INTRODUCTION

A. **Purpose of the PME sheets** - These sheets provide some background information on what influenced the design shown on these documents. Although some information contained herein applies to a specific trade, it may provide some insight to other trades.

B. **Distribution** - The PME sheets should be duplicated and issued to the Plumbing, HVAC and Electrical Subcontractors along with their respective specific trade drawings. Some vendors may also benefit from this information.

PURPOSE

A. The purpose of this set of documents is to obtain a QUALITY PROJECT at a REASONABLE COST. In order to meet that goal, the documents have attempted to identify as clearly and comprehensively as possible the scope of the project.

B. The task of pricing the project by multiple contractors is not to identify the lowest cost, but to approximate the realistic ultimate cost of the project. Each of the contractors must consider and include in his cost the normal associated work, construction practices and techniques for the completion of the project.

C. What is indicated on the drawings is the result of multiple interactions with the Owner and other professionals. Consequently, they represent the general scope and quality expected and the probable routing for coordination, and they indicate some of the functionality that must be maintained in this process.

BACKGROUND ON CERTAIN DECISIONS

A. Per the Owner's direction, the HVAC basis of design was to retain the four (4) existing 25-ton packaged rooftop units (RTUs) and one (1) existing 5-ton packaged rooftop unit, and to provide additional HVAC equipment as needed. As a result, and also due to the much higher expected people density in the new facility versus the previous Sports Authority store, there is a possibility that the existing equipment will not provide optimal comfort during peak cooling conditions. The Plasma Air ion generators were specified as an approved method of reducing the quantity of outside air required by code in an effort to improve comfort and reduce energy use.

B. The electric service to the building was de-energized during the design professionals' field survey, so it was not determined if the RTUs are operational. For this reason, the mechanical drawings require the contractor to field test the existing HVAC equipment and report back to the Owner, Architect and Engineer. In the event that the RTUs are not operational, an alternate bid has been detailed for the replacement of these RTUs.

C. The basis of design for the fire alarm system is to reuse the existing fire alarm control panel (FACP) and devices, and to add or relocate devices where necessary. As with the basis of design for the RTUs, this equipment was not tested to verify that it is functional, and so the electrical contractor shall have the system tested and report back to the Owner, Architect and Engineer. In the event that the FACP is not operational, an alternate bid has been detailed for the replacement of FACP and devices.

D. There is an existing backup diesel generator and Automatic Transfer Switch (ATS) that are documented to be reused. This system will serve as backup power for the lighting, point of sale (POS) system, and other loads, as shown on panels EPH and EPL. This equipment was not tested to verify that it is functional, and so the electrical contractor shall have the system tested and report back to the Owner, Architect and Engineer.

E. The power and/or data provisions for the back-office server, gaming kiosks, bowling lanes, Laser Tag, arcade games, special effect lighting are all based on separate drawings provided by vendors for these systems. The general contractor and electrical contractor will be required to coordinate the installation of these provisions and the scheduling of their work on site for final installation and testing of these systems.

F. Per the placards on the existing fire riser, the existing fire suppression system was designed with extra hazard density.

SPECIAL EMPHASIS, CONCERNS, AND LIMITATIONS

A. Design

1) Emphasis will be on expediting the design and construction process and minimizing costs. The Owner recognizes that there may be issues which will be discovered and need to be rectified during the course of design, code review, and construction.

2) To further the goal of minimizing construction costs, it was agreed that the existing HVAC systems will be reused with duct distribution modifications made to suit the new layout. As a result, it is understood that the capacity and air distribution may be less than ideal.

3) Although plans of the previous tenant's MEP design are available, these drawings were not verified as being 'as-built' drawings. However, the drawings were used as reference for the design. Some assumptions were made based on observations made in the field and engineering judgment The drawings will be made available to the successful contractor(s). Field verification by the contractor(s) will be necessary prior to commencement of construction.

4) The Plumbing Contractor shall coordinate with the shopping center's Landlord and with the water utility as required for an upgrade to the existing domestic water service as shown on the plans.

B. **Construction**

1) Final rooftop equipment locations shall be as indicated on the structural framing plans. Mechanical plans are schematic in nature.

2) New exhaust outlets must be placed carefully so as to be at least the minimum required distance from outdoor air intakes.

3) All empty conduits shall have a pull string.

4) Label all circuits properly.

5) No equipment shall be mounted directly to the underside of the roof deck.

6) Long lead items must be ordered promptly to ensure timely deliveries

7) For notes regarding mounting items 'tight to roof structure', this shall mean within the limits of code requirements. The purpose of the phrase is typically to emphasize aesthetics (when applied to open construction) or to limit potential conflict between trades. But in no case shall the note supersede requirements explicit or implied by code.

C. **Communication**

1) The Design Professionals shall be notified immediately upon discovery of a problem, conflict, defect or suspected defect. The Contractor shall promptly identify one or more proposed solutions but shall not proceed until so authorized.

2) If a conflict exists between these documents and the prevailing code or codes, the code shall take precedence, and the conflict shall be communicated to the Engineer.

3) Coordinate the locations and orientations of all equipment with other trades.

D. **Limitations**

1) Roof and wall penetrations shall be limited to areas identified on the drawings. No deviations shall be made without written consent of the Architect.

2) Equipment shall be located within a reasonable distance of the locations shown.

3) Equipment selection is based on readily available equipment and/or Owner standards and preferences. Alternative, equivalent equipment will be acceptable upon approval of the Engineer as long as delivery dates will not impact the schedule.

4) Provide building-wide fire watch during any fire alarm service interruption. Reactivate fire alarm system at the end of each working day.

E. **Contractors' Responsibilities**

1) **Existing Conditions** - Each Subcontractor shall familiarize himself with existing conditions to adequately and accurately bid, buy and construct this project. Some existing conditions are hidden conditions. When encountering such conditions during construction which require deviation from the documents, or where clarification to the documents is required, the Contractor shall submit a Request For Information (RFI) form, which will be provided to the successful contractor to use. This form shall be accompanied by one or more proposed solutions. The intent is to define a scope of work for the successful contractor to evaluate and report on the existing conditions so that any adjustments to the proposed system can be reviewed, approved and resolved preferably prior to commencement of work and certainly before the completion of the contract.

2) **Permits** - Each Contractor/Subcontractor shall secure and pay for all required permits and shall arrange all required inspections for work under his trade.

3) **Coordination** - Each Contractor/Subcontractor shall coordinate his work with all other contractors and field conditions.

4) **Means & Methods** - Each Contractor/Subcontractor shall be responsible for the installation of its equipment (Owner- or Contractor-furnished). If equipment is purchased either assembled or disassembled to facilitate the contractors' installation, contractor is responsible for the associated costs of breaking down and/or reassembling. No other party shall be charged for such costs.

5) **Conditions During Construction** - During periods while construction is underway where the potential for mold and mildew growth exists, the contractor shall take every precaution, including but not limited to providing temporary desiccant dehumidifiers and other moisture preventative measures, to minimize the risk of contamination.

6) **Roof** - Coordinate all roof penetrations with Roofing Subcontractor, maintaining roof warranty if applicable.

7) **Owner-supplied items (OSI)** - All Contractors/Subcontractors shall verify requirements before proceeding with the work.

8) **Signs** - Final sign locations are to be coordinated with the Sign Contractor.

9) **Fixture and Equipment Plans** - Verify latest fixture and equipment plans of various Owner vendors/suppliers prior to installation of lighting, receptacles, data outlets, devices, etc. which depend on exact locations of fixtures and equipment.

10) **Substantial Completion** - Make final connections and perform startup of equipment for complete and operational building upon completion.

11) **Incidental items** - All items of labor, material and equipment not specified in detail or shown on the drawings, but incidental to or necessary for the complete installation and proper operation of the several branches of work and described herein, or reasonably implied in connection herewith, shall be provided as if called for in detail by the specifications or drawings.

F. Owner's Responsibilities

1) **Existing Conditions** - The Owner has disclosed all known conditions and defects of the building including, but not limited to, the following:

a) Building envelope

b) Operation problems

2) **Maintenance** - The Owner will continue to provide and pay for routine & special maintenance as well as operation of the facility, notwithstanding the construction warranty period. However, this does not relieve the Contractor / Subcontractors from adhering to contractual obligations regarding material and labor warranties for the work.

3) **User** - To the best of the design team's understanding, the drawings reflect the preferences and needs as a result of interface during the early design stages of the project. If the User of the facility was not part of that early interaction, the Owner takes full responsibility for adjustments required for satisfactory operation.

4) **Location of Owner's Equipment** - The Owner shall not locate heat-generating equipment (such as computers, printers, fax machines, etc.) near a temperature sensor. Should it become necessary to locate their equipment such that it could negatively influence the sensor, the Owner agrees to relocate the sensor at his/her expense.

OFFSITE AND UTILITY INTERFACES

A. **Utilities**

1) Water: Orange County Utilities - (407) 254-9900

2) Sewer: Orange County Utilities - (407) 254-9900

3) Electric: Duke Energy/Progress Energy - (877) 372-8477

B. **General** - Contract shall include all utility requirements including, but not limited to, materials, labor and metering clearances. Contractor shall secure, pay and schedule for all required permits, fees and required inspections. Utilities are to be notified at least 48 hours in advance of the start of construction.

Provide all required temporary utilities and pay all associated fees and operating costs.

C. **Plumbing** - Contractor shall coordinate activities with the utility companies.

1) Connect to existing sewer main in the building

2) New water service shall be run from the site main, provide new meter a required

3) Sprinkler service is assumed to be sufficient for the new work despite the considerable interior reworking of the system, so verification of adequacy immediately upon award of contract is essential

D. **Electrical** - The Contractor shall make arrangements for the electric service with the Local Utility Company, shall facilitate for the Owner the transfer of service into the Owner's name, and shall pay all charges in connection with the energizing the service. All work shall be done in accordance with the Utility Company's requirements.

E. **Telephone** - Contractor shall coordinate activities with the local telephone company regarding telephone service including fire and security alarms to remote monitoring facility, and dedicated phone line for energy management system (EMS). The Contractor shall make arrangements and shall pay all charges in connection with the service transfer to the Owner. All work shall be done in accordance with the Telephone Company's requirements.

SOME CODE, AGENCY, AND REFERENCE STANDARDS INFORMATION

A. **General**

1) Entire installation shall comply with all local and state codes and other authorities having jurisdiction. Each Contractor/Subcontractor shall secure, pay and schedule all required permits, fees, and inspections required for his work.

2) All packaged equipment shall be independently Third Party labeled as a system for its intended use by a Nationally Recognized Testing Laboratory (NRTL) in accordance with OSHA Federal Regulations 29CFR1910.303 and .399, as well as NFPA Pamphlet #70, and National Electric Code (NEC), Article 90-7.

3) All applicable items shall be Factory Mutual approved.

4) The installation shall be in accordance with all seismic requirements.

B. **Applicable Codes and References**:

1) Florida Building Code, Sixth Edition (2017)

2) Florida Plumbing Code, Sixth Edition (2017)

3) Florida Mechanical Code, Sixth Edition (2017)

4) Florida Energy Conservation Code, Sixth Edition (2017) ASHRAE 90.1 - 2013 Edition Energy Code

5) NFPA 13 - Standard for the Installation of Sprinkler Systems

6) NFPA 70 - National Electrical Code, 2014 edition

7) NFPA 90A - Air Conditioning and Ventilating Systems

8) ASHRAE Handbooks - American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.

9) SMACNA Handbook for Duct Construction

C. **Accessibility** - These documents reflect the design professionals' interpretation of the applicable ADA requirements and other known federal, state and local laws, rules, codes, ordinances and regulations as they apply to this project. All new work shall be in accordance with the Americans with Disabilities Act or the local requirements, whichever is more stringent.

D. **Plumbing**

1) Where allowed by local code, plastic waste and vent piping conforming to IAMPO and ASTM may be used when concealed below floor slabs or in walls and partitions. Support piping in accordance with the Pipe Support Schedule or per local requirements, whichever is more stringent (note that plastic piping typically requires many more supports than metallic pipe). No plastic piping is permitted on the project in any area which is considered or which may be construed as being a plenum.

2) Support all piping in accordance with the Piping Support Schedule. If local code requirements differ, use the most stringent requirements.

3) Barrier Free fixtures and trim shall be installed in accordance with the latest edition of the Americans with Disabilities Act (ADA), unless more stringent local codes prevail.

4) Venting:

a) Terminations above roof shall be minimum 6" above roof and otherwise as required by code

b) Vents shall not be installed within 2 pipe diameters of the trap weir

c) Vent and branch vent pipes shall be sloped and connected as to drain by gravity to the drainage system. Slope shall be equivalent to sewer schedule based on size. Connections shall be taken off above the centerline of a horizontal pipe and ahead of the trap and fixture connection that it serves.

E. HVAC

1) All ductwork shall be fabricated and installed to conform to SMACNA standards.

2) Outdoor design temperatures

a) All spaces - 92.4oFDB/76.2oFWB summer, 42.3oF winter

b) Outdoor design temperatures based on 99% Heating and 1% Cooling for Orlando International Airport in 2017 ASHRAE Fundamentals

c) Equipment will be selected based on the results of the calculations at the design temperature, and unless indicated otherwise elsewhere on the documents, will not be sized for part load as well. This approach is industry standard for this application.

3) Indoor design conditions (for theoretical calculations and equipment selection):

a) All areas - 75oF +/- 2oF , 55% +/- 5% RH summer, 70oF winter

b) Exceptions: Toilet rooms, storage rooms and corridors

4) Ventilation requirements:

a) Based on Florida Mechanical Code 2017, with adjustments per ASHRAE 62.1, Appendix D space contamination calculations based on use of the Plasma Air ion generator equipment

(1) Assumed that outdoor air is of acceptable quality and no treatment of outdoor air is necessary, justified or required

b) Unless indicated otherwise elsewhere on the documents, MERV 8 minimum filtration will be used on the equipment

5) Energy requirements:

a) HVAC systems shall include:

(1) Automatic shut-down and night setback provisions

(2) Deadband of 5F

(3) Manual changeover from cooling to heating and vice versa

(4) It is our interpretation that the following are not required based on the exceptions listed in the Energy Code:

(a) Optimum start-stop since there is no system over 10,000 CFM

(b) Shutoff damper controls since the building is single story

(c) Zone isolation since no single piece of equipment serves >25,000 square feet

(5) Economizer hardware and controls provided where required

b) Air systems shall be balanced to within 10% of specified air quantities

c) All outside air dampers shall be equipped with blade and jamb seals

F. ELECTRICAL

1) Lighting and controls shall be installed in accordance with the Energy Code.

2) Feeder conductors shall be sized for a maximum voltage drop of 2% at design load. Branch circuit conductors shall be sized for a maximum voltage drop of 3% at design load.

SUBSTITUTIONS AND DEVIATIONS

A. **General** - Manufacturers names given for equipment are used for the basis of selection, not with intent to limit competition. Equivalent equipment of other manufacturers will be considered for acceptance and installation. Contractor shall include a written list of deviations from the Contract Documents including a written notice that the design professional will not be responsible for any deviations that are not brought to the design professional's attention. The Contractor retains liability for any deviations that have not been reviewed and approved.

B. **Intent** - The intent of these requirements is not to disallow any substitutions, but to ensure the Owner receives the full value of the funding he plans on investing in this Project.

C. **Definition** - A substitution shall be defined as a change to the Contract Documents requested by the Contractor with an alternate product, process or detail. These changes shall include, but are not limited to, manufacturer, model, configuration, capacity, quality, physical characteristics or operational intent of equipment, materials or methods of fabrication and installation requested by the Contractor which differs from the Contract Documents. This definition of substitution shall also apply to changes in the above-mentioned items by alternates approved as 'equal' or 'acceptable manufacturer' in the specification. In summary, any deviation from the set of Contract Documents or the addenda to those documents, even if approved in the specification, shall be considered a substitution. The only manufacturers or items considered for a substitution shall be established in the specification - no other alternates will be entertained for acceptance.

D. **Submission** - If the Contractor intends to substitute any equipment or revise the layout of the Project in any way from the details shown on the documents, shop drawing grade submittals of the substitutions and details of the revisions shall be submitted by the Contractor. The Owner, Architect, and Engineer will review these substitutions. Submission of this information does not relieve the Contractor of any requirements established in the Contract Documents. No additional substitutions or revisions, with the exception of those required to meet unforeseen field conditions, will be allowed after the contract has been awarded without prior written approval by the Owner, Architect or Engineer.

E. **Comparison** - When substituting for a specified selection, the Contractor/Vendor is required to submit a comparison chart, which is to include scheduled and specified particulars as well as the warranty. It is the Contractor's responsibility to show a side-by-side comparison and not for the Owner, Architect or Engineer to research this information and compare it to the design values. It shall be the Contractor's responsibility to PROVE the 'equal' status of materials and/or equipment specified. The substitutions must match the specified products per project drawings and specifications.

F. **Vendor Obligations** - When submitting product data, it is the obligation of the vendor (even the specified vendor) to notify the Engineer of any deviation from the Contract Documents. This is to ensure accuracy in the submittal and to serve the main purpose of the process - as a final check on the conformance with the design intent.

G. **Costs** - All costs resulting from a selection of other than specified equipment shall be the obligation of the Contractor, including, but not limited to, work affecting other Contractors, Owner, or design (supports, electrical, piping, controls, etc.) and any redocumentation that may be required by any Contractor or the Owner or any other party such as Authorities Having Jurisdiction.

PERFORMANCE SPECIFICATION

Some work under this contract is 'performance' based, meaning that specific requirements are not defined or graphically represented, but are merely criteria which must be met by the contractor or his designer. Depending on the scope, anticipated cost or nature of the performance specification, a line-by-line sign-off of the criteria may be required to be submitted by the bidders and/or successful contractor. Refer to other portions of the contract documents for further information.

TESTING OF PERFORMANCE OF EXISTING EQUIPMENT

A. **Basis of Design** - The design related to RTUs 2, 3, 4, 5 and 8 is based on available information, some of which was obtained from design drawings for the existing systems. This information is theoretical and sometimes does not reflect as-built conditions. Therefore, reliance strictly on this information could result in some slight deviation from the intended performance. It is the intent of this section to define a scope of work for the successful contractor to evaluate and report on the existing conditions so that any adjustments to the proposed system can be addressed prior to the completion of the contract work. The scope below is broad and intended to be all-inclusive, however more information in a report generated by the contractor, including subjective observations and recommendations, should be included even if not stated. Additionally, the goal is to reuse the equipment basically in its existing condition (unless specified otherwise) and return it to its optimum operating condition, and NOT replace equipment nor perform work unnecessarily at the cost of the Owner.

B. **Scope of Contractor's Work** -Initially no budget for any remedial work to the equipment nor adjustment to the proposed system shall be included in the scope of work unless specifically stated otherwise on the documents. However, the scope of the testing SHALL be included in the work, and shall be performed at the outset of the project.

1) **HVAC** - The investigation and report for the mechanical systems shall include, but not be limited to, the following general guidelines:

a) Gather nameplate data and a description of the existing equipment (rooftop units RTU-2, 3, 4, 5 and 8) and systems. Verification of as-built drawings (if furnished) may supplement for a portion of this data as applicable.

b) Identify voltage and horsepower of motors.

c) Confirm operation of all systems and equipment in all modes originally installed. Report results and observations.

d) Check and test all refrigeration and electric heat systems to determine proper charge, condition, and operation of the compressors, refrigeration components, relays, heating coils, etc., as possible and practical. If refrigeration leaks are evidenced, identify by test and/or specify remedial work required.

e) Check and test all controls. Describe and/or illustrate the control functions and provide a written sequence of control functions. Include set points for flow, temperatures, dampers, and other control components. Verify economizer operation or note lack thereof. Recommend additional controls as may appear necessary or beneficial.

f) Test and measure fan CFM for all major HVAC systems excluding exhaust fans. Report shall indicate test method and details.

g) Determine the available heating and cooling capacity of the major systems and all equipment. Report shall include the basis for making the determination.

h) Inspect all heating coils, fans, fan drives & shafts, etc., as required to comply with the above stated intent, even if not included in the scope of the design work.

i) Itemize and estimate repair costs and value-added costs.

SPECIAL PURCHASING OR CONTRACTS

1) The following systems require infrastructure provisions by the Contractor such as conduit, junction boxes, power and wiring but the overall system equipment is furnished and connected by an Owner's vendor/supplier:

a) Arcade Games power

b) Back-Office ECS Server power

c) POS Redemption, Kiosk and Pedestal data cabling

d) Laser Tag Lighting, Audio, Power and Data

e) Special Effects Lighting power

f) Bowling Lanes power

g) Point-of-sale system power and data

h) Telephone system and wiring

BASIS OF DESIGN

A. **Plumbing**

1) **Sanitary** - Sanitary drainage from all fixtures will run by gravity to the existing sewer system. Sanitary drainage within the building shall be extended from the new fixtures to the building drain. Provide all piping including complete venting, hangers, connections to fixtures, drains and cleanouts for the building. Sanitary drains lines shall have a minimum ¼" pitch per foot for 3" and smaller, 1/8" pitch per foot for 3" and larger. Slope vent piping upward toward stack as required.

2) **Floor Drains, Floor Sinks and Grease Traps** - Floor drains are used where routine cleaning and domestic water heater discharge is expected. Floor drains in areas that are not regularly washed down shall be provided with trap primers. Floor sinks are used as required for drainage at kitchen equipment. An interior flush-mounted grease trap will be used for the 3-compartment sink in the Kitchen.

3) **Domestic water** - The Plumbing Contractor shall coordinate with the utility for an upgrade to the existing domestic water service as detailed on the plumbing drawings. One meter shall be provided for the entire building, as per the existing conditions and per the Owner's direction. Domestic water service within the building shall be extended from the service entrance to all plumbing fixtures and equipment which require domestic water, complete with hangers, anchors, fittings and valves. All interior piping shall be type 'L' copper except where specifically noted. All piping shall be insulated.

4) **Domestic hot water generation** - Produced by an electric hot water heater in each area.

5) **Valves** - In addition to valves for each branch of the main water supply lines, provide isolation valves in the following areas (not intended to be all inclusive):

a) At all fixtures

b) At each branch from the supply mains

c) On each under-slab pipe branch

d) At each side of contractor-supplied or owner-supplied equipment

6) **Water conservation** - The following shall apply unless more stringent local codes prevail:

a) Water closets shall consume no greater than 1.6 gallons per flush; Urinals no greater than 1.0 gallons per flush

b) Water closets shall have automatic flush

c) Lavatories shall have automatic faucets

7) **Storm Drainage** - Storm drainage is existing to remain.

8) **Pipe Support** - Horizontal pipe of the following materials shall be supported according to the manufacturer's recommendations but not less than the distances listed below. No piping is to be supported directly from the roof deck. Use products by Cooper B-Line or Erico and install in accordance with manufacturer's recommendations (if prevailing code requirements differ, use more stringent). Insulated pipes shall be protected with insulation protection shield.

a) **Cast Iron Soil Pipe** - Five-foot (5') intervals except where ten-foot (10') lengths of cast iron soil pipe are used. Ten-foot (10') intervals between supports are acceptable.

b) **Steel Threaded Pipe** - 1¼ inch in diameter or less - eight-foot (8') intervals; 1½ inch and over - ten-foot (10') intervals.

c) **Copper Tube** - 1¼ inch or less - six-foot (6') intervals; 1½ inch or over - ten-foot (10') intervals.

d) **Plastic (PVC and ABS) Pipe** (1½ inch or less) - three-foot (3') intervals; 2 inch or over - four-foot (4') intervals.

e) **Exposed** - All piping in exposed locations to route along walls or structure.

B. **Fire Suppression**

a) The existing fire suppression system shall be modified as required to suit the new space layout. Design sprinkler system piping based on hazard rating as of the most stringent of the regulating agencies responsible for this facility, including the owner's insurance company requirements and the governing authorities as determined by local requirements. Perform work in accordance with NFPA 13.

b) See 'F' sheets for more information.

C. HVAC

1) **Occupancy**

a) The building hours of operation will be coordinated with the Owner

b) During unoccupied periods the cooling system will be placed into night setback mode. It is not expected that the building will need to be conditioned and maintain temperature and humidity levels that are expected during occupied hours.

2) **Condensate Piping** - Condensate piping shall be piped from air conditioning drain pans, through a trap, and piped to the nearest roof drainage scupper/downspout, as required by local jurisdiction.

3) **Controls** - A programmable thermostat will be provided to achieve proper operation of the rooftop units and to comply with the Energy Code.

4) **Ductwork and Diffusers**

a) Classification - low pressure, low leakage

b) Configuration - radial or star (not a loop or a network)

c) Lining -internal acoustic duct liners with coating to prevent flaking, used for supply and return ductwork in the vicinity of rooftop units and on ductwork exposed to the occupied spaces, for sound attenuation. Liner shall have acrylic coating, formulated with an anti-microbial agent to protect the coating from microbial growth

d) Supply type

(1) Predominantly louvered diffusers for ceiling routed ductwork and double deflection louvered registers for side discharge

e) Return type - 'egg crate' or fixed louver.

5) **Air balance**

a) Damper type

(1) Large ducts (> 20"x30") - opposed blade

(2) Small ducts - single blade

(3) Air outlet - opposed blade

b) Damper location (note that not all damper locations are necessarily shown on the drawings)

(1) At units, in each section of duct with 2 or more air outlets

(2) At each air outlet

(3) At each air inlet on exhaust systems

c) Fans

(1) Direct drive fans unless indicated otherwise shall be provided with speed controller for final adjustment of CFM to actual design conditions. Speed controller shall be located within the fan housing if not shown on the plans located where the occupants need access

6) **Kitchen** - The kitchen will be air conditioned. The fryer is provided with a certified Type 1-compliant, UL 710B approved recirculation hood, and portable ovens are UL 710B approved for ventless operation. Therefore, a separate Type I hood with grease ductwork to the roof is not provided as part of the design.

7) **Electric Room** - The existing transfer fan and reverse-acting thermostat will remain, to pull conditioned air from behind the bowling lanes through the room.

8) **Vestibule** - Vestibule will be provided with supplemental electric heat via existing to remain, ceiling-mounted cabinet unit heaters.

9) **Alternate Bid** - Identify the labor and materials for the replacement of the four (4) existing 25-ton RTUs and one (1) existing 5-ton RTU in the event that they are not operational, as noted on the plans.

D. **Electrical**

1) **Electric service** - The existing service is 800 Amps at 480Y/277 Volts, 3 Phase - 4 Wire. The existing electric panels and lighting relay panel have been retained and will be reused as much as possible. There is an existing diesel generator and Automatic Transfer Switch (ATS) that will be retained and reused to feed exit and emergency lighting, POS, security receptacles and other loads as detailed on the drawings.

2) **Circuiting**

a) All power circuits in EMT conduit with the following exceptions:

(1) MC cable may be used for branch circuits above suspended ceilings or in stud partitions where allowed by code or unless otherwise noted. Penetrations through fire rated walls, floors, ceilings and partitions shall be made with conduit to maintain the assembly ratings. MC cable shall be run parallel or perpendicular to building structure, and shall be bundled where practicable. MC cable shall be supported independently from the ceiling grid and its supports except for security to the outlet box in accordance with NEC.

(2) Rigid galvanized steel conduit shall be used in areas where the conduit is subject to damage.

b) No more than 3 circuits per conduit

c) No more than 6 duplex receptacles per circuit

d) Maximum voltage drop shall not exceed 2% for feeders and 3% for branch circuits

e) Do not share neutrals for single phase circuits

f) Do not share conduits with isolated ground circuits

g) Target is to provide at least 20% spare capacity in each local panel

3) **Grounding & Bonding**

a) Conventional equipment grounding in accordance with the NEC.

b) Isolated grounding for critical loads including, but not limited to, point-of-sale system and other sensitive loads. Refer to General Notes.

4) **Devices**

a) All devices shall be specification grade, with device and plate colors selected by the Architect.

b) Device heights shall be as follows except where noted otherwise:

(1) Wall receptacles - 18" to center of device

(2) Counter receptacles - 6" above counter or as required

(3) Switches - 48" to center of device

c) Isolated ground, dedicated, weatherproof, and ground fault circuit interrupter (GFCI) devices and circuit breakers shall be provided where required whether indicated or not.

(1) Certain commercial receptacle minimum requirements:

(a) All kitchen receptacles shall be installed in accordance with NEC 210-8(b)

d) Small rooms are generally provided with one receptacle per wall and one tele/data outlet per room. Larger rooms are provided with code minimum convenience receptacles except where dedicated devices were identified by the Owner as required.

e) All flush floor mounted devices shall be installed in a flush floor outlet box with leveling screws. Provide duplex flip-lid cover for duplex receptacles screw covers and all other devices. Provide brass carpet flanges for all flush floor boxes. All covers shall be brass.

f) All floor receptacles, pedestal-mounted receptacles, outside receptacles, fixed countertop receptacles and all receptacles within six feet (6') of a water source shall be GFI-protected.

g) All receptacle circuits identified to be GFCI protected shall be done so using GFCI circuit breakers. Devices that are readily accessible such as in toilet rooms, for HVAC equipment service, and above kitchen counters but not behind appliances may be GFCI devices in lieu of circuit breakers.

5) **Lighting and Controls**

a) Characteristics - all lighting is LED and 120V except where noted.

b) Wire maximum of 1800 watt of lighting per 1 pole, 20-amp circuit for 120-volt source maximum of 3600 watts of lighting per 1 pole, 20-amp circuit for 277-volt source.

c) Interior lighting in offices, party areas, kitchen, pantry is controlled by local switches. Interior lighting in toilet rooms, storage rooms and electric room is controlled by occupancy sensors. Some lighting will be unswitched to provide night lighting for security.

d) New exterior lighting will be connected to an extension of the existing circuiting.

e) Reflected ceiling plan - refer to Architectural drawings.

6) **Fire Alarm and Emergency Lighting**

a) **Fire Alarm System** - The existing addressable system shall be modified and extended by the as required per the new layout.

b) **Egress And Exit Lighting** - Egress lighting shall be provided throughout paths of egress by way of lighting fixtures connected to the backup generator panel(s). Exit lights shall be 120V.

(1) Outside weatherproof emergency heads are located at each new exit door.

(2) Exit signs shall be self-contained battery packs.

(3) The plans indicate the minimum number of emergency lights and exit signs required. The Contractor shall provide any additional fixtures required by local authorities having jurisdiction to provide code required minimum light level and directional signs.

c) **Accessibility** - ADA requirements where applicable.

7) **Telephone System** - The telephone system shall be extended as required by the Owner's vendor. A conduit system will be provided by the Contractor.

8) **Point-of-Sale System** - The point-of-sale (POS) system shall be provided as required by the Owner's vendor. A conduit system will be provided by the Contractor.

9) **Data System** - This system will be provided by the Owner's specialist. A conduit system will be provided by the Contractor.

10) **Security System** - This system will be provided by the Owner's specialist. No special provisions are required.

11) **Alternate Bid** - Identify the labor and materials for the replacement of the existing fire alarm control panel, devices and wiring, if they are not operational, as noted on the plans.

Michael L. Wilson
Professional Engineer
FL license # 41473

Polaris Consulting Engineers
214 W. Main Street, Suite 208
Moorestown, NJ 08057
Phone: (856) 778-5400
www.PolarisCE.com
Polaris Project ID: 18038
Project Coordinator: Neil Cassidy

PROPOSED INTERIOR ALTERATIONS FOR:
LAUNCH TRAMOPLINE PARK
WATERFORD LAKES
610 N. ALAFAYA TRAIL
ORLANDO , FL 32828

PROJECT NO. 180503	
DRAWN BY: PCE	
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SCALE: AS NOTED	
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