Heaters

1. Individual "Insta-Hot" under counter units may be used for specific locations when approved by Facilities Planning.

22 33 33 – Light-Commercial Electric Domestic Water Heaters – Reserved.

22 33 36 – Commercial Domestic Water Electric Booster Heaters – Reserved.

22 34 00 – Fuel-Fired Domestic Water Heaters – Reserved.

22 40 00 – Plumbing Fixtures

1. Plumbing Fixtures
   - All fixtures shall be vitreous china. Enamel cast iron fixtures will not be allowed. Lavatories shall generally be built into solid surface counters when provided.
   - All floor drains shall have polished nikaloy top and trap primers fed from flush valve tailpieces where ever possible.
   - All hose bibbs shall have vacuum breakers (set screw type) and key operated stems.
     - On exterior of buildings, provide recessed wall boxes or hydrants with an upstream ball valve for servicing.
     - In restrooms, hose bibs and stops shall be keyless type with protective shield.
2. Plumbing Fixtures – Applications:
   - The Design Professional shall provide a floor mounted utility mop sink in each janitorial area.
   - The Design Professional shall provide a floor drain in each janitor's room in addition to a mop sink.
   - The Design Professional shall specify 4" floor drains(s) with trap primer(s) for indoor chiller plants, and connect to sanitary system.
   - The Design Professional shall provide an open hub floor drain with recessed dome strainer, 1" AFF in all mechanical rooms.
     - Drain shall be trapped but does not have to be vented or primed.
     - Preferably discharge AHU condensate into the storm drain system via an air gap or provide an accessible backwater valve.
   - For non-plenum rooms, the Design Professional shall provide a 3" floor drain with trap primer.
     - Connect floor drain to sanitary system.
     - Offset the floor drain vent below the roof to obtain a minimum of 10' separation from outdoor air intake for AHU.

- The Design Professional shall provide a hose bibb with anti-siphon vacuum breaker for coil washdown in each mechanical room.
- The Design Professional shall provide 4" open hub drain(s) with trap primer and recessed dome strainer(s) for cooling tower drain(s) in central chiller plant area. Connect to sanitary system.
- The Design Professional shall provide a hose bibb with anti-siphon vacuum breaker in central chiller plant area.
- The Design Professional shall provide a hose bibb in each restroom.
- The Design Professional shall provide floor drains in each restroom.
- All traps should be of the deep seal type.

3. Plumbing Fittings
   - All flush valves shall be manufactured by Sloan Valve Company or Zurn Aqua Flush (sole source item was approved by the District Board of Trustees).
   - Restroom toilets shall have water saver flush valves.
   - All faucets shall be manufactured by T&S and Chicago Faucet (sole source item was approved by the District Board of Trustees) and have renewable seats.
   - Faucets serving lavatories in public restrooms shall have automatic shut off with bubbler to prevent splashing.
   - Lavatory sink drains shall be open type with debris strainers.
   - Provide automatic flush devices at all urinals.

22 42 00 – Commercial Plumbing Fixtures

22 42 13 – Commercial Water Closets, Urinals, and Bidets – Reserved.
22 42 16 – Commercial Lavatories and Sinks – Reserved.
22 42 39 – Commercial Faucets, Supplies, and Trim – Reserved.
22 42 43 – Flushometers – Reserved.

22 45 00 – Emergency Plumbing Fixtures

22 45 13 – Emergency Showers

1. Emergency deluge showers shall be provided at locations required for safety.
2. Coordinate with PBSC Facilities Planning and Building Official regarding floor drains at interior building areas served by emergency showers.

22 45 16 – Eyewash Equipment

1. Instructional science laboratories shall be provided as required with emergency eyewash fixtures as required.
2. When fixtures are provided, they shall meet all requirements for ADA accessibility.

22 47 00 – Drinking Fountains and Water Coolers

1. All new facility construction shall include provisions for the design and installation of drinking fountains.
2. Typical PBSC-preferred interior applications utilize electric water coolers.
3. All applications shall be in compliance with ADA accessibility requirements.

4. Typical interior applications are preferred with full-height porcelain tile backsplash on walls.

22 50 00 – Pool and Fountain Plumbing Systems – Not typically used.

22 52 00 – Fountain Plumbing Systems – Reserved.

22 60 00 – Gas and Vacuum Systems for Laboratory and Healthcare Facilities

1. PBSC utilizes gas and vacuum systems primarily for instructional science laboratories.
2. Installations shall be designed and constructed in compliance with project program (Educational Specifications) and all code requirements.
3. Instructional Healthcare applications may utilize both active and demonstrational systems (compressed air).

22 61 00 – Compressed-Air Systems for Laboratory and Healthcare Facilities – Refer to project program (Educational Specifications) for detailed requirements.

22 62 00 – Vacuum Systems for Laboratory and Healthcare Facilities - Refer to project program (Educational Specifications) for detailed requirements.

22 63 00 – Gas Systems for Laboratory and Healthcare Facilities - Refer to project program (Educational Specifications) for detailed requirements.

22 66 00 – Chemical-Waste Systems for Laboratory and Healthcare Facilities - Refer to project program (Educational Specifications) for detailed requirements.

22 67 00 – Process Water Systems for Laboratory and Healthcare Facilities - Refer to project program (Educational Specifications) for detailed requirements.

23 00 00 – HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

23 07 00 – HVAC Insulation

23 07 13 – Duct Insulation

1. Ductwork Insulation
    - Interior ductwork insulation is not permitted. All supply and return air ductwork shall be insulated on the exterior of the ductwork.
    - Rigid insulation shall be used in Mechanical Rooms, pinned and sealed to metal ductwork. Blanket insulation may be used all other places with **a minimum 1.5 lb** density.

23 07 16 – HVAC Equipment Insulation – Reserved.

23 07 19 – HVAC Piping Insulation

1. Piping Insulation
    - Chilled water lines shall be insulated with foam glass insulation and all service jacket or “pitt wrap” vapor seal wrap for underground piping.
    - Install 1-1/2” thick insulation on pipes up to 4” in size, 2” thick insulation on pipes greater than 4” and up to 12” in size, and 2-1/2” thick insulation on pipes greater than 12” in size.
    - Exposed exterior chilled water piping shall be finished with 0.016” aluminum jacketing with stainless steel banks.
    - Hot water piping shall be insulated with 2” thick fiberglass jacket.

23 08 00 – Commissioning of HVAC – Reserved, refer to project program (Educational Specifications) and Facilities Planning for LEED requirements and commissioning scope.

23 09 00 – Instrumentation and Control for HVAC

23 09 23 – Direct-Digital Control System for HVAC

1. Air Conditioning Controls:
    - Air conditioning controls shall be DDC controlled and manufactured by Andover, or acceptable equal.
    - The DDC controls shall have automatic override and “Fail on” with communication los s.
    - Chilled water control valves shall be two-way modulating valves.
    - No Pneumatic Controls shall be installed.
    - Controls shall be capable of heating or cooling automatically without manual control.
    - Controls must meet SREF requirements.
    - Room sensors with controls must be home runs to a central location, as determined by the Director of Facilities.
2. Energy Management Control System (EMCS):
    - EMCS components shall be manufactured Andover Controls (sole source approval of the DBOT).

- The Contractor shall supply a schematic wiring diagram and/or as-built drawing for any EMS installed.
- Controls subcontractor shall provide all related programming for new installation with a copy provided to the College for reload.
- All EMS component alarm devices and junction boxes shall be clearly marked.

3. Energy Management Control System Applications:
   - The Design Professional shall provide a written full sequence of operation and control schematic diagram for each AHU, exhaust fan, supply fan, VAV-AHU, chiller, cooling tower and pump.
   - The Design Professional shall specify all EMS panels to be floor accessible in the mechanical or electrical room.
   - The Design Professional shall locate temperature and relative humidity sensors on plans. CO_2 Sensors at A/H return – Programmable to outside air modulation damper.

23 09 33 – Electric and Electronic Control System for HVAC – Reserved.
23 09 43 – Pneumatic Control System for HVAC - Reserved.
23 09 53 – Pneumatic and Electric Control System for HVAC - Reserved.
23 09 93 – Sequence of Operations for HVAC Controls - Reserved.

23 10 00 – Facility Fuel Systems - Reserved.

23 11 00 – Facility Fuel Piping

1. Gas Piping:
   - All Gas piping shall be installed in accordance with the Fuel Gas Code.
   - Any underground gas piping shall be sleeved with PVC, sealed at one end and vented at the other as required by Code.
   - The Design Professional shall avoid running gas piping under concrete slabs at all times. Where this is not possible, consult Manager of Facilities Planning before proceeding with design.
   - Where approved to run gas piping under concrete slabs, the Design Professional shall include a pipe sleeve sealed at one end and vented to the outside at the other end to meet Code requirements. The Design Professional should **never** embed piping in concrete slab.
   - The Engineer shall not install gas piping in or above interior corridors or stairwells.
2. Propane Gas Tanks
   - All propane gas tanks must be placed underground and secured with a locking cap device.
   - Underground tanks must be galvanized.

23 12 00 – Facility Fuel Pumps - Reserved.

23 13 00 – Facility Fuel-Storage Tanks - Typically provided by Owner, but could be project specific. Refer to Project Program (Educational Specifications) for scope of work.

23 13 13 – Facility Underground Fuel-Oil, Storage Tanks – Reserved.
23 13 23 – Facility Aboveground Fuel-Oil, Storage Tanks – Reserved.

23 20 00 – HVAC Piping and Pumps

1. Chilled water piping shall be ASTM A53, Schedule 40 steel grade B, U.S. manufactured only.
   - Chilled water piping at AHUs may be type L up to 2" diameter, and type K 2" and greater diameter copper pipe.
   - Copper piping may be soft soldered at flanges.
2. Chilled Water Piping – Application:
   - The Design Professional shall design chilled water systems using a minimum cooling coil delta temperature of 12 degrees Fahrenheit in order to minimize pipe and pump sizes, and pump horsepower.
   - The Design Professional shall locate chilled water pipe anchors, pipe guides and expansion/contraction loops on construction documents. Expansion devices are acceptable on any project.
   - The Design Professional shall not route chilled water pipe under the building slab except to penetrate the exterior wall. Recommended depth for chilled water pipe is 36" below finished grade.
   - The Design Professional shall not route chilled water pipe under sidewalks except to cross beneath them.
   - The Design Professional shall specify that the Contractor shall provide air-relief valves at all system high-points and drain valves at all system low points.
3. Condenser Water Piping – Application
   - Condenser water piping shall be galvanized steel or Schedule 80 PVC pipe only. Black iron pipe is not acceptable for condenser water application.
   - All exterior flange connection bolts and fasteners on condenser water piping shall be stainless steel.
   - Strainers on condenser water piping shall be located on the plans, above ground and before each pump inlet. Where above ground location is impractical, below ground strainers shall be located and noted on plans, and accessible from a buried concrete vault.
4. Condensate Piping
   - The preferred material for equipment drains and condensate piping shall be made of cast iron below grade and under slabs, and type "L" copper above ground with DWV fittings and cleanout. Below grade shall be schedule 40 PVC.
5. Using dashed lines or shaded areas, the Design Professional shall show service areas for HVAC pumps per manufacturer's recommendations.
6. Split-case type pumps or suction end pumps are preferred.
7. All pumps shall have suction and discharge PSIG gauges and well with temperature sensors or thermometers where applicable.
8. The Design Professional/Contractor shall verify that local service and parts are available within Palm Beach County for pumps specified/submitted for projects.
9. All pumps shall be VFD driven unless approved otherwise.

23 21 00 – Hydronic Piping and Pumps - Reserved.

23 22 00 – Steam and Condensate Piping and Pumps – Reserved.

23 23 00 – Refrigerant Piping – Reserved.

23 30 00 – HVAC Air Distribution – Reserved.

23 31 00 – HVAC Ducts and Casings

23 31 13 – Metal Ducts

1. General
    - Supply, return and exhaust air ductwork shall be fabricated of G90 galvanized sheet metal in accordance with latest edition of SMACNA guidelines. Fiberglass ductwork is prohibited.
    - Internal ductliner shall not be used.
    - Where sound attenuation is required, duct mounted noise attenuators or lined foam insulation may be used.
    - For noise attenuation at the inlet and discharge of AHUs, provide double-wall duct with a perforated inner wall and 2” thick insulation encapsulated in a mylar sleeve.
    - Branch ducts shall be installed with 45 degree shoe taps and manual volume dampers. Where 45 degree shoe taps are not appropriate, round bellmouth takeoffs with volume dampers will be acceptable for ductwork under medium pressure or less.
2. Ductwork Applicatons:
    - Ducted return air and ducted outside air to AHU return is preferred by the College.
        - Where possible, the Design Professional shall avoid using return air plenums.
        - The Design Professional Contractor shall provide an access door on the return air duct side to AHU.
    - The Design Professional SHALL NOT design systems with roof mounted exposed ductwork.
    - The Design Professional shall locate outdoor air intakes to be a minimum of 10’ from exhausts and sanitary vents.
        - Separation distances shall be measured using hood outside dimensions.
        - Provide offsets below the roof to obtain the proper separation distances.

23 31 16 – Non-metal Ducts

1. Flexible Duct:
    - Provide non-metallic, insulated, flexible duct run-outs from branch ducts to CDs, and from RGs.
    - Installed flexible duct shall be a minimum of 5 feet and a maximum of 8 feet in laying length.

- At branch duct connection, a collar with manual volume damper shall be installed.
- Do not tap branch ducts directly from bottom of duct to CDs and from RGs.
- When installed, flexible duct shall be supported by specified means and not supported by the ceiling or other building component.
- Flexible duct shall have no insulation exposed to the air stream.

23 32 00 – Air Plenums and Chases – Reserved.

23 33 00 – Air Duct Accessories

1. Dampers – Manual and Motorized:
   - The Design Professional shall locate manual volume dampers on plans for test & balance work.
   - The Design Professional shall specify motorized outside air dampers that can be controlled/operated from the energy management system with CO2 interface.
2. Electric Duct Heaters;
   - Electric duct heaters with zero clearance will not be approved.
   - The Design Professional shall specify electric duct heaters with multiple stages.
   - The Design Professional shall show NEC required 3 foot clearance for service and access at disconnect on construction documents.
   - The Design Professional shall use SCR power controllers on electric duct heaters greater than 20kW.
3. Fire dampers shall be type B. Type A fire dampers are not allowed.

23 34 00 – HVAC Fans – Reserved.

23 35 00 – Special Exhaust Systems

1. Fractional horsepower fans, direct drive fans are preferred to belt-driven fans.
2. Ventilating fans shall be controlled with local BAS operations.
3. The Design Professional shall make every attempt to minimize all roof penetrations and number of ventilation fans.
4. The Design Professional shall show throat inside diameter and hood outside diameter dimensions for outdoor air intake hoods and exhaust hoods on mechanical plans. This information shall be coordinated with the Design Professional and shown on the architectural roof plan.

23 36 00 – Air Terminal Units

1. The Design Professional shall specify VAV boxes to provide minimum ventilation rates per room at the minimum flow as required by ASHRAE Standard 62-89.
2. Mechanical insulation shall not be exposed to air stream.
3. Variable air volume boxes shall be of double wall construction.
4. The Design Professional shall specify fan-powered boxes to meet the minimum airflow requirements of ASHRAE Standard 62-89.

23 36 13 – Constant-Air-Volume Units – Not preferred by PBSC, acceptable under approved applications only.
23 36 16 – Variable-Air Volume Units – PBSC-preferred application.

23 37 00 – Air Outlets and Inlets

1. The Design Professional shall not specify perforated type diffusers. Preferred type metal air 5800 series **aluminum** or acceptable equal.
2. The Design Professional shall design the air distribution system such that outlet airflows do not exceed 400 CFM per outlet.
3. In corridors, the Design Professional shall locate return air grilles near exterior doors and ceiling diffusers away from exterior doors to prevent condensation on ceiling diffusers. The Design Professional shall not locate ceiling diffusers within 12' of exterior doors.
4. **Air distribution devices constructed of steel shall not be allowed.**

23 38 00 – Ventilation Hoods – Reserved.

23 40 00 – HVAC Air Cleaning Devices – Reserved.

23 41 00 – Particulate Air Filtration – Reserved.

23 42 00 – Gas-Phase Air Filtration – Reserved.

23 43 00 – Electronic Air Cleaners – Reserved.

23 50 00 – Central Heating Equipment - Reserved.

23 52 00 – Heating Boilers – Not used, PBSC is discontinuing limited use of boilers for heating, converting all systems to electric heat.

23 54 00 – Furnaces – Not used.

23 55 00 – Fuel-Fired Heaters – Not used.

23 56 00 – Solar Energy Heating Equipment – Reserved.

23 57 00 – Heat Exchangers for HVAC – Reserved.

23 60 00 – Central Cooling Equipment – Reserved.

23 61 00 – Refrigerant Compressors – Reserved.

23 62 00 – Packaged Compressor and Condenser Units

23 62 13 – Packaged Air-Cooled Refrigerant Compressor and Condenser Units - Not preferred by PBSC, acceptable under approved applications only.

23 62 23 – Packaged Water-Cooled Refrigerant Compressor and Condenser Units – Not used.

23 63 00 – Refrigerant Condensers – Reserved.

23 64 00 – Packaged Water Chillers

1. Chillers – General:
   - A roll-up door to the maximum height where structure allows shall be provided in front of each chiller location. Each roll-up door shall be sized to allow the chiller to be replaced as a single unit. The Design Professionals shall coordinate this requirement.
   - Chillers may be air-cooled with screw re-buildable compressors and use R-134a refrigerant or other EPA approved refrigerant. Air-cooled chillers shall be considered up to a maximum of 250 ton capacity. On air cooled equipment the condenser coils shall be coated as per manufacturer recommendation for maximum coil life and efficiency.
   - Screw compressor chillers may be considered in place of centrifugal water-cooled or reciprocating chillers.
   - All chillers shall be suitable for HCFC-123, HFC-134A or other EPA approved refrigerant.
   - Refrigerant selection shall be in concurrence with EPA proposed ban of CFC-11 and CFC-12 refrigerants.
   - Chillers shall be furnished with reset control so that the CHWS temperature can be reset based on the CHWR temperature.
   - Where new chillers are installed, the Contractor shall provide a minimum of 8 hours for training PBSC maintenance personnel by the equipment manufacturer's technical representatives. The total 8 hours shall comprise 4 hours of classroom instruction, and 4 hours of hands-on training.
2. Water Cooled Centrifugal Chillers:
   - Preferred type of chiller is low-pressure centrifugal chillers Trane, York or Carrier as approved by Owner.
   - Chiller shall be provided with high efficiency purge unit.
   - Chiller shall be provided with automatic shutoff rupture disk.
3. Chillers – Application:
   - Using dashed lines or shaded areas, the Design Professional shall show service areas for chillers per manufacturer's recommendations.
   - The Design Professional shall not specify enhanced tubes on chillers.

23 65 00 – Cooling Towers

1. The Design Professional shall specify (very) deep sump type cooling towers of maximum depth.
2. Using dashed lines or shaded areas, the Design Professional shall show series areas for cooling towers per manufacturer's recommendations.
3. Cooling towers shall be manufactured with stainless steel and stainless steel hardware, or redwood towers with stainless steel hardware.
   - Preferred manufacturer of cooling towers is Marley or BAC

4. Top of sump water level shall be higher that the condenser water pump inlet.
5. The Design Professional shall specify VFD capable fan motors on cooling tower fans unless a single or multiple-speed motor is justified by the Design Professional.

23 70 00 – Central HVAC Equipment – Reserved.

23 71 00 – Thermal Storage – Reserved.

23 72 00 – Air-to-Air Energy Recovery Equipment – Reserved.

23 73 00 – Indoor Central-Station Air-Handling Units

1. Air-Handling Units – General:
   - PBSC preferred manufacturers of AHUs are York (preferred), Carrier and McQuay.
   - Air handling units (AHUs) shall be of the face and bypass configuration if constant volume, or VFD control.
   - **Do not design any system using reheat when practical.**
   - AHU casings shall be constructed of insulated, double wall with solid inner liner. AHUs with exposed interior fiberglass insulation (duct line) are not allowed.
   - Access doors shall be provided for both the coil (providing access to both the entering and leaving air sides of the coil) and the blower.
   - Coil headers shall be non-ferrous. PBSC prefers bass materials.
   - Condensate drain pans shall be positively sloped, made of stainless steel.
     - Floor drains in Mechanical Room shall be located at the lowest point of the floor.
   - Provide pleated, flat filters in angled position, with minimum 30% efficiency as determined by ASHRAE dust spot test method.
   - Where multi-zone and face & bypass dampers are specified, dampers shall be positive stop galvanized or aluminum zone dampers.
   - Fans shall be manufactured of galvanized metal. Aluminum fans are not allowed.
   - The Design Professional shall specify variable frequency drives VFDs to control variable air volume for HVAC systems. PBSC preferred Manufacturers are Saftronics (preferred) Yaskawa, Magnatek, EMS.
     - Inlet guide vanes shall not be used to perform variable air volume control.
   - Shaft bearings shall have accessible external (preferred) grease fittings.
   - Blower section shall have internal spring mounting vibration isolators.
   - Fan motors shall be high efficiency on pull through design – TEFC only.
   - Electric resistance heating coils are preferred on smaller, single-zone units.
2. Air-Handling Units – Applications:
   - Preferred location for HVAC system AHUs is in air conditioned mechanical rooms, not open to the exterior.

- The Design Professional shall avoid use of fan-coil units, direct-expansion (DX) units and roof mounted units.
- When the installation of rooftop equipment is unavoidable, the Design Professionals shall coordinate to provide adequate walkways and supports to protect the roof from damage. All water valves shall be located at unit, not below roof, above ceiling or any other adjacent area.
    - The Design Professional shall design roof mounted equipment anchors to sustain 150 mph hurricane force winds. The Design Professional shall provide construction sections and details of such anchoring.
    - Electrical disconnects and motor starters shall be stainless steel, NEMA 4 enclosures.
- For VAV units, the Design Professional shall specify SCR motor drives. Do not specify discharge dampers or inlet guide vanes to perform variable volume control.
- Using dashed lines or shaded areas, the Design Professional shall show service areas per manufacturer's recommendations for the following:
    - Coils;
    - Fan motor and drive;
    - Filters;
    - Control actuators for face & bypass dampers, zone dampers for multi-zone, inlet guide vanes for VAV, CHW control valves, hot water control valves, etc.
- The Design Professional shall indicate chilled water piping with insulation on mechanical plan and elevation to ensure adequate access and serviceability.
- **Do not select** AHU's at maximum capacity for specified model (maximum fan RPM, maximum coil face velocity, and maximum cooling capacity).
- Control actuators for multi-zone dampers shall be located at the front of the multi-zone unit and shall have a minimum service clearance of 30". The Design Professional shall not locate multi-zone dampers on top of the unit.
- The Design Professionals shall cooperate and coordinate to provide minimum clearance of 36" on all sides of AHU.
- The Design Professional shall show locations of started, disconnects, ATC panels, electric duct control panels, etc. including the service areas for located equipment in mechanical rooms. The Design Professional shall coordinate these area requirements with Electrical Design Professional and controls representative.
- The Design Professional shall provide minimum 4" thick housekeeping pad, 6" larger than AHU footprint on all sides.
    - Pad height shall be adjusted to allow the proper sizing of the condensate P-trap based on calculated fan static pressures.
    - The Design Professional shall specify equipment to be anchor bolted to housekeeping pad.

23 74 00 – Packaged Outdoor HVAC Equipment – Reserved.

23 75 00 – Custom-Packaged Outdoor HVAC Equipment – Reserved.

23 76 00 – Evaporative Air-Cooling Equipment – Reserved.

23 80 00 – Decentralized HVAC Equipment – Reserved.

23 81 00 – Decentralized Unitary HVAC Equipment - Not preferred by PBSC, acceptable under approved applications only.

23 81 13 – Packaged Terminal Air-Conditioners – Reserved.
23 81 16 – Room Air-Conditioners – Not used.
23 81 19 – Self-Contained Air Conditioners - Not preferred by PBSC, acceptable under approved applications only.
23 81 23 – Computer-Room Air-Conditioners – Project specific, used under approved applications only.
23 81 26 – Split-System Air-Conditioners - Not preferred by PBSC, acceptable under approved applications only.

23 82 00 – Convection Heating and Cooling Units

23 82 19 – Fan Coil Units - Not preferred by PBSC, acceptable under approved applications only.
23 82 23 – Unit Ventilators – Not used.
23 82 39 – Unit Heaters – Not used.

23 83 00 – Radiant Heating Units – Not used.

23 84 00 – Humidity Control Equipment - Project specific, used under approved applications only.

25 00 00 – INTEGRATED AUTOMATION - Reserved

25 05 13 – Conductors and Cables for Integrated Automation

25 05 26 – Grounding and Bonding for Integrated Automation

25 05 28.33 – Conduits and Backboxes for Integrated Automation

25 05 28.36 – Cable Trays for Integrated Automation

25 05 28.39 – Surface Raceways for Integrated Automation

25 35 23 – Integrated Automation Control Dampers

25 50 00 – Integrated Automation Facility Controls

25 58 00 – Integrated Automation Control of Electronic Safety and Security Systems

26 00 00 – ELECTRICAL

26 01 00 – Operation and Maintenance of Electrical Systems – Reserved

26 05 00 – Common Work Results for Electrical

26 05 10 – General Requirements

1. Quality Control:
   - All electrical work shall be performed by a licensed electrical contractor under the supervision of a Palm Beach County licensed Master Electrician.
   - All electrical work shall be performed by an Electrical Journeyman who is licensed by Palm Beach County.
   - Electrical work may be performed utilizing an Electrician Journeyman to Apprentice/Helper ratio of 1 to 4.
   - Classroom Illumination certification: The Contractor shall provide computer readouts, prepared by the lighting fixture manufacturer, certifying lighting levels in foot candles, as well as equivalent spherical illumination values, in accordance with FBC 423.27.15 Illum. for educational facilities construction.
     - An approved computer readout format shall be used with all points of calculations indicated on the certification sheets.
     - The computer readouts shall be submitted with the lighting fixture shop drawings for approval by the Consultant.
     - Provide point-by-point foot candle specific area plots for all functional area as part of shop drawing submittals, including site lighting, loggias, and non-instructional spaces.
2. Codes and Standards:
   - Minimum requirements for work specified shall be as set forth by the FBC 423.17 Elec. and the codes therein adopted, **and all equipment, devices, and materials shall conform to and/or be listed by the Underwriter's Laboratory, Inc.**
   - All current consuming or generating equipment is required to be Underwriter Laboratory (U.L.) approved. The equipment shall have U.L. label containing registration numbers or a copy of the U.L. listing file shall be contained with the submittals.
   - All Electrical work shall be performed per the current adopted NEC.
3. Drawings and Specifications – The location of any item may be changed, prior to rough-in, by the Design Professional as much as 6 feet at no extra cost to the College.
4. Submittals
   - The Contractor shall be required to provide shop drawings for fabrication and erection of structure framing required for attachment of hangers or other devices to support electrical equipment, which shall be reviewed by the Design Professional.

- Originals submittals, including any required point wiring drawings, and Shop Drawings of the following shall be provided and transmitted to the College prior to approval by the design professional:
    - Dimmer systems.
    - Fire Alarm systems and accessories
    - Power conditioning systems/devices.
    - Central clock systems.
    - Intercom systems.
    - TV systems.
    - Underfloor raceway/systems.
    - Lighting control systems.
    - Emergency power systems.
    - Exit light fixtures.
    - Security systems.
    - Variable Frequency Drives.
    - Certified Lightning Protection Drawing.
    - Energy Management System.

5. Record Drawings:
    - All signal, communications, data, control, dimming systems, etc. shall be included in the As-Built drawings. Where electrical drawings contain a large number of items, s system such as enlarged details or other graphic methods shall be used to clarify the identification required for As-Built usage.
    - As-Built drawings shall include the following information:
        - Stub-out locations dimensioned from permanent building lines;
        - Routing of all main feeders and identified as under slab, in slab, above ceiling, etc. also for lighting and power branch circuits the number of conductors shall be included, and for feeders and motor branch circuits the number, size, and insulation of conductors shall be included;
        - Corrected panelboard and equipment schedules;
        - Corrected circuit numbers as they appear on the panelboard directories;
        - Corrected motor horsepower and full load amperes;
        - Location of major distribution open junction boxes with 2” conduit and over;
        - Location of all underground raceways or duct banks dimensioned from easily identified points with depth indicated from BFG (below finished grade) and by elevation in feet.

26 05 13 - Medium Voltage Cables and Conductors – Reserved.

26 05 19 – Low-Voltage Electrical Power Conductors and Cables

1. All wire and cable shall be annealed, coated copper wire per ASTM B189 with conductivity of 98%, and shall be stranded Class B per ASTM B8. No other wire material is allowed.
    - Buss, lugs, or terminal blocks shall be copper. Aluminum will not be acceptable.
    - All conductors shall be stranded.
1. No splicing of wires will be permitted on data, speaker, intercom, or TV systems etc. All splicing on these types of systems shall be made in J-boxes on the proper termination strips.
2. All underground wiring or wiring buried in concrete slabs shall be housed in schedule 40 PVC pipe, a minimum of ¾" trade size.
3. Extend rigid metal conduit elbows sufficient distance to make required connections.
4. Color coding shall be by means of color insulation of suitable colored permanent non-aging, insulation tape equal to Scotch #461 applied to and covering 6" of the conductors at each outlet, cabinet or junction box. The following color code shall be used. Ground leads:
    - Green
    - Neutral conductors: White on 120/208V
    - Gray on 277/480V
    - Phase A, B, C on 120/208V: Black, Red, Blue
    - Phase A, B, C on 277/480V: Brown, Purple, Yellow

5. Conductors:
    - Conductor insulation shall be UL Type: THHN or UL Type: THWN.
    - Provide a copper equipment grounding conductor of the proper size in all power and lighting, branch circuit and feeder raceways. This wire is in addition to conduits and other raceway ground paths. A 10/32 green screw shall be used to ground all outlet boxes.
    - The minimum size of the equipment grounding conductor shall be #12 copper.
    - All conductors, regardless of voltage or insulation shall be run in an approved conduit system.
    - No more than five wires or maximum 50% conductor fill, including the equipment grounding conductor, shall be installed in a conduit run, except by special permission of the Owner.
    - Splices made in conductors #4 AWG and larger shall be with sleeves using hydraulic Hy-Press methods. No rubber type splices are allowed.
    - Approved lugs shall be used on all stranded conductors.

26 05 23 – Control-Voltage Electrical Power Cables – Reserved.

26 05 26 – Grounding and Bonding for Electrical Systems

1. All electrical equipment (metallic conduit, motor frames, panel boards, boxes, etc.) and main switchboard shall be bonded together with a green insulated copper equipment grounding conductor sized per NEC (minimum size #12 AWG). This bonding conductor shall be continuous through the raceway system from main switch ground bus and to each branch circuit outlet or switch. Equipment grounding conductors shall be required throughout the project, whether shown or not on the drawings.
2. Equipment grounding conductors shall terminate in terminal bars, screws, lugs, etc., expressly designed for the purpose.
3. Ground clamps shall be of the same material as the metal or water pipe they are connected to approved for the specific use.
4. Provide a Grounding bus in the Electrical Main Distribution room and in all other Electrical Distribution rooms and separate Communication/Data rooms. This bus shall be Copper 4”Wx10”Lx1/4”T mounted 18” AFF, at the Electrical Main Distribution room the bus shall be connected to the footer steel, building steel, and (2) 3/4”dia. x 10’ copper clad driven ground rods with the proper size copper grounding electrode conductor; and an interconnection made to each Electrical Distribution room grounding bus with the tie conductor of the same size as the main grounding electrode conductor.
5. The Grounding Electrode Conductor shall be run enclosed in rigid metallic conduit continuous from the service entrance grounding buss to the grounding electrode triad.

26 05 29 – Hangers and Supports for Electrical Systems

1. The Contractor shall be required to provide shop drawings/details for fabrication and erection of structure framing required for attachment of hangers or other devices to support electrical equipment, which shall be reviewed by the Design Professional.
2. All hanger and support devices for electrical systems shall be reviewed and approved by PBSC Building and Maintenance departments prior to erection.
3. All hangers, supports, clamps and attachments for the support of raceways shall be properly installed from the building structure. Raceways of any type shall not be supported by ceiling support wires. Arrange for grouping of parallel horizontal runs of conduits to be supported together, at the proper intervals, on trapeze type hangers. No cantilever supports will be acceptable.

26 05 33 – Raceways and Boxes for Electrical Systems

1. All systems for lighting, heat, power, control, etc. shall be installed in raceways, home runs shall be ¾” minimum trade size. Conduit of ½” size is not allowed.
2. All branch circuit home runs shall be ¾” minimum trade size containing not more than 40% conductor fill. Multi-wire branch circuits shall be clearly and explicitly indicated and marked as such on the drawings.
3. No aluminum raceways will be acceptable. All communications and data outlets shall have a minimum ¾” trade size home run from each.

4. RGS (Rigid Galvanized Steel Conduit) shall be used where conduit is exposed and subjected to the weather or possible physical damage. All RGS runs shall be terminated with an insulated throat threaded steel bushing. Set screw or thread less fittings shall be permitted only by special permission of the design consultant. Where support is required it shall be at a minimum of 8 feet intervals for trade sizes less than 2" and at a minimum of 12 feet for 2" and larger. Support all exposed runs at intervals not exceeding 5 feet.
5. Clearly identified Schedule 40 PVC conduit may be used in concrete slabs and under buildings. Clearly identified Schedule 40 PVC may be used under grassed and parking lot areas, and buried to a minimum depth of twenty-four inches (24"). All stub-ups up through concrete or out of the ground shall be RGS. PVC raceways shall not be used where exposed.
6. EMT (Electrical Metallic Tubing) Conduit:
    - All raceways above slab or ground shall be metallic.
    - Minimum conduit size shall be ¾" for any system unless otherwise approved.
    - Provide conduit to each occupied space of a project for voice (telephone), data, and video.
    - EMT may be used for all indoor work from the switch and receptacle level up.
    - Where exposed, fittings shall be UL listed for rain-tight applications and concrete tight, and connectors shall be the insulated throat type with case hardened locknuts.
    - Steel set screw fittings are acceptable for interior application.
    - Steel compressions fittings are acceptable for exterior application.
    - All fittings shall conform to ANSI C80.4.
    - All conduit in stud walls shall properly be secured.
7. Provide a pull wire in all empty raceways. Pull wire shall be #14 TW, Thomas Industries Jet Line #232 Polyofin 200 lb. test or equal.
8. All raceways penetrating walls of floors through sleeves shall be sealed and fire stopped.
9. All exposed connections in mechanical rooms, damp and wet locations, or where flexible connections are required shall be Liquidtight Flexible Metal Conduit. Connectors shall be UL listed for grounding means.
10. No BX cable is allowed without approval of the CBO. FMC shall not be used to run throughout building.
11. All hangers, supports, clamps and attachments for the support of raceways shall be properly installed from the building structure. Raceways of any type shall not be supported by ceiling support wires. Arrange for grouping of parallel horizontal runs of conduits to be supported together, at the proper intervals, on trapeze type hangers. No cantilever supports will be acceptable.
12. Seal all active conduits that enter the building with oakum or other expandable compound.
13. There shall be no bends exceeding 90 degrees in any run of conduit.
14. In all communications rooms the raceways must terminate immediately adjacent to the cable trays or backing boards and all conduit type raceways

including through the floor stubs must terminate in an insulated bushing or connector. Bridle ring systems are acceptable.

15. Raceway shall be run parallel and perpendicular in building at all time.
16. The Design Professional shall provide 100% spare capacity between closets for data, telephone & TV application.
17. Boxes, Enclosures and Cabinets:
    - Where used to enclose flush devices, boxes shall be provided with the proper mud ring to insure that the front edge to finish complies with NEC, and no goof-rings will be acceptable.
    - Minimum receptacle box height shall be 18" above finished floor.
    - Do not support boxes of any type from the ceiling support wires.
    - "Handy" boxes/180 boxes or gangable/non-gangable 2" side ("cur-in") switch boxes may be used in renovation or remodeling work with approval of PBSC Building Department.
    - Boxes located in stud wall partitions shall have a device to stabilize the box and resist movement when pushing on the device. See Building Official for acceptable methods.

26 05 36 – Cable Trays for Electrical Systems – Reserved.
26 05 39 – Under-floor Raceways for Electrical Systems – Reserved.
26 05 43 – Underground Ducts and Raceways for Electrical Systems

1. Duct Banks - The Design Professional shall provide 100% spare conduit in duct banks for future needs. Long radius elbows shall be used for all underground services and duct banks.
2. Duct bank conduits shall terminate in end bells, spaced 9 inches center-to-center for four inch conduits and spaced proportionately for other sizes, and finish flush with the manhole interior surface, plumb vertical and horizontal.
3. Underground Utilities Duct Banks shall be run in Underground PVC Plastic conduit schedule 40 conforming to NEMA TC 2 encased in concrete with a minimum envelope of 3 inches of concrete. A colored concrete cap may be installed over a duct bank when approved by the Building Official. Mark tape must be installed over the duct bank during backfill.
4. All duct lines shall be laid to a minimum grade of 4 inches per 100 feet. Slope may be away from the building, from one manhole to the next or both ways from a high point between manholes, depending on the contour of the finished grade. Low points that may trap water are unacceptable. Duct lines shall be installed so that the top of concrete encased duct lines is not less than 30 inches below finished grade or finished paving at any point. Changes in direction of more than 10 degrees, either vertical or horizontal, shall be accomplished by long sweep bends having a minimum radius of curvature of 25 feet, except that manufactured bends may be used at the ends of the run. Manufactured bends shall have a minimum radius of 36 inches. Duct shall be thoroughly cleaned before using or laying. During construction and after the duct line is completed, the ends of the ducts shall be plugged to prevent water washing mud or the wind from blowing sand in to the raceways or manholes.

Particular care shall be taken to keep the conduits clean or concrete, dirt and any other substance during the course of construction.

5. After construction of the duct line is completed, a standard flexible mandrel not less than 12 inches long, having a diameter approximately ¼ inch less than the inside diameter of the conduit, shall be pulled through each conduit to make certain that no particles of sand or gravel have been left in the line. There shall be a suitable pull wire or string left in each empty conduit.
6. Each individual conduit shall be complete encased in concrete to a minimum of one inch between conduits and three inches on the outside surfaces. Separators or spacing blocks shall be placed at five foot intervals and the conduits shall be securely tied down and anchored to prevent movement during the placement of concrete.

26 05 46 – Utility Poles for Electrical Systems – Refer to Division 26 56 13.

26 05 53 – Identification for Electrical Systems

1. Tag all conductors and identify major conduits in or at outlets, wireways, panels, pull boxes, switchboards, motor controllers, cabinets and similar items to assist in future circuit tracing. Conductor tags shall be non-conductive or Brady type markers.
2. All lighting and power J-boxes shall be identified by circuit, voltage and panel board number and color coded in a permanent manner.
3. All disconnect switches, panel boards, motor starters, system controllers, fire alarm zones, transformers, power outlets (other than ordinary receptacles), shall be identified by installing a permanent plastic laminated engraved nameplate with appropriate designation.
4. Panel board directories shall be typewritten and be protected by a plastic cover.
5. All Panel Schedules shown on As-Built plans shall include:
   - Room number indicated for each circuit
   - Load calculations
   - Panel power source
   - Conduit and conductor size from source
6. All system shall be identified by painting the designated color code on all J boxes and covers using the following color code:
   - Normal power (120V) Black
   - Normal lighting (277V) Blue
   - Emergency light/power Orange
   - Fire Alarm Red
   - Data Systems White
   - CCTV systems Brown
   - Telephone Yellow
   - Sound system Light Blue
   - Energy management Pink
   - ATC/AC Control system Purple
   - Computer/conditioned power Gray
   - Security Green

7. Fire Alarm wiring shall be color coded and identified with Brady tags or other suitable means to provide ease of tracing for maintenance and trouble identification and correction purposes. These marking shall be reflected on the required As-Built drawings. The following is the required College standard Fire Alarm wiring color code:
    - Loop-Twisted Pair — Red & Black, Red out sheath Signaling Cable #CH777990 or equal.
    - Notification Appliances — Red & Black
    - Door Holder — Yellow & Blue
    - AHU Shut Down — Brown & Orange
    - 24 Volt DC — Red & Black #16
    - All wire shall be stranded

26 09 00 – Instrumentation and Control for Electrical Systems

26 09 13 – Electrical Power Monitoring and Control - Reserved

26 09 23 – Lighting Control Devices

1. All snap switches shall be single pole or multi-pole heavy-duty flush toggle, 20 ampere, 120/277 volts, AC, Government spec. grade.
2. All classroom interior lighting shall include provisions for “motion control” switching, automatic shut-off.

26 09 26 – Lighting Control Panel boards – Reserved.

26 09 33 – Central Dimming Controls – Reserved.

26 09 36 – Modular Dimming Controls – Reserved.

26 09 43 – Network Lighting Controls – Reserved.

26 09 61 – Theatrical Lighting Controls – Reserved.

26 10 00 – Medium-Voltage Electrical Distribution

26 10 13 – Transmission and Distribution

1. Underground Work – General:
    - The Contractor shall be responsible for contacting “No-Cuts” (or other underground utility locator) and coordinating with the PBSC Facilities Department prior to any digging to verify underground utilities.
    - The duration of all open trenching shall be minimized and substantial personnel/safety barricades, flashers and construction barriers to prevent unauthorized access to disturbed or new areas shall be a requisite and required.
2. Manholes and Hand-holes:
    - All manholes shall have cover for communications and power up to 277/480 Volts and shall be provided with non-metallic cable racks to support all cables entering and leaving the manhole.
    - Manhole and handhole covers shall be lockable, color-coded (with dot system), diamond plated aluminum with aluminum angle frame.
    - Any manhole or hand-hole over 3’x3’ shall be 3/8” thick.

- All raceways leaving the manhole shall be sealed using approved type sealant.
- No splices shall be made in manholes for main power or emergency power feeds or signal feeds.
- Communications duct manholes shall be spaced not more than 300' between and shall have a maximum 180 degrees of bends in the run.
- In each pole Hand-holes serving exterior lighting for security, walkway, parking lot, etc., provide one Bussman (or equal) Type HEB water tight in-line fuse holder and insulation boots, with an FNQ fuse in each phase conductor to the pole light fixture and all splices shall be water proof type.
- In Hand-holes serving as junction boxes, all splices shall be water-proof type.

26 11 00 – Substations – Not applicable to PBSC sites.

26 12 00 – Medium-Voltage Transformers

1. **All transformers shall be floor mounted on a 4" high, 3000 PSI concrete pad with no greater than a 2" lip around the transformer. Transformers rated at 25kVA or less may be mounted on the wall. In no case shall transformers be hung from or mounted to the overhead structure unless otherwise approved.**
2. K-rated transformers with electrostatic shielding, Power Conditioning equipment or devices, or other disturbance mitigation methods shall be specified for systems supplying outlets for computer terminals or other sensitive equipment. Provide line side mitigation equipment such as Harmonic Traps for equipment utilizing 6 pulse and 12 pulse power supplies, **all Variable Frequency motor drives**, and or appliances capable of generating Harmonic frequency currents or voltages on their respective circuits of significant magnitude which may cause harmful disturbances on the facility electrical systems. **IEEE 1100-1992 shall be the required criterion for the design of the facility Division 16 systems.**
3. Dry type transformers shall be low impedance, type "H" insulation, 115 degrees C temperature rise above 40 degrees C ambient. **All transformers shall be floor mounted with vibration isolation pads between the unit and the structure on a h" high concrete housekeeping pad. Transformers rated at 25 kVA or less may be mounted on the wall. In no case shall transformers be hung from or mounted to the overhead structure unless otherwise approved.**
4. **Transformers exceeding 112.5 Kva shall be enclosed by 1 hr fire rated construction.**

26 13 00 – Medium-Voltage Switchgear – Reserved.

26 18 00 – Medium-Voltage Circuit Protection Devices – Reserved.

26 20 00 – Low-Voltage Electrical Distribution

26 21 00 – Low-Voltage Overhead Electrical Power Systems

1. Not applicable to PBSC. All typical medium and low-voltage electrical power distribution occurs underground.
2. Only one campus, Lake Worth has a portion of high-voltage (4160 V) using overhead power distribution lines.

26 22 00 – Low-Voltage Transformers – Refer to 26 12 00 – Medium Voltage Transformers.

26 23 00 - Low-Voltage Switchgear – Reserved.

26 24 00 – Switchboards and Panel boards

1. All electrical panels and circuit breakers hall be manufactured by Square D (preferred; Seimens, CutterHammer GE, or equal and must be UL approved.
   - Provide with copper busbars;
   - Provide sufficient number of spares (wither spare breakers or available space); where spaces are left in the panel board for future use, they shall be provided with complete bus connectors, supports, etc., for breaker installation.
   - Provide at least two spare conduits per panel into accessible part of ceiling;
   - Label all the breakers on typed panel schedule.
   - All electrical devices (panel boards, starters, disconnects, and junction boxes) shall be clearly labeled and identified.
2. Install a green grounding conductor in all branch circuit wiring throughout the building. Grounding conductor shall be a minimum of #12 for 20A and sized in accordance with NEC table 250-295 for other sizes.
3. Four spare ¾" conduit stub outs shall be provided from each backboard and telephone board into the nearest accessible ceiling cavity.
4. Panel boards shall be bolt-in circuit breaker type, dead front, locking door, flush lock, master-keyed, and shall not be located in corridors or public area.
5. Where a major portion of the loads supplied by a panel board are non-linear type Panel board shall be used. No load centers will be acceptable.
6. The complete panel board assembly shall be so designed that any individual circuit breaker can be removed without disturbing the adjacent units. The bus bars shall not depend on the circuit breakers for support. Individual circuit breakers shall be identified by numbered plastic plates that are adjacent to each breaker. The trip rating of each circuit breaker shall be readily visible without disassembling the panel.
7. Panel board buses shall be copper or silver plated copper only.
8. **Fused pullouts are unacceptable and shall not be used for any purpose.**
9. **Rooms housing Main Distribution Panels shall be 1 hr fire rated construction when required by Chief Building Official/Fire Official.**

26 25 00 – Enclosed Bus Assemblies – Reserved.

26 26 00 – Power Distribution Units – Reserved.

26 27 00 – Low-Voltage Distribution Equipment

26 27 13 - Electricity Metering

1. Typical metering for all campuses except Lake Worth is from a single point of service – one meter.
2. Lake Worth Campus is currently served by Lake Worth Utilities on two (2) separate meters:
   - One 26,000V service entry at Congress Avenue.
   - One original 4,160V from John Prince Park.

26 27 16 – Electrical Cabinets and Enclosures – Reserved.

26 27 19 – Multi-outlet Assemblies – Reserved.

26 27 23 – Indoor Service Poles – Not used.

26 27 26 – Wiring Devices

1. Receptacles:
   - Receptacles must be specification grade, 20 amp duplex receptacles.
   - All cover plates shall be stainless steel and of the same type and manufacturer throughout.
   - General-Duty Simplex or Duplex receptacles shall be 2-pole, 3-wire rated 125 volts and 20 amperes and equipped with green hexagonal equipment grounding screw, ground terminals and poles internally connected to the mounting yoke, with plated ears, side wiring, NEMA configuration 5-20R.
   - GFI (Ground-Fault Interrupter) general-duty duplex receptacles shall be of the GFCI (Ground-Fault Circuit Interrupter), grounding type UL rated Class A, Group 1, 20 amperes rating, 120 volts, 60 Hz, with solid state ground fault sensing and signaling with 5 milli-amperes ground fault trip level, NEMA 5-20. Feed- thru type, capable of protecting connected downstream receptacles on a single circuit, will only be acceptable where used as a single unit not protecting any other downstream receptacle.
   - The Design Professional shall specify GFI duplex receptacles in each mechanical room. The Electrical Engineer shall coordinate receptacle locations with mechanical equipment.
2. Equipment/Devices
   - All surface and wall mounted electrical equipment shall be installed on Galvanized/Stainless Unistrut or equal supports or ¾” exterior B-C grade or better plywood painted gray on both sides including the edges or with intumescent paint where required.
   - All floor mounted electrical equipment shall be a minimum 4” high, 3000 PSI concrete pad with no greater than a 2” lip around the equipment.
   - All interior finish plates shall be stainless steel type wall plates and only installed after painting is completed.

- Motor starters shall be combination across-the-line controller with the required motor circuit disconnect switch included, HOA switch, phase monitoring on all three phase starters for protection against phase loss or phase reversal, electronic overload protection, and no pilot light. All motor controllers shall be furnished with a control transformer having the capacity to operate the starter and all connected control equipment, 110/120 volt secondary, internally mounted in the controller, grounded with fuses. The fuses shall protect the control wiring against overload and shall be so arranged that an accidental ground will not short out the motor overloads or start the motor.
  - Motors less than 60 HP shall have across the line starters with electronic overload protection.
  - Motors 60 HP and larger shall have auto-transformer type, reduced voltage starters and under voltage release when used in conjunction with the momentary contact and maintained contact control devices.
  - This equipment must be NEMA-rated GP, no DP rated will be acceptable unless specifically supplied by the manufacturer of the equipment served, and IEC rated equipment will not be acceptable.
- GFI receptacles shall be required adjacent to all rooftop mounted equipment.
- **Transient Voltage Surge protection shall be provided for all incoming mains, sub-panels, computer circuits, fire alarm systems, and any sensitive equipment or system.**
- All snap switches shall be single pole or multi-pole heavy-duty flush toggle, 20 ampere, 120/277 volts, AC, Government spec. grade.
- All wiring devices shall be installed only after all surface painting is completed.
- Fused Disconnect Switches shall be used only where specifically required by code otherwise the proper circuit breaker for the required use shall be used

26 28 00 – Low-Voltage Circuit Protective Devices

26 28 13 – Fuses – Not used.

26 28 16 – Enclosed Switches and Circuit Breakers

1. Where disconnects are required, they shall be quick-make, quick-break, horsepower rated.
2. Disconnects located on exterior of buildings shall be a Nema 3R type enclosure. In high corrosive areas, Nema 4x shall be used.

26 29 00 – Low-Voltage Controllers

1. All three-phase motor starters shall have solid state overloads, phase loss protection, repeat trip accuracy and self protection in short circuits.

26 29 23 – Variable-Frequency Motor Controllers

1. All motors drive from a “Variable Frequency Drive, “Variable Speed Drive” or any other speed control system shall be “Matched” to and supplied with the drive system.

26 30 00 – Facility Power Generating and Storing Equipment

26 31 00 – Photovoltaic Collectors – Reserved.
26 32 00 – Packaged Generator Assemblies - Reserved
26 33 00 – Battery Equipment – Reserved.
26 35 00 – Power Filters and Conditioners – Reserved.
26 36 00 – Transfer Switches – Reserved.

26 40 00 – Electrical and Cathodic Protection

26 41 00 – Facility Lightning Protection

1. All College facilities shall be protected from lightning in accordance with Code requirements.
2. Design Professionals (Engineer) shall be responsible for evaluating existing facilities, determining applicable status (Recommended or Optional) and reporting accordingly to the Owner.

26 42 00 – Cathodic Protection – Reserved.
26 43 00 – Transient Voltage Suppression – Reserved.

26 50 00 – Lighting

26 51 00 – Interior Lighting

26 51 13 – Interior Lighting Fixtures, Lamps, and Ballasts

1. All Interior lighting fixtures shall be UL listed fixtures.
2. All interior lighting shall utilize fluorescent 4100k high energy saver, T-8 lamps and electronic ballasts.
3. Typical lamps shall be the 4-foot T8 fluorescent 4100k.
4. For typical classroom applications, use prismatic lens with 3 lamps and 1 ballast per fixture.
5. Fixture ballasts must be sound rated (A+) electronic ballasts or quieter.
    - Option: Fixture ballast may be provided with in-line fuses.
6. Manufacturer shall warrant ballasts to be free from defects in material or workmanship for at least five years from date of manufacture under normal conditions of use.
7. Recessed fixtures may be connected with flexible raceways not exceeding six feet in length made to a junction box in accessible concealed spaces above ceilings. Great lengths of flexible raceways may not be used unless approved by Owner.
8. No fixture connections will be permitted except where the fixtures are mounted end-to-end and mechanically connected together.

9. Lighting levels must be appropriate for various areas to satisfactorily perform work assigned per recommended IES guidelines and FBC 423.
10. Interior Lighting Fixtures – Application:
    - The Design Professional shall not locate fixtures without considering how they will be serviced.
    - Unless allowed by Owner, incandescent lighting shall not be allowed.
    - Where down lights are, used compact fluorescent type with convective venting only shall be given first consideration.
    - Plastic or wire bulb guards shall be provided on all open type or industrial type fluorescent fixtures.
    - Lighting controls shall include provisions for use of audio-visual materials in instructional areas and conference rooms such as dimming or ballast and fixture switching.
    - Dual ballast and fixture "bank" switching are the PBSC-preferred method of A/V classroom lighting control.
    - Dimmer switches are not preferred for any fluorescent lighting, but may be approved for other specialty lighting applications.

26 52 00 – Emergency Lighting

1. Where emergency power is unavailable, emergency lighting fixtures shall be similar to specified normal power lighting fixtures with battery backup.
2. Provide emergency light fixtures as needed and wire these fixtures from an emergency panel that can be powered from the (future) emergency power generator.

26 53 00 – Exit Signs

1. Exit lights/signs shall be LED Type.

26 55 00 – Special Purpose Lighting – Reserved.

26 56 00 – Exterior Lighting

26 56 13 – Lighting Poles and Standards

- All poles and light heads shall match existing and be engineered for wind load.
- All in-line fuses shall be installed in the pole hand holes (not ground boxes).
- All light heads shall have replaceable glass lenses.
- Provide surge protection for all exterior pole lighting.
- Pole mounted fixtures shall be properly grounded.
- All pole mounted fixtures shall be placed with consideration given to mature size of landscaping materials surrounding poles.
- Hand holes for pole mounted fixtures shall be made on non-conductive material.

26 56 16 – Parking Lighting

- All exterior lighting fixtures shall be UL listed.

- Exterior lighting fixtures shall be high intensity discharge (H.I.D.) type: metal halide or high pressure sodium or CFL.
- Exterior light shall be mounted at a minimum height of 12” on a wall or pole where applicable.
- Walkway and parking lot lighting shall be circuited separately for energy efficiency.

26 56 19 – Roadway Lighting – Reserved.

26 56 23 – Area Lighting – Refer to specific sections.

26 56 26 – Landscape Lighting

- **There shall be no lighting fixtures mounted below grade.**

26 56 29 – Site Lighting – Reserved.

26 56 33 – Walkway Lighting

- No exterior walkway lighting poles shall be located closer than 12” to the walkway.

26 56 36 – Flood Lighting

- There shall be no architectural “flood” lighting used without the expressed written permission of PBSC.

26 56 68 – Exterior Athletic Lighting – Reserved.

27 00 00 – COMMUNICATIONS

27 10 00 – Structured Cabling – Refer to Appendix F.

NOTE: PBSC has developed separate guidelines and procedures for data and telecommunications cabling which is included in these Facility Standards as Appendix F – Structured Cabling Guidelines.

27 11 00 – Communications Equipment Room Fittings – For additional information, refer to Appendix F.

27 11 13 – Communications Entrance Protection

27 11 16 – Communications Cabinets, Racks, Frames and Enclosures

1. General Design Guidelines:
   - A data/communications riser diagram is required for each project involving new data/communications system installation or renovation/remodeling.
   - PBSC Data and Telephone communications are supported by common infrastructure systems, cabling, equipment and spaces.
   - Data (Equipment) rooms are synonymous with both Data and Telephonic communications.
2. The Design Professional shall provide sufficient space and locate telecommunications and data closets in the center of space being built or renovated.
   - A centralized closet (stacked one above the other if multiple floors are involved) will equalize and minimize cable runs.
   - Electrical designer and Design Professional shall allow enough space for future build-out.
   - PBSC-IT design parameters and encourage "stacking" Data/Communications closets as a major priority.
3. Avoid placing telecommunications and data closets near areas of EMI: large motors, transformers, etc.
4. In all communications rooms, the raceways or 4" bridle rings mounted above ceiling must terminate immediately adjacent to the cable trays or backing boards. All conduit type raceways including through the floor stubs must terminate in an insulated bushing or connector.
5. Telecommunications and Data Closets shall be provided with:
   - Air-conditioning –building "central" system is sufficient, not separate proprietary system, unless mandated.
   - VCT flooring.
   - Ceiling installations/finishes vary per facility, typical acoustic tile ceilings are standard – coordinate with PBSC Facilities Planning and IT (Information Technologies) departments.
   - One isolated ground quadplex outlet for each system and secondary receptacle for service. Fed by a standby NEC Article 702 power source.

6. Equipment:
    - All systems shall be identified per Division 26 05 53 Identification of Electrical Systems, including plates and conduit.
    - All boards for equipment shall be ¾" exterior B-C grade or better plywood painted gray on both sides including the edges and begin at 4" above the floor and extend up 8 feet or to within 4" of the ceiling.
    - A ¾" conduit with pull string shall be provided from each telephone, communications, or data outlet and from each security J-box to the Telephone/Communications/Data board.

27 11 19 – Communications Termination Blocks and Patch Panels
27 11 23 – Communications Cable Management and Ladder Rack
27 11 26 – Communications Rack Mounted Power Protection and Power Strips

27 13 00 – Communications Backbone Cabling – Refer to Appendix F.
27 13 13 – Communications Copper Backbone Cabling
27 13 23 – Communications Optical Fiber Backbone Cabling
27 13 33 – Communications Coaxial Backbone Cabling
27 13 43.13 – Dialtone Services Cabling
27 13 43.23 – T1 Services Cabling
27 13 43.33 – DSL Services Cabling
27 13 43.53 – Satellite Services Cabling

27 15 00 – Communications Horizontal Cabling - Refer to Appendix F.
27 15 00.16 – Voice Communications Horizontal Cabling
27 15 00.19 – Data Communications Horizontal Cabling
27 15 00.23 – Audio-Video Communications Horizontal Cabling
27 15 13 – Communications Copper Horizontal Cabling
27 15 23 – Communications Optical Fiber Horizontal Cabling
27 15 33 – Communications Coaxial Horizontal Cabling
27 15 43 – Communications Faceplates and Connectors

27 16 00 – Communications Connecting Cords, Devices and Adapters - Refer to Appendix F

27 20 00 – Data Communications - Refer to Appendix F

27 21 00 – Data Communications Network Equipment - Refer to Appendix F

27 22 00 – Data Communications Hardware - Refer to Appendix F

27 24 00 – Data Communications Peripheral Data Equipment - Refer to Appendix F

27 25 00 – Data Communications Software - Refer to Appendix F

27 26 00 – Data Communications Programming and Integration Services - Refer to Appendix F

27 30 00 – Voice Communications

1. A telephone/data riser diagram is required for each project involving telephone system installation or renovation.
2. One ¾" telephone conduit with pull string shall be provided to each electrical distribution room.
3. Phone pair shall be minimum four pair pull phone to each phone outlet; cat.5 preferred.
    - All four pairs shall be terminated or punched down.

27 31 00 – Voice Communications Switching and Routing Equipment - Refer to Appendix F

27 31 13 – PBX/Key Systems

27 31 23 – Internet Protocol Voice Switches

27 32 00 – Voice Communications Telephone Sets, Facsimiles and Modems - Refer to Appendix F

27 40 00 – Audio-Video Communications - Refer to Appendix F

27 41 00 – Audio-Video Systems

1. A television system riser diagram is required for each project involving television system installation or renovation. Refer to Education Specifications for requirements.
2. The television specifications where required shall provide a CCTV system operable at TV frequencies up to 800 mHz.

27 42 00 – Electronic Digital Systems - Refer to Appendix F

27 50 00 – Distributed Communications and Monitoring Systems - Refer to Appendix F

27 51 00 – Distributed Audio-Video Communications Systems - Reserved

27 51 13 – Paging Systems

27 51 16 – Public Address and Mass Notification Systems

27 51 23 – Intercommunications and Program Systems

27 53 00 – Distributed Systems

27 53 13 – Clock Systems

1. PBSC does not use a "centralized" clock system.
2. PBSC provides, installs and maintains all battery operated clocks throughout the District (all campuses).

28 00 00 – ELECTRONIC SAFETY AND SECURITY

Reserved for future expansion

28 05 13 – Conductors and Cables for Electronic Safety and Security

28 05 13.13 – CCTV Communications Conductors and Cables
28 05 13.16 – Access Control Communications Conductors Cables
28 05 13.19 – Intrusion Detection Communications Conductors and Cables
28 05 13.23 – Fire Alarm Communications Conductors and Cables

28 05 26 – Grounding and Bonding for Electronic Safety and Security

28 05 28.33 – Conduits and Backboxes for Electronic Safety and Security
28 05 28.36 – Cable Trays for Electronic Safety and Security
28 05 28.39 – Surface Raceways for Electronic Safety and Security

28 10 00 – Electronic Access Control and Intrusion Detection

28 23 00 – Video Surveillance

28 30 00 – Electronic Detection and Alarm

28 30 00.11 – Accessories for Electronic Detection and Alarm*

28 46 00 – Electronic Detention Monitoring and Control Systems

31 00 00 – EARTHWORK

31 09 00 – Geotechnical Instrumentation and Monitoring of Earthwork – As required for specific construction project needs, this work will be provided by Owner as specified by Design professional.

31 09 13 – Groundwater Monitoring During Construction

1. Any construction scheduled near designated surface waterways or wetlands shall be identified and protected by the CM/Contractor prior to initiating any work.

31 09 16 – Special Foundation and Load Bearing Elements Instrumentation and Monitoring - Reserved

31 10 00 – Site Clearing – Some site clearing will applicable to nearly all PBSC projects. Design professional shall be responsible for defining scope, CM/Contractor shall be responsible for locating underground utilities within cleared areas.

1. The Design Professional shall require the CM/Contractor to be responsible for locating all underground utilities prior to breaking ground.
2. The CM/Contractor shall be required to verify existing underground utility information shown on plans prior to breaking ground.
3. The scope of work and extent of Site Preparation shall be documented by the Design Professional, verified and included in the construction costs by the CM/Contractor.
4. A pre-construction sitework conference shall be scheduled and conducted by the CM/Contractor prior to the commencement of any site preparation or underground construction on any Campus or site. Representatives from the Architect/Engineer, PBSC Facilities Planning, Building and the Campus Plant Supervisor shall be present.

31 11 00 – Clearing and Grubbing - Reserved

31 12 00 – Selective Clearing - Reserved

31 13 00 – Selective Tree and Shrub Removal and Trimming

1. The Design Professional shall refer the Contractor to use the publication entitled, Tree Protection Manual for Builders and Developers, as published by the Department of Agriculture & Consumer Services, Division of Forestry, and latest edition as a guide when preparing wooded sites for construction. This entire manual will provide contractors and others working around trees and vegetation the information on how to provide protection in an effort to “save” and retain as many trees and vegetation on the site as possible. The College will provide needed funding of environmental, tree and other surveys required by Design Professional to complete the defined scope of work.
2. Prior to ground breaking, a walk-through of the site will be made by the Contractor, Design Professional and Owner’s Representative in order to determine, which trees and vegetation must be removed from the building footprint and surrounding area.

3. The Design Professional shall identify trees for preservation by tagging with ribbon or tree survey. The Design Professional shall also look at the possibility of relocating existing trees when they are in the way of new construction items.
4. The Design Professional shall preserve as many as possible of the existing trees on site which have trunks that are greater than a minimum size.
    - For the Central, South and Glades Campuses, minimum tree trunk size for preservation shall be 4" in diameter.
    - For the Eissey Campus, minimum tree trunk size for preservation shall generally be 6" in diameter.
5. Other College criteria for preservations shall be as follows:
    - Preserve oak trees before pine or palm trees.
    - Preserve pine trees before palm trees.
6. The Contractor shall be required to fully eradicate exotic vegetation within the defined limits of construction and/or as designated in construction documents.
    - Eradication of exotic vegetation shall be as identified per Florida State Statute 369.25 and Palm Beach Count Standards.
7. The Contractor shall use a licensed and certified arborist for pruning.

31 14 00 – Earth Stripping and Stockpiling - Reserved

31 20 00 – Earth Moving - Reserved

31 22 00 – Grading - Reserved

31 23 00 – Excavation and Fill - Design Professionals and CM/Contractors shall be provided with copies of soil testing results and Engineer's recommendations for site preparation, stabilization, compaction, etc.

31 23 13 – Subgrade Preparation - Reserved
31 23 16 – Excavation - Reserved
31 23 19 – Dewatering - Any site preparation work which requires de-watering shall be conducted in compliance with all State regulations and permit requirements of the governing authority.
31 23 23 – Fill - Reserved
31 23 33 – Trenching and Backfilling - Reserved

31 24 00 – Embankments - Reserved

31 25 00 – Erosion and Sedimentation Controls - Reserved

31 30 00 – Earthwork Methods - Reserved

31 31 00 – Soil Treatment – Required for all PBSC projects, coordinate specific project requirements with PBSC facilities Planning.

31 31 13 – Rodent Control - Reserved
31 31 16 – Termite Control – PBSC required.

31 31 19 – Vegetation Control - Reserved

31 32 00 – Soil Stabilization - Reserved
31 32 19 – Geosynthetic Soil Stabilization and Layer Separation
31 32 23 – Pressure Grouting Soil Stabilization

31 33 00 – Rock Stabilization – Not typically required.

31 34 00 – Soil Reinforcement - Reserved

31 35 00 – Slope Protection - Reserved

31 37 00 – Riprap - Reserved

31 40 00 – Shoring and Underpinning - Reserved

31 41 00 – Shoring - Reserved

31 50 00 – Excavation Support and Protection - Reserved

31 60 00 – Special Foundations and Load-Bearing Elements - Reserved

31 62 00 – Driven Piles - Reserved

31 63 00 – Bored Piles - Reserved

31 66 00 – Special Foundations - Reserved

32 00 00 – EXTERIOR IMPROVEMENTS

32 01 00 – Operation and Maintenance of Exterior Improvements – Reserved for future procedures for Maintenance and Operations.

32 01 11 – Paving Cleaning – Reserved
32 01 13 – Flexible Paving Surface Treatment – Reserved
32 01 16 – Flexible Paving Rehabilitation – Reserved
32 01 17 – Flexible Paving Repair – Reserved
32 01 26 – Rigid Paving Rehabilitation – Reserved
32 01 30 – Operation and Maintenance of Site Improvements – Reserved
32 01 80 – Operation and Maintenance of Irrigation – Reserved
32 01 90 – Operation and Maintenance of Planting – Reserved
32 01 90.13 – Fertilizing – Reserved
32 01 90.16 – Amending Soils – Reserved
32 01 90.19 – Mowing – Reserved
32 01 90.23 – Pruning – Reserved
32 01 90.26 – Watering – Reserved
32 01 90.29 – Topsoil Preservation – Reserved
32 01 90.33 – Tree and Shrub Preservation – Reserved

32 10 00 – Bases, Ballasts, and Paving – Reserved

32 11 00 – Base Courses

32 11 13 – Subgrade Modifications – Reserved
32 11 16 – Subbase Courses
32 11 16.16 – Aggregate Subbase Courses
32 11 23 – Aggregate Base Courses – Aggregate base courses for paving shall be as specified by the Design professional. Typical PBSC preferred aggregate base types are:

- Shell rock
- Limestone
- Clean crushed concrete
- Recycled crushed concrete

32 11 26 – Asphaltic Base Courses – Not used

32 12 00 – Flexible Paving

32 12 16 – Asphalt Paving – Asphalt paving is the typical finished surfacing material for vehicular roadways and surface parking lots on all existing PBSC Campuses.
32 12 36 – Seal Coats – When used, provided and installed by PBSC.

32 13 00 – Rigid Paving

32 13 13 – Concrete Paving

1. Not typically used by PBSC.
2. Limited uses are typically for vehicular driveways or aprons.
    - Minimum 6” thick slab, reinforced with heavy-duty,6”x6” welded wire “road” mesh.

32 13 16 – Decorative Concrete Paving – Not used

32 14 00 – Unit Paving

32 14 13 – Precast Concrete Unit Paving – PBSC preferred decorative paving type. Project specific, specified by Design Professional, installed by CM/Contractor. Refer to Project Program (Educational Specifications) for scope of work.

32 14 16 – Brick Unit Paving – Not used.

32 14 40 – Stone Paving – Not used.

32 14 43 – Porous Unit Paving – Not used.

32 16 00 – Curbs and Gutters

32 16 13 – Concrete Curbs and Gutters

1. Integral "curb & gutter" not typically used on "internal" campus roadways, but may be used at public rights-of-way abutting campus property lines.
2. Typical PBSC sidewalks abutting roadways are constructed with integral or independent cast-in-place concrete curbs.
3. Machine-formed concrete curbs at parking islands are acceptable with approval of PBSC Facilities Planning.

32 16 19 – Asphalt Curbs – Not used.

32 17 00 – Paving

32 17 13 – Parking Bumpers

1. Typically required at all new/renovation PBSC project parking areas.
2. All bumpers must be anchored in place using (2) 12" #6 rebar.

32 17 23 – Pavement Markings – Required for compliance with PBSC on-campus vehicular traffic management plans

32 17 26 – Tactile Warning Surfacing

1. Required for all new/renovation projects with associated site work for compliance with ADA Code requirements.
2. PBSC-preferred application is "Caution Yellow" pre-manufactured vinyl/plastic units, mechanically anchored to concrete ramps/sidewalks.

32 18 00 – Athletic and Recreational Surfacing

32 18 13 – Synthetic Grass Surfacing

1. Not currently used for PBSC Athletic surfaces.
2. Limited uses for PBSC exterior child-care facility play areas.

32 18 16 – Synthetic Resilient Surfacing

32 18 23 – Athletic Surfacing

32 30 00 – Site Improvements – Reserved.

32 31 00 – Fences and Gates

32 31 13 – Chain Link Fences and Gates

1. Galvanized chain-link fencing is the standard fencing type utilized by PBSC.

2. Height varies with application, refer to project program for specific requirements.
3. All applications shall provide knuckled selvage at fence-tops.

32 31 19 – Decorative Metal Fences and Gates – Not typically used except in special applications.

32 31 29 – Wood Fences and Gates – Not typically used.

32 32 00 – Retaining Walls - Project specific, specified by Design Professional, installed by CM/Contractor. Refer to Project Program (Educational Specifications) for scope of work.

32 35 00 – Screening Devices - Project specific, specified by Design Professional, installed by CM/Contractor. Refer to Project Program (Educational Specifications) for scope of work.

32 35 13 – Screens and Louvers

32 35 16 – Sound Barriers – Limited applications, primarily used for exterior equipment sound screening.

32 70 00 – Wetlands – Reserved.

32 72 00 – Wetlands Restoration – Reserved.

32 80 00 – Irrigation

32 80 13 – System Design

1. Systems shall be designed for 100% coverage and equal hourly precipitation rates obtained by configuration and run times.
2. The irrigation system shall be designed and installed such that irrigation water does not spray on buildings, walkways or exterior utilities.
3. Rotor zones shall operate independent of any mist or drip zones.
4. Drip irrigation zones or small mist heads are preferred for irrigating at the perimeter of structures.
5. Irrigation system shall be electric with actuated solenoid values as manufactured by Toro: Hardee 700 (now Irritrol) or equal. Hydraulic valves are not acceptable for any College project.

32 80 16 – Irrigation Piping

1. Schedule 40 PVC pipe shall be sued throughout the entire irrigation system on all pipes for pressure lines and zone lines.
2. Fittings for mainline irrigation pipe shall be schedule 80 PVC.
3. Irrigation pipes shall be placed a minimum of 12” below grade at all locations.
4. Design pipe sizes to keep water velocities under 5 feet/second.
5. Where irrigation piping is buried beneath sidewalks and drives, the Contractor shall install pipe sleeves for irrigation pipes. Sleeves shall be minimum size of 6” diameter, buried at minimum depth of 12” in landscaped areas (24” in roadways) and constructed of schedule 40 PVC.

32 80 19 – Irrigation Controls and Wiring

1. All zone wiring shall be clearly and identified at both ends (valve boxes and control box) with a permanent marking system (heat shrink or other acceptable method).
2. All zone and tracer wire splices shall be performed with an approved underground splice system (waterproof wire nuts, etc.)
3. The Contractor shall place a tracer wire under all main and zone piping.
4. Tracer and zone wires (if not conduit) shall be a minimum of #12 AWG solid copper with a UF or direct burial rated insulation.
5. Tracer wire shall be a different color than any direct burial zone wiring for easier identification.
6. Wires shall be identified at both valve boxes and permanently tagged at both ends.
7. Wires splices outside of valve boxes are not allowed.
8. Tracer taps shall not be allowed.

32 82 00 – Irrigation Pumps

1. Zone gallons shall be compatible with existing pump and distribution systems. Consult grounds supervisor for information.
2. Irrigation pumps shall be submersible type with surge protection, electronic overload protection and phase loss protection.
3. All new construction shall use “variable frequency drive” pumps for irrigation pump stations.
4. Well pump monitoring devices shall be provided for conformance with SFWMD irrigation permits in effect. PBSC preferred monitoring device shall be Manufactured by McCrometer Saddle Flow meter.
5. All new pumps shall have rain sensors. PBSC preferred devices shall be manufactured by Rain-chek.

32 84 00 – Planting Irrigation - Project specific, specified by Design Professional, installed by CM/Contractor. Refer to Project Program (Educational Specifications) for scope of work.

32 90 00 – Planting – Reserved, refer to Appendix H – Landscape Trees and Plants

32 91 00 – Planting Preparation - Reserved, refer to Appendix H – Landscape Trees and Plants

32 91 13 – Soil Preparation
32 91 16 – Planting Soil Stabilization
32 19 19 – Landscape Grading

32 92 00 – Turf Grasses - Reserved, refer to Appendix H – Landscape Trees and Plants

32 92 13 – Hydro-Mulching
32 92 19 – Seeding

32 92 23 – Sodding
32 02 26 – Sprigging

32 93 00 – Plants - Reserved, refer to Appendix H – Landscape Trees and Plants
32 93 13 – Ground Covers
32 93 23 – Plants and Bulbs
32 93 33 – Shrubs
32 93 43 – Trees

32 94 00 – Planting Accessories - Reserved, refer to Appendix H – Landscape Trees and Plants

32 96 00 – Transplanting - Reserved, refer to Appendix H – Landscape Trees and Plants

33 00 00 – UTILITIES

33 09 00 – Instrumentation and Control for Utilities - Reserved

33 10 00 – Water Utilities

1. PBSC campuses operate under the jurisdiction of several different utility authorities within Palm Beach County.
2. All "on-site" systems are private – owned and maintained by the College.
3. Utility authorities include:
   - Lake Worth Campus – City of Lake Worth Utilities
   - WPB Historical Campus – City of West Palm Beach
   - Palm Beach Gardens Campus – Seacoast Utility Authority
   - FAU/Boca Raton Campus – City of Boca Raton
   - Belle Glade Campus – Palm Beach County Water Utilities Department

33 11 00 – Water Utility Distribution Piping

33 11 13 – Public Water Utility Distribution Piping

1. All Design Professionals and CM/Contractors shall comply with the requirements of the governing utility authority for all "off-site" systems, equipment and piping.
2. Project Civil Engineers shall work in collaboration with PBSC Facilities, Planning and Building Departments to insure that this Owner's best interests and State statutes are enforce and applied to minimize conflicting permit requirements among State/Local agencies and institutions.

33 11 16 – Site Water Utility Distribution Piping

33 11 19 – Fire Suppression Utility Water Distribution Piping

33 12 00 – Water Utility Distribution Equipment

33 12 13 – Water Service Connections

1. All Design Professionals and CM/Contractors shall comply with the requirements of the governing utility authority for all system service connections, equipment and piping.

33 12 16 – Water Utility Distribution Valves

1. PBSC prefers all underground water distribution valves to be "American" ball valves, including fire lines.

33 12 19 – Water Utility Distribution Fire Hydrants

1. Fire hydrants are installed on all campuses with frequency and locations coordinated with the local service providers.
2. Annual testing is provided by PBSC.
3. New facility construction may require additional hydrants. Design professionals and CM/Contractor shall coordinate locations with PBSC Fire and Building Officials.

33 12 23 – Water Utility Pumping Stations – currently not applicable on any PBSC campuses.

33 12 33 – Water Utility Metering

1. Typical PBSC campuses are "single metered".

- Lake Worth Campus has two separate meters – main campus and ETC (Education and Training Center).

2. Some campuses are separately metered for HVAC Cooling Tower water.
3. Lake Worth Campus has a “dedicated”, closed loop Fire Line, which is unmetered.

33 13 00 – Disinfecting of Water Utility Distribution

1. All new facility construction requires disinfecting and bacteriological testing to be provided by the CM/Contractor, reviewed and approved by PBSC Building Department prior to issuance of occupancy certification.

33 20 00 – Wells

33 21 00 – Water Supply Wells

33 21 13 – Public Water Supply Wells

1. No public water supply wells are located on any PBSC campus providing potable water to that campus.

33 21 16 – Irrigation Water Wells

1. Irrigation water wells are located on all PBSC Campuses.
2. New facility construction may require additional wells, or modification of existing. Coordinate with PBSC facilities Planning for scope of work.
3. All irrigation wells are required to be permitted through SFWMD (South Florida Water Management District.
4. All irrigation wells require monitoring devises, annual reporting and periodic permit review and renewal, all of which are provided by PBSC>

33 24 00 – Monitoring Wells

33 24 13 – Groundwater Monitoring Wells

1. No groundwater monitoring wells are currently operating on any campus.
2. Potential groundwater contamination may require monitoring on new construction. Design Professional and CM/Contractor shall coordinate with PBSC Facilities Planning for all requirements during pre-construction.

33 29 00 – Well Abandonment

1. New construction or other circumstances may require abandonment of existing irrigation wells.
2. This scope of work should be defined and included in the project program (Ed Specs), which is also included in the scope of work for Design Professionals and CM/Contractor.

33 30 00 – Sanitary Sewerage Utilities

1. Typical utility authorities at all campuses are same as “Water” utility providers.

33 31 00 – Sanitary Utility Sewerage Piping – Refer to Water piping

33 31 13 – Public Sanitary Utility Sewerage Piping

33 32 00 – Wastewater Utility Pumping Stations

1. Applicable only in special project applications.
2. Typical PBSC sanitary sewerage systems are “gravity” lines.

33 34 00 – Sanitary Utility Sewerage Force Mains

1. No on-site PBSC force mains are used.
2. Typical PBSC sanitary systems do not tie into public force mains.

33 36 00 – Utility Septic Tanks – Not used by PBSC.

33 39 00 – Sanitary Utility Sewerage Structures – Reserved.

33 40 00 – Storm Drainage Utilities

1. PBSC campuses operate under the jurisdiction of different drainage authorities within Palm Beach County, including:
   - SFWMD – South Florida Water Management District
   - LWDD – Lake Worth Drainage District (Lake Worth Campus only)
2. Design Professionals and CM/Contractor shall coordinate with authorities having jurisdiction for specific project requirements.

33 41 00 – Storm Utility Drainage Piping – Reserved.

33 44 00 – Storm Utility Water Drains – Reserved.

33 44 13 – Utility Area Drains
33 44 16 – Utility Trench Drains
33 44 19 – Utility Storm Water Treatment

33 46 00 – Subdrainage – Reserved.

33 46 26 – Geotextile Subsurface Drainage Filtration
33 46 33 – Retaining Wall Drainage

33 47 00 – Ponds and Reservoirs – Reserved.

33 47 13 – Pond and Reservoir Liners
33 47 19 – Water Ponds and Reservoirs

33 49 00 – Storm Drainage Structure – Reserved.

33 49 13 – Storm Drainage Manholes, Frames, and Covers
33 49 23 – Storm Drainage Water Retention Structures

33 50 00 – Fuel Distribution Utilities

33 51 00 – Natural-Gas Distribution

1. Limited service provided on most campuses from local providers.
2. Coordinate with PBSC Facilities/Planning and Building for appropriate applications in conformance with Project Program.

33 52 00 – Liquid Fuel Distribution – Not applicable for PBSC.

33 56 00 – Fuel-Storage Tanks

33 56 13 – Above-ground Fuel-Storage Tanks

1. Various applications occur on most campuses including:
   - Diesel fuel storage tanks (emergency generators)
   - Gasoline storage tanks (fleet/maintenance vehicles)
   - Liquid Propane (vocational instructional systems)
2. Fuel storage tanks are all double-walled steel and typically protected by overflow reservoirs.

33 60 00 – Hydronic and Steam Energy Utilities – Not applicable for PBSC.

33 70 00 – Electrical Utilities

1. PBSC campuses operate under the jurisdiction of two different electrical utility providers within Palm Beach County, including:
   - FPL – Florida Power & Light
   - Lake Worth Utilities (Lake Worth Campus only)
2. Design Professionals and CM/Contractor shall coordinate with PBSC Facilities/Planning/Building for specific project requirements, service entry points and recommended distribution plans.

33 71 00 – Electrical Utility Transmission and Distribution

1. PBSC-preferred primary electrical distribution is underground.
2. All new primary electrical distribution shall be underground.
3. Only one campus, Lake Worth has a remaining high voltage (4160V) overhead service remaining. Phase–out to underground is imminent.

33 71 16 – Electrical Utility Poles – Not used, except as existing.

33 71 16.13 – Precast Concrete Electrical Utility Poles – Not used.

33 71 16.33 – Wood Electrical Utility Poles – Not preferred.

33 71 19 – Electrical Underground Ducts and Manholes

1. PBSC-required underground distribution system for high-voltage cabling.
2. All new primary electrical distribution duct banks hall include minimum 2 spare conduit with pull strings.

33 71 39 – High-Voltage Wiring

1. Copper conductors only, no aluminum.

33 71 49 – Medium-Voltage Wiring – Reserved.

33 71 73 – Electrical Utility Services – Reserved.

33 72 00 – Utility Substations – no on-site utility substations currently exist on any campuses.

33 73 00 – Utility Transformers

33 73 13 – Liquid-Filled Utility Transformers

1. Multiple transformers exist on all campuses, many utilizing “looped” service feeders.

2. Coordinate with PBSC Facilities/Planning for specific project service requirements.
3. All new transformers shall be protected in accordance with Code requirements when used within or adjacent to new/existing occupied facilities.

33 75 00 – High-Voltage Switchgear and Protection Devices – Reserved.

33 77 00 – Medium-Voltage Utility Switchgear and Protection Devices – Refer to Electrical division 26 00 00.

33 79 00 – Site Grounding – Reserved.

33 80 00 – Communications Utilities – Reserved.

33 81 00 – Communications Structures – Reserved.
33 81 13 – Communications Transmission Towers
33 81 16 – Antenna Towers

33 82 00 – Communications Distribution – Reserved.

33 83 00 – Wireless Communications Distribution – Reserved.

34 00 00 – TRANSPORTATION
Reserved - not used for PBSC

34 43 13 – Airfield Signals