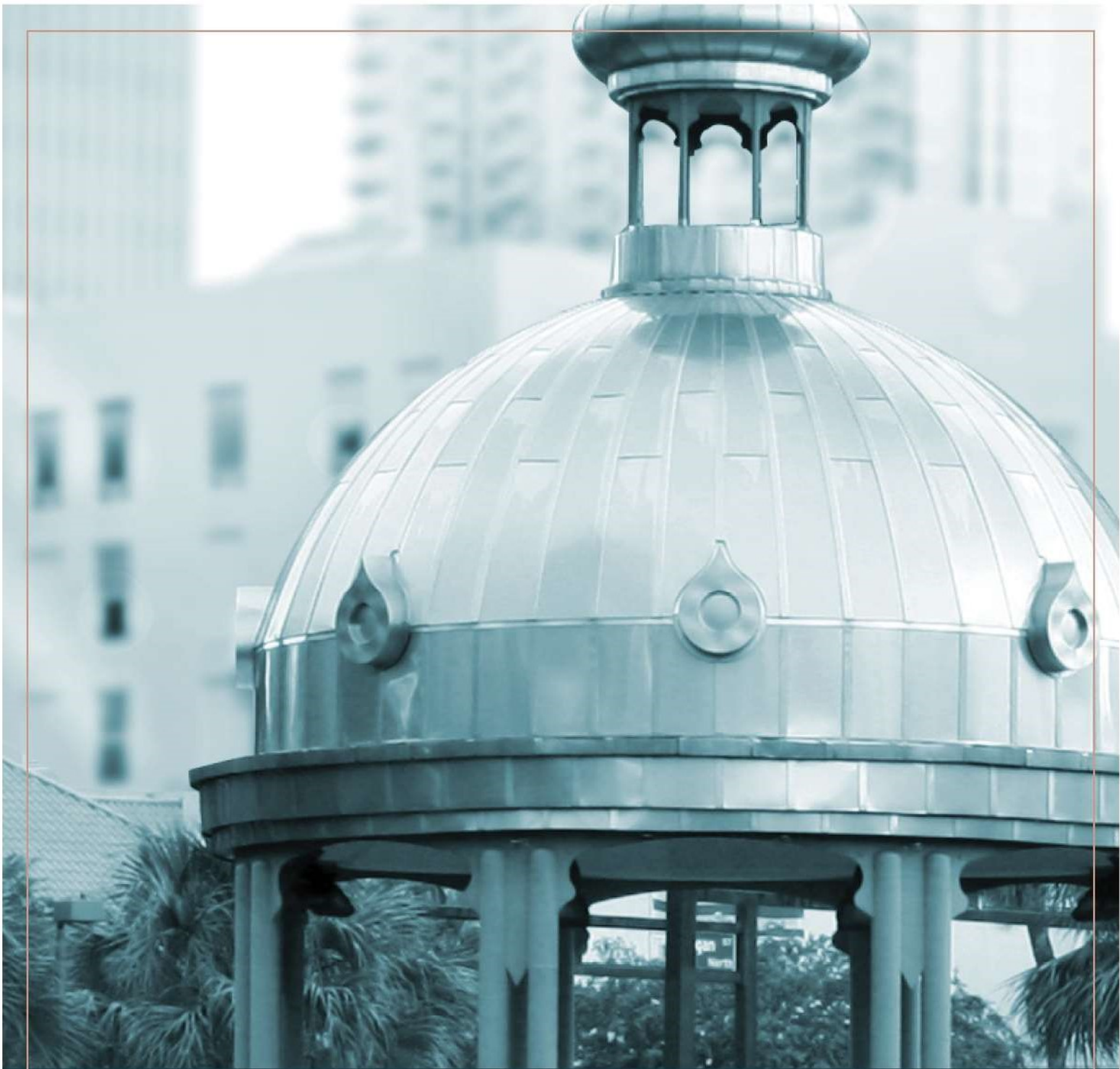




Addendum No. 2

IFB-25-00071 Thonotosassa Fire Station #21

HCFL.gov/Vendors
(813) 272-5790



**Hillsborough
County Florida**
Procurement Services

IMPORTANT! PLEASE READ CAREFULLY BEFORE SUBMITTING BID

ISSUANCE DATE: **April 16, 2025**

SOLICITATION NUMBER: **IFB-25-00071**

SOLICITATION TITLE: **Thonotosassa Fire Station #21**

PRIMARY CONTACT: **Connor Fletcher, Chief Buyer**

CONE OF SILENCE: A Cone of Silence is in effect for this procurement; therefore, no Bidder, interested party and/or their principals, officers, employees, attorneys, or agents shall communicate with County employees, the Hearing Master assigned to hear the applicable protest appeal and/or members of the Board of County Commissioners, including their aides and employees regarding this procurement and/or a related protest, except as otherwise provided in the [Hillsborough County Procurement Protest Policy and Procedures Ordinance](#). The Cone of Silence does not prohibit a Bidder from communicating with the Director of Procurement, staff in the Procurement Services Department, or the County's attorney assigned to this procurement. Violating the Cone of Silence may disqualify the Bidder from consideration for award. Please refer to the **Instructions** for complete details about the Cone of Silence.

NOTICE: This Addendum is an integral part of the Invitation for Bid under consideration by you as a Bidder in connection with the subject matter identified below. Hillsborough County deems all Bids to have been proffered in recognition and consideration of the entire Invitation for Bid including all issued Addenda.

THE INFORMATION INCLUDED HEREIN IS HEREBY INCORPORATED INTO THE CONTRACT DOCUMENTS OF THIS PRESENT BID MATTER AND SUPERSEDES ANY CONFLICTING CONTRACT DOCUMENTS OR PORTION THEREOF PREVIOUSLY ISSUED.

If the Bid has already been submitted within the Bonfire electronic bidding system for Hillsborough County Procurement Services, Bidder shall resubmit bid and acknowledge addendum electronically.

REASON(S) FOR ADDENDUM:

1. IFB-25-00071 Addendum No.2 – Supplemental Technical Specifications and Plans providing clarifications on the Plans and Technical Specifications. Please refer to the Supporting Documentation Section in Bonfire. Original plans apply unless the Addendum plans are specifically referenced.
2. The Bid Table Line Item #0-2 for Additive Alternate No. 3 has been revised to match IFB-25-00071 Addendum No.2 Technical Specifications and Plans.
3. Deletes all text from Section 2.7.9 of the Contract Terms and Conditions and replaces it with the following: "All Liability Insurance Policies, with the exception of Worker's Compensation and Professional Errors and Omissions, obtained by the Contractor to meet the requirements of the Contract Documents shall provide that "Hillsborough County, a political subdivision of the State of

Florida” shall be additional insureds under the Policy and shall also incorporate a Severability of Interest provision. The County shall also be listed as a certificate holder on such policies. All insurance coverages provided under this Section shall apply to all the Contractor's activities under the Contract Documents without regard for the location of such activity. Liability policies shall only be written on the Occurrence form. “

4. Deletes all text from Section 2.7.12.8 of the Contract Terms and Conditions and replaces it with the following: “Certificates of Insurance. Certificates of Insurance evidencing the insurance coverage specified herein, when required, shall be filed with the Procurement Services Department within ten (10) Business Days after Notice of Intent to Recommend Award is posted in the County Electronic Bidding System. Builders Risk and Installation Floater policies (if required in the solicitation) must be subsequently filed within ten (10) Business days after the project has been awarded by the Board of County Commissioners. No Notice to Proceed will be issued until this post-award condition is satisfied. The required Certificates of Insurance not only shall name the types of policies provided, but also shall refer specifically to the Agreement. For purposes of the County’s additional insured status, the County shall be listed as “Hillsborough County, a political subdivision of the State of Florida” on the Certificates. Certificates shall have the signature of the producer or authorized Representative of the insurer(s). Certified copies of insurance policies shall be provided to the County upon request.”
5. Responses to vendor questions are included on the following pages.
6. Replaced BidTable BT-16KP “IFB-25-00071 Addendum 1 BidTable” with BidTable BT- 38FM “IFB-25-00071 Addendum 2 BidTable” which includes corrected Alternative.
7. The Bid Close Date has been extended from April 21, 2025, at 2:00 pm. to April 30, 2025, at 2:00 pm.

REASON(S) FOR ADDENDUM:

A. SPECIFICATIONS/DRAWINGS CLARIFICATIONS:

Clarification # 1:

Specifications:

Refer to IFB-25-00071 Addendum No.2 Supplemental Technical Specifications and Plans.

Drawings:

Refer to IFB-25-00071 Addendum No.2 Supplemental Technical Specifications and Plans.

B. RFI CLARIFICATIONS:

Question No.1: Will ROW sidewalk be reinforced? Please advise.

Response: The Offsite Sidewalk has to be 6" thick but not reinforced.

Question No.2: Spec section 32 3119 Decorative Metal Fences & Gates, indicates the fence to be 5' high under section 2.3K; however, plans indicate 4' high. Please advise.

Response: Provide 4' high as per plans.

Question No.3: Please provide demarcation of the landscaping/irrigation scope of work from base bid/alternate in the landscaping/irrigation plans.

Response: See attached revised landscape plans showing Base Bid and Alternate #6.

Question No.4: Please advise if fencing posts will be "post driven" or "concrete fill".

Response: Where no explicit method is detailed in the drawings, install in accordance with manufacturer's instructions.

Question No.5: Sheet S1.2 indicates concrete beam CB812 on the east side entrance; however, it's not on the beam schedule. Provide details.

Response: CB812 to be 8"x12" w/ (2) #5 top and bottom with #3 ties @ 5" on center.

Question No.6: Sheet S2.2 detail 3 shows a tie beam (TB816); however, it's not shown on the plans. Please advise.

Response: Provide masonry tie beams per Masonry note #6 on S0.1 and as shown on S2.3 and S3.1.

Question No.7: Sheet S1.2, under roof framing plan notes, note #10 "indicates install TB over all truss brg. walls. see detail 2/S2.4" which is not included in the drawing set. Please provide sheet plan.

Response: Refer to updated reference 7/S2.3.

Question No.8: Please provide structural details for the fire tank / well, storage shed, diesel fuel tank/dispenser and fire pump house foundation/slab.

Response: Detail added to revised sheet S0.2 as part of this Addendum 02, dated 03.06.2024

Question No.9: Please advise if owner is going to be providing the fueling station system (dispenser fuel management, controls, etc.). If not provide details/specs.

Response: Fueling station system is Contractor Furnished / Contractor Installed. Refer to sheets E1.3, E5.2, E5.4, and Specification Sections 26 37 00 and 26 38 00 for additional information.

Question No.10: Is there Davis-Bacon on the project?

Response: No.

Question No.11: Is there a local preference clause?

Response: No.

Question No.12: Is there an intent to award all 3 projects to the same contractor? Is there an opportunity for a discount/cost savings if the same contractor is awarded all 3?

Response: No to both questions.

Question No.13: Please provide specifications for the weatherbug pole and structural details for the footings.

Response: Refer to Specification Appendix Two.

Question No.14: Page FP6.1, Item No. 2: 2" fill nozzle, 2" flange – What is the intended application for this nozzle? Is this for a hose or pipe connection?

Response: The 2" fill nozzle is the connection from the well to the water storage tank to fill the tank. See Detail B on FP6.1.

Question No.15: Page FP6.1, Item No. 10: Exterior water level gauge with two 3/4" outlets – Are both outlets mandatory? If so, is there any flexibility in increasing the size to 1" or 2"?

Response: The fire water storage tank supplier will finalize the connections on the water storage tank. Typical installation for the exterior water level gauge will have a 3/4" outlet at the top and 3/4" outlet at the lower level of the water tank for the gauges to read the water level.

Question No.16: Additive alternate #1 & #2 are the same, please advise if that is a typo.

Response: This was addressed in Addendum No.1, see BidTable.

Question No.17: Please provide specifications for the following items for them to be appropriately price:

- a. Above Ground Water Storage Tank
- b. Fire Tank Well
- c. Portable Well

Response:

- a. For above Ground Water Storage Tank refer to attached CWSI Model Specification for CONTAIN WATER SYSTEMS INC. DOME ROOF CORRUGATED STEEL WATER STORAGE TANKS.
- b. Fire Tank Well - Provide a well to meet the following criteria: 62 gpm, based on a fire water tank refill rate of 8 hours or less, as noted on sheet C-6.1, Fire Protection System Note 6. The pump shall provide a minimum 80 psi at the source unless otherwise specified by NFPA 22, "Standard for Water Tanks for Private Fire Protection". Electrical characteristics: 08V/3ph/60hz.
- c. Potable Well - Provide a well to meet the following criteria: 182 Water Supply Fixture Units, or 88 gpm per the Florida Building Code – Plumbing, with a minimum 70 psi at the source. The well system shall include a pressure tank, chlorination holding tank, dosing pump, and chlorination mixing tank sized to minimum contact time for Code required residual disinfectant levels. Electrical characteristics: 208V/3ph/60hz.

Question No.18: Spec section 11 4510, indicates an "Ice Maker" along with floor plan A1.3 under the specific notes; however, it doesn't show up on any room. Please advise.

Response: Ice Maker is in room 111 EMS Storage and tag accordingly on A1.3.

Question No.19: Please provide location and specification for the Air Compressor that is listed on H8/A2.1.

Response: Refer to A1.4, Air compressor location (tagged as #21) noted on App Bay. And refer to Specifications 10 9500 Miscellaneous Specialties Part 2.1.

Question No.20: Do we carry the following Cost for the Allowances as outlined in the special conditions within our initial overall bid submittal or is it added to the contract once awarded by the County? Construction Authorization Allowance: \$200,000, Construction Allowance: \$150,000, Utility Charges: \$75,000 & Fire Alerting system Allowance: \$125,000

Response: Allowances will be added by the County to your submittals prior to award of contract. Do not include them in your pricing submittal.

Question No.21: Please confirm that although the Owner will be carrying allowances for the following: Construction Allowance, Utility Charges, Allowance Authorization & Fire Alerting System Allowance. Please also confirm whether the contractor is still required to carry all cost for permitting/utilities, contingency & fire alerting system requirements indicated on the bid documents and as required for the project.

Response: Refer General Terms and Conditions of the contract.

Question No.22: Please confirm that the plans have been submitted for permit and provide an assumed start date for construction & permit approval.

Response: Permits are ready to be pulled by a successful contractor.

Question No.23: Is this a Davis Bacon Wage Determination Project? If yes, can the Wage Determination Sheet be provided for inclusion in our pricing?

Response: No. The Davis- Bacon Act does not apply.

Question No.24a: Reference sheet A4.1 detail A11. A dotted line is shown at the exterior CMU under fiber cement board, but the drawings do not indicate what this line represents. The waterproofing spec #07 1300-1 indicates a mod-bit sheet-applied waterproofing system, but that does not seem like the correct application for this condition. A 5 or 10-year cold fluid-applied system would be more applicable for these conditions. This spec section also indicates to reference spec section 07 2500 for weather barrier under siding, however this spec does not exist. Please advise as to what kind of waterproofing system is to be applied at the exterior CMU walls behind fiber cement panels, stucco, and brick veneer conditions. Additionally, the drawings do not seem to show any waterproofing requirements for the concrete footings or CMU fenestrations. Will any waterproofing systems be required for any other areas other than the exterior CMU walls behind finish materials?

Response: Disregard dotted line in detail A11 / A4.1. Delete mod-bit sheet applied waterproofing spec section 07 1300. No underlayment is required for fiber cement board on CMU per manufacturer's instructions and FBC.

Question No.24b: We are unable to locate the Sign Schedule referenced in ADA Signage Details K13, K10, and H10 on Sheet A5.3, which notes "See Sign Schedule for Text." Please provide the Sign Schedule or clarify its location. In addition, Detail K10 indicates to "provide male pictogram at men's toilet." However, the plans and Finish Schedule do not specify whether Toilets 125, 112, and 113 are designated for Unisex, Women, or Men use. Please clarify and identify the intended use for each toilet.

Response: Toilets 125, 112 and 113 to be Accessible Unisex Toilets. Detail K10 / A5.3 is not applicable. Room identification and number signs are to be provided at each interior door opening and at certain exterior door openings where indicated on drawings. Use room names and number as per Finish Schedule.

Question No.25: The Signs Specification requires a room identification sign at swinging doors or pairs of doors leading to a room. Day Room 105 does not have a door. Please confirm if a sign is required to identify this room.

Response: No sign needed.

Question No.26: Keyed Note #19 on Sheet P2.2 references a gas line for an outdoor gas grill; however, no outdoor grill is listed in the Equipment Schedule or the Specifications. Please confirm if the outdoor grill is to be provided by Contractor, and if so, kindly provide the grill specifications.

Response: Gas grill to be provided by Owner.

Question No.27: Specifications Division 11 lists a range with a natural gas fuel source. However, the plumbing drawings indicate that the gas system for this project is propane gas. Please confirm if a conversion kit is required for the specified range, or provide specifications for a propane-fueled range.

Response: Change gas range from natural gas model to liquid propane model. Modify Specification Section 11 4510, paragraph 3.4, D, 2 as follows: "Fuel Source: ~~Natural Gas~~ Liquid Propane. Model - ~~ZGP364NDTSS~~ ZGP364LDRSS."

Question No.28: Paragraph 3.2-B in Division 10 Fire Extinguisher Specifications states that "Each extinguisher requires a cabinet." However, the Life Safety Plan on Sheet A0.1 differentiates between cabinet-mounted and bracket-mounted fire extinguishers and provides their locations. Please clarify the specifications or confirm if the correct statement should be "Each cabinet requires a fire extinguisher."

Response: Provide as shown on Plans.

Question No.29: Civil plan shows the FFE of the Fire Station main building is +43.00 NAVD. Architectural/Structural plan only show the Finish Floor Elevation as +100'-0". Please confirm the FFE +100'-0" is the +43.00 NAVD on Architectural/Structural Plans.

Response: Correct, refer to A1.0 General Notes #4

Question No.30: Bid documents and A1.0 indicate the location of the Add Alternate to provide a prefabricated metal storage shed. No specifications or information has been provided on what to include aside from floor dimensions and door requirements. Please provide a height requirement as well as any specifications/basis of design requirements.

Response: Delete additive Alternate No.3 in specification Section 01030 ALTERNATES, part 3, 3.1 and Special Conditions Item 1.3.B in its entirety and replace with the following:

Additive Alternate No. 3: Prefabricated Storage Building

Base Bid: The purchase and installation of pre-engineered storage building as shown in drawing is not included in Base Bid.

Additive: Add to the scope of work for the Contractor to furnish and install a prefabricated Tuff Shed storage 10' x 12' with double doors (4'-0" W x 6'-8" H.) as Basis of Design wind rated to 90mph or better.

Note: Concrete pad and electrical stub out shall be included in base bid.

Question No.31: Reference sheets A1.0 & A1.2. The detail of the oxygen tank storage shed shows a 1:12 pitch shingle roof, however a shingle roof cannot have a 1:12 pitch. As shown on the roof plan for the main building, the cricket roof with a 1:12 pitch is shown to be TPO membrane roofing. The storage shed would also be assumed to be TPO membrane or a metal roofing system. Please advise.

Response: Oxygen tank storage roof system to match the main building. If asphalt shingles provide a pitch of 2:12, if Bid alternate No. 5 Metal standing seams roof gets approved keep the 1:12 pitch for the storage. Adjust slope as required for the selected roof system.

Question No.32: Reference A1.3. The drawings call for a 30' weather antenna for Weatherbug system, but the drawings or specs do not seem to indicate the Weatherbug product that is to be installed. Also, keynote 55 on A1.3 calls for a Weatherbug display to be installed, but is not shown on the floorplan. Please provide required specifications of additional equipment on the pole & screens, power requirements, etc.

Response: Refer to Specification Appendix Two for Weather bug pole basis of design. Display to be provided by Owner. Refer to electrical drawings for power and display mounting height.

Question No.33: Reference G1&G6/A6.2 - Please confirm the extent of waterproofing requirements at the showers are per this referenced detail which includes a sheet waterproofing membrane at the base of the shower and 6" up the finished wall. No waterproofing appears to be indicated or required above 6" at wall locations. Please confirm. In addition, the detail provided referenced PT wood blocking for a pan, however, the plumbing schedule does not indicate a plumbing pan requirement. Please confirm if this is required, if yes – provide product.

Response: Use Dense Guard Tile Backer (or equal) in shower surrounds and apply RedGuard (or equal) to the tile surfaces of the shower area. The sheet waterproofing shown in the details is the shower pan, no plumbing selection required for schedule. Provide PVC sheet 40 mil as the shower pan liner.

Question No.34: Alternate for secondary access drive – Bid documents indicate only the condition if the secondary access drive is to be provided and indicate the 50' extension line. Please provide a drawing for reference of what scope is to be included in the base bid and limits of work if this alternate is not accepted.

Response: Refer to civil drawing sheet C-4.1 and attached revised Landscape plans showing Base Bid and Alternate #6.

Question No.35: Specification 09 2200 Portland Cement and Plaster indicates a requirement for accessories to be PVC and for direct application to masonry. Specification 092236 Metal Lath does not seem to be applicable to the project as this would typically only be required at a framed assembly. Please confirm Specification 092236 Metal Lath is not applicable to this project. If it is required, please clarify what locations and whether PVC products would be acceptable in lieu of metal.

Response: Metal Lath is only required where stucco is applied to a framed, sheathing surface, not applicable here. PVC products are acceptable as accessory components to the cement plaster application.

Question No.36: Please provide interior elevation for the Decon Room to account for the FRP properly, also provide specifications.

Response: FRP Basis of design; Crane Composites. Varietex textured, colored wall panel. Install with the fewest seams possible. 0.075" Beaded. Color TBD. Provide all appropriate accessories and manufacturer's recommended attachment(s).

Provide full height FRP panels in all wet walls and adjacent walls up to 6 ft in length.

Question No.37: My question is in reference to the casework at elevation D10 on sheet A6.1. Are the 2 each tall storage cabinets constructed of polypropylene material as specified in section 12 3553.23 Plastic Laboratory Casework or phenolic resin as detailed in Detail E10 on sheet A6.3 but no written specifications provided for cabinets made of this material. The only specification for phenolic resin is for countertops as mentioned in 12 3553.23.

Response: Provide per specifications.

Question No.38: Provide Survey Sheet 1 of 1 "Boundary and Topographic Survey" as shown on the Index of Drawings Sheet A0.0, since it is missing.

Response: See attached within Addendum 02 Survey Sheet 1 of 1.

Question No.39: Confirm the drawings produced by the County's design professionals comply with the special conditions Paragraph 1.1 which states "The facilities must be of high quality and low maintenance; must meet or exceed the requirements of the Construction Documents Package and must meet the needs of the user and maintenance agencies. The construction of these facilities shall meet the requirements of all governing local, state, and federal regulations, codes, and ordinances, including the Florida Accessibility Code for Building Construction and the Americans with Disabilities Act (ADA). ", since the contractor does not know what the requirements or needs of the user and maintenance agencies are.

Response: Comply with contract documents.

Question No.40: Provide clarification as to what should be included in the base bid, since Sheet C-4.1 specifies that the concrete fueling station pad, slab for the storage shed, and the generator pad are to be included as "add alternate" whereas Section 01 10 30 identifies these items as part of the base bid.

Response: Include in base bid per Section 01 1030 Alternates.

Question No.41: Provide clarification as to Alternate #1 which implies the aboveground refueling facility is not included in the base bid, since the description for this additive alternate lists only the 2,000-gallon diesel fuel tank and not the 300-gallon unleaded gas tank. Confirm the base bid should not include fuel tanks since both are identified as “aboveground refueling facility”.

Response: 2,000-gallon diesel tank only. 300-gallon gasoline tank is not required.

Question No.42: Provide a specification for the following including approved manufacturer(s), make/model, finish, accessories, options, warranties, installation instructions, etc. as necessary to fully describe the work.

- a. Prefabricated metal storage building per Alternate #3
- b. FRP at Room 126 per the Finish Schedule Sheet A7.1
- c. 2 - Fixed 1-hr rated window frames shown on Sheets A0.1 and A7.1
- d. 4' 8" H x 5'4" W Access panel to the mechanical chase as shown in Detail A5/A4.2 and D10/A6.1
- e. Vinyl wall base per the Finish Schedule on Sheet A7.1
- f. Exterior key box per A1/A4.3
- g. 44-Gallon trash can on wheels per A5/A6.3
- h. PVC vinyl soft top dome bollard caps per Section 05 50 00 Paragraph 3.3(B)

Response:

- a. See Response to Question No.30.
- b. FRP Basis of design; Crane Composites. Varietex textured, colored wall panel. Install with the fewest seams possible. 0.075" Beaded. Color TBD. Provide all appropriate accessories and manufacturer's recommended attachment(s).
- c. Provide fire rated window assembly as per plans detail similar to J4/A5.2. Fire rated window frames must be UL listed and in accordance to UL Design NO. GSNN.WA-2-001. Provide the rating required as indicated on the drawings
- d. Basis of Design: JL Industries Interior Access Panels – Flush TM series 16 ga. Coordinate Rough Opening to allow access to fan motor.
- e. Vinyl Base Basis of Design – Provide ARMSTRONG Rubber/Vinyl Base 4" Continuous rolled cove base. Provide all appropriate accessories and manufacturer's recommended attachment(s). Do not provide pre-formed corners. Install per manufacturer's recommendations and instructions.
- f. Provide Medeco Box-flush mounted as noted on A1.3 Specific notes #4.
- g. 44-Gallon trash to be provided by Owner.
- h. Disregard PVC vinyl soft top dome bollard caps called on specification. Follow bollard detail shown on plans.

Question No.43: Provide specifications, details and/or design criteria for the potable/domestic drinking water well including size, depth, casing length, pump size, type, and manufacturer, water treatment equipment, pipe, valves, and fittings, testing and commissioning requirements, etc. as necessary to fully describe the work.

Response: Refer to response to Question No. 17

Question No.44: Provide specifications, details and/or design criteria for the fire protection/tank water well including size, depth, casing length, pump size, type, and manufacturer, water treatment equipment, pipe, valves, and fittings, testing and commissioning requirements, etc. as necessary to fully describe the work.

Response: Refer to response to Question No. 17

Question No.45: Confirm there is only one (1) irrigation water well with a depth of 250' deep per Section 32 85 00, since Paragraph 1.1 specifies "development of 10 wells"

Response: Only one irrigation well is required for this project.

Question No.46: Provide specifications, details and/or design criteria for the septic system, tank, drain field, etc. including size, material, etc. as necessary to fully describe the work.

Response: Contractor to provide septic system design, tank, drainfield, etc. for 420 GPD.

7 Person Crew x 60 GPD = 420 GPD

Peak Flow Wastewater = $(420 \text{ GPD} \times 3) / (24 \times 60) = 0.875 = 1 \text{ GPM}$

Question No.47: Provide clarification as to Alternate #6 which implies that all work associated with the secondary access drive onto CR 579 is not included in the base bid, since the description of work is not clear regarding the extent of the storm drainage, landscaping/irrigation, site lighting, sidewalk and fencing configuration along CR 579, etc. that is to be included in the base bid. Provide drawings clearly showing the storm drainage, landscaping, fencing, sidewalks and electrical that is to be included in the base bid.

Response: See Landscape Plan and Irrigation Plan with Addendum 02 for Base Bid and Alternate #6 work limits.

Question No.48: Provide a list of all subcontractors including certified DM/DWBE firms identified by E & L for fire stations: Armdale #10, Gunn Hwy #13, and Palm River #15 and Diaz Fritz for the Cross Creek Recreation Center.

Response:

Armdale FS No.

Premier Fire Sprinklers, Inc.
Harmonics Electric, LLC
Best Made Enterprises, Inc.
Victors Custom Cabinets & Tops LLC
POD-NC LLC
R&D Construction & Roofing
Anticus Engineering

10 Gunn Hwy FS No. 13

Premier Fire Sprinklers, Inc.
Harmonics Electric, LLC
Best Made Enterprises, Inc.
Victors Custom Cabinets & Tops LLC
POD-NC LLC
Anticus Engineering

Palm River FS No. 15

Premier Fire Sprinklers, Inc.
Best Made Enterprises, Inc.
Victors Custom Cabinets & Tops LLC
POD-NC LLC
Ballfer Service Corp
R&D Construction & Roofing
Anticus Engineering

Cross Creek Recreation Center

Superior Mechanical Solutions
Rick's Electrical
Trimen Landscape
Reeves Building and Plumbing
Star Quality
Torres Total Flooring

Question No.49: Confirm the bid price is **NOT** to include over-excavation, soil undercutting, structural fill, inspections, or testing related to removal of unsuitable/deleterious subsurface materials such as muck, peat, buried debris, etc. since none is shown in the geotechnical/soils report or indicated on the plans.

Response: Confirmed - this will not be part of the bid price.

Question No.50: Confirm excess excavation/surplus earth material shall become the property of the site contractor for disposal at his discretion and will **NOT** be required to be transported to an Owner (County) approved site as noted per Section 31 20 00, Paragraph 3.2(P).

Response: Any excess soil is the contractors.

Question No.51: Confirm the site/civil plans and specifications have been prepared and conform with FDOT, Hillsborough County technical specifications, SWFWMD, Florida Environmental Land and Waste Mngt Act, FDEP, Health Dept, NPDES, and all other statutes, laws, regulations, and codes since the contractor is not the licensed design professional. Also, verify the bid price is **NOT** to include any cost, expense, or contingency for preparing plans, design/engineering work, obtaining approvals, or securing permits related to the site/civil.

Response: Contractor will be responsible for pulling permits related to delegated designs (i.e., septic, fuel, wells, etc.). Contractor is also responsible for pulling the FDEP NPDES Permit 48 hours prior to moving dirt.

Question No.52: Although referred to in other specification sections, confirm the specification book does not include sections for cast-in-place concrete or masonry. Also, confirm the only specification for concrete, masonry and pre-engineered wood trusses is shown in the structural drawings.

Response: Confirmed

Question No.53: Confirm the base bid is to include the added cost for the extensive landscape, lawn and irrigation maintenance for a period of 1-year following substantial completion as outlined per Section 32 67 00. If this is required, will final payment and final acceptance of the project be withheld until after the 1-year maintenance period.

Response: No landscape, lawn or irrigation maintenance is included in the base bid, only one year contractor's warranty following substantial Completion of the project.

Question No.54: Verify the bid price is to include manufacturer's standard available colors and textures for materials selected by the Architect and not custom, exotic, or special-order items.

Response: Provide Full range of manufacturer's standard available colors, no custom, exotic, or special-order items.

Question No.55: Provide a sign schedule as referenced in Details K10, K13, and H10 on Sheet A5.3 along with a drawing showing the location(s) for each interior sign.

Response: Refer to response to question No. 24b

Question No.56: Confirm Section 07 13 00 Sheet Waterproofing is not applicable, since it is not shown on the drawings or provide the location(s) and details where it is to be installed.

Response: Not applicable.

Question No.57: Confirm Section 01 73 20 Selective Demolition is not applicable, since this section refers to Owner occupied portions of the building, asbestos (hazardous materials) report, occupied or operating facilities, existing warranties, etc.

Response: Not applicable.

Question No.58: Confirm Section 23 11 00 Dual Wall Containment Piping is not applicable, since it is not shown on the drawings.

Response: Not applicable.

Question No.59: Confirm the aboveground fire water tank is exposed metal as provided by the manufacturer and does not require field painting. If field painting is required, provide a specification for coating application.

Response: Exposed metal.

Question No.60: Provide a drawing identifying each tree that is to be pruned (if any) since Section 32 90 00 Paragraph 3.2 requires “all existing trees within the limits of work shall be pruned” and Sheets C-3.1 and C-4.1 show a lot of trees to remain within the new fence line. NOTE: Sheet L1.1 states “existing vegetation to remain” in all areas with existing trees except one near the new retention pond.

Response: See attached Landscape Plan with Addendum 02 for trees to be pruned.

Question No.61: Provide a drawing with details for any aeration systems required (if any) for the existing trees to remain.

Response: No Aeration system is required for this project for existing trees.

Question No.62: Provide a specification for field painting the fiber-cement siding since it is not included in Section 09 91 20.

Response: Follow paint specifications for exterior concrete masonry units and vertical stucco surfaces (Section 09 9120 Part 3.6 A).

Question No.63: Provide a specification and installation details for the weather barriers under the fiber-cement siding per the related requirements noted in Section 07 46 46 Paragraph 1.2(A), if necessary, since there is no Section 07 25 00 and none are shown on the building details.

Response: Refer to response to question No. 24a

Question No.64: Verify the County has sole sourced Southland Concrete Creations as the only designated polished concrete floor installer per Section 03 36 00.

Response: Delete the requirement for polished concrete flooring. Delete spec section 03 3600. Refer to revised finish schedule on sheet A7.1.

Question No.65: Confirm all polished concrete floors are to receive penetrating color dye as implied per Section 03 36 00 Paragraph 2.1(C), since this will add cost and affect the sequence and schedule of work. If so, confirm that all floors will receive the same color dye.

Response: Delete the requirement for polished concrete flooring. Delete spec section 03 3600. Refer to revised finish schedules on sheet A7.1. Where revised finish scheduled shows LVT, provide LVT by Shaw Contract Modern Edit - Intricate Alabaster 92100, Size: 12" x 24". This is a BASIS OF DESIGN product. Install in conformance with manufacturer's recommendations and requirements. Provide all accessories product required for a complete installation. Install in a Stagger pattern.

Question No.66: Provide a list of approved manufacturers for the solid plastic laboratory casework since it is not included in Section 12 35 53.23. Also confirm this specialized casework is installed in the Apparatus Bay per Detail D10/A6.1.

Response: Refer to response to question No. 37

Question No.67: Provide a plumbing specification for the gas piping since it is not included in Division 22.

Response: Refer to attached Specification Section 22 1617 – Liquefied-Petroleum Gas Piping as part of Addendum 02.

Question No.68: Confirm the folding shower seats per Section 10 80 00 Paragraph 2.10 and the controlled pharmaceutical dispenser per Section 10 95 00 Paragraph 2.2 are not applicable since neither are shown on the drawings.

Response: Folding seats are shown on sheet A2.1 refer to equipment tag #27.
Controlled pharmaceutical dispenser applies only to Progress Village South FS No. 48.

Question No.69: Confirm metal lath per Section 09 22 36 is not applicable since it is not shown on the drawings.

Response: Not applicable.

Question No.70: Clarify the gypsum board since the partition types on Sheet A4.0 shows 5/8" whereas Section 09 21 16 Paragraph 2.3 specifies 1/2" for both walls and ceilings.

Response: Provide 5/8" gypsum board as shown on plans for wall and 1/2" for ceilings.

Question No.71: Verify gypsum board walls and ceilings are not to receive a Level 5 finish although Section 09 21 16 Paragraph 2.4(G) specifies a high build drywall surfacer.

Response: Provide medium orange peel finish (Owner Design Standards) in lieu of the Level 5 specified.

Question No.72: Confirm the underslab vapor retarder is to be installed per Section 07 16 00 Paragraph 3.3(C) requiring it to be lapped "over footings and sealed to the foundation walls", since this is costly and unusual.

Response: The footings for this job are lower than the finished floor grade preparation, not required. Seal to foundation walls, turn up wall, secure and provide terminating edge with Stego Crete Claw Tap 3" (Basis of Design).

Question No.73: Confirm there are no grant/funding sources (Federal, State, DOT or other agencies) that would impose additional requirements, regulation and reporting such as Davis Bacon/Payroll Reporting, Buy American, labor surplus area participation, Federal Acquisition Regulations(F.A.R.),etc.

Response: No grants.

Question No.74: Confirm that the allowances totaling \$550,000.00 will not be included in the calculation determining DM/DWBE participation goal of 17%.

Response: Refer to Contract Terms and Conditions, Section 2.12 Utilization of DM/DWBEs.

Question No.75: Should the bid price include P&P Bond, insurance premiums and overhead and profit mark up for \$550,000 in allowances?

Response: The allowances are for the designated items as stated in the Contract Terms and Conditions. The distribution of cost for P&P Bond, insurance premiums, overhead and profit markup is at the discretion of each individual bidder.

Question No.76: Confirm that the bid price is **NOT** to include the added cost for FSC certification and wood sustainably harvested in the State of Florida for rough carpentry lumber and plywood per Section 06 10 00 Paragraph 1.4(D) & 2.1(B) & (C).

Response: FSC certified wood is not required. Wood harvested in the State of Florida is required per Florida Statutes, Section 255.20(3): "All county officials, boards of county commissioners, school boards, city councils, city commissioners, and all other public officers of state boards or commissions that are charged with the letting of contracts for public work, for the construction of public bridges, buildings, and other structures must always specify lumber, timber, and other forest products produced and manufactured in this state whenever such products are available and their price, fitness, and quality are equal."

Question No.77: Confirm that the cabinet contractors are not required to be AWI certified or participate in the Quality Control Program as implied per Section 06 41 00 Paragraph 1.4(A).

Response: Cabinet subcontractors should be AWI certified.

Question No.78: Provide copies of all environmental surveys and/or reports and verify there are no endangered or threatened species including gopher tortoises, birds, etc.

Response: None available, not required.

Question No.79: Although well within the control of the County, confirm the contractor will not be compensated for delays caused by "acts or neglect by the County" outlined by the Force Majeure Paragraph 5.23 in the Invitation to Bid since this seems unusual and unreasonable.

Response: Refer to the Contract Terms and Conditions as written.

Question No.80: Confirm the County will not allow for a time extension for unfavorable weather as outlined by Paragraph 5.10.3 through 5.10.6 in the Invitation to Bid since it is "not excusable". This paragraph specifies that the bidder should expect and price including overtime and weekend work for the 44 bad weather days out of 260 workdays in any given year.

Response: Refer to the Contract Terms and Conditions as written.

Question No.81: Provide specific brick size/dimension, texture, finish, color, etc. since Section 04 26 13 appears to be for matching “the existing conditions at the original campus”. Also provide clarification as to an 8’ x 6’ H mock -up panel with an entire window assembly, flashing material, weeps, cavity vents, cavity mortar control and veneer anchoring system since the specification includes a number of items that do not seem applicable to this project or shown on the drawings.

Response: Basis of design to be per specification 04 2613 Part 2 products. Provide a mock of brick and mortar at a location on building (to remain).

Refer to Addendum 02 Specifications clarifications.

Question No.82: Verify the bid price is to include “shop-applied coat of epoxy over primer” at all exterior steel doors and frames and spray applied “back-coated bituminous fibrous layer” at all exterior steel frames per Section 08 11 10 Paragraphs 2.3(G) and 2.4(J) & (K). since this is costly and unusual.

Response: Confirmed required this is a County design standard, provide as specified. If shop applied is not available, it must be done in the field.

Question No.83: Confirm the County will provide both diesel and unleaded fuel.

Response: Refer to response on Question No. 9

Question No.84: Confirm it is acceptable for the GC to contract the termite control with the concrete subcontractor although Section 31 31 16, Paragraph 1.5(B) restricts this. Also, confirm that applying soil treatment under the footings is not required although it is implied per Paragraph 1.7(A).

Response: The GC can provide termiticide through the concrete subcontractor (qualified applicators/vendors are required). Soil treatment to be provided under footings as specified.

Question No.85: Confirm that winds/vision screening for the 6’ H temporary chain link fence is not required.

Response: It is not required. The contractor at its own discretion may provide winds/vision screening for the security of its construction site.

Question No.86: Confirm the County will accept a standard 8’ x 40’ container without a private toilet room as a temporary construction office with A/C/Heat, lighting, power, and space for meetings, instead of a wheel mounted trailer that will require separate permitting, hurricane rated tie-downs, steps and platforms.

Response: Comply with contract documents.

Question No.87: Confirm threshold building inspections are **NOT** to be included in the base bid as specified per Section 01 34 00.

Response: Threshold building inspection is not required.

Question No.88: Sheet A5.2 detail J4 indicates a roller shade; however, it does not indicate which window it will be located. Please advise.

Response: Per general notes #4 on sheet A1.3 – Provide double roller shades for all windows.

Question No.89: Confirm the clear water repellant sealer per Section 07 18 15 is to be applied to the brick veneer and cast stone. Also confirm the extensive testing and documentation will be required on the limited amount of brick.

Response: Apply to brick veneer. Cast stone will be painted; not required. Extensive testing is not required. Applicator report(s) and manufacturer's warranty will suffice.

Question No.90: Should the cast stone be integrally colored or standard gray since the finish is not specified per Section 04 72 00. Also confirm that costly galvanized rebar is required per Paragraph 2.1(G).

Response: Cast stone to be standard gray and painted in field. Provide galvanized rebar as specified.

Question No.91: Confirm items 3, 5, 6, & 7 per Paragraph 1.2(A) in Section 05 50 00 is not applicable, since these are not shown on the drawings.

Response: Confirm items 3, 5, 6, & 7 per Paragraph 1.2(A) in Section 05 50 00 is not applicable, since these are not shown on the drawings.

Question No.92: Verify the bar chart schedule per Section 01 31 00 is preferred by the County for this type of project instead of a CPM schedule and reports as noted in Section 01 32 00.

Response: CPM schedule will be required

Question No.93: Verify the foreign product limitations per Section 01 60 00 Paragraph 1.4(C) is not applicable, since the products and manufacturers are specified by the design professional. If this is a requirement, provide product and manufacturers that comply with domestic/American made standards.

Response: Delete Paragraph 1.4C in its entirety.

Question No.94: Confirm substitutions will be allowed, although Section 01 60 00 Paragraph 2.1(B)1 states no substitutions will be permitted where only one product or manufacturer is named. For those sections where only one is named, provide other approved products or manufacturers.

Response: The substitution shall be equal to meet the specification requirements and be approved by professional. A single named product shall be considered a Basis of Design product, not a closed specification.

Question No.95: Confirm that products with recycled content and overall project requirements as noted per Section 01 60 00 Paragraph 1.4(B)1 is not applicable.

Response: Delete the last sentence in Paragraph 1.4(B)1.

Question No.96: Confirm it is NOT required for the “Contractor to provide technical support for 1-year after final completion in addition to the 1-year general contractors warranty” per Section 01 70 00 Paragraph 1.02(A)4(f) and (C)3(i), since this is costly and unusual.

Response: Delete last sentence in Paragraphs 1.02(A)4 (f) and 1.02(C)3 (i). Technical support for 1-year after final completion is not required.

Question No.97: Please confirm that the reference to a GMP and/or Guaranteed Maximum Construction Price is incorrect, and this is a plans & specifications bid proposal.

Response: Reference to a GMP and/or Guaranteed Maximum Construction Price is incorrect. This a hard bid project.

Question No.98: Additive Alternate No. 6 indicates that the secondary access drive, along with its associated landscaping, is not included in the Base Bid. However, there is no clear delineation specifying which landscaping is included, whether as part of the Base Bid or as an Additive Alternate. Please clarify the boundaries of the landscaping and provide guidance on how to address the portion that is included in the Base Bid. Consider that this area will serve as a construction entrance—will it be left as-is, or will it require any interim treatments or modifications during the construction phase?

Response: See updated Landscape plans attached within Addendum 02.

Question No.99: makers have a calculated limit of distance the line sets can be. This formula is (Vertical rise x 1.7) + (Vertical Fall x 6.6) + Horizontal Line run = Calculated length. Currently the rise and fall based upon the locations would calculate to: (6' x 1.7) + (9' x 6.6) = 69.5lf. This only leaves a horizontal run of 30.5lf. Per location shown on M2.1 this is more than the manufactures maximum line set run distance. Fire station 21, Thonotosassa – Horizontal Run is +/-60lf. Please clarify how to proceed.

Response: In lieu of the specified ice maker model with remote condenser, provide the following:

- a. Air cooled ice maker, Ice-o-Matic model CIM0530A with filter system and compatible bin B40PSB.
- b. Revise VAV-1-5 to be a size 8 box rated for 540 cfm. Relocate VAV box inlet tap upstream of the electric duct heater EDH-1.
- c. Locate VAV-1-5 thermostat in EMS Storage.
- d. Revise supply air device in EMS Storage to be type C, 330 cfm.
- e. Revise return air flow for the type L device in EMS Storage to be 325 cfm.

Question No.100: Per Utility Plan C-6.1, the new fire line and water lines connect to the fire tank; however, there is no 6" water main connection feeding the fire tank as indicated on the fire pump detail information. Per detail B/FP6.1, however, this detail indicates an existing well with a 2" connection for supply that does not appear to exist. C-3.1 indicates an existing well to be abandoned and grouted. Please confirm that the pump requirements, piping sizes and whether a well is required for the water supply.

Response: The fire tank shall be supplied by a new well. Refer to question 17 response for well requirements. The fire tank requires a 2" fill line per detail B/FP6.1 and sheets FP1.0. The fire tank's 6" connection supplies the fire pump per detail A/FP6.1 and sheets FP1.0.

Question No.101: Per Site Plan A1.0, note 37 indicates a well for potable water. C-6.1 references a concrete potable well pad but does not provide any information on flow or pump requirements similar to the fire protection system notes referenced on the same sheet. Please provide these requirements as well as any pump requirements.

Response: See response to question 17.

Question No.102: Specification section 01 3400 indicates the CM is to competitively bid the threshold inspections and references the School District inspector. Please confirm that this specification section is correct and was intended to be included and the CM is responsible for threshold inspections.

Response: This is a hard bid project, and the Threshold inspection is not required.

Question No.103: Per Specification 04 2613, part 2 products, manufacturers to be Meridian Brick LLC; Red Semi-Smooth Flashed Modular: www.meridianbrick.com/#sle. However, Meridian Brick LLC was acquired by General Shale in 2021, please confirm the product is now General Shale Brick RED RANGE SEMI SMOOTH.

Response: Use that as basis of design. Building finishes to be confirmed with Owner color board selection.

Question No.104: Reference sheets A1.3 & A4.0. Wall partition types P16, P18 & P19 indicates tectum panels at the mechanical/electrical room walls per note 58 on A1.3. Specifications are not provided for tectum panels. Please provide.

Response: Provide Tectum Direct Attached by Armstrong World Industries (basis of design) 1" High NRC (.60) mounting method D-20. install as per drawings and manufacturer instructions

Question No.105: Reference sheets A1.3 & A6.1. Floor plan on A1.3 indicates pantry shelves system (tag #43) located at Kit/Din 106. Elevations and specifications are not included for the panty shelves system. Please provide.

Response: Refer to detail A1/A6.3

Question No.106: Reference project specifications. The plastic laminate casework specification (section 06 4100) indicates "as selected by architect from manufacturer's full range" for the colors and patterns of the solid-surfacing material. Please provide color/finish for the acceptable solid-surfacing material manufacturers indicated in project specifications.

Response: Finishes pending to be discussed with Owner for final selection. Bidder to provide cost for Quartz countertops and plastic laminate cabinets based on manufacturer's standard range of colors.

Question No.107: Reference sheet A7.1. The finish schedule on A7.1 indicates fiberglass reinforced plastic (FRP) at walls. Specifications for FRP wall panels are not included. Please provide.

Response: FRP Basis of design; Crane Composites. Varietex textured, colored wall panel. Install with the fewest seams possible. 0.075" Beaded. Color TBD. Provide all appropriate accessories and manufacturer's recommended attachment(s).

Question No.108: Fitness Room RFI - It appears there is a countertop/cubbies at the fitness room but no elevations or details are provided indicating the intent shown on floor plan A1.3. Please clarify what is to be included here.

Response: That's a dumbbell storage rack – To be provided by Owner.

Question No.109: Sheet P2.2, indicates S3 on the Decon room; however, the plumbing fixture schedule does not list an S3. Please advise.

Response: S3 and S2 are mislabeled on sheet P2.2. Revise floor plan tag for fixture S3 to be S2, and floor plan tag for fixture S2 to be S1.

PROJECT: HC Thonotosassa FS 21 - Replacement
PROJECT NUMBER: 2116
ADDENDUM NO.: Two (02)
ADDENDUM DATE: 03/06/2025

The following items hereby become a part of the Contract Documents for the above referenced project.

IN SPECIFICATIONS:

1. Delete Section 03 3600 POLISHED CONCRETE FLOOR FINISHES
2. On section 04 2613 MASONRY VENEER
 - a. Delete letter a from paragraph 3.2, C, 1 – which refers to match existing conditions.
3. Delete Section 07 1300 SHEET WATERPROOFING
4. On section 08 7100 FINISH HARDWARE
 - a. Delete hardware group 04A and move door 110 to hardware group 04B
 - b. Hardware group 07 add:
1 EA THRESHOLD 65A-223 A ZER
 - c. Move door 101B from hardware group 09 to hardware group 05B
5. On section 09 2116 GYPSUM BOARD ASSEMBLIES
 - a. Modify paragraph 2.3, B, 4, a to read as follows: Vertical Surfaces: 5/8 inch.
 - b. Modify paragraph 2.3, C, 3, a to read as follows: Thickness 5/8 inch.
6. Delete Section 09 2236 METAL LATH
7. On section 11 4510 RESIDENTIAL APPLIANCES
 - a. Modify paragraph 3.4, D as follows: Range: GE Monogram 36" All-Gas Professional Range ~~ZGP364NDTSS~~ ZGP364LDRSS.
 - b. Modify paragraph 3.4, D, 2 as follows: "Fuel Source: ~~Natural Gas~~ Liquid Propane. Model - ~~ZGP364NDTSS~~ ZGP364LDRSS."
8. On section 10 9500 Miscellaneous Specialties
 - a. Part 2 Products – strikethrough / disregard item 2.2 CONTROLLED ACCESS PHARMACEUTICAL DISPENSER.
9. On section 32 3119 Decorative Metal Fences & Gates
 - a. Modify paragraph 2.3, K, 1 to read as follows: Fence Panels: Formed aluminum sheets; 4 feet high by 6 feet long.
10. Add Section 22 1617 – Liquefied-Petroleum Gas Piping
 - a. This is a new spec section, please update your spec TOCs accordingly.
11. Add to Section 22 the attached CWSI model specification for CONTAIN WATER SYSTEMS INC. DOME ROOF CORRUGATED STEEL WATER STORAGE TANKS.
 - a. This is a new spec section, please update your spec TOCs accordingly.
12. Delete Section 23 1100 DUAL WALL CONTAINMENT PIPING

ON THE DRAWINGS:

13. Replace sheet A0.1 LIFE SAFETY PLAN with dated 01.15.2025
14. Replace sheet L1.1 LANDSCAPE PLAN with dated 03.06.2025
15. Replace sheet L2.1 IRRIGATION PLAN with dated 03.06.2025
16. Replace sheet A1.6 ROOF PLAN with dated 03.06.2025
17. Replace sheet A5.1 ROOF DETAILS with dated 03.06.2025
18. Replace sheet A5.3 DETAILS with dated 01.15.2025
19. Replace sheet A7.1 SCHEDULES AND DOOR AND WINDOW TYPES with dated 03.06.2025
20. Replace sheet S0.2 STRUCTURAL SPECIFICATIONS, SCHEDULES & WIND TABLES with dated 03.06.2025
21. On sheet S1.2 ROOF FRAMING PLAN
 - a. Add to the concrete beam schedule the following information:
CB812 to be 8"x12" w/ (2)#5 top and bottom with #3 ties @ 5" on center.
 - b. Revise ROOF FRAMING PLAN NOTES #10 to reference detail 7/S2.3 in lieu of 2/S2.4
22. On sheet P2.2 PLUMBING FLOOR PLAN
 - a. S3 and S2 are mislabeled, revise floor plan tag for fixture S3 to be S2, and floor plan tag for fixture S2 to be S1.

END OF ADDENDUM NO. TWO (02)

ATTACHMENTS:

Specifications:

Section 22 1617 – Liquefied-Petroleum Gas Piping

CWSI model specification for CONTAIN WATER SYSTEMS INC. DOME ROOF CORRUGATED STEEL WATER STORAGE TANKS.

Drawings:

- | | |
|------|--|
| A0.1 | LIFE SAFETY PLAN, dated 01.15.2025 |
| L1.1 | LANDSCAPE PLAN, dated 03.06.2025 |
| L2.1 | IRRIGATION PLAN, dated 03.06.2025 |
| A1.6 | ROOF PLAN, dated 03.06.2025 |
| A5.1 | ROOF DETAILS, dated 03.06.2025 |
| A5.3 | DETAILS, dated 01.15.2025 |
| A7.1 | SCHEDULES AND DOOR AND WINDOW TYPES, dated 03.06.2025 |
| S0.2 | STRUCTURAL SPECIFICATIONS, SCHEDULES & WIND TABLES, dated 03.06.2025 |

SECTION 22 16 17

LIQUEFIED-PETROLEUM GAS PIPING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Pipes, tubes, and fittings.
 - 2. Piping specialties.
 - 3. Piping and tubing joining materials.
 - 4. Valves.
 - 5. Pressure regulators.
 - 6. Mechanical sleeve seals.
 - 7. Grout.
 - 8. Concrete bases.

1.3 DEFINITIONS

- A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.
- B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.
- C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.
- D. LPG: Liquefied-petroleum gas.

1.4 PERFORMANCE REQUIREMENTS

- A. Minimum Operating-Pressure Ratings:
 - 1. For Piping Containing Only Vapor:
 - a. Piping and Valves: 125 psig unless otherwise indicated.

2. For Piping Containing Liquid:
 - a. Piping between Shutoff Valves: 350 psig unless otherwise indicated.
 - b. Piping Other Than Above: 250 psig unless otherwise indicated.
 - c. Valves and Fittings: 250 psig unless otherwise indicated.
3. Minimum Operating Pressure of Service Meter: 5 psig.
- B. LPG System Pressures within Buildings: Two pressure ranges. Primary pressure is more than 0.5 psig but not more than 2 psig and is reduced to secondary pressure of 0.5 psig or less.

1.5 SUBMITTALS

- A. Product Data: For each type of the following:
 1. Piping specialties.
 2. Corrugated stainless-steel tubing with associated components.
 3. Valves. Include pressure rating, capacity, settings, and electrical connection data of selected models.
 4. Pressure regulators. Indicate pressure ratings and capacities.
 5. Dielectric fittings.
 6. Mechanical sleeve seals.
 7. Escutcheons.
- B. Shop Drawings: For facility LPG piping layout. Include plans, piping layout and elevations, sections, and details for fabrication of pipe anchors, hangers, supports for multiple pipes, alignment guides, expansion joints and loops, and attachments of the same to building structure. Detail location of anchors, alignment guides, and expansion joints and loops.
 1. Shop Drawing Scale: 1/4 inch per foot.
 2. Detail mounting, supports, valve arrangements, and pressure regulator assembly.
- C. Coordination Drawings: Plans and details, drawn to scale, on which natural-gas piping is shown and coordinated with other installations, using input from installers of the items involved.
- D. Site Survey: Plans, drawn to scale, on which natural-gas piping is shown and coordinated with other services and utilities.
- E. Qualification Data: For qualified professional engineer.
- F. Welding certificates.
- G. Field quality-control reports.

- H. Operation and Maintenance Data: For LPG equipment and accessories to include in emergency, operation, and maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Steel Support Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- B. Pipe Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Handling Flammable Liquids: Remove and dispose of liquids from existing LPG piping according to requirements of authorities having jurisdiction.
- B. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.
- C. Store and handle pipes and tubes having factory-applied protective coatings to avoid damaging coating and protect from direct sunlight.
- D. Protect stored PE pipes and valves from direct sunlight.

1.8 PROJECT CONDITIONS

- A. Perform site survey, research public utility records, and verify existing utility locations. Contact utility-locating service for area where Project is located.

1.9 COORDINATION

- A. Coordinate LP Gas service requirements with LP Gas service provider.
- B. Coordinate sizes and locations of concrete bases with actual equipment provided.
- C. Coordinate requirements for access panels and doors for valves installed concealed behind finished surfaces. Comply with requirements in Division 08 Section "Access Doors and Frames."

PART 2 PRODUCTS

2.1 PIPES, TUBES, AND FITTINGS

- A. Steel Pipe: ASTM A 53/A 53M, black steel, Schedules 40, Type E or S, Grade B.
 - 1. Malleable-Iron Threaded Fittings: ASME B16.3, Class 150, standard pattern.
 - 2. Wrought-Steel Welding Fittings: ASTM A 234/A 234M for butt welding and socket welding.

3. Unions: ASME B16.39, Class 150, malleable iron with brass-to-iron seat, ground joint, and threaded ends.
 4. Forged-Steel Flanges and Flanged Fittings: ASME B16.5, minimum Class 150, including bolts, nuts, and gaskets of the following material group, end connections, and facings:
 - a. Material Group: 1.1.
 - b. End Connections: Threaded or butt welding to match pipe.
 - c. Lapped Face: Not permitted underground.
 - d. Gasket Materials: ASME B16.20, metallic, flat, asbestos free, aluminum o-rings, and spiral-wound metal gaskets.
 - e. Bolts and Nuts: ASME B18.2.1, carbon steel aboveground, and stainless steel underground.
 5. Protective Coating for Underground Piping: Factory-applied, three-layer coating of epoxy, adhesive, and PE.
 - a. Joint Cover Kits: Epoxy paint, adhesive, and heat-shrink PE sleeves.
 6. Mechanical Couplings:
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Dresser Piping Specialties; Division of Dresser, Inc.
 - 2) Smith-Blair, Inc.
 - b. Steel flanges and tube with epoxy finish.
 - c. Buna-nitrile seals.
 - d. Steel bolts, washers, and nuts.
 - e. Coupling shall be capable of joining PE pipe to PE pipe, steel pipe to PE pipe, or steel pipe to steel pipe.
 - f. Steel body couplings installed underground on plastic pipe shall be factory equipped with anode.
- B. PE Pipe: ASTM D 2513, SDR 11.
1. PE Fittings: ASTM D 2683, socket-fusion type or ASTM D 3261, butt-fusion type with dimensions matching PE pipe.
 2. PE Transition Fittings: Factory-fabricated fittings with PE pipe complying with ASTM D 2513, SDR 11; and steel pipe complying with ASTM A 53/A 53M, black steel, Schedule 40, Type E or S, Grade B.

3. Anodeless Service-Line Risers: Factory fabricated and leak tested.
 - a. Underground Portion: PE pipe complying with ASTM D 2513, SDR 11 inlet.
 - b. Casing: Steel pipe complying with ASTM A 53/A 53M, Schedule 40, black steel, Type E or S, Grade B with corrosion-protective coating covering. Vent casing aboveground.
 - c. Aboveground Portion: PE transition fitting.
 - d. Outlet shall be threaded or flanged or suitable for welded connection.
 - e. Tracer wire connection.
 - f. Ultraviolet shield.
 - g. Stake supports with factory finish to match steel pipe casing or carrier pipe.
4. Transition Service-Line Risers: Factory fabricated and leak tested.
 - a. Underground Portion: PE pipe complying with ASTM D 2513, SDR 11 inlet connected to steel pipe complying with ASTM A 53/A 53M, Schedule 40, Type E or S, Grade B, with corrosion-protective coating for aboveground outlet.
 - b. Outlet shall be threaded or flanged or suitable for welded connection.
 - c. Bridging sleeve over mechanical coupling.
 - d. Factory-connected anode.
 - e. Tracer wire connection.
 - f. Ultraviolet shield.
 - g. Stake supports with factory finish to match steel pipe casing or carrier pipe.
5. Plastic Mechanical Couplings, NPS 1-1/2 and Smaller: Capable of joining PE pipe to PE pipe.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Lyall, R. W. & Company, Inc.
 - 2) Mueller Co.; Gas Products Div.
 - 3) Perfection Corporation; a subsidiary of American Meter Company.
 - b. PE body with molded-in, stainless-steel support ring.
 - c. Buna-nitrile seals.
 - d. Acetal collets.
 - e. Electro-zinc-plated steel stiffener.

6. Plastic Mechanical Couplings, NPS 2 and Larger: Capable of joining PE pipe to PE pipe, steel pipe to PE pipe, or steel pipe to steel pipe.
 - a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Lyall, R. W. & Company, Inc.
 - 2) Mueller Co.; Gas Products Div.
 - 3) Perfection Corporation; a subsidiary of American Meter Company.
 - b. Fiber-reinforced plastic body.
 - c. PE body tube.
 - d. 6Buna-nitrile seals.
 - e. Acetal collets.
 - f. Stainless-steel bolts, nuts, and washers.
7. Steel Mechanical Couplings: Capable of joining plain-end PE pipe to PE pipe, steel pipe to PE pipe, or steel pipe to steel pipe.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Dresser Piping Specialties; Division of Dresser, Inc.
 - 2) Smith-Blair, Inc.
 - b. Steel flanges and tube with epoxy finish.
 - c. Buna-nitrile seals.
 - d. Steel bolts, washers, and nuts.
 - e. Factory-installed anode for steel-body couplings installed underground.

2.2 PIPING SPECIALTIES

A. Flexible Piping Joints:

1. Approved for LPG service.
2. Stainless-steel bellows with woven, flexible, bronze, wire-reinforcing protective jacket.
3. Minimum working pressure of 250 psig and 250 deg F operating temperature.
4. Flanged- or threaded-end connections to match equipment connected and shall be capable of minimum 3/4-inch misalignment.
5. Maximum 36-inch length for liquid LPG lines.

B. Appliance Flexible Connectors:

1. Indoor, Fixed-Appliance Flexible Connectors: Comply with ANSI Z21.24.
2. Indoor, Movable-Appliance Flexible Connectors: Comply with ANSI Z21.69.
3. Outdoor, Appliance Flexible Connectors: Comply with ANSI Z21.75.
4. Corrugated stainless-steel tubing with polymer coating.
5. Operating-Pressure Rating: 0.5 psig.
6. End Fittings: Zinc-coated steel.
7. Threaded Ends: Comply with ASME B1.20.1.
8. Maximum Length: 72 inches.

C. Quick-Disconnect Devices: Comply with ANSI Z21.41.

1. Copper-alloy convenience outlet and matching plug connector.
2. Nitrile seals.
3. Hand operated with automatic shutoff when disconnected.
4. For indoor or outdoor applications.
5. Adjustable, retractable restraining cable.

D. Y-Pattern Strainers:

1. Body: ASTM A 126, Class B, cast iron with bolted cover and bottom drain connection.
2. End Connections: Threaded ends for NPS 2 and smaller, flanged ends for NPS 2-1/2 and larger.
3. Strainer Screen: 40-mesh startup strainer and perforated stainless-steel basket with 50 percent free area.
4. CWP Rating: 125 psig.

E. Weatherproof Vent Cap: Cast- or malleable-iron increaser fitting with corrosion-resistant wire screen, with free area at least equal to cross-sectional area of connecting pipe and threaded-end connection.

2.3 JOINING MATERIALS

A. Joint Compound and Tape: Suitable for LPG.

B. Welding Filler Metals: Comply with AWS D10.12/D10.12M for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

- C. Brazing Filler Metals: Alloy with melting point greater than 1000 deg F complying with AWS A5.8/A5.8M. Brazing alloys containing more than 0.05 percent phosphorus are prohibited.

2.4 MANUAL GAS SHUTOFF VALVES

- A. See "Underground Manual Gas Shutoff Valve Schedule" and "Aboveground Manual Gas Shutoff Valve Schedule" Articles for where each valve type is applied in various services.
- B. Metallic Valves, NPS 2 and Smaller for Liquid Service: Comply with ASME B16.33 and UL 842.
 - 1. CWP Rating: 250 psig.
 - 2. Threaded Ends: Comply with ASME B1.20.1.
 - 3. Socket ends for brazed joints.
 - 4. Tamperproof Feature: Locking feature for valves indicated in "Underground Manual Gas Shutoff Valve Schedule" and "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
 - 5. Listing by CSA or agency acceptable to authorities having jurisdiction for valves 1 inch and smaller.
 - 6. Valves 1-1/4 inch and larger shall be suitable for LPG service, with "WOG" indicated on valve body.
- C. General Requirements for Metallic Valves, NPS 2 and Smaller for Vapor Service: Comply with ASME B16.33.
 - 1. CWP Rating: 125 psig.
 - 2. Threaded Ends: Comply with ASME B1.20.1.
 - 3. Dryseal Threads on Flare Ends: Comply with ASME B1.20.3.
 - 4. Tamperproof Feature: Locking feature for valves indicated in "Underground Manual Gas Shutoff Valve Schedule" and "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
 - 5. Listing: Listed and labeled by an NRTL acceptable to authorities having jurisdiction for valves 1 inch and smaller.
 - 6. Service Mark: Valves 1-1/4 inch to NPS 2 shall have initials "WOG" permanently marked on valve body.
- D. One-Piece, Bronze Ball Valve with Bronze Trim: MSS SP-110.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BrassCraft Manufacturing Company; a Masco company.
 - b. Conbraco Industries, Inc.; Apollo Div.

- c. Lyall, R. W. & Company, Inc.
 - d. McDonald, A. Y. Mfg. Co.
 - e. Perfection Corporation; a subsidiary of American Meter Company.
 - 2. Body: Bronze, complying with ASTM B 584.
 - 3. Ball: Chrome-plated brass.
 - 4. Stem: Bronze; blowout proof.
 - 5. Seats: Reinforced TFE; blowout proof.
 - 6. Packing: Separate packnut with adjustable-stem packing threaded ends.
 - 7. Ends: Threaded, flared, or socket as indicated in "Underground Manual Gas Shutoff Valve Schedule" and "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
 - 8. CWP Rating: 600 psig.
 - 9. Listing: Valves NPS 1 and smaller shall be listed and labeled by an NRTL acceptable to authorities having jurisdiction.
 - 10. Service: Suitable for LPG service with "WOG" indicated on valve body.
- E. Two-Piece, Full-Port, Bronze Ball Valves with Bronze Trim: MSS SP-110.
- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BrassCraft Manufacturing Company; a Masco company.
 - b. Conbraco Industries, Inc.; Apollo Div.
 - c. Lyall, R. W. & Company, Inc.
 - d. McDonald, A. Y. Mfg. Co.
 - e. Perfection Corporation; a subsidiary of American Meter Company.
 - 2. Body: Bronze, complying with ASTM B 584.
 - 3. Ball: Chrome-plated bronze.
 - 4. Stem: Bronze; blowout proof.
 - 5. Seats: Reinforced TFE; blowout proof.
 - 6. Packing: Threaded-body packnut design with adjustable-stem packing.
 - 7. Ends: Threaded, flared, or socket as indicated in "Underground Manual Gas Shutoff Valve Schedule" and "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
 - 8. CWP Rating: 600 psig.

9. Listing: Valves NPS 1 and smaller shall be listed and labeled by an NRTL acceptable to authorities having jurisdiction.
 10. Service: Suitable for LPG service with "WOG" indicated on valve body.
- F. Bronze Plug Valves: MSS SP-78.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Lee Brass Company.
 - b. McDonald, A. Y. Mfg. Co.
 2. Body: Bronze, complying with ASTM B 584.
 3. Plug: Bronze.
 4. Ends: Threaded, socket, or flanged as indicated in "Underground Manual Gas Shutoff Valve Schedule" and "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
 5. Operator: Square head or lug type with tamperproof feature where indicated.
 6. Pressure Class: 125 psig.
 7. Listing: Valves NPS 1 and smaller shall be listed and labeled by an NRTL acceptable to authorities having jurisdiction.
 8. Service: Suitable for LPG service with "WOG" indicated on valve body.
- G. PE Ball Valves: Comply with ASME B16.40.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Kerotest Manufacturing Corp.
 - b. Lyall, R. W. & Company, Inc.
 - c. Perfection Corporation; a subsidiary of American Meter Company.
 2. Body: PE.
 3. Ball: PE.
 4. Stem: Acetal.
 5. Seats and Seals: Nitrile.
 6. Ends: Plain or fusible to match piping.
 7. CWP Rating: 80 psig.
 8. Operating Temperature: Minus 20 to plus 140 deg F.

9. Operator: Nut or flat head for key operation.
10. Include plastic valve extension.
11. Include tamperproof locking feature for valves where indicated on Drawings.

H. Valve Boxes:

1. Cast-iron, two-section box.
2. Top section with cover with "GAS" lettering.
3. Bottom section with base to fit over valve and barrel a minimum of 5 inches in diameter.
4. Adjustable cast-iron extensions of length required for depth of bury.
5. Include tee-handle, steel operating wrench with socket end fitting valve nut or flat head and with stem of length required to operate valve.

2.5 SOLENOID GAS VALVES

A. Automatic Gas Valves: Comply with ANSI Z21.21.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following
 - a. ASCO.
 - b. Honeywell International Inc.
 - c. Maxon
2. Body: Brass or aluminum.
3. Seats and Disc: Nitrile rubber.
4. Springs and Valve Trim: Stainless steel.
5. Normally closed.
6. Visual position indicator.
7. Electrical operator for actuation by automatic shutoff device..
8. Provide normally closed, manual reset solenoid valves with open-shut indicator, auxiliary switches and terminal block, suitable for gas service and exterior weatherproof applications. Coordinate location of valves with other trades. Coordinate requirements for power circuiting and control circuiting to fire alarm system and/or kitchen hood (whichever applies). Valves shall be Maxon Series SMM or approved equal. Coordinate power source and required voltage with Electrical Contractor and Fire Alarm System Contractor prior to ordering valves.

2.6 PRESSURE REGULATORS

A. General Requirements:

1. Single stage and suitable for LPG.
2. Steel jacket and corrosion-resistant components.
3. Elevation compensator.
4. End Connections: Threaded for regulators NPS 2 and smaller, flanged for regulators NPD 2-1/2 and larger
5. Provide gas pressure regulators as required and shown on the plans to maintain the required food service equipment pressure and flow, despite inlet pressure fluctuation.
6. Regulator size shall provide maximum flow required at the highest outlet pressure needed (take into consideration incoming line losses).
7. Regulator spring shall be chosen so desired outlet pressure is centered within its range. Regulator inlet pressure cannot be exceeded at outlet. Provide a spare spring in the next higher pressure range to avoid start-up inconvenience if system pressure drops exceed those anticipated.
8. Orifice size shall be the smallest compatible with required capacity.
9. Mounting position may affect regulator performance. See manufacturer's specific regulator data for any limitations.
10. Install gas pressure regulators per the manufacturer's installation recommendations and guidelines.
11. Gas pressure regulators shall be as manufactured by Maxon or approved equal..

B. Service Pressure Regulators: Comply with ANSI Z21.80.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following
 - a. Actaris.
 - b. American Meter Company.
 - c. Fisher Control Valves and Regulators; Division of Emerson Process Management.
 - d. Invensys.
 - e. Maxitrol Company.
 - f. Richards Industries; Jordan Valve Div.
2. Body and Diaphragm Case: Cast iron or die-cast aluminum.
3. Springs: Zinc-plated steel; interchangeable.

4. Diaphragm Plate: Zinc-plated steel.
 5. Seat Disc: Nitrile rubber resistant to gas impurities, abrasion, and deformation at the valve port.
 6. Orifice: Aluminum; interchangeable.
 7. Seal Plug: Ultraviolet-stabilized, mineral-filled nylon.
 8. Single-port, self-contained regulator with orifice no larger than required at maximum pressure inlet and no pressure sensing piping external to the regulator.
 9. Pressure regulator shall maintain discharge pressure setting downstream and not exceed 150 percent of design discharge pressure at shutoff.
 10. Overpressure Protection Device: Factory mounted on pressure regulator.
 11. Atmospheric Vent: Factory- or field-installed, stainless-steel screen in opening if not connected to vent piping.
 12. Maximum Inlet Pressure: 100 psig.
- C. Line Pressure Regulators: Comply with ANSI Z21.80.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following
 - a. Actaris.
 - b. American Meter Company.
 - c. Eclipse Combustion, Inc.
 - d. Fisher Control Valves and Regulators; Division of Emerson Process Management.
 - e. Invensys.
 - f. Maxitrol Company.
 - g. Richards Industries; Jordan Valve Div.
 2. Body and Diaphragm Case: Cast iron or die-cast aluminum.
 3. Springs: Zinc-plated steel; interchangeable.
 4. Diaphragm Plate: Zinc-plated steel.
 5. Seat Disc: Nitrile rubber resistant to gas impurities, abrasion, and deformation at the valve port.
 6. Orifice: Aluminum; interchangeable.
 7. Seal Plug: Ultraviolet-stabilized, mineral-filled nylon.

8. Single-port, self-contained regulator with orifice no larger than required at maximum pressure inlet and no pressure sensing piping external to the regulator.
 9. Pressure regulator shall maintain discharge pressure setting downstream and not exceed 150 percent of design discharge pressure at shutoff.
 10. Overpressure Protection Device: Factory mounted on pressure regulator.
 11. Atmospheric Vent: Factory- or field-installed, stainless-steel screen in opening if not connected to vent piping.
 12. Maximum Inlet Pressure: 2 psig.
 13. Vent Limiting Device (indoor applications only):
 - a. Comply with ANSI Z21.80
 - b. Vent limiters shall only be installed on regulators for which they are certified.
 - c. Vent limiters shall be manufactured of materials having melting point of not less than 800°F.
 - d. Maximum allowable flow rate: 1.0 cfm at 1.53 specific gravity.
- E. Appliance Pressure Regulators: Comply with ANSI Z21.18.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following
 - a. Canadian Meter Company Inc.
 - b. Eaton Corporation; Controls Div.
 - c. Harper Wyman Co.
 - d. Maxitrol Company.
 - e. SCP, Inc.
 - f. <Insert manufacturer's name>.
 2. Body and Diaphragm Case: Die-cast aluminum.
 3. Springs: Zinc-plated steel; interchangeable.
 4. Diaphragm Plate: Zinc-plated steel.
 5. Seat Disc: Nitrile rubber.
 6. Seal Plug: Ultraviolet-stabilized, mineral-filled nylon.
 7. Factory-Applied Finish: Minimum three-layer polyester and polyurethane paint finish.
 8. Regulator may include vent limiting device, instead of vent connection, if approved by authorities having jurisdiction.

9. Maximum Inlet Pressure: 2 psig.

2.7 DIELECTRIC FITTINGS

A. Dielectric Unions:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following
 - a. Capitol Manufacturing Company.
 - b. Central Plastics Company.
 - c. Hart Industries International, Inc.
 - d. McDonald, A. Y. Mfg. Co.
 - e. Watts Regulator Co.; Division of Watts Water Technologies, Inc.
 - f. Wilkins; Zurn Plumbing Products Group.
2. Minimum Operating-Pressure Rating: 150 psig.
3. Combination fitting of copper alloy and ferrous materials.
4. Insulating materials suitable for LPG.
5. Combination fitting of copper alloy and ferrous materials with threaded, brazed-joint, plain, or welded end connections that match piping system materials.

B. Dielectric Flanges:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following
 - a. Capitol Manufacturing Company.
 - b. Central Plastics Company.
 - c. Watts Regulator Co.; Division of Watts Water Technologies, Inc.
 - d. Wilkins; Zurn Plumbing Products Group.
2. Minimum Operating-Pressure Rating: 150 psig.
3. Combination fitting of copper alloy and ferrous materials.
4. Insulating materials suitable for LPG.
5. Combination fitting of copper alloy and ferrous materials with threaded, brazed-joint, plain, or welded end connections that match piping system materials.

C. Dielectric-Flange Kits:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following
 - a. Advance Products & Systems, Inc.
 - b. Calpico Inc.
 - c. Central Plastics Company.
 - d. Pipeline Seal and Insulator, Inc.
2. Minimum Operating-Pressure Rating: 150 psig.
3. Companion-flange assembly for field assembly.
4. Include flanges, full-face- or ring-type neoprene or phenolic gasket, phenolic or PE bolt sleeves, phenolic washers, and steel backing washers.
5. Insulating materials suitable for LPG.
6. Combination fitting of copper alloy and ferrous materials with threaded, brazed-joint, plain, or welded end connections that match piping system materials.

2.8 SLEEVES

- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.
- B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

2.9 MECHANICAL SLEEVE SEALS

- A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following
 - a. Advance Products & Systems, Inc.
 - b. Calpico Inc.
 - c. Metraflex Company (The).
 - d. Pipeline Seal and Insulator, Inc.
 2. Sealing Elements: EPDM interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe and sleeve.
 3. Pressure Plates: Stainless steel.

4. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements. Include one nut and bolt for each sealing element.

2.10 ESCUTCHEONS

- A. General Requirements for Escutcheons: Manufactured wall and ceiling escutcheons and floor plates, with ID to fit around pipe or tube, and OD that completely covers opening.
- B. One-Piece, Deep-Pattern Escutcheons: Deep-drawn brass with polished chrome-plated finish.
- C. One-Piece, Cast-Brass Escutcheons: With set screw.
 1. Finish: Polished chrome-plated.
- D. One-Piece, Stamped-Steel Escutcheons: With set screw or spring clips and chrome-plated finish.
- E. One-Piece, Floor-Plate Escutcheons: Cast-iron floor plate.
- F. Split-Casting, Floor-Plate Escutcheons: Cast brass with concealed hinge and set screw.

2.11 GROUT

- A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.
 1. Characteristics: Post-hardening, volume adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
 2. Design Mix: 5000-psi, 28-day compressive strength.
 3. Packaging: Premixed and factory packaged.

2.12 LABELING AND IDENTIFYING

- A. Detectable Warning Tape: Acid- and alkali-resistant PE film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored yellow.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in for LPG piping system to verify actual locations of piping connections before equipment installation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EARTHWORK

- A. Comply with requirements in Division 31 Section "Earth Moving" for excavating, trenching, and backfilling.

3.3 PREPARATION

- A. Close equipment shutoff valves before turning off LPG to premises or piping section.
- B. Inspect LPG piping according to NFPA 58 to determine that LPG utilization devices are turned off in piping section affected.
- C. Comply with NFPA 58 requirements for prevention of accidental ignition.

3.4 OUTDOOR PIPING INSTALLATION

- A. Comply with NFPA 58 requirements for installation and purging of LPG piping.
- B. Install underground, LPG piping buried at least 36 inches below finished grade. Comply with requirements in Division 31 Section "Earth Moving" for excavating, trenching, and backfilling.
 - 1. If LPG piping is installed less than 36 inches below finished grade, install it in containment conduit.
- C. Install underground, PE, LPG piping according to ASTM D 2774.
- D. Steel Piping with Protective Coating:
 - 1. Apply joint cover kits to pipe after joining to cover, seal, and protect joints.
 - 2. Repair damage to PE coating on pipe as recommended in writing by protective coating manufacturer.
 - 3. Replace pipe having damaged PE coating with new pipe.
- E. Install fittings for changes in direction and branch connections.
- F. Joints for connection to inlets and outlets on vaporizers, air mixers, regulators, and valves may be flanged or threaded to match the equipment.
- G. Aboveground, Exterior-Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
 - 1. Install steel pipe for sleeves smaller than 6 inches in diameter.
- H. Underground, Exterior-Wall Pipe Penetrations: Install cast-iron "wall pipes" for sleeves. Seal pipe penetrations using mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
- I. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

- J. Install pressure gage upstream and downstream from each service regulator.

3.5 INDOOR PIPING INSTALLATION

- A. Comply with NFPA 58 for installation and purging of LPG piping.
- B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.
- C. Arrange for pipe spaces, chases, slots, sleeves, and openings in building structure during progress of construction, to allow for mechanical installations.
- D. Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas.
- E. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- F. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
- G. Locate valves for easy access.
- H. Install LPG piping at uniform grade of 2 percent down toward drip and sediment traps.
- I. Install piping free of sags and bends.
- J. Install fittings for changes in direction and branch connections.
- K. Install escutcheons for penetrations of interior walls, ceilings, and floors.
 - 1. New Piping:
 - a. Piping with Fitting or Sleeve Protruding from Wall: One-piece, deep-pattern type.
 - b. Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, cast-brass type with polished chrome-plated finish.
 - c. Piping at Ceiling Penetrations in Finished Spaces: One-piece, cast-brass type with polished chrome-plated finish.
 - d. Piping in Unfinished Service Spaces: One-piece, cast-brass type with rough-brass finish.
 - e. Piping in Equipment Rooms: One-piece, cast-brass type.
 - f. Piping at Floor Penetrations in Equipment Rooms: One-piece, floor-plate type.
 - L. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements in Division 07 Section "Penetration Firestopping" for materials.

- M. Verify final equipment locations for roughing-in.
- N. Comply with requirements in Sections specifying gas-fired appliances and equipment for roughing-in requirements.
- O. Drips and Sediment Traps: Install drips at points where condensate may collect, including service-meter outlets. Locate where readily accessible to permit cleaning and emptying. Do not install where condensate is subject to freezing.
 - 1. Construct drips and sediment traps using tee fitting with bottom outlet plugged or capped. Use nipple a minimum length of 3 pipe diameters, but not less than 3 inches (75 mm) long and same size as connected pipe. Install with space below bottom of drip to remove plug or cap.
- P. Extend relief vent connections for service regulators, line regulators, and overpressure protection devices to outdoors and terminate with weatherproof vent cap.
- Q. Where line pressure regulators are provided with vent limiters, the vent limiting device shall be installed directly to the regulator without intermediate pipe or fittings. Regulator must be mounted in horizontal, upright position.
- R. Conceal pipe installations in walls, pipe spaces, utility spaces, above ceilings, below grade or floors, and in floor channels unless indicated to be exposed to view.
- S. Concealed Location Installations: Except as specified below, install concealed LPG piping and piping installed under the building in containment conduit constructed of steel pipe with welded joints as described in Part 2. Install a vent pipe from containment conduit to outdoors and terminate with weatherproof vent cap.
 - 1. Above Accessible Ceilings: LPG piping, fittings, valves, and regulators may be installed in accessible spaces without containment conduit.
 - 2. In Floors: Install LPG piping with welded or brazed joints and protective coating in cast-in-place concrete floors. Cover piping to be cast in concrete slabs with minimum of 1-1/2 inches of concrete. Piping may not be in physical contact with other metallic structures such as reinforcing rods or electrically neutral conductors. Do not embed piping in concrete slabs containing quick-set additives or cinder aggregate.
 - 3. In Floor Channels: Install LPG piping in floor channels. Channels must have cover and be open to space above cover for ventilation.
 - 4. In Walls or Partitions: Protect tubing installed inside partitions or hollow walls from physical damage using steel striker barriers at rigid supports.
 - a. Exception: Tubing passing through partitions or walls does not require striker barriers.
 - 5. Prohibited Locations:
 - a. Do not install LPG piping in or through circulating air ducts, clothes or trash chutes, chimneys or gas vents (flues), ventilating ducts, or dumbwaiter or elevator shafts.
 - b. Do not install LPG piping in solid walls or partitions.

- T. Use eccentric reducer fittings to make reductions in pipe sizes. Install fittings with level side down.
- U. Connect branch piping from top or side of horizontal piping.
- V. Install unions in pipes NPS 2 and smaller, adjacent to each valve, at final connection to each piece of equipment. Unions are not required at flanged connections.
- W. Do not use LPG piping as grounding electrode.
- X. Install strainer on inlet of each line-pressure regulator and automatic or electrically operated valve.
- Y. Install pressure gage upstream and downstream from each line regulator.

3.6 VALVE INSTALLATION

- A. Install manual gas shutoff valve for each gas appliance ahead of corrugated stainless-steel tubing, aluminum, or copper connector.
- B. Install underground valves with valve boxes.
- C. Install regulators and overpressure protection devices with maintenance access space adequate for servicing and testing.
- D. Install anode for metallic valves in underground PE piping.
- E. Install exterior, automatic gas shutoff valves in lockable enclosure to prevent unintended shut-off or vandalism.

3.7 PIPING JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs.
- B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- C. Threaded Joints:
 - 1. Thread pipe with tapered pipe threads complying with ASME B1.20.1.
 - 2. Cut threads full and clean using sharp dies.
 - 3. Ream threaded pipe ends to remove burrs and restore full ID of pipe.
 - 4. Apply appropriate tape or thread compound to external pipe threads unless dryseal threading is specified.
 - 5. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

D. Welded Joints:

1. Construct joints according to AWS D10.12/D10.12M, using qualified processes and welding operators.
2. Bevel plain ends of steel pipe.
3. Patch factory-applied protective coating as recommended by manufacturer at field welds and where damage to coating occurs during construction.

E. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," Ch. 22, "Pipe and Tube."

F. Flared Joints: Cut tubing with roll cutting tool. Flare tube end with tool to result in flare dimensions complying with SAE J513. Tighten finger tight, then use wrench. Do not overtighten.

G. PE Piping Heat-Fusion Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join according to ASTM D 2657.

1. Plain-End Pipe and Fittings: Use butt fusion.
2. Plain-End Pipe and Socket Fittings: Use socket fusion.

3.8 HANGER AND SUPPORT INSTALLATION

A. Install seismic restraints on piping. Comply with requirements for seismic-restraint devices specified in Division 23 Section "Vibration and Seismic Controls for HVAC Piping and Equipment."

B. Comply with requirements for pipe hangers and supports specified in Division 23 Section "Hangers and Supports for HVAC Piping and Equipment."

C. Install hangers for horizontal steel piping with the following maximum spacing and minimum rod sizes:

1. NPS 1 and Smaller: Maximum span, 96 inches; minimum rod size, 3/8 inch.
2. NPS 1-1/4: Maximum span, 108 inches; minimum rod size, 3/8 inch.
3. NPS 1-1/2 and NPS 2: Maximum span, 108 inches; minimum rod size, 3/8 inch.

3.9 CONNECTIONS

A. Connect to utility's gas main according to utility's procedures and requirements.

B. Install LPG piping electrically continuous, and bonded to gas appliance equipment grounding conductor of the circuit powering the appliance according to NFPA 70.

C. Install piping adjacent to appliances to allow service and maintenance of appliances.

D. Connect piping to appliances using manual gas shutoff valves and unions. Install valve within 72 inches of each gas-fired appliances and equipment. Install union between valve and appliances or equipment.

- E. Sediment Traps: Install tee fitting with capped nipple in bottom to form drip, as close as practical to inlet of each appliance.

3.10 LABELING AND IDENTIFYING

- A. Comply with requirements in Division 23 Section "Identification for HVAC Piping and Equipment" for piping and valve identification.
- B. Install detectable warning tape directly above gas piping, 12 inches below finished grade, except 6 inches (below subgrade under pavements and slabs).

3.11 PAINTING

- A. Comply with requirements in Division 09 painting Sections for painting interior and exterior LPG piping.
- B. Paint exposed, exterior metal piping, valves, service regulators, service meters and meter bars, earthquake valves, and piping specialties, except components with factory-applied paint or protective coating.
 - 1. Alkyd System: MPI EXT 5.1D.
 - a. Prime Coat: Alkyd anticorrosive metal primer.
 - b. Intermediate Coat: Exterior alkyd enamel matching topcoat.
 - c. Topcoat: Exterior alkyd enamel semigloss.
 - d. Color: Gray.
- C. Paint exposed, interior metal piping, valves, service regulators, service meters and meter bars, earthquake valves, and piping specialties, except components with factory-applied paint or protective coating.
 - 1. Latex Over Alkyd Primer System: MPI INT 5.1Q.
 - a. Prime Coat: Alkyd anticorrosive metal primer.
 - b. Intermediate Coat: Interior latex matching topcoat.
 - c. Topcoat: Interior latex semigloss.
 - d. Color: Gray.
 - 2. Alkyd System: MPI INT 5.1E.
 - a. Prime Coat: Alkyd anticorrosive metal primer.
 - b. Intermediate Coat: Interior alkyd matching topcoat.
 - c. Topcoat: Interior alkyd semigloss.
 - d. Color: Gray.

- D. Damage and Touchup: Repair marred and damaged factory-applied finishes with materials and by procedures to match original factory finish.

3.12 CONCRETE BASES

- A. Concrete Bases: Anchor equipment to concrete bases.
 - 1. Construct concrete bases of dimensions indicated, but not less than 4 inches larger in both directions than supported unit.
 - 2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of the base.
 - 3. Install epoxy-coated anchor bolts for supported equipment that extend through concrete base, and anchor into structural concrete floor.
 - 4. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 5. Install anchor bolts to elevations required for proper attachment to supported equipment.
 - 6. Use 3000-psig, 28-day, compressive-strength concrete and reinforcement as specified in Division 03 Section "Cast-in-Place Concrete."

3.13 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:
 - 1. Test, inspect, and purge LPG according to NFPA 58 and requirements of authorities having jurisdiction.
- C. LPG piping will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

3.14 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain LPG equipment.

3.15 OUTDOOR PIPING SCHEDULE

- A. Underground LPG liquid piping shall be the following:
 - 1. Schedule 40 steel pipe with wrought-steel fittings and welded joints, or mechanical couplings. Coat pipe and fittings with protective coating for steel piping.

- B. Aboveground LPG liquid piping shall be the following:
 - 1. NPS 2 and Smaller: Schedule 40 steel pipe, malleable-iron threaded fittings and threaded and seal welded joints. Coat pipe and fittings with protective coating for steel piping.
- C. Underground LPG vapor piping shall be the following:
 - 1. PE pipe and fittings joined by heat-fusion, or mechanical couplings; service-line risers with tracer wire terminated in an accessible location.
- D. Aboveground LPG vapor piping shall be the following:
 - 1. Schedule 40, steel pipe with malleable-iron fittings and threaded joints.
 - 2. Schedule 40, steel pipe with wrought-steel fittings and welded joints, or mechanical couplings.
- E. Branch Piping in Cast-in-Place Concrete to Single Appliance: Annealed-temper copper, with wrought-copper fittings and brazed joints. Install piping embedded in concrete with no joints in concrete.
- F. Containment Conduit: Schedule 40, steel pipe with wrought-steel fittings and welded joints. Coat pipe and fittings with protective coating for steel piping.

3.16 INDOOR PIPING SCHEDULE FOR SYSTEM PRESSURES LESS THAN 2 PSIG

- A. Aboveground, branch piping NPS 1 and smaller shall be one of the following:
 - 1. Schedule 40, steel pipe with malleable-iron fittings and threaded joints.
- B. Aboveground, distribution piping shall be one of the following:
 - 1. Schedule 40, steel pipe with malleable-iron fittings and threaded joints.
 - 2. Schedule 40, steel pipe with wrought-steel fittings and welded joints.
- C. Underground, below building, piping shall be one of the following:
 - 1. Schedule 40, steel pipe with malleable-iron fittings and threaded joints.
 - 2. Schedule 40, steel pipe with wrought-steel fittings and welded joints.
- D. Containment Conduit: Schedule 40, steel pipe with wrought-steel fittings and welded joints. Coat pipe and fittings with protective coating for steel piping.
- E. Containment Conduit Vent Piping: Schedule 40, steel pipe with malleable-iron fittings and threaded or wrought-steel fittings with welded joints. Coat underground pipe and fittings with protective coating for steel piping.

3.17 UNDERGROUND MANUAL GAS SHUTOFF VALVE SCHEDULE

- A. Connections to Existing Gas Piping: Use valve and fitting assemblies made for tapping utility's gas mains and listed by an NRTL.

- B. Underground Vapor Piping:
 - 1. PE valves.
 - 2. NPS 2 and Smaller: Bronze, lubricated plug valves.

3.18 ABOVEGROUND MANUAL GAS SHUTOFF VALVE SCHEDULE

- A. Aboveground Liquid Piping:
 - 1. Two-piece, full-port, bronze ball valves with bronze trim.
- B. Distribution piping valves for pipe NPS 2 and smaller shall be[one of] the following:
 - 1. One-piece, bronze ball valve with bronze trim.
 - 2. Two-piece, full-port, bronze ball valves with bronze trim.
 - 3. Bronze plug valve.
- C. Valves in branch piping for single appliance shall be one of the following:
 - 1. One-piece, bronze ball valve with bronze trim.
 - 2. Two-piece, full-port, bronze ball valves with bronze trim.
 - 3. Bronze plug valve.

3.19 INSTALLATION—GENERAL

- A. Installation shall be in accordance with NFPA 58 and Florida Building Code—Fuel Gas.
- B. Exposed or readily accessible piping shall be graded at not less than 1/4" in 15 feet to secure drainage.
- C. Install accessible 6" long drip pockets at the bottoms of all vertical risers and such other points as required. Pockets shall be made of a full size pipe tee with one leg capped.
 - 1. One-piece, bronze ball valve with bronze trim.
 - 2. Two-piece, full-port, bronze ball valves with bronze trim.
 - 3. Bronze plug valve.
- D. Install branch shut-off cocks ahead of all appliances, burners, etc., see plans for size of lines and cocks.
- E. Provide shut-off valves where noted on plans, and as required for complete regulation or control of all systems and at each piece of equipment.
- F. Underground piping shall be coated with coal tar enamel and wrapped with pressure sensitive tape equal to tapecoat CT.
- G. Gas pipe shall be tested for tightness. Refer to Section 15400, Pressure Testing of Piping Systems.

- H. All pipe shall be supported from the building structure in a neat and workmanlike manner and wherever possible, parallel runs of horizontal piping shall be grouped together on trapeze type hangers. Vertical risers shall be supported at each floor line with steel pipe clamps. The use of wire or perforated metal to support pipes will not be permitted. Hanging pipes from other pipes will not be permitted. Spacing of pipe supports shall not exceed 8 feet for pipes up to 1-1/4" and 10 feet on all other piping.
- I. Provide a master manual emergency shut-off valve at the instructors station unless noted otherwise on the drawings.
- J. Provide one (1) emergency automatic shut-off valve at each classroom served with gas unless otherwise noted on the drawings. Provide electrical power and control circuiting for intended operation, coordinate circuiting and voltage requirements the Electrical Contractor. Valves shall be designed for exterior service.
- K. All gas piping below floor shall be welded steel and shall be sleeved and vented as required by the Florida Building Code—Fuel Gas unless otherwise noted on the drawings.
- L. Assemble all fixtures and equipment shipped loose which this Contractor is required to make final connections to, whether furnished by this Contractor or by others (i.e., science cabinet gas fixtures, etc.).
- M. Provide regulators on each gas service branch pipe termination at appliance or equipment as necessary for proper operation of appliance or equipment. Coordinate requirements with shop drawings and gas service. Refer to equipment manufacturer's recommendations. Provide independent gas piping from each pressure regulator relief vent to exterior of building.
- N. Provide one (1) emergency automatic shut-off valve at exterior wall of kitchen served with gas unless otherwise noted on the drawings. Provide electrical power and control circuiting for intended operation, coordinate circuiting and voltage requirements the Electrical Contractor. Valves shall be designed for exterior service.

*** END OF SECTION 22 16 17 ***

THIS PAGE INTENTIONALLY LEFT BLANK



CONTAIN WATER SYSTEMS INC.

ENGINEERING/CONSTRUCTION/MANUFACTURING /WWW.CONTAINWATERSYSTEMS.COM
1.855.H2O.TANK - 252 FROG POND LANE. UNIT C. DRIPPING SPRINGS, TEXAS. 78620

MODEL SPECIFICATION FOR CONTAIN WATER SYSTEMS INC. DOME ROOF CORRUGATED STEEL WATER STORAGE TANKS.

Part 1 GENERAL

1.01 SECTION INCLUDES:

WATER STORAGE TANKS

1.02 RELATED SECTIONS:

Water supply piping, water use piping, electrical, irrigation, foundations, site plans.

1.03 REFERENCES:

AWWA D103-09, ASCE-7, NSF 61 / ANSI, FDA, IBC.

1.04 SUBMITTALS:

Tank dimension & appurtenances drawings shall be submitted for approval prior to tank materials fabrication.

1.05 QUALIFICATION AND EXPERIENCE:

Tank manufacturer shall have a minimum of 10 years' experience manufacturing corrugated galvanized steel bolted tanks.

Tank installer shall be certified by Contain Water Systems Inc. in the installation of tanks and working on commercial construction job sites.

Tank installer shall be trained in confined space protocols (OSHA), fall arrest and hold insurances for workers comp, liability, vehicle & professional insurance.

1.06 DELIVERY, STORAGE AND HANDLING:



QUOTES@CONTAINWATERSYSTEMS.COM



CONTAIN WATER
SYSTEMS



1-855-H2O-TANK



CONTAIN WATER
SYSTEMS



CONTAIN WATER SYSTEMS INC.

ENGINEERING/CONSTRUCTION/MANUFACTURING |
/WWW.CONTAINWATERSYSTEMS.COM

1-855-H2O-TANK • 252 EPOC BOND LANE • UNIT C • DRIPPING

MODEL SPECIFICATION FOR CONTAIN WATER SYSTEMS INC. DOME ROOF CORRUGATED STEEL WATER STORAGE TANKS.

Tank materials shall be shipped from the factory on wood pallets with protective edges and plastic heat shrink wrapped with roof ventilation designed to protect materials from normal shipping damage.

Tank materials shall be stored to prevent the development of white rust onto the galvanized steel.

1.07 WARRANTY:

The manufacturer shall warrant the tank against defects for a period of twenty (20) years from the date of shipment of the materials from the factory.

Part 2 PRODUCTS

2.01 WATER STORAGE TANK

The water storage tank shall be a Contain Water Systems Inc. CGS model as depicted in the CAD drawing attached to this specification sheet. The Contain Water Systems Inc. water storage tank shall have a 3 degree high rib roof design with a nominal capacity as listed on the CAD drawing attached to this specification sheet. The water tank shall have the exacting dimensional specifications of the CAD drawing attached to this specification sheet.

2.02. GENERAL

The water storage tank shall be a standard factory engineered galvanized steel tank with a liquid tight potable internal liner. The internal water storage liner shall include a secondary protective pre-liner liner. The water storage tank shall be assembled and erected onsite. The tank structure shall consist of corrugated, galvanized steel wall sheets, roof panels, one roof panel with access hatch, standard peak cap, roof ladder angles, anchor clips, specified appurtenances and necessary hardware for tank assembly.



QUOTES@CONTAINWATERSYSTEMS.COM



CONTAIN WATER
SYSTEMS



1-855-H2O-TANK



CONTAIN WATER
SYSTEMS



CONTAIN WATER SYSTEMS INC.

ENGINEERING/CONSTRUCTION/MANUFACTURING |
/WWW.CONTAINWATERSYSTEMS.COM

1-855-H2O-TANK – 252 FROG POND LANE, UNIT C, DRIPPING SPRINGS, TEXAS 78620

MODEL SPECIFICATION FOR CONTAIN WATER SYSTEMS INC. DOME ROOF CORRUGATED STEEL WATER STORAGE TANKS.

2.03. ACCEPTABLE MANUFACTURERS

Contain Water Systems Inc. – www.ContainWaterSystems.com – 252. Frog Pond Lane, Unit C, Dripping Springs, Texas, 78620.
1-855-H2O-TANK – quotes@containwatersystems.com

2.04. BOLTED TANK STRUCTURE

Galvanized steel tank wall and roof panels shall be pre-punched at the factory for field assembly. **G130 Galvanization.**

2.05. PRE-LINER

A 40 oz. black geotextile pre-liner shall be installed inside of the tank structure along the base foundation only. **Pre-liner designs covering the tank wall shall not be approved as an alternate design.** Geo-textile coverage on the tank walls is harmful to the tank structure due to build up condensation sponging against the interior tank wall.

2.06. MAIN LINER

The water containment sealing system shall be a factory welded seam, flexible membrane liner. **.040 Mil – minimum thickness with reinforcement scribing.** The flexible membrane liner shall also be certified to meet the standards of NSF 61 / ANSI for potable water storage systems. **Main liners without NSF 61 / ANSI certification ratings are not approved as alternates.** Main liners shall be installed inside of the water tank by **utilizing a compression fit securement clip system only.** **Liner hanging systems utilizing liner hanger bolts, seal washers and grommets for suspension are NOT approved.** Compression fit mounting clamps ensure the liner is not punctured allowing the liner to maintain it's full integrity. Grommets and or liner penetration hanger systems effect the integrity of the liner and reduce it's lifecycle.

2.07. TANK DESIGN CRITERIA

Water tank shall be designed to meet or **exceed Seismic Zone 4 (Seismic Design Category D (North America's most stringent zone conditions), minimum 165 MPH (UBC), 165 MPH (IBC) wind speed, 30 PSF roof loads and 30 PSF roof wind loads. The tank structure shall be designed to contain potable water having a density of 62.4 pounds per cubic foot as per standard design.**



QUOTES@CONTAINWATERSYSTEMS.COM



CONTAIN WATER
SYSTEMS



1-855-H2O-TANK



CONTAIN WATER
SYSTEMS



CONTAIN WATER SYSTEMS INC.

ENGINEERING/CONSTRUCTION/MANUFACTURING |
/WWW.CONTAINWATERSYSTEMS.COM

1-855-H2O-TANK • 252 EPOC BOND LANE, UNIT C, DRIPPING SPRING, TX 75844

MODEL SPECIFICATION FOR CONTAIN WATER SYSTEMS INC. DOME ROOF CORRUGATED STEEL WATER STORAGE TANKS.

2.08. TANK SHELL COATING

The water tank structure shall be galvanized with a minimum galvanization coating of G130 on the roof and walls of the tank structure. Lower coating ratings shall not be accepted as an alternate design.

2.09. STRUCTURAL MATERIAL

All water tank shell materials including: Roof, Wall, Bolts, Anchors & Misc. materials shall be manufactured using strength steel – manufactured in a USA facility utilizing USA steel mill coils. The minimum coating thickness shall be G130. Any coatings less than G130 shall not be approved as an acceptable alternate.

Wall sheets are continuous 4" pitch x 1/2" depth corrugated galvanized steel with a minimum yield strength of 40,000 psi and a minimum tensile strength of 55,000 psi for 20 and 18 gauge sheets. All heavier gauges must have a minimum yield strength of 50,000 psi and a minimum tensile strength of 65,000 psi.

The wall sheets are manufactured from G130 galvanized steel conforming to ASTM A653. Wall sheets have a 44" nominal coverage.

Wall sheets have a coverage length of 9' 4-1/2" long. The wall sheets are connected with GR8.5 bolts along both the vertical and horizontal seams. Vertical seams are punched for a staggered, double, triple or quad row connection at 2" on center. Horizontal seams are a single lap connection with spacing of 9-3/8".

Tanks are supplied with anchor brackets which bolt at the vertical seams and the center of the wall sheets.

Water tank roofs have a 3 degree slope and are made up of truss supported roof sheets, and are designed for 30 PSF roof snow loads & 30 PSF roof uplift loads as a basis for the minimum design considerations of this specification.

12' through 48' diameter roof panels are triangular in shape and have formed structural ribs along the radial edges to provide stiffness and strength. The 12' through 48' roof panels extend past the eave to allow for drainage and are attached to the wall sheets with top ring angle sections that bolt around the entire circumference of the tank opening. **Roof eave clip systems with bolt spacing of more than 2" are NOT an approved design. The roof to wall connection must have a coverage area of 100% of the tanks circumference with a minimum bolt spacing of 2" for properly designed wind uplift requirements.**

The 27' through 48' diameter roof panels are manufactured from G130 galvanized steel conforming to ASTM A653 GR40.



QUOTES@CONTAINWATERSYSTEMS.COM



CONTAIN WATER
SYSTEMS



1-855-H2O-TANK



CONTAIN WATER
SYSTEMS



CONTAIN WATER SYSTEMS INC.

ENGINEERING/CONSTRUCTION/MANUFACTURING |
/WWW.CONTAINWATERSYSTEMS.COM

1 855 H2O-TANK - 252 EPOC BOND LANE UNIT C DRIPPING

MODEL SPECIFICATION FOR CONTAIN WATER SYSTEMS INC. DOME ROOF CORRUGATED STEEL WATER STORAGE TANKS.

2.10. TANK ACCESS

Tanks have a standard 24" side roof panel tank access hatch.

2.11. TANK PENETRATIONS

Tank penetrations through the floor of the tank or the tank wall within the water storage level shall be completed utilizing either schedule 80 PVC flange sets or stainless steel flange sets or powder coated steel flange sets. Flanges shall be bolted together with stainless steel or brass hex head cap screws with bonded sealing washers at all liquid side holes. Liquid seam sealant may be used to ensure effective sealing. **NFPA 22 fire protection water storage tanks MUST utilize flanges which use a single set of through-bolts which essentially "sandwich" the liner and flange face to the steel wall. This method reinforces the wall structure penetration to ensure the structural integrity of the tank wall is reinforced as per NFPA 22 requirements.**

2.12 TANK FOUNDATION

The foundation design and construction is not covered by this section of the specifications.

2.13 HARDWARE

All bolts and nuts shall be electro-galvanized with JS-500 clear coat protective coating. Roof bolts shall have factory-installed steel-backed vinyl washers. Wall sheet bolts shall have slotted button heads for insertion from inside toward outside. All bolts shall be heat treated and meet SAE Grade 8.5 or stronger specifications.

2.14 FLEXIBLE MEMBRANE LINER

The flexible membrane liner shall have a minimum rated thickness of **40 mil (+/- 10%)** and a minimum finished coated weight of 40.0 oz/yd² (+2/-1 oz/yd²). The liner shall be a REINFORCED PVC coated polyester fabric liner or polypropylene coated fabric reinforced liner. The tank liner shall carry the **NSF-61 / ANSI certification for potable water storage.** The liner shall be fabricated with a minimum of 1.5" factory welded seams and shall have a poly rope in the top hem for reinforcement.



QUOTES@CONTAINWATERSYSTEMS.COM



CONTAIN WATER
SYSTEMS



1-855-H2O-TANK



CONTAIN WATER
SYSTEMS



CONTAIN WATER SYSTEMS INC.
ENGINEERING/CONSTRUCTION/MANUFACTURING |
/WWW.CONTAINWATERSYSTEMS.COM
1-855-H2O-TANK – 252 EPOC BOND LANE, UNIT C, DRIPPING

MODEL SPECIFICATION FOR CONTAIN WATER SYSTEMS INC. DOME ROOF CORRUGATED STEEL WATER STORAGE TANKS.

2.15 ANCHOR CLIPS

The anchor clips and anchor bolts shall conform to the structural design calculation package, if provided, and shall always meet site-specific requirements to properly anchor the tank in accordance with seismic, wind load, and other environmental conditions.

Part 3 EXECUTION

3.01 INSTALLATION

Tank shall be assembled by installation technicians holding a certification in the construction of Contain Water Systems Inc. water storage tanks. Installation personnel entering the tank must be trained on confined space OSHA protocols.

3.02 FIELD QUALITY CONTROL

An authorized supervisor of the tank materials supplier shall inspect the tank structure before installation of the preliner and main liner. Tank assembly contractor shall comply with tank supplier recommendations for the proper assembly techniques.

3.03 CLEANING & MAINTENANCE

Water tanks are classified as confined spaces and qualified personnel should be employed for any tank entry. The preferred method for cleaning the tanks is to open the bottom drain valve and drain the tank. Then open the roof side cover and use a hand-held water hose to wash down the tank walls and floor toward the tank drain. After cleaning is complete, close and secure the roof access cover and close the bottom drain valve.



QUOTES@CONTAINWATERSYSTEMS.COM



CONTAIN WATER
SYSTEMS



1-855-H2O-TANK



CONTAIN WATER
SYSTEMS

NOTES:
1. NOMINAL CAPACITY: 36833 U.S. GALLONS

DOME ROOF CONFIGURATION

D

C

B

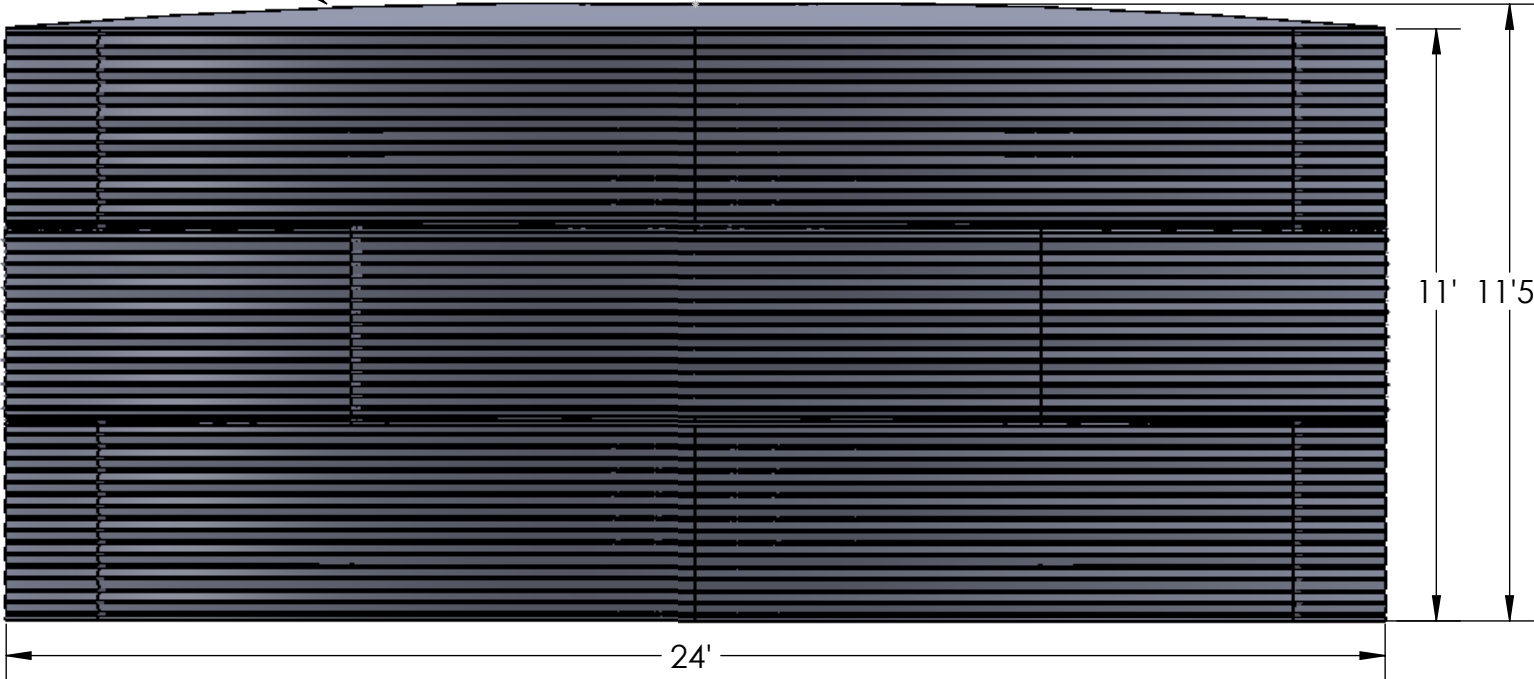
A

D

C

B

A



PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS
DRAWING IS THE SOLE PROPERTY OF
CONTAIN WATER SYSTEMS. ANY
REPRODUCTION IN PART OR AS A WHOLE
WITHOUT THE WRITTEN PERMISSION OF
CONTAIN WATER SYSTEMS IS
PROHIBITED.

UNLESS OTHERWISE SPECIFIED:			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16"$ ANGULAR: MACH $\pm .5^\circ$ BEND $\pm .5^\circ$ TWO PLACE DECIMAL $\pm .02"$ THREE PLACE DECIMAL $\pm .005"$	DRAWN	NAME	DATE
	CHECKED	AP	9.25.18
	ENG APPR.		
	MFG APPR.		
	INTERPRET GEOMETRIC TOLERANCING PER: ASME Y14.5	Q.A.	
MATERIAL	MIXED		
FINISH	N/A		
DO NOT SCALE DRAWING			



TITLE:
GENERAL ARRANGEMENT
CGS 24'
3 TIER

SIZE	DWG. NO.	REV
B	CGS-2403-D	1

SCALE: 1:40 WEIGHT:2943 LBS SHEET 1 OF 1



PROJECT SUMMARY
NEW THONOTOSASSA FIRE STATION 21 IS A 7,327 SF STATION FOR HILLSBOROUGH COUNTY.
• HOUSING = RESIDENTIAL (R-2)
• APPARATUS BAY = STORAGE (S-2)
• BUSINESS (B)
1,950 SF HOUSING
3,238 SF APPARATUS BAY AND ACCESSORIES
2,139 SF BUSINESS AND ACCESSORIES
7,327 SF TOTAL

LIFE SAFETY AND CODE DATA
CODE REFERENCES
FLORIDA BUILDING CODE 8TH EDITION (FBC 2023) - BUILDING, MECHANICAL, PLUMBING, FUEL GAS, ELECTRICAL, ENERGY CONSERVATION
NFPA 70, NATIONAL ELECTRICAL CODE 2020
FLORIDA FIRE PREVENTION CODE - 7TH EDITION

BUILDING DATA
• CONSTRUCTION TYPE: **TYPE V-B (SPRINKLERED)**
• OCCUPANCY TYPE: **MIXED (R-2, B & S-2)**
RESIDENTIAL (R-2) - HOUSING / BUNK ROOM
BUSINESS (B) - OFFICE
STORAGE (S-2) - APPARATUS BAY / STORAGE
• OCCUPANCY SEPARATION: **1-HR**
• HEIGHT: **24'-0"** (35'-0" MAX)
• STORIES: **1 (2 MAX)**
• IMPACT RESISTANCE: **YES (MISSILE "E")**

OCCUPANT LOAD (TABLE 1004.5)
R-2 (RESIDENTIAL) AREA: 1,950 / 200 GSF = 9.75 OCC
S-2 (PARKING GARAGE) AREA: 2,579 / 200 GSF = 12.89 OCC

ACCESSORY STORAGE AREA: 1,005 / 300 GSF = 3.35 OCC

B (BUSINESS) AREA: 1,356 / 150 GSF = 9.04 OCC

ASSEMBLY UNCONCENTRATED (VESTIBULE) = 91 / 15 NSF = 6.06 OCC

TOTAL NUMBER OF OCCUPANTS = 41.09 (42 OCC) (21 MENS / 21 WOMENS)

PLUMBING FIXTURES (TABLE P403.1)
RESIDENTIAL (9.75 OCCUPANTS)
WC: 1 PER 10 = 0.975 REQ'D
LAVS: 1 PER 10 = 0.975 REQ'D
BATHTUB/SHOWER: 1 PER 8 = 1.2 REQ'D
DRINKING FOUNTAIN: 1 PER 100 = 0.09 REQ'D
SERVICE SINK: 1 REQ'D
STORAGE (16.24 OCCUPANTS)
WC: 1 PER 100 = 0.16 REQ'D
LAVS: 1 PER 100 = 0.16 REQ'D
BATHTUB/SHOWER: EYEWASH - REQ'D
DRINKING FOUNTAIN: 1 PER 1,000 = 0.01 REQ'D
SERVICE SINK: 1 REQ'D
BUSINESS (15.01 OCCUPANTS)
WC: 1 PER 25 = 0.604 REQ'D
LAVS: 1 PER 40 = 0.375 REQ'D
BATHTUB/SHOWER: EYEWASH - N/A
DRINKING FOUNTAIN: 1 PER 100 = 0.15 REQ'D
SERVICE SINK: 1 REQ'D
TOTALS
WC: 1.7 REQ'D - 3 PROVIDED
LAV: 1.5 REQ'D - 4 PROVIDED
BATHTUB/SHOWER: 1.2 REQ'D - 3 PROVIDED
EYEWASH: 1 REQ'D - 1 PROVIDED
DRINKING FOUNTAIN: 0.25 REQ'D - 1 HI-Lo PROVIDED
SERVICE SINK: 3 PROVIDED

MEANS OF EGRESS REQUIREMENTS
• MAX. TRAVEL DISTANCE TO EXIT:
250'-0" (R-2), 400'-0" (S-2), 300'-0" (B)
(SPRINKLERED - TABLE 1017.2)
• DEAD END CORRIDOR: 50'-0" (R-2)
(1020.5 EXCEPTION 2)
• COMMON PATH OF TRAVEL (1006.2.1):
125'-0" (R-2) & 100'-0" (S-2 & B)
• MIN. NUMBER OF EXITS: 2 (3 PROVIDED - OK)
• EGRESS WIDTH
LEVEL - 0.2"/OCCUPANT: **32" MIN** (108" - OK)
STAIR - 0.3"/OCCUPANT: **N/A**
MIN CORRIDOR WIDTH (1020.2): **36" MIN** (60" - OK)

PATH 1
14'-4"
41'-9"
COMMON PATH OF TRAVEL R2 (<125' OK)
DISTANCE TO EXIT (<250' OK)

PATH 2
59'-11"
108'-2"
COMMON PATH OF TRAVEL B (<100' OK)
DISTANCE TO EXIT (<300' OK)

PATH 3
40'-7"
87'-6"
COMMON PATH OF TRAVEL S2 (<100' OK)
DISTANCE TO EXIT (<400' OK)

SPECIFIC NOTES
1. RATED FRAME (1 HR) & GLAZING (W-60)
2. EMERGENCY LIGHT FIXTURE, TYP
3. HAND WASH SINK (FOOT OPERATED)
4. SERVICE SINK / MOP SINK
5. EXIT TACTILE SIGNAGE

LIFE SAFETY LEGEND
PRIMARY EXIT
EXIT ACCESS
SECONDARY EGRESS
END OF COMMON PATH OF TRAVEL
1 HOUR RATED PARTITION
SMOKE RATED PARTITION
TRAVEL DISTANCES
EXIT SIGN
BRACKET MTD FIRE EXTINGUISHER
CABINET MTD FIRE EXTINGUISHER
EMERGENCY SHOWER AND EYEWASH

LIFE SAFETY PLAN
3/16" = 1'-0"

A3

NOTES

A1

1315 E. Seventh Avenue
Suite 106
Tampa, Florida 33605.3607
Telephone 813.242.6677
Facsimile 813.242.6683
wilderarchitecture.com
AR91271 QUALIFIER LICENSE

John Thompson, AIA
AR91271
01.16.2025

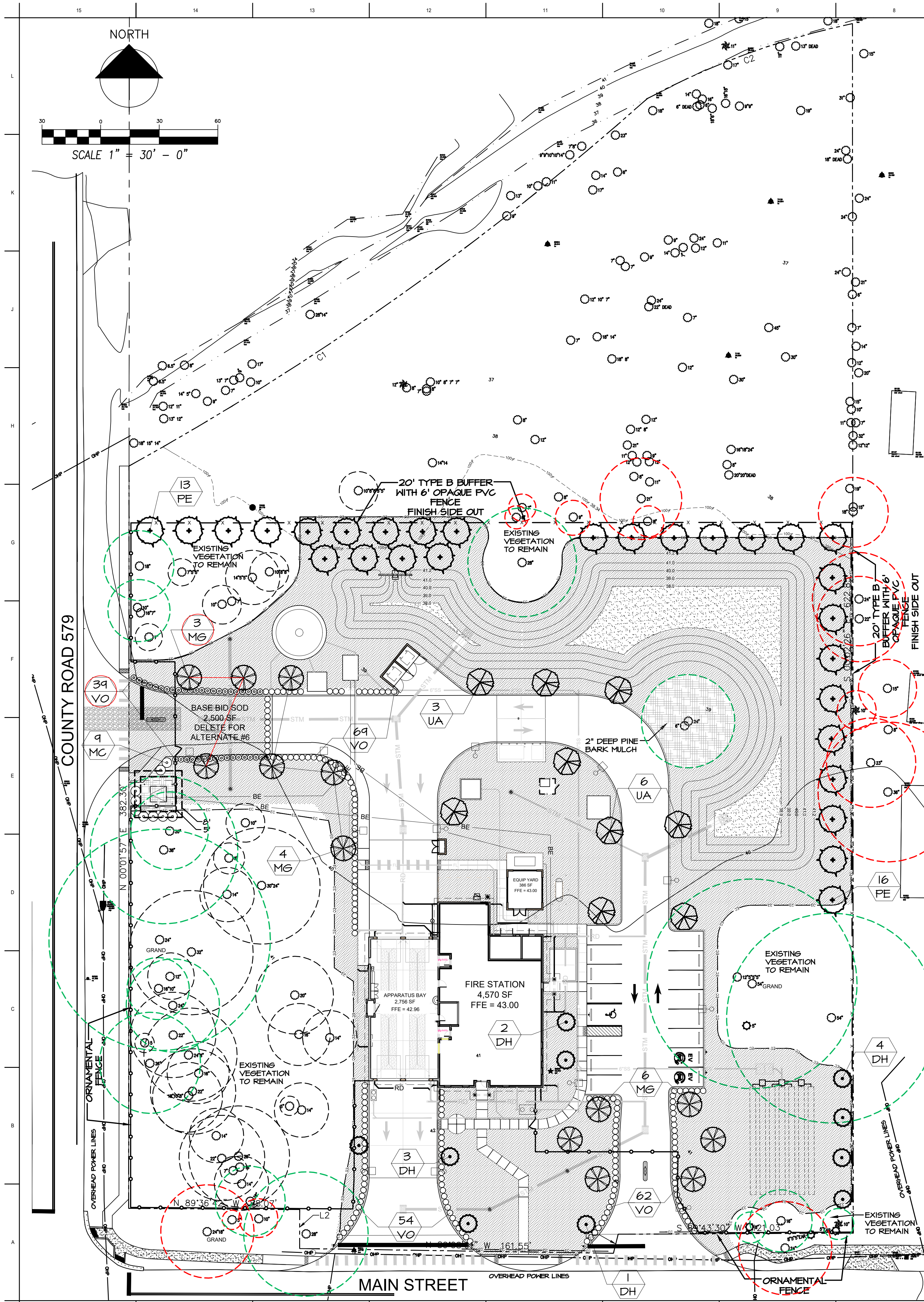
HILLSBOROUGH COUNTY BOARD
OF COUNTY COMMISSIONERS
COUNTY CENTER
601 E KENNEDY BLVD
TAMPA, FL 33601

HILLSBOROUGH COUNTY
THONOTOSASSA FIRE STATION NO. 21
REPLACEMENT

PROJECT #: 2116-05
Distribution Date
DD SET 06.06.2024
90% CD 08.30.2024
PERMIT SET 11.14.2024
PERMIT COMMENTS 01.15.2025

LIFE SAFETY PLAN

A0.1



PLANT MATERIALS LIST							
SYMBOL	BASE BED QUANTITY	ALTERNATE #6 QUANTITY	BOTANICAL NAME	COMMON NAME	SPECIFICATIONS	NATIVE	SPACING
MG	13	3	MAGNOLIA GRANDIFLORA	SOUTHERN MAGNOLIA	14' HT X 6' SPD, 3" DBH	YES	AS SHOWN
PE	29	0	PINUS ELLIOTTII	SLASH PINE	12' HT X 5' SPD, 2" DBH	YES	AS SHOWN
UA	9	0	ULMUS ALATA	WINGED ELM	14' HT X 6' SPD, 3" DBH	YES	AS SHOWN
DH	10	0	ILEX CASSINE	DAHOO HOLLY	10' HT X 4' SPD, 1" DBH	YES	AS SHOWN
MC	9	0	MYRTICA CERIFERA	WAX MYRTLE	60" HT X 48" SPD	YES	60" OC
VO	185	39	VIBURNUM OBOVATUM	WALTER'S VIBURNUM	24" HT X 24" SPD	YES	36" OC

SYMBOL LEGEND

ARGENTINE BAHIA SEED

ARGENTINE BAHIA SOD

PINE BARK MULCH 3" DEPTH

BASE BID LANDSCAPE

ALTERNATE #6 LANDSCAPE

OFF-SITE TREE TO BE PRUNED

ON-SITE TREE TO BE PRUNED

TREE REQUIREMENTS

INTERIOR REQUIREMENTS
ONE TREE PER TERMINAL ISLAND
4 ISLANDS / 1 = 4 TREES

PERIMETER PARKING REQUIREMENTS
880' / 40 = 22 TREES

EAST 20' TYPE B BUFFER
622 LF / 20 = 31 TREES + 6' OPAQUE FENCE
31 - 14 EXISTING TREES = 17 TREES

NORTH 20' TYPE B BUFFER
372 LF / 20 = 19 TREES + 6' OPAQUE FENCE
19 - 8 EXISTING TREES = 11 TREES

TOTAL REQUIREMENTS
4 + 22 + 17 + 11 = 54 TREES @ 1" DBH = 54"

CODE & REPLACEMENT TREES

MAGNOLIA 13 X 3" = 39"
SLASH PINE 29 X 2" = 58"
HOLLY 10 X 1" = 10"
WINGED ELM 9 X 3" = 27"
TOTAL = 61 TREES @ 134"
134" - 54" CODE TREES = 80"
REPLACEMENT INCHES

TREE REPLACEMENT FUND

REPLACEMENTS
2 @ 26" + 1 @ 29" + 1 @ 30" + 1 @ 35" = 146" X .5 = 73"
1 @ 43" GRAND + 1 @ 43" = 86"
73" + 86" = 159"

159" - 80 REPLACEMENTS" = 79" REPLACEMENTS X
\$65.00 = \$5,135 TO THE COUNTY TREE BANK

TREE PRUNING NOTES

ON-SITE TREE PRUNING:
BEFORE CONSTRUCTION STARTS, ALL PROTECTED TREES SHALL BE PRUNED AS FOLLOWS: PRUNE TREES TO 12' CLEAR TRUNK HEIGHT, REMOVE ANY DEAD OR DISEASED TRUNKS OR BRANCHES, AND REMOVE WEAK OR CROSSED BRANCHES. ALL CUTS SHALL BE MADE SUFFICIENTLY CLOSE TO THE TRUNK OR PARENT LIMB, WITHOUT CUTTING INTO THE BRANCH COLLAR OR LEAVING A PROTRUDING STUB, SO THAT CLOSURE CAN READILY START. ALL TRIMMING SHALL BE DONE IN ACCORDANCE WITH THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) A-300 PRUNING STANDARDS. FIELD ADJUST PROPOSED FENCE LAYOUT TO AVOID ALL ON-SITE PROTECTED TREES.

OFF-SITE TREE PRUNING:
REMOVE ALL TREE BRANCHES WITHIN THE LIMITS OF THE PROPERTY.

SCREENING ABOVE GROUND UTILITIES

1) THE CONSTRUCTION OF ALL ABOVE GROUND UTILITY APPURTENANCES VISIBLE FROM THE PUBLIC RIGHT-OF-WAY SUCH AS PEDESTALS, UTILITY METERS, TRANSFORMERS, BACK-FLOW PREVENTION DEVICES, ETC. FOR NEW DEVELOPMENT OR REDEVELOPMENT ACTIVITIES SHALL CONFORM TO SCREENING REQUIREMENTS AS OUTLINED IN SECTION 6.06.06.010 OF THE LANDSCAPE DEVELOPMENT CODE. PLANT LOCATION MUST BE CONSIDERATE OF REQUIRED SPATIAL SEPARATIONS FROM A FIRE FLOW PROTECTION APPLIANCE IN ACCORDANCE TO THE UNIFORM FIRE CODE, AND PER WATER, WASTEWATER AND RECLAIMED WATER TECHNICAL SPECIFICATIONS SPEC 331001, PART 2.6.4.2, MUST BE LOCATED A MINIMUM OF 5' FROM UTILITY SLABS AND 3' FROM UNDERGROUND VALVES. TREES MUST BE LOCATED A MINIMUM OF 8' FROM UTILITY SLABS. DO NOT INSTALL ANY SCREENING THAT WILL HINDER ACCESS IN THE FUTURE TO THE METER ASSEMBLY FROM THE INTERIOR OF THE SITE.

2) FOR ABOVE GROUND UTILITY APPURTENANCES ILLUSTRATED ON THE PLANS, THE TYPE OF SCREENING MUST BE CLEARLY NOTED TO MATCH THE OVERALL HEIGHT FOR THE TYPE OF ABOVE GROUND UTILITY SPECIFIED ON THE PLANS. UTILIZATION OF EVERGREEN PLANT MATERIAL MUST BE DESCRIBED BY SPECIES, SPACING AND OVERALL HEIGHT FOR THE TYPE OF UTILITY TO BE SCREENED. UTILIZATION OF OPAQUE FENCING OR OTHER SCREENING MATERIAL IS PERMITTED. THE METER ASSEMBLY MUST BE ACCESSIBLE BY BOOM TRUCK OFF A COUNTY RIGHT-OF-WAY OR AN INTERIOR PAVED ACCESS ROAD AT LEAST 12' IN WIDTH PER SPEC 331001, PART 2.6.4. DO NOT INSTALL ANY SCREENING THAT WILL HINDER ACCESS IN THE FUTURE TO THE METER ASSEMBLY FROM THE INTERIOR OF THE SITE.

3) TRANSFORMER IS 56" HIGH, PROPOSED SCREENING SHRUBS ARE 60" HIGH.

LANDSCAPE INSTALLATION NOTES

1) ALL PLANT MATERIALS SHALL BE FLORIDA #1 OR BETTER AS GIVEN IN GRADES AND STANDARDS FOR NURSERY PLANTS, LATEST EDITION, PUBLISHED BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES.

2) LOCATION OF PLANTS ON THE PLAN ARE DIAGRAMMATIC - SEE THE LANDSCAPE ARCHITECT FOR QUESTIONS ON EXACT LOCATIONS. THE PLANT MATERIALS LIST IS PROVIDED FOR THE CONVENIENCE OF THE LANDSCAPE CONTRACTOR. SHOULD THERE BE ANY DISCREPANCY BETWEEN THE PLANT LIST AND THE PLAN, THE PLAN SHALL PREVAIL.

3) IT IS THE LANDSCAPE CONTRACTORS RESPONSIBILITY TO INSURE THAT ALL PLANT BED AREAS HAVE PROPER DRAINAGE FOR OPTIMUM GROWTH OF LANDSCAPE MATERIAL BEFORE INSTALLATION BEGINS.

4) THE CONTRACTOR SHALL INSURE THAT ALL PLANTING ISLANDS AND OTHER AREAS SHALL BE CLEAN OF TRASH, CONSTRUCTION DEBRIS, OR OTHER WASTE MATERIALS TO A DEPTH OF 24" PRIOR TO LANDSCAPE INSTALLATION.

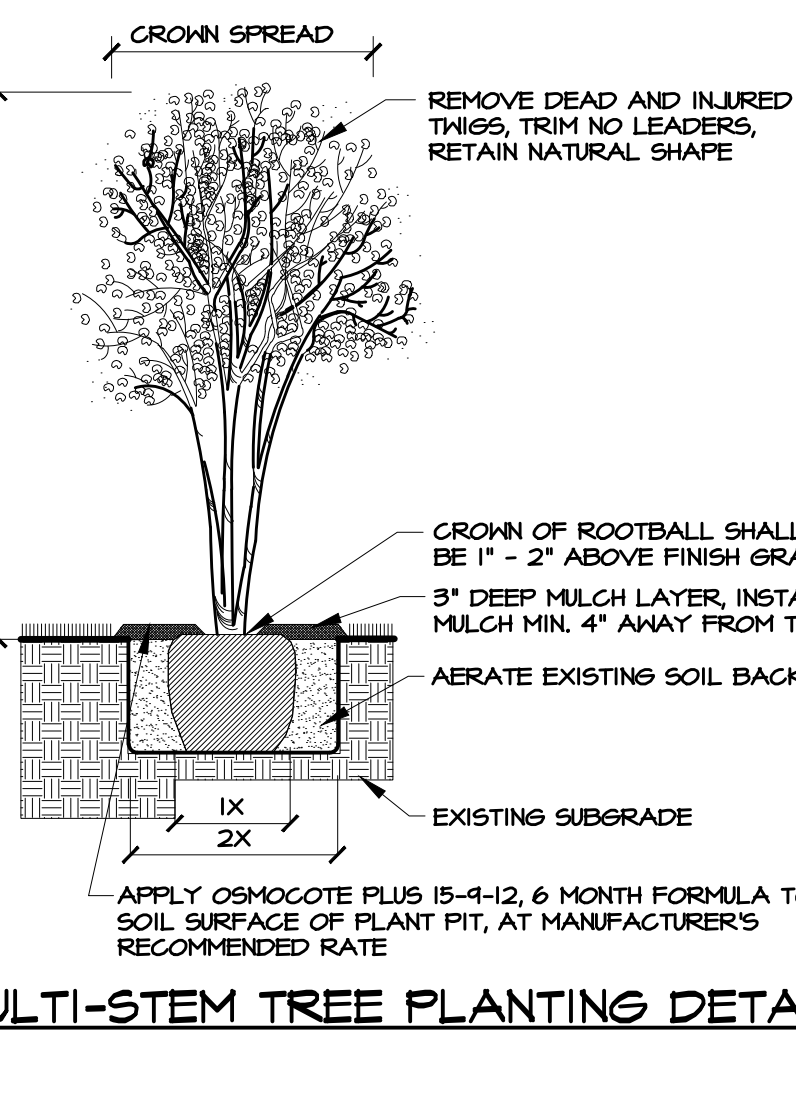
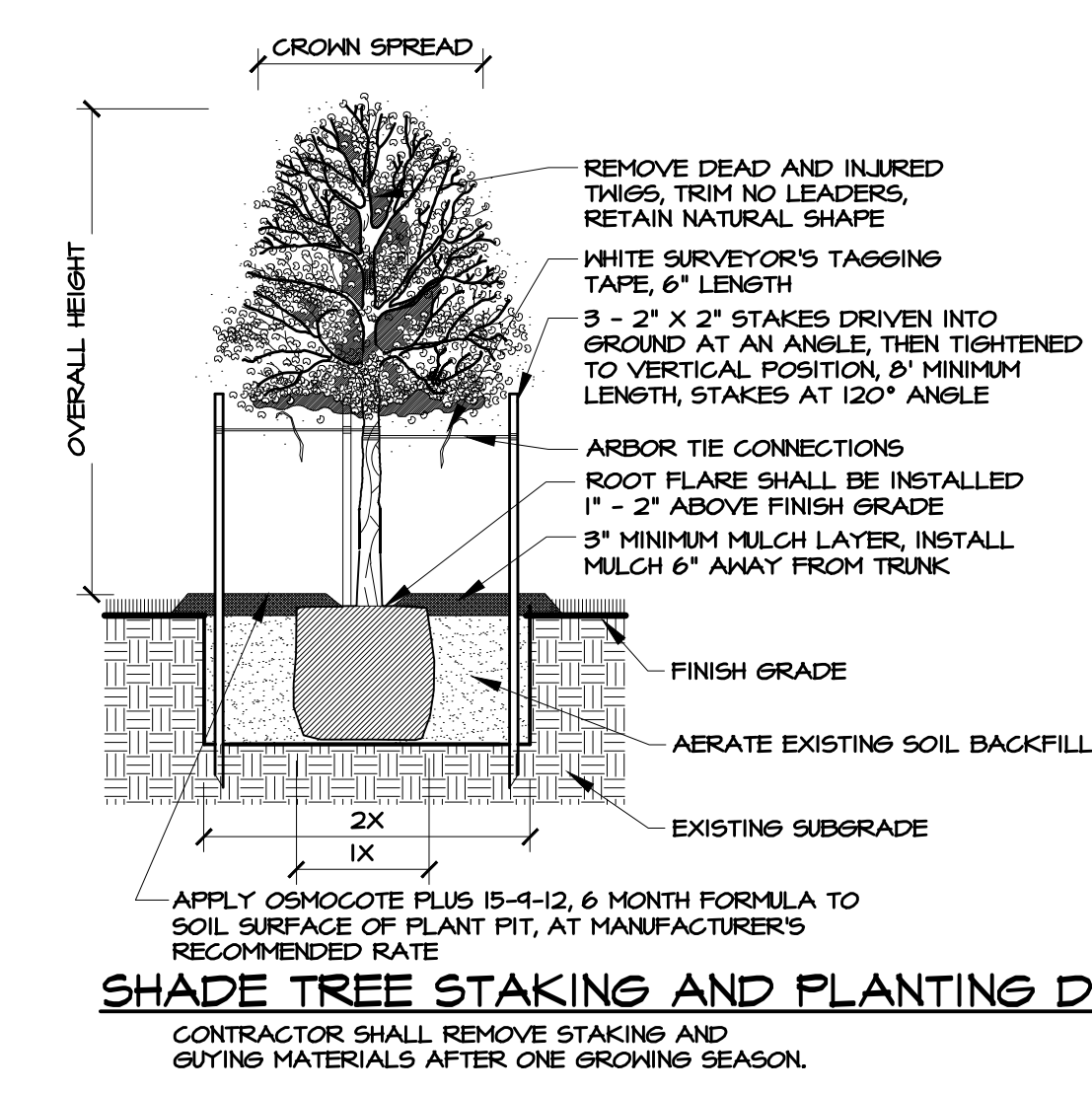
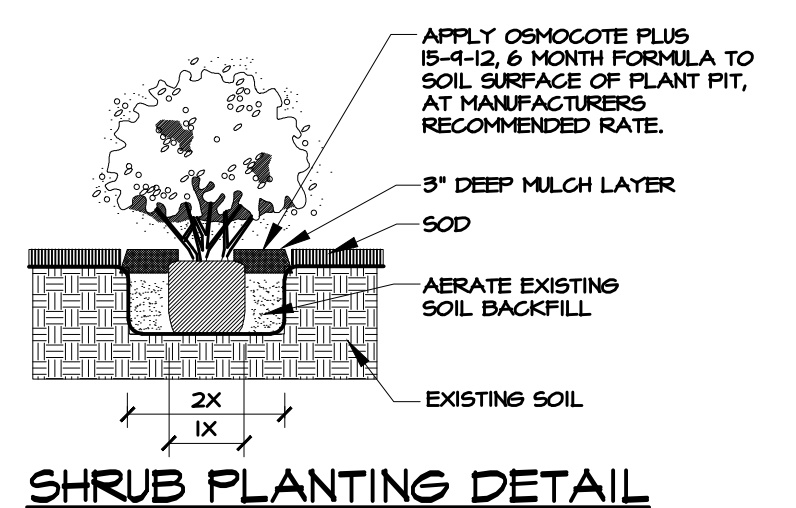
5) ALL PLANT BEDS AND TREE RINGS SHALL BE TREATED WITH A PRE-EMERGENT HERBICIDE AND THEN TOP-DRESSED WITH 3" DEEP PINE BARK NUGGETS. ALL NEW TREES SHALL HAVE A TREE RING WITH A MINIMUM OF 24" RADIUS. ALL NEW TREES AND PALMS SHALL BE STAKED.

6) NEW SOD SHALL BE ARGENTINE BAHIA SOD BASE BID \$37,200 SF - ALTERNATE #6 \$34,700 SF AND BAHIA SEED APPROXIMATELY 3,400 SF. IN THE LOCATIONS SHOWN ON THE PLAN, CONTRACTOR SHALL DETERMINE EXACT QUANTITIES IN THE FIELD. SOD AREAS SHALL BE MAINTAINED BY THE CONTRACTOR FROM THE TIME OF INSTALLATION TO THE TIME OF FINAL ACCEPTANCE.

7) TREES, SHRUBS, AND GROUND COVER SHALL BE INSTALLED USING THE FOLLOWING PROCEDURE: PLANT PITS SHALL BE EXCAVATED TO TWICE THE DIAMETER OF THE PLANT ROOT BALL. AERATE EXISTING SOIL BEFORE BACKFILLING PIT. ADD AGRIFORM FERTILIZER TABLETS TO EACH PLANT PIT, AS PER THE SPECIFICATIONS.

8) TREE INSTALLATION, ALL REQUIRED TREES SHALL BE INSTALLED 1" - 2" ABOVE FINISH GRADE. TREES INSTALLED OR BURIED TOO DEEP SHALL BE RESET TO THIS STANDARD. REMOVE THE TOP 1/3 OF THE HIRE BASKETS ON ALL B & B STOCK.

9) ALL TRIMMING UNDERTAKEN ON A TREE PROTECTED BY THE PROVISIONS OF THE LAND DEVELOPMENT CODE SHALL BE IN ACCORDANCE WITH THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) A-300 PRUNING STANDARDS.



1315 E. SEVENTH AVENUE
SUITE 106
TAMPA, FLORIDA 33605.3607

TELEPHONE 813.242.6677
FACSIMILE 813.242.6683

wilderarchitecture.com

AR91271 QUALIFIER LICENSE

WILDERARCHITECTURE, INC.
L. ALYSON LUTER
FLORIDA LANDSCAPE ARCHITECT No. LAC001163

ANDERSON LESNIAK LIMITED, INC.
landscape architects
land planners
15085 DUSKY WARBLER ROAD
WEEKI WACHEE, FLORIDA 34614
(813) 831-9995
alyson@andersonlesniak.net
www.andersonlesniak.net

HILLSBOROUGH COUNTY
BOARD OF COUNTY
COMMISSIONERS COUNTY
CENTER
601 E KENNEDY BLVD
TAMPA FL 33601

HILLSBOROUGH COUNTY
THONOTOSASSA FIRE STATION NO. 21
REPLACEMENT

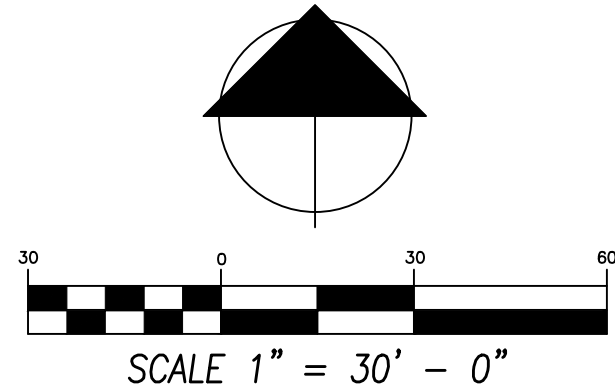
PROJECT #: 2116-05

DISTRIBUTION	DATE
DD SET	06.06.2024
90% CD	08.30.2024
PERMIT SET	11.14.2024
ADDENDUM 02	03.06.2025

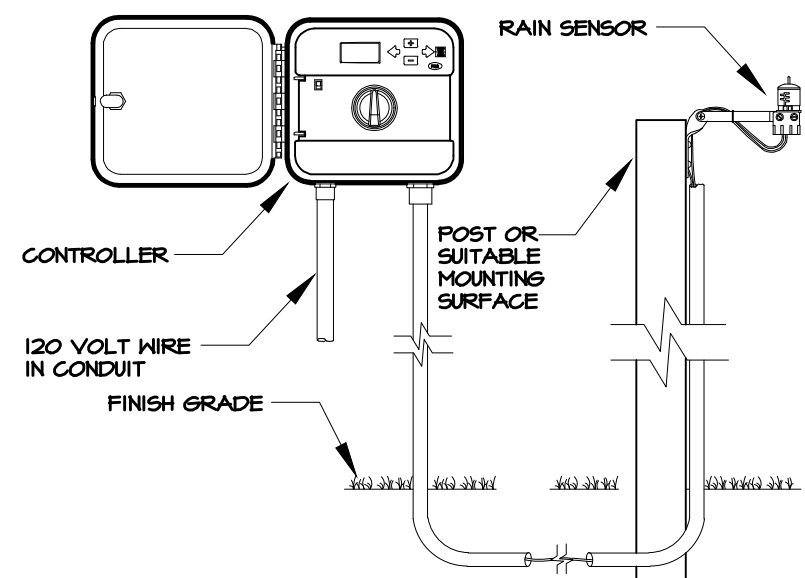
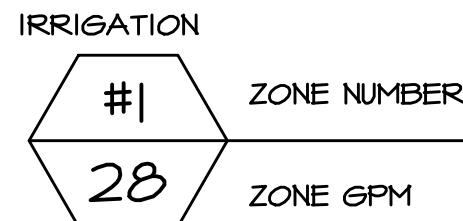
LANDSCAPE PLAN

L1.1

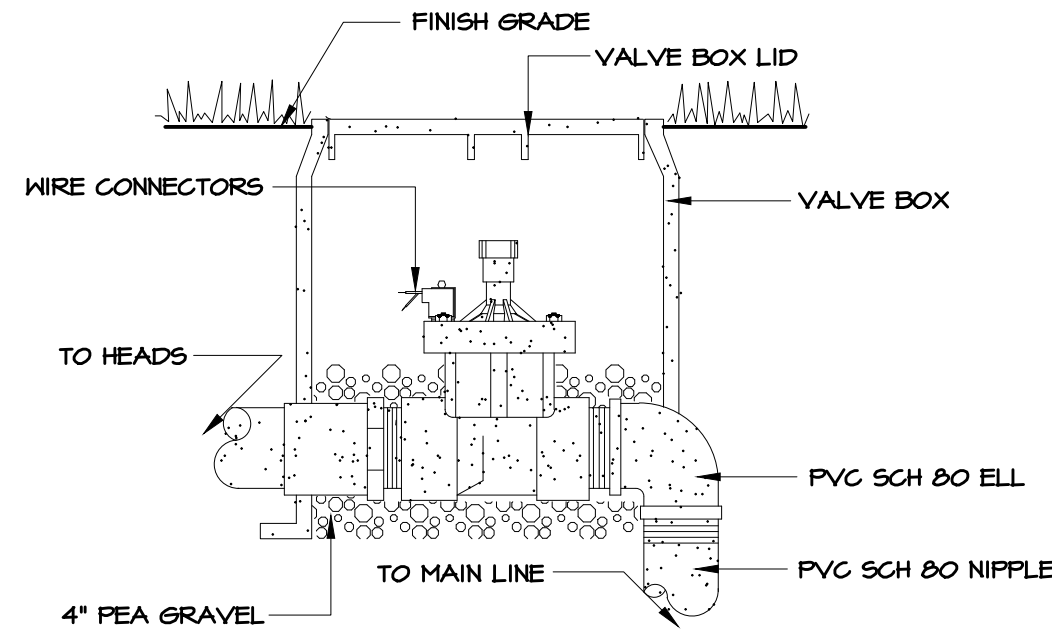
NORTH



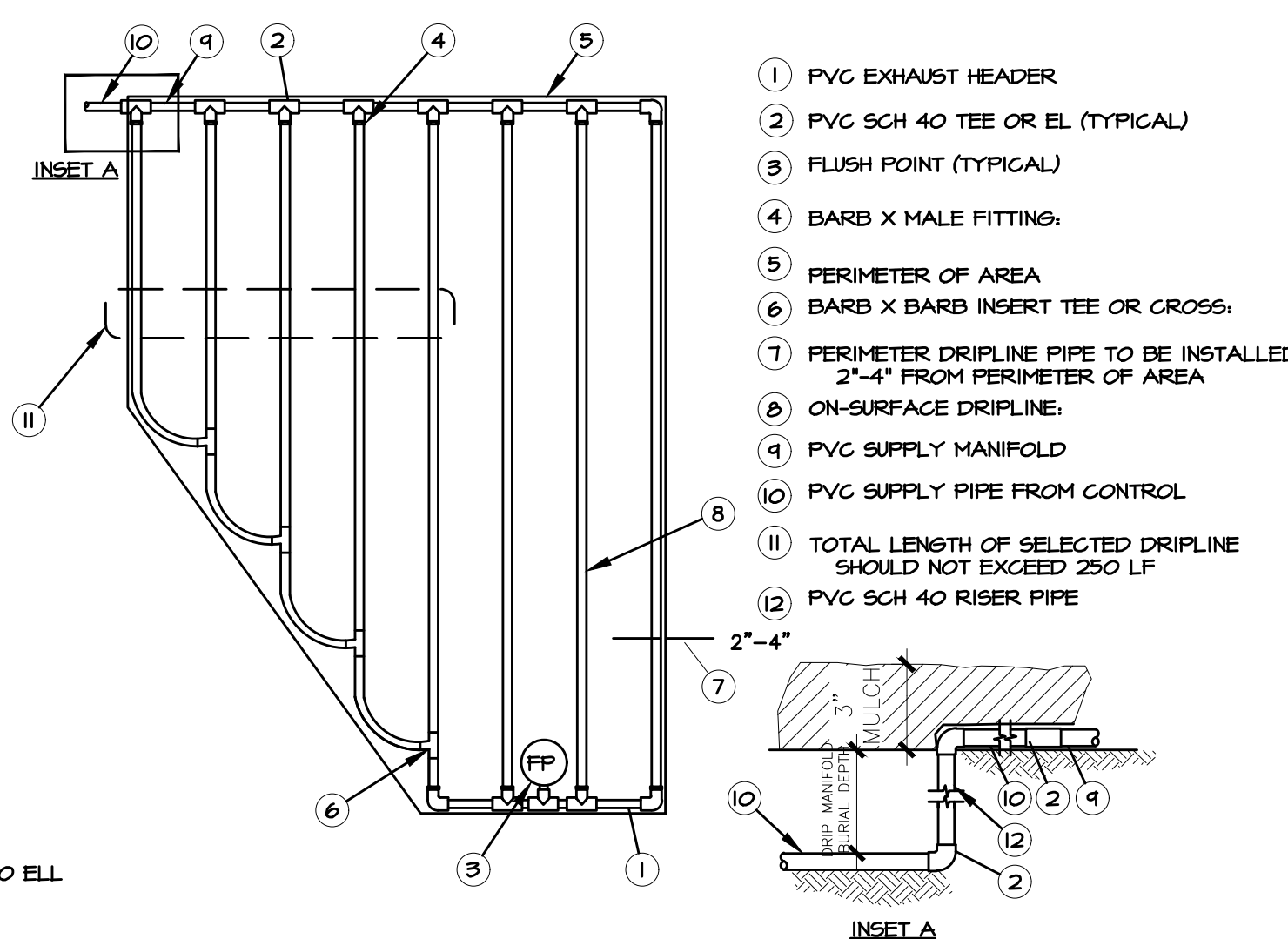
SYMBOL LEGEND



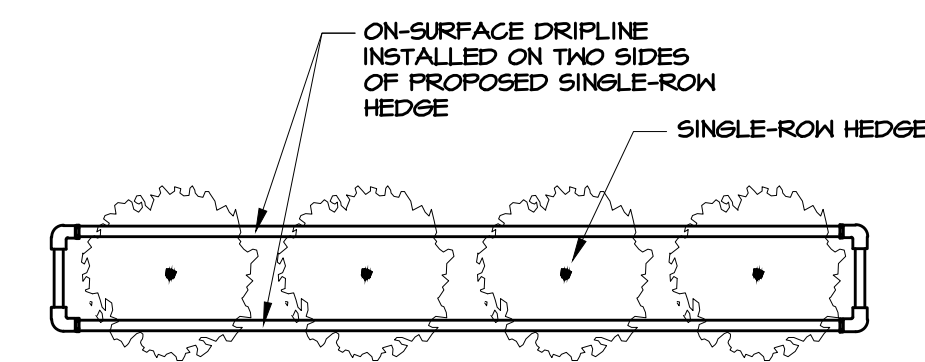
CONTROLLER WITH RAIN SENSOR



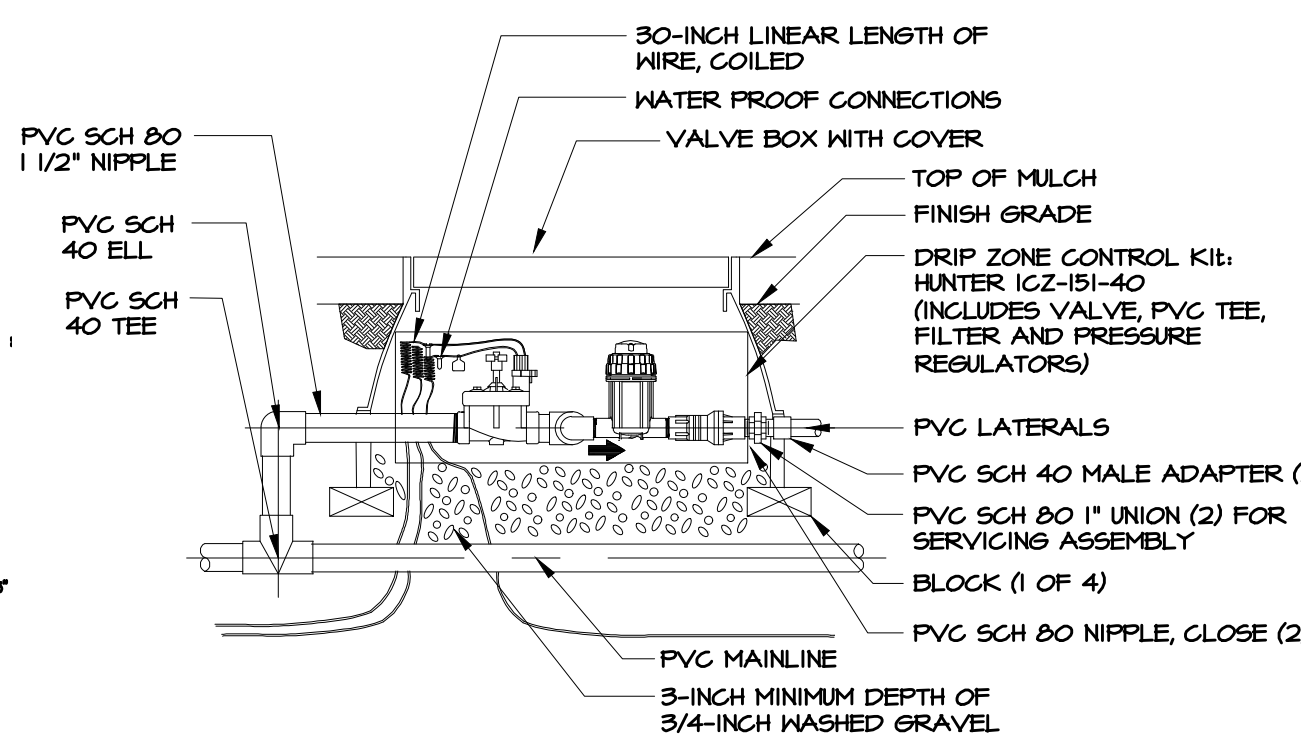
ELECTRIC VALVE DETAIL



ON-SURFACE DRIPLINE INSTALLATION

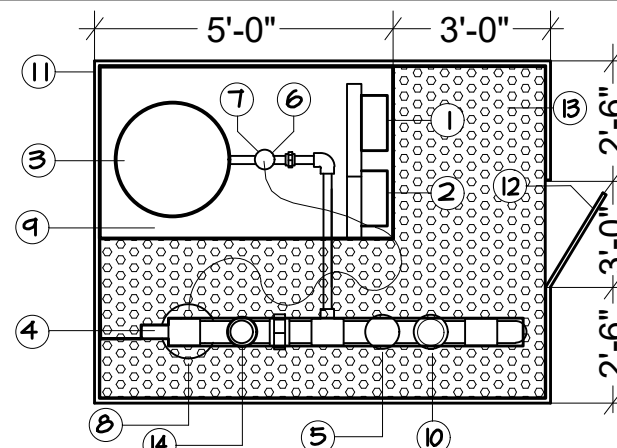


SINGLE-ROW HEDGE DRIPLINE DETAIL

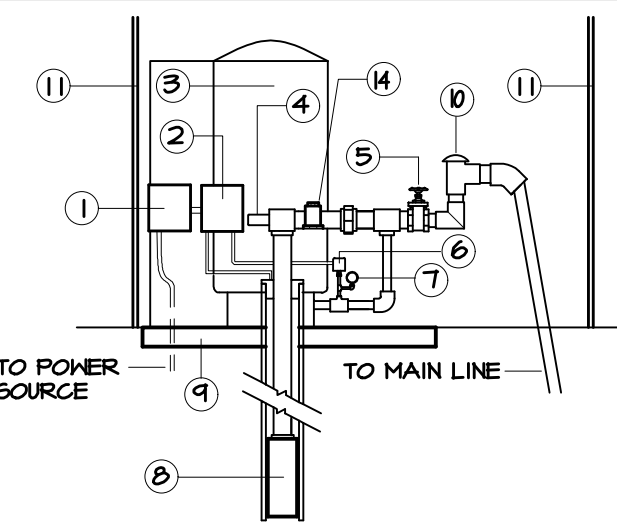


DRIPLINE CONTROL KIT

PUMP ASSEMBLY PLAN VIEW



PUMP ASSEMBLY ELEVATION



4" WELL WITH 3 HP PUMP

IRRIGATION MATERIAL LIST

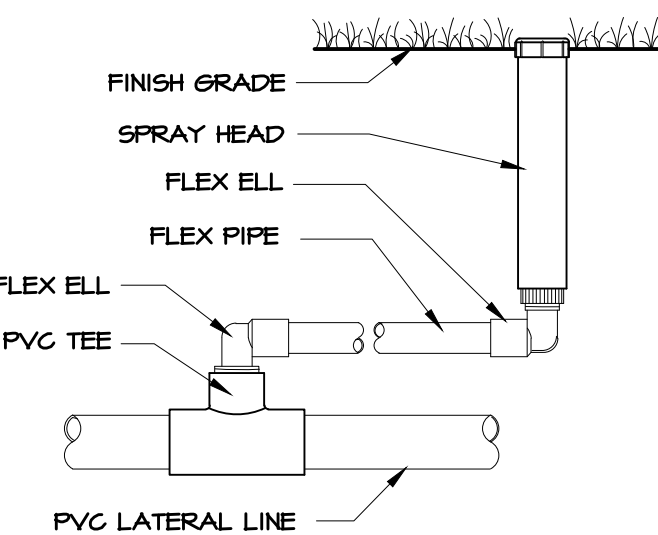
SYMBOL	BASE BID QUANTITY	ALTERNATE #6 QUANTITY	MODEL NUMBER
A	51		1806-18-VAN, 6" POP-UP SPRAY
B	28		1806-15-MPR, 6" POP-UP SPRAY
C	8		1806-12-MPR, 6" POP-UP SPRAY
D	3		1806-1555T-4X30, SIDE STRIP, 6" POP-UP SPRAY
E	3		1806-1555T-4X15, END STRIP, 6" POP-UP SPRAY
F	50 X 2 = 116	3 X 2 = 6	1402-0.50, BUBBLER, TWO PER TREE
G	4		1806-08-MPR, 6" POP-UP SPRAY
H	± 1135 LF	± 265 LF	XFD-09-12-250, LANDSCAPE DRIPLINE
I	7		150-PEB-PRS-D, 1-1/2" ELECTRICAL VALVE
J	± 435 LF		XCZ-FRB-150-COM, 1-1/2" CONTROL ZONE KIT
K	1		2" PVC, SCHEDULE 40 MAIN LINE
L	1		ESP-LX, 9 STATION CONTROLLER
M	1		RAIN CHECK, AUTOMATIC RAIN SHUTOFF

IRRIGATION INSTALLATION NOTES

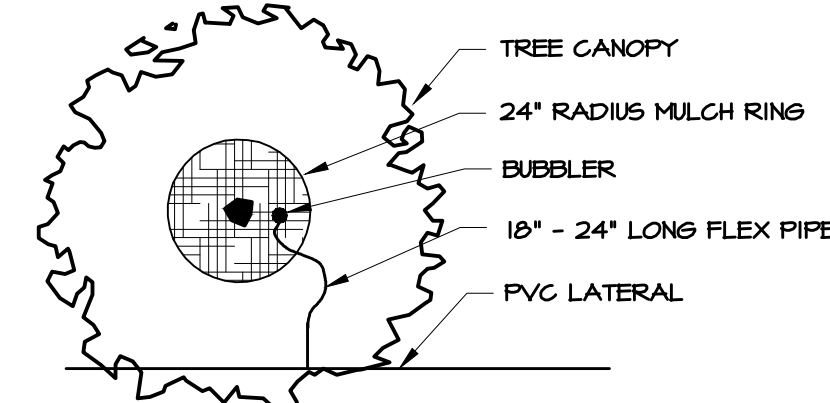
- 1) ALL QUANTITIES SHOWN ON THE DRAWINGS ARE NOT GUARANTEED AS TO ACCURACY AND ARE SHOWN FOR THE PURPOSES OF INDICATING VOLUME OF WORK. IT SHALL BE THE RESPONSIBILITY OF THE BIDDER TO SATISFY HIMSELF AS TO THE ACCURACY OF THE QUANTITIES.
- 2) PIPING OR VALVES MAY SOMETIMES BE INDICATED AS BEING LOCATED IN UNLIKELY AREAS; I.E., IN BUILDINGS, UNDER PAVEMENT, OR OUTSIDE OF THE PROPERTY LINES. THIS IS DONE FOR GRAPHIC CLARITY ONLY. WHENEVER POSSIBLE, PIPING IS TO BE INSTALLED IN SOIL AREAS.
- 3) INSTALL IRRIGATION SYSTEM IN ACCORDANCE WITH ALL APPLICABLE CODES.
- 4) PIPE SIZES ARE LABELED AT LOCATIONS WHERE AN INCREASE IN SIZE OCCURS. CONTINUE PIPE SIZE UNTIL SIZE INCREASE IS INDICATED. PIPES SHALL BE INSTALLED ALONG WALKS, CURBS OR WALLS, THEY SHALL NOT BE INSTALLED IN THE MIDDLE OF PLANTERS. CONTRACTOR SHALL REVIEW LANDSCAPE PLANS TO DETERMINE TREE AND PALM LOCATIONS. MAIN LINE AND LATERALS SHALL BE SCH 40 PVC.
- 5) ALL POP-UP SPRAY AND ROTOR HEADS SHALL BE INSTALLED ON 18" LONG FLEX PIPE CONNECTIONS. RISERS SHALL BE 28" IN HEIGHT OR 4" ABOVE ADJACENT SHRUBS. ALL IRRIGATION EQUIPMENT SHALL BE BY HUNTER, UNLESS OTHERWISE STATED ON THE PLAN.
- 6) WATER SOURCE IS A NEW 4" WELL WITH 3 HP PUMP. IRRIGATION SYSTEM REQUIRES 45 GPM AT 50 PSI. WIRING USED FOR CONNECTING THE VALVES TO THE CONTROLLER SHALL BE TYPE UF, 16 AWG WIRE, WITH PVC INSULATION. ZONE WIRES SHALL BE COLOR CODED, AND COMMON WIRE SHALL BE WHITE. VALVE BOXES SHALL BE CARSON MODEL L1220-12, 12" X 21" X 14" RECTANGLE, WITH GREEN LID. PLACE 3" DEEP LAYER OF GRAVEL INSIDE EACH VALVE BOX.
- 7) NEW CONTROLLER SHALL BE POST MOUNTED IN THE WELL ENCLOSURE AND APPROVED BY THE PROJECT MANAGER. AFTER 30 DAY PLANT MATERIAL ESTABLISHMENT PERIOD, CONTROLLER SHALL BE SET AS PER LOCAL WATER RESTRICTIONS. AFTER IRRIGATION SYSTEM INSTALLATION IS COMPLETE, CONTRACTOR SHALL PROVIDE THE OWNER WITH AN AS-BUILT DRAWING SHOWING LOCATION OF IRRIGATION HEADS, VALVES AND PIPE.
- 8) PIPING ON THE PLAN IS DIAGRAMMATICALLY ROUTED FOR CLARITY. DESIGN MODIFICATIONS SHALL BE MADE TO MEET FIELD CONDITIONS. THE PIPING SCHEMATIC IS DESIGNED TO MINIMIZE TRENCHING, WHENEVER POSSIBLE RUN MULTIPLE LINES AND WIRE IN THE SAME TRENCH.
- 9) WHERE EXISTING OR PROPOSED PAVED SURFACES CROSS IRRIGATION LINES, ALL PIPING UNDER SAID SURFACES SHALL BE IN SLEEVES. SLEEVES SHALL BE SCH 40 PVC, MINIMUM 2" DIAMETER OR AS SPECIFIED ON PLAN. WHERE EXISTING PAVEMENTS MUST BE CUT TO INSTALL IRRIGATION PIPE, SAW CUT SIX INCHES WIDER THAN THE NEEDED TRENCH. REPAIR CUTS WITH AN EQUIVALENT MATERIAL TO MATCH EXISTING.

DRIPLINE INSTALLATION NOTES

- 1) DRIPLINE SHALL BE LAID DIRECTLY UNDER THE 3" MULCH BED. MULCHING OF PLANT BEDS SHALL OCCUR AFTER DRIPLINE INSTALLATION.
- 2) DRIPLINE SHALL COVER THE FULL EXTENT OF ALL PLANTING BEDS WHERE IT IS INDICATED ON THE DRAWINGS, AT A SPACING OF 18" ON CENTER. ON THE DRIPLINE ZONES, THE ELECTRICAL VALVE, DISC FILTER, AND PRESSURE REGULATOR SHALL BE PLACED UNDERGROUND IN A PLASTIC VALVE BOX WITH COVER. ADJUST PRESSURE REGULATOR TO ACCOMMODATE EACH ZONE.
- 3) INDIVIDUAL SECTIONS OF DRIPLINE SHALL BE CONNECTED USING PVC PIPE, SIZED AS PER GPM REQUIREMENTS. DRIPLINE SHALL BE STAPLED OR OTHERWISE FASTENED TO THE FINISH GRADE EVERY 4' ON CENTER.



6" POP-UP SPRAY DETAIL



BUBBLER DETAIL

1315 E. SEVENTH AVENUE
SUITE 106
TAMPA, FLORIDA 33605.3607

TELEPHONE 813.242.6677
FACSIMILE 813.242.6683

wilderarchitecture.com

AR91271 QUALIFIER LICENSE

L. ALYSON LUTER
FLORIDA LANDSCAPE ARCHITECT No.
LAC0001163

ANDERSON LESNIAK LIMITED, INC.
landscape architects and planners
15095 DUSKY WARELER ROAD
WEEKI WACHEE, FLORIDA 34614
(813) 831-9999
alyson@andersonlesniak.net
www.andersonlesniak.net

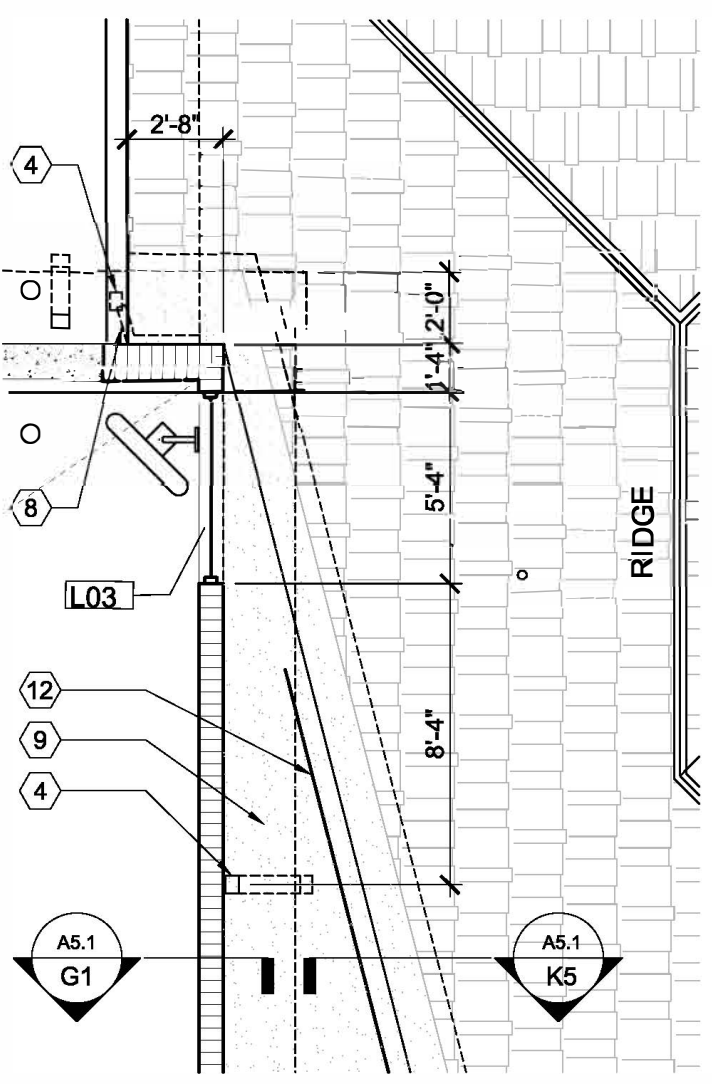
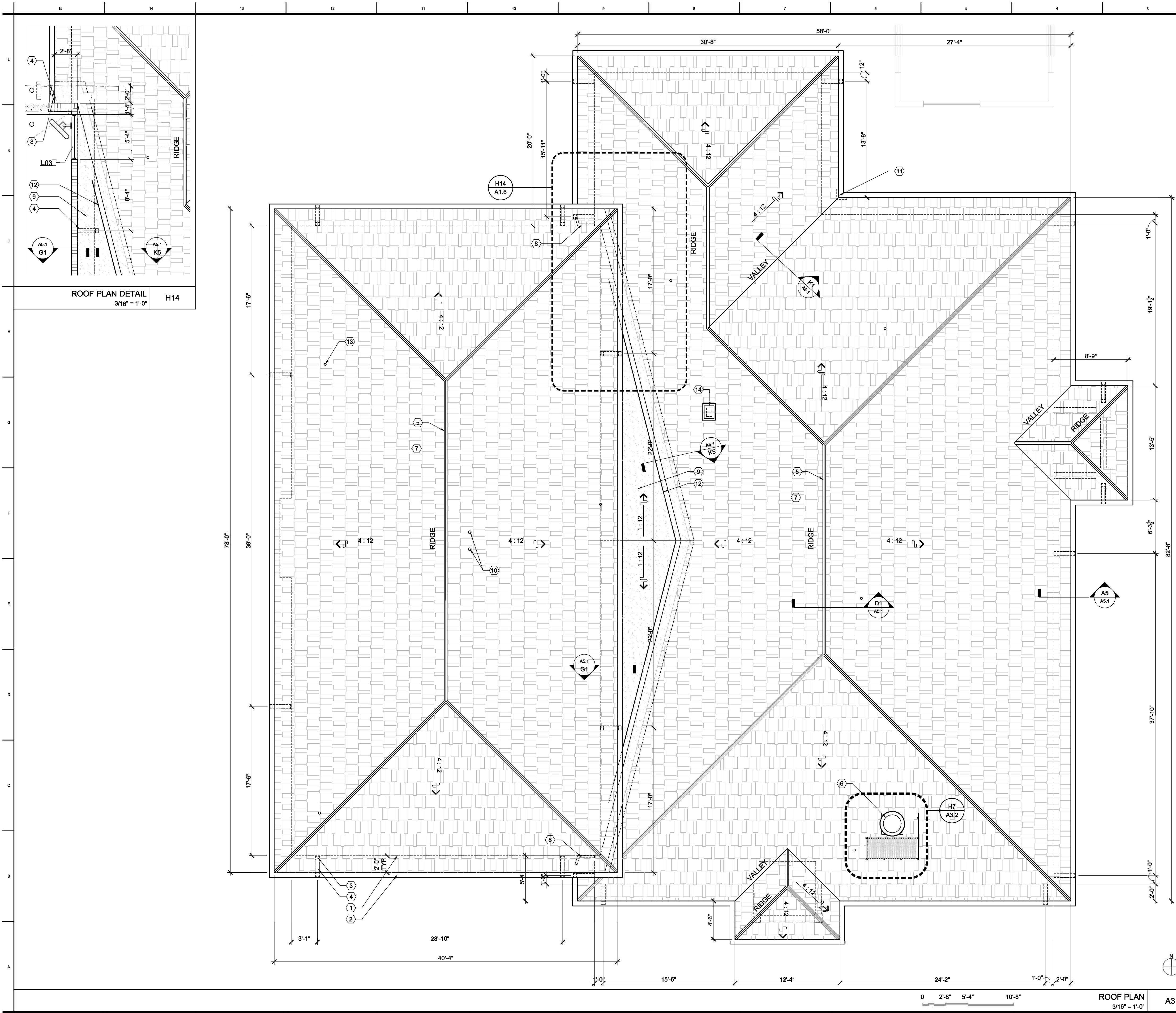
HILLSBOROUGH COUNTY
BOARD OF COUNTY
COMMISSIONERS COUNTY
CENTER
601 E KENNEDY BLVD
TAMPA FL 33601

HILLSBOROUGH COUNTY
THONOTOSASSA FIRE STATION NO. 21
REPLACEMENT

PROJECT #:	2116-05
DISTRIBUTION	DATE
DD SET	06.06.2024
90% CD	08.30.2024
PERMIT SET	11.14.2024
ADDENDUM 02	03.06.2025

IRRIGATION PLAN

L2.1



ROOF PLAN DETAIL
3/16" = 1'-0"

H14

ROOF DRAINAGE SIZING
PER FBC PLUMBING 1105 & 1106:
THE PROJECT LARGEST HORIZONTAL CONTRIBUTING
ROOF AREA SERVED BY ONE PRIMARY ROOF DRAIN IS
1,427 SF.

FLOW RATE BASED ON 1,427 SF AND 4.5 IN PER HOUR
(100 YEAR PER FIG 1106.1, PLUMBING) X 0.0104 = 67
GPM.

REQUIRED (VERTICAL LEADER SIZING PER FBC TABLE
P1106.3):
MINIMUM DOWNSPOUT SIZING REQUIRED = 2 X4 BASED
ON MAX CAPACITY OF 92 GPM.
PROVIDE = 3 1/2 X 4 MIN.

REQUIRED (HORIZONTAL GUTTER SIZING PER FBC
TABLE P1106.6):
MINIMUM GUTTER SIZING REQUIRED = 2 1/2 X 3" SLOPED
1/2 BASED ON MAX CAPACITY OF 97 GPM.
PROVIDE = 4 1/2 X 6 (PER DETAIL ON SHEET A5.1)

- GENERAL NOTES**
1. ROOF SLOPE TO BE 4:12, UNO.
 2. ROOF OVERHANG - 2'-0", UNO, TYP.
 3. ASPHALT SHINGLES BASE BID ROOF TYP, UNO.
ADD ALTERNATE - MTL ROOF
 4. DAS ROOF PENETRATIONS TO BE COORD W/
OWNER

- SPECIFIC NOTES**
1. FACE OF WALL BELOW, TYP.
 2. ALUM GUTTER, TYP
 3. ALUM DOWNSPOUT, TYP
 4. DS CONNECTION TO GUTTER, TYP
 5. RIDGE CAP, TYP
 6. KITCHEN EXHAUST FAN (ALIGN W/ WINDOW
BELOW)
 7. ASPHALT SHINGLES ROOF, TYP.
 8. KICK-OUT DIVERTER
 9. THERMOPLASTIC MEMBRANE ROOF @ CRICKET -
SLOPE 1" : 12", TYP
 10. 3FT STUB-UP CAPPED W/ WEATHERHEAD.
 11. VALLEY ROOF RAIN DIVERTER
 12. WATER DIVERTER
 13. VTR, TYP - REFER TO PLUMBING DWGS.
 14. GRAVITY VENT

ROOF PLAN
3/16" = 1'-0"

A3

NOTES

A1

1315 E. SEVENTH AVENUE
SUITE 106
TAMPA, FLORIDA 33605.3607

TELEPHONE 813.242.6677
FACSIMILE 813.242.6683

wilderarchitecture.com

AR91271 QUALIFIER LICENSE

WILDERARCHITECTURE, INC.

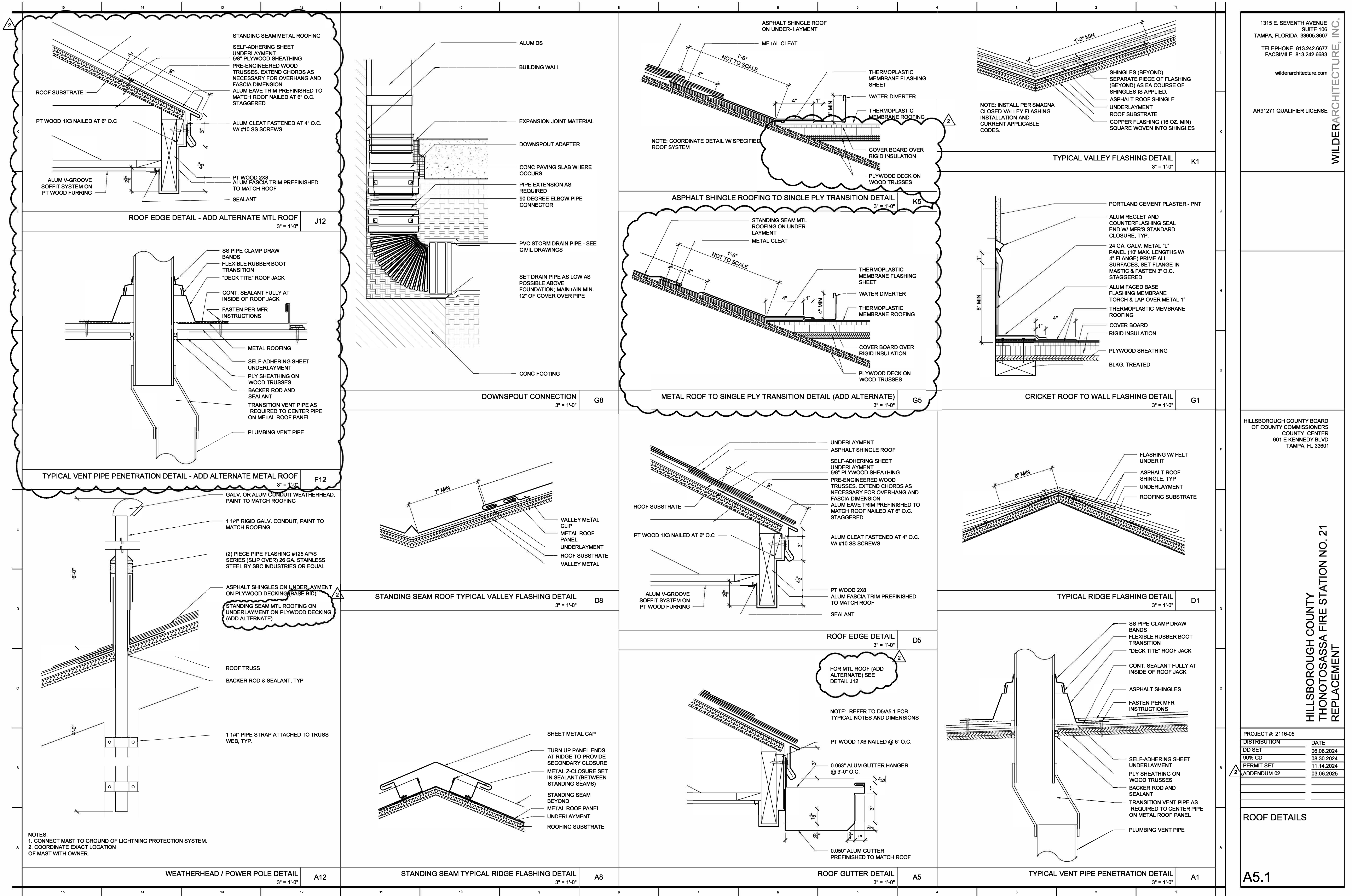
HILLSBOROUGH COUNTY BOARD
OF COUNTY COMMISSIONERS
COUNTY CENTER
601 E KENNEDY BLVD
TAMPA, FL 33601

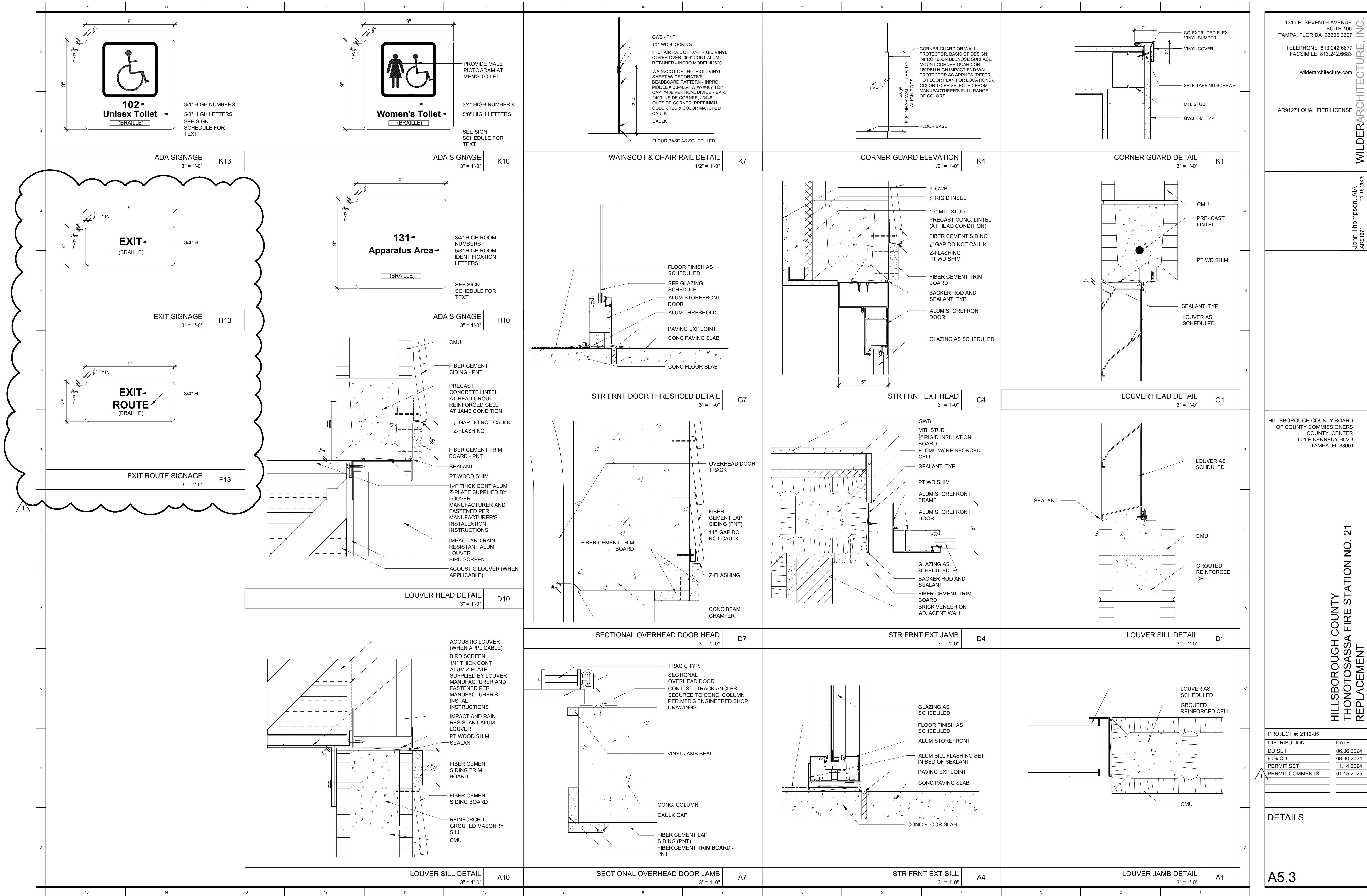
HILLSBOROUGH COUNTY
THONOTOSASSA FIRE STATION NO. 21
REPLACEMENT

PROJECT #:	2116-05
DISTRIBUTION	DATE
DD SET	06.06.2024
90% CD	08.30.2024
PERMIT SET	11.14.2024
ADDENDUM 02	03.06.2025

ROOF PLAN

A1.6





1315 E. SEVENTH AVENUE
SUITE 106
TAMPA, FLORIDA 33605.3607

TELEPHONE: 813.242.6677
FACSIMILE: 813.242.6683

wilderarchitecture.com

AR91271 QUALIFIER LICENSE

WILDERARCHITECTURE, INC.

John Thompson, AIA
01.16.2025
AR91271

HILLSBOROUGH COUNTY BOARD
OF COUNTY COMMISSIONERS
COUNTY CENTER
601 E KENNEDY BLVD
TAMPA, FL 33601

HILLSBOROUGH COUNTY
THONOTOSASSA FIRE STATION NO. 21
REPLACEMENT

PROJECT #: 2116-05	DATE
DISTRIBUTION	06.06.2024
DD SET	08.30.2024
90% CD	11.14.2024
PERMIT SET	01.15.2025
PERMIT COMMENTS	

DETAILS

A5.3

FINISH SCHEDULE										
ROOM NUMBER	ROOM NAME	FLOOR	BASE	FINISH WALLS				CEILING		REMARKS
				SOUTH	EAST	WEST	NORTH	HEIGHT	FINISH	
101	VESTIBULE	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-1	
102	OFFICE	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-1	
103	BUNK ROOM	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-1	5
104	BUNK ROOM	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-1	5
105	DAYROOM	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-2	1, 17
106	KITCHEN / DINING	LVT	VWB	PNT	CT / PNT	PNT	CT / PNT	9'-0"	APC-2	1, 2, 11, 17
107	PANTRY	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	PNT	
108	PANTRY	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	PNT	
109	PANTRY	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	PNT	
110	CORRIDOR	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-1	
111	EMS STORAGE	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-1	
112	TOILET	PT	PT	CT / EP	CT / EP	CT / EP	CT / EP	9'-0"	PNT	2, 5
113	TOILET	PT	PT	CT / EP	CT / EP	CT / EP	CT / EP	9'-0"	PNT	2, 5
114	CORRIDOR	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-1	
115	CORRIDOR	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-1	5
116	CORRIDOR	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-1	5
117	BUNK ROOM	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-1	5
118	BUNK ROOM	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-1	5
119	BUNK ROOM	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-1	5
120	BUNK ROOM	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-1	5
121	BUNK ROOM	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-1	5
122	FITNESS	RF	VWB	EP	EP	EP	EP	9'-0"	APC-1	6
123	JANITOR	LVT	VWB	EP	EP	CT / EP	CT / EP	9'-0"	PNT	12
124	CORRIDOR	LVT	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-1	
125	TOILET	PT	PT	CT / EP	CT / EP	CT / EP	CT / EP	9'-0"	PNT	2, 5
126	DECON	SC	VWB	FRP / EP	FRP / EP	FRP / EP	FRP / EP	10'-0"	PNT	
127	TELE	SC	VWB	PNT	PNT	PNT	PNT	9'-0"	APC-1	4
128	APP BAY	SC / EF	NR	EP	EP	EP	EP	16'-7 1/2"	PNT	7, 9, 10, 13, 16
129	MECHANICAL	SC	VWB	PNT	PNT	PNT	PNT	9'-11 1/2"	PNT	15, 16
130	ELECTRICAL	SC	VWB	EP	EP	EP	EP	9'-0"	PNT	15
131	EXTERIOR STORAGE	CONC	NR	PNT	PNT	PNT	PNT	-	EXP	
132	MECH YARD	CONC	NR	PNT	PNT	PNT	PNT	-	-	

FINISH SCHEDULE ABBREVIATIONS

APC-1	ACOUSTICAL PANEL CEILING - 1	PDC	POLYURETHANE DECK COATING
APC-2	ACOUSTICAL PANEL CEILING - 2	PNT	PAINTED
CONC	CONCRETE	PT	PORCELAIN TILE
CT	CERAMIC TILE	RB	RESILIENT WALL BASE
EP	EPOXY FLOORING	RF	RUBBER FLOORING
EXP	EPOXY PAINT	SC	SEALED CONCRETE
FRP	EXPOSED ROOF STRUCTURE	VCT	VINYL COMPOSITION TILE
NR	FIBERGLASS REINFORCED PLASTIC	VWB	VINYL WALL BASE
PC	NONE REQUIRED	WD	WOOD
	POLISHED CONCRETE		

NOTES

1. PROVIDE CRACK SUPPRESSION MEMBRANE AT TILE FLOOR LOCATIONS.
2. PROVIDE FLOOR TRANSITIONS AS NEEDED.
3. PROVIDE EPOXY GROUT AT ALL WET LOCATIONS

REMARKS

1. PROVIDE APC-2 AT DESIGNATED PANELS. SEE REFLECTED CEILING PLAN.
2. PROVIDE TILE AT DESIGNATED LOCATIONS. SEE INTERIOR ELEVATIONS.
3. SEE EXTERIOR ELEVATIONS AND SITE DETAILS FOR CEILING HEIGHT (EXPOSED STRUCTURE)
4. PLYWOOD BACKBOARD - PNT ALL SIDES / EDGES WITH FIRE RETARDANT PNT (ALL WALLS).
5. PROVIDE SOUND ATTENUATION BLANKETS IN WALL BETWEEN ADJACENT ROOMS DESIGNATED.
6. ABUSE RESISTANT GWB
7. PAINT CEILING LIGHT BLUE (COLOR TBD)
8. REFER TO RCP
9. FIRST 9'-0" OF WALL TO BE ONE COLOR (TBD) AND ABOVE THAT A SECOND COLOR (TBD).
10. COORDINATE WITH OWNER TO WRITE / PNT ON ONE DESIGNATED WALL "DUTY HONOR & COURAGE".
11. REFER TO RCP FOR SOFFITS
12. PROVIDE TILE AT MOP SINK - REFER TO INTERIOR ELEVATIONS
13. PRIME AND PAINT INTERIOR OF CHASE
14. NOT USED
15. PAINTED TECTUM WALL PANELS (OR EQUAL) WHERE POSSIBLE IN MECHANICAL AND ELECTRICAL ROOM. PANELS ARE IN ADDITION TO OTHER INSULATION AND SHALL BE MOUNTED FLOOR TO CEILING. (COORD W/ BLOCK REQUIREMENTS.)
16. CEILING MOUNT TO BOTTOM OF TRUSSES
17. PROVIDE WAINSCOT AND CHAIR RAIL

FINISH SCHEDULE F8

DOOR SCHEDULE														
OPENING NUMBER	ROOM NAME	DOOR				FRAME					IMPACT RATED	FIRE RATING	HDW SET	REMARKS
		TYPE	MATL	INT	EXT	TYPE	MATL	DETAILS						
								HEAD	JAMB	SILL				
101A	VESTIBULE	D08	ALUM		*	SF01	ALUM	G4 / A5.3	D4 / A5.3	G7 / A5.3	•	—	01	4, 5, 7
101B	VESTIBULE	D05	WD	*		F01	MTL	K1 / A5.2	K1 / A5.2	—	•	—	05B	4, 5, 7, 2
102	OFFICE	D01	WD	*		F01	MTL	K1 / A5.2	K1 / A5.2	—	•	—	06	—
103	BUNK	D11	WD	*		F10	MTL	K1 / A5.2	K1 / A5.2	—	•	—	SMOKE	08
104	BUNK	D11	WD	*		F10	MTL	K1 / A5.2	K1 / A5.2	—	•	—	SMOKE	08
107	PANTRY	D04	WD	*		F03	MTL	K1 / A5.2	K1 / A5.2	—	•	—	11	—
108	PANTRY	D04	WD	*		F03	MTL	K1 / A5.2	K1 / A5.2	—	•	—	11	—
109	PANTRY	D04	WD	*		F03	MTL	K1 / A5.2	K1 / A5.2	—	•	—	11	—
110	CORR	D07	MTL	*		F05	MTL	D4 / A5.2	G4 / A5.2	J13 / A5.2	•	45 MIN	04B	7, 8, 1
112	TOILET	D01	WD	*		F01	MTL	K1 / A5.2	K1 / A5.2	—	•	—	08	—
113	TOILET	D01	WD	*		F01	MTL	K1 / A5.2	K1 / A5.2	—	•	—	08	—
114	CORR	D10	WD	*		F10	MTL	K1 / A5.2	K1 / A5.2	—	•	—	SMOKE	09
115	CORR	D12	MTL	*		F04	MTL	D4 / A5.2	G4 / A5.2	—	•	—	03A	4, 6, 7
117	BUNK	D01	WD	*		F01	MTL	K1 / A5.2	K1 / A5.2	—	•	—	08	—
118	BUNK	D01	WD	*		F01	MTL	K1 / A5.2	K1 / A5.2	—	•	—	08	—
119	BUNK	D01	WD	*		F01	MTL	K1 / A5.2	K1 / A5.2	—	•	—	08	—
120	BUNK	D01	WD	*		F01	MTL	K1 / A5.2	K1 / A5.2	—	•	—	08	—
121	BUNK	D01	WD	*		F01	MTL	K1 / A5.2	K1 / A5.2	—	•	—	08	—
122	FITNESS	D01	WD	*		F01	MTL	K1 / A5.2	K1 / A5.2	J7 / A5.2	•	—	09	—
123	JANITOR	D01	WD	*		F01	MTL	K1 / A5.2	K1 / A5.2	—	•	—	05A	—
124A	CORR	D05	WD	*		F01	MTL	K1 / A5.2	K1 / A5.2	—	•	—	10	—
124B	CORR	D07	MTL	*		F05	MTL	D4 / A5.2	G4 / A5.2	J13 / A5.2	•	45 MIN	04B	7, 8, 1
125	TOILET	D01	WD	*		F01	MTL	K1 / A5.2	K1 / A5.2	—	•	—	08	—
126	DECON	D03	MTL	*		F06	MTL	D4 / A5.2	G4 / A5.2	F13 / A5.2	•	—	07	7
127	TELE	D13	MTL	*		F08	MTL	D4 / A5.2	G4 / A5.2	—	•	—	05B	3, 7
128A	APP BAY	D09	STL	*	—	—	—	D7 / A5.3	A7 / A5.3	—	•	—	12	2, 7
128B	APP BAY	D09	STL	*	—	—	—	D7 / A5.3	A7 / A5.3	—	•	—	12	2, 7
128C	APP BAY	D09	STL	*	—	—	—	D7 / A5.3	A7 / A5.3	—	•	—	12	2, 7
128D	APP BAY	D09	STL	*	—	—	—	D7 / A5.3	A7 / A5.3	—	•	—	12	2, 7
128E	APP BAY	D12	MTL	*		F04	MTL	A1 / A5.2	D1 / A5.2	G13 / A5.2	•	—	03B	4, 7
129	MECH	D12	MTL	*		F07	MTL	D4 / A5.2	G4 / A5.2	G13 / A5.2	•	—	02	1, 7
130	ELECTRICAL	D12	MTL	*		F04	MTL	D4 / A5.2	G4 / A5.2	G13 / A5.2	•	—	03B	7

REMARKS

1. PAIR OF DOORS.
2. OVERHEAD DOOR.
3. CARD READER ACCESS.
4. CARD READER / KEY PAD COMBO
5. ELECTRIC HINGING TO BUZZER @ DESK
6. WIDE ANGLE DOOR PREVIEW.
7. INSULATED DOOR
8. RATED DOOR PROVIDE SELF-CLOSING DEVICES

GENERAL REMARKS

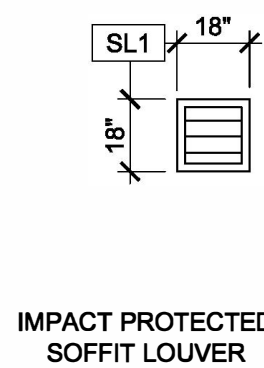
1. ALL EXTERIOR DOORS AND WINDOWS TO BE MISSILE LEVEL "E" IMPACT PROTECTED
2. REFER TO MECH DRAWINGS FOR UNDERCUT DOORS (1" TYP).
3. PROVIDE PANIC HARDWARE AT ELECTRICAL ROOM

DOOR SCHEDULE F1

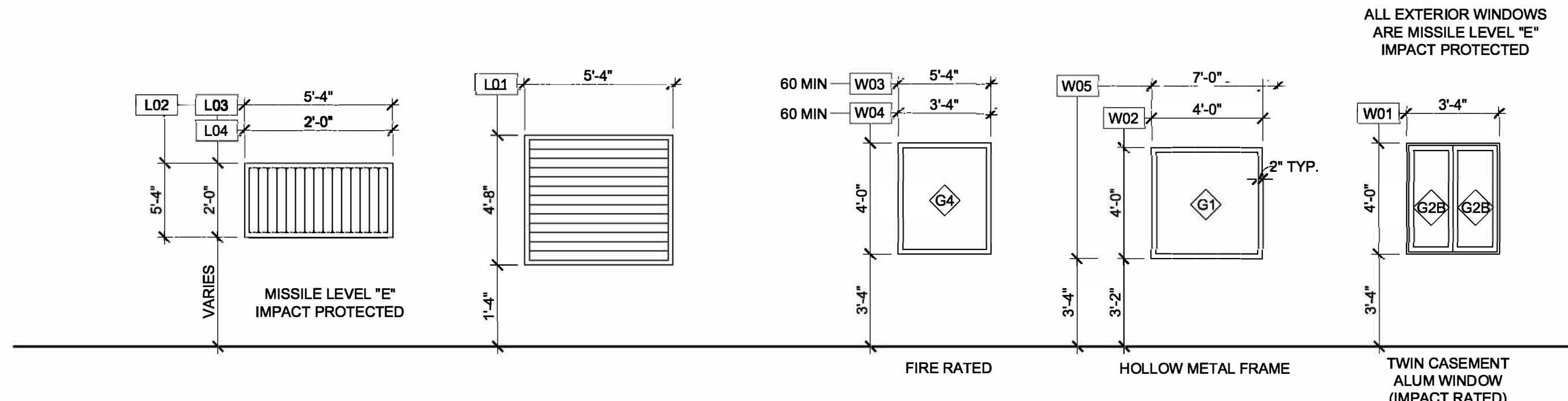
GLAZING SCHEDULE

TAG	TYPE	REMARKS
G1	TEMPERED CLEAR	1/4" THICK, TYP. TEMPERED
G2	LAMINATED UV - TINTED	1-5/16" THICK, TYP. LARGE MISSILE IMPACT GLAZING
G2A	LAMINATED UV - TINTED	1" THICK, TYP. LARGE MISSILE IMPACT GLAZING
G2B	LAMINATED UV - TINTED	1-7/16" THICK, TYP. LARGE MISSILE IMPACT GLAZING
G3	CLEAR FIRELIGHT	OH 45 OR W-60 PLUS LAMINATED GLASS
G4	CLEAR FIRELIGHT	W-60 PLUS LAMINATED GLASS

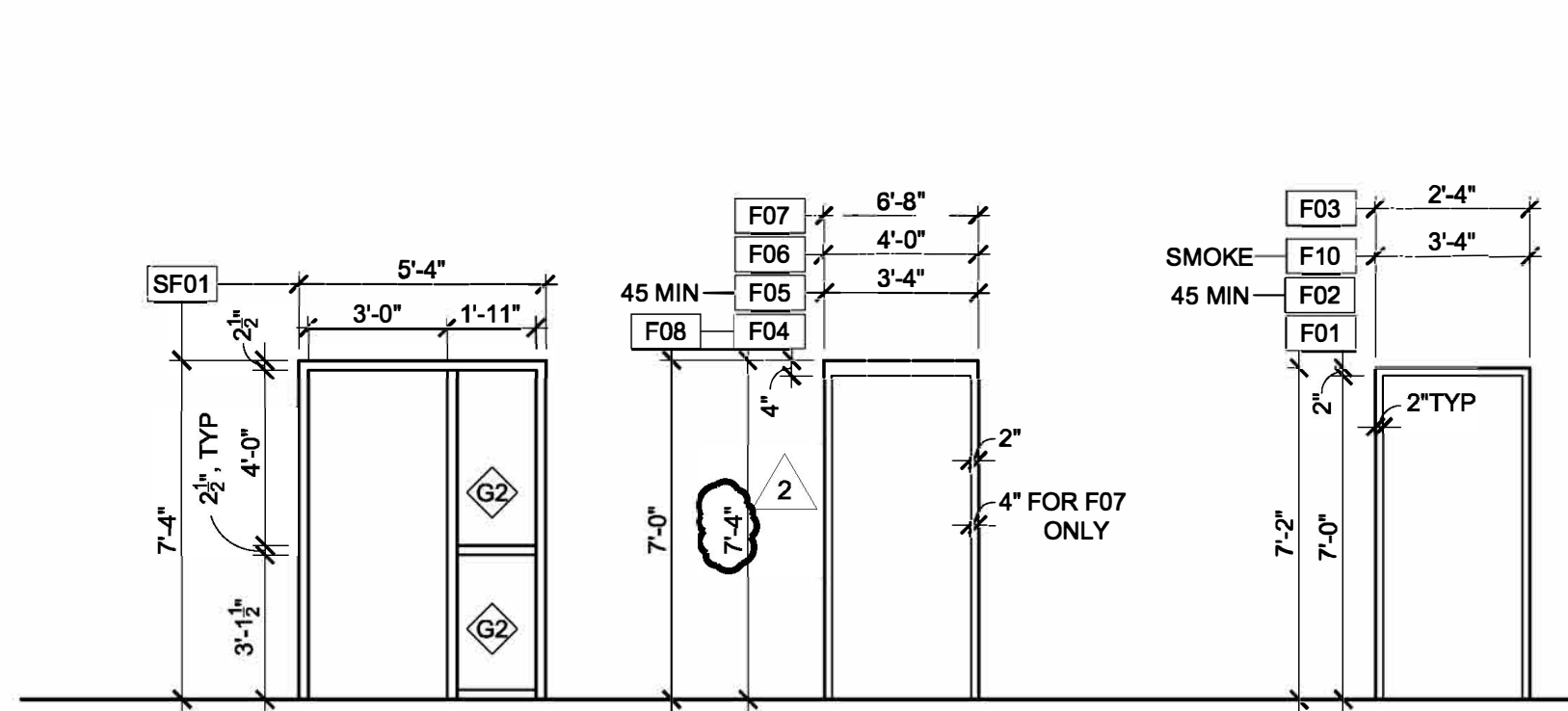
GLAZING SCHEDULE C9



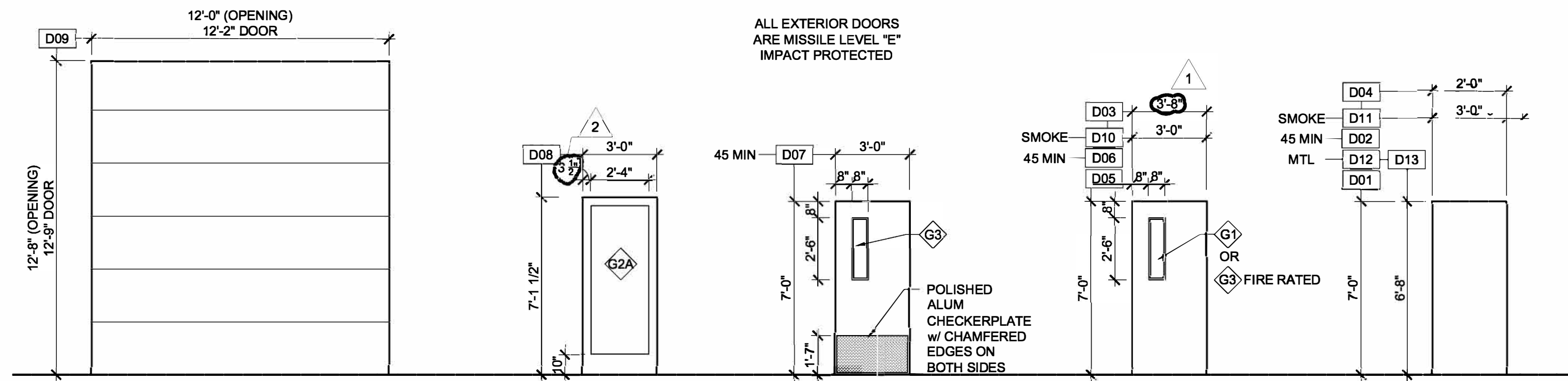
IMPACT PROTECTED SOFFIT LOUVER



WINDOW & LOUVER TYPES C1



DOOR FRAME TYPES A9



DOOR TYPES A1

1315 E. SEVENTH AVENUE
SUITE 106
TAMPA, FLORIDA 33605.3607

TELEPHONE 813.242.6677
FACSIMILE 813.242.6683

wilderarchitecture.com

AR91271 QUALIFIER LICENSE

John Thompson, AIA
AR91271
03.06.2025

HILLSBOROUGH COUNTY BOARD
OF COUNTY COMMISSIONERS
COUNTY CENTER
601 E KENNEDY BLVD
TAMPA, FL 33601

HILLSBOROUGH COUNTY
THONOTOSASSA FIRE STATION NO. 21
REPLACEMENT

PROJECT #: 2116-05	DATE
DISTRIBUTION	03.15.2024
SCHEMATIC DESIGN	06.06.2024
DD SET	08.30.2024
90% CD	11.14.2024
PERMIT SET	01.15.2025
PERMIT COMMENTS	03.06.2025
ADDENDUM 02	

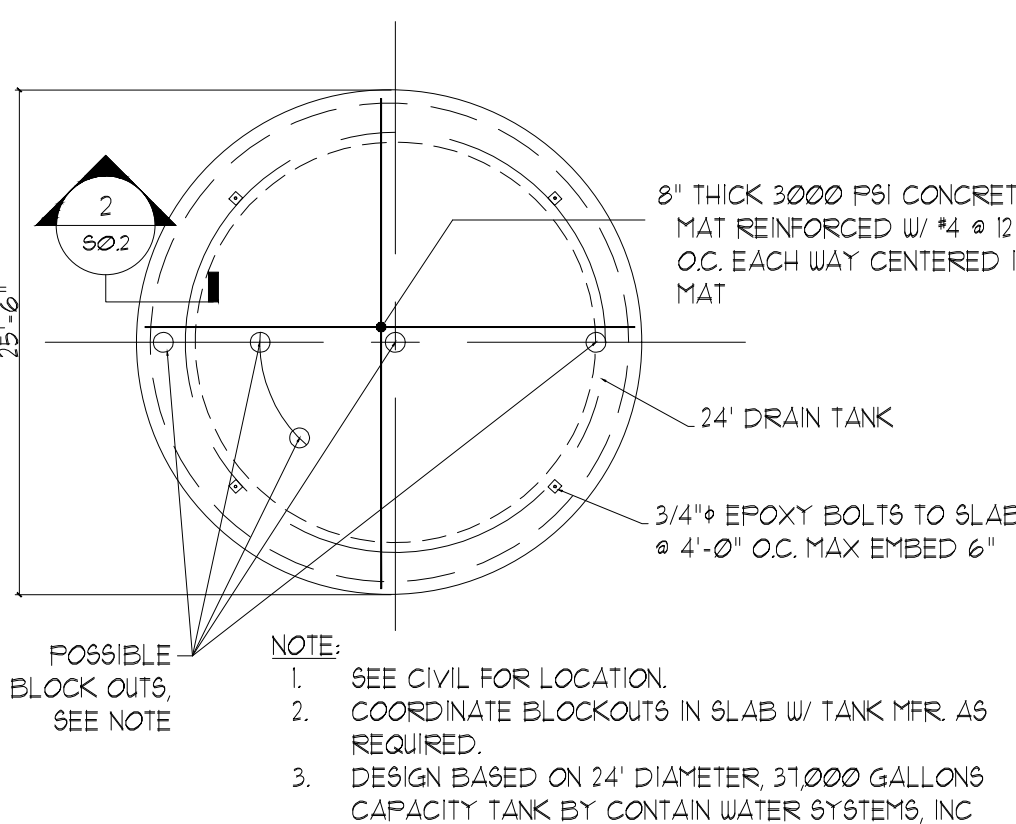
SCHEDULES AND
DOOR AND WINDOWS
TYPES

A7.1

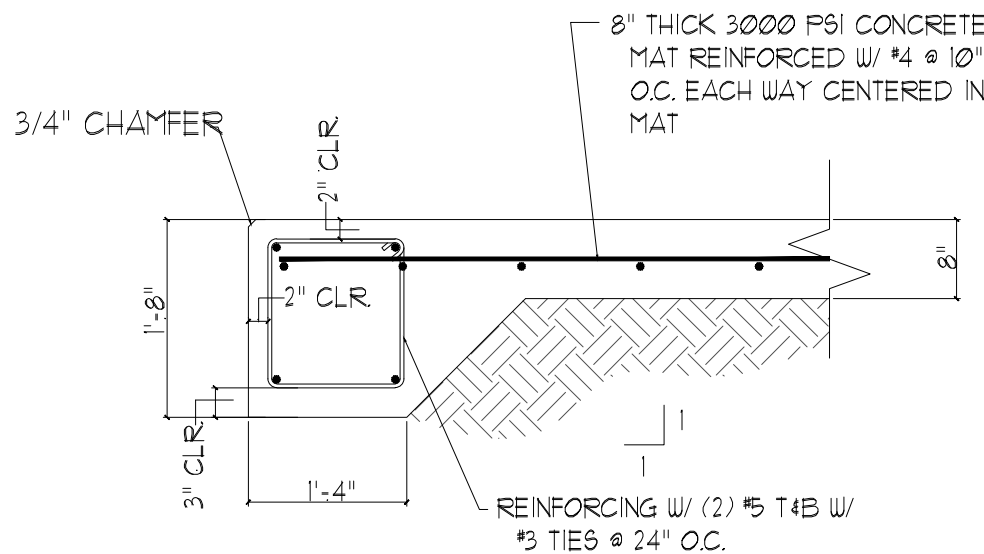
STRUCTURAL SPECIFICATIONS CONT.

PRE-ENGINEERED WOOD TRUSSES

1. THIS SECTION DEFINES PRE-ENGINEERED, PREFABRICATED, METAL PLATE CONNECTED WOOD ROOF TRUSSES AS "WOOD TRUSSES".
2. WOOD TRUSSES SHALL BE DESIGNED AND FABRICATED IN ACCORDANCE WITH THE "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION", PUBLISHED BY THE AMERICAN FOREST AND PAPER ASSOCIATION, "NATIONAL DESIGN STANDARD FOR METAL PLATE CONNECTED WOOD TRUSS CONSTRUCTION", PUBLISHED BY THE TRUSS PLATE INSTITUTE, TPI 1.
3. THE WOOD TRUSS MANUFACTURER MUST PARTICIPATE IN A CODE APPROVED THIRD PARTY QUALITY ASSURANCE PROGRAM SUCH AS THE TRUSS PLATE INSTITUTE'S "QUALITY CONTROL INSPECTION PROGRAM" OR EQUIVALENT.
4. WOOD TRUSSES SHALL BE DESIGNED FOR THE LOAD CRITERIA PROVIDED ON THE STRUCTURAL DRAWINGS. MINIMUM BOTTOM CHORD DEAD LOAD = 10 PSF.
5. DURATION OF LOAD FACTORS:
ROOF DL+WL 1.33
ROOF DL+LL 1.25
FLOOR DL+LL 1.00
6. THE WOOD TRUSS SYSTEM SHALL BE DESIGNED BY THE DELEGATED SYSTEM ENGINEER WHO SHALL PREPARE DESIGN CALCULATIONS AND SUPERVISE THE PREPARATION OF SHOP DRAWINGS INCLUDING, BUT NOT LIMITED TO:
A) TRUSS PLACEMENT PLAN SHOWING ALL TRUSSES, GIRDERS, AND OVER-BUILD TRUSS FRAMING.
B) TRUSS TO TRUSS METAL CONNECTORS WITH MODEL NUMBER AND MANUFACTURER.
C) DIMENSIONED LOCATION OF ALL TRUSSES.
D) TRUSS BRACING.
E) DESIGNATION OF EACH TRUSS REFERENCED TO THE TRUSS DESIGN CALCULATIONS.
7. INDIVIDUAL TRUSSES SHALL BE DESIGNED BY THE DELEGATED SYSTEM ENGINEER INCLUDING:
A) DIMENSIONED TRUSS ELEVATION OF EACH INDIVIDUAL TRUSS WITH CHORDS AND WEBS, REFERENCED TO THE TRUSS SYSTEM DRAWINGS.
B) TRUSS SPACING.
C) DESIGN LOADS CRITERIA AND LOAD COMBINATIONS.
D) LOAD DURATION FACTORS, CONDITION OF USE FACTORS AND ANY LIVE LOAD REDUCTIONS TAKEN.
E) APPLICABLE CODES USED.
F) WOOD SPECIES, GRADE, AND MOISTURE CONTENT.
G) METAL CONNECTOR PLATES TYPE, SIZE, GAUGE, ETC.
H) SUPPORT REACTIONS AND MINIMUM BEARING LENGTH.
I) DEFLECTIONS.
J) PERMANENT CONTINUOUS TRUSS TO TRUSS BRACING.
K) INDIVIDUAL MEMBER STIFFENERS.
L) TRUSS SPLICE DETAILS, INCLUDING PIGGY BACK TRUSSES.
M) IDENTIFICATION OF ANY COMPUTER PROGRAM USED.
8. DEFLECTION LIMITATIONS: (UNLESS NOTED OTHERWISE)
A) ROOF LIVE LOAD = L/360
B) ROOF TOTAL LOAD = L/240
C) FLOOR LIVE LOAD = L/480
D) FLOOR TOTAL LOAD = L/360
9. FIRE RETARDANT WOOD IS NOT ALLOWABLE.
10. SUPPORTS: WOOD TRUSSES SHALL BE DESIGNED WITH AT LEAST ONE HORIZONTAL ROLLER CONNECTION PER SPAN SO THAT NO HORIZONTAL REACTIONS ARE INDUCED ON SUPPORTS UNDER DEAD OR LIVE LOADS.
11. REFER TO THE ARCHITECTURAL DRAWINGS. IF A CEILING OR ADEQUATE FURRING STRIPS ARE NOT PROVIDED, TRUSS BOTTOM CHORDS MUST BE DESIGNED AS Laterally UNBRACED.
12. TRUSS ERECTOR IS RESPONSIBLE FOR ALL TEMPORARY BRACING OF TRUSS SYSTEM DURING CONSTRUCTION.
13. HANDLING, INSTALLATION, AND BRACING OF WOOD TRUSSES SHALL BE IN ACCORDANCE WITH TPI/WTCA BCS1.
14. ALL TRUSS TO TRUSS AND TRUSS TO SUPPORT CONNECTIONS SHALL BE DESIGNED BY THE DELEGATED ENGINEER.
15. CONNECTION HARDWARE SHALL BE SUPPLIED BY SIMPSON STRONG-TIE CO., INC. OR BY APPROVED EQUIVALENT MANUFACTURER. CONNECTION HARDWARE IS TO BE FULLY FASTENED PER MANUFACTURER'S REQUIREMENTS.
16. MINIMUM COATING REQUIREMENTS FOR METAL CONNECTORS, TRUSS PLATES, AND FASTENERS:
A) INTERIOR -ZINC GALVANIZED (G90)
B) EXTERIOR -GALVANIZED (G185) OR HOT DIP GALVANIZED (HDG)
C) EXTERIOR COASTAL AREAS -STAINLESS STEEL (TYPE 316L)
17. PILING OF PLYWOOD ON WOOD TRUSSES IS NOT ALLOWED.
18. INSTALLATION OF BROKEN, DAMAGED, WARPED, OR IMPROPERLY REPAIRED WOOD TRUSSES IS NOT ALLOWED.
19. IMPROPER OR UNAUTHORIZED FIELD ALTERATIONS OF WOOD TRUSSES IS NOT ALLOWED.
20. CONNECTIONS AND BRACING MUST BE INSTALLED BEFORE LOADING SHEATHING ON THE TRUSSES.
21. GABLE END WALL TRUSSES MUST TRANSFER LATERAL LOADS TO THE SHEAR WALLS AND/OR THE ROOF DIAPHRAGM.
22. WOOD TRUSSES THAT DO NOT MEET INTERIOR LOAD BEARING WALLS MUST BE SHIMMED. DO NOT PULL WOOD TRUSSES DOWN TO INTERIOR BEARINGS.
23. WOOD TRUSS DELEGATED ENGINEER MUST BE PROVIDED WITH A COPY OF THESE DRAWINGS AND SPECIFICATIONS.
24. SUBMITTALS SHALL HAVE A COVER SHEET CONTAINING THE NAME, ADDRESS, AND LICENSE NUMBER OF DELEGATED ENGINEER, PROJECT IDENTIFICATION INFORMATION, AND AN INDEX OF ATTACHED DRAWINGS. ALL SUBMITTED CALCULATIONS AND SHOP DRAWINGS SHALL BEAR THE SEAL OF THE DELEGATED ENGINEER.



WATER TANK



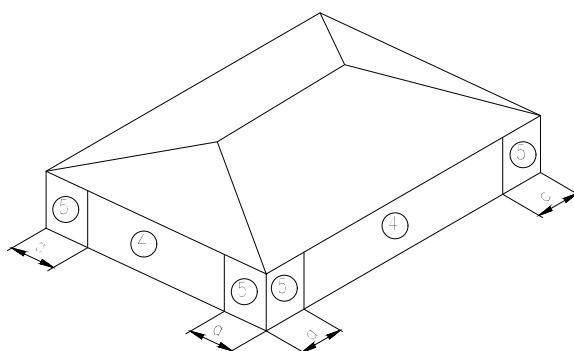
CONCRETE MAT
EDGE DETAIL

GROSS ULTIMATE
WIND LOADS
MAIN ROOF
ROOFING MATERIALS

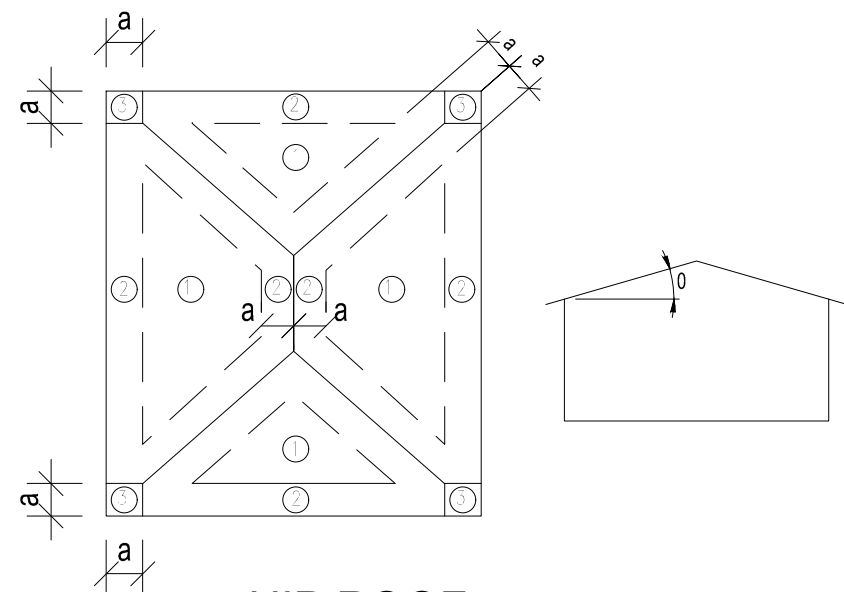
COMPONENTS AND CLADDING	ROOF ZONE		
	1	2	3
PRESSURE (psf)	59.9	59.9	59.9
SUCTION (psf)	-135.0	-175.0	-189.0

GROSS ULTIMATE
WIND LOADS
MAIN ROOF
JOISTS OR TRUSSES

COMPONENTS AND CLADDING	ROOF ZONE		
	1	2	3
PRESSURE (psf)	32.6	32.6	32.6
SUCTION (psf)	-66.7	-101.0	-107.0



DOORS, WINDOWS AND WALLS



HIP ROOF (7 DEG. < 0 ≤ 45 DEG.)

MASONRY REINF.
LAP SCHEDULE

BAR SIZE	LAP LENGTH
#3 BAR	20"
#4 BAR	26"
#5 BAR	32"
#6 BAR	43"
#7 BAR	60"

NOTE:
1. TABLE BASED ON BAR STRESSES LESS THAN 80%

VERTICAL REINFORCEMENT
BAR LAP SCHEDULE

BAR SIZE	COMPRESSION LAP	CLASS "B" TENSION LAP		
		3,000 PSI	4,000 PSI	5,000 PSI
# 5	25"	36"	31"	28"
# 6	30"	43"	37"	33"
# 7	35"	63"	54"	49"
# 8	40"	72"	62"	55"
# 9	44"	81"	70"	63"
# 10	50"	91"	79"	70"

NOTES:
1. BASED ON NORMAL WEIGHT CONCRETE & GRADE 60 REINFORCING BARS.

GROSS ULTIMATE
WIND LOADS
OVERHANGS AND CANOPIES
JOISTS OR TRUSSES

COMPONENTS AND CLADDING	ROOF ZONE	
	2	3
PRESSURE (psf)	89.8	105.2
SUCTION (psf)	-157.0	-163.0

ULTIMATE
WIND PRESSURES (PSF)
EXTERIOR DOORS, WINDOWS, WALLS

EFFECTIVE AREA (ft ²)	ZONE 4		ZONE 5	
	PRESSURE	SUCTION	PRESSURE	SUCTION
1 TO 20	80.3	-80.7	80.3	-107.0
21 TO 50	76.4	-83.2	76.4	-99.7
51 TO 100	71.8	-78.6	71.8	-90.5
101 TO 150	68.2	-75.0	68.2	-83.3
151 TO 250	66.1	-72.9	66.1	-79.1
251 TO 500	63.4	-70.2	63.4	-73.8
501 + ABOVE	59.9	-66.7	59.9	-66.7

COMPONENT AND CLADDING LOADING DIAGRAMS

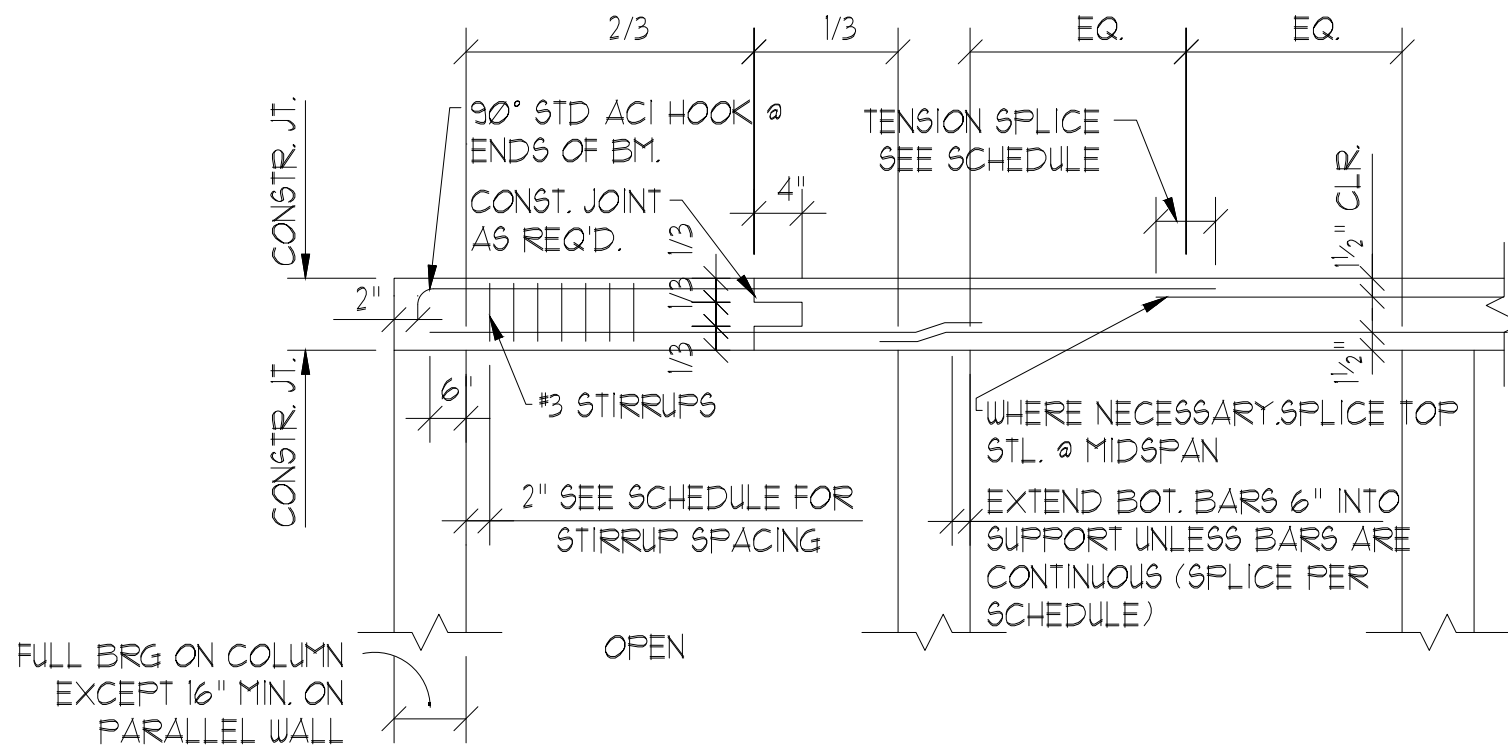
- a= 6'-0"
- THIS BUILDING IS DESIGNED AS AN ENCLOSED STRUCTURE. ALL EXTERIOR COMPONENTS (DOORS, WINDOWS, ETC.) MUST BE DESIGNED TO WITHSTAND THE WIND LOADINGS SPECIFIED FOR THE DESIGN OF COMPONENTS AND CLADDING IN THE TABLES. IN ADDITION, ALL AREAS OF EXTERIOR GLAZING MUST BE CERTIFIED FOR MISSILE IMPACT OR PROTECTED BY WIND-BORNE DEBRIS BY A SCREEN BARRIER.
- TO CONVERT THE (ASCE 7-22) ULTIMATE WIND PRESSURES IN THE TABLES ABOVE TO (ASD) WIND PRESSURES, MULTIPLY EACH VALUE BY 0.6.

CONCRETE BEAM TENSION
LAP SPLICE SCHEDULE

BAR SIZE	LOCATION	CONCRETE STRENGTH		
		3,000 PSI	4,000 PSI	5,000 PSI
# 4	TOP BARS	37"	32"	29"
	OTHER BARS	29"	25"	22"
# 5	TOP BARS	47"	40"	36"
	OTHER BARS	36"	31"	28"
# 6	TOP BARS	56"	48"	43"
	OTHER BARS	43"	37"	33"
# 7	TOP BARS	81"	70"	63"
	OTHER BARS	63"	54"	49"
# 8	TOP BARS	93"	80"	72"
	OTHER BARS	72"	62"	55"
# 9	TOP BARS	105"	91"	81"
	OTHER BARS	81"	70"	63"
# 10	TOP BARS	118"	102"	91"
	OTHER BARS	91"	79"	70"

- NOTES:
- BASED ON NORMAL WEIGHT CONCRETE & GRADE 60 REINFORCING BARS.
 - TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.
 - FOR LIGHTWEIGHT AGGREGATE, MULTIPLY ABOVE VALUES BY 1.3.

1 BEAM REINFORCING



5755 Rio Vista Drive
Clearwater, FL 33760-3137
(727) 536-8772
Florida Co# 7819
Christopher Lee, P.E., S.E.
Florida P.E. 73264
Pennoni Project No. WILDC22001

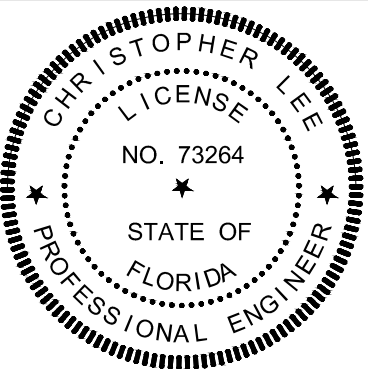
This item has been digitally signed and sealed by Christopher Lee on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

1315 E. SEVENTH AVENUE
SUITE 106
TAMPA, FLORIDA 33605.3607

TELEPHONE 813.242.6677
FACSIMILE 813.242.6683

wilderarchitecture.com

AR91271 QUALIFIER LICENSE



HILLSBOROUGH COUNTY
BOARD OF COUNTY
COMMISSIONERS COUNTY
CENTER
601 E KENNEDY BLVD
TAMPA FL 33601

HILLSBOROUGH COUNTY
THONOSASSA FIRE STATION NO. 21
REPLACEMENT

PHASE: PERMIT SET

DATE: 11/14/2024

WAI PROJECT #2116-00

NUM	REVISION	DATE
1	ADDENDUM 02	03/06/2025

STRUCTURAL
SPECIFICATIONS,
SCHEDULES &
WIND TABLES

S0.2