

“Leading the Way for a Safer Pinellas”



**Pinellas County Upgrade
Jail Campus Infrastructure**

Phase 1 Design Criteria

Volume 3 - Project Description
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Project Narratives

VOLUME 3 - TABLE OF CONTENTS

EXHIBIT J Project Narratives.....	3-0
Project Summary	3-1
LEED Program	3-2
Architectural Design Criteria – Infrastructure	
Building.....	3-3
Architectural Design Criteria – Maintenance Building,	
Purchasing & Jail Warehouse Building	3-4
Architectural Design Criteria – South Kitchen	
Renovation	3-5
Site Fencing Criteria	3-6
Site Civil Design Criteria	3-7
Structural Design Criteria.....	3-8
Plumbing Design Criteria	3-9
HVAC Design Criteria	3-10
Fire Protection Design Criteria.....	3-11
Electrical Service and Distribution Design Criteria ..	3-12
Electrical Lighting and Branch Wiring	
Design Criteria	3-13
Fire Detection and Alarm System Design Criteria ...	3-14
Integrated Security System Design Criteria	3-15
Detention Equipment Design Criteria.....	3-16
Telecommunications System Design Criteria.....	3-17
Audio Visual Systems Design Criteria.....	3-18
Laundry and Main Kitchen Design Criteria.....	3-19

1 – PROJECT SUMMARY

1.1 General Project Description

.1 Overview:

- A. The Pinellas County Jail Infrastructure Upgrade Project includes a new combined Kitchen, Laundry, Central Plant, Dock and Jail Central Control Building (Infrastructure Building); a new Facility Maintenance Building; a new Sheriff's Office Warehouse Building; Renovation of the existing South Kitchen; Campus-wide Security Upgrade (including, but not limited to access control, surveillance, recording & information storage and intercom systems); Major utility relocations; and piping to connect the Criminal Justice Center (court house) to the new central plant.
 - 1. Infrastructure Building & Site Area:
 - a. Building Area: 72,416 Gross Square Feet
 - b. Site Area: Approximately 103.95 acres (Entire Jail Campus)
 - 2. Renovations and additions to Central Division and South Division to provide connectivity to the new Infrastructure Building.
 - a. Renovation at the second floor of Central Division at the north stair and adjacent housing area. Approximately 800 Gross Square Feet.
 - b. Two story addition of a freight elevator between Central and South Divisions at the connection between those two units. Approximately 534 Gross Square Feet.
 - 3. Facility Maintenance Building & Site Area: Approximately 14,960 Gross Square Feet
 - 4. Sheriff's Office & Purchasing Warehouse Building & Site Area: Approximately 43,340 Gross Square Feet.
 - 5. Existing South Kitchen Renovation Area: approximately 6,948 Gross Square Feet.
 - 6. New Security and Utility work as described in Narratives, Drawings, and Specifications.
- B. The new infrastructure building will consist of substantial, secure construction and shall have a 50-year useful life under normal operating circumstances. All construction materials and systems shall be in accordance with the Pinellas County Design and Construction Standards published here-in as an Appendix to this Package.
 - 1. Foundations, building superstructure, and exterior walls shall have a 50-year useful life.
 - 2. Roofing system shall have a 20-year minimum warranty.
 - 3. Energy Plant Equipment shall have a minimum 25-year useful life.

.2 General Scope:

- A. Building and Site Demolition and Selective Demolition:
 - 1. Abatement.
 - 2. Removal of the FSC Housing Building
 - a. Coordinate with Owner any and all existing equipment or connections to other buildings prior to commencing demolition.
 - 3. Removal of Laundry, Kitchen, and Control Buildings, after the completion of the Infrastructure Building.
 - 4. Removal of ancillary sheds and storage buildings related to the larger structures identified for removal.
 - 5. Removal of drives, walks, curbs, fencing, utilities, and plantings related to the buildings identified for removal.
 - 6. Selective demolition of existing facilities required for renovation and systems upgrade work.
 - 7. See additional Civil, Structural, Mechanical, Electrical, Plumbing, Fire Protection, Technology, Security Electronics, and Detention demolition criteria described elsewhere in Criteria Package.
- B. Buildings and Additions for this project include:

Project Description

1. A new Infrastructure building generally containing a Main Kitchen facility, a Central Laundry facility, a Central Energy Plant, Loading Dock/Sallyport, and Central Control Suite.
 2. A new connector bridge from the second floor of the north stair in Central to the Infrastructure Building
 3. A new two story freight elevator addition in Central Division to facilitate food and laundry cart traffic through Central's second floor then down and across an existing link on the first floor to South Division.
 4. A new Facility Maintenance Modular Building
 5. A new Sheriff's Office Warehouse Modular Building
 6. See additional Civil, Structural, Mechanical, Electrical, Plumbing, Fire Protection, Technology, Security Electronics, and Detention new building construction criteria described elsewhere in Criteria Package.
- C. Renovation and Upgrades include:
1. Renovations to Central building required between the new bridge connecting the Infrastructure Building and Central's elevator core lobby.
 2. Renovations to Central required to add the new freight elevator.
 3. South Kitchen Renovation
 4. Security System Upgrades for entire existing jail campus.
 5. See additional Structural, Mechanical, Electrical, Plumbing, Fire Protection, Technology, Security Electronics, and Detention renovation and upgrade criteria described elsewhere in Criteria Package
- D. Site improvements for the project generally include:
1. Vehicular circulation improvements:
 - a. Access, service, and delivery drive improvements.
 - b. Staff parking reconfiguration.
 - c. Site fencing improvements and reconfigurations.
 2. Pedestrian circulation improvements:
 - a. Covered concrete sidewalk connecting the Infrastructure building to the Healthcare Building for the purposes of transporting food and laundry carts between the buildings.
 - b. General sidewalks for pedestrian site circulation between the buildings.
 3. Utility work:
 - a. New Utilities:
 1. Fire Water Loop
 2. Perimeter Electrical Loop
 3. Chilled Water Loop.
 - b. Utility Connections.
 - c. Utility Replacements.
 4. Storm water management work.
 - a. Site grading.
 - b. Storm structures.
 5. Site fencing improvements:
 - a. New security perimeter fencing.
 - b. Temporary security perimeter fencing for purposes of construction phasing.
 6. See additional Civil, Mechanical, Electrical, Security Electronics, and Detention site improvement criteria described elsewhere in Criteria Package.
- .3 *General Existing Conditions Description – Primary Building Listing:*
- A. Healthcare Building
 - B. Mini 1 Building – currently used for Healthcare storage
 - C. Mini 2 Building – Temporary Housing
 - D. A-Barracks – unoccupied
 - E. B-Barracks – unoccupied
 - F. C-Barracks Housing

Project Description

- G. Main Control Building
 - H. North Kitchen Building
 - I. Laundry Building
 - J. Female Secure Confinement Building (FSC)
 - 1. Unoccupied
 - 2. Demolished under this contract.
 - K. Central Housing Building (Central Division) including:
 - 1. Main Intake Vehicle Sallyport
 - 2. Intake
 - 3. Booking
 - 4. Public lobby
 - 5. Release
 - L. South Housing Building (South Division) including:
 - 1. Jail Administration
 - 2. A-Wing Court Holding
 - 3. B-Wing Temporary housing
 - 4. C-Wing Female housing
 - 5. D-Wing Female housing
 - 6. E-Wing Housing
 - 7. F-Wing Kitchen, small laundry and housing
 - 8. G-Wing Segregation housing
 - 9. Express corridor to courthouse
- .4 *General Construction Phasing:* The project is to be phased in a manner that maintains operations during construction:
- A. Phase 1 - Demolition of Female Secure Confinement (FSC) building including:
 - 1. Basic building demolition
 - 2. Hazardous materials remediation
 - 3. Site work to prepare for new construction
 - 4. Temporary reconfiguration of secure perimeter fence required to maintain the secure perimeter and separate the inmates from construction activities during Phases 1 and 2.
 - B. Phase 2 - Construction of Infrastructure Building (Laundry, Kitchen, Dock, Central Plant, Central Control) including:
 - 1. Bridge connector to Central Housing
 - 2. Site Utility Work
 - 3. Security Upgrades to existing facilities.
 - 4. Any temporary sidewalks and security fencing required to provide food and laundry push cart access between the North Kitchen, Central Housing, and the Healthcare Facility during Phase 3.
 - 5. Any temporary reconfiguration of secure perimeter fence required to maintain the secure perimeter and separate the inmates from construction activities during Phase 3.
 - C. Phase 3 – Phase three includes the following projects:
 - 1. Demolition of Existing Laundry, Kitchen, and Control Building.
 - 2. Construction of Facility Maintenance Building.
 - 3. Construction of the Warehouse Building.
 - 4. Renovation of South Kitchen.
 - D. Phase 4 - Final Site work including the construction of a covered sidewalk required to provide permanent food and laundry push cart access between the Infrastructure Building and the Healthcare Facility. The covered sidewalk connection can be constructed during an earlier phase if not detrimental to construction activities and Jail operations.
- .5 *General Construction Site Security:*

Project Description

- A. Design/build Contractor shall develop and enforce a site security procedures plan in coordination with Pinellas County Sheriff's Office requirements.
- B. Provide a temporary construction fence meeting PCSO and OSHA requirements around the perimeter of the construction sites during all their phases.
- C. Limit access of all construction vehicles and personnel to one location.

1.2 Temporary Facilities**.1 General**

- A. Temporary facilities are those pieces of construction that are built to provide security controls, to process construction traffic and to support the construction process. The prominent temporary facilities include, but are not limited to, the following:
 - 1. Design/Build Contractor's compound comprised of the following:
 - a. Perimeter fencing.
 - b. Design/Build Contractor's material lay down or storage areas.
 - c. Contracting forces parking, including soil stabilization such as crushed rock, etc.
 - d. Contracting forces job trailers.
 - e. Construction Facilities: Contractors' forces office modulars, with utility hookups, exterior lighting, etc.
 - 2. All of the above Design/Build Contractor's compound temporary facilities are to be included in the contract scope.
 - 3. All temporary facilities shall be protected with surface water pollution prevention measures as required by permitting agencies.

1.3 General Code Requirements**.1 General:** Design/Builder is responsible for compliance with the Codes.

- A. The following codes and guides are in effect during the preparation of the criteria documentation for this project, however the Design Builder shall utilize the most current adopted versions for the production of the design and construction:
 - 1. 2010 Florida Building Code - Building
 - 2. 2010 Florida Building Code - Existing Building
 - 3. 2010 Florida Building Code - Energy Conservation
 - 4. 2010 Florida Building Code - Mechanical
 - 5. 2010 Florida Building Code - Plumbing
 - 6. 2012 Florida Accessibility Code
 - 7. NFPA 101-2009 Edition, Life Safety Code
 - 8. NFPA 70-2008 Edition, National Electrical Code (NEC)
 - 9. NFPA 72-2007 Edition, National Fire Alarm Code
 - 10. Pinellas County Design and Construction Standards
- B. Accessibility: The project is to be designed and constructed for accessibility according to the most current version of the Florida Accessibility Code.
- C. Construction Permitting shall be provided by the Design/Builder: Pinellas County, Florida is the jurisdiction having authority for the construction of this project.
- D. Site Permitting shall be provided by the Design/Builder to address all relevant local, regional, state and federal regulatory agencies requirements including, but not limited to:
 - 1. Pinellas County
 - 2. City of Largo
 - 3. Southwest Florida Water Management District
 - 4. Florida Department of Environmental Protection
 - 5. US Army Corps of Engineers
- E. Design/Builder shall be responsible for all actions required for maintaining all permit conditions as the Owners representative during construction and will be responsible for all certifications of completion, notices of termination and/or transfers to Operation permits prior to final acceptance.

Project Description

1.4 Information Available to Design/Build Proposers

- .1 *Exhibit Materials:* The following have been produced and included for reference.
- A. Pinellas County Jail Existing Facilities Assessment.
 - B. Pinellas County Jail Master Plan Documents.
 - C. Pinellas County Jail Master Plan Space Program Documents.
 - D. Pinellas County Design and Construction Standards.
 - E. Stormwater Management Master Plan.

1.5 Owner Furnished Contractor Installed Products

- .1 *General:*
- A. The Design/Build Contractor shall provide support systems to receive Owner's equipment and furnishings, and make all necessary connections for utility or electrical connections as may be required for the item being installed.
 - 1. Owner will arrange and pay for delivery of Owner-furnished items according to Design/Build Contractor's Construction Schedule.
 - 2. After delivery, Owner will inspect delivered items for damage. Design/Build Contractor shall be present for and assist in Owner's inspection.
 - 3. If Owner-furnished items are damaged, defective, or missing, Owner will arrange for replacement.
 - 4. Owner will arrange for manufacturer's field services and for delivery of manufacturer's warranties to Design/Build Contractor.
 - 5. Design/Build Contractor shall designate delivery dates of Owner-furnished items in Design/Build Contractor's Construction Schedule.
 - 6. Design/Build Contractor is responsible for receiving, unloading, and handling Owner-furnished items at Project site.
 - 7. Design/Build Contractor is responsible for protecting Owner-furnished items from damage during storage and handling, including damage from exposure to the elements.
 - 8. If Owner-furnished items are damaged as a result of Design/Build Contractor's operations, Design/Build Contractor shall repair or replace them.
 - 9. Design/Build Contractor shall install and otherwise incorporate Owner-furnished items into the Work.
 - B. Design/Build Contractor shall indicate to Owner required furniture delivery dates 60 days in advance.

1.6 Mock-ups

- .1 *General:* Mockups are required for certain portions of the Work. Mockups required, in accordance with the requirements indicated elsewhere in these Documents, include, but are not limited to, the following:
- A. Exterior wall finish: Provide 5'-0" x 10'-0" exterior wall panel with final finish with window unit. If acceptable, the mock-up may be included in the final construction.

1.7 Water Tight – Weather Tight

- .1 *General:* Content of the RFP and the Design/Build Contract Documents notwithstanding, the Design/Build Contractor accepts the responsibility of constructing a watertight, weather tight project.
- A. Discovery of Fungi (Mold): Design/Build Contractor is responsible for providing labor, material, products, equipment and services to install insulation, air/vapor retarders and barriers, and ventilation systems that maintain effective control of air, moisture, and heat transfer within the building envelope.

Project Description

1. Should Design/Build Contractor proceed to install insulation, ceiling tiles, gypsum wallboard or similar products having paper, cardboard and other cellulose surfaces prior to the buildings' being enclosed and weatherproof (including ambient conditions of temperature and humidity being continuously maintained at values near those indicated for final occupancy), the Design/Build Contractor is at risk for mold contamination of the building components.
 2. During the course of construction of the Project, Design/Build Contractor shall perform continuous visual inspection/verification of building components and ventilation systems (particularly for damp filters) for possible contamination by mold.
 3. If the presence of mold is suspected, detected or found, visible water damage observed or musty odors detected, immediate remediation action shall be initiated by the Design/Build Contractor. In all instances, any source(s) of water shall be stopped and the extent of water damage determined. Water-damaged materials shall be immediately removed and replaced with new materials at the Design/Build Contractor's expense. The Design/Build Contractor shall provide an approved independent test report documenting the completed environmental status.
 4. Mold-damaged materials shall be remedied in accordance with Design/Build Contractor's Mold Remediation Plan.
 5. Design/Build Contractor shall submit his Mold Remediation Plan, which outlines and describes in detail the procedures and policies to be followed for this Project.
- B. The D/B contractor shall provide weather tight exterior building envelope components and systems that comply with Florida State requirements for Wind criteria.

1.8 Specifications

.1 General:

- A. To the greatest extent possible, the Specifications Volume of the RFP generally follow the MasterSpec Master Format 2012 Version for location of subject matter and general numbering methodology. Language used is abbreviated as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the RFP documents indicates.
- B. Information found in the Specifications Volume is provided as a reference for the use in preparing Design/Build Proposals and Post-Award Design/Build submittals, and is intended to complement the RFP Criteria Drawings and program intent. Unless agreed to by the Owner, the Design/Build Proposers and the Post-Award Design/Build Designers are required to utilize specific products only where specific products are indicated in the individual elements of the RFP; where specific products are not indicated, materials meeting the performance and standards referenced, including industry standards such as ASTM standards, UL requirements, and the like shall be provided. The Final and Best Offer and the Final 100% Construction Documents used to construct the project shall include materials appropriate to the Design/Build design, meeting the Owner's design and program intent, and include all materials required for the project, whether or not they have been included in the Specifications sections of the RFP.

1.9 Miscellaneous Provisions

- .1 *Kitchen Utility Management:* Organize piping, ductwork, conduit and cable trays to the greatest extent possible above kitchen equipment areas to maintain flexible utility connections for ease of equipment installation and replacement.
- .2 *Furnishings and Equipment:*
 - A. Owner will provide (furnish and install), under separate contract, various loose furniture items. Refer to Section 1.5 above for requirements. See Project Narratives for preliminary Owner Provided Equipment list(s).
 - B. Fixed detention furnishings and equipment will be contractor furnished and installed.

Project Description

Suggested Specialty Consulting Services:

- A. Electronic Security consultant
 - 1. Detention CCTV and electronic door controls: new and replacements
 - 2. Access controls
 - 3. Jail campus central control integration
- B. A/V consultant
 - 1. Program Room audio/video/integrated IT systems
- C. Food Service & Laundry Consultant
 - 1. New Main Kitchen
 - 2. New Laundry
 - 3. South Kitchen renovation
- D. Acoustical Consultant
- E. Vibration consultant

2 – LEED Program

2.1 General Requirements

.1 Requirements

- A. If approved by Pinellas County, the entire project shall comply with the United States Green Building Council (USGBC) requirements to certify the project under LEED Version 3. The goal for this project would be base certification.
- B. The site is owned by Pinellas County. There are multiple structures that will be demolished following LEED guidelines for demolition.
- C. The Design-Build team shall be responsible for planning, design, drawings, specifications and execution of the contract to comply with specific requirements of the selected credits to achieve base LEED certification.
- D. The Design-Build team shall be responsible for project registration and certification.
- E. The Design-Build team shall make recommendations for approval by Pinellas County for meeting LEED criteria for each selected credit.
- F. The Design-Build team manager for the project shall be LEED Accredited.
- G. The Design-Build project design professional shall be LEED Accredited.
- H. The Design-Build team shall include a separate line item and dollar amount for labor and materials in the “Schedule of Values” for the costs associated with LEED certification.

.2 Categorization of Credits

- A. LEED Credits are organized as follows:
 - 1. Required – This credit is pre-selected and required and shall be achieved as part of this project. All LEED Prerequisites are required.
 - 2. Desired – Pinellas County has a strong interest in achieving the credit in this specific area.
 - 3. Allowed – This credit is allowed.
 - 4. Not Allowed – This credit shall not be used.

.3 Life Cycle Cost Analysis

- A. For each credit, the Design-Build team shall prepare a life cycle cost analysis to assist in evaluating the efficacy of the specified credit. The life cycle cost analysis shall include the following:
 - 1. Comparative Cost Analysis: A cost estimate for each credit, system or discreet component of a system identified as being part of the project shall be prepared and evaluated against a code minimum baseline. The incremental cost shall be identified.
 - 2. Operational Cost / Benefit: The operational cost / benefit of each credit, system or discreet component of a system identified as being part of the project shall be prepared and evaluated against a code minimum baseline. The incremental costs or benefits shall be identified.
 - 3. Maintenance Cost / Benefit: The maintenance cost / benefit of each credit, system or discreet component of a system identified as being part of the project shall be prepared and evaluated against a code minimum baseline. The incremental costs or benefits shall be identified.
 - 4. Simple Payback: A simple payback analysis shall be completed.
- B. The Life Cycle Cost Analyses shall be prepared in a report form with sufficient information and detail to allow for third party peer evaluation and review. This analysis shall be completed and updated at each indicated submittal.

Project Description

.4 Innovation Credits

- A. For each credit, the Design-Build team shall prepare a life cycle cost analysis to assist in evaluating the efficacy of the specified credit. The life cycle cost analysis shall include the following:

2.2 Sustainable Sites (SS)

.1 Prerequisite 1 – Construction Activity Pollution Protection

- A. Description: [From credit]
B. Category: Required
C. Responsibility: Design/Build Contractor
D. Special Considerations: This Credit is achievable. NPDES permitting is required.

.2 Credit 1 – Site Selection

- A. Description: Do not develop buildings, hardscape, roads or parking areas on portions of sites that are prime farmland, previously undeveloped, are specified as habitat for protected species, are within 100-feet of wetlands or were previously undeveloped and within 50-feet of a defined Clean Water Act body of water.
B. Category: Allowed
C. Responsibility: Design/Build Contractor
D. Special Considerations: This Credit is achievable.

.3 Credit 2 – Development Density and Community Connectivity

- A. Description: Construct or renovate a building on a previously developed site AND in a community with a minimum density of 60,000 square feet per acre net. The density calculation is based on a typical two-story downtown development and must include the area of the project being built.
B. Category: Not Allowed

.4 Credit 3 – Brownfield Redevelopment

- A. Description: Develop on a site documented as contaminated by means of an ASTM E1903-97 Phase II Environmental Site Assessment, or a local voluntary cleanup program. Alternatively the site can be defined as a brownfield by a local, state or national governmental agency.
B. Category: Not Possible

.5 Credit 4.1 – Alternative Transportation – Public Transportation Access

- A. Description: Locate project within ½ mile of a rail station, bus transit station or ferry terminal. Alternatively, locate the project within ¼ mile walking distance of one or more stops for 2 or more public bus lines.
B. Category: Not Possible

.6 Credit 4.2 – Alternative Transportation – Bicycle Storage and Changing Room

- A. Description: Provide secure bicycle racks and/or storage within 200 yards (200 meters) of a building entrance for 5% or more of all building users (measured at peak periods)
B. Category: Not Allowed

.7 Credit 4.3 – Alternative Transportation – Low Emitting and Fuel Efficient Vehicles

- A. Description: Provide parking for low emitting and fuel efficient vehicles for 5% of the total vehicle parking for the site.
B. Category: Allowed
C. Responsibility: Design/Build Contractor

Project Description

- D. Special Considerations: This Credit is achievable. Design will need to identify locations of designated parking spaces.
- .8 *Credit 4.4 – Alternative Transportation – Parking Capacity*
- A. Description: Size parking capacity to meet but not exceed minimum local zoning requirements. Provide preferred parking for carpools or vanpools for 5% of the total parking spaces. Alternatively, provide no new parking (see description for other options.)
- B. Category: Desired
- C. Responsibility: Design/Build Contractor
- D. Special Considerations: This Credit is achievable. Design will need to identify locations of designated parking spaces.
- .9 *Credit 5.1 – Site Development – Protect and Restore Habitat*
- A. Description: Limit all site disturbances to 40-feet beyond building perimeter, 10-feet beyond surface walkways and 25-beyond constructed areas with permeable surfaces.
- B. Category: Allowed
- C. Responsibility: Design/Build Contractor
- D. Special Considerations: This Credit may be achievable.
- .10 *Credit 5.2 – Site Development – Maximize Open Space*
- A. Description: For sites with no local or zoning requirements, provide a vegetated open space adjacent to the building that is equal in area to the building footprint.
- B. Category: Allowed
- C. Responsibility: Design/Build Contractor
- D. Special Considerations: This Credit may be achievable.
- .11 *Credit 6.1 – Stormwater Design – Quantity Control*
- A. Description: For sites with existing imperviousness of 50% or less, implement a stormwater management plan that prevents the post development peak discharge rate and quantity from exceeding the predevelopment peak discharge rate and quantity for the 1- and 2-year 24-hour design storms.
- B. Category: Allowed
- C. Responsibility: Design/Build Contractor.
- D. Special Considerations: The civil engineer will need to expand basic SWFWMD storm analysis to provide a quantity analysis in addition to analyzing non standard 1 and 2 hour design storms. The original SWFWMD Permit did not cover this.
- .12 *Credit 6.2 – Stormwater Design – Quality Control*
- A. Description: Implement a stormwater management plan that reduces impervious cover, promotes infiltration and captures and treats the stormwater runoff from 90% of the average annual rainfall¹ using acceptable best management practices (BMPs).
- B. Category: Allowed
- C. Responsibility: Design/Build Contractor
- D. Special Considerations: The civil engineer will need to provide additional analysis to verify, capture and treatment of 90% rainfall and review acceptable best management practices for conformance with the existing stormwater management system. Original SWFWMD Permit did not cover this.
- .13 *Credit 7.1 – Heat Island Effect – Non-Roof*
- A. Description: Use a combination of strategies for 50% of the site hardscape (including roads, sidewalks, courtyards and parking lots) to provide shade from structures, existing tree canopies and new trees (within 5-years).

Project Description

- B. Category: Allowed
- C. Responsibility: Design/Build Contractor
- D. Special Considerations: This credit may be achievable.

.14 *Credit 7.2 – Heat Island Effect – Roof*

- A. Description: Use roofing materials with a solar reflectance index² (SRI) equal to or greater than the values in the table below for a minimum of 75% of the roof surface.
- B. Category: Desired
- C. Responsibility: Design/Build Contractor
- D. Special Considerations: This credit is achievable.

.15 *Credit 8 – Light Pollution Reduction*

- A. Description: For interior lighting, reduce the input power of all nonemergency interior luminaires with a direct line of sight to any openings in the envelope (translucent or transparent) by at least 50% between 11 p.m. and 5 a.m. For exterior lighting, light areas only as required for safety and comfort. Exterior lighting power densities shall not exceed those specified in ANSI/ASHRAE/IESNA Standard 90.1-2007 with Addenda i for the documented lighting zone.
- B. Category: Allowed
- C. Responsibility: Design/Build Contractor
- D. Special Considerations: Determined not to be achievable.

2.3 **Water Efficiency (WE)**

.1 *Prerequisite 1 – Water Use Reduction – 20% Reduction*

- A. Description: Employ strategies that in aggregate use 20% less water than the water use baseline calculated for the building (not including irrigation).
- B. Category: Required
- C. Responsibility: Design/Build Contractor
- D. Special Considerations: Confirmed achievable.

.2 *Credit 1 – Water Efficient Landscaping*

- A. Description: Reduce potable water consumption for irrigation by 50% from a calculated midsummer baseline case or using the month with the highest irrigation demand or use no potable water for irrigation.
- B. Category: Desired
- C. Responsibility: Design/Build Contractor
- D. Special Considerations: This credit may be achievable.

.3 *Credit 2 – Innovative Wastewater Technologies*

- A. Description: Reduce potable water use for building sewage conveyance by 50% through the use of water-conserving fixtures (e.g., water closets, urinals) or nonpotable water (e.g., captured rainwater, recycled graywater, on-site or municipally treated wastewater).
- B. Category: Allowed
- C. Responsibility: Design/Build Contractor
- D. Special Considerations: Determined not to be achievable at this time.

.4 *Credit 3 – Water Use Reduction*

- A. Description: Employ strategies that in aggregate use less water than the water use baseline calculated for the building (not including irrigation).
- B. Category: Desired
- C. Responsibility: Design/Build Contractor
- D. Special Considerations: This credit is achievable at 30%

Project Description

2.4 Energy and Atmosphere (EA)

- .1 *Prerequisite 1 – Fundamental Commissioning of Building Energy Systems*
 - A. Description: verify that the project's energy-related systems are installed, and calibrated to perform according to the owner's project requirements, basis of design and construction documents.
 - B. Category: Required
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: This credit is achievable.
- .2 *Prerequisite 1 – Minimum Energy Performance*
 - A. Description: Use the Whole Building Energy Simulation to demonstrate a 10% improvement in the proposed building performance rating for new buildings, or a 5% improvement in the proposed building performance rating for major renovations to existing buildings, compared with the baseline building performance rating. OR Comply with the prescriptive measures of the ASHRAE Advanced Energy Design Guide appropriate to the project scope
 - B. Category: Required
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: This credit is achievable.
- .3 *Prerequisite 1 – Fundamental Refrigerant Management*
 - A. Description: Zero use of chlorofluorocarbon (CFC)-based refrigerants in new base building heating, ventilating, air conditioning and refrigeration (HVAC&R) systems.
 - B. Category: Required
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: This credit is achievable.
- .4 *Credit 1 – Optimize Energy Performance*
 - A. Description: Select compliance option (1) Whole Building Energy Simulation, (2) Prescriptive Compliance Path (ASHRAE) or (3) Prescriptive Compliance Path: Advanced Buildings Core Performance.
 - B. Category: Desired
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: This credit is achievable at 30% (new building).
- .5 *Credit 2 – On-Site Renewable Energy*
 - A. Description: Use on-site renewable energy systems to offset building energy costs. Calculate project performance by expressing the energy produced by the renewable systems as a percentage of the building's annual energy cost and use the table below to determine the number of points achieved.
 - B. Category: Allowed
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: Determined not to be achievable at this time.
- .6 *Credit 3 – Enhanced Commissioning*
 - A. Description: Implement, or have a contract in place to implement, the additional commissioning process activities in addition to the requirements of EA Prerequisite 1: Fundamental Commissioning of Building Energy Systems and in accordance with the LEED Reference Guide for Green Building Design and Construction, 2009 Edition.
 - B. Category: Desired
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: This credit is achievable.

Project Description

- .7 *Credit 4 – Enhanced Refrigeration Management*
- A. Description: Do not use refrigerants or select refrigerants and heating, ventilation, air conditioning and refrigeration (HVAC&R) equipment that minimize or eliminate the emission of compounds that contribute to ozone depletion and climate change.
 - B. Category: Desired
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: This credit is achievable.
- .8 *Credit 5 – Measurement and Verification*
- A. Description: Develop and implement an M&V plan consistent with (Option D) a Calibrated Simulation as specified in the International Performance Measurement and Verification Protocol OR develop and implement an M&V plan consistent with (Option B) Energy and Conservation Measure Isolation as specified in the International Performance Measurement and Verification Protocol OR meet compliance through the Energy and Water Data release form as part of the Energy Star's Portfolio Manager Tool.
 - B. Category: Desired
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: This credit is achievable.
- .9 *Credit 6 – Green Power*
- A. Description: Engage in at least a 2-year renewable energy contract to provide at least 35% of the building's electricity from renewable sources, as defined by the Center for Resource Solutions' Green-e Energy product certification requirements or an equivalent.
 - B. Category: Allowed
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: Determined not to be achievable at this time.

2.5 Materials and Resources (MR)

- .1 *Prerequisite 1 – Storage and Collection of Recyclables*
- A. Description: Provide an easily-accessible dedicated area or areas for the collection and storage of materials for recycling for the entire building. Materials must include, at a minimum: paper, corrugated cardboard, glass, plastics and metals.
 - B. Category: Required
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: This credit is achievable.
- .2 *Credit 1.1 – Building Reuse – Maintain Existing Walls, Floors and Roof*
- A. Description: Not Applicable
 - B. Category: Not Allowed
 - C. Responsibility: Not Applicable
- .3 *Credit 1.2 – Building Reuse – Maintain 50% of Interior Non-Structural Elements*
- A. Description: Not Applicable
 - B. Category: Not Allowed
 - C. Responsibility: Not Applicable

Project Description

- .4 *Credit 2 – Construction Waste Management*
A. Description: Recycle and/or salvage nonhazardous construction and demolition debris. Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or comingled.
B. Category: Allowed
C. Responsibility: Design/Build Contractor
D. Special Considerations: This credit may be achievable.
- .5 *Credit 3 – Materials Reuse*
A. Description: Use salvaged, refurbished or reused materials, the sum of which constitutes at least 5% or 10%, based on cost, of the total value of materials on the project.
B. Category: Allowed
C. Responsibility: Design/Build Contractor
D. Special Considerations: This credit may be achievable.
- .6 *Credit 4 – Recycled Content*
A. Description: Use materials with recycled content¹ such that the sum of postconsumer recycled content plus 1/2 of the preconsumer content constitutes at least 10% or 20%, based on cost, of the total value of the materials in the project.
B. Category: Allowed
C. Responsibility: Design/Build Contractor
D. Special Considerations: This credit is achievable.
- .7 *Credit 5 – Regional Materials*
A. Description: Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within a specified distance of the project site for a minimum of 10% or 20%, based on cost, of the total materials value. If only a fraction of a product or material is extracted, harvested, or recovered and manufactured locally, then only that percentage (by weight) can contribute to the regional value.
B. Category: Desired
C. Responsibility: Design/Build Contractor
D. Special Considerations: This credit is achievable.
- .8 *Credit 6 – Rapidly Renewable Materials*
A. Description: Use rapidly renewable building materials and products for 2.5% of the total value of all building materials and products used in the project, based on cost. Rapidly renewable building materials and products are made from agricultural products that are typically harvested within a 10-year or shorter cycle.
B. Category: Allowed
C. Responsibility: Design/Build Contractor
D. Special Considerations: This credit may be achievable.
- .9 *Credit 7 – Certified Wood*
A. Description: Use a minimum of 50% (based on cost) of wood-based materials and products that are certified in accordance with the Forest Stewardship Council's principles and criteria, for wood building components. These components include at a minimum, structural framing and general dimensional framing, flooring, sub-flooring, wood doors and finishes.
B. Category: Allowed
C. Responsibility: Design/Build Contractor
D. Special Considerations: This credit determined not to be achievable.

Project Description

2.6 Indoor Environmental Quality (IEQ)

- .1 *Prerequisite 1 – Minimum Indoor Air Quality Performance*
 - A. Description: Mechanical ventilation systems must be designed using the ventilation rate procedure as defined by ASHRAE 62.1-2007, or the applicable local code, whichever is more stringent.
 - B. Category: Required
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: This credit is achievable.
- .2 *Prerequisite 1 – Environmental Tobacco Smoke (ETS) Control*
 - A. Description: Prohibit on-property smoking within 25 feet (8 meters) of entries, outdoor air intakes and operable windows. Provide signage to allow smoking in designated areas, prohibit smoking in designated areas or prohibit smoking on the entire property.
 - B. Category: Required
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: This credit is achievable.
- .3 *Credit 1 – Outdoor Air Delivery Monitoring*
 - A. Description: Install permanent monitoring systems to ensure that ventilation systems maintain design minimum requirements. Configure all monitoring equipment to generate an alarm when airflow values or carbon dioxide (CO₂) levels vary by 10% or more from the design values via either a building automation system alarm to the building operator or a visual or audible alert to the building occupants.
 - B. Category: Desired
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: This credit is achievable.
- .4 *Credit 2 – Increased Ventilation*
 - A. Description: Increase breathing zone outdoor air ventilation rates to all occupied spaces by at least 30% above the minimum rates required by ASHRAE Standard 62.1-2007 (with errata but without addenda1) as determined by IEQ Prerequisite 1: Minimum Indoor Air Quality Performance.
 - B. Category: Allowed
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: This credit determined not to be achievable.
- .5 *Credit 3.1 – Construction IAQ Management Plan – During Construction*
 - A. Description: Develop and implement an IAQ management plan for the construction and preoccupancy phases of the building.
 - B. Category: Desired
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: This credit is achievable.
- .6 *Credit 3.2 – Construction IAQ Management Plan – Before Occupancy*
 - A. Description: Develop an IAQ management plan and implement it after all finishes have been installed and the building has been completely cleaned before occupancy.
 - B. Category: Desired
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: This credit is achievable.

Project Description

- .7 *Credit 4.1 – Low-Emitting Materials – Adhesives and Sealants*
A. Description: All adhesives and sealants used on the interior of the building (i.e., inside of the weatherproofing system and applied on-site) must comply with requirements applicable to the project scope.
B. Category: Desired
C. Responsibility: Design/Build Contractor
D. Special Considerations: This credit is achievable.
- .8 *Credit 4.2 – Low-Emitting Materials – Paint and Coatings*
A. Description: Paints and coatings used on the interior of the building (i.e., inside of the weatherproofing system and applied on-site) must comply with criteria applicable to the project scope.
B. Category: Desired
C. Responsibility: Design/Build Contractor
D. Special Considerations: This credit is achievable.
- .9 *Credit 4.3 – Low-Emitting Materials – Flooring Systems*
A. Description: All flooring installed must meeting maximum VOC concentrations including carpet, cushion, adhesives, concrete, wood, bamboo and cork.
B. Category: Desired
C. Responsibility: Design/Build Contractor
D. Special Considerations: This credit is achievable.
- .10 *Credit 4.4 – Low-Emitting Materials – Composite Wood Products*
A. Description: Composite wood and agrifiber products used on the interior of the building must contain no added urea-formaldehyde resins. Laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies must not contain added urea-formaldehyde resins.
B. Category: Desired
C. Responsibility: Design/Build Contractor
D. Special Considerations: This credit is achievable.
- .11 *Credit 5 – Indoor Chemical and Pollutant Source Control*
A. Description: Design to minimize and control the entry of pollutants into buildings and later cross-contamination of regularly occupied areas through the use of sufficient exhaust, mechanical ventilation and the capture of dirt and particulates at entries to the facility.
B. Category: Desired
C. Responsibility: Design/Build Contractor
D. Special Considerations: This credit is achievable.
- .12 *Credit 6.1 – Controllability of Systems - Lighting*
A. Description: Provide individual lighting controls for 90% (minimum) of the building occupants to enable adjustments to suit individual task needs and preferences. Provide lighting system controls for all shared multi-occupant spaces to enable adjustments that meet group needs and preferences.
B. Category: Allowed
C. Responsibility: Design/Build Contractor
D. Special Considerations: This credit is achievable.

Project Description

- .13 *Credit 6.2 – Controllability of Systems – Thermal Comfort*
 - A. Description: Provide individual comfort controls for 50% (minimum) of the building occupants to enable adjustments to meet individual needs and preferences. Operable windows may be used in lieu of controls for occupants located 20 feet (6 meters) inside and 10 feet (3 meters) to either side of the operable part of a window.
 - B. Category: Not Allowed
- .14 *Credit 7.1 – Thermal Comfort – Design*
 - A. Description: Design heating, ventilating and air conditioning (HVAC) systems and the building envelope to meet the requirements of ASHRAE Standard 55-2004.
 - B. Category: Desired
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: This credit is achievable.
- .15 *Credit 7.2 – Thermal Comfort – Verification*
 - A. Description: Provide a permanent monitoring system to ensure that building performance meets the desired comfort criteria as determined by IEQ Credit 7.1: Thermal Comfort—Design.
 - B. Category: Desired
 - C. Responsibility: Design/Build Contractor
 - D. Special Considerations: This credit is achievable.
- .16 *Credit 8.1 – Daylighting and Views - Daylighting*
 - A. Description: Provide daylighting to 75% of regularly occupied spaces; this can be proven by computer simulation, prescriptive, measurement or a combination thereof.
 - B. Category: Not Allowed
- .17 *Credit 8.2 – Daylighting and Views - Views*
 - A. Description: Achieve a direct line of sight to the outdoor environment via vision glazing between 30 inches and 90 inches (between 0.8 meters and 2.3 meters) above the finish floor for building occupants in 90% of all regularly occupied areas.
 - B. Category: Not Allowed

2.7 Innovation in Design (ID)

Credit 1.1 – Innovation in Design
 Credit 1.2 – Innovation in Design – Laundry System: Water Saving and Reclamation [TLC/SSA]
 Credit 1.3 – Innovation in Design
 Credit 1.4 – Innovation in Design
 Credit 1.5 – Innovation in Design
 Credit 2 – LEED Accredited Professional

- .6 *Credit 2 – LEED Accredited Professional*
 - A. Description: At least 1 principal participant of the project team shall be a LEED Accredited Professional (AP).
 - B. Category: Required
 - C. Responsibility: Design/Build Contractor

2.8 Regional Priority Targets (RP)

Credit 1.1 – Regional Priority – Optimize Energy Performance to 30%
 Credit 1.2 – Regional Priority – Regional Materials to 20%
 Credit 1.3 – Regional Priority – Innovative Wastewater Technologies
 Credit 1.4 – Regional Priority – On-Site Renewable Energy

3 - ARCHITECTURAL DESIGN CRITERIA – INFRASTRUCTURE BUILDING

3.1 General Facility Criteria

.1 General:

- A. *Purpose:* The Facility Infrastructure Building will consolidate and provide Laundry services, Kitchen services, a Central Control, supplemental Inmate Program spaces, and centralized mechanical equipment and systems (Central Energy Plant) to the entire campus. The Kitchen services and centralized mechanical equipment and systems shall be designed in such a manner as to provide continued operation during and after a hurricane event.
- B. *Site / Location:* The building will be located on the current location of the FSC Barracks on the Western edge of the campus, North of existing Central Division, Southwest of the existing "C" Barracks, West of the existing Laundry, within the outer site fence and campus ring road, and forming a portion of the new secure perimeter.
 - 1. Access to the building for Kitchen deliveries and Garbage collection will be from the campus ring road outside the secure perimeter fence through a secure vehicle sally port / loading dock. The loading dock must be secure as trustees are utilized to unload and stage the deliveries.
 - 2. A Service / Maintenance staff access point will be provided to allow the maintenance staff to enter the centralized mechanical rooms on the third floor without going into areas occupied by inmate trustees.
 - 3. The existing service drive and vehicular sally port function South of the site providing access to Central's service dock must remain.
 - 4. The existing "C" Barracks and related recreation yards Northeast of the must remain operational.
 - 5. The existing Laundry East of the site must remain operational during construction of the Facility Infrastructure Building and remain in operation until the new Laundry is capable of taking over Laundry operations for the entire campus.
 - 6. See Civil Design Criteria Narratives and Drawings.
- C. *Building Size and Configuration:*
 - 1. Building Area: approx. 72,416 gsf
 - a. The building footprint must fit the existing designated area while providing as much additional parking for staff as possible.
 - 2. Building Height and Floor Elevations: 3 stories, 85' max.
 - a. The first floor elevation is required to be located above the Flood Plain.
 - b. The Kitchen is required to be located on the second floor above the Hurricane Flood Surge elevation.
 - c. The second floor line shall also be set to facilitate a physical connection to the existing Central Division Housing elevator core and a future connection to the future Housing, as outlined in the Facility Master Plan, for the purposes of food and laundry distribution and collection. The connections shall not slope more than 1:20 to limit the impacts associated with manually pushing heavy carts up or down slopes.
- D. *Construction Phasing:* Construction of this building shall not be started until the abatement and demolition of the FSC building is complete and the site is prepared. Demolition of the Laundry, Kitchen, and Central Control can't be started until after the Infrastructure Building is operational.
 - 1. A temporary secure perimeter shall be maintained at all times in order to separate the demolition and construction activities from the inmate population.
 - 2. Access and services to existing facilities to remain shall be maintained to ensure continued operations.
 - 3. Interruptions to existing access or services shall be limited and coordinated with the Facility in advance of the interruption.

Project Description

4. The construction staging area for this building is located to the north of the Infrastructure Building site along the ring road and inside the outer site fence.
5. See Phasing Plans, Vol. 2 for additional information.
- E. *Code:* The Infrastructure building shall meet the requirements of the Florida Building Code for "Shelter in Place" construction.
- F. *Building Structure:* See Structural Design Criteria documents.
- G. *Exterior Construction:*
 1. *Insulated load bearing Precast Wall Panels:*
 - a. Provide walls complying with Structural, Security, and Code requirements.
 - b. Provide thermally broken structural wythe connector system.
 - c. Provide sandblasted architectural precast exterior finish with integral colors.
 - d. Conduits to be coordinated and concealed within pre-cast panels where pre-cast is exposed to interior and/or exterior vehicle sally port / dock.
 - e. Provide exterior wall insulation R values in compliance with Energy and Building Code requirements.
 2. *Roof:*
 - a. Roof structure can be steel or pre-cast, but shall meet the requirements of the Florida Building Code.
 - b. Roof thermal and water barrier systems shall be a SBS-modified roofing membrane system over rigid insulation.
 - c. The roof system shall be sloped to provide positive drainage to the primary internal roof drains and secondary scuppers. Roof drain risers inside building shall be concealed within chase construction. It is the D/B Contractor's option to slope the structure and/or provide tapered insulation to achieve proper drainage.
 - d. Roof systems shall be detailed to allow for economical execution of subsequent roof repairs and replacements.
 - e. Penetrations in the roofing membrane required for equipment, supports, duct, piping, and conduit shall be organized and consolidated in such a manner as to minimize the number of such penetrations.
 - f. Provide roof insulation in thickness required to provide the R value requirements complying with the Energy and Building Codes.
 - g. Detail roofing to meet the NRCA Roofing Manual recommendations as a minimum. See Technical Specifications for performance requirements.
 - h. Detail sheet metal fabrications per the SMACNA Sheet Metal Manual as a minimum. See Technical Specifications for performance requirements.
 - i. Provide access to all roof levels to facilitate rooftop maintenance access. Where doors providing roof access from adjacent occupied spaces are not possible, then provide OSHA compliant metal stairs and/or ladders to the otherwise inaccessible rooftop.
 3. *Exterior Wall Openings:*
 - a. Provide thermally broken windows, unless required to be otherwise by the Security criteria.
 - b. Where not prohibited by the Security criteria provide insulated, tinted, and low-e glazing. Coordinate glass properties, including shading coefficients and light transmittance with Energy Code requirements.
 - c. All exterior doors to be thermally insulated, unless required otherwise by the Security criteria.
 - d. Size and protect exterior openings as required by Building and Life Safety Codes where applicable.
- H. *Interior Construction:*
 1. *Wall/Partition Construction:* Provide structurally sound walls/partitions complying with design criteria and Code requirements. See Narratives, Drawings, and Specifications for additional information.

Project Description

2. Wall/Partition Openings: Provide opening protection and/or security complying with Security criteria and Code requirements.
3. Exposed surface mounted piping and conduit will not be allowed in rooms or areas intended to be accessible by inmates (See list of rooms and areas at the end of this section). Enclose all such piping and conduit in walls and/or chases of same or similar materials and construction as adjacent walls. Exposed final conduit and piping connections to kitchen and laundry equipment shall be minimized. Such piping and conduit will be concealed as long as possible becoming exposed only at the immediate location of connection to each piece of equipment being served.
4. Wall Protection: Protect all walls in Corridors, Central Laundry, Tray Make-up, Cart Storage and Washing, and Ware Wash Area with continuous 6"H HDPE wall protection bumper rails. Locate bumper rails at 6" aff and 30" aff. Mount rails with countersunk tamperproof screws. Provide 3"x3"x72"H HDPE corner guards at all outside corners in the same areas.
5. Ceiling and Wall Access Panels: Provide access panels where required by concealed equipment and systems for operations and maintenance of equipment and systems. Provide detention access panels where access panels are required in rooms and areas intended to be accessible by inmates. See list of rooms and areas at the end of this section.
6. Ceilings: Refer to Drawings and Specifications.
7. Floors: Refer to Drawings and Specifications.
8. Finishes: Refer to Drawings and Specifications.
9. Handrails and Guardrails: Provide handrails and guards as required by Building Codes and Accessibility Standards.
10. Rooms **NOT** intended to be occupied by inmates:
 - a. Offices
 - b. Control Rooms
 - c. Staff Toilets
 - d. Mechanical, Electrical, Plumbing, Fire Protection, Audio Visual and Security Equipment Rooms and Closets.
- I. *Connections to Existing Buildings:* Field verify existing conditions at locations to be renovated and/or connected to and document findings. Produce and provide copy of measured drawings to Owner. Provide the following circulation connections:
 1. Provide an enclosed and conditioned bridge connection between the new Infrastructure Building and the existing Central Division.
 2. Provide a covered sidewalk connection between the new Infrastructure Building and the existing Health Care Building vehicle sally port. The sidewalk cover will have a gap in it to allow for vehicle circulation across the sidewalk.
- J. *Vertical Circulation:*
 1. Provide a minimum of two freight elevators with completely redundant systems serving all floors of the Infrastructure Building.
 - a. Situate elevators to support Laundry and Kitchen workflows.
 - b. At least one elevator will be situated to provide relatively direct access from the Dock area to the Central Plant spaces.
 - c. At least one elevator will be situated to provide secure staff access, from a location on the second floor outside of the Kitchen and near to the connector bridge to Central, too the third floor Control room area.
 - d. At least two elevators will be situated to provide laundry and food cart vertical circulation.
 - e. Inmates will be traveling with the food and laundry carts. Inmates will be accompanied by jail staff when on elevators.
 - f. Provide cleanable/scrubbable, durable, vandal resistant interior cab fixtures and finish construction.

Project Description

- g. Coordinate elevator controls with security electronic criteria.
- 2. Provide egress stair towers per the Florida Building Code, NFPA 101 Life Safety Code, and Accessibility Standards.
 - a. Stair construction, location, and configuration shall accommodate daily circulation between floors by inmates and/or staff.
- K. *Central Physical Plant Spaces:*
 - 1. Provide space to house the Central Physical Plant equipment. Coordinate the size and configuration of the spaces with the equipment and Code requirements.
 - 2. Provide adequate space for service access to and around equipment.
 - 3. Situate equipment in such a manner to allow for future replacement of equipment without the removal of other equipment and piping not being replaced.
 - 4. Where weight, size, or configuration of equipment requires, provide ceiling structure mounted structural steel rails and motors for lifting and moving of large equipment to locations accessible by crane.
 - 5. Provide vibration isolation considerations. Isolate the equipment and piping from the structure to minimize the transfer of vibrations to the building structure.
 - 6. Mitigate equipment generated noise. Dampen/absorb the sound within the Physical Plant spaces and minimize sound transfer to occupied spaces adjacent to the Physical Plant spaces.
 - 7. Coordinate equipment and piping penetrations with the structure.
 - 8. Coordinate equipment locations and loads with the structure.
- L. *Building Mechanical Support Spaces:*
 - 1. Provide mechanical support rooms and spaces distributed throughout the facility to support the distribution needs of mechanical, electrical, plumbing, fire protection, technology, and security electronics systems. Wherever possible, organize, stack, and distribute such spaces for reasons of function, economy, and constructability.
 - 2. Coordinate the size and configuration of the support spaces with the requirements of the system equipment being housed in the space and any related Codes.
- M. *Rooftop Equipment:*
 - 1. Screen equipment to protect it from wind born debris, but allow for adequate air flow. Coordinate bracing and support of screen walls with equipment layouts.
 - 2. Provide adequate space for service access and air flow around rooftop equipment.
 - 3. Situate equipment in such a manner to allow for future replacement of equipment without the removal of other equipment not being replaced.
 - 4. Provide equipment support dunnage of adequate height to allow roof to be replaced without affecting equipment operation.
 - 5. Flash and counterflash rooftop equipment and supports to simplify future replacement of roofing and minimize removal and re-installation of piping and equipment related to roofing replacement.
 - 6. Minimize quantity of roofing penetrations related to equipment and piping supports as much as possible.
 - 7. Provide OSHA compliant galvanized metal platforms, stairs, ladders, rails, and guards as necessary to provide fixed ready access for maintenance staff and equipment to service elevated rooftop equipment.
 - 8. Coordinate rooftop equipment and piping penetrations with the structure.
 - 9. Coordinate rooftop equipment locations and loads with the structure.

3.2 Dock and Vehicular Sally Port

- .1 *General:* The dock(s) shall be a vehicle sally port accessed from outside the secure perimeter to allow for trustees to serve on the docks and to allow for the loading and

Project Description

unloading, of trustees serving outside the perimeter, into vans. The dock shall allow for weekly deliveries to the Kitchen, daily vehicle access to the trash dock, and intermittent and temporary vehicle access to the Laundry to collect and deliver laundry if the laundry, owing to extraneous circumstances, can't be delivered as planned by pedestrian cart within the secure perimeter during demolition of the existing Laundry, Kitchen, and Central Control.

- .2 *Dock:* The Dock shall be designed to accommodate deliveries to the Infrastructure Building functions. Spaces must be designed appropriately for Inmate Trustee use.
- A. Provide two births with docks 4' above grade. Provide galvanized steel guard rails and hand rails per code requirements.
 - B. Dock shall accommodate 75' long semi-trailer truck deliveries.
 - C. Provide mechanically operated dock levelers.
 - D. Provide dock bumpers.
 - E. Provide painted steel bollards of adequate strength to protect all building construction adjacent to path of vehicle travel. Detail bollards to shed water and resist rusting.
 - F. Walls: Reinforced CMU or pre-cast concrete.
 - G. Ceiling:
 - 1. Exposed concrete structure above truck births/pavement area. Second floor structural slab above this area shall be depressed to accommodate an insulated floor and topping slab configuration above dock and below second floor coolers and freezers.
 - 2. Suspended soffit and bulkhead above elevated dock area. Provide synthetic base coat and painted plaster finish. Insulate soffit to thermally protect floor slab above this area. Coordinate R value requirements with Energy and Building Code.
 - 3. See Reflected Ceiling Plans, Vol. 2.
 - H. Wall openings:
 - 1. Openings shall be large enough to avoid need for mechanical exhaust of vehicle emissions.
 - 2. Openings shall be secured with vinyl coated non-climbable fencing. Provide galvanized steel support structure as required by fencing support and anchorage requirements. See Security Criteria.
 - I. Fencing and Gates:
 - 1. Fencing and gates shall be vinyl coated non-climbable fencing. Provide galvanized steel support structure as required by fencing and gate support and anchorage requirements.
 - 2. Man gates shall be provided for egress purposes. Egress route shall be secure and lead back into secure site perimeter allowing the occupants to get a minimum of 50' from the building.
 - 3. Vehicle gates shall be power operated Bi-parting gates with secure local and remote controls tied to First floor control station inside Infrastructure Building and Central Control Room on Third floor.
 - a. Fencing, man gates, and vehicle gates must be security grade.
 - 4. Communications (Deliveries): Provide electronic means outside of secure gate(s) for verbal and visual communication between persons attempting delivery and the control stations responsible for security and access to the dock/vehicle sally port.
- .3 *Trash Management:* Trash Management shall be designed to serve the Infrastructure Building functions.
- A. *Garbage/Recycle Dock:* The trash dock serves the Infrastructure Building. Trash will be collected and brought to the dock by trustees using push carts. Provide space for staging and maneuvering of trash carts. Space must be appropriate for Trustee use

Project Description

1. Provide one birth with dock 4' above grade. Provide galvanized steel guard rails and hand rails per code requirements.
 2. Size trash dock to accommodate temporary staging of trash cans and hoppers.
 3. Provide access stair from elevated dock down to grade to allow for access from dock to side of dumpster.
 4. Dock shall accommodate 22' long max. dumpster/compactor and 35' max. garbage collection truck.
 5. Provide concrete pad under dumpster/compactor location.
 6. Provide dock bumpers.
 7. Provide painted steel bollards of adequate strength to protect all building construction adjacent to path of vehicle travel. Detail bollards to shed water and resist rusting.
 8. Ceiling:
 - a. Exposed concrete structure above truck births/pavement area. Second floor structural slab above this area shall be depressed to accommodate an insulated floor and topping slab configuration above dock and below second floor coolers and freezers.
 - b. Suspended soffit and bulkhead above elevated dock area. Provide synthetic base coat and painted plaster finish. Insulate soffit to thermally protect floor slab above this area. Coordinate R value requirements with Energy Code.
 - c. See Reflected Ceiling Plans, Vol. 2.
 9. Wall openings:
 - a. Openings shall be large enough to avoid need for mechanical exhaust of vehicle emissions.
 - b. Openings shall be secured with vinyl coated non-climbable fencing. Provide galvanized steel support structure as required by fencing support and anchorage requirements. See Security Criteria.
 10. Fencing and Gates:
 - a. Fencing and gates shall be vinyl coated welded wire non-climbable fencing. Provide galvanized steel support structure as required by fencing and gate support and anchorage requirements.
 - b. Man gates shall be provided and fitted for egress purposes. Egress route shall be secure and lead back into secure site perimeter allowing the occupants to get a minimum of 50' from the building.
 - c. Vehicle gates shall be power operated sliding gates with secure local and remote controls tied to First floor control station inside Infrastructure Building and Central Control Room on Third floor.
 - d. Fencing, man gates, and vehicle gates must be security grade.
 11. Communications (trash pick-up): Provide electronic means outside of secure gate(s) for verbal and visual communication between persons attempting garbage pick-up and the control stations responsible for security and access to the dock/vehicle sally port.
- B. Utility Wash:**
1. Purpose: Provide space for washing and temporary storage of trash carts after emptying. Space must be appropriate for Inmate Trustee use.
 2. Location and Relationships: See Floor Plans, Vol. 2.
 3. Size and Configuration: See Floor Plans, Vol. 2.
 4. Interior Construction:
 - a. Walls: Reinforced CMU.
 - b. Wall openings:
 - i. Provide 4' wide hollow metal doors and frames for movement of carts.
 - ii. Doors to exterior shall be insulated and have a weatherproof threshold.
 - iii. Provide door face, door edge, frame, and lever protection.
 - c. Ceilings: See Reflected Ceiling Plan, Vol. 2.

Project Description

- d. Finishes: See Finish Schedule, Vol 2.
- 5. Kitchen and Laundry Equipment: See Kitchen and Laundry Design Criteria.

.4 Dock Staging:

- A. Purpose: Provide space for temporary staging and organization of deliveries prior to movement of goods to temporary storage off of dock or to dry storage and/or freezers/coolers on the second floor in the kitchen. Spaces must be appropriate for Trustee use.
- B. Location and Relationships: See Floor Plans, Vol. 2.
- C. Size and Configuration: See Floor Plans, Vol. 2.
- D. Interior Construction:
 - 1. Walls: Reinforced CMU.
 - 2. Wall openings:
 - a. Palette cart access is required. Provide interior bollards as necessary to protect doors, frames, and hardware.
 - b. Provide 6' wide steel coiling overhead doors for movement of goods. Doors to exterior shall be insulated.
 - c. Provide 3' wide hollow metal man doors and frames shall be provided for convenience and egress purposes. Doors to exterior shall be insulated and have weatherproof thresholds, unless specified otherwise by ISP.
 - d. Provide door face, door edge, frame, and lever protection.
 - 3. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 4. Finishes: See Finish Schedule, Vol. 2.

.5 Storage:

- A. Purpose: Provide storage rooms adjacent to loading dock for temporary storage of deliveries prior to movement of goods to dry storage and coolers on the second floor in the kitchen. Spaces must be appropriate for Inmate Trustee use.
- 1. Bulk Dry Storage:
 - a. Location and Relationships: See Floor Plans, Vol. 2.
 - b. Size and Configuration: See Floor Plans, Vol. 2.
 - c. Interior Construction:
 - i. Walls: Reinforced CMU.
 - ii. Wall openings:
 - a) Palette cart access is required. Provide interior bollards as necessary to protect doors, frames, and hardware.
 - b) Provide 6' wide steel coiling overhead doors for movement of goods. Doors to exterior shall be insulated.
 - c) Provide 3' wide hollow metal man doors and frames shall be provided for convenience and egress purposes. Doors to exterior shall be insulated and have weatherproof thresholds, unless specified otherwise by Security Criteria.
 - d) Provide door face, door edge, frame, and lever protection.
 - iii. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - iv. Finishes: See Finish Schedule, Vol. 2.
 - d. Furniture, Fixtures, and Equipment: Owner provided under separate contract. Coordinate with Owner provided furniture.
- 2. Bulk Refrigerated Storage:
 - a. Location and Relationships: See Floor Plans, Vol. 2.
 - b. Size and Configuration: See Floor Plans, Vol. 2.
 - c. Interior Construction:
 - i. Walls: Reinforced CMU. See Kitchen and Laundry Criteria for cooler wall requirements.

Project Description

- ii. Wall openings: See Kitchen and Laundry Criteria for cooler door requirements.
 - a) Palette cart access is required. Provide interior bollards as necessary to protect doors, frames, and hardware.
 - b) Man doors are required for convenience and egress purposes.
 - c) Provide door protection.
- iii. Ceilings: See Reflected Ceiling Plan, Vol. 2. Also see Kitchen and Laundry Criteria for cooler ceiling requirements.
- iv. Finishes: See Finish Schedule, Vol. 2.
- d. Kitchen Equipment: See Kitchen Design Criteria for cooler equipment requirements.

3.3 Laundry

.1 General:

- A. Purpose: The Laundry shall serve the entire Jail Campus. It shall be designed to be manned by trustees and managed by one Staff member. Laundry is to be collected and delivered by trustees with pedestrian push carts. The dock shall allow for intermittent vehicle access to the Laundry to collect and deliver laundry when not possible by pedestrian cart within the secure perimeter.
- B. Location and Relationships: The Laundry shall be located on the first floor of the Infrastructure Building.
 - 1. A covered sidewalk connection will be required between the Infrastructure Building and the Health Care facility. The sidewalk shall be designed to accommodate Laundry collection and distribution traffic.
 - 2. An enclosed second floor bridge connection will be required between the Infrastructure Building and the Central Division Housing elevator core. The bridge shall be designed to accommodate Laundry collection and distribution traffic.
- C. Size and Configuration: See Laundry Project Narrative for additional information.
- D. Construction Phasing: The existing laundry shall remain in operation until the new Laundry can take over laundry operations. See Phasing Plans, Vol. 2.

.2 Washing

- A. Location and Relationships: See Floor Plans, Vol. 2.
- B. Size and Configuration: See Floor Plans, Vol. 2.
- C. Interior Construction:
 - 1. Walls: Reinforced CMU.
 - 2. Wall openings:
 - a. Provide translucent windows to the exterior for day lighting of space. Windows to the exterior shall be a min. of 11'-0" aff.
 - i. Exterior windows to be Impact Resistant Detention Grade.
 - ii. Series 3000 by CM Security Group Inc. is basis of design.
 - b. Min. 4' wide doors are required for movement of carts.
 - c. Provide door face, door edge, frame, and lever protection.
 - 3. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 4. Finishes: See Finish Schedule, Vol. 2.
- D. Laundry Equipment: See Laundry Design Criteria.

.3 Drying

- A. Location and Relationships: See Floor Plans, Vol. 2.
- B. Size and Configuration: See Floor Plans, Vol. 2.
- C. Interior Construction:
 - 1. Walls: Reinforced CMU.

Project Description

- 2. Wall openings:
 - a. Provide door face, door edge, frame, and lever protection.
 - 3. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 4. Finishes: See Finish Schedule, Vol. 2.
 - D. Laundry Equipment: See Laundry Design Criteria.
- .4 *Folding*
- A. Location and Relationships: See Floor Plans, Vol. 2.
 - B. Size and Configuration: See Floor Plans, Vol. 2.
 - C. Interior Construction:
 - 1. Walls: Reinforced CMU.
 - 2. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 3. Finishes: See Finish Schedule, Vol. 2.
 - D. Laundry Equipment: See Laundry Design Criteria.
- .5 *Storage: Storage includes Clean Laundry Storage, Bedding Storage, Maintenance / Supply, and Uniform Storage.*
- A. Purpose: Provide adequate space and shelving for the storage of laundered articles and supplies required for the laundry operations.
 - B. Location and Relationships: See Floor Plans, Vol. 2.
 - C. Size and Configuration: See Floor Plans, Vol. 2.
 - D. Interior Construction:
 - 1. Walls: Reinforced CMU.
 - 2. Wall openings:
 - a. Provide 4' wide narrow lite hollow metal doors and frames for cart access.
 - b. Provide door face, door edge, frame, and lever protection.
 - 3. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 4. Finishes: See Finish Schedule, Vol. 2.
 - E. Laundry Equipment: See Laundry Design Criteria.
- .6 *Cart Handling*
- A. Purpose: Provide adequate area for the staging and maneuvering of the carts required for transport of soiled and clean laundry.
 - B. Location and Relationships: See Floor Plans, Vol. 2.
 - C. Size and Configuration: See Floor Plans, Vol. 2.
 - D. Interior Construction:
 - 1. Walls: Reinforced CMU.
 - a. Provide continuous 6"H HDPE wall protection bumper rails on walls around the entire Laundry area. Locate bumper rails at 6"aff and 30"aff. Mount Rails with countersunk tamperproof screws.
 - 2. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 3. Finishes: See Finish Schedule, Vol. 2.
 - E. Laundry Equipment: See Laundry Design Criteria.
- .7 *Office/Control*
- A. Purpose: Laundry management, observation of trustee activities, and control of first floor including docks.
 - B. Location and Relationships: See Floor Plans, Vol. 2.
 - C. Size and Configuration: See Floor Plans, Vol. 2.
 - D. Interior Construction:
 - 1. Walls: Reinforced CMU.
 - 2. Wall openings: See Floor Plans, Vol. 2.
 - a. 3' wide min. half glass hollow metal door and frame.

Project Description

- b. Glazed hollow metal frames providing maximum possible visual observation of Laundry and Main Corridor.
 - c. Provide window fixtures for selective control of light and vision.
 - 3. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 4. Finishes: See Finish Schedule, Vol. 2.
 - E. Security Electronics Control Equipment: See Security Electronics Design Criteria.
 - F. Furniture, Fixtures and Equipment: Office furniture is Owner provided under separate contract. Coordinate with Owner provided furniture.
- .8 *Support Spaces: Washing* support spaces include Inmate Break, Inmate Toilet, Chemical Storage, Air Compressor Rm., Water Heater Rm., and Cart Wash. Inmate toilet to be ADA compliant and plumbed with detention fixtures.
- A. Location and Relationships: See Floor Plans, Vol. 2.
 - B. Size and Configuration: See Floor Plans, Vol. 2.
 - C. Interior Construction:
 - 1. Walls: Reinforced CMU.
 - 2. Wall openings: See Floor Plans, Vol. 2.
 - a. Provide translucent windows to the exterior for day lighting into the inmate Break room. Windows to the exterior shall be a min. of 7'-0" aff.
 - i. Exterior windows to be Impact Resistant Detention Grade.
 - ii. Series 3000 by CM Security Group Inc. is Basis of design
 - b. 3' wide hollow metal doors and frames.
 - c. Provide half glass door leaf at Break room.
 - d. Provide door face, door edge, frame, and lever protection on Chemical Storage Room door.
 - 3. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 4. Finishes: See Finish Schedule, Vol. 2.
 - D. Laundry Equipment: See Laundry Design Criteria.
 - E. Toilet Accessories: Provide Detention grade suicide proof toilet room accessories in Inmate Toilets.
 - F. Furniture, Fixtures and Equipment: Trash cans are Owner provided under separate contract. Coordinate with Owner provided furniture.

3.4 Program Services

- .1 *Meeting Rooms*
- A. Purpose: The meeting rooms replace existing inmate program space currently co-located with the Kitchen facility and being demolished as part of this project. The meeting rooms shall be flexible in nature, able to accommodate groups of various sizes and seating arrangements.
 - B. Location and Relationships: See Floor Plans, Vol. 2.
 - C. Size and Configuration: See Floor Plans, Vol. 2.
 - D. Interior Construction:
 - 1. Walls: Reinforced CMU and pre-cast.
 - 2. Wall openings:
 - a. Provide translucent exterior windows for day lighting. Windows to the exterior shall be a min. of 7'-0" aff.
 - i. Exterior windows to be Impact Resistant Detention Grade.
 - ii. Series 3000 by CM Security Group Inc. is basis of design
 - b. Provide 3' wide min. half glass hollow metal doors and frames into corridor, unless otherwise required for corridor fire rating requirements.
 - c. Exterior doors and frames to be insulated hollow metal with weatherproof thresholds, unless otherwise required by Detention Design Criteria.
 - 3. Ceilings: See Reflected Ceiling Plan, Vol. 2.

Project Description

- 4. Finishes: See Finish Schedule, Vol. 2.
- E. Audio / Visual Equipment: See Audio Visual Design Criteria Documents.
- F. Furniture, Fixtures, and Equipment: Provide marker boards. Stacking chairs and folding tables provided by Owner under separate contract. Coordinate with Owner provided furniture.

.2 Office

- A. Purpose: The office serves the inmate program spaces. The space should support inmate program management tasks and allow for observation of inmates, staff, and volunteers in the meeting rooms.
- B. Location and Relationships: See Floor Plans, Vol. 2.
- C. Size and Configuration: See Floor Plans, Vol. 2.
- D. Interior Construction:
 - 1. Walls: Reinforced CMU.
 - 2. Wall openings:
 - a. Provide glazed frames providing vision into the meeting rooms and the corridor.
 - b. Provide glazed frames providing supervision into the office from the corridor. Coordinate corridor wall openings with requirements of Code for corridor wall fire ratings.
 - c. Provide window fixtures for controlling of vision and light into office.
 - d. Provide 3' wide min. half glass hollow metal doors and frames with barred lights into each meeting room from office.
 - 3. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 4. Finishes: See Finish Schedule, Vol. 2.
- E. Furniture, Fixtures, and Equipment: Office furniture provided by Owner under separate contract. Coordinate with Owner provided furniture.

.3 Support Spaces

- A. Purpose: The Storage, Janitor Closet, Inmate toilets, and Audio Visual Closet are to support the Meeting Room functions. The Storage rooms shall accommodate stacking chairs and folding tables required for the meeting rooms. The inmate toilets shall be ADA compliant and plumbed with detention fixtures.
- B. Location and Relationships: See Floor Plans, Vol. 2.
- C. Size and Configuration: See Floor Plans, Vol. 2.
- D. Interior Construction:
 - 1. Walls: Reinforced CMU.
 - 2. Wall openings:
 - a. Provide 3' wide min. solid leaf hollow metal doors and frames.
 - b. Provide door face, door edge, frame, and lever protection on doors into Storage Rooms and Janitor Closets.
 - 3. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 4. Finishes: See Finish Schedule, Vol. 2.
- E. Audio / Visual Equipment: See Audio Visual Design Criteria.
- F. Toilet Accessories: Provide Detention grade suicide proof toilet room accessories in Inmate Toilets.
- G. Furniture, Fixtures, and Equipment: Janitorial equipment provided by Owner under separate contract. Trash cans provided by Owner. Coordinate with Owner provided equipment.

3.5 Worker Staging

.1 In Processing / Out Processing

Project Description

- A. Purpose: The Worker Staging Area is for the purpose of holding and searching all trustees prior to their entering (In-processing) and leaving (Out Processing) the Infrastructure Building.
- B. Location and Relationships: The trustees are currently housed in the “C” Barracks to the NE of the new Infrastructure Building. The Worker Staging shall be accessed from the outside for In processing and be located so as to minimize the length of travel from the “C” Barracks to the entrance Worker Staging. See Floor Plans, Vol. 2.
- C. Size and Configuration: The Staging Area will be sized to accommodate 30 trustees at a time with one Staff conducting the search process. The area will be composed of two holding rooms (one for “to be searched inmates” and one for “already searched inmates”). Each holding room shall be capable of accommodating 30 seated inmates. A search area will be located between the two holding rooms. The search rooms shall be configured so that inmates can’t see each other being searched, but one staff can search at least 3 to 4 inmates at a time. See Floor Plans, Vol. 2.
- D. Interior Construction:
 - 1. Walls: Reinforced CMU and pre-cast.
 - 2. Wall openings:
 - a. Provide translucent windows to the exterior for day lighting of space. Windows to the exterior shall be a min. of 7’-0” aff.
 - i. Exterior windows to be Impact Resistant Detention Grade.
 - ii. Series 3000 by CM Security Group Inc. is basis of design.
 - b. Provide 3’ wide min. half glass hollow metal door into corridor, unless otherwise required for corridor fire rating requirements.
 - c. Provide glazed frames allowing standing height visual surveillance from the corridor into the Worker Staging area. Coordinate corridor wall openings with requirements of Code for corridor wall fire ratings.
 - d. Exterior doors and frames to be insulated hollow metal with weatherproof thresholds, unless otherwise required by Detention Design Criteria.
- 3. Ceilings: See Reflected Ceiling Plan, Vol. 2.
- 4. Finishes: See Finish Schedule, Vol. 2.
- E. Detention Equipment: See Detention Design Criteria Documents.

.2 Support Spaces

- A. Purpose: The Inmate toilet supports the Worker Staging function. The inmate toilet shall be ADA compliant and plumbed with detention fixtures.
- B. Location and Relationships: See Floor Plans, Vol. 2.
- C. Size and Configuration: See Floor Plans, Vol. 2.
- D. Interior Construction:
 - 1. Walls: Reinforced CMU.
 - 2. Wall openings:
 - a. Provide 3’ wide min. solid leaf hollow metal door and frame.
 - 3. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 4. Finishes: See Finish Schedule, Vol. 2.
- E. Toilet Accessories: Provide Detention grade suicide proof toilet room accessories in Inmate Toilet.

3.6 Kitchen**.1 General**

- A. Purpose: The Kitchen shall be designed to utilize trustees to prepare meals for the entire Jail Facility including staff. The Jail population eats in their respective housing

Project Description

units. Staff eat in dedicated Staff dining areas. Meals must be able to be delivered in a timely manner to ensure food is still warm upon delivery.

- B. Location and Relationships: The Kitchen shall be located to deliver meals to the entire campus as quickly as possible. The Kitchen shall be located on the second floor of the Infrastructure Building. An enclosed and conditioned pedestrian bridge shall connect the Infrastructure Building to the Central Division Housing. In order to provide shorter more direct access from the Kitchen to future Housing Units, as outlined in the Facility Master Plan, a future open air pedestrian bridge connection shall be planned for. See Floor Plans and Building Elevations, Vol. 2.
- C. Size and Configuration: The Kitchen shall be sized to provide the entire existing Jail population plus staff with three meals a day. The Kitchen shall be designed to be expanded in order to accommodate future jail population growth as projected by the Facility Master Plan.. The Kitchen shall be planned or good flow and minimal cross traffic. See Floor Plans, Vol. 2.

.2 *Hot Food Production Area*

- A. Purpose: Production of hot foods.
- B. Location and Relationships: See Floor Plans, Vol. 2.
- C. Size and Configuration: See Floor Plans, Vol. 2.
- D. Interior Construction:
 - 1. Walls: Reinforced CMU.
 - 2. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 3. Finishes: See Finish Schedule, Vol. 2.
- E. Kitchen Equipment: See Kitchen Design Criteria.

.3 *Finish Preparation Areas*

- A. Purpose: Final preparation of meats and vegetables.
- B. Location and Relationships: See Floor Plans, Vol. 2.
- C. Size and Configuration: See Floor Plans, Vol. 2.
- D. Interior Construction:
 - 1. Walls: Reinforced CMU.
 - 2. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 4. Finishes: See Finish Schedule, Vol. 2.
- E. Kitchen Equipment: See Kitchen Design Criteria.

.4 *Tray Make-up Area*

- A. Purpose: Tray staging and preparation.
- B. Location and Relationships: See Floor Plans, Vol. 2.
- C. Size and Configuration: See Floor Plans, Vol. 2.
- D. Interior Construction:
 - 1. Walls: Reinforced CMU.
 - 2. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 3. Finishes: See Finish Schedule, Vol. 2.
- E. Kitchen Equipment: See Kitchen Design Criteria.

.5 *Cold Rooms*

- A. Purpose: Cold food storage.
- B. Location and Relationships: See Floor Plans, Vol. 2.
- C. Size and Configuration: See Floor Plans, Vol. 2.
- D. Interior Construction:
 - 1. Walls: See Kitchen Design Criteria.
 - 2. Ceilings: See Kitchen Design Criteria.
 - 3. Finishes: See Kitchen Design Criteria.
- E. Kitchen Equipment: See Kitchen Design Criteria.

Project Description

- .6 *Freezers*
- A. Purpose: Frozen food storage.
 - B. Location and Relationships: See Floor Plans, Vol. 2.
 - C. Size and Configuration: See Floor Plans, Vol. 2.
 - D. Interior Construction:
 - 1. Walls: See Kitchen Design Criteria.
 - 2. Ceilings: See Kitchen Design Criteria.
 - 3. Finishes: See Kitchen Design Criteria.
 - E. Kitchen Equipment: See Kitchen Design Criteria.
- .7 *Dry Food Storage Rooms*
- A. Purpose: Room temperature food storage.
 - B. Location and Relationships: See Floor Plans, Vol. 2.
 - C. Size and Configuration: See Floor Plans, Vol. 2.
 - D. Interior Construction:
 - 1. Walls: Reinforced CMU and precast concrete.
 - 2. Wall openings:
 - a. Provide 6' wide half light double hollow metal doors and frame.
 - b. Provide door face, door edge, frame, and lever protection on doors.
 - 3. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 4. Finishes: See Finish Schedule, Vol. 2.
 - E. Kitchen Equipment: See Kitchen Design Criteria.
- .8 *Offices*
- A. Purpose: Food service contractor and security staff offices.
 - B. Location and Relationships: See Floor Plans, Vol. 2.
 - C. Size and Configuration: Raised floor elevation for observation of food prep areas. See Floor Plans, Vol. 2.
 - D. Interior Construction:
 - 1. Walls: Reinforced CMU.
 - a. Wall openings:
 - i. Provide 3' wide min. half light hollow metal doors and frames.
 - ii. Provide glazed hollow metal frames providing maximum possible visual observation of Kitchen Areas.
 - iii. Provide roller window shades for selective control of light and vision.
 - 2. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 3. Finishes: See Finish Schedule, Vol. 2.
 - E. Furniture, Fixtures and Equipment: Provide roller window shades for selective control of light and vision. Office furniture provided by Owner under separate contract. Coordinate with Owner provided furniture.
- .9 *Ware Wash Area*
- A. Purpose: Washing, drying, and sorting of trays, dishware, cooking utensils, pots, and pans.
 - B. Location and Relationships: See Floor Plans, Vol. 2.
 - C. Size and Configuration: See Floor Plans, Vol. 2.
 - D. Interior Construction:
 - 1. Walls: Reinforced CMU and precast concrete.
 - a. Wall openings:
 - i. Provide translucent windows to the exterior for day lighting of space. Windows to the exterior shall be a min. of 6'-0" aff.
 - a) Exterior windows to be Impact Resistant Detention Grade.
 - b) Series 3000 by CM Security Group Inc. is basis of design.

Project Description

- 2. Ceilings: See Reflected Ceiling Plan, Vol. 2.
- 3. Finishes: See Finish Schedule, Vol. 2.
- E. Kitchen Equipment: See Kitchen Design Criteria.

.10 Support Spaces

- A. Purpose: Support spaces for the Kitchen Functions include Janitor Closet, Kitchen Laundry, Janitor Equipment & Supplies, Equipment Storage, Secured Storage, Uniform Storage, Chemical Storage, and Trash Holding.
- B. Location and Relationships: See Floor Plans, Vol. 2.
- C. Size and Configuration: See Floor Plans, Vol. 2.
- D. Interior Construction:
 - 1. Walls: Reinforced CMU and precast concrete.
 - a. Wall openings:
 - i. Provide 3' wide narrow lite hollow metal doors and frames, except provide 4' wide door at Kitchen Laundry, Equipment Storage, and Trash Holding.
 - ii. Provide door face, door edge, frame, and lever protection on doors.
 - 2. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 3. Finishes: See Finish Schedule, Vol. 2.
- E. Kitchen Equipment: See Kitchen Design Criteria Documents.
- F. Furniture, Fixtures and Equipment: Some storage and supplies shelving, janitorial equipment, trash cans, and trash hoppers/carts are provided by Owner under separate contract. Coordinate with Owner provided furniture and equipment.

.11 Inmate Support Spaces

- A. Purpose: Support spaces for trustees working in the Kitchen include Inmate Toilets and a Break Room. The toilets shall be ADA compliant and plumbed with detention fixtures.
- B. Location and Relationships: See Floor Plans, Vol. 2.
- C. Size and Configuration: See Floor Plans, Vol. 2.
- D. Interior Construction:
 - 1. Walls: Reinforced CMU and precast concrete.
 - a. Wall openings:
 - i. Provide 3' wide half light hollow metal doors and frames with borrowed lights into Break Room.
 - ii. Provide 3' wide min. solid leaf hollow metal door and frame into toilets.
 - iii. Provide translucent windows to the exterior for day lighting of Break room. Windows to the exterior shall be a min. of 6'-0" aff.
 - a) Exterior windows to be Impact Resistant Detention Grade.
 - b) Series 3000 by CM Security Group Inc. is basis of design.
 - iv. Provide glazed hollow metal frames for observation from offices into inmate Break Room.
 - 2. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 3. Finishes: See Finish Schedule, Vol. 2.
 - E. Toilet Accessories: Provide Detention grade suicide proof toilet room accessories in Inmate Toilet.
 - F. Kitchen Equipment: See Kitchen Design Criteria Documents.
 - H. Furniture, Fixtures, and Equipment: Trash cans provided by Owner. Coordinate with Owner provided equipment.

.12 Staff Food Prep and Serving Line

- A. Purpose: Grill line for staff food preparation.
- B. Location and Relationships: See Floor Plans, Vol. 2.
- C. Size and Configuration: See Floor Plans, Vol. 2.

Project Description

- D. Interior Construction:
 - 1. Walls: Reinforced CMU.
 - a. Wall openings:
 - i. Provide 3' wide narrow lite hollow metal doors and frames.
 - ii. Provide door face, door edge, frame, and lever protection on doors.
 - 2. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 3. Finishes: See Finish Schedule, Vol. 2.
- E. Kitchen Equipment: See Kitchen Design Criteria Documents.

.13 Staff Dining Multi-Purpose

- A. Purpose: Dining room and Multi-purpose space for staff.
- B. Location and Relationships: See Floor Plans, Vol. 2.
- C. Size and Configuration: See Floor Plans, Vol. 2.
- D. Interior Construction:
 - 1. Walls: Reinforced CMU and precast concrete.
 - a. Wall openings:
 - i. Provide 3' wide narrow lite hollow metal doors and frames.
 - ii. Provide vision windows to the exterior for day lighting of space. Windows to the exterior shall be a min. of 6'-0" aff.
 - a) Exterior windows to be Impact Resistant Detention Grade.
 - b) Series 3000 by CM Security Group Inc. is basis of design.
 - iii. Provide glazed hollow metal frames between dining room and corridor. Window sill height shall not be less than 6'-0" aff.
 - 2. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 3. Finishes: See Finish Schedule, Vol. 2.
- E. Audio Visual Equipment: See Telecommunications Design Criteria for Multi-purpose room audio and projection equipment.
- F. Equipment: Equipment Schedule.
- G. Furniture, Fixtures, and Equipment: Provide black out and intermediate roller window shades for the exterior windows into the Multi-purpose room. Vending machines, appliances, dining tables and chairs, multi-purpose folding tables, and multi-purpose stacking chairs provided by Owner under separate contract. Coordinate with Owner provided furniture.

.14 Staff Support Spaces

- 1. Purpose: Staff Support Spaces include the Staff Toilets. Toilets shall be ADA compliant.
- 2. Location and Relationships: See Floor Plans, Vol. 2.
- 3. Size and Configuration: See Floor Plans, Vol. 2.
- 4. Interior Construction:
 - 1. Walls: Reinforced CMU.
 - a. Wall openings:
 - i. Provide 3' wide solid leaf hollow metal doors and frames.
 - 2. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 3. Finishes: See Finish Schedule, Vol. 2.
- 5. Accessories: Provide ADA compliant toilet accessories for staff toilet.
- 6. Furniture, Fixtures, and Equipment: Trash cans provided by Owner. Coordinate with Owner provided equipment.

3.7 Central Control

.1 Central Control Suite

- A. Purpose: Provide a new Security Control Suite in order to consolidate campus wide security control functions to a centralized location for purposes of security system

Project Description

upgrade, Housing Unit security backup, Division security coordination, and Campus security oversight.

- B. Location and Relationships: See Floor Plans, Vol. 2.
- C. Size and Configuration: See Floor Plans, Vol. 2.
- D. Interior Construction:
 - 1. Walls: Reinforced CMU and precast concrete.
 - a. Wall openings: See Floor Plans, Vol. 2.
 - i. Provide tinted windows to the exterior for day lighting of space.
 - a) Exterior windows to be Impact Resistant Detention Grade.
 - b) Series 3000 by CM Security Group Inc. is basis of design.
 - ii. Provide 3' wide solid leaf hollow metal doors and frames.
 - iii. Provide glazed frames between Control room and Conference room.
 - 2. Ceilings: See Reflected Ceiling Plan, Vol. 2.
 - 3. Finishes: See Finish Schedule, Vol. 2.
- E. Security Equipment: See Security Electronics Design Criteria Documents.
- F. Audio / Visual Equipment: See Audio Visual Design Criteria Documents for Conference room audio and projection equipment.
- G. Accessories: Provide ADA compliant toilet accessories for staff toilet.
 - 1. Furniture, Fixtures, and Equipment: Provide marker boards. Provide power operated black out and intermediate roller window shades at exterior windows into Control room. Provide manual blackout shades at glazed hollow metal frames located between Control and Conference room. Conference room furniture, trash cans, and appliances to be provided by Owner under separate contract. Coordinate with Owner provided F,F, & E.

3.8 Owner Provided Moveable Furniture and Equipment

.1 Overview

- A. Owner will provide various moveable furniture and equipment items under a separate contract. Coordinate with Owner to confirm items listed in preliminary schedule and determine physical requirements needed to support furniture and equipment.

.2 Preliminary Owner Provided Moveable Furniture and Equipment Schedule:

Project Description

OWNER PROVIDED MOVEABLE FURNITURE AND EQUIPMENT SCHEDULE						
Furniture and Equipment		Furnished / Installed	Location		Space Description	Comments
No.	Description		Qty	No.		
EQUIPMENT						
E01	Palette jack	O/O	1	105	Loading Dock	Quartet Duramax Portable.
E02	Computer, workstation	O/O	1	110	Program Meeting Room	
			1	111	Program Meeting Room	
			1	116	Program Meeting Room	
			1	137	Office/Control	
			1	213	Office	
			1	214	Food Service Mgt Office	
			1	301	Maint. Office	
E03	Computer, laptop	O/O	5	115	Office	
E04	Easel, flip chart	O/O	1	110	Program Meeting Room	
			1	111	Program Meeting Room	
			1	116	Program Meeting Room	
FURNITURE						
F01	Wastebasket	O/O	1	113	Inmate Toilet	
			1	115	Office	
			1	118	Staff Toilet	
			1	119	Inmate Toilet	
			1	121	Inmate Toilet	
			1	125	Staff Toilet	
			1	129	Inmate Toilet	
			1	137	Office/Control	
			1	206	Staff Toilet	
			1	207	Inmate Toilet	
			1	208	Inmate Toilet	
			1	213	Office	
			2	214	Food Service Mgt Office	
			1	226	Staff Toilet	
			1	227	Staff Toilet	
			1	229	Corridor	
			1	301	Maintenance Office	
			1	305	Staff Toilet	
			1	313	Control Conference Room	
F02	Trash can, medium	O/O	1	110	Program Meeting Room	
			1	111	Program Meeting Room	
			1	116	Program Meeting Room	
			1	130	Break Room	
			1	223	Multi-purpose	
			1	302	Control Room	
F03	Trash can, large	O/O	2	138	Central Laundry	
			1	204	Dry Food Storage	
			1	211	Break Room	

Project Description

OWNER PROVIDED MOVEABLE FURNITURE AND EQUIPMENT SCHEDULE									
Furniture and Equipment		Furnished / Installed	Location		Space Description	Comments			
No.	Description		Qty	No.					
			1	215	Ware Wash Area				
			1	230	Food Prep Service Area				
			1	232	Staff Dining / Multi-purpose				
			2	235	Hot Food Production				
			1	251	Corridor				
			1	308	Chiller Room				
			1	311	Generator Room				
F04	Trash cart/hopper	O/O	3	106	Garbage/Recycle Dock	Commercial grade			
F05	Table, rectangular, 24"x84", folding	O/O	12	223	Multi-purpose	*Coordinate dolly qty/size(s) with table qty and Storage Rm. size.			
F06	Table Dolly, rectangular tables	O/O	*	218	Storage	Merit Series Flip Flop Training Table, Cherry			
F07	Table, rectangular, 24"x72"	O/O	4	110	Program Meeting Room				
			4	111	Program Meeting Room				
			8	116	Program Meeting Room				
F08	Table, round, 56" dia	O/O	8	232	Staff Dining / Multi-purpose	Commercial grade, Size for 6 persons each table.			
F09	Table Dolly, round tables	O/O	*	218	Storage	*Coordinate dolly qty/size(s) with table qty and Storage Rm. size.			
F10	Table, conference 36"W x 96"L	O/O	1	313	Control Conference Room				
F11	Chair, stackable	O/O	48	223	Multi-purpose	Commercial grade, metal frame			
			48	232	Staff Dining / Multi-purpose				
F12	Stacking Chair Dolly	O/O	*			*Coordinate dolly qty/size(s) with chair qty and Storage Rm. size.			
F13	Chair, stackable	O/O	16	110	Program Meeting Room	Detention grade, plastic.			
			16	111	Program Meeting Room				
			32	116	Program Meeting Room				
F14	Chair, workstation, standard	O/O	1	110	Program Meeting Room				
			1	111	Program Meeting Room				
			2	115	Office				
			1	116	Program Meeting Room				
			1	137	Office/Control				
			1	213	Office				
			2	214	Food Service Mgt Office				
			1	301	Maint. Office				
F15	Chair, workstation, premium	O/O	1	137	Office/Control				
			5	302	Control Room				
F16	Chair, conference table chair	O/O	10	313	Control Conference Room				
F17	Office Desk	O/O	1	110	Program Meeting Room				
			1	111	Program Meeting Room				
			2	115	Office				
			1	116	Program Meeting Room				
			1	213	Office				

Project Description

OWNER PROVIDED MOVEABLE FURNITURE AND EQUIPMENT SCHEDULE						
Furniture and Equipment No.	Description	Furnished / Installed	Location		Space Description	Comments
			Qty	No.		
F18	Metal File Cabinets, 2 drawer, locking 17"W x 28"H x 30"D	O/O	2 1	214 301	Food Service Mgt Office Maintenance Office	
F19	Metal File Cabinets, 4 drawer, locking 17"W x 52"H x 30"D	O/O	2 1 2	115 213 214	Office Office Food Service Mgt Office	
F20	Metal Storage Cabinet, 2 door, locking 48"W x 84"H x 22"D	O/O	1 1 1	110 111 116	Program Meeting Room Program Meeting Room Office	
F21	Metal Bookshelves, open face 24"W x 60"H x 13"D	O/O	2	115	Program Meeting Room	
F22	Metal Bookshelves, open face 48"W x 84"H x 13"D	O/O	1 1 1	110 111 116	Program Meeting Room Program Meeting Room Program Meeting Room	
F23	Lecturn / Podium	O/O	1 1 1	110 111 116	Program Meeting Room Program Meeting Room Program Meeting Room	
APPLIANCES						
A01	Microwave	O/O	2 1	229 302	Corridor Control Room	
A02	Refrigerator, full size, large	O/O	2	229	Corridor	
A03	Refrigerator, full size, small	O/O	1 1	302 313	Control Room Control Conference Room	
VENDING						
V01	Vending Machine, drinks	O/O	1	229	Corridor	
V01	Vending Machine, snacks	O/O	1	229	Corridor	

4 - GENERAL ARCHITECTURAL DESIGN – FACILITY MAINTENANCE BUILDING, PURCHASING & JAIL WAREHOUSE BUILDING

4.1 General

.1 General:

- A. The Facility Maintenance and Purchasing Warehouse buildings are intended to be pre-manufactured precast concrete buildings with a metal roof and will be located on the northern edge of the campus, outside the main secure perimeter, but within the outside fence and campus ring road.
 - 1. The Facility Maintenance Building will replace the existing Facility Maintenance building located on the southwest corner of the site.
 - a. Building size is approximately 14,960 s.f.
 - b. Building shall include Facility Maintenance offices, shops and storage space as programmed.
 - c. Space program is included at the end of this chapter.
 - 2. The Purchasing Warehouse building will replace an off-site leased warehouse.
 - a. Building size is approximately 43,340 s.f.
 - b. Building shall include approximately 8,000 s.f. of finished space; 25,000 s.f. of storage for new uniforms and supplies; and existing furniture and equipment from other locations on the jail campus; 3,000 s.f. of climate controlled archive storage; and 3,300 s.f. CRT Training facility.
 - c. Space program is included at the end of this chapter.
 - 3. Construction of these buildings shall not be started until the Infrastructure Building is complete.
 - a. The site for these buildings shall serve as staging area for the Infrastructure Building construction.
 - 4. These buildings shall meet the requirements of the Florida Building Code for “Shelter in Place” construction.
 - a. Design of these facilities is based on the Titan Wall System as manufactured by Oldcastle Precast.
 - b. Comply with Florida Building code for separation of office and storage/shop areas.
 - c. Comply with Pinellas County Design and Construction Standards.
 - 5. Chilled water and power from the Central Energy Plant and utility loop shall serve these buildings.
- B. Exterior Construction
 - 1. Oldcastle Precast Titan Wall System is basis of design
 - a. Column spacing is 16 feet on center
 - b. Columns include notched design to receive infill panels.
 - c. Infill panels will be 16 feet long by 12 feet tall
 - d. Refer to Chapter 8 for foundation design criteria.
 - 2. Roof structure to be steel to span narrow direction of buildings
 - a. Roof structure shall withstand hurricane force winds of 175 MPH as required by the Florida Building Code.
 - b. Roof Covering shall be metal panel over rigid insulation and steel deck.
 - c. Refer to Chapter 8 for additional structural requirements.
 - 3. Wall Openings
 - a. Consistent window size and spacing for office areas.
 - b. Provide exterior shading for south-facing windows.
 - c. Coordinate all openings with panel manufacturer.
 - d. Provide thermally broken aluminum window frames.

Project Description

- e. Provide insulated and low-e glazing. Coordinate shading coefficients and light transmittance with Energy Code Requirements.
- f. All exterior doors to be thermally insulated.
- g. All loading areas shall be covered.
- C. Spaces described herein for the Facility Maintenance and Warehouse Buildings are for general information. The final design of these buildings is the responsibility of the Design/Build team.

4.2 Facility Maintenance

.1 General:

- A. *Purpose:* the Facility Maintenance Building will replace the existing metal building located at the southwest corner of the site with a new precast modular building. The building will house Facility Maintenance offices, shops and storage as required to serve the jail campus. Building to be on new chilled water and power loop.
- B. *Site / Location:* The building will be located in the northern quadrant of the site, south of the existing perimeter access road, and north of the existing drainage channel.
 - 1. Access to the building will be on the East side via the existing parking lot for visitors and staff; and west side for staff and golf carts, and north side for truck deliveries.
 - 2. Building shall be outside the secure perimeter inmate area.
 - 3. See Civil Drawings and Design Criteria

.2 Shared Spaces:

- A. Entry Vestibule/ Lobby/reception.
 - 1. Waiting area with 4 chairs
 - 2. Systems furniture cubicles with counter for 2 positions
- B. Data Center / Workroom
 - 1. Space for printers and supply storage
 - 2. Work space for assembling sets of drawings
 - 3. STC 50 wall construction
 - 4. Ability to close-off from adjoining spaces to contain noise
- C. Conference Room
 - 1. Seating for 12 at conference table
 - 2. STC 50 wall construction
- D. Break Room / Multipurpose Room
 - 1. Dividable into two rooms
 - 2. Large conference table with seating for 20 in one space
 - 3. Refrigerator, Microwaves, sink, coffee maker, countertop and cabinets at one end
 - 4. Seating at smaller tables for staff break
 - 5. Accessible from both staff visitor entries
- E. Computer cubicle
 - 1. Space for one person
 - 2. Open view from office area
- F. Locker / Restrooms
 - 1. All to be ADA compliant
 - 2. Women's
 - a. Space for 4 women required
 - b. Shower, toilet, sink changing area
 - c. Locker area
 - d. Locate near office areas
 - 3. Men's
 - a. Space for 24 men required

Project Description

- b. Showers, toilets, urinals, and lavatories as required by Florida Plumbing Code
 - c. Locker/changing area
 - d. Locate between office area and shops
 - 4. Administrative toilet room
 - a. Toilet & lavatory
 - b. Locate near office areas
 - G. Finishes
 - 1. Tile or polished concrete floors in entry vestibule and lobby
 - 2. Tile floors and walls in restrooms/locker rooms
 - 3. Carpet-tile in reception area and all office areas
 - 4. Painted gyp.bd. walls
 - 5. 2 x 2 lay-in ceilings
- .3 *Office Areas:*
- A. Manager & Operations Manager:
 - 1. Private offices
 - a. STC 50 wall construction
 - 2. Locate near reception area and conference room
 - 3. Accessible to supervisors area
 - 4. Located at building perimeter for natural daylighting
 - B. Supervisors Area:
 - 1. Space for 6 in 10 x 10 cubicles
 - 2. Locate near conference room
 - 3. Locate at perimeter for natural daylighting
 - C. Multi-use cubicles:
 - 1. Space for 2 in 8 x 10 cubicles
 - 2. Locate near Supervisors area
 - D. Finishes
 - 1. Carpet-tile in reception area and all office areas
 - 2. Painted gyp.bd. walls
 - 3. 2 x 2 lay-in ceilings
- .4 *Shop & Storage Areas:*
- A. Provide 5 self-contained shops
 - 1. Electrical
 - 2. HVAC
 - a. Locate near dock access
 - b. Provide space for larger equipment
 - 3. Plumbing
 - 4. Security Hardware
 - 5. Electronics/CCTV
 - 6. Welding shop
 - a. Locate near dock access
 - B. Enclose and condition space for shops
 - 1. All shops to be lockable
 - C. Tool Inventory & Issue area
 - 1. Partially enclosed in chain link fence with gate
 - 2. Locate near shops
 - 3. Accessible by golf cart
 - D. Drawing & Document Room
 - 1. Locate near office area
 - 2. Conditioned lockable room
 - E. Storage space
 - 1. Provide at least 5,000 s.f. of storage space for maintenance supplies

Project Description

- F. Dock Area
 - 1. Provide raised dock at north end of building for receiving of parts and supplies
 - 2. Provide ramp access to dock entry for golf carts
- G. Construction/Finishes
 - 1. Floors to be sealed concrete
 - 2. Wall construction around shops to be noncombustible and vandal resistant; painted finish.
 - 3. Provide suspended lay-in ceilings in shops requiring conditioned space.
 - 4. All other areas to be exposed to structure.
 - 5. Provide task lighting, power and data connections in shops.
- .5 *Grounds / Exterior Requirements*
 - A. Provide cage for combustible gas storage
 - 1. Equivalent to area at existing location
 - B. Provide space for golf cart parking and charging stations around the perimeter of the building
 - 1. Coordinate with maintenance staff for power requirements
 - 2. Spaces for 12 golf carts required.
 - C. Provide space for heavy equipment parking on the west side of the building
 - 1. Coordinate with maintenance staff on equipment and sizes.
 - D. Parking at east side of the building to be shared by maintenance staff and purchasing office staff at Warehouse.

4.3 Warehouse

- .1 *General:*
 - A. *Purpose:* The Warehouse building is intended to replace the 30,000 s.f. off-site warehouse leased from the Clearwater/St. Petersburg Airport Authority to save time and transportation costs for supplies that are mainly used by jail operations. Additional storage space is to be provided for jail equipment and supplies stored in the housing buildings. A CRT Training Facility will also be included in the building.
 - B. *Site / Location:* The building will be located in the northern quadrant of the site, south of the existing perimeter access road, and north of the existing drainage channel.
 - 1. Access to the building will be on the West side via the existing parking lot for visitors and staff, and north side for truck deliveries.
 - 2. Building shall be outside the secure perimeter inmate area.
 - 3. See Civil Drawings and Design Criteria
- .2 *Shared Spaces:*
 - A. Lobby/Waiting
 - 1. Seating for 4
 - 2. Provide vestibule
 - 3. Adjacent to Conference Room
 - B. Copy / Workroom
 - 1. Space for printers and supply storage
 - 2. Work space for assembling sets of drawings
 - 3. STC 50 wall construction
 - 4. Ability to close-off from adjoining spaces to contain noise
 - C. Conference Room
 - 1. Seating for 8-10 at conference table
 - 2. STC 50 wall construction
 - D. Break Room
 - 1. Seating for 2-4 people
 - 2. Refrigerator, Microwave, sink, coffee maker, countertop and cabinets

Project Description

- 3. Space for vending machine
 - E. Restrooms
 - 1. Men's
 - a. Single user ADA compliant
 - b. Toilet & lavatory
 - 2. Women's
 - a. Single user ADA compliant
 - b. Toilet & lavatory
 - F. Finishes
 - 1. Tile or polished concrete floors in entry vestibule and lobby
 - 2. Tile floors and wainscots in restrooms
 - 3. Carpet-tile in reception area and all office areas
 - 4. Painted gyp.bd. walls
 - 5. 2 x 2 lay-in ceilings
- .3 *Office Space*
- A. Purchasing Agent :
 - 1. Private office
 - a. STC 50 wall construction
 - 2. Locate near lobby area and conference room
 - 3. Adjacent to office specialist
 - 4. Accessible to buyers and clerks area
 - 5. Located at building perimeter for natural daylighting
 - B. Assistant Purchasing Agent & Property Clerk Supervisor
 - 1. Private offices
 - a. STC 40 wall construction
 - 2. Adjacent to buyers and clerks area
 - 3. Connection to Purchasing Warehouse (via technology)
 - C. Clerks
 - 1. Located near lobby; one acts as receptionist
 - 2. Cubicles – 8 x 8
 - 3. Transaction counter or window
 - D. Buyers
 - 1. Need acoustical privacy
 - a. 5 - 12 x 10 offices
 - b. STC 40
 - E. Property clerks
 - 1. Cubicles for 4 8' x 8'
 - 2. Adjacent to Purchasing Warehouse
 - 3. 2 additional cubicles for growth
 - F. Property Clerk – Uniforms
 - 1. Single 8' x 8' cubicle
 - 2. Adjacent to Uniform Supply
 - G. Courier
 - 1. Single 8' x 8' cubicle
 - 2. Assists Property Clerks
- .4 *Uniform Supply*
- A. Rolling Storage Cabinet system
 - B. Requires space for fitting rooms
 - C. Transaction counter
 - D. Conditioned Space
 - E. As many as 3 personnel may operate in this location at a time
 - 1. Locate adjacent to property clerks

Project Description

- .5 *Office Supply*
 - A. Requires sufficient space for pallet travel
 - B. Counter space to check in supplies
 - 1. Computer terminal & printer
 - C. Conditioned Space
- .6 *Purchasing Warehouse*
 - A. Conditioned space preferred
 - B. Computer terminal & printer
 - C. Minimum 16,000 s.f.
- .7 *Archive Storage*
 - A. Climate controlled space
 - B. Consider high-density storage system
 - C. Minimum 3,000 s.f.
- .8 *CRT Training Facility*
 - A. Private access from exterior
 - B. Classroom
 - 1. A/V Equipment required
 - C. Restrooms
 - 1. Men's
 - a. Single user ADA Compliant
 - b. Toilet & Lavatory
 - 2. Women's
 - a. Single user ADA Compliant
 - b. Toilet & Lavatory
 - D. Janitor closet
 - E. Training Room
 - 1. A/V Equipment required
 - F. Cell Units
 - G. General Storage
 - H. Secure Storage
- .9 *Jail Warehouse*
 - A. Separate access from Purchasing Warehouse
 - B. Loading Dock
 - C. Receiving Vestibule
 - D. Specialist Office
 - E. Restrooms
 - 1. Inmate
 - a. Single user ADA Compliant
 - b. Toilet & Lavatory
 - c. No locks on doors
 - 2. Staff
 - a. Single user ADA Compliant
 - b. Toilet & Lavatory
 - F. Janitor closet
 - G. Chemical Storage
 - H. Break rooms
 - 1. Inmates
 - 2. Staff
 - I. Workshop and Lawn Equipment
 - J. General Storage

Project Description

PINELLAS COUNTY FLORIDA JAIL EXPANSION							Draft Preliminary Program 10/3/2013	
Component: SHOP MAINTENANCE BUILDING								
Component No: 6.000								
PROGRAM DEPART.	PROGRAM NUMBER	ROOM NAME	LEVEL	ACTUAL AREA	PROGRAM AREA	DIFFERENCE	COMMENTS	
6.000	6.100	Maintenance			20,000		Based on current location	
6.000	6.101	Data Center			160		Room for copier and office supplies, central to Admin Staff	
6.000	6.102	Conference Room			240			
6.000	6.103	Larger Break Room/Multipurpose Room			384			
6.000	6.104	Reception Area			160		For 2 Admin Staff	
6.000	6.105	Computer Area			25		Small workstation for General Staff computer use, open view	
6.000	6.106	Women's Restroom & Locker Room			120			
6.000	6.107	Manager/Supervisors Restroom			80			
		Offices:						
6.000	6.108	Managers Office			180		With a view and small conference area	
6.000	6.109	Operations Manager Office			120		With a view	
6.000	6.110	Supervisor Office			100		cubicle	
6.000	6.111	Supervisor Office			100		cubicle	
6.000	6.112	Supervisor Office			100		cubicle	
6.000	6.113	Supervisor Office			100		cubicle	
6.000	6.114	Multi-Use Office			80		For various users - cubicle	
6.000	6.115	Multi-Use Office			80		For various users - cubicle	
		Shop Area:						
6.000	6.116	Trade Shop - Electrical			200		secure room	
6.000	6.117	Trade Shop - Security Hardware			300		secure room	
6.000	6.118	Trade Shop - HVAC			375		secure room	
6.000	6.119	Trade Shop - Plumbing			300		secure room	
6.000	6.120	CCTV & Electronics Office			200		secure room	
6.000	6.121	Tool Inventory & Issue			1125		Based on current size; open area with lockable bins	
6.000	6.122	Weld & Fabrication Shop/Area			1200		Based on current size; open area	
6.000	6.123	Operational Supplies Storage Area			5640		Including dock area + 50% Mezzanine storage space	
6.000	6.124	Blueprint & Document Room			100		secure room	
6.000	6.125	Men's Restroom & Locker Room			500			
		Grounds:						
6.000	6.126	Combustible Gas Storage					Cage outside building	
6.000	6.127	Vehicle parking					55 spaces in existing lot	
6.000	6.128	Golf Cart Parking & Charging Station					Spaces for 12 carts	
6.000	6.129	Heavy Equipment Parking					Coordinate with Facility Maintenance	
Subtotal					11,969			
Grossing Factor					x 1.25			
Total					14,961			

Project Description

Draft Preliminary Program
1/21/2014

PINELLAS COUNTY FLORIDA JAIL EXPANSION

Component: PURCHASING WAREHOUSE AND JAIL STORAGE BUILDING						
Component No: 7.000						
PROGRAM DEPART.	PROGRAM NUMBER	ROOM NAME	LEVEL	ACTUAL AREA	PROGRAM AREA	DIFFERENCE
7.000	7.100	Purchasing Warehouse & Jail Storage			41,100	
		<u>Purchasing Shared Spaces:</u>				
7.000	7.101	Lobby			200	
7.000	7.102	Break			200	
7.000	7.103	Men's Restroom			60	
7.000	7.104	Men's Restroom			60	
7.000	7.105	Women's Restroom			60	
7.000	7.106	Copy/fax area #1			40	near Purchasing Agent
7.000	7.107	Copy/fax area #2			120	near office area
7.000	7.108	Courier			64	cubicle near office space
7.000	7.109	Conference Room			320	near offices
		<u>Purchasing Offices:</u>				
7.000	7.110	Purchasing Agent			250	Shared Office - two people
7.000	7.111	Reception Clerks			140	Shared Office - two people - transaction window facing lobby
7.000	7.112	Assistant Purchasing Agent			120	Office
7.000	7.113	Buyer Office			120	Office
7.000	7.114	Buyer Office			120	Office
7.000	7.115	Buyer Office			120	Office
7.000	7.116	Buyer Office			120	Office
7.000	7.117	Buyer Office			120	Office
7.000	7.118	Property Clerk Supervisor			120	Office
7.000	7.119	Property Clerk			64	Cubicle
7.000	7.120	Property Clerk			64	Cubicle
7.000	7.121	Property Clerk			64	Cubicle
7.000	7.122	Property Clerk			64	Cubicle
7.000	7.123	Senior Office Specialist			64	Cubicle
7.000	7.124	Growth			64	Cubicle
7.000	7.125	Telephone/IT Closet			150	Office
		<u>Uniform Supply:</u>				
7.000	7.126	Department Area			2020	Based on current size
7.000	7.127	Office			150 s.f.	150 s.f.
7.000	7.128	Fitting Rooms				2 @ 5' x 5' + alterations area
7.000	7.129	Uniform Storage				currently 3 rooms with shelving +/- 1000 s.f.
7.000	7.130	Uniform Supply			2280	Fenced enclosure
7.000	7.131	<u>Climate Controlled Archive Storage:</u>			3010	Rated wall enclosure, 16' ceiling ht., ext. access, 12'-0" w. ohd
		<u>Warehouse/Office Supply:</u>				
7.000	7.135	Warehouse/Office Supply			15785	Climate Controlled
7.000	7.136	Vestibule			250	

Project Description

PROGRAM DEPT.	PROGRAM NUMBER	ROOM NAME	LEVEL	ACTUAL AREA	PROGRAM AREA	DIFFERENCE	COMMENTS
7.000	7.137	Office			150		
7.000	7.138	Office			150		
7.000	7.139	Office			150		
7.000	7.140	Utility			80		
7.000	7.141	IDF			80		
7.000	7.142	Toilet			50		
7.000	7.143	Toilet			50		
7.000	7.144	Toilet			60		
7.000	7.145	Printing Services			2000		
7.000	7.146	Command Bus Garage			900		Exterior access, 12'-0" wide overhead door
		Jail Storage:					Separate entry, dock, and separated from purchasing warehouse
7.000	7.147	Loading Dock			200		
7.000	7.148	Receiving Vestibule			200		
7.000	7.149	Specialist/Office Area			225		
7.000	7.150	Chemical Supply Storage			100		
7.000	7.151	General Storage			750		
7.000	7.152	Janitor Closet			55		
7.000	7.153	Inmate Restrooms			150		2 @ 75 s.f. each
7.000	7.154	Staff Restroom			75		
7.000	7.155	Inmate Break Room			200		
7.000	7.156	Staff Break Room			100		
7.000	7.157	Workshop and Lawn Equipment			2430		
		CRT Training Center:					Separate entry; security electronics
7.000	7.158	Classroom Area			750		A/V equipment
7.000	7.159	Unisex Restroom			75		
7.000	7.160	Janitor Closet			75		
7.000	7.161	Training Room			1600		A/V equipment
7.000	7.162	Cell units			200		
7.000	7.163	General Storage			350		
7.000	7.164	Other Storage			250		
		Grounds:					
7.000	7.165	Covered Delivery Vehicle Access - Purchasing					Space for two trucks, 2 - 12'-0" wide overhead doors
7.000	7.166	Covered Delivery Vehicle Access - Archives					Space for one truck/van, 1 - 12'-0" wide overhead door
7.000	7.167	Covered Delivery Vehicle Access - Jail Stor.					Space for one truck/van, 1 - 12'-0" wide overhead door
7.000	7.168	Parking for Response Vehicles					2 spaces
7.000	7.169	Vehicle parking					24 spaces in existing lot
		Subtotal			37,688		
		Grossing Factor			x 1.15		
		Total			43,341		

5 - GENERAL ARCHITECTURAL DESIGN – SOUTH KITCHEN RENOVATION, CENTRAL DIVISION FREIGHT ELEVATOR ADDITION

5.1 General South Kitchen Facility Criteria

.1 General:

- A. The South Kitchen is located in the first floor of the F-Wing housing building, and has served as the main delivery point for food service supplies for the campus since its construction. It is the desire of the Pinellas County Sheriff's Office to retain an operational kitchen facility in this location to expedite service to the South housing units, provide staff dining in closer proximity to staff work locations, and provide redundant food service capability.
 - 1. No work shall begin on the South Kitchen until the Infrastructure Building is complete, and all food service is operational to the entire jail campus from the new kitchen.
 - 2. Coordinate kitchen shut-down with the Pinellas County Sheriff's Office and Trinity Food Service.
 - 3. Inspect foundation and underground utilities to the extent possible, and advise the County of any remedial structural or utility work required.
 - 4. Prior to demolition, ascertain from Trinity Food Service if any existing equipment will be re-used; prepare to store and protect that equipment for the duration of the renovation.
 - 5. Determine the need for hazardous materials remediation.
 - 6. No drawings will be provided for the renovation of this space as part of this package. The Design/Builder shall engage the services of a food service consultant to work with the client to design and construct the renovated kitchen facility.
- B. Spaces described herein for the South Kitchen Renovation are for general information. The final design is the responsibility of the Design/Build team.

5.2 South Kitchen Renovation

.1 General:

- A. *Purpose:* The South Kitchen serves all inmates housed in the South Division. It is the desire of the Pinellas County Sheriff's Office that food service continue from this location. The existing equipment has reached the end of its useful life; utilities are exposed; finishes are deteriorating.
- B. *Location:* The South Kitchen is located in the first floor of the F-Wing building.
- C. *Building condition:*
 - 1. Ascertain suitability of the structure and underground utilities for continued use as a kitchen facility.
 - 2. Ascertain the extent of hazardous materials remediation
- D. Coordinate all work with the Pinellas County Sheriff's Office and Trinity Food Service operations.
- E. *Code:* Refer to Chapter 3-1 for project code requirements.

.2 Architectural:

- A. Re-plan the kitchen space to accommodate new equipment and eliminate spaces where inmates can hide or conceal contraband.
 - 3. Obtain drawings from Facility Maintenance for the existing kitchen.
 - 4. Field survey existing conditions, utilizing existing facility reports included in the Oct. 2013 Master Plan Update.

Project Description

- B. Utilize the services of a food service consultant for the re-planning of the kitchen within the building's exterior walls and structural elements.

.3 *Structural*

- A. Inspection of Existing Structure: Provide a comprehensive structural inspection of the existing kitchen space to determine structural deficiencies. This inspection shall also determine if previously fixed plumbing issues have lead to extensive slab settlement from soil erosion and if any previous remedies addressed this problem.
- B. Structural Deficiency Report: Prepare a structural deficiency report that summarizes the findings from the structural inspection and present to Owner.
- C. Design of Potential Structural Reinforcements: Provide the structural design of reinforcement required to repair any potential structural deficiencies noted in the report and to verify that the structure can adequately support any new kitchen equipment.

.4 *Underground Utilities*

- A. Examine underground utilities to the extent possible; advise Owner of any work required to make suitable for continued use.
5. Some drain lines were replaced in 2005, camera inspection is recommended.

.5 *HVAC*

- A. Demolish all existing diffusers, ducting, exhaust fans/ hoods, and air handling units in space.
- B. Complete load calculation to determine the load of the renovated area.
- C. Install new air handler connected to new chilled water plant.
- D. Provide new ductwork and air devices.
- E. Provide exhaust hoods and make up air for new kitchen equipment.
- F. Provide exhaust fans for restroom and janitor areas.
- G. Connect systems back to existing controls.

.6 *Electrical Service*

- A. Existing lighting in the space will be demolished and replaced with new fixtures. All branch circuits serving existing kitchen equipment will be demolished back to source.
- B. All existing branch circuit panels and transformers will be replaced with new equipment. Equipment will be coordinated to accommodate new kitchen equipment loads and branch circuit requirements. All feeders will be replaced back to main service distribution equipment.
- C. Shunt trip circuit breakers will be provided for all equipment located under grease removal hoods. Power will be disconnected as required during a dry agent release.
- D. All required fire alarm interlocks will be provided. All existing fire alarm pull stations and signal devices will be replaced with new devices compatible with the existing system.
- E. All receptacles provided in kitchen area will be ground fault interrupter type as required by codes.

.7 *Plumbing*

- A. Remove and replace all plumbing domestic cold and hot water piping up to and including wall stops and valves feeding existing equipment.
- B. Remove and replace all plumbing waste piping from existing equipment to existing drain locations.
- C. Remove and replace all plumbing floor drain and floor sink strainers. Examine all drain bodies to the extent possible; advise Owner of any work required to make suitable for continued use.

Project Description

- D. Examine all main building distribution and branch domestic water; advise Owner of any work required to make suitable for continued use.
- E. Examine underground plumbing sanitary, grease and storm piping to the extent possible; advise Owner of any work required to make suitable for continued use.
- F. Examine aboveground plumbing sanitary, vent, grease and storm piping to the extent possible; advise Owner of any work required to make suitable for continued use.
- G. Examine existing underground grease interceptors; advise Owner of any work required to make suitable for continued use.
- H. Examine existing water heating equipment, recirculation pump and accessories to the extent possible; advise Owner of any work required to make suitable for continued use.

.8 Food Service Equipment

- A. Replace all kitchen equipment with new equipment as specified by the Design/Builder's food service consultant.
 - 1. South Kitchen
 - 2. Staff Food Service cook line

.9 Support Spaces

- A. Provide support spaces in and adjacent to kitchen as requested by Trinity Food Service providers and the Pinellas County Sheriff's Office including, but not limited to:
 - 1. Inmate break area
 - 2. Kitchen staff break area
 - 3. Staff Food Service serving line
 - 4. Staff Dining

5.3 General Central Freight Elevator Addition Criteria**.1 General:**

- A. The Central Division freight elevator addition is located in the express corridor between Central and South Divisions. It is required to convey food and laundry between the new infrastructure building and South Division housing. This work is required to be completed with the infrastructure building kitchen and laundry to maintain food and laundry service to South Division.
 - 1. Work shall begin in coordination with the completion of the Infrastructure Building so as to maintain food and laundry service as required to South Division.
 - 2. Coordinate work with Pinellas County Sheriff's Office so that work does not affect inmate transportation through the express corridor.
 - 3. Prior to demolition, inspect existing facility to keep demolition to a minimum.
 - 4. Determine the need for hazardous materials remediation.
- B. The elevator addition is approximately 267 s.f. and includes a full-size freight elevator, elevator machine room and necessary circulation space to maneuver food and laundry carts.

5.4 Central Division Freight Elevator Addition**.1 General:**

- A. *Purpose:* The Central Division freight elevator addition is required to convey food and laundry between South Division housing and the new infrastructure building. While food will ultimately be served from the renovated South Kitchen, laundry will always be transported to and from the infrastructure building.

Project Description

- B. *Location:* The freight elevator addition is located at the current staff entry to the Central Division building and adjacent to the inmate transport elevator in the express corridor between Central and South Housing Divisions.
- C. *Size and Configuration:* Addition area is approximately 267 square feet.
 - 1. Includes: 2-stop freight elevator, elevator machine room at first floor, storage room above elevator machine room, secure vestibule on both floors, exterior access on first floor.
 - 2. Provide canopy over south exit door.
 - 3. Replace walkway cover at north exit door.
 - 4. Refer to architectural drawings for additional information.
- D. *Construction Phasing:* Demolition / Construction / Renovation of this area shall be coordinated with the completion of the Infrastructure Building and operation of the kitchen and laundry facilities.
 - 1. Notify Pinellas County Sheriff's Office at least one month in advance of commencement of work in this location.
 - 2. A temporary secure perimeter shall be maintained at all times in order to separate the demolition and construction activities from the inmate population.
 - 3. Access to services and to existing facilities to remain shall be maintained to ensure continued operations.
 - 4. Schedule work to be complete and operational upon completion of the Infrastructure Building kitchen and laundry so that delivery service to South Division is not impacted.
- E. *Code:* Refer to Chapter 3-1 for project code requirements.

.2 Architectural:

- A. *Exterior Construction:*
 - 1. Match existing construction to the greatest extent possible.
 - a. Painted 8" split-faced CMU walls
 - b. Standard 8" CMU walls with exterior insulation finish system
 - c. Painted Steel detention doors
 - d. Detention windows to be impact resistant
 - i. Series 3000 CM Security Group is basis of design.
 - ii. Refer to Detention Hollow Metal specifications.
 - 2. Comply with Structural, Security and Code requirements.
 - 3. Provide exterior wall insulation R values in compliance with Energy and Building code requirements.
- B. *Roof Construction:*
 - 1. Provide flat concrete slab roof construction
 - a. To provide proper overhead clearance at elevator hoistway
 - b. To coordinate with and tie into existing construction
 - 2. Roof thermal and water barrier systems shall be SBS-modified roofing membrane system over tapered insulation to internal primary drain.
 - 3. Provide roof insulation R values in compliance with Energy and Building Code requirements.
 - 4. Detail roofing to meet NRCA Roofing Manual recommendations at a minimum. Refer to Technical Specifications for performance requirements.
 - 5. Detail sheet metal fabrications per SMACNA Sheet Metal Manual at a minimum. Refer to Technical Specifications for performance requirements.
- C. *Exterior Wall Openings:*
 - 1. Windows:
 - 2. Doors:



Project Description

- D. *Interior Construction:*
1. Match existing floor finishes
 2. Match existing wall finishes
 3. Match existing ceiling finishes

6 – SECURITY SITE FENCING DESIGN CRITERIA

6.1 General Requirements

.1 Overview

- A. The security fencing criteria contained with the criteria documents are the minimum security barrier requirements for the purposes of confinement and/or separation of inmates and program areas. Security perimeters will be maintained throughout construction, but their configuration and locations shall be coordinated with the construction, its phasing, and the facility's operations. See the Civil Criteria Documents for the locations and extents of the final fencing locations and configurations. See the Detention Criteria documents for descriptions of the security fencing barrier types. See the typical detention details for additional information on security fencing barrier requirements.
- B. Where security fence barriers/perimeters are designated on the site, they are required to provide a continuous secure barrier. The barriers shall be coordinated with and tied into the existing perimeter barrier elements. Penetrations through these secure enclosures must provide a level of security equal to that of the barrier. For example, the penetrations for vehicle or pedestrian access could be folding type, sliding type, swing type, and/or part of a sallyport configuration. The details of the penetration will depend on the barrier classification, functional requirements, performance requirements, and site constraints. The type of movement controls will also differ with the security barrier classification.

7 – Site Civil Design Criteria

7.1 General

.1 Governing Codes, Standards, and Regulations

The following references to Governing Codes, Standards and Regulations shall include any revisions, modifications or regulatory actions taken subsequent to the date of this Design Criteria Report and prior to the selection of the Design Build Team.

A. Pinellas County Land Development Code

1. Final Site Plan Approval

The design and construction of the proposed improvements must satisfy the requirements of the Pinellas County Land Development Code. The Code can be obtained at:

<http://library.municode.com/index.aspx?clientId=10274>

2. Florida Quality Development Order Compliance

The project is within the Development Order for the Pinellas County Criminal Courts Complex/Jail Facility Florida Quality Development as recorded in OR Book 8083, Page 2123-2158, the First Amendment as recorded in OR Book 8618, Pgs 451-457, and the Second Amendment (The OR Book and page reference of the recorded document is not available). Copies of these documents are included in the attachments for reference.

Pinellas County has determined that the conditions of approval of the Development Order (DO) have been met and the Planning Department is recommending to the Board of County Commissioners that the DO should be rescinded to reduce annual costs of maintaining the DO. Until the DO has been formally rescinded, the conditions of the DO must still be followed.

Elements of the proposed project will be subject to all of the conditions of approval, but specifically to the following condition sections:

a. 4.5 Wetlands

4.5.1 – A restrictive covenant has not been dedicated which was amended as a part of the First Amendment to the DO. The wetland jurisdiction lines as originally defined and permitted have been notated on the existing conditions layers of the project AutoCAD files for the use of the designer. Amendment 1 requires that these wetlands be designated to be preserved on site within the conditions of the DO. Ditch 2 and the Cross Bayou wetlands are additionally to be designated as “Conservation” on the Pinellas County Land Use Plan and the Courts/Jail Master Plan

Project Description

4.5.2 – Buffer areas were originally retained during the design and construction of the Intake Facility (Central Division building) and Jail Facility master plan improvements performed in 1997-8.

4.5.3 – Impacts to the wetlands on site shall be in accordance with this condition limiting the impacts to: A. Ditch 1 (the northern ditch, south of the proposed Maintenance and Warehouse buildings), D. drainage capacity of ditches 1 and 2, D. erosion protection, F. maintenance (and new construction) of utility lines and G. removal of exotic species.

4.5.5 – The wetland enhancement and exotics removal was performed during the construction of the Intake Facility, but exotic plant species have revegetated areas within the Ditch 1, Ditch 2 and Cross Bayou jurisdiction areas and buffers. An exotic removal and restoration plan shall be included as a part of this project.

b. 4.6 Surface Water Management

The Surface Water Management System for the Jail Master Plan was constructed during the Intake Facility and the Health Care building projects which incorporate the majority of the Jail campus. Areas included in the Jail Master Stormwater Management Plan are identified on the Pinellas County Jail Master Drainage Map Exhibit.

c. 4.8 Floodplain and Disaster Preparedness

4.8.1 – First Floor elevations will be constructed above the 100 year flood elevation as defined by FEMA.

4.8.2 – Impacts to 100 year floodplain shall be compensated by one-to-one mitigation.

4.8.4 – The buildings within the Jail facility planned to be used for vertical evacuation will be designed and constructed so that the second floor is elevated above the flooding and storm surge as defined by the Hurricane Storm Tide Atlas for Pinellas County. The elevation of the C4 Storm Surge has been estimated as Elevation 19.9 at the nearest location, The St Pete/Clearwater Airport (runway intersects).

The report can be found

at: http://www.tbrpc.org/tampabaydisaster/sres2010/docs/Vol_7_Atlas/Book4_Pinellas_Atlas.pdf

d. 4.10 Water Supply

4.10.4 – High efficiency plumbing fixtures and other water conserving devices shall be used.

4.10.5 – Xeriscape landscaping shall be utilized throughout the project.

e. 4.13 Fire Protection

Fire Protection jurisdiction has been transferred to the City of St Petersburg Fire Department from the Pinellas Park jurisdiction. Coordination of the fire protection systems must be coordinated with the St Petersburg Fire Marshal.

B. City of Largo**1. Sanitary Sewer Environmental Permitting**

Sanitary sewer collection and treatment is being provided by the City of Largo. The onsite gravity sewer collection system is currently connected to the City's gravity collection system. No new connections will be required to their facilities. Onsite private service connections and gravity sewer modifications will be required as a part of the proposed development. The City of Largo Chapter 23-186 to 23-194 will apply. Chapter 23 of the Code of Ordinances can be found at:
http://www.largo.com/egov/documents/1366226319_60805.pdf

C. City of St Petersburg**1. Fire Code Compliance**

The jurisdiction of the fire protection agency responsible for the Jail facility has been changed to the St Petersburg Fire and Rescue. Coordination of the fire protection systems must be coordinated with the St Petersburg Fire Marshal.

D. Southwest Florida Water Management District (SWFWMD)**1. Environmental Resource Permit (ERP) Modification**

The stormwater management system within the Jail complex has been previously permitted under Environmental Resource Permit (ERP) 44-16310.00 as a part of the Intake Facility and Jail Master Plan infrastructure improvements in 1997. This permit has been modified for the Health Building and the Kitchen remodeling projects in 2005 and 2006 respectively. A listing of the relative permit history is attached for reference.

The master stormwater management system will be modified to accommodate the proposed improvements and will necessitate an Individual Permit Modification in accordance with the rules of Chapter 40D-4 FAC and the original permits issued. The SWFWMD rules can be found at:
<https://www.flrules.org/gateway/ChapterHome.asp?Chapter=40D-4>

Project Description

2. Water Use Permit

A water use well may be required as a part of this project to provide emergency backup water sources for the chilled water system and potable purposes in the event of a catastrophic event which has severed power and public water supply to the site. Permitting requirements for constructing a well shall be in accordance with the SWFWMD regulations found in Chapters 40D-2 and 40D-3 FAC. The SWFWMD Water Use rules can be found at:

<https://www.flrules.org/gateway/ChapterHome.asp?Chapter=40d-2>

<https://www.flrules.org/gateway/ChapterHome.asp?Chapter=40D-3>

E. Florida Department of Environmental Protection**1. Sanitary Sewer Collection System Permit**

Any sanitary sewer system extension on site that will include new manholes and 8" diameter gravity collection mains will require a Florida Department of Environmental Protection (FDEP) collection system construction permit in accordance with Chapter 62-604 FAC. Approval of the application and sign off by the City of Largo as the Treatment Plant Operator is required. The requirements of the FDEP can be found at:

<https://www.flrules.org/gateway/ChapterHome.asp?Chapter=62-604>

2. Water Distribution System Permit

Any new water supply system extension on site shall meet the requirements of FDEP Chapter 62-555 FAC. Approval of the application and sign off by the Pinellas County Water System as the Treatment Plant Operator is required. The requirements of the FDEP can be found at :

<https://www.flrules.org/gateway/ChapterHome.asp?Chapter=62-555>

3. National Pollutant Discharge Elimination System (NPDES) Permit

Any construction site greater than 1 Acre in size shall meet the requirements of the National Pollutant Discharge Elimination System

[Title 40 of the CFR at Part 122 - EPA Administered Permit Programs: The National Pollutant Discharge Elimination System](#)

The State of Florida has been delegated the authority to manage the NPDES permitting within the state and the proposed construction activities shall be in accordance with the requirements of Chapter 62-621 FAC. The requirements of the FDEP can be found at:

<https://www.flrules.org/gateway/ChapterHome.asp?Chapter=62-621>

Project Description

The resultant Stormwater Pollution Prevention Plan (SWPPP) shall include the requirements of the Pinellas County Land Development Code and the conditions of the Pinellas County Criminal Courts/Jail FQD.

A notice of Intent to use General Permit will be required for the proposed construction. The monitoring and maintenance of the SWPPP must be maintained by the Contractor with records of inspections and documentation of modifications during construction kept at the job site at all times.

The Notice of Termination is the responsibility of the Contractor to submit at the completion of the construction.

F. Federal Aviation Authority

1. Form 7460 Notice of Proposed Construction

The Pinellas County Jail is within the restricted airspace of the St Petersburg Clearwater Airport and any construction, including temporary construction cranes, must submit Form 7460 to obtain approval of the proposed vertical construction. Design guidelines and permit requirements can be found at:

<https://oeaaa.faa.gov/oeaaa/external/portal.jsp>

.2 Existing Site Infrastructure

An historical compilation of maps indicating the underground systems of utilities and drainage infrastructure has been generated as a part of this design criteria package. The utilities mapping is provided to assist the design build team in identifying existing conditions and to develop the most viable plan for proposed improvements within the Jail complex. The data has been sorted by date, type of utility and source of information and incorporated into layers within the AutoCAD files included in the Design Criteria Package. Refer to the existing conditions plans and their respective data layers during planning, design and construction.

A. Water Distribution System

1. Points of Connection to Public Water Supply

There are two existing points of connection to the Pinellas County public water supply that has served the Pinellas County Jail facilities. A 12" PVC water main serves an 8" meter and double check valve assembly at the southeast corner of the jail property adjacent to the southwest corner of the Criminal Courts building. A 6" PVC serves a 6" meter at the northeast corner of the site at the right-of-way line of 49th St N. This meter has been turned off and currently does not supply water to the site.

Project Description

2. Combined Potable and Fire Protection System

The existing water supply system within the Jail campus is a combined potable and fire protection system serving the entire jail campus. The size of distribution piping ranges from 2" diameter to 10" diameter and serves all the existing buildings and provides fire protection through fire hydrants and building fire protection systems. Although the entire water system is interconnected to both the meters, the source of drinking and fire water is provided through the southeast meter and public supply water main. The fire hydrants within the system must be frequently flushed to maintain water quality for the drinking water consumption. The flow requirements of the jail population do not create enough flushing capacity to be self sustaining to meet state drinking water quality criteria.

Pinellas County has determined that separating the drinking and fire water systems with adequate pipe sizes and operating pressures is necessary to provide a self sustaining system throughout the campus.

3. System Water Softener

The onsite drinking water and fire water is supplied through the meter at the southeast corner of the Jail campus and passes through a water softener prior to distribution. It is necessary for the drinking water system to control the hardness of the water onsite, but it is not necessary for the fire water to be softened.

Pinellas County has determined that separating the drinking and fire water systems prior to the water softener will result in less maintenance required for the water softener system, and reduce the costs of operation of the softener as well.

B. Sanitary Sewer Collections System**1. South Collection System with Muffin Monster Grinder**

The majority of the South Division Jail facilities and the Central Division Jail facilities are served by an 8" gravity collection system constructed with the Intake Facility in 1997-8. The south onsite gravity collection system connects to the City of Largo 42" gravity collection system trunk main at the west edge of the Jail Campus. Prior to the connection to the City's public sewer main, the onsite flows pass through a "Muffin Monster" in-line grinder to shred any unexpected non organic objects within the flow of the sewer collection system to protect the City's main and wastewater treatment facility located to the north of the jail site. This Muffin Monster was installed in the 1997-8 construction and based on conversations with facilities maintenance staff, has not required any extensive repair or replacement.

Project Description

2. North Collection System

The housing buildings north of the Central Division and the Health Care facility connect to a separate gravity sanitary sewer collection system which makes a single connection to the City's 42" main at a manhole prior to the Ditch 1 crossing.

3. City of Largo Trunk Main

The City of Largo 42" trunk main serves the entire City of Largo and improved properties within its service area district and are located within an easement and portions of right-of-way through the western edge of the Pinellas County Jail. The protection of this main is a high priority for the City of Largo and all efforts must be taken through the design and construction of this project to address these concerns.

4. City of Largo Reclaimed Water Distribution System

The City of Largo also provides reclaimed water to many industrial users, passive parkland users and other users for multiple purposes. Existing reclaimed water service lines currently connects to the Central Divisions Intake Facility and is utilized in the Jail complex for irrigation purposes.

In accordance with the FQD, the use of reclaimed water is in compliance with the water conservation criteria in the permit, and reclaimed water should be utilized where ever possible.

C. Storm Drainage Collection System

The onsite storm drainage collection system was modified with the Central Intake Facility and the Medical Facility in the late 1990's and in 2005-6 respectively. The stormwater master plan is attached which delineates seven (7) separate drainage basins within the Jail campus. The drainage collection and conveyance systems within Basins 100 through 600 onsite direct the stormwater collected to one of the permitted stormwater management facilities onsite. The existing collection facilities within Basin 700 have not been incorporated into the permitted stormwater master plan. Basin 700 includes the two existing stormwater ponds at the southwest corner of the F wing of the South Division building. These ponds have not been upgraded to meet current Chapter 40D 4 standards and the Basin 700 stormwater management system has not been improved to meet those standards.

D. Stormwater Management**1. Master Planned / Permitted Basins**

The onsite drainage Basins 100 through 700 depicted on the Master Drainage Plan exhibit were delineated based upon existing conditions and developed through the original SWFWMD permitting process. The stormwater ponds 10, 20, 30, 40 and 60 have been designed, constructed and certified to be in compliance with the construction permitting and are being maintained as Operating permits.

Copies of the permit documents creating the Master Drainage Plan are attached as exhibits for the purpose of meeting the intent of the original permit design criteria.

2. Accounted for Future Development

The Master Drainage Plan accounted for future improvements and additional impervious areas based upon the Jail Master Plan developed prior to the permitting. The Jail Master Plan has been modified since the original permit was issued, including the Health Care building constructed in 2005-6.

Any future improvements being proposed for development should reference the original design criteria to verify that the stormwater ponds impervious surface ratio (ISR) has not been exceeded. Any increase in impervious surfaces beyond the permitted ISR will require modifications to the ponds and reevaluation of the water quality and quantity requirements.

3. Water Quality

The original SWFWMD permit addressed the water quality requirements of Chapter 40D-4 within basins 100-400 and 600 by providing effluent filtration by wet detention systems in ponds 10, 20, 30, 40 and 60. Basin 500 was exempt from water quality requirements by lowering the ISR and reducing the vehicular use area within the basin. The improvements within Basin 500 discharge directly to Ditch 1. Any future increases of impervious areas within Basin 500 will require additional permitting.

Basin 700 has not been designed to meet water quality criteria and any improvements within this basin will require the basin to be improved to meet the current ERP permitting criteria in Chapter 40D-4.

4. Water Quantity

Basins 100, 200, 300, 400, 500 and, 600 have been developed with stormwater management systems for each project area limited to specific discharge rates.

Project Description

Basin 700 conditions have been modeled as an existing condition. Modifications to areas within any of these basins will require an analysis of the proposed conditions relative to the permitted discharge rates and subsequent Individual Permit modifications. The summation of the permitted discharge rates shall not be exceeded to stay within the conditions of approval of the original permits. Increases of discharge rates will require a substantial permit modification if proposed.

5. 100 Yr Floodplain

The 100 year floodplain as defined by the Federal Emergency Management Agency Flood Insurance Rate Maps (FEMA FIRM) is elevation 9.00 NAVD 1988 (North American Vertical Datum). This elevation provides for the protection of buildings from a defined 100 year storm event including the effects of storm surge for areas near coastal areas.

Pinellas County conducted drainage studies of watersheds throughout the county including Cross Bayou adjacent to the Jail site. The evaluation of Cross Bayou included the riverine flood conditions of the 100 year storm event which identified the out of bank flood limits and hydraulic profile of the channel. The Master Drainage Plan exhibit depicts the limits of the riverine 100 year floodplain which ranges in elevation from Elevation 6.1 to 6.7 NGVD.

Compensation for Floodplain impacts was provided during the construction completed with the perimeter road, intake facility and master drainage system improvements. 100 Year floodplain compensation areas were constructed and the original computations of the impacts/compensation were performed and documented in the original SWFWMD permit. Any additional impacts to the Floodplain will require documentation of compensation provided.

Elevations depicted on the Civil Site drawings reference the NAVD 1988 vertical datum including all surveyed data and finished floor elevations.

6. Tidal Surge

The Florida Statewide Regional Evacuation Study Program, modified in 2010, has defined the probability of a tidal surge for category 1 through 5 hurricanes and the elevations of the storm tide limits in the area of the Pinellas County jail to be:

- Category 1 – Surge Elevation 3.1
- Category 2 – Surge Elevation 10.9
- Category 3 – Surge Elevation 15.8
- Category 4 – Surge Elevation 19.9
- Category 5 – Surge Elevation 24.4

Project Description

The design of the building will require the vertical evacuation above the Category 4 Tidal Surge as conditioned in the FQD.

E. Other Underground Utilities (coordinated through MEP Consultant)

1. Power – Duke Energy
2. Gas – TECO/Peoples Gas
3. Communications – Verizon, Brighthouse
4. Chilled Water – Internal systems
5. Other Essential internal jail security, communications, fiber optic or other essential facilities.

F. Environmental

1. Ditch 1

Ditch 1 was identified as a jurisdictional ditch in the FQD and permitting of the site. It was modified during the Central Division / Intake Facility and Master Plan improvements construction including creating 3 culverted crossings of the perimeter road and removal of exotic plant species. The existing condition is relatively clear of vegetation and well maintained to provide adequate flow capacity.

2. Ditch 2

Ditch 2 was defined as a jurisdictional ditch and protected under the County's Preservation land use designation. Impacts to this ditch are not recommended. The existing condition of this ditch includes invasive vegetative species that has reestablished on the banks of the ditch. Areas of the ditch have been encroached by Brazilian Pepper trees that may also be affecting the flow capacity of the ditch.

3. Cross Bayou

Cross Bayou was defined as jurisdictional wetlands during the FQD and Master Plan development and further protected under the County's Preservation land use designation. Impacts to Cross bayou are not allowed. The existing condition of Cross bayou and the adjacent buffers within the Jail property includes invasive vegetative species that has reestablished within the limits of Cross Bayou.

.3 Phase 1 Infrastructure Site Impacts

A. Infrastructure Building

1. Site Utilities Impacted

a. Water System

The existing looped water system must be maintained in operation and connected at all times during construction. New installation and connections

Project Description

of water and fire mains shall be in place and operable prior to removal in the building construction zone.

b. Sewer System

Sanitary Sewer services and gravity collection system will be impacted by the building. This portion of the system is at the upper end of the system. Therefore, the sewer pipes shall be capped at the nearest manhole outside of the construction limits. Services to barracks' A, B and C shall remain in operation.

c. Drainage System

Existing drainage inlets and piping within the construction limits shall be maintained in operation where practical to collect surface runoff from the construction site. Erosion and turbidity control measures shall be implemented to reduce polluted runoff from entering the stormwater management system. Common areas surrounding the buildings remaining shall be protected against localized flooding by maintenance of drainage systems and provisions of temporary collection systems as necessary. Maintenance and monitoring of the onsite Stormwater Pollution Prevention Plan shall be the responsibility of the contractor to meet the requirements of the NPDES permit.

2. Other Utilities Impacted

a. Chilled Water

Existing chilled water mains serving Barracks' B and C will be impacted. Provisions for maintaining these buildings in service during construction shall be provided. Refer to the MEP sections for additional detail.

b. Power

The underground Power lines will be relocated in accordance with the MEP section and will parallel other utilities around the site. Duke Energy shall be consulted in providing adequate separations between the power lines and other utilities.

c. Communications

Communications utilities will be constructed throughout the site and shall be coordinated with the MEP design documents. The communications shall adjust as necessary to avoid conflicts with other fixed utilities.

d. Gas

Gas utility extensions and relocations within the site shall be coordinated with the MEP design documents. Adjustments to the alignment and crossing of other fixed utilities shall be provided as necessary to avoid conflicts.

3. Vehicular Circulation

a. Parking Lots

Existing parking lots outside the limits of construction shall be maintained in operation during construction. Provisions for temporary access drives or other means of access shall be provided in the event of temporary construction activity interruption of service.

Project Description

b. Perimeter Road

The perimeter road shall remain unobstructed at all times during construction. In the event that construction activity will encroach on the Perimeter road, adequate two way access shall be provided during the interruption. Any disruption of access to the Perimeter road shall be coordinated with the Sheriff's office before implementation.

B. Maintenance and Warehouse Buildings

1. Horticulture Yard

The function of the existing horticulture yard shall be coordinated with the Sheriff's office to be closed and demolished prior to implementation.

2. Perimeter Road Circulation

The perimeter road shall remain unobstructed at all times during construction. In the event that construction activity will encroach on the Perimeter road, adequate two way access shall be provided during the interruption. Any disruption of access to the Perimeter road shall be coordinated with the Sheriff's office before implementation.

3. Ditch 1 Utility Crossing

Ditch 1 is a jurisdictional wetland and environmental permitting shall be processed to allow for the temporary impacts to the ditch. Utilities crossings of the existing Ditch shall minimize the impacts to the surface water and wetland features of the ditch.

.4 Master Plan Improvements

A. Water Distribution System Separation

1. Potable Water Distribution System

The existing combined potable and fire water system will be separated into two distinct systems. The potable system new loop and services shall be connected to the existing water softener at the SE corner of the Jail property. A new backflow prevention device shall be installed at the meter location. The new system shall be constructed, inspected and tested in accordance with FDEP and Pinellas County requirements prior to making the final connections to the existing buildings and softener.

2. Fire Protection Distribution System

The existing combined potable and fire water system will be separated into two distinct systems. Portions of the existing water system will be converted to the fire protection system together with proposed extensions of piping to complete a looped system. Fire protection capabilities for all existing fire hydrants and building fire suppression systems shall not be interrupted during construction. The connections to the existing water source shall be made after the existing check valve assembly. The new system shall be constructed, inspected and tested in accordance with FDEP and Pinellas County requirements prior to making the final connections to the existing buildings and water system.

Project Description

B. Stormwater Management**1. Stormwater Pond 20 / Drainage Basin 200**

Modifications to the site improvements and utilities within Basin 200 will affect the configuration of Pond 20. The design of the new site infrastructure shall require modifications of the SWFWMD operation permits. The pond shape modifications, impervious surface modifications and stormwater modeling will address these changes. Copies of the original permit documents and drainage report are included in the appendix for the use of the design engineer. Adjustments of the design high water elevation shall not create adverse flooding conditions within the remaining common areas. The proposed Master Drainage Plan shall adjust the Basin 200/300 boundaries to create equivalent conditions to the existing permits as required to obtain SWFWMD permit modifications.

2. Stormwater Pond 30 / Drainage Basin 300

Modifications to the site improvements and utilities within Basin 300 will affect the design water surface levels of Pond 30. The design of the new site infrastructure shall require modifications of the SWFWMD operation permits. The pond shape modifications, impervious surface modifications and stormwater modeling will address these changes. Copies of the original permit documents and drainage report are included in the appendix for the use of the design engineer. Adjustments of the design high water elevation shall not create adverse flooding conditions within the remaining common areas. The proposed Master Drainage Plan shall adjust the Basin 200/300 boundaries to create equivalent conditions to the existing permits as required to obtain SWFWMD permit modifications.

C. Environmental**1. Ditch 2 Exotic Removal**

Ditch 2 south of the Jail facility has developed regrowth of exotic plant species within the wetland limits of the ditch. The conditions of the Development Order for the Jail/Criminal Courts facilities required the removal and maintained eradication of exotic species within Ditch 2. The Design Build contractor shall incorporate the non-destructive removal of exotic vegetative species as defined by Pinellas County Department of Environment and Engineering, SWFWMD and FDEP in the implementation of the project prior to obtaining the final acceptance by the Sheriff's Office and release of certificates of occupancy. Removal of these exotic species shall be addressed in the permitting required for construction.

2. Cross Bayou Exotic Removal

The portion of Cross Bayou within the property limits of the Jail property has developed regrowth of exotic plant species within the wetland limits of the ditch. The conditions of the Development Order for the Jail/Criminal Courts facilities required the removal and maintained eradication of exotic species within Ditch 2. The Design Build contractor shall incorporate the non-destructive removal of exotic vegetative species as defined by Pinellas County Department of Environment and Engineering, SWFWMD and FDEP in the implementation of the project prior to obtaining the final acceptance by the Sheriff's Office and release

Project Description

of certificates of occupancy. Removal of these exotic species shall be addressed in the permitting required for construction.

D. Power Distribution Relocation (coordinated by MEP Consultant)

The power distribution installation shall be coordinated with the other utility system improvements to minimize disturbance of the function of the jail site and Perimeter road. The design of the power lines shall be coordinated with Duke Energy and the MEP consultant to optimize the new construction. The intention of the utility corridor south of the Ditch 1 and adjacent to the Perimeter road is to provide all the necessary utilities in an organized configuration for the future maintainability of each system. The corridor management and specific locations of the Power lines and all other utilities shall be adjusted by the Design Build Contractor as necessary to provide a cost effective solution providing for ease of long term maintenance.

E. Chilled Water System Improvements (coordinated by MEP Consultant)

The chilled water piping installation shall be coordinated with the other utility system improvements to minimize disturbance of the function of the jail site and Perimeter road. The design of the chilled water piping shall be coordinated with the MEP consultant to optimize the new construction. The intention of the utility corridor south of the Ditch 1 and adjacent to the Perimeter road is to provide all the necessary utilities in an organized configuration for the future maintainability of each system. The corridor management and specific locations of the Power lines and all other utilities shall be adjusted by the Design Build Contractor as necessary to provide a cost effective solution providing for ease of long term maintenance.

7.2 Site Demolition, Clearing and Grubbing

.1 Basic Function

Site demolition, clearing and grubbing must be performed in a sequential manner during the multiple phases of construction to maintain the highest levels of security at all times coordinated with the Sherriff's Office. Erosion and sedimentation control measures shall be in place prior to any operations commencing. Habitat Management permits from Pinellas County shall be obtained for each phase of demolition proposed. All underground utilities, foundations, fences, structures and site improvements within the areas proposed for demolition shall be removed unless specifically required for maintenance of existing services to operating functions of the jail. Any underground facilities that are proposed to remain within the project limits shall be field located and documented on the final record drawings delivered at the completion of the construction.

Project Description

.2 Phasing of Demolition

Each phase of demolition as depicted in the design drawings shall provide for a detailed demolition plan for implementation. Special attention shall be made to maintaining the secured perimeter fence and eliminate any opportunity for breaches in the fences and gates.

.3 Interruptions of Services

All existing services to existing buildings including; communications, water, fire, sewer, drainage, access, chilled water, power, gas and other essential services shall be maintained throughout the construction duration. Provisions during phasing changes shall be coordinated to minimize interruptions to these services and coordinated with the Sheriff's Office accordingly.

7.3 Vehicular Use Areas**.1 Basic Function Classifications****A. Medium Duty**

All areas that will be subject to delivery traffic and heavy uses shall be designed with a medium duty asphalt pavement including drive isles, perimeter road and service areas at building.

B. Light Duty

All other areas within passenger vehicle parking lots and non-service vehicle areas shall be designed with light duty asphalt pavement.

.2 Performance Criteria**A. Design Life Expectancy**

The design life expectancy for all asphalt paved areas shall be 20 years.

B. Pavement Structure

The design of the asphalt pavement structure shall utilize materials that will not be subject to deterioration due to high groundwater conditions. The design professional shall provide the most cost effective solution to satisfy the required uses and design life.

.3 Curbing

Concrete curbing shall be providing along all proposed edges of pavement to be consistent with the existing site conditions in the area of improvements.

.4 Pavement Marking

All pavement markings on site shall meet the specifications and match the existing site pavement markings.

Project Description

.5 Maintenance of Traffic

Maintenance of onsite traffic shall be provided at all times including provisions to have flagmen and detour routes. All maintenance of traffic shall be coordinated with the Sheriff's Office prior to implementation.

7.4 Pedestrian Use Areas**.1 Basic Function**

The sidewalks and accessible routes within the site are to provide a safe pedestrian pathway from parking facilities to buildings and other site uses.

.2 Design / Performance Criteria

All pedestrian use areas shall meet ADA standards for longitudinal and cross slopes, width, clearance, etc.

7.5 Potable Water Supply and Distribution Systems**.1 Basic Function**

A consistent, safe potable water supply is essential for the facility to operate. As currently designed, the system includes a single water main supplying both fire protection and potable water. The system includes a water softening facility.

.2 Design Performance

The system is designed to provide water to all the required facilities on site. The principle water meter and supply originates at a Pinellas County main on 140th Ave. N. and enters the site as a 12" main. The proposed system separates the potable water from the existing fire supply and splits the fire system from the water softening facility.

.3 Interim Conditions

Interim conditions include providing an uninterrupted supply of water to the site facilities. As designed, existing services will be maintained until proposed facilities are installed, tested and certified complete. A conversion for exiting to new facilities will necessarily occur during off peak hours and cause a minimum of disruption to the water supply.

.4 Historic Conditions Records

There are no reported records of system problems. Records for water usage are available through County offices.

7.6 Fire Water Supply and Distribution Systems**.1 Basic Function**

Fire protection is essential for the safe operation of the jail facility. The current system consists of a combined potable water/ fire network looped around the jail site.

Project Description

.2 Design Performance

The proposed design separates the potable and fire systems. The separation will bypass the existing water softening facility and provide a dedicated fire protection loop and network.

.3 Interim Conditions

During proposed construction, the existing system will be maintained to provide consistent fire protection for the jail facility. New construction will require testing and certification prior to modifying the existing system.

.4 Historic Conditions Records

There are no known references to inadequate supply.

7.7 Sanitary Sewer Collection System**.1 Basic Function**

The sanitary sewer system collects wastewater flow from the jail compound. The collected flow is conveyed to the City of Largo trunk gravity sewer main adjacent to the jail facility.

.2 Design Performance

The system will be sized appropriately for the proposed wastewater discharge from each building on site. The system will require a capacity analysis if flows exceed current rates. Standard 8" gravity sewer with 4' manholes spaced at a maximum distance of 400' are expected. Minimum pipe slopes shall be per FDEP standards.

.3 Interim Conditions

All existing facilities flow must be maintained during construction of the proposed facilities. If required, a pump around system or holding tanks will be used. In no case should the existing system be allowed to surcharge.

.4 Demolition

Demolition includes sewer services and service main connections to the existing sewer systems. The demolition will include cutting and capping sewer planned for removal with grouting of the abandoned pipe in place.

.5 Historic Conditions Records

There is no known historic evidence the current system does not operate as designed. Protection of the South Division system is provided by the use of a Muffin Monster device. The device is designed to grind any objects inserted into the sewer system into small pieces which may then be conveyed through the standard 8" collection system.

Project Description

The device was installed in 1997- 1998 and has not required extensive repair or replacement.

7.8 Storm Drainage Collection System**.1 Basic Function**

The stormwater drainage collection system collects and conveys stormwater runoff to several stormwater management areas on site. The collection system consists of numerous inlets, swales and pipes.

.2 Design Performance

Inlets and drainage pipes are generally designed to convey stormwater runoff from a 10 year storm event without flooding or ponding in the collection area.

.3 Interim Conditions

The existing drainage and conveyance system will be maintained during the proposed construction process. If required, temporary inlets and pipe systems will be provided to convey runoff around construction areas.

.4 Demolition

Sections of the stormwater collection system and inlets affected by the proposed construction will be excavated and removed from the system. Connection points at inlets, manholes or junction boxes to remain will be blocked or bricked and grouted in place to assure a water tight wall.

.5 Historic Conditions Records

The existing system has been modified and expanded with the various improvements to the jail facility. There is no known information indicating the system does not function as required during storm events.

7.9 Stormwater Management Systems**.1 Basic Function**

The function of the stormwater management system is to provide stormwater quality and control of runoff from the numerous on site drainage basins prior to discharge to Cross Bayou. The jail facilities are generally permitted through the Southwest Florida Water Management District under MSSW #4010128.01 and .04.

.2 Design Performance**A. Water Quality**

The existing management areas are permitted through the Southwest Florida Water Management District located in Tampa, FL. The District reviews compliance of

Project Description

stormwater systems with Florida Administrative Code (FAC). FAC defines levels of water quality treatment for development in Southwest Florida.

B. Water Quantity

FAC establishes rates of discharge from stormwater management facilities. In general, post improvement discharge is limited to predevelopment rates.

C. 100 Year Floodplain

FAC establishes floodplain management where potential impacts may occur. The jail site has an established 100 flood plain limit along the westerly side of the site.

Activities within the floodplain limits will require compensation for fill materials placed within the limits

.3 Interim Conditions

Modifications to the stormwater management systems will require a modification to the existing SWFWMD permits. It is recommended that the modifications are discussed in additional pre application conferences with the District.

.4 Historic Conditions Records

The jail facility is permitted through the SWFWMD as permit 401028.01 and .04. The permitting established the location of various drainage basins boundaries for stormwater management on site. Changes to the basin limits through the addition of buildings or modification of drainage systems may require formal permit modifications to confirm sufficient stormwater treatment and appropriate attenuation.

7.10 Pollution Prevention

.1 Erosion Control Measures

Construction activities will be required to provide erosion control measures prior to commencement of construction activities. A variety of silt screens, floating silt barriers, staked bales, inlet protection, etc...will be provided as required. An erosion control plan will be required before the start of the project in addition to an NPDES NOI permit.

.2 Maintenance and Operation

Erosion control measures required maintenance during construction activities particularly after a storm event. Terms and conditions will depend of the type of activities propose and be defined in the FDEP NPDES permit. Regular inspections and repair or replacement of erosion control measures are required to limit erosion from the site.



Project Description

Attached Exhibits in Civil Appendices:

Civil – A: Pinellas County Criminal Courts Complex and Jail Facility FQD Development Order,
Amendment One of the FQD Development Order,
Amendment Two of the FQD Development Order

Civil – B: SWFWMD permit History Summary

Civil – C: SWFWMD Permit Documents

Civil – D: Pinellas County Jail Master Stormwater Management Plan



Project Description

8 – STRUCTURAL DESIGN CRITERIA

8.1 General

.1 Precast Concrete Construction:

The Pinellas County Jail Control Building (Infrastructure Building) structure will be comprised of precast concrete interior columns, exterior walls, and floor and roof construction. The slab-on-grade, foundations, topping slabs, and loading dock retaining walls will be reinforced cast-in-place concrete. Galvanized Structural Steel will be utilized to support the high roof equipment and catwalk. The passenger and utility bridge will be comprised of cast-in-place and precast concrete elements.

.2 General Design Requirements:

The general design requirements for strength, serviceability, analysis, load testing, and anchorage shall conform to chapter 1604 of the 2010 FBC. All precast concrete design shall conform to the Precast Concrete Institute (PCI) latest addition.

.3 The Design/Builder shall utilize the following documents for the production of the design and construction. Code compliance specific to construction, materials and systems to be specified by the Design/Builder.

- A. The following codes and guides will be in effect during the design and construction of this project:
1. 2010 Florida Building Code Building
 2. ASCE7-10 Minimum Design Loads for Buildings

General loading requirements

.1 Live Loads (reduced as allowed by the building Code)

	<u>Uniform Load</u>	<u>Concentrated Load</u>
A. Corridors	100 psf	N/A
B. Laundry Rooms*	100 psf	N/A
C. Assembly Areas (Movable Seats).....	100 psf	N/A
D. Dining Rooms.....	100 psf	N/A
E. Catwalks.....	40 psf	300 lbs.
F. Kitchen*	100 psf	N/A
G. Mechanical Rooms*	150 psf	N/A
H. Offices	50 psf	2000 lbs.
I. Office Lobbies and Corridors.....	100 psf	2000 lbs.
J. Loading Dock **	250 psf	8000 lbs.
K. Roof (Flat)	20 psf	300 lbs.
L. Stairs	100 psf	300 lbs.
M. Light Storage.....	125 psf	N/A
N. Dry Storage ***	250 psf	N/A
O. Elevator Machine Room.....	N/A	300 lbs.
P. Sidewalks (Subject to Trucking).....	250 psf	8000 lbs

* Kitchen, Mechanical Room, and Laundry Room live loads shall be based on the anticipated weights of movable equipment and may exceed 150 psf. Coordinate actual loads with final approved equipment.

** Loading dock live loads shall be based on the WB-67 truck type and may exceed the 250 psf uniform load and 8,000 lbs. concentrated load requirements.

Project Description

*** Dry storage live load is based on 3 vertical stacks of dry storage pallets and shall be designed for heavier loads based on anticipated occupancy.

- Vehicle Barrier Systems shall be designed in accordance with section 1607.7.3 of the FBC 2010.
- Handrails and Guardrails shall be designed in accordance with section 1607.7.1 of the FBC 2010
- Impact loads for elevators and machinery shall be in accordance with section 1607.8 of the FBC 2010

.2 Snow Load - Not Applicable

.3 Dead Loads (in addition to the structure self-weight):

A. 4" Topping Slab.....	50	psf
B. Mechanical Hung (Typ) *	10	psf
C. Laundry Equipment **	150	psf
D. Kitchen Equipment **	150	psf

* Mechanical Hung dead loads shall be increased as required over mechanical and electrical rooms.

** Laundry and Kitchen equipment dead loads shall be based on the actual weights of the fixed service equipment. In the absence of definite information, values shall be subject to the approval of the building official

.4 Basic Wind Speed: 155 mph (FBC 2010)

- A. Exposure:C
- B. Risk Category.....IV
- C. Wind Borne Debris Region - Impact Resistant Glass Required

.5 Wind Forces - Components and Cladding

Components and Cladding Design Wind Pressure for Roof Elements (PSF)					
Pattern	Zone	Main Roof			
		Effective Wind Area			
		10 SF.	20 SF.	50 SF.	100 SF.
Ultimate	1	28/-68.9	26.3/-67.1	24/-64.8	22.2/-62.9
Service Level	1	16.8/-41.4	15.8/-40.3	14.4/-38.9	13.3/-37.8
Ultimate	2	28/-115.5	26.3/-103.2	24/-86.9	22.2/-74.7
Service Level	2	16.8/-69.3	15.8/-61.9	14.4/-52.2	13.3/-44.8
Ultimate	3	28/-173.8	26.3/-143.9	24/-104.5	22.2/-74.7
Service Level	3	16.8/-104.3	15.8/-86.4	14.4/-62.7	13.3/-44.8

Components and Cladding Design Wind Pressure for Walls, Doors & Windows (PSF)		
Pattern	Zone	Effective Wind Area

Project Description

		10 SF.	20 SF.	50 SF.	100 SF.
Ultimate	4	68.9/-74.7	65.8/-71.6	61.6/-67.5	58.6/-64.4
Service Level	4	41.4/-44.8	39.5/-43	37/-40.5	35.2/-38.6
Ultimate	5	68.9/-92.2	65.8/-85.9	61.6/-77.7	58.6/-71.6
Service Level	5	41.4/-55.3	39.5/-51.6	37/-46.7	37/-46.7

.6 Roof Top Equipment Wind Loading

A. Design forces shall be based on section 29 of the ASCE7-10 code with the following adjustments from the FBC 2010 (section 1609.8): Gcf lateral and Gcf vertical.

.6 Earthquake Loads - Not Applicable

.7 UL Rating:

A. See Architectural Narrative for UL assemblies and hourly rating requirements.

8.2 Material Properties

.1 Reinforcement

Reinforcing Steel	ASTM 1615, Grade 60
Post-Tensioning Strand	ASTM A416 (270 ksi) (fully encapsulated)

.2 Normal Weight Concrete (CIP)

Drilled Piers	3,000 psi
Auger-cast Piles	3,500 psi
Precast Concrete Piles	5,000 psi
Footings, Pile Caps	3,000 psi
Retaining Walls	4,500 psi
Slab-on-Grade	3,000 psi

Concrete Slabs in aggressive environments (parking structures, balconies, etc.) shall have a maximum water/cement ratio of 0.40 and shall be moist cured by placing burlap and polyethylene curing blankets on the surface and keeping them continuously moist for seven days. After curing, the slab will require a silane or siloxane penetrating sealer with a minimum of 40 percent solids. Any cracks in the slab will require repair by routing and filling the crack with a polyurethane sealant suitable for vehicular traffic

.3 Precast Concrete

Columns	6,500 psi
Wall Panels	6,500 psi
Bridge Tees	6,500 psi
Inverted Tees	6,500 psi
Slabs	6,500 psi
Stairs	6,500 psi

.4 Structural Steel

Structural Steel W-Shapes	ASTM A992, Grade 50
Square/Rectangular Hollow Structural Sections (HSS)	ASTM A500, Grade B
Round Hollow Structural Sections (HSS)	ASTM A501 or ASTM A53, Grade B
	Or ASTM A500, Grade B
Other Steel Shapes (channels, angles and plates)	ASTM A36

Project Description

High Strength Bolts

ASTM A325

Exposed structural steel shall be hot-dipped galvanized in accordance with A123 specification.

8.3 Geotechnical Report**.1 Geotechnical Report requirements**

The design build team shall be responsible for developing a Geotechnical Report that will be required to establish criteria for the foundation design. This report shall be in accordance with the Section 1803.2 of the FBC 2010 and reported in accordance with Section 1803.6 by a registered design professional, who will also be responsible for developing the scope of investigation. All borings or sample operations shall be performed under the supervision of the registered design professional or a fully qualified representative. The Geotechnical Report will dictate what type of foundation system shall be utilized.

.2 Geotechnical Report (Deep Foundations)

If a deep foundation will be used, then the Geotechnical Report shall include the following:

- A. Recommended deep foundation types and installed capacities.
- B. Recommended center-to-center spacing of deep foundation elements.
- C. Driving criteria.
- D. Installation procedures.
- E. Field inspection and reporting procedures (to include procedures for verification of the installed bearing capacity where required).
- F. Load test requirements.
- G. Suitability of deep foundation materials for the intended environment.
- H. Designation of bearing stratum or strata.
- I. Reductions for group action, where necessary.

.3 Geotechnical Report (Shallow Foundations)

If a shallow foundation will be used, then the Geotechnical Report shall include the following:

- A. Recommended bearing capacity of natural or compacted soil.
- B. Provisions to mitigate the effects of expansive soils, liquefaction, and differential settlements.
- C. Anticipated total and differential settlement
- D. Specifications for preparation of the site for compacted fill or CLSM.
- E. Anticipated lateral earth pressure forces on the loading dock retaining wall and exterior precast panels.
- F. Compacted Fill or Controlled low-strength material properties and testing.

8.4 Column Foundations**.1 General:**

- A. Column foundations will consist of either shallow spread footings or a deep foundation consisting of pile cap and piles. This determination will be dictated by the Geotechnical Report.
- B. Per Florida Building Code 2010, the minimum depth of footings below the undisturbed ground surface shall be 12" and the minimum width of footings shall be 12".
- C. Column foundations bearing on granular soils shall be located so that the line drawn between the lower edges of adjoining footings shall not have a slope steeper than 30 degrees (0.52 rad) with the horizontal.

Project Description

.2 Design:

- A. Foundations shall be designed such that the allowable bearing capacity of the soil is not exceeded.
- B. Foundations shall be designed for the most unfavorable effects due to the combination of loads according to chapter 1605.2 of the FBC 2010
- C. It is not anticipated that the interior columns will be required to transfer lateral forces and moments into the foundation.

8.5 Wall Foundations

.1 General:

- A. Wall foundations will consist of either shallow spread footings or a deep foundation consisting of pile cap and piles. This determination will be dictated by the Geotechnical Report.
- B. Per Florida Building Code 2010, the minimum depth of footings below the undisturbed ground surface shall be 12" and the minimum width of footings shall be 12".
- C. Wall foundations bearing on granular soils shall be located so that the line drawn between the lower edges of adjoining footings shall not have a slope steeper than 30 degrees (0.52 rad) with the horizontal.
- D. Wall foundations supporting precast shear walls shall be designed to support wind loading effects and shall be checked for uplift, sliding, and overturning in addition to typical gravity checks. Refer to section 8.2 for wind loading criteria.

2 Design:

- A. Foundations shall be designed such that the allowable bearing capacity of the soil is not exceeded.
- B. Foundations shall be designed for the most unfavorable effects due to the combination of loads according to chapter 1605.2 of the FBC 2010
- C. Exterior and Interior Precast Wall elements will be used for lateral load resistance and will impose lateral forces and overturning moments on the wall foundations. These base forces must be coordinated between the design build team and the precast manufacturer's engineer.

8.6 Slab-on-grade Foundations

.1 General:

- A. Slab-on-grade foundations will consist of 4" -6" thick reinforced concrete, which will be determined from the Geotechnical Report.
- B. The slab shall be thickened at the loading dock to accommodate heavier trucking loads.
- C. The slab shall be thickened beneath CMU interior walls to support the line loads.
- D. The slab can be hard connected to the loading dock retaining wall to provide sliding resistance at the base of the wall. The slab shall be isolated from building columns and exterior wall using compressible fill or #15 bond breaker.
- E. Reinforcement shall consist of welded wire mesh or mild steel reinforcement.
- F. Provide slab control joints to be spaced between 24 and 36 times the slab thickness.

8.7 Special Foundations

.1 General:

- A. Special foundations will be required for the loading dock retaining wall support and the elevator pit support.

Project Description

- B. Special foundations will consist of either shallow spread footings or a deep foundation consisting of pile cap and piles. This determination will be dictated by the Geotechnical Report.
 - C. Per Florida Building Code 2010, the minimum depth of footings below the undisturbed ground surface shall be 12" and the minimum width of footings shall be 12".
 - D. Special foundations bearing on granular soils shall be located so that the line drawn between the lower edges of adjoining footings shall not have a slope steeper than 30 degrees (0.52 rad) with the horizontal.
 - E. The retaining wall foundation must be designed for out-of-plane sliding and overturning in addition to typical gravity loads. Lateral earth pressure forces will be provided in the Geotechnical Report.
 - F. The elevator pit foundation elevation and sump pit requirements must be coordinated with the vertical transportation drawings.
- .2 *Design:*
- A. Foundations shall be designed such that the allowable bearing capacity of the soil is not exceeded.
 - B. Foundations shall be designed for the most unfavorable effects due to the combination of loads according to chapter 1605.2 of the FBC 2010.
 - C. The foundation design shall account for wind loading effects through the elevator shaft shear walls.

8.8 Precast Columns

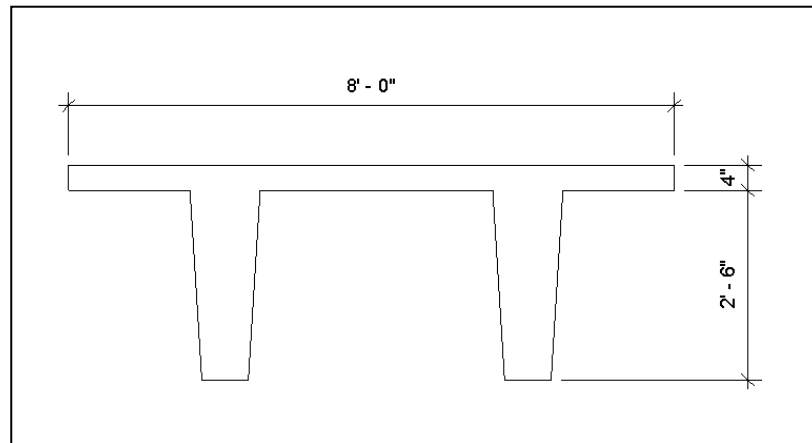
- .1 The anticipated interior precast column size is 28" x 28" and shall be verified by the design build team. The anticipated vertical reinforcement is less than or equal to 2% of the gross column area.
- .2 The precast columns will support inverted tee beams on the second, third, and roof levels. Support will be achieved by precast concrete corbels. The anticipated corbel depth is 12" - 18" and shall be verified by the design build team.
- .3 Precast columns shall be anchored to the cast-in-place column foundations such that all anticipated loads are transmitted.
- .4 It is not anticipated that the interior columns will be required to transfer lateral forces and moments.

8.9 Precast Bridge Tees

- .1 *General Description:*
 - A. The second, third, and roof level slabs will be precast bridge tees with pre-stressed steel tendons that span from exterior walls at gridlines 1 and 7 to inverted tee beams on gridlines 3 and 5. Refer to the architectural narrative for the building grid layout.

Project Description

B. The anticipated bridge tee shape is shown below:



C. The typical bridge tee will be topped throughout with a 4" cast-in-place concrete slab that will provide additional floor levelness for finishes and provide a floor diaphragm for transfer of in-plane wind forces.

D. The second level bridge tee between gridlines 1 and 3 will be dropped 4" below the typical bridge tee to allow for 4" of rigid insulation between the bridge tee and topping slab.

E. Due to the 4" topping slab diaphragm, it is not anticipated that bridge tees will require a wash pour.

F. Stem dapping will be required at depressed bridge tees above the loading dock.

.2 Coordination Items

A. The design team must coordinate the second level bridge tee topping slab depression depth with the freezer and refrigerator equipment requirements.

B. Flange openings for mechanical ducts and pipes shall be limited to 36" in width and must be placed between the stems of the tee. Under no condition shall the opening be placed in the flange above the stem. The design team is responsible for full coordination of slab penetrations prior to fabrication of the precast bridge tees.

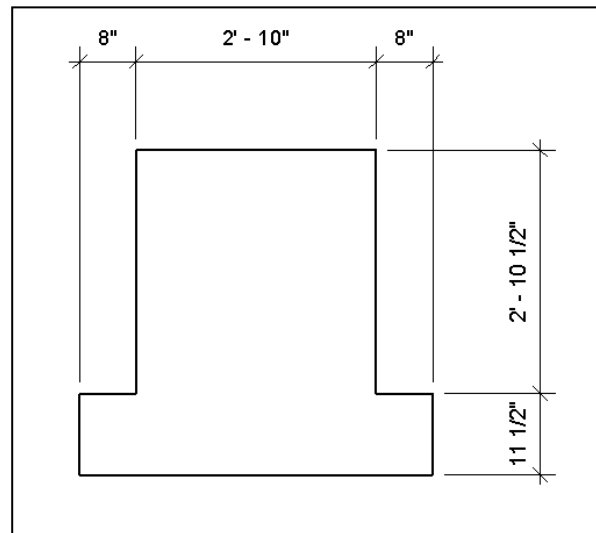
8.10 Precast Inverted Tees

.1 General Description:

A. The second, third, and roof level bridge tees will supported by precast inverted tees with pre-stressed steel tendons on gridlines 3 and 5.

B. Inverted Tees shall be supported at the interior spans on precast concrete corbels and at the exterior wall on either precast concrete corbels or exterior bearing wall pockets.

C. The anticipated inverted tee shape is shown below:



.2 Design Consideration:

A. Inverted Tee beams supporting unequal bridge tee spans shall be designed for torsional forces in addition to shear and moment.

8.11 Precast Exterior Panels

.1 General Description:

A. Precast Exterior Panels shall consist of 2 layers of concrete with 1 layer of rigid insulation sandwiched in between.

B. The anticipated thickness of the interior and exterior concrete layers are 10" and 3" respectively and must be verified by the design team.

C. The thickness of the rigid insulation will be dependent on the wall performance requirements. Refer to the architectural and mechanical sections of this narrative for the insulation performance criteria and required R-Value.

D. Provide edge to edge insulation and non-conductive wythe connectors.

E. The wall lifting lugs shall be placed such that no thermal breaks occur on the wall face.

.2 Thermo-mass system:

A Thermo-mass system (or equal other) is recommended to comply with the insulation performance criteria. This system will allow for an improved performance of the insulation, but will most definitely cost more than a standard insulation system.

.3 Parapet Wall Bracing:

The high parapet walls extending above the third floor at areas of low roof shall be braced to the floor deck with structural steel members. The precast exterior wall panels and the floor bridge tees shall be fitted with steel embed plates to receive the steel bracing members. The bracing members shall be closely coordinated with the rooftop mechanical and electrical equipment in order to determine the height, slope, and shape and to avoid interferences.

Project Description

.4 *Louver Openings:*

Large openings will be required in the pre-cast panels around the lower third floor roof area. These openings will be filled with a metal panel louver system, which will require secondary support steel. This framing must be coordinated with the pre-cast panel engineer and the metal panel manufacturer to determine the steel shape, spacing, and connections.

8.12 Interior Walls

.1 Interior walls shall consist of CMU masonry.

.2 Masonry walls shall be supported on thickened slabs

.3 Interior masonry walls shall be connected to the precast structure in such a way that allows for the anticipated vertical live load deflection of the precast elements. This can be accomplished using steel angles with vertical slotted holes.

.4 Wall thickness and reinforcement shall be in accordance with the minimum requirements of the Florida Building Code 2010. Wall reinforcement shall be adequately doweled into the thickened slab below.

.5 Precast lintels shall be used to span interior wall openings.

8.13 Retaining Walls

.1 Retaining walls shall be reinforced concrete that shall conform to ACI 318 standards.

.2 The walls shall be designed to resist the lateral earth pressure forces provided in the Geotechnical Report. Sliding forces can be transferred into loading dock slab for lateral support and the overturning moment shall be transferred into the wall foundation.

8.14 Low Roof Structure

.1 The low roof over the loading dock and storage area shall consist of a 6"-8" thick precast flat slab to be verified by the design team. The slab shall be anchored into the precast wall panel with embed plates. Coordinate insulation requirements with the architectural narrative.

.2 The low roof structure supporting the mechanical and electrical equipment on the third floor will be supported with bridge tees, similar to the typical floor construction. Coordinate insulation requirements with the architectural narrative.

8.15 Roof Top Equipment Support

.1 *Steel Frame*

A galvanized structural steel frame shall be used for support of the cooling tower equipment. The steel shall be configured such that all loads are transferred directly to the precast columns below. In addition to the heavy equipment loads, the steel frame must also be designed to resist the wind overturning moments from the screen wall and equipment. Isolation springs or dampers between the equipment and steel frame shall be required to minimize vibration effects on the building.

.2 *Columns*

W or HSS shaped columns shall be used to support the gravity and lateral forces of the cooling tower support frame. Moment connections are recommended for the lateral load

Project Description

- transferring system. Columns shall be pin anchored to the precast column below. All exposed steel shall be galvanized.
- .3 *Base Plates*
Base plates bolt holes shall be coordinated with the steel fabricator and precast manufacturer. Anchor bolts can be either cast-in-place or post-installed. All exposed steel shall be galvanized
 - .4 *Beams*
W or HSS shaped beams shall be used to support the gravity and lateral forces of the cooling tower frame and the catwalk support framing. All exposed steel shall be galvanized
 - .5 *Misc. Steel Components*
All other steel components for the roof top equipment frame including bolts, nuts, washer, clip angles, connection plates, etc. shall be galvanized.
 - .6 *Screen Wall Supports*
Intermediate posts or mullions will be needed to support the screen wall system. The size and spacing of said mullions shall be coordinated with the screen wall manufacturer.

8.16 Lateral Load Resisting System

- .1 *Diaphragms*
 - A. Out-of-plane lateral forces will be transferred from the exterior precast walls to the 4" topping slab diaphragm.
 - B. The topping slab shall be designed to transfer the story shears to the end precast walls and a wash pour shall not be required.
 - C. Rebar shall be placed at the perimeter of the topping slab to resist the diaphragm chord tension forces.
 - D. Embed plates with headed studs will be required in the end walls for transfer of in-plane diaphragm forces.
- .2 *Shear Walls*
The lateral loads shall be transferred vertically through the in-plane exterior precast walls and precast elevator core walls.
- .3 *Wind Forces*
Refer to sections 8.1.4 through 8.1.5 for wind force information

8.17 Passenger Bridge

- .1 *Roof Slab*
The passenger bridge roof slab shall consist of a 6"-8" thick precast flat slab structure, which shall be supported by the precast wall panels by a precast concrete corbel or an internal bearing connector (Type JVI RVK 100), which allows bearing to occur internally within cross section of the slab.
- .2 *Wall Panels*
If the wall remains as a sandwich panel wall, similar to the Infrastructure Building exterior, then the wall thickness shall be [3" exterior concrete+ (2"-3" Insulation) + 6" interior concrete] = 11"-12" total wall. As an alternate, the insulation could be furred on the inside of the exterior wall of the bridge, thus reducing the wall panel to 6" total. This alternate option will significantly reduce the wall concrete material and weight, but will modify the architectural

Project Description

- detail. The wall can be. Refer to the Architectural Narrative for waterproofing and sealing information.
- .3 *Bridge Tee:*
In order to maintain the 10' bridge width and support the wall panels, the bridge floor shall be constructed with (2) separate bridge tees, side by side, with the stems aligning directly underneath the wall panels. This will eliminate any minor axis bending on the bridge tee flanges at the wall support. The bridge tees can span up to 50' and safely support the passenger load of 100 PSF, the self weight of the precast walls and roof, and the roof live load.
- .4 *Main Supports Beams*
The bridge tee supports, which occur at the bridge kinks and at the mid-span, shall be constructed of cast-in-place concrete structure. This will simplify the design for lateral load transfer from the bridge tees to the foundation. It will also eliminate some racking that may occur if the support was constructed from a precast inverted tee.
- .5 *Foundation*
The bridge foundations shall be carefully coordinated with the existing underground utilities prior to final design of the foundations and bridge components. Two options can be used for support of the passenger bridge, a pair of circular shaped cast-in-place concrete caissons or cast-in-place columns with spread footings. The caissons will have the advantage of taking up less footprint, which will reduce interference with underground utilities, but will also require a deeper embedment than the spread footing supports.
- .6 *Kinked Span - At Each end of Bridge*
The kinked connectors shall consist of cast-in-place concrete beams and slab which cantilever from the adjacent cast-in-place concrete bridge supports. This will allow for a gap at the Infrastructure and Central Buildings without vertical load transfer. If the design team prefers to support the bridge structure directly on the exterior wall of the infrastructure building, then a precast haunch or additional precast concrete column (18"x18") shall be introduced. The haunch will cause a break in the edge-to-edge insulation and may reduce the thermal properties of the building. The additional column scheme must be fully coordinated with the exterior wall foundation. Either method of attachment will allow for removal of the cast-in-place concrete cantilever described above. Similarly, if the design team prefers to support the bridge directly on the Central Building and determines that it is structurally feasible to do so, then the support can occur in a similar fashion to that described above. Refer to sections below for further information on the bridge to building connection limitations.
- .7 *Passenger Bridge to Infrastructure Building Connection*
The Infrastructure Building could be designed to accommodate the additional load of the passenger bridge, but this would require a precast corbel to be formed into the exterior precast sandwich panel. The 3" exterior concrete layer of this panel will not be able to adequately support the load of the bridge and would therefore require a solid concrete section, thus breaking the edge to edge insulation system. For this purpose and for ease of construction, the bridge shall be supported on a pair of 18"x18" precast concrete columns and an 18" wide by 36" deep precast concrete beam at the Infrastructure Building.
- .8 *Passenger Bridge to Central Building Connection*
The bridge shall not be hard connected to the Central building so that additional load is not imposed on the existing structure. The bridge shall be supported on a pair of 18"x18" precast concrete columns and an 18" wide by 36" deep precast concrete beam, positioned as close as possible to the existing building so that the kinked connector can be properly supported at

Project Description

that end. A minimum 2" gap with an expansion joint or gasket joint shall be placed between the bridge and the existing structure. It will be required that a portion of the Central Building exterior CMU wall be removed for the Pedestrian Bridge access. Although, it is anticipated that the CMU exterior wall is non-load bearing and can be removed with minimum structural reinforcement, the design team shall perform field exploration to determine the structural usage of the CMU wall prior to demolition.

.9 Bridge Tee to Main Support Beam Connection

The bridge tees shall be hard connected to the Main Supports with no allowed translation.

8.18 Utility Bridge

.1 Standard Tee:

The utility bridge, which does not require walls and roof like the passenger bridge, shall be consist of a standard precast tee shape which spans up to 50' to an interior cast-in-place support.

.2 Main Supports Beams

The standard tee supports, which occur at the utility bridge mid-span, shall be constructed of cast-in-place concrete structure. This will simplify the design for lateral load transfer from the standard tees to the foundation. It will also eliminate some racking that may occur if the support was constructed from a precast inverted tee.

.3 Foundation

The utility bridge foundations shall be carefully coordinated with the existing underground utilities prior to final design of the foundations and bridge components. Two options can be used for support of the utility bridge, a pair of circular shaped cast-in-place concrete caissons or cast-in-place columns with spread footings. The caissons will have the advantage of taking up less footprint, which will reduce interference with underground utilities, but will also require a deeper embedment than the spread footing supports.

.4 Utility Bridge to Infrastructure Building Connection

The Infrastructure Building could be designed to accommodate the additional load of the utility bridge, but this would require a precast corbel to be formed into the exterior precast sandwich panel. The 3" exterior concrete layer of this panel will not be able to adequately support the load of the bridge and would therefore require a solid concrete section, thus breaking the edge to edge insulation system. For this purpose and for ease of construction, the bridge shall be supported on a pair of 18"x18" precast concrete columns and an 18" wide by 36" deep precast concrete beam at the Infrastructure Building.

.5 Utility Bridge to Central Building Connection

The bridge shall not be hard connected to the Central building so that additional load is not imposed on the existing structure. The bridge shall be supported on a pair of 18"x18" precast concrete columns and an 18" wide by 36" deep precast concrete beam, positioned as close as possible. A minimum 2" gap with an expansion joint or gasket joint shall be placed between the bridge and the existing structure. The 20" water pipes must be supported on the existing roof of the Central Building. The D/B team must coordinate the location of these supports with the existing building structural system and verify that the loads imposed can be safely transferred to the building. Refer to the mechanical narrative for pipe support requirements and maximum spacing. A field survey of the existing buildings will be necessary to determine acceptable locations of pipe support.

Project Description**8.19 Vibration and Acoustic Performance****.1 Electrical Equipment**

It is recommended that heavy equipment such as the generators be isolated from the floor structure in order to reduce vibration transition into the building. Please see the architectural narrative for the recommendation of a Vibration and Acoustic Consultant.

.2 Mechanical Equipment

It is recommended that heavy equipment such as the cooling towers and chillers be isolated from the floor structure in order to reduce vibration transition into the building. Please see the architectural narrative for the recommendation of a Vibration and Acoustic Consultant.

8.20 Mechanical Room Hoist**.1 Coordination with Owner Requirements**

The hoist structure must be coordinated with the Owner Requirements and the equipment weights and geometry. Multiple lines of steel hoist may be required depending on the final usage of the hoist system.

.2 Design Considerations

The steel hoist system shall be designed in accordance with the requirements of ASCE7 section 4.9. The maximum wheel load must be coordinated with the heaviest anticipated mechanical equipment in the room. The system should also be coordinated with the architectural height of the third floor.

8.21 Security Screen**.1 General Description**

The welded wire mesh security screen at the loading dock will require secondary framing support. This framing must be coordinated with the pre-cast panel engineer and the security screen manufacturer to determine the steel mullion shape, spacing, and connections.

8.22 Elevator Lobby at Central Building**.1 Demolition Work**

Demolition of existing CMU exterior walls and canopy structure will be required to allow for the new elevator lobby. It is recommended that the design team survey the existing conditions prior to demolition. Openings made in new CMU wall openings can be supported with steel angle or channel lintels placed on each side of the wall just above the openings.

.2 New Elevator Structure

The new elevator structure shall consist of CMU masonry wall with a metal deck roof. The elevator pit depth and sump pump requirements shall be coordinated with the equipment provider. The design team shall consider underpinning the existing exterior wall foundation due to the proximity of the new elevator pit to the existing exterior wall. New foundations shall be stepped such that the line drawn between the lower edges of adjoining footings shall not have a slope steeper than 30 degrees (0.52 rad) with the horizontal. All elements subject to dynamic loads from elevators, including the hoist beam, railing system, shaft walls, elevator pit foundation, and elevator machine beam supports, shall be designed for impact loads and deflection limits prescribed by ASME A17.1. The equipment loads shall be coordinated with the final approved elevator shop drawings.

Project Description

.3 New to Existing Roof Tie-In Structure

The bridging structure between the new elevator core and the existing structure shall consist of cast-in-place concrete beams and slabs. The concrete beam shall be framed into the existing exterior wall surrounding the elevator shaft on each side. The slab shall span from the new concrete beam across to the new elevator shaft wall and shall be drilled and doweled into the existing structural slab. Consideration must be given to the design of the storefront connection to the new slab above. Refer to the architectural narrative for information on the storefront framing and connection requirements.

8.23 Auxiliary Structures**.1 Warehouse and FM Building Foundations:**

It is anticipated that the column foundations will consist of shallow spread footings, but this determination will be dictated by the Geotechnical Report and the design team. Foundation loads should be coordinated between the design team and the pre-fabricated building manufacturer.

.2 Warehouse and FM Building Superstructure

The superstructure of the warehouse and FM buildings will consist of modular precast concrete construction supporting a pre-fabricated metal roof. The design team shall coordinate the design criteria forces with a pre-fabricated building manufacturer. Refer to the Architectural Narrative for a comprehensive description of the superstructure system.

9 - Plumbing Design Criteria

9.1 General

.1 Governing Codes, Standards, and Regulations

- A. The following codes and guides will be in effect during the design and construction of this project:
 - 1. 2010 Florida Building Code, Plumbing
 - 2. 2010 Florida Building Code, Fuel Gas
 - 3. 2010 Florida Building Code, Building
 - 4. National Fire Protection Association (NFPA) Codes
 - 5. Pinellas County Design and Construction Standards
- B. Construction Permitting: Pinellas County, Florida is the jurisdiction having authority for the construction of the Infrastructure Upgrade project.

9.2 Plumbing Fixtures

.1 General

- A. All Inmate plumbing fixtures shall be security grade with integrated I-CON Systems Inc. intelligent controls programmed at the factory with run-times, delays, lockout periods, etc., all designed to discourage misuse and conserve water.
- B. All Staff plumbing fixtures shall be commercial grade.
- C. Staff water closets shall be wall mounted, vitreous china with sensor type flush valves, designed for 1.28 gallons per flush.
- D. Inmate water closets shall be floor mounted, vitreous china with manual concealed type flush valves, designed for 1.28 gallons per flush.
- E. Staff & Inmate lavatories shall be vitreous china; wall mounted with ADA approved trim. Faucets shall be single lever type with 0.5 GPM discharge.
- F. Electric water coolers shall be self-contained units with bi-level dispensers meeting ADA mounted requirements.
- G. Mop sinks shall be floor mounted cast stone units with stainless steel wall mounted splashguards and wall mounted faucets.

9.3 Domestic Water Distribution

.1 Water Supply Piping Distribution

- A. The domestic water piping system shall be distributed to various pieces of equipment and plumbing fixtures through an adequately sized system of Type L copper tubing and fittings. Domestic water piping system shall be sized using 1.5 PSI / 100 ft. uniform friction head loss criteria. The piping system velocity shall not exceed 5 FPS (feet per second), in order to reduce pressure drop, noise, and water hammer.
- B. The domestic water system serving the facility shall be a minimum 4" incoming service with a capacity of approximately 382 GPM including 206 GPM for back-up cooling tower make-up.

.2 Water Piping Specialties

- A. A domestic water duplex VFD booster pump shall boost the utility domestic water feed and piped with bypass for emergency operations using the domestic water emergency storage tank.
- B. Each mechanical room with AHU equipment shall have hose bibbs provided.
- C. Water hammer arrestors shall be provided on water supply piping at each fixture.

.3 Water Supply Equipment

- A. Laundry Equipment
 - 1. Laundry equipment shall be selected and specified by kitchen consultant and coordinated with the appropriate disciplines.

Project Description

2. Coordinate with laundry consultant for detailed information on equipment specifications and requirements.
3. Two (2) Milnor PulseFlow Batch Washers will be installed and plumbed. Only one washer will be in operation at any given time. Batch washers require provisions for tepid water supply of 160 gpm for initial fill and 13.2 gpm during operation.
- B. Kitchen Equipment
 1. Kitchen equipment shall be selected and specified by kitchen consultant and coordinated with the appropriate disciplines.
 2. Coordinate with kitchen consultant for detailed information on equipment specifications and requirements.
- C. Emergency Water Storage Tank
 1. A domestic water tank is required during emergencies when utility provided potable water may be unavailable. The facility suggests 1500 gallons per day for 5 days equating to 7,500 gallon storage tank which will be filled upon potential emergency conditions then drained and sanitized once conditions are stable.
- .4 *Water Supply Insulation*
 - A. Hot water piping shall be insulated with 1.5" jacketed mineral fiber.
- .5 *Piping Specialties*
 - A. LP Steam Piping: Schedule 80, Type S, Grade B, steel pipe; Class 125 cast-iron fittings; and threaded joints.
 - B. Steam Condensate Piping above Grade: Schedule 80, Type S, Grade B, steel pipe; Class 125 cast-iron fittings; and threaded joints.
 - C. Steam Condensate Piping below Grade: Schedule 80, Type S, Grade B, steel pipe; Class 125 cast-iron fittings; and threaded joints.

9.4 Sanitary Waste

- .1 *Waste and Vent Piping*
 - A. A sanitary drainage system shall be provided to serve all plumbing fixtures and floor drains.
 - B. The below ground sanitary drainage system shall be constructed using Solid-Wall PVC Pipe: ASTM D 2665, drain, waste, and vent with PVC Socket Fittings: ASTM D 2665, made to ASTM D 3311, drain, waste, and vent patterns and to fit Schedule 40 pipe.
 - C. The above ground sanitary drainage and vent system shall be constructed using service weight cast iron soil pipe and fittings: ASTM A 888 or CISPI 301 with "no-hub" joints with heavy-duty couplings: ASTM C 1277 & ASTM C 1540 and Copper type DWV piping with soldered joints.
 - D. Condensate drain piping shall be of the same materials utilized for sewer and vent piping.
 - E. All above ground sanitary piping serving mechanical room floor drains shall be insulated with elastomeric.
 - F. Kitchen Dishmachine and Laundry Tunnel Washer shall have a discharge waste water cooler.
 - G. A separate grease waste system shall be provided.
- .2 *Waste Piping Specialties*
 - A. Each mechanical room with AHU equipment shall have floor drains provided.
 - B. Each toilet room located on all floors shall have floor drains with trap primer connections. Trap primers shall be water supply fed type.
 - C. Cleanouts shall be provided as required per code and at the base of all stacks.
- .3 *Waste Piping Equipment*
 - A. A separate grease drainage system shall be provided to serve all floor drains, floor sinks and compartment sinks receiving grease laden water located in Food Service areas. Centralized underground grease traps shall be installed in series, in a location to be determined outside the building. For bi-monthly pump out service, five (5) Schier Products, GB-250 interceptor capable of handling 1,076 lb of grease are required.

Project Description

- B. The laundry area sanitary from tunnel washers and commercial washers shall be piped to an exterior Schier Products, PS-125-B lint trap capable of 62.5 gallons of solid waste retention.

9.5 Rain Water Drainage

.1 Rain Water Drainage Piping Systems

- A. A storm drainage system shall be provided to serve all roof drains (Primary & Secondary). All primary roof drain shall be collected by an underground storm drainage collection system. Secondary roof drains shall spill on grade.
- B. The below ground sanitary drainage system shall be constructed using Solid-Wall PVC Pipe: ASTM D 2665, drain, waste, and vent with PVC Socket Fittings: ASTM D 2665, made to ASTM D 3311, drain, waste, and vent patterns and to fit Schedule 40 pipe.
- C. The above ground storm system shall be constructed using service weight cast iron soil pipe and fittings with "no-hub" joints with heavy-duty couplings.

.2 Rain Water Drainage Specialties

- A. Cleanouts
- B. Roof Drains

.3 Rain Water Drainage Insulation

- A. Rain Water Drainage piping shall be insulated with 1" jacketed mineral fiber.

9.6 Other Plumbing Systems

.1 Water Heating

- A. Each cogeneration engine shall supply 173°F jacket hot water to a Dual Energy Tank Water Heater. This water will be used for domestic heating with (2) two systems at 140°F and 105°F. The high temp distribution system will be recirculated with a master mixing station to the kitchen equipment and pot sinks. The tepid hot water distribution system will be recirculated with a master mixing station to the facility sinks, lavatories and laundry tunnel washer. In emergency condition when the generator(s) are not in operation, the dual energy water heater will initiate steam as the energy source.
- B. Laundry Tunnel Washers require tepid incoming water and utilize steam to heat the water as required. Steam will be supplied from the generator hot gas, steam generating mechanical boiler. The steam usage comes in large quantities of 2200lbs/hr rate and roughly 340-410lbs of steam per hour.

.2 Natural Gas

- A. Natural Gas will be supplied to the site via a new main connection to the city utility.
- B. Each cogeneration generator engine will require 20,260cfh.
- C. Laundry Eight (8) Milnor 170lb capacity dryers will be installed. Each dryer will consume 550,000btu/hr. of natural gas.
- D. Kitchen equipment totals 2,079cfh.
- E. Emergency Clayton SigmaFire Steam Generator requires 4,082cfh.

.3 Compressed Air

- A. Laundry Tunnel Washers require 12 scfm @ 85psig.

.4 Steam Boiler

- A. A Steam Generator will be provided to for required steam to Kitchen, Water Heater and Tunnel Laundry Washer.

10 – HVAC DESIGN CRITERIA

10.1 General

- .1 *Governing Codes, Standards and Regulations:*
 - A. The following codes and guides will be in effect during the design and construction of this project:
 - 1. 2010 Florida Building Code, Mechanical
 - 2. 2010 Florida Building Code, Energy Conservation
 - 3. 2010 Florida Building Code, Building
 - 4. ASHRAE 62.1- 2013
 - 5. Pinellas County Design and Construction Standards
 - B. Construction Permitting: Pinellas County, Florida is the jurisdiction having authority for the construction of the Infrastructure Upgrade project.
- .2 *Weather Design Criteria:*
 - A. Outside Design Conditions
 - 1. Summer – 93°F db, 79°F wb
 - 2. Outdoor Air Coil Design- Entering air 86°F db, 82°F wb
 - 3. Evaporative Process Design- 81°F wb
 - 4. Winter – 35°F db
 - B. Inside Design Conditions
 - 1. Summer - 75°F db, 50% RH
 - 2. Winter - 70°F db
 - 3. Mechanical Rooms - 78°F db, 60% RH
- .3 *Reliability through Design:*
 - A. The temperatures, flow rates, capacities, and loads used in this design criteria package are based on a previous study and will need to be verified based on final design-build team.
- .4 *Maintainability:*
 - A. Maintain a minimum clearance around all HVAC equipment and appurtenances to allow for standard maintenance and repair. Refer to the Florida Building Code, Mechanical Section 303 and manufacturer's data for recommended clearances for HVAC installations.
 - B. The equipment shall be maintained by the PCJI Facilities Department.
- .5 *Training:*
 - A. Training shall be provided on all equipment and systems as identified in the specifications.
- .6 *Phasing:*

This project will occur in two phases.

 - A. Phase 1 will include:
 - 1. Construction of the laundry/kitchen/Central Plant building
 - 2. Installing 1 generator, 1 absorption chiller, and 2 electric chillers
 - 3. Existing chilled water piping will be replaced with new
 - 4. New connections to warehouse/maintenance and the County Justice and State Attorney Office.
 - B. Phase 2 will include:
 - 1. Installing 1 generator, 1 absorption chiller, and 1 electric chiller
 - 2. New connection to existing plant

10.2 Energy Supply

- .1 *Natural Gas*

Project Description

- A. A new natural gas service will be located off of 49th St N., east of the PCJC site. The new natural gas service will be sized for both the new and future cogeneration engines and any kitchen/laundry equipment that requires natural gas.
 - 1. Approximate new required natural gas service is 51,081 CFH. Natural gas pipe size will be 4".
- .2 *Bulk Purchase of Natural Gas*
 - A. Pinellas County will participate in a bulk purchase of natural gas. Consult Pinellas County officials for additional information.

10.3 Heat Generation

- .1 *General:*
 - A. Heat generation system will be comprised of two main parts: a heat exchanger transferring cogeneration jacket hot water to a hot water loop and a steam generating heat exchanger transferring engine exhaust gas heat to the absorption chillers.
- .2 *Cogeneration Engines:*
 - A. Provide (2) Cogeneration Engines. Each engine to have an electrical output of 2.1 MW and provide thermal output adequate to support an absorption chiller.
 - 1. Each cogeneration engine shall supply 320-642°F hot exhaust gas to an absorption chiller and 164-194°F jacket hot water to a corresponding heat exchanger.
 - a. Depending on the manufacturer of the absorption chiller, a heat exchanger may have to be added in-between the engine exhaust outlet and the absorption chiller inlet to convert heat source from exhaust gas to steam.
 - b. All engine exhaust gas shall be run in double-wall insulated ductwork and be provided with oxidation catalysts with explosion blowout protection.
 - c. After leaving the absorption chillers (or heat exchanger, depending on configuration), the 320°F engine exhaust shall terminate outside with vertical exhaust risers with silencers and heat recovery system.
 - 2. Exhaust gas NOx emissions shall be less than 100 Tons/year.
 - B. Each engine shall be provided with adequate ventilation air to keep the temperature of the cogeneration room below manufacturer's recommended temperature (the generator module of the cogeneration engine will usually limit maximum ambient temperature). Estimated supply cfm is 75,000 cfm per engine and 58,000 exhaust per engine.
 - C. A heat recovery system shall be provided for using excess engine jacket hot water to heat domestic and laundry hot water systems.
 - D. Acoustical considerations for the generator room will have to be coordinated with the architect, MEP engineers, acoustical engineer (if available) and equipment manufacturer. Extra insulation and sound traps are possible solutions.
- .3 *Gas Heating:*
 - A. Maintenance and warehouse will have radiant gas heaters for outside work areas.

10.4 Waterside Cooling

- .1 *General:*
 - A. The Central Energy Plant refrigeration system shall consist of (2) Absorption Chillers, paired to respective Cogeneration Generators, and (3) Electric Chillers. (1) Electric Chiller and (1) Absorption Chiller and associated cooling towers and appurtenances shall be noted as "Future" and installed and tied-in to the Central Energy Plant in later phases.
- .2 *Chillers (Absorption and Centrifugal):*
 - A. Absorption Chillers
 - 1. Provide (2) water-cooled Absorption Chillers matched to corresponding cogeneration engine. Each chiller shall utilize both hot exhaust gas generated by its respective cogeneration engine.

Project Description

2. Absorption Chillers shall operate at approximately 1,150 GPM and 44-56°F on the evaporator side and 1,725 GPM and 85-100°F on the condenser side.
 3. Absorption chillers shall have an internal hot exhaust gas bypass.
 4. Absorption Chillers to be piped to roof mounted radiators.
 5. Absorption Chillers to have VFD's.
 6. Provide interface to BAS.
 - B. Electric Chillers
 1. Provide (3) 1,500 Ton, R-134a, water-cooled electric Centrifugal Chillers.
 2. Electric Chillers shall operate at 3,000 GPM and 42-54°F on the evaporator side and 4,500 GPM and 85-95°F on the condenser side.
 3. Chillers to have VFD's.
 4. Provide interface to BAS.
- .3 *Cooling Towers:*
- A. Tower basin shall be in piece stainless steel construction, bolted construction not permitted.
 - B. Provide (2) Cooling Towers to match absorption chillers. Provide (3) Cooling Towers to match centrifugal chillers. Cooling Towers shall be of cross flow design and constructed of stainless steel. Cooling towers to have VFD's.
 1. Absorption chiller-cooling towers shall operate at 1,725 GPM and 85-100°F. Electric chiller-cooling towers shall operate at 4,500 GPM and 85-95°F.
 2. A separate cooling tower meter shall be installed in each cooling tower makeup water line and blow down line. Meters shall be located near the main water meters and extend and connect to the towers. A common bypass line shall connect to all tower basins.
 3. Space for a well for cooling tower make-up water shall also be planned for and included in the scope of the project for the civil engineer's site planning. Well will provide emergency cooling tower make-up in the event of a Pinellas County water outage.
 4. Provide separate chemical treatment system for each cooling tower.
- .4 *Refrigerant Monitoring:*
- A. General: Provide a refrigerant concentration monitor for enclosed chiller equipment locations, sensing each type of refrigerant used. Auxiliary dry contacts shall be provided to energize the room exhaust even when the local control switch for the exhaust fan is in the OFF position.
 1. Requirements: Provide an air monitor capable of detecting refrigerant in concentrations of 0-100 parts per million. The air monitor shall have an audible alarm of minimum 90 dBA at 10 feet with alarm silence, flashing alarm strobe light, and form "C" NO/NC contacts for remote alarm annunciation, and shall alarm when the concentration of refrigerant measured in the ambient air exceeds 8 ppm. The monitor shall have a minimum of two separate channels for two sensor inputs, with a minimum of two sensors and leads for remote monitoring unless otherwise indicated; one sensor shall be mounted 8 inches above the floor and the other sensor shall be mounted 10 feet above the floor.
 2. Air monitor alarm shall activate chiller room purge system. System includes sidewall mounted exhaust fan with an outside air drop located within 12" of floor.
 - B. The SCBA shall be of the type using compressed air and shall be jointly certified by the National Institute for Occupational Safety and Health (NIOSH) and the Mine Safety and Health Administration (MSHA) under Subpart H, 30 CFR, Part II for 30 minute rated service life. The apparatus shall be certified for use at temperatures above -25F.
 1. The SCBA shall consist of two (2) SCBA units, including the following parts: (1) single lens faceplates with speaking diaphragm and detachable breathing tube. (2) Pressure demand regulators. (3) High-pressure regulators. (4) Audible warning bell. (5) Compressed air tanks. (6) Harness assemblies. (7.) Wall mounted storage case with hinged door.

Project Description

2. The mask faceplate shall be suitable for use with refrigerant. The faceplate material shall remain clear and not opaque when subjected to liquid refrigerant spray for 30 seconds. The mask shall have a built in speaking diaphragm with provision for an interconnection with a portable radio.
3. The tank shall be fabricated of aluminum construction and shall have a 30 minute air supply at 2216 psig. The tank shall include a tank harness including adjustable waist and shoulder straps.

10.5 HVAC Distribution*.1 Air Distribution, General:*

- A. The new kitchen, laundry, and plant will be served by chilled water systems.
 1. Kitchen Load approximately 90 tons.
 2. Laundry load approximately 90 tons.
- B. The Maintenance and Warehouse buildings will be served by chilled water systems.

.2 Air Distribution Equipment, Central Air-Handling Units:

- A. Central Air Handling Units shall be used to condition the 1st and 2nd floors of the Central Energy Plant and the new Maintenance and Warehouse buildings on the North side of the campus.
 1. Air handling units shall be provided with inverted duty rated motors for use with VFD's with bypass. Also, dual air path design will be used, utilizing one cooling coil for outside air and another for return air.
 2. No heating coils shall be provided in Air Handling Units. Electric heat shall be provided in individual zone terminal units.
 3. Air Handlers to be Temtrol, or approved comparable equal.
 4. Air handlers to be of double wall construction with inner liner constructed from stainless steel.
 5. Drain pan to be stainless steel.
 6. Maximum coil rows and fin per inch: 5/12

.3 Air Distribution Equipment, Fans:

- A. Air Handling Units
 1. Draw through fans shall be used in all Air Handling Units.
 2. Provide VFD's in lieu of starters.
- B. Toilet, Janitor Closet, Shower Rooms and Dressing Rooms
 1. Ceiling mounted fans with sidewall terminations shall be used for small rooms of this type.
 2. Larger rooms of this type shall use inline fans with sidewall terminations.
 3. Side wall terminations of exhaust ducts are preferred because roof space will be dominated by the cogeneration equipment ventilation requirements.
- C. Generator Room Ventilation
 1. Ventilation fans for the dedicated generator room shall be inline axial fans located on the roof, or mounted inline within the generator room, of the building. Fans shall draw outside air through supply fans into the room and out of the exhaust fans on the roof, or mounted inline within the generator room.
 2. Volume of air circulated through the generator room will be significant. Fan design/selection shall not neglect the fact that these fans are the only source of heat rejection in the generator room. Fans will require minimal maintenance and down time to allow continuous operation of the cogeneration engines.
 3. Ventilation air shall be sized to keep generator room below maximum ambient temperature specified by generator manufacturer.
 4. Silencers and noise absorption options should be considered.

.4 Air Distribution Equipment, Ducts and Duct Accessories:

- A. Ductwork
 1. General Ductwork

Project Description

- a. All ductwork shall be constructed in compliance with SMACNA 2" W.G. pressure class construction.
- b. Ductwork shall be galvanized steel, lock-forming quality with minimum ASTM A525 G-90 zinc coating with exterior insulation. No insulation shall be in the airstream.
- c. Ductwork for VAV systems designed using static regain method or T-duct method.
- d. Return ductwork to be sized using the equal friction method.
- e. Maximum static pressure drop = 0.08" per 100 feet.
- f. Maximum supply air velocity = 1500 FPM.
- g. Return air ductwork and openings: Maximum velocity = 1000 FPM
- h. Provide security bars as required.
2. Toilet Exhaust
 - a. General and toilet exhaust design velocity will be maximum 1000 FPM
3. Kitchen Hood Exhaust Ductwork
 - a. This exhaust will be fabricated from 16 GA galvanized or 18 GA stainless steel ductwork and will include fire protective insulation (similar to 3M Firemaster) where clearance to combustibles is limited from the hood(s) to the exhaust fan(s).
4. Special Exhaust Ductwork
 - a. For specific exhaust applications, ductwork shall be rated for higher pressure classes.
 - b. Ducts discharging combustible material directly into any combustion chamber shall conform to the requirements of NFPA 82.
- .5 *Air Distribution Equipment, Air Devices:*
 - A. Refer to Pinellas County Design and Construction Standards for material specifications and specialty requirements for detention facilities.
 - B. Air devices to be heavy, industrial steel with no turn screw heads.
- .6 *Duct Insulation:*
 - A. General
 1. Duct insulation shall conform to the requirements of Florida Building Code, Mechanical, Section 604, Insulation.
 2. Exposed ductwork shall be insulated with rigid board insulation.
 3. Concealed ductwork shall be insulated with fiber wrap.
 4. Insulation should be exterior to the duct and not come in contact with the air stream.
- .7 *Special Exhaust Systems:*
 - A. General
 1. All mechanical exhaust systems shall conform to the requirements of Florida Building Code, Mechanical, Chapter 5, unless otherwise specified.
 - B. Clothes Dryer Exhaust
 1. Consult manufacturer's instructions when installing exhaust system. Dryer exhaust shall be independent of all other exhaust systems.
 2. Each vertical riser shall be provided with a means for cleanout.
 3. Lint trap provided on dryer duct run prior to fan.
 4. Each dryer exhaust termination outside of the building shall be provided with a back draft damper.
 5. Dryer exhaust ducts shall not be connected or installed with sheet metal screws or other fasteners that will obstruct the exhaust flow.
 - C. Commercial Kitchen Hood Ventilation and Exhaust Equipment
 1. Kitchen exhaust hoods shall be selected and specified by kitchen consultant and coordinated with the appropriate disciplines.
 2. Commercial kitchen grease ducts shall be designed for the type of cooking appliance and hood served. Unless otherwise specified, grease hoods and grease hood duct systems shall conform to NFPA 96.

Project Description

3. Coordinate with kitchen and laundry consultant for detailed information on equipment specifications and requirements.
- D. Dish Washer Exhaust and other Kitchen Exhaust Equipment
 1. Exhaust rates to be selected and specified by kitchen consultant and coordinated with the appropriate disciplines.

10.6 Terminal and Packaged Units

- .1 *Unitary Air Conditioning Equipment:*
 - A. Split DX Systems
 1. Elevator Control Room shall be conditioned with a single, split DX air conditioning system. (Elevator Control Room could possibly be conditioned by a chilled water fan coil unit depending on elevator type)
- .2 *Fan Coil Units:*
 - A. 3rd floor Central Energy Plant conditioned spaces and specific spaces in the new Maintenance and Warehouse buildings will be conditioned using Fan Coil Units.
 - B. Spaces requiring dedicated cooling will be served by a fan coil unit, ie electric rooms, IT Rooms, Control Rooms.
- .3 *Terminal Units:*
 - A. Variable Air Volume Terminal units will be used with VAV air handling units to condition individual zones.
 - B. VAV units shall be of double-wall construction.
 - C. VAV units shall include electric heat.
- .4 *Energy Recovery Units:*
 - A. Wheel energy recovery ventilator

10.7 Hydronic Distribution

- .1 *Hydronic Piping:*
 - A. Chilled/ Hot Water
 1. Aboveground NPS 2" and smaller shall be either of the following:
 - a. Steel ASTM A 53 Type S Grade B
 2. Aboveground NPS 2-1/2" shall be the following:
 - a. Steel ASTM A 53 Type S Grade B
 - B. Condenser Piping
 1. Material shall be - Steel ASTM A 53 Type S Grade B
 - C. Condensate Drain Piping
 1. Material shall be – ASTM B 88 Type M H58 hard-drawn copper tubing.
 2. Condensate disposal systems shall conform to Florida Building Code, Mechanical, Section 307, Condensate Disposal
 - D. Steam Piping
 1. Steam Piping shall be the following:
 - a. Schedule 80, Type S, Grade B, steel pipe; Class 125 cast-iron fittings and threaded joints.
- .2 *Hydronic Specialties:*
 - A. Provide Hydronic Specialties including but not limited to:
 1. Air Vents
 2. Expansion Tanks
 3. Air Separators
 4. Chemical Treatment
- .3 *Hydronic Valves:*
 - A. Provide valves for:
 1. Isolation Valves
 2. Check Valves

Project Description

3. Shut Off Valves
 4. Control Valves
 5. Pressure Reducing Valves
- .4 *Pumps:*
- A. All HVAC Hydronic system pumps shall be located on the 3rd floor of the Central Energy Plant building.
 1. Pumps shall be centrifugal with a factory mounted steel base.
 2. Pumps shall be bronze fitted.
 3. Seals to be mechanical.
 4. All pumps to have VFD's.
 - B. Chilled Water Circuit
 1. Chilled Water Circuit shall be piped in a variable primary flow (VPF) configuration. Each pump shall be included with its own VFD
 - a. Absorption Chillers
 - i. (1) Primary pump shall be provided for each absorption chiller and (1) redundant primary pump shall be tied into the primary loop for the absorption chillers.
 - b. Electric Chillers
 - i. (1) Primary pump shall be provided for each electric chiller and (1) redundant primary pump shall be tied into the primary loop for the electric chillers.
 2. (1) Chemical treatment system shall be provided for the entire Chilled Water circuit.
 - C. Condenser Water Circuit
 1. Absorption Chillers
 - a. (1) Condenser water pump shall be provided for each absorption chiller and (1) redundant pump shall be provided for the absorption chillers' common condenser water circuit.
 2. Electric Chillers
 - a. (1) Condenser water pump shall be provided for each electric chiller and (1) redundant pump shall be provided for the electric chillers' common condenser water circuit.
 3. (1) Chemical treatment system shall be supplied for each of the: (1) Absorption Chiller Condenser water circuit and the (1) Electric Chiller Condenser water circuit.
 - D. System Pumps
 - a. (1) Primary pump shall be provided for system loop and (1) redundant pump.
- .5 *Piping Insulation:*
- A. General
 1. Pipe insulation installed in buildings shall conform to the requirements of the Florida Building Code, Energy Conservation; shall be tested in accordance with ASTM E 84 or UL 723, using the specimen preparation and mounting procedures of ASTM E 2231; and shall have a maximum flame spread index of 25 and a smoke-developed index not exceeding 450. Insulation installed in an air plenum shall comply with Section 602.2.1 of the Florida Building Code, Mechanical.
 - a. Foam glass for chilled water piping 2" and larger.
 - b. Armaflex for condensate piping.
 - c. All other piping: fiberglass
 - d. Exterior piping and Insulation located at a height below 8' shall be protected with metal jacketing.

10.8 HVAC Supports

- .1 *Mechanical Supports:*
- A. All Mechanical equipment shall comply with installation, support and service clearance requirements found in Florida Building Code, Mechanical, Chapter 3, General Regulations.

Project Description

- .2 *Piping Supports:*
 - A. All Mechanical piping shall be supported in accordance with Florida Building Code, Mechanical, Section 305.
 - 1. Piping shall be supported at distances not exceeding the spacing specified in Table 305.4, or in accordance with MSS SP-69 and MSS SP-58.
- .3 *Ductwork Supports:*
 - A. Ductwork shall be supported by an approved method using approved hangers at intervals not exceeding 10 feet.
 - 1. Refer to Florida Building Code, Mechanical, Section 603.10 for more information.
- .4 *Vibration Isolation:*
 - A. Mechanical Equipment
 - 1. Mechanical equipment installed on the roof of any structure shall follow guidelines state in Florida Building Code, Mechanical, Sections 301 and 304.
 - a. Refer to Pinellas County Design and Construction standards for additional installation and vibration requirements.

10.9 HVAC Clearances

- .1 *Mechanical Clearances:*
 - A. All Mechanical equipment shall have sufficient access space to provide for routine maintenance and procedures.
 - B. Clearance from any adjacent wall to equipment or pipe work shall be a minimum of 2'6" or manufacture's recommended clearance, whichever is greater.

10.10 Identification

- .1 *Mechanical Identification:*
 - A. Permanently installed engraved laminate plastic signs for Equipment
 - B. Duct labels
 - C. Label Content
 - D. Equipment Label Schedule
- .2 *Piping Identification:*
 - A. Paint piping per Design and Construction Standards.
 - B. Pipe Labels
 - C. Valve Tags
 - D. Valve Schedule

10.11 HVAC Instrumentation and Controls

- .1 *Energy Management and Conservation Systems:*
 - A. Manufacturer- KMC
- .2 *HVAC Instrumentation and Controls, General:*
 - A. All controls shall be DDC controls systems compatible with existing controls systems installed on the PCJC campus.
 - B. All Air and Water systems serving the Central Energy Plant building will be controlled by a Building Automation System (BAS) located on the 3rd floor of the building
 - C. Any Hydronic water systems being connected into the new chilled water piping service provided by the Central Energy Plant will also be controlled at the Central Energy Plant.
 - D. Long-term Master Planning scope is to connect all buildings and systems on the PCJC campus to a master BAS system at the Central Energy Plant.
- .3 *HVAC Sequence of Operation:*
 - A. Plant
 - B. Air Handlers

Project Description

- C. Fan Coils
- D. Exhaust Systems

10.12 Testing, Adjusting and Balancing

- .1 *Air and Piping Systems: Testing, Adjusting and Balancing:*
 - A. Testing, Adjusting and Balancing shall be performed by a TAB contractor certified by AABC.
 - B. Systems to be tested:
 - 1. Balancing Air Systems:
 - a. Constant-volume air systems
 - b. Variable-air-volume systems
 - c. Exhaust systems
 - 2. Balancing Hydronic Piping Systems:
 - a. Plant
 - b. Variable-flow Hydronic systems

10.13 HVAC Training

- .1 *Training: General:*
 - A. Facility Management will identify training needs.
 - B. Training sessions to be videotaped and tapes given to the County at Substantial Completion
 - C. Minimum amount of training:
 - HVAC Controls- 8 hours
 - VAV Boxes- 2 hours
 - Variable Speed Drives- 8 hours
 - Boiler and Associated Controls- 8 hours
 - Chillers- 8 hours
 - Air handling units, fans, and other HVAC equipment- 8 hours

10.14 Commissioning of HVAC Systems

- .1 *Commissioning, General:*
 - D. Provide Project-specific construction checklists and commissioning process test procedures for actual HVAC&R systems, assemblies, equipment, and components to be furnished and installed as part of the construction contract.
- .2 *Commissioning, Required Functional Testing:*
 - A. Scope of HVAC&R testing shall include entire HVAC&R installation, from central equipment for heat generation and refrigeration through distribution systems to each conditioned space. Testing shall include measuring capacities and effectiveness of operational and control functions. Test all operating modes, interlocks, control responses, and responses to abnormal or emergency conditions, and verify proper response of building automation system controllers and sensors.
- .3 *Commissioning, Reporting:*
 - A. Provide test data, inspection reports, and certificates in a Systems Manual.

11 – FIRE SUPPRESSION CRITERIA

11.1 General

- .1 *Governing Codes, Standards and Regulations:*
 - A. The following codes and guides will be in effect during the design and construction of this project:
 - 1. 2010 Florida Building Code, Building
 - 2. NFPA 13 – Standard for the Installation of Sprinkler Systems
 - 3. NFPA 14 – Standard for the Installation of Standpipe and Hose Systems
 - 4. NFPA 20 – Standard for the Installation of Stationary Fire Pumps for Fire Protection
 - 5. NFPA 24 – Installation of Private Fire Service Mains and Their Appurtenances.
 - 6. Pinellas County Design and Construction Standards
 - B. Construction Permitting: Pinellas County, Florida is the jurisdiction having authority for the construction of the Infrastructure Upgrade project.

11.2 Piping Materials

- .1 *Standard-Pressure, Wet-Pipe Sprinkler System, [NPS 2 and Smaller]:*
 - A. Schedule 40, black steel pipe with threaded ends and uncoated, gray iron fittings.
- .2 *Standard-Pressure, Dry-Pipe Sprinkler System, [NPS 2 and Smaller]:*
 - A. Schedule 40, galvanized-steel pipe with threaded ends and galvanized, gray iron fittings.
- .3 *Standard-Pressure, Wet-Pipe Sprinkler System, [NPS 2-1/2 and Larger]:*
 - A. Schedule 40, black steel pipe with threaded ends and uncoated fittings.
- .4 *Standard-Pressure, Dry-Pipe Sprinkler System, [NPS 2-1/2 and Larger]:*
 - A. Schedule 40, galvanized-steel pipe with threaded ends and galvanized fittings.

11.3 Sprinkler Materials

- .1 *Sprinkler Types:*
 - A. Rooms without Ceilings: Upright sprinklers.
 - B. Rooms with Suspended Ceilings: Pendent or Recessed sprinklers.
 - C. Wall Mounting: Sidewall sprinklers.
 - D. Spaces Subject to Freezing: Upright, pendent, dry sprinklers; and sidewall, dry sprinklers.
- .2 *Sprinkler Finishes:*
 - A. Pendent/Recessed Sprinklers: Bright chrome, with bright chrome escutcheon.
 - B. Upright, Pendent and Sidewall Sprinklers: Chrome plated in finished spaces exposed to view; rough bronze in unfinished spaces not exposed to view; wax coated where exposed to acids, chemicals, or other corrosive fumes.

11.4 Valves

- .1 *Ball Valves:*
 - A. Valves NPS 1-1/2 and Smaller: Bronze body with threaded ends.
 - B. Valves NPS 2 and NPS 2-1/2: Bronze body with threaded ends or ductile-iron body with grooved ends.
 - C. Valves NPS 3: Ductile-iron body with grooved ends.
- .2 *Indicating Butterfly Valves:*
 - A. Valves NPS 2 and Smaller: Ball or butterfly.
 - B. Valves NPS 2-1/2 and Larger: Butterfly.
 - C. Valve Operation: Integral electrical, 115-V ac, prewired, single-circuit, supervisory switch with visual indicating device.

Project Description

11.5 Sprinkler Occupancy Classification

- .1 *Sprinkler System Design Criteria for all public spaces and offices*
 - A. Occupancy Classification: Light Hazard
 - B. Density: 0.10 GPM/Sq. ft
 - C. Hydraulic Remote Area: 1,500 sq. ft.
 - D. Outside Hose Stream Allowance: 100 GPM
 - E. Duration of Supply: 30 minutes
 - F. Maximum Coverage per Sprinkler: 225 sq. ft.
- .2 *Sprinkler System Design Criteria for all mechanical rooms, electrical rooms, and telecom rooms*
 - A. Occupancy Classification: Ordinary Hazard (Group I)
 - B. Density: 0.15 GPM/Sq. Ft.
 - C. Hydraulic Remote Area: 1,500 sq. ft.
 - D. Outside Hose Stream Allowance: 250 GPM
 - E. Duration of Supply: 60 – 90 minutes
 - F. Maximum Coverage per Sprinkler: 130 sq. ft.
- .3 *Sprinkler System Design Criteria for storage rooms defined per NFPA 13-Chapter 13 Miscellaneous Storage – Class III Commodities*
 - A. Occupancy Classification: Ordinary Hazard (Group II)
 - B. Density: 0.20 GPM/Sq. Ft.
 - C. Hydraulic Remote Area: 1,500 sq. ft.
 - D. Outside Hose Stream Allowance: 250 GPM
 - E. Duration of Supply: 60 – 90 minutes
 - F. Maximum Coverage per Sprinkler: 130 sq. ft.

11.6 Commissioning of Fire Suppression Systems

- .1 *Commissioning, Required Functional Testing:*
 - A. Wet-Pipe Sprinkler System
 - B. Dry-Pipe Sprinkler System

12 – Electrical Service and Distribution Design Criteria

12.1 General

.1 Governing Codes Standards and Regulations:

- A. The following codes and standards will be used as part of the electrical design criteria for the project:
 - 1. Florida Building Code 2010 Edition
 - 2. Florida Fire Prevention Code 2010 Edition
 - 3. National Fire Protection Association (NFPA):
 - a. NFPA 70-2008 Edition. National Electrical Code
 - b. NFPA 70E-2011 Edition. Standard for Electrical Safety in the Workplace
 - c. NFPA 72-2007 Edition. National Fire Alarm Code
 - d. NFPA 110-2005 Edition. Standard for Emergency and Standby Power Systems
 - e. NFPA 780-2011 Edition. Standard for the Installation of Lightning Protection Systems
 - 4. Pinellas County Design and Construction Standards
 - 5. Institute of Electrical and Electronic Engineers (IEEE)
 - a. IEEE- 1547 Standard for Interconnecting Distributed Resources with Electric Power Systems.
- B. Construction Permitting: Pinellas County, Florida is the jurisdiction having authority for the construction of the Infrastructure Upgrade project.
- C. Provide complete electrical commissioning services to test entire co-generation system functionality. Testing to include verification of all interconnection items as required by Duke Energy.

12.2 Main Electrical Service

.1 General

- A. The main electrical service for the new Kitchen/Laundry/Central Plant building will be supplied by Duke Energy. The primary circuits will be picked up at the North side of the Health Building and routed outside of the secure perimeter of the existing perimeter road the is on the North and west side of the project site. In addition to the new Kitchen/Laundry/Central Plant building, the primary service that serves the 'A', 'B' and 'C' Barracks will require to be refed from the new primary circuit extension. The existing primary circuits that currently serve the Kitchen, Visitation, Laundry, as well as 'A', 'B' and 'C' Barracks will be demolished to accommodate the future master plan phases once the new facility is constructed and current facilities are demolished.
- B. The Kitchen/Laundry/Central Plant Phase1 building load will be approximately 4400KVA at final build out. This represents the worse case load with all chilled water production from electric chillers. The proposed service to the building will be 2500KVA, 480/277 Volt served from a pad mounted transformer locate outside the secure perimeter as near as possible to the building, that will feed the co-generation switchgear. An additional 2000KVA service will be required to feed additional switchgear for the second electric chiller. The total worst case load for the building would be for present and future chilled water production coming from electric chillers(both Gas Generators inoperable) totaling 6,900KVA of load. This is based on full load operation of the electric chilled water equipment.
- C. Emergency power for the 'A' and 'B' Barracks is currently provided by the generator located at the Visitor/Food Service Buildings. These buildings along with the generators will be demolished as part of the Phase 1 construction. The existing transfer switches for these buildings will require to be refed from the new Kitchen/Laundry/Central Plant system to maintain the alternate power source for the buildings.

.2 Co-Generation Service

Project Description

- A. The first phase of the project will include a 2.2MW, 480/277 Volt natural gas fueled generator. This will be expanded in future phases of the master plan implementation to two, 2.2 MW, 480/277 Volt natural gas generators and an additional future 2500 KVA service from Duke Energy. The generators will be the prime source of electricity for the Kitchen/Laundry/Central Plant building as well as future housing buildings. The generators will also be interconnected in parallel with Duke Energy's electrical distribution system serving the existing site. All excess electrical power generated by the units will be available to be sold back to Duke Energy for agreed rates in accordance with their standards. Refer to the mechanical narrative for heat recovery use of these units.
- B. The main service switchgear will be sized at 4000 amperes, 480/277 volt three phase four wire. The switchgear will be sized to accommodate the first phase load for the project as well as all future loads that will be associated with future phases, and existing chilled water capacity designed to serve existing buildings on the campus as outlined in the master plan update. The switchgear will consist of four – 4000 ampere main/paralleling circuit breakers. Two of the circuit breakers will be for the phase one loads that will be connected to the Duke Energy Service and the phase one generator. All relaying requirements will be furnished as required by interconnection agreements required by Duke Energy. The switchgear will have distribution breakers to serve loads in the new Kitchen/Laundry/Central Plant building and be designed to accommodate all future buildings.
- C. Distribution for the new Kitchen/Laundry/Central Plant will consist of switchboards, transformers, and branch circuit panels located within electrical rooms on each level of the building. Mechanical equipment associated with the Energy plant will be served from equipment switchboards located within the electrical room on the third level of the plant. Refer to electrical riser diagram for conceptual electrical distribution for the building and its programmed elements.

12.3 Main Electrical Distribution Equipment

- .1 *General:* The main electrical distribution equipment shall consist of drawout switchgear with individual drawout circuit breakers and switchboards consisting of group mounted, molded case circuit breakers. The main service switchgear and paralleling switchgear will be drawout construction. Switchboards providing feeder protection for mechanical equipment and electrical feeders for branch circuit panelboards will have group mounted molded case circuit breakers.
 - A. Main Electrical switchgear will have the following design features:
 - 1. Underwriters Laboratory(UL) 1558 construction
 - 2. Power circuit breakers that comply with IEEE C37.13. Circuit breakers shall be rated for 100% continuous operation of rated load. Operating mechanism shall be mechanically and electrically trip-free, stored energy operating mechanism with manual and electrical charging. All circuit breakers shall have electronic trip units with long time, long time delay, short time, short time delay, instantaneous and ground fault trip adjustments.
 - 3. Drawout features to include circuit breaker mounting assembly equipped with racking mechanism to position circuit breaker and hold it in connected, test and disconnected positions
 - 4. Mimic Bus arranged in single line diagram format.
 - B. Distribution Switchboards will have the following design features:
 - 1. UL 891 Construction
 - 2. Molded case circuit breakers that comply with UL 489 standards
 - 3. Thermal magnetic trip with adjustable magnetic trip for circuit breaker frame sizes 250 amperes and below. AIC Rating shall meet the calculated project requirements.
 - 4. Electronic trip circuit breakers with field replaceable rating plug. Circuit breaker to have time, long time delay, short time, short time delay, and instantaneous trip adjustments. AIC rating shall meet calculated project requirements.

12.4 Grounding and Bonding

- .1 *General:* All electrical equipment including switchgear, distribution switchboards, panelboards, raceway systems and devices shall be grounded in accordance with the National Electrical Code Article 250 – Grounding and Bonding.
- A. *Description of System:* In general, all electrical equipment (metallic conduit, motor frames, panelboards, etc.) shall be bonded together with a green insulated copper system grounding conductor in accordance with specific rules of Article 250 of the NEC. Equipment grounding conductors through the raceway system shall be continuous from main switch ground bus to panel ground bar of each panelboard, and from panel grounding bar of each panelboard to branch circuit equipment and devices.
 - B. *Equipment Grounding Conductors:* All raceways shall have an insulated copper system ground conductor run throughout the entire length of circuit installed within conduit in strict accordance with NEC. Grounding conductor shall be included in total conduit fill when determining conduit sizes.
 - C. *Redundant Grounding:* In general all branch circuits shall be provided with a redundant grounding system through the use of grounding conductors and metallic conduit.
 - D. *For grounding electrode system,* install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.
 - E. *Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:*
 - 1. Feeders and branch circuits.
 - 2. Lighting circuits.
 - 3. Receptacle circuits.
 - 4. Single-phase motor and appliance branch circuits.
 - 5. Three-phase motor and appliance branch circuits.
 - 6. Flexible raceway runs.
 - F. *Grounding Manholes and Handholes:* Install a driven ground rod through manhole or handhole floor, close to wall, and set rod depth so 4 inches will extend above finished floor. If necessary, install ground rod before manhole is placed and provide No. 1/0 AWG bare, tinned-copper conductor from ground rod into manhole through a waterproof sleeve in manhole wall. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive insulating tape or heat-shrunk insulating sleeve from 2 inches above to 6 inches below concrete.
 - G. *Provide a separately derived grounding system as required by the National Electrical Code. Bond neutral and ground busses together. Provide a separately derived grounding system for all building electrical services and step-down transformers.*

12.5 Interior Electric Distribution Transformers

- .1 *General:* Provide dry type transformers sized as required to transform distribution voltage to required voltage needed to supply appliances, light fixtures and receptacles in the new Kitchen/Laundry/Central Plant building
- A. *General transformer Requirements are as follows:*
 - A. *Description:* Factory-assembled and -tested, air-cooled units for 60-Hz service.

Project Description

- a. Cores: Grain-oriented, non-aging silicon steel.
- b. Coils: Continuous windings without splices except for taps.
- c. Internal Coil Connections: Brazed or pressure type.
- d. Usually retain aluminum option in subparagraph below. See Evaluations for discussion of copper vs. aluminum winding material.
- e. Coil Material: Copper.

12.6 Electrical Panelboards

- .1 *General:* Electrical branch circuit panelboards and distribution panelboards shall be provided for overcurrent protection of branch circuits required feed lighting, equipment, and appliance loads in the new Kitchen/Laundry/Central Plant building.
 - A. Distribution and branch circuit panelboards shall comply with NEMA PB 1.
 - B. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.
 - C. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
 - D. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
 - E. Electronic trip circuit breakers with rms sensing above 800A; field-replaceable rating plug or field-replicable electronic trip; and the following field-adjustable settings:
 - 1. Instantaneous trip.
 - 2. Long- and short-time pickup levels.
 - 3. Long- and short-time time adjustments.
 - F. Panelboard Short-Circuit Current Rating: Rated for series-connected system with integral or remote upstream overcurrent protective devices and labeled by an NRTL. Include size and type of allowable upstream and branch devices, listed and labeled for series-connected short-circuit rating by an NRTL.

12.7 Package Engine Generators

- .1 *General:* A natural gas fired generator will be provided as the prime source of power for the new Kitchen/Laundry/Central Plant building. The generator system will be interconnected with Duke Energy to be able to sell back excess generating capacity to the utility grid.
 - A. *General:* The rating of the engine-generator shall be as listed below and based on operation when equipped with all operating accessories, including air cleaners, fans, lubricating oil pumps, and jacket water pump. The specified standby KW shall be rated for continuous electrical service. The engine generator shall have the following ratings;
 - 1. Prime KW: 2200 kW/ 2850 kVA
 - 2. Engine Speed: 1,800 RPM (maximum)
 - 3. Voltage: 480 volts, 3 phase, 4 wire
 - 4. Frequency: 60 hertz
 - 5. Power Factor: .8
 - 6. Ambient Temperature: 110 degrees Fahrenheit maximum, 25 degrees Fahrenheit minimum.
 - B. Generator-Set Performance for Sensitive Loads:
 - 1. Oversizing generator compared with the rated power output of the engine is permissible to meet specified performance.
 - 2. Nameplate Data for Oversized Generator: Show ratings required by the Contract Documents rather than ratings that would normally be applied to generator size installed.
 - 3. Steady-State Voltage Operational Bandwidth: 1 percent of rated output voltage from no load to full load.

Project Description

4. Transient Voltage Performance: Not more than 10 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within 0.5 second.
5. Steady-State Frequency Operational Bandwidth: Plus or minus 0.25 percent of rated frequency from no load to full load.
6. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.
7. Transient Frequency Performance: Less than 2-Hz variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within three seconds.
8. Output Waveform: At no load, harmonic content measured line to neutral shall not exceed 2 percent total with no slot ripple. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50 percent.
9. Sustained Short-Circuit Current: For a 3-phase, bolted short circuit at system output terminals, system shall supply a minimum of 300 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to winding insulation or other generator system components.
10. Excitation System: Performance shall be unaffected by voltage distortion caused by nonlinear load.
11. Provide permanent magnet excitation for power source to voltage regulator.

12.8 Lightning Protection

- .1 *General:* The new Kitchen/Laundry/Central Plant building will be provided with a lightning protection system in accordance with NFPA 780. In addition to lightning protection, the building shall also have Surge Protective Devices installed at the main switchgear and downstream panels to protect internally and externally generated electrical transients.
 - A. The lightning protection system shall consist of an assembly of roof mounted air terminals, loop conductors, down conductors, and ground rods installed in accordance with NFPA 780.
 - B. All down conductors and grounding conductors shall be copper.
 - C. All loop conductors shall be copper or aluminum, material shall be compatible with roofing materials.
 - D. All down conductors, and interior conductors shall be concealed
 - E. Main service grounding shall be tied to the lightning protection system.
 - F. All ground connections shall be exothermic welds
 - G. Surge protection devices shall be UL1449 3rd Edition listed.
 - H. Suppressors shall be installed at Service Entrance switchboards and distribution equipment where shown as close as practical to equipment to be protected consistent with the available space. Where installation space permits and where no code restrictions apply, suppressors may be installed within protected equipment. Suppressors installed in this manner shall utilize the equipment ground bus or enclosure as a medium for bonding of their ground terminals. Bonding jumpers not exceeding two inches in length shall be installed between the ground bus or enclosure and suppressor ground terminals. Bolted connections with star washers shall be used to insure electrical and mechanical integrity of connections to the ground bus or enclosure. Remove paint where connections are made to the enclosure. Conductors from suppressors shall attach to main service bus in the service entrance equipment on the load side of the main overcurrent device and any electrical metering equipment.

13 – Electrical Lighting and Branch Wiring Design Criteria

13.1 General

.1 Governing Codes Standards and Regulations:

- A. The following codes and standards will be used as part of the electrical design criteria for the project:
 - 1. Florida Building Code 2010 Edition
 - 2. Florida Fire Prevention Code 2010 Edition
 - 3. National Fire Protection Association (NFPA):
 - a. NFPA 70-2008 Edition. National Electrical Code
 - b. NFPA 70E-2011 Edition. Standard for Electrical Safety in the Workplace
 - c. NFPA 72-2007 Edition. National Fire Alarm Code
 - d. NFPA 110-2005 Edition. Standard for Emergency and Standby Power Systems
 - e. NFPA 780-2011 Edition. Standard for the Installation of Lightning Protection Systems
 - 4. Pinellas County Design and Construction Standards
 - 5. Institute of Electrical and Electronic Engineers (IEEE)
 - a. IEEE- 1547 Standard for Interconnecting Distributed Resources with Electric Power Systems.
- B. Construction Permitting: Pinellas County, Florida is the jurisdiction having authority for the construction of the Infrastructure Upgrade project.

13.2 Raceways and Conduit

- .1 General:* All feeders, branch circuit wiring, and fire alarm systems will be installed in conduit. Conduit concealed in wall and above ceilings will be electrical metallic tubing (EMT). All exposed conduit below 8'-0" AFF will be rigid galvanized steel conduit (RGS). Conduit below grade or in concrete slabs shall be schedule 40 PVC. All EMT fittings shall be steel compression type. All RGS fittings shall be threaded rigid steel.
- .2 Raceway Installations:* The following are general guidelines for use and installation of raceways:
 - A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:
 - 1. Exposed Conduit: Rigid steel conduit where subject to damage, Type EPC-40-PVC, elsewhere.
 - 2. Concealed Conduit, Aboveground: EMT.
 - 3. Underground Conduit: RNC, Type EPC-40-PVC, direct buried.
 - 4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
 - 5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
 - B. Comply with the following indoor applications, unless otherwise indicated:
 - 1. Exposed, Not Subject to Physical Damage: EMT.
 - 2. Exposed, Not Subject to Severe Physical Damage: EMT
 - 3. Exposed and Subject to Severe Physical Damage: Rigid steel conduit. Includes raceways in the following locations:
 - a. Loading dock.
 - b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
 - C. Mechanical rooms.

Project Description

1. Concealed in Ceilings and Interior Walls and Partitions: EMT.
2. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
3. Damp or Wet Locations: Rigid steel conduit.
4. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4, nonmetallic in damp or wet locations.
5. Exposed in secure areas below 15 feet AFF – Rigid Steel Conduit
- D. Minimum Raceway Size: 3/4-inch trade size.
- E. Raceway Fittings: Compatible with raceways and suitable for use and location.
- F. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated
- G. Direct-Buried Conduit:
 1. Excavate trench bottom to provide firm and uniform support for conduit Minimum depth 36" for service entrance and feeders; 24" for branch circuits.
 2. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction
 3. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.
 4. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
 5. For stub-ups at equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.

13.3 Conductors and Cables

- .1 *General:* All feeders and branch circuit wiring shall be copper type THWN. Minimum size conductor shall be #12 unless otherwise specified. Conductors size #10 and smaller shall be solid and conductors #8 and larger shall be stranded.
- .2 *Raceway Installations:* The following are general guidelines for use and installation of conductors:
 - A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
 - B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
 - C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable

13.4 Wiring Devices

- .1 *General:* Wiring devices to be provided for this project shall be not limited to the following devices:
 - A. Receptacles, receptacles with integral GFCI, and associated device plates.
 - B. Twist-locking receptacles.
 - C. Receptacles with integral surge suppression units.
 - D. Snap switches
 - E. Wall-switch and exterior occupancy sensors.
 - F. Pendant cord-connector devices.
 - G. Cord and plug sets.

Project Description

- H. Floor service outlets
- .2 *Coordination of equipment connections:* Coordinate all cord and plug sets for equipment provided under this project. All final connections to kitchen and laundry equipment shall be per specified equipment requirements. Match all current and voltage requirements of the equipment with the final connections.
- .3 *Wall plates for devices shall be as follows:*
 - A. Plate-Securing Screws: Metal with head color to match plate finish.
 - B. Material for Finished Spaces: 0.035-inch thick, satin-finished stainless steel.
 - C. Material for Unfinished Spaces: Galvanized steel.
 - D. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in "wet locations."

13.5 Electrical Supports

- .1 *General: Provide the following material for electrical support systems:*
 - A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
 - B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
 - C. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
 - D. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
 - E. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
 - F. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
 - G. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
 - H. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
 - I. Toggle Bolts: All-steel springhead type.
 - J. Hanger Rods: Threaded steel
- .2 *The following electrical support methods will be used as applicable in the new Kitchen/Laundry/Central Plant building:*
 - A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements are stricter.
 - B. Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.
 - C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 - D. Secure raceways and cables to these supports with single-bolt conduit clamps.
 - E. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.
 - F. Consult structural engineer for requirements in this Article.
 - G. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

Project Description

- H. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.
- I. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.
- J. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - K. To New Concrete: Bolt to concrete inserts.
 - L. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
- M. Retain first subparagraph below if powder-actuated devices are allowed. Consider deleting if Project contains both lightweight and standard-weight concrete or more than one thickness of concrete slab.
- N. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
- O. To Light Steel: Sheet metal screws.
- P. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.
- Q. Powder driven anchors and hangars shall not be permitted.

13.6 Electrical Identification

- .1 *General: Electrical systems in the new Kitchen/Laundry/Central Plant building shall be identified in the following manner:*
 - A. Concealed Raceways, Duct Banks, More Than 600 V, within Buildings: Tape and stencil 4-inch- wide black stripes on 10-inch centers over orange background that extends full length of raceway or duct and is 12 inches wide. Stencil legend "DANGER CONCEALED HIGH VOLTAGE WIRING" with 3-inch-high black letters on 20-inch centers. Stop stripes at legends. Apply to the following finished surfaces:
 - 1. Floor surface directly above conduits running beneath and within 12 inches of a floor that is in contact with earth or is framed above unexcavated space.
 - 2. Wall surfaces directly external to raceways concealed within wall.
 - 3. Accessible surfaces of concrete envelope around raceways in vertical shafts, exposed in the building, or concealed above suspended ceilings.
 - B. Accessible Raceways , for Service, Feeder, and Branch Circuits More Than 30A, and 120V to ground: Identify with self-adhesive vinyl label. Install labels at 30-foot maximum intervals.
 - C. System Identification Color Banding for Raceways and Cables: Each color band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

Project Description

D. Use following colors for color bands and for color coding:

<u>System</u>	<u>Color</u>
Life Safety	Bright Yellow
Equipment Branch	Kelly Green
Essential Distribution (from Generator to Generator Distribution Panel)	Purple
Normal Power	Royal Blue
Miscellaneous Communications	Brown
Fire Alarm	Red
Telephone\Computer	Black

- E. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of all systems with colors indicated in the wiring system legend. For all power circuits, indicate the panel & circuit number and system voltage on the box cover:
- F. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor insulation to identify the phase.
- G. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service feeder and branch-circuit conductors.
- H. Color shall be factory applied or field applied for all conductors, if authorities having jurisdiction permit.

Colors for 208/120-V Circuits:

- Phase A: Black.
- Phase B: Red.
- Phase C: Blue.

Colors for 480/277-V Circuits:

- Phase A: Brown.
- Phase B: Orange.
- Phase C: Yellow.

- I. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.
- J. Conductors to Be Extended in the Future: Attach write-on tags marker tape to conductors and list source.
- K. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.
- 1. Limit use of underground-line warning tape to direct-buried cables.
 - 2. Install underground-line warning tape for both direct-buried cables and cables in raceway.
- L. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Baked-enamel warning signs.
- 1. Comply with 29 CFR 1910.145.
 - 2. Identify system voltage with black letters on an orange background.
 - 3. Apply to exterior of door, cover, or other access.
 - 4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:
 - a. Power transfer switches.
 - b. Controls with external control power connections.
- M. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

Project Description

- N. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch-high letters for emergency instructions at equipment used for power transfer and load shedding.
- O. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.
 - 1. Labeling Instructions:
 - a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch-high letters on 1-1/2-inch-high label; where two lines of text are required, use labels 2 inches high.
 - b. Outdoor Equipment: Engraved, laminated acrylic or melamine label Stenciled legend 4 inches high.
 - c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
 - d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.
 - 2. Equipment to Be Labeled:
 - a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be self-adhesive, engraved, laminated acrylic or melamine label.
 - b. Enclosures and electrical cabinets.
 - c. Access doors and panels for concealed electrical items.
 - d. Switchboards.
 - e. Transformers: Label that includes tag designation shown on Drawings for the transformer, feeder, and panelboards or equipment supplied by the secondary.
 - f. Emergency system boxes and enclosures.
 - g. Enclosed switches.
 - h. Enclosed circuit breakers.
 - i. Enclosed controllers.
 - j. Variable-speed controllers.
 - k. Push-button stations.
 - l. Power transfer equipment.
 - m. Contactors.
 - n. Power-generating units.
 - o. Light switch cover plate. Provide 3/16 inch engraved and "filled in" lettering indicating panelboard and circuit number "where fed from" for all switches. Fill red coverplates with white filler. Fill white coverplates with black filler.

13.7 Interior Lighting

- .1 *General:* Lighting for the new Kitchen/Laundry/Central Plant building will be provided by LED Fixtures inasmuch as possible. In areas that are not inmate accessible, fixtures will be standard construction. In areas where inmates will be present, all fixtures will be high security construction with tempered glass lenses. Fixture mounting shall be compatible with ceiling types in individual areas:

Project Description

.2 Lighting Fixtures and Components shall conform to the following requirements:

- A. Recessed Fixtures: Comply with NEMA LE 4 for ceiling compatibility for recessed fixtures.
- B. Fluorescent Fixtures: Comply with UL 1598. Where LER is specified, test according to NEMA LE 5 and NEMA LE 5A as applicable.
- C. HID Fixtures: Comply with UL 1598. Where LER is specified, test according to NEMA LE 5B.
- D. Metal Parts: Free of burrs and sharp corners and edges.
- E. Sheet Metal Components: Steel, unless otherwise indicated. Form and support to prevent warping and sagging.
- F. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.
- G. Reflecting surfaces shall have minimum reflectance as follows, unless otherwise indicated:
 - 1. White Surfaces: 85 percent.
 - 2. Specular Surfaces: 83 percent.
 - 3. Diffusing Specular Surfaces: 75 percent.
 - 4. Laminated Silver Metallized Film: 90 percent.

.3 Ballasts for Fluorescent and HID Lighting shall conform to the following requirements:

- A. Electronic Ballasts: Comply with ANSI C82.11; instant-start type, unless otherwise indicated, and designed for type and quantity of lamps served. Ballasts shall be designed for full light output unless dimmer or bi-level control is indicated.
 - 1. Sound Rating: A.
 - 2. Total Harmonic Distortion Rating: Less than 10 percent.
 - 3. Transient Voltage Protection: IEEE C62.41, Category A or better.
 - 4. Operating Frequency: 20 kHz or higher.
 - 5. Lamp Current Crest Factor: 1.7 or less.
 - 6. BF: 0.85 or higher.
 - 7. Power Factor: 0.95 or higher.
 - 8. Parallel Lamp Circuits: Multiple lamp ballasts shall comply with ANSI C 82.11 and shall be connected to maintain full light output on surviving lamps if one or more lamps fail.
- B. Electronic Programmed-Start Ballasts for T5 and T5HO Lamps: Comply with ANSI C82.11 and the following:
 - 1. Lamp end-of-life detection and shutdown circuit for T5 diameter lamps.
 - 2. Automatic lamp starting after lamp replacement.
 - 3. Sound Rating: A.
 - 4. Total Harmonic Distortion Rating: Less than 20 percent.
 - 5. Transient Voltage Protection: IEEE C62.41, Category A or better.
 - 6. Operating Frequency: 20 kHz or higher.
 - 7. Lamp Current Crest Factor: 1.7 or less.
 - 8. BF: 0.95 or higher, unless otherwise indicated.
 - 9. Power Factor: 0.95 or higher.
- C. Ballasts for Low-Temperature Environments:
 - 1. Temperatures 0 Deg F and Higher: Electronic type rated for 0 deg F starting and operating temperature with indicated lamp types.
 - 2. Temperatures Minus 20 Deg F and Higher: Electromagnetic type designed for use with indicated lamp types.
 - 3. Ballasts for Dimmer-Controlled Lighting Fixtures: Electronic type.
 - 4. Dimming Range: 100 to 5 percent of rated lamp lumens.
 - 5. Ballast Input Watts: Can be reduced to 20 percent of normal.

Project Description

6. Compatibility: Certified by manufacturer for use with specific dimming control system and lamp type indicated.
7. Ballasts for Bi-Level Controlled Lighting Fixtures: Electronic type.
8. Operating Modes: Ballast circuit and leads provide for remote control of the light output of the associated lamp between high- and low-level and off.
9. High-Level Operation: 100 percent of rated lamp lumens.
10. Low-Level Operation: 50 percent of rated lamp lumens.
11. Ballast shall provide equal current to each lamp in each operating mode.
12. Compatibility: Certified by manufacturer for use with specific bi-level control system and lamp type indicated.

D. BALLASTS FOR HID LAMPS

1. Electronic Ballast for Metal-Halide Lamps: Include the following features unless otherwise indicated:
 - a. Lamp end-of-life detection and shutdown circuit.
 - b. Sound Rating: A.
 - c. Total Harmonic Distortion Rating: Less than 15 percent.
 - d. Transient Voltage Protection: IEEE C62.41, Category A or better.
 - e. Lamp Current Crest Factor: 1.5 or less.
 - f. Power Factor: .90 or higher.
 - g. Interference: Comply with 47 CFR, Chapter 1, Part 18, Subpart C, for limitations on electromagnetic and radio-frequency interference for non consumer equipment.
 - h. Protection: Class P thermal cutout.
2. Auxiliary Instant-On Quartz System: Factory-installed feature automatically switches quartz lamp on when fixture is initially energized and when power outages occur. System automatically turns quartz lamp off when HID lamp reaches approximately 60 percent light output.
3. High-Pressure Sodium Ballasts: Electromagnetic type, with solid-state igniter/starter. Igniter-starter shall have an average life in pulsing mode of 10,000 hours at an igniter/starter-case temperature of 90 deg C.
 - a. Instant-Restrike Device: Integral with ballast, or solid-state potted module, factory installed within fixture and compatible with lamps, ballasts, and mogul sockets up to 150 W.
 - b. Restrike Range: 105- to 130-V ac.
 - c. Maximum Voltage: 250-V peak or 150-V ac RMS.
 - d. Minimum Starting Temperature: Minus 40 deg F.
 - e. Open-circuit operation shall not reduce average lamp life.

.4 LED LIGHT FIXTURES

1. LED light fixtures shall be in accordance with IES, NFPA, UL, as shown on the drawings, and as specified. LED light fixtures shall be Reduction of Hazardous Substances (RoHS)-compliant. LED drivers shall include the following features unless otherwise indicated:
 - a. Minimum efficiency: 85% at full load.
 - b. Minimum Operating Ambient Temperature: -20° C. (-4° F.)
 - c. Input Voltage: 120 - 277V (±10%) at 60 Hz.
 - d. Integral short circuit, open circuit, and overload protection.
 - e. Power Factor: ≥ 0.95.
 - f. Total Harmonic Distortion: ≤ 20%.
 - g. Comply with FCC 47 CFR Part 15.
2. LED modules shall include the following features unless otherwise indicated:
 - a. Comply with IES LM-79 and LM-80 requirements.
 - b. Minimum CRI 80 and color temperature 3000° K unless otherwise specified in fixture schedule.

Project Description

- c. Minimum Rated Life: 50,000 hours per IES L70.
- d. Light output lumens as indicated in the LIGHTING FIXTURE SCHEDULE.
Housing, LED driver, and LED module shall be products of the same manufacturer.
- 3.. LED Troffers:
 - a. LED drivers, modules, and reflector shall be accessible, serviceable, and replaceable from below the ceiling. Housing, LED driver, and LED module shall be products of the same.

13.8 Lighting Control Equipment

- .1 *General:* This Section includes individually addressable lighting control devices communicating with data-entry and -retrieval devices using DALI protocol:
- .2 General System Requirements: Expandability: System shall be capable of increasing the number of control functions in the future by 25 percent of current capacity; to include equipment ratings, housing capacities, spare relays, terminals, number of conductors in control cables, and control software.
 - A. Performance Requirements: Manual switches, an internal timing and control unit, and external sensors or other control signal sources send a signal to a PC-based programmable-system control module that processes the signal according to its programming and routes an open or close command to one or more relays electrically operated circuit breakers in the power-supply circuits, or routes variable commands to one or more dimmers, for groups of lighting fixtures or other loads.
 - B. Retain BAS Interface: Provide hardware and software to enable the BAS to monitor, control, display, second subparagraph if extensive interface with the BAS is required and is beyond what hardwired points can provide. Requirement may exclude some manufacturers.
 - 1. ASHRAE 135 Industry-accepted, open-protocol communication interface with the BAS shall enable the BAS operator to remotely control and monitor lighting from a BAS operator workstation. Control features and monitoring points displayed locally at lighting panel shall be available through the BAS.
 - C. Remote Communication Capability: Allow programming, data-gathering interrogation, status display, and controlled command override from a PC at a remote location over DALI networks. System shall include modem, communications and control software, and remote computer compatibility verification for this purpose.
 - D. Telephone Override Capability: Override programmed lighting shutdown commands by telephoning computer and shall enter a voice-menu-guided, override touch-tone code specific to zone being controlled.
 - E. First subparagraph below may be applied whether or not remote communication is provided. Identify and locate override devices on Drawings. Add DALI-compliance requirement when applicable.
 - F. Local Override Capability: Manual, low-voltage control devices shall override programmed shutdown of lighting and shall override other programmed control for intervals that may be duration programmed.
 - G. Automatic Control of Local Override: Automatic control shall switch lighting off if lighting has been switched on by local override. Comply with provisions in California Code of Regulations, Title 24, Part 6.
 - H. Automatic battery backup shall provide power to maintain program and system clock operation for 90 days' minimum duration when power is off.

13.9 Exterior Lighting

- .1 *General:* The following is general criteria for exterior lighting fixtures to be used at the new Kitchen/Laundry/Central Plant building:

Project Description

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- A. Luminaires shall comply with UL 1598 and be listed and labeled for installation in wet locations by an NRTL acceptable to authorities having jurisdiction.
 - B. All exterior fixtures shall be high security construction.
 - C. Comply with IESNA RP-8 for parameters of lateral light distribution patterns indicated for luminaires.
 - D. Metal Parts: Free of burrs and sharp corners and edges.
 - E. Sheet Metal Components: Corrosion-resistant aluminum, unless otherwise indicated. Form and support to prevent warping and sagging.
 - F. Housings: Rigidly formed, weather- and light-tight enclosures that will not warp, sag, or deform in use. Provide filter/breather for enclosed luminaires.
 - G. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit re-lamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during re-lamping and when secured in operating position. Doors shall be removable for cleaning or replacing lenses. Designed to disconnect ballast when door opens.
 - H. Exposed Hardware Material: Stainless steel.
 - I. Plastic Parts: High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
 - J. Reflecting surfaces shall have minimum reflectance as follows, unless otherwise indicated:
 - K. White Surfaces: 85 percent.
 - L. Specular Surfaces: 83 percent.
 - M. Diffusing Specular Surfaces: 75 percent.
 - N. Lenses and Refractors Gaskets: Use heat- and aging-resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.
 - O. Revise paragraph below to include custom colors. Coordinate custom-color requirements for luminaires with those for poles and other luminaire support requirements.
 - P. Luminaire Finish: Manufacturer's standard paint applied to factory-assembled and -tested luminaire before shipping. Where indicated, match finish process and color of pole or support materials.
 - Q. Lamp source to be Light Emitting Diode(LED)

14.1 Fire Detection and Alarm System Design Criteria

.1 Governing Codes Standards and Regulations:

- A. The following codes and standards will be used as part of the electrical design criteria for the project:
 - 1. Florida Building Code 2010 Edition
 - 2. Florida Fire Prevention Code 2010 Edition
 - 3. National Fire Protection Association (NFPA):
 - a. NFPA 70-2008 Edition. National Electrical Code
 - b. NFPA 72-2007 Edition. National Fire Alarm Code
 - 4. Pinellas County Design and Construction Standards
- B. Construction Permitting: Pinellas County, Florida is the jurisdiction having authority for the construction of the Infrastructure Upgrade project

.2 General System Description: The fire alarm system for the new Kitchen/Laundry/Central Plant building UL certified addressable fire alarm system capable of network expandability to service future buildings as part of future master plan phases. The fire alarm system shall be based on a Notifier Fire Alarm System and shall be capable of interconnection with the existing fire alarm systems in the Central and South Division buildings to allow monitoring of their alarm status. The Fire Alarm System shall have the following components and functions:

- A. Fire-alarm signal initiation shall be by one or more of the following devices and systems:
 - 1. Manual stations.
 - 2. Heat detectors.
 - 3. Flame detectors.
 - 4. Smoke detectors.
 - 5. Duct smoke detectors.
 - 6. Verified automatic alarm operation of smoke detectors.
 - 7. Automatic sprinkler system water flow.
 - 8. Heat detectors in elevator shaft and pit.
 - 9. Fire-extinguishing system operation.
 - 10. Fire standpipe system.
- B. Fire-alarm signal shall initiate the following actions:
 - 1. Continuously operate alarm notification appliances.
 - 2. Identify alarm at fire-alarm control unit and remote annunciators.
 - 3. Transmit an alarm signal to the remote alarm receiving station.
 - 4. Unlock electric door locks in designated egress paths.
 - 5. Release fire and smoke doors held open by magnetic door holders.
 - 6. Activate voice/alarm communication system.
 - 7. Switch heating, ventilating, and air-conditioning equipment controls to fire-alarm mode.
 - 8. Recall elevators to primary or alternate recall floors.
 - 9. Activate emergency lighting control.
 - 10. Activate emergency shutoffs for gas and fuel supplies.
 - 11. Record events in the system memory.
- C. Supervisory signal initiation shall be by one or more of the following devices and actions:
 - 1. Valve supervisory switch.
 - 2. Elevator shunt-trip supervision.
 - 3. Duct smoke detector initiation
- D. System trouble signal initiation shall be by one or more of the following devices and actions:

Project Description

1. Open circuits, shorts, and grounds in designated circuits.
 2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
 3. Loss of primary power at fire-alarm control unit.
 4. Ground or a single break in fire-alarm control unit internal circuits.
 5. Abnormal ac voltage at fire-alarm control unit.
 6. Break in standby battery circuitry.
 7. Failure of battery charging.
 8. Abnormal position of any switch at fire-alarm control unit or annunciator.
 9. Fire-pump power failure, including a dead-phase or phase-reversal condition.
- E. System Trouble and Supervisory Signal Actions: Initiate notification appliance and annunciate at fire-alarm control unit and remote annunciators.

.3 System Components for the new Kitchen/Laundry/Central Plant building shall be as follows:

- A. General Requirements for Fire-Alarm Control Unit:
1. Field-programmable, microprocessor-based, modular, power-limited design with electronic modules, complying with UL 864 and listed and labeled by an NRTL.
 2. System software and programs shall be held in flash electrically erasable programmable read-only memory (EEPROM), retaining the information through failure of primary and secondary power supplies.
 3. Include a real-time clock for time annotation of events on the event recorder and printer.
 4. Addressable initiation devices that communicate device identity and status.
 - a. Smoke sensors shall additionally communicate sensitivity setting and allow for adjustment of sensitivity at fire-alarm control unit.
 - b. Temperature sensors shall additionally test for and communicate the sensitivity range of the device.
 5. Addressable control circuits for operation of mechanical equipment.
 6. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire-alarm control unit and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.
 - a. Annunciator and Display: Liquid-crystal type, 1 2 line(s) of 80 characters, minimum.
- B. Manual Pull Stations:
1. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.
 2. Double-action mechanism requiring two actions to initiate an alarm, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
 3. Station Reset: Key- or wrench-operated switch.
 4. Retain first subparagraph below if physical protection other than a wire guard is required for manual stations or if protection from false alarms is required. Delete horn if not required.
 5. Weatherproof Protective Shield: Factory-fabricated clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm.
- C. System Smoke Detectors
1. General Requirements for System Smoke Detectors:
 - a. Comply with UL 268; operating at 24-V dc, nominal.
 - b. Detectors shall be four wire type.

Project Description

- c. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
- d. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
- e. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
- f. Integral Visual-Indicating Light: LED type indicating detector has operated and power-on status.
- g. Remote Control: Unless otherwise indicated, detectors shall be analog-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition and individually adjustable for sensitivity by fire-alarm control unit.
 - 1) Rate-of-rise temperature characteristic shall be selectable at fire-alarm control unit for 15 or 20 deg F per minute.
 - 2) Fixed-temperature sensing shall be independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 or 155 deg F.
 - 3) Provide multiple levels of detection sensitivity for each sensor.
- 2. Photoelectric Smoke Detectors:
 - a. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
 - b. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:
 - 1) Primary status.
 - 2) Device type.
 - 3) Present average value.
 - 4) Present sensitivity selected.
 - 5) Sensor range (normal, dirty, etc.).
- 3. Duct Smoke Detectors: Photoelectric type complying with UL 268A.
 - a. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
 - b. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:
 - 1) Primary status.
 - 2) Device type.
 - 3) Present average value.
 - 4) Present sensitivity selected.
 - 5) Sensor range (normal, dirty, etc.).
 - a. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector.
 - b. Each sensor shall have multiple levels of detection sensitivity.
 - c. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
 - d. Relay Fan Shutdown: Rated to interrupt fan motor-control circuit.
- 4. Heat Detectors
 - a. General Requirements for Heat Detectors: Comply with UL 521.
 - b. Heat Detector, Combination Type: Actuated by either a fixed temperature of 135 deg F (or a rate of rise that exceeds 15 deg F per minute unless otherwise indicated).
 - 1) Mounting: Adapter plate for outlet box mounting Twist-lock base interchangeable with smoke-detector bases.
 - 2) Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

Project Description

- c. Heat Detector, Fixed-Temperature Type: Actuated by temperature that exceeds a fixed temperature of 190 deg F
 - 1) Mounting: Adapter plate for outlet box mounting Twist-lock base interchangeable with smoke-detector bases.
 - 2) Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

5. NOTIFICATION APPLIANCES

- a. General Requirements for Notification Appliances: Connected to notification appliance signal circuits, zoned as indicated, equipped for mounting as indicated and with screw terminals for system connections.
- b. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated and with screw terminals for system connections.
- c. Visible Notification Appliances: Xenon strobe lights comply with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch high letters on the lens.
- d. Rated Light Output:
 - 1) 15/30/75/110 cd, selectable in the field or as indicated on drawings
 - 2) Mounting: Wall mounted unless otherwise indicated.
 - 3) For units with guards to prevent physical damage, light output ratings shall be determined with guards in place.
 - 4) Flashing shall be in a temporal pattern, synchronized with other units.
 - 5) Strobe Leads: Factory connected to screw terminals.
 - 6) Mounting Faceplate: Factory finished, red.

15 - Integrated Security System Design Criteria

15.1 General Code Requirements

- .1 *General:* The Design/Builder shall utilize the following documents for the production of the design and construction of the Integrated Security System.
 - A. Factory Mutual Laboratories (FM).
 1. Underwriters Laboratories, Inc. (UL).
 2. National Electrical Manufacturers Association (NEMA).
 3. All work shall meet or exceed the standards and procedures of the following:
 - a. Federal Communications Commission (FCC):
 1. Part 15
 2. Part 68
 3. Part 76
 - b. American National Standard Institute/Telecommunications Industries Association/Electronics Industries Association (ANSI/TIA/EIA):
 1. Generic Telecommunications Cabling for Customer Premise ANSI/TIA/EIA - 568-C.0
 2. Optical Fiber Cabling and Component Standard ANSI/TIA/EIA - 568-C.3.
 3. Commercial Building Standard for Telecommunications Pathways and Spaces, 2003. ANSI/TIA/EIA – 569-B.
 4. Commercial Building Standard for Telecommunications Optical fiber cable color-coding, 2001. ANSI/TIA/EIA – 598-B.
 5. Fiber optic connector intermateability standard. ANSI/TIA/EIA – 604.2.
 6. Administration Standard for the Telecommunications Infrastructure of Commercial Buildings ANSI/TIA/EIA – 606-A.
 7. Commercial Buildings Grounding (Earthing) and Bonding Requirements for Telecommunications ANSI/TIA/EIA - 607.
 8. Customer owned outside plant telecommunications cabling standard, 1999 ANSI/TIA/EIA - 758.
 9. Customer owned outside plant telecommunications cabling standard, Addendum 1, OSP fiber optic cabling practices. 1999 ANSI/TIA/EIA – 758-1.
 10. Performance Specifications for field testing of Unshielded Twisted-Pair Cabling Systems TIA/EIA TSB-67.
 - c. National Fire Protection Association (NFPA)
 - d. National Electrical Code (NEC)
 1. Chapter 3
 2. Chapter 8
 - e. National Electrical Manufacturers Association (NEMA)
 - f. American Society of Testing Materials (ASTM)
 - g. Institute of Electronic & Electrical Engineers (IEEE)
 1. 1100 – Recommended practice for powering and grounding sensitive electronic equipment.
 2. Applicable sections of Project 802-2002, Standard for local and metropolitan area networks.
 - h. Americans With Disabilities Act (ADA)
 - i. Building Industry Consulting Service International (BICSI)
 1. TDMM current edition
 4. Federal Communications Commission (FCC) Part 76, on cable television.
 5. Underwriters Laboratories, Inc. (UL) #1459
 6. Underwriters Laboratories, Inc. (UL) #1863
 7. Underwriters Laboratories, Inc. (UL) # 444

Project Description

.2 Basic System Description**A. General:**

1. Integrating the multiple generations of security controls in the Pinellas County Jail requires that a single, consistent human machine interface be put in place throughout the campus.
2. Creation of a true Master Control facility will allow for a more current convention in terms of how the campus and building perimeter is controlled vs. the interior of the buildings and the housing units.
3. The technical requirements of the integrated system are based on standard fiber optic communications infrastructure and Ethernet communications systems. This network infrastructure will allow communication between each location on the entire integrated site and is the backbone on which all the technology resides.
4. The upgrade of these systems allows for the location, amount and type of control to be re-evaluated, relocated condensed or expanded throughout the campus.
5. The upgrade also allows for the inclusion of discrete systems such as utility control (TV power, water, lighting, etc.); intercom and paging, video surveillance and duress to be added to the primary function of door control.
6. Maintaining local control from the range panels while adding remote control will add the integrated system capabilities without reducing the current officer's capabilities on the unit.

B. Basic System Description – Infrastructure Building

1. The new Master Control will most likely be housed in the infrastructure building. Locating the new Master Control room in a new space allows it to be constructed without decommissioning any of the existing systems.
2. The new control room will contain touch screen and video display technology to allow the officers in this room to monitor and control the entire integrated site. The entire integrated site includes; Infrastructure Building (Control Center, Kitchen, Laundry and Central Plant), Maintenance/warehouse, South Division including buildings A, B, C, D, E, F and G, C Barracks, Central Division and Health Services Building.
3. The monitoring and control of the entire integrated site will be accomplished through the use of a PLC based integration platform with touch screen human machine interface, IP based video surveillance, audio intercommunications, wired and wireless duress and other miscellaneous systems.
4. Basic features of the control system include:
 - a. Locking control
 - b. Audio communications
 - c. Video surveillance monitoring
 - d. Video surveillance recording and playback
 - e. Utility control (water, lighting, TV and phone)
 - f. Duress annunciation
5. Advanced features:
 - a. Transaction logging
 - b. Hierarchical takeover
 - c. Video follow alarm
 - d. Video follow audio
 - e. Integrated intercommunications control via the HMI

Project Description

- f. Integrated video surveillance control via HMI
- C. Basic System Description – Maintenance/Warehouse
 - 1. Integrated security system criteria in the maintenance and warehouse buildings will be limited to monitoring of the perimeter doors, limited duress where non-custody staff will interact with inmate workers and video surveillance.
- D. Basic System Description South Facility (A,B, C, D, E and G)
 - 1. The existing control rooms in area A near the South division vehicle sallyport and in area B near the attorney visit rooms can be renovated and expanded to include a higher level of control throughout South division. On a day-to-day basis, these two control rooms can be made to be responsible for control of the perimeter of the South division with the control load being evenly divided between the two posts.
 - 2. Control of the cell front sliders can be accomplished by including new industrial operators in the mechanical release cabinets at the end of each range of sliders and adding the ability to control them from either the area A or area B control room as a secondary means of control.
 - 3. The ability to add the secondary means of control is facilitated by adding a network connection from the mechanical release cabinet back to the headend equipment and providing PLC equipment in the mechanical release cabinet to allow the devices to be controlled locally or remotely.
 - 4. In addition to the ability to control the cell from sliders via the new secondary controls in the area A and area B control rooms, by virtue of the ability to remotely control the sliders, they can also be controlled from the new Master Control in the infrastructure building via the network based on the hierarchical takeover scenarios.
 - 5. In addition to door control, the utility functions currently wall mounted in the unit control rooms can be integrated into the area A and area B control rooms and removed from the walls in the unit control rooms. Similarly, the paging system and video surveillance system can be integrated into the HMI.
- E. Basic System Description South Facility (F)
 - 1. The existing control rooms in area B near the attorney visit rooms can be renovated and expanded to include a higher level of control throughout South division including area F, primarily the first floor. On a day-to-day basis, this control room can be made to be responsible for control of movement onto and off of unit F.
 - 2. Control of the cell front sliders can be accomplished by including new industrial operators in the mechanical release cabinets at the end of each range of sliders and replacing the 4 control room graphic panels with touch screens as a secondary means of control.
 - 3. The ability to add the secondary means of control is facilitated by adding a network connection from the mechanical release cabinet back to the headend equipment and providing PLC equipment in the mechanical release cabinet to allow the devices to be controlled locally or remotely.
 - 4. In addition to the ability to control the cell from sliders via the new secondary controls in the rear F control room, by virtue of the ability to remotely control the sliders, they can also be controlled from the new Master Control in the infrastructure building via the network based on the hierarchical takeover scenarios.
 - 5. In addition to door control, the utility functions currently wall mounted in the unit control rooms can be integrated into the area B control room and removed from the

Project Description

walls in the unit control rooms. Similarly, the paging/intercommunications system and video surveillance system can be integrated into the HMI.

F. Basic system description – C Barracks

1. The existing control rooms, at the Front of C barracks and in the Housing (Left and Right Wings) can be renovated and expanded to include a higher level of control throughout C Barracks. On a day-to-day basis, these control rooms can be made to be responsible for control of movement onto and off of the unit.
2. Control of the cell front sliders can be accomplished by including new industrial operators in the mechanical release cabinets at the end of each range of sliders and replacing the Left and Right Wings Control Room graphic panels with touch screens as a secondary means of control.
3. The ability to add the secondary means of control is facilitated by adding a network connection from the mechanical release cabinet back to the headend equipment and providing PLC equipment in the mechanical release cabinet to allow the devices to be controlled locally or remotely.
4. In addition to the ability to control the cell front sliders via the new secondary controls in the Left and Right Wing Control Rooms, by virtue of the ability to remotely control the sliders, they can also be controlled from the Master Control in the infrastructure building via the network based on the hierarchical takeover scenarios.
5. In addition to door control, the utility functions currently wall mounted in the Left and Right Wing Control Rooms can be integrated into the Front Control Room and removed from the walls in the Left and Right Wing Control Rooms. Similarly, the paging/intercommunications system and video surveillance system can be integrated into the HMI.

G. Basic system description – Central Division

1. Central division is equipped with a PLC based touch screen HMI type system which dictates that the field devices are gathered at a central equipment room location or locations.
2. In this building, the locking controls and other integrated system functions will be maintained and or added to by replacing the PLC equipment and the HMI equipment. The current system architecture in central division is very similar to that of a newly renovated system. As such; the upgrade here will be minimally invasive.
3. Functionality of the system in central division will be much the same as it is today with a high level of graphics capabilities, more sophisticated animation of the icons, more effective use of saturated colors, faster response times between the change of state on a device and the change of state to the corresponding icon and high level integration.

H. Basic system description – Health Services Building

1. In this building, the locking controls and other integrated system functions will be maintained and or added to by replacing the HMI equipment. The PLC equipment in the health services building may or may not be replaced, that is yet to be determined. The current system architecture in the health services building is very similar to that of a newly renovated system. As such; the upgrade here will be minimally invasive.
2. Functionality of the system in the health services building will be much the same as it is today with a high level of graphics capabilities, more sophisticated animation of the icons, more effective use of saturated colors, faster response times between the

Project Description

change of state on a device and the change of state to the corresponding icon and high level integration.

.3 Major Components**A. General**

1. The major components of the system are consistent throughout the campus. The programmable logic controllers and human machine interface systems are constructed using the same building blocks in all areas.
2. Similarly, to maintain serviceability the video surveillance system, intercom system, utility control system and interposing relays will be the same throughout.

B. The components consist of the following:**1. PLC system**

- a. Each PLC SCADA (system control and data acquisition) cabinet consists of the following:
 1. Central processing unit (CPU)
 2. PLC Power supply
 3. Communications modules (communications can be via Ethernet, BACNET, RS-485, 20mA current loop or other common communications protocols)
 4. Backplane (used to house the various modules and distribute power to them)
 5. Input modules (used to monitor the status of devices in the field such as door position switches, duress buttons and other status devices)
 6. Output modules (used to control or change the state of devices such as electro-mechanical locks, electro-mechanical valves and power receptacles).
 7. Interposing relays (used to isolate the low voltage PLC control circuits from the various higher voltage control circuits)
 8. Termination equipment (used to terminate the field wiring to the fuse or circuit breaker protected control and monitoring circuits of the PLC).
 9. High capacity linear power supplies (used to power the low voltage interposing circuits and the position switch type monitoring circuits).

2. Video Surveillance System

- a. The video surveillance system is an enterprise wide system that is designed with the entire campus in mind as opposed to individual systems in individual buildings that are networked together to form a fabric of systems.
- b. The video surveillance system consists of:
 1. Surveillance cameras
 2. Camera mounting equipment
 3. Category 6, 4 pair unshielded twisted paired (UTP) cabling
 4. Category 6 Patch panels (used for termination of the UTP cabling at the headend).
 5. Laser optimized OM3 type 50 micron multimode and/or 8 micron single mode fiber optic cable (used for interconnecting edge switches back to the core).
 6. Fiber optic patch panels (used for termination the fiber optic cabling).
 7. Edge Ethernet switches (used to integrate the cameras into the network).
 8. Core Ethernet switches (used to connect the edge devices including the cameras and monitor stations to the servers and storage arrays).
 9. Encoders (used to connect an analog camera to the IP network).

Project Description

10. Decoders (used to decode an IP signal and allow it to be displayed on an analog monitor).
 11. Monitors (used to display video surveillance data).
 12. Servers (used to manage the network data as directed by the VMS software).
 13. Video management system software (used to allow the programming and set up of the video surveillance system including recording parameters, and camera to monitor assignments; this is the piece of the system that allows third party integration of the VMS with the Locking control system HMI).
 14. Storage Arrays (used to save the large amounts of video data required for typical recording durations).
 15. VMS Work Stations (used to allow human machine interface with the video management system).
3. Intercommunications system
 - a. The intercommunications system is built specifically for each building or unit; however they are networked across the campus to create a system with the capability to function as part of a larger integrated system.
 - b. The intercom system consists of:
 1. Exchanges (provides the intelligence for system operations and the required intercom amp, switching and control functions as well as third party integration).
 2. Expansion units (used to allow connection of more individual stations to an exchange).
 3. Master Audio Interface (used to allow the connection of a third party push to talk microphone to an exchange).
 4. Page zone expander (used to allow the addition of paging zones to an exchange).
 5. Intercom Stations (used to provide a means of half duplex communication between a remote location and a master station).
 6. Paging speaker (used to provide overhead paging capabilities by zone or by all call from an exchange master location).
 7. Exchange communications allows third party integration with the HMI.
4. Touch screen HMI
 - a. The human machine interface is made up of the touch screen monitor and its associated computer.
 - b. The touch screen monitor is typically a high definition display in a 16:9 format. Sizes range from 20" in limited use applications such as a small local control location with few devices to control up to and including 32" displays where a full control load requires the larger screen size.
 - c. The associated computer is a standard PC. The important features are the processor, the video graphics capabilities, memory and network interface.
5. Ethernet LAN
 - a. The system wide communications backbone is an Ethernet LAN. The LAN encompasses the entire site and the topology will vary depending on the needs of each building and whether or not a redundant or self healing feature is desired.
 - b. The LAN consists of Ethernet switches and fiber/copper connectivity hardware and cabling.

Project Description

- c. The Ethernet LAN described here is similar in nature to that listed as part of the video surveillance system but it is maintained separate from the video network.

.4 Special Operational Features**A. General**

1. The basis of design for the integrated security control system includes the networking capabilities described above to allow the following special features:
 - a. Takeover and takeaway
 1. Takeover and takeaway allows Master Control to assume the functions of a local control console in the event that the local control console is compromised. The nature of the network allows a virtual approach to establishing the control scenarios. Within the network architecture, any control post can takeover or be given control of any other control post.
 2. These scenarios are typically set up with a hierarchy that collapses down to Master Control. Even though the network would, technically speaking, allow the control to be transferred off site; convention is to maintain a closed network and to only allow control to be transferred between locations within the secure perimeter.
 3. Icon animation is included in the design of the touch screen to manage the change of state and allow officers to respond to events with as little effort dedicated to the system as possible.
 4. Animation features include:
 - a. The use of saturated colors against muted backgrounds
 - b. The use of refined icons that depict different states of doors that are open vs doors that are closed but not locked
 - c. The use of standard colors for typical conditions; Red (stop) for alarm, Yellow (caution) for interlocks and bypass conditions; Green (go) for devices that do not affect security such as intercoms; other cool colors (blue) for video surveillance devices.
 - d. Utility controls are typically kept to a secondary screen segregated from security devices.
 5. High level integration between the major subsystems is critical in a large facility. The video follow alarm and video follow intercom features allow the officers to respond to the event with as little consideration given to the system as possible.
 - a. Without integration, an officer has to see that an alarm indicator has turned on, then to see what is going on he interpolated in his mind that the alarm is in C wing and that means that he needs to look at a camera in C wing. Next he needs to decide which camera. Then he needs to go to the video surveillance system and manipulate it to display the camera that he needs to see so he can understand the nature of the event and respond accordingly. With an integrated system, when the alarm goes off, the system knows what camera to display and it does so automatically so the officer can see what has caused the alarm to go off and respond accordingly. This means response can begin seconds earlier.

Project Description

- B. Integration with existing systems
 - 1. Locking control system
 - a. Integration with the existing locking control systems will be accomplished by providing the PLC input/output devices and interposing relays in the manual release cabinets at the end of each range of sliders.
 - b. This allows the control to be accomplished locally from the cabinet or from any control console connected to the network.
 - 2. Intercom and paging
 - a. The existing paging speakers and intercom stations can remain and be reused in many cases. These devices are compatible with the new exchange based system being considered for the renovated control system.
 - 3. Video surveillance
 - a. To the extent practical, the existing cameras can be reused if they are of a high enough resolution to produce a recorded image with enough detail to be useful. These existing cameras can be integrated into a new IP based system through the use of encoders. New cameras should be a minimum 1 MP resolution.
 - 4. Miscellaneous Systems
 - a. Control and monitoring of ancillary systems such as motorized valves, alarm annunciation, and elevator control.

16 - Detention Equipment Design Criteria

- .1 All work shall meet or exceed the standards and procedures of the following Governing Codes, Standards and Regulations.
 - A. International Building Code
 - B. Underwriters Laboratories, Inc. (UL).
 - C. ASTM
 - 1. ASTM F 1450 Standard Test Methods for Hollow Metal Swinging Door Assemblies for Detention and Correctional Facilities
 - 2. ASTM F 1592 Standard Test Methods for Detention Hollow Metal Vision Systems
 - D. American National Standard Institute (ANSI):
 - 1. ANSI/NAAMM HMMA 863-04 Guide Specifications for Detention Security Hollow metal Doors and Frames. Although not specifically listed here. All standards referenced within HMMA 863 shall apply.
- .2 Basic Description
 - A. Infrastructure Building
 - 1. Detention grade specialties for use to secure the Complex Control Room and in inmate accessible areas of the Laundry and Kitchen work areas as well as specific areas of South Housing as indicated in the criteria documents. Manufacturers shall provide evidence of having personnel and plant equipment capable of fabricating products of the type specified by the design. Manufacturer shall have been in business providing products for a minimum of 5 years.
 - a. Detention Hollow Metal Doors and Frames. ASTM F 1450 Grade 1 at Complex Control room access and associated critical systems rooms. ASTM F 1450 Grade 3 for building entry/exit doors.
 - b. Detention Hollow Metal Vision Systems. ASTM F 1592 Grade 1 at Complex Control room and associated critical systems rooms in security partitions. ASTM F 1592 Grade 3 for other building security partitions.
 - c. Detention Door Hardware. Where determined to be in need of replacement utilize brands and types consistent with existing to allow use of existing keying and locksmith tooling.
 - d. Security Glazing.
 - 1. At Grade 1 Hollow Metal Vision Frame use ASTM F1915 Grade 1 tested Glass Clad Polycarbonate units. Air gap at exterior locations.
 - 2. At Grade 3 Hollow Metal Vision Frame use ASTM F1915 Grade 3 tested Glass Clad Polycarbonate units. Air gap as exterior locations.
 - e. Detention Security Ceiling Systems. Dual face sheet 14 ga steel panels spot welded to corrugated steel core. Panels interlock with adjoining panels. Voids filled with acoustical insulation. Perforated face sheet



Project Description

providing .75 NRC. Panels shall be manufactured using methods and product quality as established by Hollow Metal Manufacturers Association for Detention Hollow Metal Doors.

- f. Detention Furniture
- g. Detention Accessories
- B. Facility Management, Purchasing Warehouse
 - 1. None.
- C. South Security Upgrades
 - 1. An existing maximum security bar grating door and partition from main corridor has been retrofitted with an electromagnetic lock and card reader. The maximum security partition is not consistent with the type of locking and access control that has been retrofitted to it. The entire bar grating partition and door will be replaced to better suit the current need and provide visual, sound, and fire/smoke barrier. The oversized opening can be refitted with a new Detention Hollow Metal door and sidelight frame. Hardware will be new and built into the door and frame resulting in a finished appearance and proper secure door function.
 - 2. Existing egress doors from stairwells are to be replaced with code compliant hollow metal doors, frames, and hardware.
 - 3. Existing doors using electromagnetic locks are to be replaced with code compliant doors, frames that are factory prepared for electrified hardware with code compliant single effort egress. Electrified hardware provides more positive security than electromagnetic locks, better appearance and does not fail open when loss of power occurs.
 - a. Detention Hollow Metal Doors and Frames. ASTM F 1450 Grade 1, Grade 2, or Grade 3 consistent with the security level of the area used.
 - b. Detention Hollow Metal Vision Systems. ASTM F 1592 Grade 1, Grade 2, or Grade 3 consistent with the security level of the area used.
 - c. Detention Door Hardware.
 - 1. With existing hardware brands and types already in use, any new hardware will be consistent with these brands to allow use of existing keying, spare parts, and locksmith tooling that Pinellas County Maintenance Department uses.
 - 2. Coordinate with Security Chain link supplier for gate lock requirements.

Project Description

17 -Telecommunications System Design Criteria

17.1 General

.1 Governing codes standards and regulations

- A. Factory Mutual Laboratories (FM).
- B. Underwriters Laboratories, Inc. (UL).
- C. National Electrical Manufacturers Association (NEMA).
- D. All work shall meet or exceed the standards and procedures of the following:
 - 1. Federal Communications Commission (FCC):
 - a. Part 15
 - b. Part 68
 - c. Part 76
 - 2. American National Standard Institute/Telecommunications Industries Association/Electronics Industries Association (ANSI/TIA/EIA):
 - a. Generic Telecommunications Cabling for Customer Premise ANSI/TIA/EIA - 568-C.0
 - b. Optical Fiber Cabling and Component Standard ANSI/TIA/EIA - 568-C.3.
 - c. Commercial Building Standard for Telecommunications Pathways and Spaces, 2003. ANSI/TIA/EIA – 569-B.
 - d. Commercial Building Standard for Telecommunications Optical fiber cable color-coding, 2001. ANSI/TIA/EIA – 598-B.
 - e. Fiber optic connector intermateability standard. ANSI/TIA/EIA – 604.2.
 - f. Administration Standard for the Telecommunications Infrastructure of Commercial Buildings ANSI/TIA/EIA – 606-A.
 - g. Commercial Buildings Grounding (Earthing) and Bonding Requirements for Telecommunications ANSI/TIA/EIA - 607.
 - h. Customer owned outside plant telecommunications cabling standard, 1999 ANSI/TIA/EIA - 758.
 - i. Customer owned outside plant telecommunications cabling standard, Addendum 1, OSP fiber optic cabling practices. 1999 ANSI/TIA/EIA – 758-1.
 - j. Performance Specifications for field testing of Unshielded Twisted-Pair Cabling Systems TIA/EIA TSB-67.
 - 3. National Fire Protection Association (NFPA)
 - 4. National Electrical Code (NEC)
 - a. Chapter 3
 - b. Chapter 8
 - 5. National Electrical Manufacturers Association (NEMA)
 - 6. American Society of Testing Materials (ASTM)
 - 7. Institute of Electronic & Electrical Engineers (IEEE)
 - a. 1100 – Recommended practice for powering and grounding sensitive electronic equipment.
 - b. Applicable sections of Project 802-2002, Standard for local and metropolitan area networks.
 - 8. Americans With Disabilities Act (ADA)
 - 9. Building Industry Consulting Service International (BICSI)
 - a. TDM current edition
- E. Federal Communications Commission (FCC) Part 76, on cable television.
- F. Underwriters Laboratories, Inc. (UL) #1459
- G. Underwriters Laboratories, Inc. (UL) #1863
- H. Underwriters Laboratories, Inc. (UL) # 444

.2 Basic System Description

Project Description

- A. Information Transport System (ITS) – The ITS is the infrastructure that all of the telecommunications and security electronics systems use to communicate with each other. The ITS is the foundation of the Local Area Network (LAN). The security control system operates on its own closed network or LAN. The ITS is the cabling system that supports all the intersystem communications. The system will be standards compliant which is to say that the cabling used will be tested to bandwidth capacity standards after it is installed. The cabling construction, the pulling tension used when the cable is installed, the method of termination and proximity to sources of potential interference are all defined by Electronics Industry Association (EIA) and Telecommunications Industry Alliance (TIA) standards. These standards along with the Building Industry Consulting Services International (BICSI) Telecommunications Distribution Methods Manual (TDMM) will be the standards used for the installation of the ITS. When completed and tested the contractor will provide the owner with a 20 year warranty pertaining to the usable bandwidth of the system. These systems are warranted by the manufacturers without any consideration to the installing contractor.

.3 Security Guidelines

- A. For the purposes of the integrated security control system, the LAN(s) will be closed with no connection to the outside world.
- B. For the purposes of the administrative telecommunications systems, security is defined by the active electronics ie: firewall appliances; and thus is not a part of the passive information transport system.

18 - Audio Visual System Design Criteria

.1 Governing Codes, Standards, and Regulations

- A. Factory Mutual Laboratories
- B. Underwriters Laboratories, Inc.
- C. National Electrical Manufacturers Association
- D. National Fire Protection Association (NFPA)
- E. National Electrical Code (NEC)
- F. American National Standards Institute (ANSI)
- G. National Electrical Manufacturers Association (NEMA)
- H. American Society of Testing Materials (ASTM)
- I. Institute of Electronic and Electrical Engineers (IEEE)
- J. Americans with Disabilities Act (ADA)

.2 Basic Systems Descriptions

- A. Staff Dining Multi-Purpose 232, Multi Purpose 223
 - 1. Provide cable as required to support audio/visual systems
 - a. Loudspeaker, speaker impedance and distributed
 - b. Analog microphone and line level
 - c. Component video
 - d. Composite video
 - e. Camera
 - f. CATV
 - g. Hearing assistance antenna
 - h. Wireless microphone antenna
 - i. Control
 - j. LAN
 - 2. Provide equipment enclosures
 - 3. Provide integrated microprocessor based control system.
 - a. The system will utilize a wired touch screen control panel.
 - b. System will be used for the basic operational aspect of the system including, but not limited to, power control, signal routing, and selection, level control, source operation control, and screen.
 - c. The control system will accommodate communication via contact closure, relay, infrared repeater, and serial communications.
 - d. Provide complete control cable plant.
 - e. Refer to construction documents for details regarding the conduit and power system.
 - 4. Video Projection
 - a. Each room is to include a fixed ceiling mounted video projector.
 - b. Each room requires a wall mount flat panel display TV.
 - c. System will accommodate owner furnished sources.
 - d. Each room shall include a motorized recessed ceiling mount projection screen.
 - e. System will include input panels in each room accommodating HDMI, VGA, and composite video sources.
 - f. System inputs will be located in a floor box at the front of the room.
 - g. All sources will be routed through scaler switcher processors, one per display device. This processor will be used to switch between sources, as well as convert the various signal formats to a high-resolution component signal.
 - h. HDMI video output signal from each scaler switcher will feed a matrix switcher. Matrix switcher will be used to route signal to any combination of projectors.

Project Description

5. Audio Reproduction System
 - a. Each room will have an audio system.
 - b. The audio systems will consist of distributed overhead speaker systems comprised of compact recessed ceiling speakers.
 - c. The systems will accommodate microphone and line level sources.
 - d. Input level control will be provided through the touch screens for the integrated control system.
 - e. All required signal processing, including signal level control, equalization, room combining, and compression and limiting is to be provided by a digital signal processing unit.
 - f. High powered amplifiers will provide power to the specified speaker systems.
 - g. Wireless lavalier microphone systems are required. One per room. All required antennas, splitters, and cable are to be provided
 - h. Provide wireless assisted listening systems, one per room.
 - i. Hardwired microphone inputs are required.
 - j. All head end electronics are to be housed in an equipment cabinet.
 - k. All required custom input/output panels are to be included.
- B. Program Meeting Room 110, Program Meeting Room 111, Program Meeting Room 116
 1. Provide cable as required to support audio/visual systems
 - a. Loudspeaker, speaker impedance and distributed
 - b. Analog microphone and line level
 - c. Component video
 - d. Composite video
 - e. Camera
 - f. CATV
 - g. Hearing assistance antenna
 - h. Wireless microphone antenna
 - i. Control
 - j. LAN
 2. Provide equipment enclosures
 3. Provide integrated microprocessor based control system.
 - a. The system will utilize a wired touch screen control panels. Minimum of one wall mount touch screen control panel per room.
 - b. System will be used for the basic operational aspect of the system including, but not limited to, power control, signal routing, and selection, level control, source operation control, screen control, lighting control, and room combining/seperation.
 - c. The control system will accommodate communication via contact closure, relay, infrared repeater, and serial communications.
 - d. Provide complete control cable plant.
 - e. Refer to construction documents for details regarding the conduit and power system.
 4. Video Projection
 - a. Each program room is to include a fixed ceiling mounted video projector.
 - b. Program rooms 110 and 111 each require a wall mount flat panel display.
 - c. Program room 116 requires two wall mount flat panel displays
 - d. System will accommodate owner furnished sources as well as furnished sources.
 - e. Each program room shall include a motorized recessed ceiling mount projection screen.
 - f. System will include input panels in each room accommodating HDMI, VGA, and composite video sources. Input connectivity is required for feeding both projector and wall mount displays.
 - g. UP to four DVD players are required for the program rooms.
 - h. System inputs will be located in a floor box at the front of the room.

Project Description

- i. All sources will be routed through scaler switcher processors, one per display device. This processor will be used to switch between sources, as well as convert the various signal formats to a high-resolution component signal.
 - j. HDMI video output signal from each scaler switcher will feed a matrix switcher. Matrix switcher will be used to route signal to any combination of projectors and or displays.
 - 5. Audio Reproduction System
 - a. Each program room will have an audio system.
 - b. The audio systems will consist of distributed overhead speaker systems comprised of compact recessed ceiling speakers.
 - c. The systems will accommodate microphone and line level sources.
 - d. Input level control will be provided through the touch screens for the integrated control system.
 - e. All required signal processing, including signal level control, equalization, room combining, and compression and limiting is to be provided by a digital signal processing unit.
 - f. High powered amplifiers will provide power to the specified speaker systems.
 - g. Up to four wireless lavalier microphone systems are required. All required antennas, splitters, and cable are to be provided
 - h. Provide wireless assisted listening systems, one per room.
 - i. Hardwired microphone inputs are required.
 - j. All head end electronics are to be housed in an equipment cabinet.
 - k. All required custom input/output panels are to be included.
- C. Control Conference Room 313
 - 1. Provide cable as required to support audio/visual systems
 - a. Loudspeaker, speaker impedance and distributed
 - b. Analog line level
 - c. Component video
 - d. Composite video
 - e. CATV
 - f. Control
 - g. LAN
 - 2. Provide equipment enclosures
 - 3. Provide integrated microprocessor based control system.
 - a. The system will utilize a wired touch screen control panel.
 - b. System will be used for the basic operational aspect of the system including, but not limited to, power control, signal routing and selection, level control, source operation control, and screen.
 - c. The control system will accommodate communication via contact closure, relay, infrared repeater, and serial communications.
 - d. Provide complete control cable plant.
 - 4. Video Projection
 - a. System will utilize a wall mount short throw video projector. Mounting hardware to be included.
 - b. Motorized projection screen
 - c. Wall mount flat panel display
 - d. System will include input panels in each room accommodating HDMI, VGA, and composite video sources. Input connectivity is required for feeding both projector and wall mount displays.
 - e. All sources will be routed through scaler switcher processors, one per display device. This processor will be used to switch between sources, as well as convert the various signal formats to a high-resolution component signal.



Project Description

- f. HDMI video output signal from each scaler switcher will feed a matrix switcher. Matrix switcher will be used to route signal to any combination of projector and or display.
- 5. Audio Reproduction System
 - a. Speaker system comprised of recessed distributed ceiling mount speakers for program audio reinforcement.

Project Description

19 – Kitchen and Laundry Equipment Design Criteria

19.1. Laundry

.1 General:

- A. The goal of the laundry design is to replace outdated and inefficient systems and processes with state-of-the-art equipment that saves time, energy and water.
 - 1. Continuous Batch Washing System(CBW).
 - a. Processes the current entire demand load in one 8 hour shift.
 - b. 'Tunnel' system fed on one end via a conveyor
 - c. Clean laundry pressed into manageable bricks manually transferred to driers.
 - d. Programmable to handle different types of laundry items processed after separation.
 - e. Water usage is reduced from 3 gals/lb. of dry laundry to .3 gals/lb. representing a 71% reduction in initial water needs.
- B. Dryers
 - 1. Conventional gas
- C. Piece folders
 - 1. Finish inmate uniforms
 - 2. Reduce the final processing time.

.2 Facility Sizing

- A. Square footage
 - 1. Based on the large footprint requirement for the tunnel washers,
 - 2. Intake processing space
 - 3. Flow of product through the facility.
- B. Redundancy
 - 1. Provide two CWB machines
- C. Support equipment
 - 1. Locate at perimeter of space
 - 2. Maximize visual control sightlines.
 - 3. Planned at 7,800 s.f.

.3 Space list – Refer also to Program Document in Volume 5, Appendix

- A. Receiving/Staging/Loading 250 s.f.
- B. Washing /Drying area
 - 1. Soiled Laundry/Incoming cart Staging 550 s.f.
 - 2. Soiled Laundry Sorting and Work 300 s.f.
 - 3. Washing (tunnel washers) 2550 s.f.
 - 4. Dryers 900 s.f.
 - 5. Folding Area 900 s.f.
 - 6. Chemical Storage 100 s.f.
 - 7. Equipment Storage 150 s.f.
 - 8. Supply Storage 100 s.f.
 - 9. Sink Area 80 s.f.
 - 10. Eye wash station 36 s.f.
 - 11. Clean Laundry Storage 300 s.f.
 - 12. Clean Laundry/ outgoing cart staging 400 s.f.
 - 13. Cart wash and storage 200 s.f.
 - 14. Janitor closet 30 s.f.
- C. Laundry Support
 - 1. Supervisor office 120 s.f.
 - 2. Supply/ Storage 200 s.f.
 - 3. Maintenance room 150 s.f.
 - 4. Break room 220 s.f.
 - 5. Staff Toilets 100 s.f.

Project Description

- | | |
|---------------------------------|------------|
| 6. Inmate Toilet | 100 s.f. |
| 7. Inmate Uniform Storage | 200 s.f. |
| D. Central Laundry Subtotal | 7836 s.f. |
| E. 20% Dept. Grossing Factor | 1567 s.f. |
| F. Total DGSF | 9403 s.f. |
| G. 25% Building Grossing Factor | 2351 s.f. |
| H. Total Central Laundry | 11754 s.f. |
- .4 *Process Demand Load*
- A. Current demand load is 105 loads per day with existing equipment.
 - 1. 125 lbs per load; total 13,125 lbs
 - 2. Requires 3 shifts/day
 - 3. Lack of equipment reliability/vulnerability to vandalism is an issue
 - B. CBW Machine recommended option
 - 1. Reduces washing time to 3 hours.
 - 2. Drying time calculated at 5.75 hours
 - 3. Folding accomplished throughout shift
 - 4. Reduces inmate/staff requirements by almost 2/3.
- .5 *Workflow*
- A. 75 carts required for sorting/pre-spot/separation
 - B. Pre-processed laundry fed into washers via conveyer system
 - C. Cycled thru washer/extractor
 - 1. Pressed into cylindrical 'cakes'
 - 2. Each 'cake' manually loaded in dryers
 - D. Dryers are 225 lb capacity
 - 1. Upon completion, laundry moved to folding tables
 - E. Folding table area
 - 1. Manually folded
 - 2. Stacked and loaded into folders
 - F. Clean laundry placed into clean carts
 - 1. Delivered to units
- .6 *Equipment Redundancy*
- A. Elimination of maintenance downtime
 - 1. Inmate tampering
 - 2. Equipment malfunction
 - B. Two 1200 lb machines specified & located on plans
 - 1. May run just one machine
 - 2. May run both, sorting laundry types
 - a. Uniforms
 - b. Bedding
 - C. Existing conventional machine relocation
 - 1. Handles items requiring separate processing
- .7 *Utilities Consumption*
- A. Water consumption reduced by 71%
 - 1. Initial freshwater reduced
 - 2. Recycling of rinse water
 - 3. Re-use of building steam from central energy plant.
 - B. Dryer heat
 - 1. Confined to chase behind dryers and exhausted
 - 2. Does not contribute to HVAC load in laundry.
- .8 *Equipment*
- A. Basis of design / single source list

Project Description

1. Basis of design equipment may be substituted with comparable manufacturer meeting performance specifications (including, but not limited to design dimensions, utility usage and performance) of unit listed.
2. Single Source requested/required by Owner
- B. Item L101 -LAUNDRY SCALE (1 REQ'D) (Basis of Design)
 1. ARBEL-SOFT Model CASC-FL Laundry scale
- C. Item L102 -SINK MODULE (1 REQ'D) (Basis of Design)
 1. SWANSTONE Model MF2FFWH Pre soak sink
 2. Tamper proof faucet and drain assembly
- D. Item L103 - Eyewash station (1 REQ'D) (Basis of Design)
 1. HAWS Model 7260H-7220B
- E. Item L104 - Detergent system, by Vendor (1 REQ'D)
- F. Item L105 -MOBILE WORK TABLES (8 REQ'D) (Basis of Design)
 1. Emjac Industries Model CUSTOM
 - a. Stainless steel mobile work table, sized and shaped as per plans.
 - b. Table: 14 gauge type 304 stainless steel top
 - c. Stainless steel legs
 - d. Non-marking lockable casters.
- G. Item L106 - Soiled linen cart (36 REQ'D) (Basis of Design)
 1. LUXOR Model HL14 Soiled linen cart
- H. Item L107 - Clean linen cart (12 REQ'D) (Basis of Design)
 1. MEESE Model 95PSL
- I. Item L108 - CONTINUOUS BATCH WASHER (2 REQ'D) (SINGLE SOURCE)
 1. MILNOR Model 76028 Tunnel washer
- J. Item L109 - MEMBRANE PRESS (2 REQ'D) (SINGLE SOURCE)
 1. MILNOR Model M1640CL Membrane press
- K. Item L110 - Mildata computer control (1 REQ'D) (SINGLE SOURCE)
 1. Custom Model M175
- L. Item L111 - TUMBLE DRYER (8 REQ'D) (Basis of Design)
 1. MILNOR Model M170
- M. Item L112 - Sheet feed cart(4 REQ'D) (Basis of Design)
 1. MEESE Model F026
- N. Item L113.1 - SHELIVING (41 REQ'D) (Basis of Design)
 1. KELMAX Model 4H6541MO
 - a. Kelmax Shelving All Welded,
 - b. Solid, 4 shelf unit, 72"H,60"W x 24"D
 - c. Aluminum construction, all shelves heavy duty
 - d. NSF-Modified Version
- O. Item L113.1 -SHELIVING (3 REQ'D) (Basis of Design)
 1. Kelmax by SPG Model 4H6977MOD
 - a. Kelmax Shelving All Welded,
 - b. Solid, 4 shelf unit, 72"H,48"W x 24"D
 - c. Aluminum construction, all shelves heavy duty
 - d. NSF-Modified Version
- P. Item L113.2 -SHELIVING (2 REQ'D) (Basis of Design)
 1. Kelmax by SPG Model 4H6978MOD
 - a. Kelmax Shelving All Welded
 - b. Solid, 4 shelf unit, 72"H,42"W x 24"D
 - c. Aaluminum construction, all shelves heavy duty
 - d. NSF-Modified Version
- Q. Item L114 -SMALL PIECE FOLDER (2 REQ'D) (SINGLE SOURCE)
 1. Chicago Dryer Model AIR CHICAGO Small piece folder
- R. Item L115 Lint collector(1 REQ'D) (Basis of Design)

Project Description

1. CLEAN CYCLE Model DLF-510
- S. Item L116 -AIR COMPRESSOR (1 REQ'D) (Basis of Design)
 1. INGERSOLL RAND Model 2-2545E7.5P
- T. Item L116 -AIR COMPRESSOR (1 REQ'D) (Basis of Design)
 1. INGERSOLL RAND Model 2-2545E7.5P
- U. Item L117 - Inmate break table with benches. (3 REQ'D) (Basis of Design)
 1. Fabricated Model CUSTOM
- V. Item L118 - MOP SINK (3 REQ'D) (Basis of Design)
 1. Advance Tabco Model 9-OP-40
 - a. Mop Sink, floor mounted
 - b. 20" L-R, 16" F-B
 - c. 12" high water level
 - d. Free flow drain with 2" IPS outlet
 - e. Stainless steel construction
- W. Item L119 -SERVICE FAUCET (1 REQ'D) (Basis of Design)
 1. Fisher Model 8261
 - a. Service Sink Faucet, eccentric stops,
 - b. Long spout and vacuum breaker
 - c. 1/2" inlet, polished chrome
- X. Item L120 - WALL BRACKET (1 REQ'D) (Basis of Design)
 1. Fabricated Model CUSTOM Stainless steel wall bracket
- Y. Item L121 -HOSE REEL (1 REQ'D) (Basis of Design)
 1. Fisher Model 29629
 - a. Hose Reel Assembly
 - b. Stainless steel covered reel rinse with spray gun
 - c. 50 feet of 5/8" ID, 3 ply
 - d. Pressure of 150 PSI
 - e. 1/2" NPT female inlet or 3/4" F garden hose inlet
- Z. Item L122 -FLOOR TROUGH (1 REQ'D) (Basis of Design)
 1. Fabricated Model CUSTOM
- AA. Item L123 - Discharge conveyor(1 REQ'D) (SINGLE SOURCE)
 1. MILNOR Model BFVUUF01
- BB. Item 124 - Washer Extractor (existing- re-use)
 1. Unit to be selected from present stock and relocated to new laundry facility

Project Description

19.2 Foodservice Equipment Design Criteria

.1 General:

A. Goals:

1. Meet current and long term population needs
2. Locate facility above storm surge level to maintain operations
3. Provide logical product/personnel flow
4. Avoid cross traffic and resultant cross contamination
5. 360 degree visibility
 - a. Facilitate Inmate supervision
 - b. Increase visibility, control, communication & mobility

B. Operations

1. Deliveries
 - a. Covered dock required
 - b. Space for two delivery vehicles
2. Storage space for 10 days of inventory
3. Advanced production capability

.2 Facility Sizing

- A. Serves entire current population
- B. Absorb demand of South Kitchen
- C. Can serve projected population growth for 20 years

.3 Space list – Refer also to Program Document in Volume 5, Appendix

A. Ground Floor

1. Receiving Area
 - a. Loading dock/Receiving Area 1000 s.f.
 - b. Restroom 60 s.f.
 - c. Staging to South Kitchen 400 s.f.
 - d. Bulk Holding Cooler 400 s.f.
 - e. Bulk Storage 500 s.f.
 - f. Utility Wash 150 s.f.
 - g. Staff Lockers/Toilets 200 s.f.
 - h. Staff Break 150 s.f.
 - i. Worker Entry/Search 80 s.f.
2. Subtotal Ground Floor 2940 s.f.
 - a. 20% Dept. Grossing Factor (DGSF) 588 s.f.
3. Total DGSF Ground FloorFood Service 3258 s.f.

B. Second Floor

1. Walk-in Cold Storage (3,275 s.f.)
 - a. Freezer (-10 degrees) 800 s.f.
 - b. Meat Cooler 600 s.f.
 - c. Dairy Cooler 600 s.f.
 - d. Produce Cooler 600 s.f.
 - e. Prepared Food Storage Cooler 475 s.f.
 - f. Freezer (-20 degrees) 200 s.f.
2. Storage (2,640 s.f.)
 - a. Secured Storage 200 s.f.
 - b. Dry Storage 1050 s.f.
 - c. Pots/Pans/Implement Storage 600 s.f.
 - d. Chemical Storage 100 s.f.
 - e. Paper/non food 200 s.f.
 - f. Janitor Closet (2) 80 s.f.
 - g. Janitorial Supplies/Equipment 150 s.f.
 - h. Kitchen Laundry Area 100 s.f.

Project Description

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- | | | |
|----|---|-------------|
| i. | Trash Room | 200 s.f. |
| 3. | Food Preparation – Cooking Area (2,800 s.f.) | |
| a. | Bulk Cold Prep (2) | 800 s.f. |
| b. | Hot Production | 1,300 s.f. |
| c. | Finish Meat Prep Area | 300 s.f. |
| d. | Finish Vegetable Prep Area | 400 s.f. |
| e. | Bakery Area | 400 s.f. |
| 4. | Food Preparation – Tray Make-Up Area | |
| a. | Cart Staging/Support (2) | 400 s.f. |
| b. | Tray Assembly Area (2) | 800 s.f. |
| c. | Tray assembly Storage | 200 s.f. |
| d. | Ice Making/Beverage | 200 s.f. |
| 5. | Food Service Management/Support and Inmate Worker Area (870 s.f.) | |
| a. | Supervisor Office | 150 s.f. |
| b. | Dietary Office | 120 s.f. |
| c. | Clerical Office | 100 s.f. |
| d. | Inmate Toilets (4) | 200 s.f. |
| e. | Inmate Break Room | 150 s.f. |
| f. | Clean Uniform Storage | 150 s.f. |
| 6. | Washing Areas (1,850 s.f.) | |
| a. | Tray Washing Area (2) | 800 s.f. |
| b. | Pot/Pan Washing Area | 400 s.f. |
| c. | Small Wares/Dish Washing Area | 200 s.f. |
| d. | Clean & Soiled Cart Stg. at Washing | 200 s.f. |
| e. | Eye Wash/Shower Station | 50 s.f. |
| 7. | Subtotal Production Kitchen | 14,885 s.f. |
| a. | 20% Dept. Grossing Factor (DGSF) | 2,977 s.f. |
| 8. | Total DGSF Production Kitchen | 17,682 s.f. |
- .4 *Population Demand Load*
- A. Inmate Population Demands
1. 4,200 Inmates
 2. 3 Meals/Day
- B. Staff Population Demands
1. 2,200 Staff
 2. 3 Meals/Day
 3. Two (12-hour) shifts
- C. Additional information to be provided by on-site food services vendor
1. For proper allotment of inmate tray delivery carts
 2. For any special requirements that might affect final quantities
- .5 *Workflow*
- A. Delivery sequence
1. Stock delivered to loading dock as scheduled by on-site Food Service Vendor
 2. Unloaded to staging area
 - a. Transferred to bulk dry storage
 - b. Transferred to bulk refrigerated storage
 3. Transferred to second floor to appropriate locations
 - a. Long term cold/freezer storage areas
 - b. Long term dry food storage areas
- B. Preparation
1. Walk-in coolers and thaw pull-box facing prep areas
 2. Short-term dry storage facing prep areas
 3. Transfer to cooking line

Project Description

-
- a. Loaded onto hot and cold mobile carts
 - b. Rotated through make-up
 - C. Delivery & Return
 - 1. Staging in corridor
 - a. Through second floor elevated corridor system to Central & South
 - b. Down freight elevators to Healthcare and C-Barracks
 - D. Soiled tray carts return to the breakdown area
 - 1. Sorted and prepared for washing
 - 2. Carts cleaned in cart wash area
 - 3. Clean trays stored on racks in clean dish storage
 - .6 *Systems Design- Refrigeration System*
 - A. Management of power and temperature for control in utility consumption
 - 1. Advanced controls
 - a. Digital scroll management system
 - i. Operates on demand
 - ii. Not on timetable
 - 2. Water refrigeration rack cooling
 - a. Through chilled water produced in the central energy plant
 - b. Series of medium and low temperature scroll compressors power evaporators
 - c. Secondary compressor to modulate as system requires more or less capacity
 - d. Freezer defrost occurs only when system senses need
 - .7 *Systems Design*
 - A. Utility Distribution System
 - 1. Common power, water and gas source
 - a. Eliminates individual utility connections to each piece of equipment
 - b. Enhances safety and security
 - c. Provides flexibility for growth and change
 - d. Facilitates cleaning
 - B. Ventilation
 - 1. Major source of utility consumption
 - a. Impacts sizing of HVAC system
 - 2. Variable volume modulating
 - a. Based on equipment usage
 - 3. Infrared sensors
 - a. Measure heat and smoke from the cooking appliances
 - b. Control fan speed
 - c. Control exhaust flow thru variable exhaust dampers
 - 4. Control panel located in food service management office
 - .8 *Foodservice Equipment Design Criteria*
 - A. Basis of design / single source list
 - 1. Basis of design equipment may be substituted with comparable manufacturer meeting performance specifications (including, but not limited to design dimensions, utility usage and performance) of unit listed.
 - 2. Single Source requested/required by Owner
 - B. Item 101 -WALK IN COMBINATION COOLER/FREEZER, BOX ONLY (1 REQ'D) (Basis of Design)
 - 1. Thermo-Kool Model CUSTOM
 - a. Multi section walk in cooler
 - i. Overall dimensions per plan (to be field verified)
 - ii. exterior height to be 10'-0" AFF
 - iii. All sections to be provided with floor and 4" topping slab in a 8" depression
 - iv. Cooler section to maintain 34 degrees F

Project Description

- v. Freezer section to maintain -10 degrees F
- vi. Trash cooler to maintain 34 -55 degrees F
- b. Panel Construction:
 - i. Walls and ceiling: 4" polyurethane
 - ii. Interior finish: white stucco embossed aluminum
 - iii. Exterior finish: unpainted stucco embossed aluminum
 - (a). 20 gauge type 304 #3 finish stainless steel where exposed
 - iv. View windows: in wall panels facing kitchen - double insulated security glazing
 - (a). Mount from 36" AFF to 6'-6" AFF
 - (b). Refer to plan for location and width
 - (c). Mullions placed by manufacturer as required
- c. Doors/Accessories:
 - i. (13) 48 X 78 flush mounted entrance doors, with hardware
 - (a). pilot light & switch assembly
 - (b). vapor proof
 - (c). light
 - (d). 4-1/2" dial thermometer
 - (e). NSF listed
 - ii. (3) 14" x 14" cooler view ports with heated frame and glass
 - iii. (3) hinges per door
 - iv. (3) heated pressure relief vents
 - v. Aluminum treadplate exterior/interior kick plates and jamb guards
 - (a). 36" high on both sides
 - vi. Stainless steel doors/frames interior/exterior
 - (a). Thermostatically controlled door frame heater wires
 - (b). L-shaped, spliced ceiling and floor.
- d. (9) Modularm 75 audio/visual alarms flush mounted
- e. (27) Kason 1810L surface mounted LED light fixtures
- f. stainless steel closure panels and/or trim strips as needed
- g. (10) Vinyl strip curtains
- C. Item 101.1 - Bulk Produce Refrigerated Section (1 REQ'D) (Basis of Design)
 - 1. Thermo-Kool Model CUSTOM
- D. Item 101.2 -Dairy Refrigerated Section (1 REQ'D) (Basis of Design)
 - 1. Thermo-Kool Model CUSTOM
- E. Item 101.3 -Bulk Meat Refrigerated Section(1 REQ'D) (Basis of Design)
 - 1. Thermo-Kool Model CUSTOM
- F. Item 101.4 - Finished Produce Refrigerated Section (1 REQ'D) (Basis of Design)
 - 1. Thermo-Kool Model CUSTOM
- G. Item 101.5 - Finished Produce Refrigerated Section (1 REQ'D) (Basis of Design)
 - 1. Thermo-Kool Model CUSTOM
- H. Item 101.6 - Finished Bulk Refrigerated Section(1 REQ'D) (Basis of Design)
 - 1. Thermo-Kool Model CUSTOM
- I. Item 101.7 - Thaw/Pull Refrigerated Section (1 REQ'D) (Basis of Design)
 - 1. Thermo-Kool Model CUSTOM
- J. Item 101.8 - 10 Degree Freezer Section(1 REQ'D) (Basis of Design)
 - 1. Thermo-Kool Model CUSTOM
- K. Item 101.9 - 20 DegreeFreezer Section (1 REQ'D) (Basis of Design)
 - 1. Thermo-Kool Model CUSTOM
- L. Item 102 - REFRIGERATION RACK, REMOTE (1 REQ'D) (Single Source)
 - 1. RDT Model CUSTOM
 - a. Multi compressor, indoor, remote water cooled refrigeration system
 - b. Pre-engineered and factory-assembled refrigeration package
 - c. Trade name "Eco-Cool", as manufactured by Refrigeration Design Technologies

Project Description

- d. All low voltage connections between refrigeration rack, walk in units and appliances to be made by electrical contractor
 - e. Low Low voltage to include wiring for off cycle defrost sensor
 - f. Provide with all standard features
- M. Item 102.1 - Digital scroll demand system (1 REQ'D) (Single Source)
 - 1. RDT Model CUSTOM
- N. Item 102.2 - Evaporator for 101.1 (2 REQ'D) (Single Source)
 - 1. RDT Model CUSTOM
- O. Item 102.3 - Evaporator for 101.2 (2 REQ'D) (Single Source)
 - 1. RDT Model CUSTOM
- P. Item 102.3 - Evaporator for 101.2(2 REQ'D) (Single Source)
 - 1. RDT Model CUSTOM
- Q. Item 102.4 - Evaporator for 101.3 (2 REQ'D) (Single Source)
 - 1. RDT Model CUSTOM
- R. Item 102.5 - Evaporator for 101.4 (2 REQ'D) (Single Source)
 - 1. RDT Model CUSTOM
- S. Item 102.6 - Evaporator for 101.5 (2 REQ'D) (Single Source)
 - 1. RDT Model CUSTOM
- T. Item 102.7 - Evaporator for 101.6 (2 REQ'D) (Single Source)
 - 1. RDT Model CUSTOM
- U. Item 102.8 - Evaporator for 101.7 (2 REQ'D) (Single Source)
 - 1. RDT Model CUSTOM
- V. Item 102.9 - Evaporator for 101.8 (2 REQ'D) (Single Source)
 - 1. RDT Model CUSTOM
- W. Item 102.10 - Evaporator for 101.9 (2 REQ'D) (Single Source)
 - 1. RDT Model CUSTOM
- X. Item 102.11 - Trash holding low velocity coil (60 degrees) (1 REQ'D) (Single Source)
 - 1. RDT Model CUSTOM
- Y. Item 102.12 -RDT Model E2 System controller (1 REQ'D) (Single Source)
- Z. Item 102.13 - Evaporator for 109 (1 REQ'D) (Single Source)
 - 1. RDT Model CUSTOM
- AA. Item 103 -SHELVING UNIT (26 REQ'D) (Basis of Design)
 - 1. SPG International, LLC Model 4H0490MOD
 - a. Kelmax Shelving All Welded, channel
 - b. 4 shelf unit; all shelves heavy duty
 - c. 72"H, 48"W x 20"D
 - d. Aluminum construction
 - e. NSF-Modified Version
- AB. Item 103.1 - SHELVING (1 REQ'D) (Basis of Design)
 - 1. Kelmax by SPG Model 4H6976MOD
 - a. Kelmax Shelving All Welded, channel
 - b. 4 shelf unit; all shelves heavy duty
 - c. 72"H, 54"W x 20"D
 - d. Aluminum construction
 - e. NSF-Modified Version
- AC. Item 104 - Plastic pallet bases (16 REQ'D) (Basis of Design)
 - 1. ULINE Model H-1022
- AD. Item 105 - SHELVING (4 REQ'D) (Basis of Design)
 - 1. Kelmax by SPG Model 4H2414MOD
 - a. Kelmax Shelving All Welded, channel
 - b. 4 shelf unit; all shelves heavy duty
 - c. 72"H, 36"W x 20"D
 - d. Aluminum construction

Project Description

- e. NSF-Modified Version
- AE. Item 105.1 - SHELVING UNIT (6 REQ'D) (Basis of Design)
 - 1. SPG International, LLC Model 4H0490MOD
 - a. Kelmax Shelving All Welded, channel
 - b. 4 shelf unit; all shelves heavy duty
 - c. 72"H, 48"W x 20"D
 - d. Aluminum construction
 - e. NSF-Modified Version
- AF. Item 105.2 - SHELVING (99 REQ'D) (Basis of Design)
 - 1. Kelmax by SPG Model 4H0525MOD
 - a. Kelmax Shelving All Welded, channel
 - b. 4 shelf unit; all shelves heavy duty
 - c. 72"H, 60"W x 20"D
 - d. Aluminum construction
 - e. NSF-Modified Version
- AG. Item 106 - SHELVING UNIT (6 REQ'D) (Basis of Design)
 - 1. SPG International, LLC Model 4H0490MOD
 - a. Kelmax Shelving All Welded, channel
 - b. 4 shelf unit; all shelves heavy duty
 - c. 72"H, 48"W x 20"D
 - d. Aluminum construction
 - e. NSF-Modified Version
- AH. Item 106.1 -SHELVING (4 REQ'D) (Basis of Design)
 - 1. Kelmax by SPG Model 4H0525MOD
 - a. Kelmax Shelving All Welded, channel
 - b. 4 shelf unit; all shelves heavy duty
 - c. 72"H, 60"W x 20"D
 - d. Aluminum construction
 - e. NSF-Modified Version
- AI. Item 106.2 -SHELVING (2 REQ'D) (Basis of Design)
 - 1. Kelmax by SPG Model 4H6978MOD
 - a. Kelmax Shelving All Welded, Solid
 - b. 4 shelf unit; all shelves heavy duty
 - c. 72"H, 42"W x 24"D
 - d. Aluminum construction
 - e. NSF-Modified Version
- AJ. Item 106.3- SHELVING (7 REQ'D) (Basis of Design)
 - 1. Kelmax Model 4H6541MOD
 - a. Kelmax Shelving All Welded, Solid
 - b. 4 shelf unit; all shelves heavy duty
 - c. 72"H, 60"W x 24"D
 - d. Aluminum construction
 - e. NSF-Modified Version
- AK. Item 107 - Laundry transfer truck (2 REQ'D) (Basis of Design)
 - 1. Custom Model 394
- AL. Item 108 -GARBAGE CAN (12 REQ'D) (Basis of Design)
 - 1. Rubbermaid Model 1779732
 - a. BRUTE® Container, without lid, 55 gallon
 - b. 26-1/2"D x 33"H, round
 - c. Reinforced rims, built in handles, double rimmed base
 - d. High-impact plastic construction, blue, NSF (case of 6)
 - e. Provide removable dollies

Project Description

AM. Item 109 -WALK IN COMBINATION COOLER/FREEZER, BOX ONLY (1 REQ'D) (Basis of Design)

1. Thermo-Kool Model CUSTOM

- a. Receiving cooler:
 - i. Overall dimensions per plan (to be field verified)
 - ii. Exterior height: 7'-4" AFF
 - iii. Freezer section: provide with floor and internal ramp; maintain -10 degrees F
 - iv. Cooler section: maintain 34 degrees F
 - v. Trash cooler: maintain 34 -55 degrees F
- b. PANEL CONSTRUCTION:
 - i. Walls and ceiling to be 4" polyurethane
 - ii. Exterior finish to be unpainted stucco embossed aluminum
 - (a). 20 gauge type 304 #3 finish stainless steel where exposed
- c. DOOR/ACCESSORIES:
 - i. (3) 36 X 78 flush mounted entrance doors, with hardware
 - (a). Pilot light & switch assembly
 - (b). Vapor proof light
 - (c). 4-1/2" dial thermometer
 - (d). NSF listed
 - ii. (3) 14" x 14" cooler view ports with heated frame and glass
 - iii. (3) hinges per door
 - iv. (3) heated pressure relief vents
 - v. Aluminum treadplate exterior/interior kick plates and jamb guards
 - (a). 36" high on both sides
 - vi. Stainless steel doors/frames interior/exterior
 - vii. Thermostatically controlled door frame heater wires
 - viii. L-shaped, spliced ceiling and floor
- d. (3) Modularm 75 audio/visual alarms flush mounted
- e. (9) Kason 1810L surface mounted LED light fixtures
- f. Stainless steel closure panels and/or trim strips as needed
- g. (3) Vinyl strip curtains

AN. Item 201 - SINK, HAND (3 REQ'D) (Basis of Design)

1. Metcraft Model 5681

AO Item 202 - HOSE REEL (3 REQ'D) (Basis of Design)

1. Fisher Model 29629
 - a. Hose Reel Assembly, stainless steel covered reel rinse with spray gun
 - b. 50 feet of 5/8" ID, 3 ply, pressure of 150 PSI
 - c. 1/2" NPT female inlet or 3/4" F garden hose inlet

AP. Item 203 - FLOOR TROUGH (2 REQ'D) (Basis of Design)

1. Advance Tabco Model FFTG – 1242
 - a. Floor Trough, 12"Wx42"Lx4"D
 - b. S/S grating, stainless steel removable strainer basket
 - c. 4" O.D. waste pipe 3"L, pitched towards waste
 - d. Security fasteners

AQ. Item 204 - FLOOR TROUGH (1 REQ'D) (Basis of Design)

1. Advance Tabco Model FFTG-1260
 - a. Floor Trough, 12"Wx60"Lx4"D
 - b. S/S grating, stainless steel removable strainer basket
 - c. 4" O.D. waste pipe 3"L, pitched towards waste
 - d. Security fasteners

AR. Item 205 - DISHTABLE SORTING TABLE (1 REQ'D) (Basis of Design)

1. Advance Tabco Model SR-96
 - a. Sorting Table, mobile

Project Description

- b. with 3" raised edge, 30" wide top, without splash
 - c. 96" long
 - d. Crossrails, stainless steel construction
 - e. 16 gauge 304 series stainless steel top
- AS Item 206 - WORK CENTER (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
 - a. Pre rinse table, all stainless steel construction sized and shaped as per plan
 - b. Top: 14 ga. type 304 stainless steel
 - i. 8" back splash
 - ii. 2" return on 45 degree angle
 - iii. mounting clips per plan
 - c. Stainless steel cross bracing
 - d. Stainless steel legs
 - e. Stainless steel adjustable bullet feet
- AT. Item 206.1 - SINK, (2) TWO COMPARTMENT (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
 - a. 20" x 25" x 12" integrally welded stainless steel sink
 - b. Fisher #22306 waste valve with flat strainer with overflow
- AU. Item 206.2 – PRE - RINSE (1 REQ'D) (Basis of Design)
 - 1. Fisher Model 80896
 - a. Pre-Rinse Unit
 - b. 8" backsplash with elbows
 - c. Supply lines & angle stops control valve
 - d. Spring action flexible gooseneck
 - e. 21" riser
 - f. 36" hose
 - g. Wall bracket
 - h. Ultra spray valve & brush
- AV. Item 206.3 - FAUCET (1 REQ'D) (Basis of Design)
 - 1. Fisher Model 81094
 - a. Workboard Faucet
 - b. 8" c/c backsplash mount
 - c. 10" swing spout
 - d. Supply lines, elbows, angle stops
- AW. Item 207 - WALL MOUNTED SHELF (1 REQ'D) (Basis of Design)
- AX Item 208 - Soiledware table w/ trough(1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM Soiledware table w/ trough
 - a. Water gusher at end
- AY Item 208.1 - DISPOSAL SYSTEM (1 REQ'D) (Basis of Design)
 - 1. Salvajor Model S419
 - a. Trough Collector, trough conveyor & collecting system (widely accepted in areas where disposers are restricted), with trough diffuser, salvage basin & silverware trap
 - b. 3/4 HP corrosion-resistant pump
 - c. stainless steel construction
 - d. start/stop pushbutton control panel
 - e. safety line disconnect & automatic shut off timer
 - f. Model PMM Tank modification
 - g. Model 992013 Scrap basket
 - h. Model 419CISS Trough Collector full stainless steel cover
 - i. Model 988001 Gusher head assembly for TVL, TVR & S419
 - j. Model 980061 Trough diffuser for TVL, TVR or S419
 - k. Model LSP3 Stainless steel bolt-down flanges for S914, P914 & S419
 - l. Model RSS Remote start/stop switch for all controls

Project Description

- m. Model 997101 Control padlock hasp
 - n. Model 980104 Mounting bracket for RSS, MSS, MSS-LD, MRSS
 - o. Model 980603 Trough Collector prison package, includes service cover & security screws with tool for control panel & cover
- AZ. Item 208.2 - Roller conveyor(1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
- BA. Item 208.3 SHELF (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM Overhead rack shelf
- BB. Item 209 - DISHWASHER, FLIGHT TYPE (1 REQ'D) (Basis of Design)
 - 1. Hobart Model No. FT900S+BUILDUP Packed: ea
 - a. Space Saver Flight Type Continuous Racking Automatic Conveyor
 - b. Dishwasher, Up to 10,025 Dishes/Hour, 114 Gallons/Hour, stainless steel Pumps and Impellers, Variable Speed Conveyor, Insulated Doors
 - c. FT900S-LDS005 5 ft load section
 - d. 1 ea FT900S-CTRSTD 4 ft center section standard
 - e. 1 ea FT900S-UNL007 7 ft unload section
 - f. 1 ea FT900S-DRY0NO W/o blower/dryer
 - g. 1 ea FT900S-HGTSTD *std height
 - h. 1 ea FT900S-EGR0NO W/o energy recovery
 - i. 1 ea FT900S-ELE0CD 480/60/3 steam/electric heat
 - j. 1 ea FT900S-HTESCL Steam coils
 - k. 1 ea FT900S-BST150 #150 stm booster
 - l. 1 ea FT900S-PRS050 21-50 psi
 - m. 1 ea FT900S-DIR0RL Right to left operation
 - n. 1 ea FT900S-PTC0NO W/o prewash temp control
 - o. 1 ea FT900S-DORHNG *hinged doors
 - p. 1 ea FT900S-CBR0NO W/o circuit breakers
 - q. 1 ea FT900S-CNVTIV Tivoli II, III Conveyor
 - r. 1 ea SEF-9102 HOOK MOUNTED PLASTIC STRIP CURTAINS
 - s. 1 ea SEF-9104 LOCKABLE CONTROL BOX
 - t. 1 ea SEF-9103 TORX SECURITY SCREWS
 - u. 1 ea SEF-9108 LOCKABLE INSPECTION DOORS
 - v. 1 ea SEF-9224A LOCKABLE COVER OVER CONTROLS
 - w. SEF-9100-C UNDERGRID WITH LOCK DOWNS ON ENCLOSURE PANELS
- BC. Item 210 - EXHAUST HOOD (1 REQ'D)
 - 1. Halton Co. Model CUSTOM
- BD. Item 211 - QUEEN MARY (11 REQ'D) (Basis of Design)
 - 1. Lakeside Manufacturing Model B592
 - a. Soiled Dish Breakdown Cart
 - b. 51-7/8"L x 30-7/8"W x 69-1/4"H
 - c. (4) 14 gauge stainless steel shelves ((2) flat, (2) angled)
 - d. Drain pan holder
 - e. Clear plastic drain tube
 - f. Built in plastic food scraper
 - g. Hanging waste bin
 - h. Tubular push handles
 - i. (4) 8" casters, (2) fixed & (2) swivel
 - j. NSF
- BE. Item 212 - CART, UTILITY (12 REQ'D) (Basis of Design)
 - 1. Lakeside Manufacturing Model 954
 - a. Tough Transport Utility Cart, open
 - b. (3) shelf, shelf size 24" x 42"
 - c. Stainless steel angle frame with push handle

Project Description

- d. 1000 lb. capacity
 - e. 2) 5" swivel & (2) 8" fixed casters: 5" cushion tread, std.
 - f. NSF
- BF. Item 213 - SCULLERY WORK CENTER (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
 - a. Scullery sink, all stainless steel construction sized and shaped as per plan
 - b. Top: 14 ga. type 304. stainless steel with 8" back splash with 2" return on 45 degree angle with mounting clips per plan
 - c. Stainless steel cross bracing
 - d. Stainless steel legs
 - e. Stainless steel adjustable bullet feet
- BG. Item 213.1 - SINK, (3) THREE COMPARTMENT (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
 - a. 24" x 22" x 12" integrally welded stainless steel sink
 - b. Fisher #22306 waste valve with flat strainer with overflow
- BH. Item 213.2 - PRE-RINSE (1 REQ'D) (Basis of Design)
 - 1. Fisher Model 80896
 - a. Pre-Rinse Unit
 - b. 8" backsplash with elbows
 - c. Supply lines & angle stops control valve
 - d. Spring action flexible gooseneck
 - e. 21" riser, 36" hose
 - f. Wall bracket
 - g. Ultra spray valve & brush
- BI. Item 213.3 - FAUCET (1 REQ'D) (Basis of Design)
 - 1. Fisher Model 81094
 - a. Workboard Faucet
 - b. 8" c/c backsplash mount
 - c. 10" swing spout
 - d. Supply lines, elbows, angle stops
- BJ. Item 214 - WALL MOUNTED SHELF (1 REQ'D) (Basis of Design)
 - 1. Advance Tabco Model WS-12-72
 - a. Shelf, wall-mounted
 - b. 12" wide, 72" long
 - c. 18 gauge type 430 stainless steel
- BK. Item 215 - BEVERAGE DISPENSER (8 REQ'D) (Basis of Design)
 - 1. Cambro Model UC1000110
 - a. Ultra Camtainer® Beverage Carrier, insulated plastic
 - b. 10-1/2 gallon capacity
 - c. Black, NSF approved
 - d. VERIFY QUANTITY WITH CLIENT
- BL. Item 216.1 - ICE CUBER (3 REQ'D) (Basis of Design)
 - 1. Manitowoc Model IY-1804A
 - a. Indigo™ Series Ice Maker, cube-style
 - b. Air-cooled, self-contained condenser
 - c. Up to 1860-lb approximately/24 hours
 - d. DuraTech™ exterior (stainless finish with innovative clear-coat resists fingerprints & dirt)
 - e. Half dice size cubes
- BM. Item 216.2 - ICE BIN FOR ICE MACHINES (3 REQ'D) (Single Source)
 - 1. Follett Corporation Model ITS1350SG-60
 - a. ITS Ice Storage & Transport System, elevated bin
 - b. 1350 lb. bin storage, for cube or flake ice

Project Description

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- c. (2) polyethylene carts with lid & casters
 - i. cart capacity: 240 lb
 - d. Ice paddle
 - e. Poly liner
 - f. SmartGATE™ poly lift door with PowerHinge
 - g. Stainless steel exterior
 - h. Custom cut top
- BN. Item 216.3 - WATER FILTER ASSEMBLY (3 REQ'D) (Basis of Design)
- 1. 3M Purification Model ICE265-S
 - a. 3M™ Water Filter System/Shut-Off Valve
 - b. 18-1/16"H x 16-7/8"W x 5-3/8"D
 - c. High turbidity water, dual cartridge manifold
 - d. Built in pressure gauge
 - e. Inlet water shut-off valve
 - f. Outlet check valve
 - g. 3/4"MNPT, maX pressure of 125 psi at 100°F, for sediment, chlorine taste & odor, scale
 - h. 3 micron rating, 6.68 gpm flow rate, 70,000 gallon capacity, for ice machines (cubers up to 3000lbs, flakers up to 4800lbs)
 - i. Integral mounting bracket and single o-ring seal cartridge filter included
 - j. NSF
- BO. Item 217 - BREAKROOM TABLE (4 REQ'D) (Basis of Design)
- 1. Emjac Industries Model CUSTOM
 - a. Stainless steel Inmate Break Table with benches
 - b. Sized and shaped as per plans
 - c. Table: s/s top with attached s/s benches
 - 2. Table Top: 10 ga steel table top w/ 2" flange each side 24" x 96"
 - 3. Seats: 10 ga formed steel channels w/ 2x2 angle reinforcement at under side 12" x 96" each side
 - 4. Horizontal Braces: 6" x 50" x 7" ga steel channels, welded to seat tops
 - 5. Vertical Braces: 12" x 30" x 7" ga vertical channel, w/ 2" x 3/8" base plate field weld to table top & seat base. All joints welded & ground smooth.
 - 6. Floor Plate: 18" x 18" x 3/8" steel base plate
 - 7. Finish: Chemically degreased & 1 coat universal rust inhibitive primer
 - a. Intended for installation in a correctional facility
 - b. Provide any and all security control devices intended for use in the correctional environment
- BP. Item 301 - SINK, HAND (6 REQ'D) (Basis of Design)
- 1. Metcraft Model 5681
 - a. Stainless steel wall mounted hand sink
 - b. A307, chrome plated faucet
 - c. A775, stainless steel angle braces
 - d. A775, stainless steel angle braces
- BQ. Item 302 - VERTICAL CUTTER MIXER VCM (1 REQ'D) (Basis of Design)
- 1. Robot Coupe Model R30T
 - a. Cutter/Mixer, vertical
 - b. 31 qt. capacity
 - c. Stainless steel tilt removable cutter bowl with handle and see-thru lid
 - d. (3) smooth edge "S" blade assembly
 - e. Control panel equipped with digital 0-15 minute timer
 - f. Stainless steel construction
 - g. Two speed 1800 & 3600 RPM

Project Description

- h. 208-240v/60/3-ph, 40 amps, 7 HP
- i. NEMA L15-30P
- j. ETL electrical and sanitation
- BR. Item 303 - WORK CENTER (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
 - a. Prep table, all stainless steel construction sized and shaped as per plan
 - b. Top: 14 ga. type 304 stainless steel
 - c. Stainless steel cross bracing
 - d. Stainless steel legs
 - e. Stainless steel adjustable bullet feet
- BS. Item 303.1 - SINK, (1) ONE COMPARTMENT (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
 - a. 20" x 14" x 12" integrally welded stainless steel sink
 - b. Fisher #22306 waste valve with flat strainer with overflow
- BT. Item 303.2 - SINK, (2) TWO COMPARTMENT (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
 - a. 20" x 14" x 12" integrally welded stainless steel sink
 - b. Fisher #22306 waste valve with flat strainer with overflow
- BU. Item 303.3 - FAUCET (2 REQ'D) (Basis of Design)
 - 1. Fisher Model 81094
 - a. Workboard Faucet, 8" c/c backsplash mount, with 10" swing spout
 - b. Supply lines, elbows, angle stops
- BV. Item 304 - WALL MOUNTED SHELF (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
 - a. Stainless steel wall mounted over shelf, sized, shaped and located as per plan
 - b. Shelf to be 16 gauge type 304 stainless steel
 - c. Mount using stainless steel fasteners
- BW. Item 305 - VEGETABLE DRYER (1 REQ'D) (Basis of Design)
 - 1. Delfield Model SALD-1
 - a. Shelleymatic® Salad Drier
 - b. Capacity (20) gallons
 - c. Stainless steel exterior & lid, polyurethane interior, unit completely enclosed
 - d. Watertight motor
 - e. 1-1/2" drain
 - f. Adjustable on/off timer with cycles up to 5 minutes
 - g. Cord & plug included
 - h. 4" locking stem casters
 - i. 115v/60/1-ph, 2.7 amp
 - j. NEMA 5-15P, cUL, UL, NSF
- BX. Item 306 - MIXER, PLANETARY (1 REQ'D) (Basis of Design)
 - 1. Hobart Model N50-60
 - a. Mixer, Planetary, Bench
 - b. Capacity 5-qt.
 - c. 3 fixed speeds, gear-driven transmission
 - d. #10 taper attachment hub
 - e. Manual bowl lift
 - f. Hobart Gray enamel housing
 - g. S/S bowl, alum "B" beater, s/s "D" wire whip, alum dough hook
 - h. 100-120/60/1, 1/6 hp, cord w/plug
- BY. Item 307 - FOOD PROCESSOR (1 REQ'D) (Basis of Design)
 - 1. Robot Coupe Model R2N
 - a. Commercial Food Processor
 - b. Capacity 3 qt.

Project Description

- c. Gray ABS bowl w/handle
- d. Kidney-shaped opening
- e. Vegetable prep attachment with external ejection
- f. "S" blade, 27577 5/64" (2mm) grating disc and 27566 5/32" (4mm) slicing disc
- g. Continuous feed, bowl attachment designed for vertical cutting and mixing
- h. On/Off & pulse switch, single speed, 1725 RPM
- i. 120v/60/1-hp, 7 amps, 1 HP
- j. ETL electrical and sanitation, cETL
- BZ. Item 308 - VEGETABLE/POTATO PEELER (1 REQ'D) (Basis of Design)
 - 1. Hobart Model 6430-4
 - a. Vegetable Peeler
 - b. Capacity: 30-33 lb. potatoes in 1-3 minute
 - c. Synchronous timer adj. from 1/2 min. increment up to 4 min.
 - d. Double V-belt drive
 - e. Removable abrasive silicon carbide disc & lexan liner
 - f. Welded s/s construction
 - g. 220-240/50/1, 3/4 hp
 - 2. Cabinet base & trap - S/S strainer
- CA. Item 309 - MOBILE REFRIGERATOR CABINET (4 REQ'D) (Basis of Design)
 - 1. Carter-Hoffmann Model PHB450
 - a. Refrigerated Cabinet, mobile, insulated
 - b. Capacity: (30) 18"x 26" sheet pans
 - c. Slide spacing fixed on 1-1/2" centers
 - d. (1) door
 - e. On/Off switch
 - f. Thermometer
 - g. Push handles
 - h. Flush mounted sliding door latch
 - i. Bottom-mounted refrigeration
 - j. Stainless steel construction
 - k. 6" swivel casters (2 with brakes)
 - l. 120v/60/1-ph, 8.5 amps
 - m. NEMA 5-15P, 10' cord, cUL, NSF (RapidShip)
- CB. Item 310 - WORK CENTER (7 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
 - a. Work table, all stainless steel construction sized and shaped as per plan
 - b. Top: 14 ga. type 304 stainless steel
 - c. Stainless steel cross bracing
 - d. Stainless steel legs
 - e. Stainless steel adjustable bullet feet
- CC. Item 311 - REACH-IN REFRIGERATOR, 2 SECTIONS (2 REQ'D) (Basis of Design)
 - 1. Victory Refrigeration Model RS-2D-S1
 - a. UltraSpec Series 1 Refrigerator
 - b. Reach-in, two-section, self-contained refrigeration
 - c. Capacity: 46.5 cu. ft.
 - d. (2) hinged doors
 - e. (6) shelves
 - f. Stainless steel exterior & interior
 - g. Standard depth cabinet
 - h. Full-height doors
 - i. 1/3 HP
 - j. V-TEMP electronic temperature control/indicator
 - k. Self-Contained refrigeration

Project Description

- l. Door hinging:
 - i. left door hinged on left
 - ii. right door hinged on right
- m. Standard Incandescent light
- n. Legs: set of 4, 6" high adjustable stainless steel, standard
- CD. Item 312 - WORK CENTER (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
 - a. Prep table, all stainless steel construction sized and shaped as per plan
 - b. Top: 14 ga. type 304 stainless steel with 8" back splash and 2" return on 45 degree angle with mounting clips per plan
 - c. Stainless steel cross bracing
 - d. Stainless steel legs
 - e. Stainless steel adjustable bullet feet
- CE. Item 312.1 - SINK, (1) ONE COMPARTMENT (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
 - a. 20" x 14" x 12" integrally welded stainless steel sink
 - b. Fisher #22306 waste valve with flat strainer with overflow
- CF. Item 312.2 - SINK, (2) TWO COMPARTMENT (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
 - a. 20" x 14" x 12" integrally welded stainless steel sink
 - b. Fisher #22306 waste valve with flat strainer with overflow
- CG. Item 312.3 - FAUCET (2 REQ'D) (Basis of Design)
 - 1. Fisher Model 81094
 - a. Workboard Faucet
 - b. 8" c/c backsplash mount, with 10" swing spout
 - c. Supply lines, elbows, angle stops
- CH. Item 313 - Wall MOUNTED SHELF (1 REQ'D) (Basis of Design)
 - 1. Fabricated Model CUSTOM
 - a. Stainless steel wall mounted over shelf, sized, shaped and located as per plan
 - b. Shelf: 16 gauge type 304 stainless steel
 - c. Mount using stainless steel fasteners
- CI. Item 314 - WALL MOUNTED SHELF (1 REQ'D) (Basis of Design)
 - 1. Fabricated Model CUSTOM
 - a. Stainless steel wall mounted over shelf, sized, shaped and located as per plan
 - b. Shelf: 16 gauge type 304 stainless steel
 - c. Mount using stainless steel fasteners
- CJ. Item 315 - SPARE NO.
- CK. Item 316 – ROLL-IN OVEN (2 REQ'D) (Basis of Design)
 - 1. Baxter Manufacturing Model OV500G2-EE
 - a. Rotating Rack Oven, Gas, curved front
 - b. Holds (2) single or (1) double oven racks
 - c. Programmable digital controls
 - d. Auto rack lift
 - e. Advanced Controls with 4-stage bake & 99 programmable menus
 - f. Self-contained steam system
 - g. Stainless steel construction
 - h. Fully fire sealed hood
 - i. Flush floor
 - j. single vent
 - k. 275,000 BTU, Energy Efficient, cUL
 - l. Natural gas burner "B" style lift, standard
 - m. Without prison package, standard
 - n. Oven body shipped split, double rack units

Project Description

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- CL. Item 317 - EXHAUST HOOD (2 REQ'D)
 - 1. Halton Co. Model CUSTOM Oven exhaust collar
 - CM. Item 318 - COMBI OVEN (2 REQ'D) (Basis of Design)
 - 1. Alto-Shaam Model 20-20ESG/S
 - a. CombiTherm® Oven/Steamer Combination, gas, boiler-free, simple manual control, low temperature steam
 - b. Floor model with roll-in cart
 - c. Capacity: (40) full-size pans or (20) full-size sheet pans
 - d. Stainless steel construction with temperature glass window
 - e. Door hinged right
 - f. Electric ignition
 - g. Adjustable legs
 - h. 160,000 BTU, EcoSmart®, cULus, ANSI/NSF 4
 - CN. Item 319 - PASTA COOKER (1 REQ'D) (Basis of Design)
 - 1. Frymaster Model GPCRB
 - a. Pasta Magic Cooker, Gas, timer controller, automatic timed basket lifts, rinse tank, auto-fill/skim
 - b. Capacity: 15 gallon
 - c. Swing away hot/cold rinse faucet
 - d. Stainless steel cookpot, door and cabinet
 - e. Bulk pasta basket, portion cup rack and 24 portion cups or 3 round baskets in lieu of portion cups & rack
 - f. Casters
 - g. 80,000 BTU
 - CO. Item 320 - HOT TOP RANGE (2 REQ'D) (Basis of Design)
 - 1. Garland/US Range Model M43-3T
 - a. Master Series Heavy Duty Range, 34" W, gas
 - b. (3) 12" Even Heat Hot Top, modular
 - c. 1-1/4" front manifold
 - d. Stainless steel front and sides
 - e. 66,000 BTU (Garland)
 - CP. Item 321 - EXHAUST SYSTEM (1 REQ'D) (Single Source)
 - 1. Halton Co. Model CUSTOM Demand control ventilation system
 - CQ. Item 321.1 - EXHAUST HOOD (1 REQ'D) (Single Source)
 - 1. Halton Co. Model CUSTOM Exhaust hood #1
 - CR. Item 321.2 - EXHAUST HOOD (1 REQ'D) (Single Source)
 - 1. Halton Co. Model CUSTOM Exhaust hood #2
 - CS. Item 321.3 - EXHAUST SYSTEM (1 REQ'D) (Single Source)
 - 1. Halton Co. Model CUSTOM Fire suppression system
 - CT. Item 321.4 - EXHAUST AND UTILITY SYSTEM (1 REQ'D) (Single Source)
 - 1. Halton Co. Model CUSTOM Utility distribution system
 - CU. Item 321.5 - EXHAUST HOOD SYSTEM (1 REQ'D) (Single Source)
 - 1. Halton Co. Model CUSTOM Marvel control panel
 - CV. Item 321.6 - EXHAUST HOOD (1 REQ'D) (Single Source)
 - 1. Halton Co. Model CUSTOM Exhaust hood #3
 - CW. Item 321.7 - EXHAUST SYSTEM (1 REQ'D) (Single Source)
 - 1. Halton Co. Model CUSTOM Fire suppression system
 - CX. Item 322 - TILTING SKILLET, GAS (1 REQ'D) (Basis of Design)
 - 1. Cleveland Range Model SGL40T1
 - a. PowerPan™ Tilting Skillet, Gas
 - b. Capacity: 40-gallon
 - c. Bead blasted cooking surface

Project Description

- d. 10° tilt cooking feature, with easy manual hand tilt
 - e. Spring-assisted cover with vent
 - f. gallon & liter markings
 - g. food strainer
 - h. stainless steel construction with open leg frame
 - i. CE, NSF
- CY. Item 323 - TILTING KETTLE (5 REQ'D) (Basis of Design)
 - 1. Cleveland Range Model KDL-40-T
 - a. Kettle, Direct Steam, Tilting
 - b. Capacity: 40-gallon
 - c. 2/3 steam jacket design
 - d. Mounted on open tri-leg base
 - e. Stainless steel exterior finish
 - f. Flanged feet
 - g. Steam control valve
 - h. 50 psi rating
- CZ. Item 324 - FLOOR TROUGH (6 REQ'D) (Basis of Design)
 - 1. Fabricated Model CUSTOM
 - a. Stainless steel floor trough
 - b. 1-1/2" Depth
 - c. Type 304 stainless steel construction
 - d. All welded construction
 - e. Size and shape as per plans
 - f. Provide with drain connection and removable stainless steel scrap basket
 - g. Grate to be S/S
- DA. Item 325 - WORKTABLE (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
 - a. Work table, all stainless steel construction sized and shaped as per plan
 - b. Top: 14 ga. type 304 stainless steel with 8" back splash with 2" return on 45 degree angle with mounting clips per plan
 - c. Stainless steel cross bracing
 - d. Stainless steel legs
 - e. Stainless steel adjustable bullet feet
- DB. Item 325.1 - SINK, (1) ONE COMPARTMENT (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
 - a. 20" x 14" x 12" integrally welded stainless steel sink
 - b. Fisher #22306 waste valve with flat strainer with overflow
- DC. Item 325.2 - FAUCET (1 REQ'D) (Basis of Design)
 - 1. Fisher Model 81043
 - a. Workboard Faucet
 - b. 8" c/c deck mount, with 10" swing spout
 - c. Supply lines, angle stops
- DD. Item 326 - MOBILE HEATED CABINET (10 REQ'D) (Basis of Design)
 - 1. Food Warming Equip Model TS-1826-15
 - a. Heated Cabinet, mobile, insulated
 - b. Humi-temp heat system w/eye level controls
 - c. 10 pr universal tray slides 4.5" OC, for 18"x26", 14"x18", 12"x20" and Gastronorm 1-1
 - d. Removable slides & uprights
 - e. 20-gauge stainless steel exterior
 - f. 22-gauge stainless steel interior construction
 - g. Heavy duty push bars
 - h. Full bumper

Project Description

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- 2. VERIFY QUANTITY WITH CLIENT
 - DE. Item 327 - HOT FOOD MOBILE UNIT (2 REQ'D) (Basis of Design)
 - 1. Atlas Metal Model CAH-3
 - a. Hot Food Serving Counter, 50"L, electric
 - b. (3) pan size bain-marie type with single thermostat
 - c. Open rear, stainless steel top
 - d. Aluminum square tubing frame
 - e. Laminated front panel
 - f. 5" swivel casters, (2) with brakes
 - g. 6 ft cord
 - DF. Item 328 - WORK CENTER (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
 - a. Tray make up table, all stainless steel construction sized and shaped as per plan
 - b. Top: 14 ga. type 304 stainless steel with 8" back splash with 2" return on 45 degree angle with mounting clips per plan
 - c. Stainless steel cross bracing
 - d. Stainless steel legs
 - e. Stainless steel adjustable bullet feet
 - DG. Item 328.1 - CONVEYOR RACEWAY (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM Power raceway
 - DH. Item 328.2 - CONVEYOR ROLLER (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM Roller conveyor
 - DI. Item 329 - TRAY DELIVERY CART (13 REQ'D) (Basis of Design)
 - 1. Food Warming Equip Model PTS-40-8HA
 - a. Prisoner Tray Delivery Cart, hot-cold
 - b. (2) Hot compartment w/Humi-Temp heat system
 - i. (40) 15-1/2"x11-1/2" trays
 - ii. Slides 3" OC (2) trays each
 - c. (1) Ambient compartment
 - i. (12) 10"x14" slides 4" OC
 - d. Tamper proof
 - e. S/S construction
 - f. Push bars
 - g. Full bumper
 - 2. VERIFY QUANTITY WITH CLIENT
 - DJ. Item 330 - TRAY DELIVERY CART (18 REQ'D) (Basis of Design)
 - 1. Food Warming Equip Model PTS-3030
 - a. Prisoner Tray Delivery Cart, heated, insulated
 - b. Humi-temp heat system w/eye level controls
 - c. Welded stainless steel construction
 - d. Tray racks: 3" OC, (30) 10x14 or (30) 15.5x11.5 trays
 - e. Tamper proof access
 - f. Heavy duty push bars
 - g. Full bumper
 - 2. VERIFY QUANTITY WITH CLIENT
 - DK. Item 401 - SPARE NO.
 - DL. Item 402 - REACH-IN REFRIGERATOR, 1 SECTION (1 REQ'D) (Basis of Design)
 - 1. True Food Service Equipment Model STR1R-1S
 - a. SPEC SERIES® Refrigerator, Reach-in, one-section
 - b. Stainless steel front & sides
 - c. (1) Stainless steel door with lock, cam-lift hinges
 - d. Digital temperature control
 - e. Stainless steel interior, (1) interior kit

Project Description

- f. LED interior lights
- g. 5" castors
- h. 1/3 HP, 115v/60/1, 4.8 amps, 9' cord
- i. NEMA 5-15P, ENERGY STAR®, cUL, NSF, MADE IN USA
- j. Spec Kit #4 - (3) chrome shelves & shelf supports
- DM. Item 403 - RANGE, GAS, HEAVY DUTY, 36" (1 REQ'D) (Basis of Design)
 - 1. Garland/US Range Model M54R
 - a. Master Series Heavy Duty Range, 34" W, gas
 - b. (2) 35,000 BTU open burners
 - c. (1) Front Fired Hot Top (left), standard oven with Piezo ignition
 - d. 1-1/4" front manifold
 - e. Stainless steel front and sides
 - f. 6" legs
 - g. 155,000 BTU (Garland)
- DN. Item 404 - GRIDDLE, GAS, HEAVY DUTY (1 REQ'D)
 - 1. GARLAND Model M-47-51S
 - a. Master Series Heavy Duty Range, 34" W, gas
 - b. 131,000 BTU
 - c. Standard oven with Piezo ignition
 - d. 1-1/4" front manifold
 - e. Stainless steel front and sides
 - f. 6" legs (Garland)
- DO. Item 405 - CHARBROILER (1 REQ'D) (Basis of Design)
 - 1. Garland/US Range Model M24B
 - a. Master Series Charbroiler, gas
 - b. 24" W x 23" D grill area
 - c. Briquettes, flat/tilt steel grates
 - d. Spark ignition
 - e. 1-1/4" front manifold
 - f. Storage base, stainless steel front and sides
 - g. 6" legs
 - h. 60,000 BTU (Garland)
- DP. Item 406 - SPREADER PLATE (1 REQ'D) (Basis of Design)
 - 1. Garland/US Range Model M12ES
 - a. Master Series Spreader Plate
 - b. 12" wide top
 - c. Cabinet base with one door
 - d. Stainless steel front, sides, front rail and work top
 - e. 6" legs (Garland)
- DQ. Item 407 - GAS FRYER (1 REQ'D) (Basis of Design)
 - 1. Frymaster Model H55E
 - a. High Efficiency Open Full Pot Gas Fryer
 - b. Capacity: 50 lb
 - c. Electronic timer controller
 - d. Rack-type basket support, basket hanger, twin baskets
 - e. Automatic melt cycle
 - f. Boil-out temp control
 - g. electronic ignition, center mounted RTD
 - h. 1° compensating temperature probe
 - i. Stainless steel frypot and door
 - j. Enamel cabinet, legs
 - k. 80,000 BTU
 - l. Part of the Manitowoc EnerLogic™ program, ENERGY STAR®, NSF

Project Description

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- DR. Item 408 - SPARE NO.
 - DS. Item 409 – REACH-IN FREEZER, 1 SECTION (1 REQ'D) (Basis of Design)
 - 1. True Food Service Equipment Model STR1F-1S
 - a. SPEC SERIES® Freezer, Reach-in, -10°F
 - b. One-section, stainless steel front & sides
 - c. (1) stainless steel door with lock, cam-lift hinges
 - d. Digital temperature control
 - e. Stainless steel interior
 - f. (1) interior kit
 - g. LED interior lights
 - h. 5" castors
 - i. 1/3 HP, 115v/60/1, 6.8 amps, 9' cord
 - j. NEMA 5-15P, MADE IN USA
 - DT. Item 410 - COUNTER (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
 - a. Service counter, all stainless steel construction sized and shaped as per plan
 - b. Top: 14 ga. type 304 stainless steel with 8" back splash with 2" return on 45 degree angle with mounting clips per plan
 - c. Stainless steel cross bracing
 - d. Stainless steel legs
 - e. Stainless steel adjustable bullet feet
 - DU. Item 410.1 - SNEEZE GUARD COMPONENTS (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM Sneeze guard
 - DV. Item 411 - CONVEYOR TOASTER (1 REQ'D) (Basis of Design)
 - 1. Hatco Model TQ-800H
 - a. Toast-Qwik® Conveyor Toaster
 - b. Horizontal conveyor
 - c. Countertop design
 - d. All bread types toaster
 - DW. Item 412 – DROP-IN HOT WELL (2 REQ'D) (Basis of Design)
 - 1. Hatco Model HWBHRN-11QTD
 - a. Built-In Heated Well, with drain, round, non-insulated, top mounted
 - b. Capacity: 11 qt.
 - c. Infinite switch control
 - d. Pilot light & leads
 - e. Stainless steel construction
 - f. (High watt)
 - DX. Item 413 - HEATED DISPLAY (1 REQ'D) (Basis of Design)
 - 1. Hatco Model GR2SDS-54D
 - a. Designer Slant Display Warmer, free-standing
 - b. Double shelf with 20 rods
 - c. Adjustable thermostat
 - d. Incandescent light
 - e. Hardcoat aluminum base
 - f. Tempered glass end panels
 - g. Designer panels & corner caps
 - h. 4" legs
 - i. 3780 watts
 - DY. Item 414 – DROP-IN HOT WELL (1 REQ'D) (Basis of Design)
 - 1. Atlas Metal Model WH-4
 - a. Hot Food Drop-In Well Unit, electric
 - b. Bain-marie or individual pan, wet or dry type
 - c. Four-pan size for 12" x 20" pans

Project Description

- d. Control panel with single thermostatic control
- e. Stainless steel top & inner liner
- f. Galvanized outer liner
- g. Fiberglass insulation
- DZ. Item 415 – DROP-IN COLD FOOD PAN (1 REQ'D) (Basis of Design)
 - 1. Atlas Metal Model WCMD-4
 - a. Cold Food Drop-In Unit, refrigerated, deep design
 - b. 4-pan size
 - c. Self-contained refrigeration system
 - d. Insulated pan
 - e. Stainless steel inner liner & top
 - f. Galvanized steel outer liner
 - g. On/Off thermostat switch
 - h. Pilot light
- EA. Item 416 – DROP-IN COLD FOOD PAN (1 REQ'D) (Basis of Design)
 - 1. Atlas Metal Model WCMD-2
 - a. Cold Food Drop-In Unit, refrigerated, deep design
 - b. 2-pan size
 - c. Self-contained refrigeration system
 - d. Insulated pan
 - e. Stainless steel inner liner & top
 - f. Galvanized steel outer liner
 - g. On/Off thermostat switch
 - h. Pilot light
- EB. Item 417 - COFFEE URN (1 REQ'D) (Basis of Design)
 - 1. Bunn-O-Matic Model U3-0000
 - a. 20500.0000 U3 Coffee Urn
 - b. Twin 3 gallon reservoirs
 - c. Automatic, electric, single service
 - d. Brews full or half batches and/or 16.3 gallons per hour
 - e. Hot water faucet
 - f. Stainless décor
 - g. 120/208/60/1-ph, 28 amp, 5825 watts, UL, NSF
- EC. Item 418 - DRIP TRAY TROUGH, BEVERAGE (1 REQ'D) (Basis of Design)
 - 1. Emjac Industries Model CUSTOM
- ED. Item 419 - TEA BREWER (1 REQ'D) (Basis of Design)
 - 1. Bunn-O-Matic Model ITB-0000: 41400.0000 Infusion Series® Iced Tea Brewer
 - a. Capacity: 3 or 5 gallon single brewer (brews 16.3 to 26.7 gallon/hr)
 - b. 29" trunk
 - c. 3 recipe buttons
 - d. Digital temperature control
 - e. Brew counter
 - f. Pulse interface
 - g. Energy-saver mode
 - h. English & Spanish alphanumeric & advertising display, includes single button graphic overlay & Quickbrew & SplashGard® funnel
 - i. Brews into BUNN tea dispensers (except TDS-5)
 - j. 120v/60/1-ph, 1700w, 14amps, NEMA 5-15P, cord attached, UL, NSF
 - 2. 34100.0001 TDO-5 Iced Tea/Coffee Dispenser
 - a. Cylinder style
 - b. Capacity: 5 gallon (18.9 litres)
 - c. Sump dispense valve
 - d. Oval shape solid plastic lid



Project Description

- e. Faucet handles labeled sweetened & unsweetened
- f. Side handles
- g. NSF
- EE. Item 420 - ICE MACHINE & DISPENSER, NUGGET STYLE (1 REQ'D) (Basis of Design)
 - 1. Follett Corporation Model 12CI400A-L
 - a. Symphony™ Ice & Water Dispenser, countertop, lever dispense, integral ice machine
 - b. Nugget style
 - c. Air-cooled condenser
 - d. 400 lb. production/24 hours
 - e. Storage capacity: 12 lb.
 - f. Stainless steel exterior
 - g. NSF, UL