

April 1, 2026

Arturo D. Lopez, AIA, NCARB, LEED GA

WJ Architects
132 Mirror Lake Dr N, Unit 301
St. Petersburg, FL 33701

RE: Nathan Benderson Park
MEP/FP Conceptual Design Narrative

Dear Arturo,

As requested, we have prepared this conceptual design narrative outlining our proposed Mechanical (HVAC), Electrical, Plumbing, and Fire Protection designs for this project. This narrative is conceptual and is intended to provide a recommendation/outline of the proposed MEP/FP systems and to assist in construction budgeting.

The project is a new two-story building in Sarasota, Florida, that will include indoor basketball courts, spectator areas, multiple multi-purpose meeting rooms, kitchen and dining areas, storage, boat storage and repair, fitness areas, restrooms, locker rooms, and offices. Refer to Architectural documents for more information.

HVAC

General

The estimated total connected cooling load for the new building is about 720 tons. The total peak cooling load for the new building is about 600 tons. This tonnage will vastly depend on the type of window glass chosen and number of occupants in the building, which are both being developed at this time. While this is a conservative peak load, it may be subject to change as the design is developed.

A chilled water system will be the most practical HVAC system to serve the building. The chilled water system for the building shall include two 300 ton air cooled chillers mounted on a concrete pad away from the building. The associated chilled water pumps and tanks shall also be located there. All the equipment can be exposed to the elements. A building is not required at this central plant (unless desired by the Owner). A variable-primary chilled water loop system shall be utilized. Chilled water supply and return piping (two 10" pipes) shall be routed from the plant towards the building.

The building shall utilize dozens of central station chilled water air handling units (mounted on the floor in dedicated mechanical rooms) and chilled water fan coil units (hung above the ceilings). Two roof mounted chilled water air handling units for the two basketball court areas shall be in the center of the roof, so as not to be seen from Interstate 75.

The chilled water piping from the central plant shall be routed throughout the building and connected to all of the air handling units (AHUs). The smaller AHUs shall be constant volume. The larger central station AHUs shall be variable volume, include VAV (variable air volume) boxes in order to provide individual space temperature control, ductwork sound attenuators, include MERV13 filters, UV lights, and CO₂ (carbon dioxide) demand controlled ventilation.

All heat shall be provided by electric strip heaters, either in the AHUs or the VAV boxes. No heating hot water piping or HVAC boilers shall be provided.

Restroom, janitor, and general exhaust shall include above ceiling inline exhaust fans (EFs) and terminate at exterior wall louvers (to minimize HVAC equipment on the roof).

Kitchen hood exhaust shall terminate at roof mounted exhaust fans on the west side of the building. Makeup air units shall also be roof mounted and include air conditioning.

The boat house space and boat repair space on the first floor of the south side of the building shall be ventilated only (no air conditioning or heat).

Ductwork

Supply, return, transfer, exhaust, and outside air ductwork shall be galvanized sheet metal. All ductwork shall be fabricated and installed in accordance with the latest edition of SMACNA duct construction standards. All ductwork shall be leak tested in accordance with SMACNA and ASHRAE standards. Ducts with a leakage rate more than 2% will not be accepted. Fabricate and seal ductwork, with hardcast, to an operating duct pressure class of 3" W.G. and seal to a seal class B. The inside of all ductwork shall be thoroughly cleaned and tested for particles prior to startup of HVAC systems.

All concealed supply, return, transfer, and outside air ductwork shall be insulated with blanket type insulation with vapor barrier (minimum R-6.0). Ductwork exposed inside mechanical rooms shall be externally insulated with rigid fibrous ductboard with an EPA listed antimicrobial coating. All exhaust air ductwork shall not be insulated.

Fibrous ductboard (minimum R-4.2) shall be utilized only on the downstream side of VAV boxes and on supply ducts on smaller fan coil units.

Air devices shall be a combination of square, linear diffusers, and sidewall grilles.

Provide complete ducted return systems in all areas. No above ceiling return air plenums are permitted.

Kitchen hood grease exhaust ductwork shall be fully welded stainless steel with zero-clearance 2-hour fire wrap.

Chilled Water Piping

All chilled water piping 2-1/2" and larger to be ASTM A53 schedule 40 black steel with welded ASME fittings per Table 1202.5. Piping 2" and under to be copper type L with soldered fittings.

All chilled water piping to be insulated with 2" foamglass insulation installed per the manufacturer's installation instructions and finished with a white vapor proof self lapping cover. Smaller lines (1" and under) to equipment may be insulated with 1" thick seamless closed cell rubber insulation. Provide Zeston covers over all elbows and changes in direction. Cover exterior exposed piping and piping below 7 feet inside mechanical rooms with aluminum cover.

HVAC Control System

A centralized BACnet DDC HVAC control system shall be provided to control all HVAC equipment (chillers, pumps, AHUs, EFs, thermostats, etc.). It shall be web-based, be able to be remotely read, programmable, and include graphics of the HVAC equipment.

HVAC Test and Balance

All HVAC systems shall be tested and balanced by a third party certified testing agency in accordance with either AABC or NEBB standards to within +/-5% of design values.

HVAC Commissioning

In accordance with the Florida Building Energy Code Section C408, the HVAC systems shall be fully commissioned by a third party certified commissioning agent.

Electrical & Systems

General

All feeders of ampacities 100A or greater shall be permitted to be aluminum. All equipment grounding conductors shall be copper. All feeders of ampacities less than 100A shall be copper.

All raceways installed underground shall be PVC. All interior raceways shall be EMT. The use of PVC when not routed underground or encased in concrete shall not be permitted. All interior branch circuit and feeder conductors shall be in EMT conduit - the use of metal-clad (MC) cable shall not be permitted. Metallic flexible conduit shall be permitted for connection to lighting fixtures for lengths not to exceed 6'.

Normal Power & Distribution

The building shall be served from a 480Y277V padmount FP&L transformer located on the site. The secondary service ampacity shall be 4000A. Metering will be via CT's at the utility transformer. The service will terminate in a distribution style (non-drawout) main circuit breaker (MCB) switchboard located in the main electric room on Level 01. The main switchboard will serve an arrangement of 480Y277V panelboards, dry-type transformers and 208Y120V panelboards located in the main electrical room and other areas levels 01 & 02. These panelboards will serve all non-emergency loads including lighting, receptacle, HVAC, and other systems in those areas.

A 480Y277V, 4000A, NEMA-3R quick-connect cabinet shall be provided on the building exterior for connection of a portable generator. The quick-connect cabinet shall be connected to the main normal switchboard via a 4000A feeder. The quick-connect cabinet shall be equipped with a 4000A breaker, kirk-keyed with the main normal switchboard main.

There shall be connections to multiple company switches, or similar components, for event lawn power. Exact quantities and locations are to be determined.

Emergency Power & Distribution

The building life safety and optional standby systems will be served via a Level-1, 200kW/250kVA (estimated) 480Y277V natural gas generator located on Level 01. The final generator sizing will be dependent on final elevator and large equipment motor sizes and starting requirements. The generator will be equipped with (2) main circuit breakers as follows:

1. 250A to serve ATS-LS
2. 250A to serve ATS-OS

The normal side of all ATS's will be served from the 4000A, 480Y277V switchboard described above. The ATS's will serve 480Y277V panelboards, dry-type transformers and 208Y120V transformers on Levels 01-02.

Lighting

Lighting throughout the facility will be a mixture of both 120V and 277V, served from branch panelboards noted in the normal and emergency distribution sections above. The lighting selections will be LED. The final selections will have consideration for energy efficiency, appearance, and maintenance to provide staff with reliable but easily replaceable lighting sources.

Exterior lighting will include building façade lighting, exterior signage, parking lot lighting, event lawn lighting, pathway and landscape lighting, etc.

Lighting controls in all interior areas will meet the requirements of the applicable sections of the 2023 Florida Building Code – Energy & Conservation. Exterior lighting will be controlled via a photocell and automatic lighting control relay panel.

Fire Alarm

The building will be provided with an addressable, voice evacuation fire alarm system. The system will consist of a fire alarm control panel (FACP) on Level 01, as well as a remote annunciator panel at the building entry. The system will meet all requirements of NFPA 72 and NFPA 101. Fire alarm wiring shall be in EMT conduit. Free-wiring of fire alarm system wiring shall not be permitted.

Lightning Protection

The building shall be equipped with an Early Stream Emitter (ESE) type lightning protection system. The system will generally consist of (1) air terminal above the roofline of each tower with (2) down conductors. This system shall be classified as a bid alternate.

Technology Systems

Technology Systems General Provisions

A Main Distribution Facility (MDF) will be provided on the first floor of the building. The MDF will have a minimum size of 9' X 12'. This location will be utilized by the outside service provider as their demarcation point for outside network connectivity. The MDF will serve as the main distribution point for backbone fiber connectivity to the Intermediate Distribution Facilities (IDF) in the building. The MDF will have all walls clad in fire retardant Telecommunications Backboard (TBB) to 8'6".

IDF's will be designed in coordination with the architect based on the floor plan and use of each area. The IDF will have a minimum size of 8' X 10'. IDFs will be designed to ensure a maximum end-to-end structured cabling distance does not exceed 300'. The IDFs and electrical rooms will be 2 hour fire rated for protection of the Emergency Responder Radio System and Addressable Fire Alarm System backbone cable. All IDFs will have all walls clad in fire retardant TBB to 8'6".

All Technology Systems installed for this project shall be designed and installed in accordance with the following at a minimum (current edition or most recently adopted by the AHJ):

Florida Building Code
Local Building Codes

NFPA
ANSI/IEEE
TIA
UL
BICSI Telecommunications Distribution Methods Manual
BICSI 004
Infocomm International

Grounding and Bonding for Technology Systems

A complete bonding system will be provided between the MDF and the IDFs in the building. A Telecommunications Main Ground Bar (TMGB) will be provided in the MDF. A Telecommunications Back Bone (TBB), sized based on conductor length, will be provided from the TER to each IDF and terminated at the IDFs Technology Ground Bar (TGB). Bonding conductors (BC) will be provided from all racks, conduit penetrations, panels, ladder trays in each MDF/IDF and bonded to the TMGB/TGB.

Raceways for Technology Systems

Four (4) 4" underground PVC conduits will be provided from the property line of the project to the MDF for outside service provider use. Inground pull boxes will be provided every 300' for all underground backbone conduits.

One (1) 2" conduit will be provided to the IDF room for Emergency Responder Radio System backbone cabling. One (1) 1-1/4" conduit will be provided for horizontal donor antenna cabling protection.

The Addressable Fire Alarm and Emergency Responder Radio Systems will be installed fully in conduit. All backbone cabling will be protected in a 2 hour fire rated enclosure.

Structured Cabling System

The structured cabling system will be used for distribution of all IP connected devices as well as other Technology systems require dedicated cabling systems. The structured cabling system will consist of backbone fiber optic cable run from the MDF to each IDF in a star configuration and horizontal CAT6A cable run from the MDF/IDF to the work outlet. At no point will a IDF connect to another IDF directly over fiber optic cable or a work outlet connect to another work outlet over CAT6a cable unless for a specific purpose indicated in the design documents.

The backbone structured cabling will consist of 12 strand OS2 fiber optic cable protected in conduit or routed within a MDF / IDF. Fiber optic cable will be terminated on each end in rack mount fiber optic distribution centers with duplex LC connectors. The fiber optic

cable will be used to connect rack mounted network equipment between the IDFs and the MDF.

The horizontal structured cabling will consist of CAT6A 23 AWG balanced twisted pair cable installed from a work outlet to the nearest TR. The number of cables required will be determined based on the use. CCTV cameras will require one (1) CAT6A cable where a desk work outlet will require a minimum of three (3). All CAT6A cabling will be terminated in an outlet on the work outlet side and a rack mount patch panel on the IDF side.

Ceiling mounted wireless access points will be provided in order to fully cover all public and back of house areas in the tower. Each wireless access point location will have two (2) CAT6A data drops provided to the nearest MDF/IDF. Locations within the building will be based on industry best practices.

All cabling will be provided with 10' of slack in the MDF/IDF and 1' at the work outlet. All fiber optic cable strands and CAT6A cabling will be tested in accordance with BICSI standards for a 25 year end to end warranty.

Audio / Visual Systems

The audio / visual systems required for this project will be determined based on the requirements of the Owner. It is anticipated that background music will be provided in the main lobby area and possibly the gyms. Additional systems are anticipated in the Multi-purpose and flex spaces as well as the conference rooms and VIP lounge.

Security Systems

It is anticipated that an access control and CCTV video surveillance systems will be required for this project. Requirements will be determined after consultation with the Owner. It is anticipated that access control will be required for the main entry into the main lobby, US National Suite entry door, and the Admin entry door.

The CCTV video surveillance system will be IP based utilized multi-megapixel cameras and a local video recording system. Viewing of the video will be through the manufacturer's software installed on a computer or a web based application. Cameras are anticipated to be located at all entry doors, the lobby front desk, gym, entry to US National and admin suites, and the boathouse. Site viewing cameras installed on the building exterior will be provided to view key areas as the design progresses.

Plumbing

Domestic Cold Water Systems

The new building shall be connected to city utility water by a new 6" domestic water site connection and backflow. A 100 GPM triplex booster pump (with N+1 design) will most

likely be required (pending the result of a flow test to determine the available utility pressure). A whole building water softener shall be provided. Both items shall be located in a 12'x12' booster pump room located on the first floor, preferably on an exterior wall with double exterior doors. The domestic cold water piping shall be distributed horizontally above the ceilings of the first and second floors. Water hammer devices shall be utilized.

Domestic Hot Water Systems

A centralized domestic hot water boiler system need not be provided due to the limited hot water demand of the building. Instead, provide smaller tank type electric water heaters at each area requiring domestic hot water (gang restrooms, locker rooms, kitchens, etc.) Water heaters shall be mounted on floor stands in the nearest janitor rooms. Provide recirculation pumps and lines, if piping distances exceed code allowances. Single restrooms located far away from gang restrooms shall utilize electric insta-hots, under the lavatories.

Sanitary/Vent Systems

A traditional sanitary/vent system, connected to the local utility, shall be provided. Solvent systems shall not be used. Risers shall be consolidated where possible. We anticipate three 8" sanitary connections for the building connected to the local utility.

A single 1250 gallon underground concrete grease trap shall be utilized for the kitchen and be located exterior to the building.

Elevator sump pumps shall include oil detectors and indirectly discharge to the sanitary system.

Storm System

Primary roof drains shall connect to the utility storm system in a traditional sense. Siphonic systems shall not be used. Secondary overflow roof drains shall be piped down to the first floor and indirectly terminate at wall discharge nozzles 12" above grade in aesthetically pleasing locations.

We anticipate four 10" storm water connections for the building.

All HVAC condensate drains shall be piped/connected in a dedicated system in the building, routed underground, and then connected to the underground storm system at a backwater valve exterior of the building.

Natural Gas Systems

The new building shall receive a new dedicated gas meter from the local gas utility company. We anticipate a 1.5" line required. Gas shall only be piped to and serve the restaurant kitchen equipment (and possibly the generator).

Plumbing Fixtures

All plumbing fixtures will meet the aesthetic intent of the project.

Plumbing Piping Materials

All domestic cold, hot, and hot water recirculating piping larger than 2" shall be seamless type L hard copper pipe with soldered fittings and shall conform to NSF 61 and ASTM B 75. Piping 2" and smaller shall be PEX, Uponor. Hot and hot water recirculating piping shall be insulated with 1" thick high-density fiberglass insulation with factory applied vapor barrier all service jacket.

All sanitary, vent, and storm water piping shall be PVC type DMV and shall conform to ASTM D 2665, ASTM D 2949, or CSA B181.2. Joints shall be solvent cementing. Vertical sanitary/roof drain leaders shall be concealed in chases inside the building and insulated for sound. Horizontal storm water piping shall be insulated with 1" thick high-density fiberglass insulation with factory applied vapor barrier all service jacket.

Natural gas piping shall be Schedule 40, wrought steel pipe, welded and seamless (ASME B36.10) with threaded connections. Paint all exposed piping yellow.

Domestic Water Balancing

Balancing valves and mixing valves shall be provided throughout the building in the domestic cold water, domestic hot water, and domestic hot water recirculating piping distribution systems. All systems shall be tested and balanced.

Plumbing Commissioning

In accordance with the Florida Building Energy Code Section C408, the Domestic Hot Water systems shall be fully commissioned.

Fire Protection

The new building shall receive its own 8" fire water supply from the local utility, double detection check valve backflow preventor, and two yard fire department connections.

The building shall be fully protected by a wet-pipe sprinkler system. Neither pre-action, dry-pipe systems, FM200 systems, nor freeze protection devices will be required.

A fire pump will most likely be required (pending the result of a flow test to determine the available utility pressure). A 14'x14' fire pump room shall be provided on the first floor, with double doors to the exterior. It shall contain a single 750 GPM electric fire pump, jockey pump, controllers, etc. A test header shall be mounted on the exterior wall by the double doors.

The building shall include a single fire riser, but utilize multiple zones and zone control valves (located above the ceiling) to cover the different areas of the building. Wall mounted hose valves cabinets will be required throughout the building, pending the outcome of the life safety plan.

Exposed and main sprinkler piping shall be grooved Schedule 10 black steel with high pressure grooved fittings. Concealed branch piping downstream of control valves shall be BlazeMaster CPVC. Exposed piping in unconditioned areas shall be galvanized.

All sprinkler heads shall be concealed head type. All piping, heads, hangers, and accessories shall be U.L. Listed and/or FM Approved.

Please contact us if you have any questions.

Sincerely,



Michael Costello, PE
Director of Mechanical Division



Adam T. Powell, PE
Principal