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ARCHITECTURAL DESIGN

A. Applicable Codes

3) FGI Guidelines – 2014
8) NFPA 13, Automatic Sprinkler Systems, 2015
9) NFPA 70 National Electrical Code – 2014
10) NFPA 72 National Fire Alarm and Signaling Code – 2013
12) EXISTING BUILDING CONSTRUCTION DATA
   b. Mixed Occupancy Group B, Ambulatory Health Care Facilities
   c. 5 Stories, Not a Highrise Bldg.
   d. NFPA 220 Construction Type (Existing): Type II (222) (Self Protecting Structure Reinforcement Concrete)
   e. Fire Protection Requirements: Type II (222) Fully Sprinklered
   g. FBC Construction Type 1-B

Projects submitted for permitting after 31 December 2020 will be required to comply with the 7th Edition of the FBC and referenced material.

B. Project Scope

1) Provide signed and sealed construction documents and design calculations to provide (2) Two Options for a Net New PET/CT Equipment Room on the first floor of Moffitt’s MCC Building. Option 1 will locate the New PET/CT Equipment Room in Existing Office Suite 1037, while Option 2 will locate the New PET/CT Equipment Room in the Existing Office Suite 1097. The proposed equipment being installed is the GE Discovery MI DR PET/CT. Documentation of as-built conditions is required as the existing drawings are not dimensionally accurate to as-built conditions. Discrepancies range from 2-10”.
2) Project Functional Limit: Approximately 1021 SF.
3) Project will be submitted/reviewed by AHCA.
4) Project will be permitted with USF.
5) The A/E/I design shall be in accordance with Moffitt Cancer Center Design Guidelines and Standards.

6) Below is Moffitt’s approved path of access for removal and replacement of equipment for Options 1 & 2:

7) The proposed rigging paths above have been reviewed by structural engineer and deemed acceptable. Refer to Structural Portion of Report.

8) **OPTION 1 Scope**
   a. **Project Scope in Open Office 1037**
      i. Demolish existing wall between Open Office 1037 & Conference 1041.
      ii. Upgrade Existing Wall between Open Office 1037 and Corridor 1052D to be a Smoke Barrier.
      iii. Remove and replace existing ceiling grid and tiles with square lay-in tiles and 15/16” grid per Moffitt Design Guidelines and Standards.
         1. Additional ceilings outside of space may need to be removed/replaced for supporting utilities. This work will need to be coordinated with ICRA plans.
      iv. Replace Flooring and Base in space.
      v. Add new Lead Shielding to perimeter walls of space as required by Physicist Report.
      vi. Provide new lead-lined doors and frames as required by Physicist Report.
vii. Room to be painted per Moffitt Cancer Center Design Guidelines and Standards.
viii. New Wall Protection per Moffitt Cancer Center Design Guidelines and Standards.
ix. Existing Millwork/Furniture Systems in space will need to be removed. Provide new millwork as required by equipment manufacturer and users.
x. Provide new handwashing sink in new millwork.

b. Project Scope in Conference 1021
i. Remove and replace existing ceiling grid and tiles with square lay-in tiles and 15/16” grid per Moffitt Design Guidelines and Standards.
   1. Additional ceilings outside of space may need to be removed/replaced for supporting utilities. This work will need to be coordinated with ICRA plans.
ii. Replace Flooring and Base in space.
iii. Add new Lead Shielding to perimeter walls of space as required by Physicist Report.
iv. Provide new lead-lined doors and frames as required by Physicist Report.
v. Room to be painted per Moffitt Cancer Center Design Guidelines and Standards.
vi. New Wall Protection per Moffitt Cancer Center Design Guidelines and Standards.
vii. Existing Millwork/Furniture Systems in space will need to be removed. Provide new millwork as required by equipment manufacturer and users.

9) Option 2 Scope
a. Project Scope in Open Office 1097 (Radiation Physics and Dosimetry)
i. Demolish existing wall between Open Office 1097 & Office 1093.
ii. Remove and replace existing ceiling grid and tiles with square lay-in tiles and 15/16” grid per Moffitt Design Guidelines and Standards. Also, remove existing Unistrut and Supports.
   1. Additional ceilings outside of space may need to be removed/replaced for supporting utilities. This work will need to be coordinated with ICRA plans.
iii. Replace Flooring and Base in space.
iv. Add new Lead Shielding to perimeter walls of space as required by Physicist Report.
v. Provide new lead-lined doors and frames as required by Physicist Report.
vi. Room to be re-painted per Moffitt Cancer Center Design Guidelines and Standards.
vii. New Wall Protection per Moffitt Cancer Center Design Guidelines and Standards.

viii. Existing Millwork/Furniture Systems in space will need to be removed.
      Provide new millwork as required by equipment manufacturer and users.

ix. Provide new handwashing sink in new millwork.

b. **Project Scope in Office 1093**
   i. Remove and replace existing ceiling grid and tiles with square lay-in tiles and 15/16” grid per Moffitt Design Guidelines and Standards.
      1. Additional ceilings outside of space may need to be removed/replaced for supporting utilities. This work will need to be coordinated with ICRA plans.
   ii. Replace Flooring and Base in space.
   iii. Add new Lead Shielding to perimeter walls of space as required by Physicist Report.
   iv. Provide new lead-lined doors and frames as required by Physicist Report.
   v. Room to be painted per Moffitt Cancer Center Design Guidelines and Standards.
   vi. New Wall Protection per Moffitt Cancer Center Design Guidelines and Standards.
   vii. Existing Millwork/Furniture Systems in space will need to be removed.
      Provide new millwork as required by equipment manufacturer and users.

c. New Interior Finishes specified for the renovated spaces are to be in accordance with Moffitt Cancer Center Guidelines and Standards.

C. **Construction Phasing**

1) Project may require multiple phases and/or construction work being done at night due to impact on ground level spaces below.

2) ICRA plans shall be provided for the 1st Floor as well as for the Ground Level (Options 1 & 2) for the New PET/CT.
   a. On the Ground Level, Option 1 will require above ceiling work impacting the Main Pharmacy Space – specifically Receiving G026C and Compound Area G026B.
      i. Additional ceilings outside of these spaces may need to be removed/replaced for supporting utilities. This work will need to be coordinated with ICRA plans.
STRUCTURAL DESIGN

A. Design Criteria, Codes/References and Materials

1) Design Criteria

2) Codes and References
   b. ACI 318-14

3) Materials:
   a. Concrete 4,000 PSI Normal weight
   b. Reinforcing: ASTM A615 Grade 60

B. Analysis of Existing Structure

Analysis of the existing structure is based on the original building structural as-built drawings by Bentler & Heery dated 9/1/86.

The existing structure consists of a cast-in-place concrete pan joist system. Slab thickness is 4 ¾” supported by 6” wide by 18 ¾” total depth joists (14” deep rib + 4 ¾” slab) spaced at 3’-0” on center. Joists are supported by 18 ¾” cast in place concrete band beams typically centered on column lines. Column bays are typically 28’-0” by 28’-0”. All concrete is reinforced with mild reinforcing.

The existing structure was analyzed for the new PET/CT placed on the First Level in two optional locations as shown below; between Grids 11.4-13 and Grids E and G and in the second location between Grids 10-11 and Grids D-F.
The structure was analyzed utilizing commercial structural engineering software with a loading of the Discovery MI-DR Gantry, which weighs 6,702 pounds, combined with a code prescribed live load of 80 PSF, a superimposed dead load of 16 PSF to account for finishes and miscellaneous MEP equipment, and the self-weight of the structure.

Structural analysis results indicate the existing structure has adequate capacity to support the new PET/CT in its two proposed locations. No structural strengthening of the existing structure is required to support the new PET/CT.

The existing structure along the travel path for installing the new PET/CT equipment was verified to have adequate structural strength to support the installation of the new equipment.

MECHANICAL DESIGN – HVAC & PLUMBING

A. Review of Existing Mechanical Conditions
   1. As-built mechanical drawings were not available for the proposed locations of the new CT. A nondestructive visual site investigation was conducted 07/30/2020 to evaluate the existing mechanical system conditions in the proposed locations of the new CT. The proposed location option 1 of the net new CT space is currently occupied by cubical
office spaces, and a private office room. This occupied space was previously an angio imaging space with control room and equipment room. The spaces are served from an existing air handler AHU-MCC-GRD-06 located in the basement mechanical room. The system is a constant volume system with reheat coils serving different zones. The return ductwork is not insulated. There are existing unistruts above ceiling anchored to the existing structure that was used to support equipment. There are also abandoned electrical conduits, cable trays, and wires above ceiling that use to support the imaging space. From 2002 drawings of the Digital Imaging and Sonagram Renovation project, there was a cooling only computer room unit hung from the ceiling serving the equipment room. 1” chilled water supply and return lines were tied to the 1” existing lines south of the space in the corridor. There aren’t any up to date as-built condition drawings for the proposed location of the new PET/CT.

2. The proposed location option 2 of the net new CT space is currently occupied by cubical office space and conference room. The spaces are fed from an existing air handler AHU-MCC-GRD-06 located in the basement mechanical room. The system is a constant volume system with reheat coils serving different zones. The return ductwork is not insulated. There are 1” hot water supply and return lines in the adjacent corridor currently serving the reheat coils. There aren’t any up to date as-built condition drawings for the proposed location of the new PET/CT.

B. Mechanical Code Requirements
1) ASHRAE Standard 170-2017 Table 6.4 requires air 7 filtration in filter bank 1 and MERV 14 filtration in filter bank 2.
2) ASHRAE Standard 170-2017 Table 7.1 under X-ray (diagnostic and treatment) requires 6 AC/hr minimum total, 2 AC/hr minimum for outside air, 72-78F room design temperature, and max 60% RH.
3) FGI, 2014 Section 2.1-8.2.3.1 Provide return or exhaust air inlets shall be near the floor level when anesthesia scavenging systems are required.

C. Review of GE Mechanical Environmental Requirements
1. GE cutsheet requires 72-79 Degrees Fahrenheit design temperature, 30-60% Relative Humidity, and 5 AC/hr.

D. Mechanical System Analysis
1. As-built condition drawings were not available for the proposed location of the new PET/CT. The existing system is not adequately sized to meet the requirements of the net new PET/CT spaces. Any use of existing system will be required detailed investigation of as-built conditions and AHU capacity. Reference manufacturers cutsheet for approximate loads required. The existing return air ductwork is not insulated. There is currently no low return chase in the proposed location. Low return is a requirement for any anesthesia gases such nitrous oxide that will be present in the room.
E. Plumbing Systems Description

1. The proposed location Option 1 of the net new CT space is currently occupied by cubical office spaces, and a private office. This occupied space was previously an angio imaging space with a control room and equipment room. From the 2002 drawings of the Digital Imaging and Sonogram Renovation project, there was a sink added to the angio space along with med gas outlets and zone valve box. The current occupied space has capped med gas lines above ceiling and adjacent corridor has ½” hot water and domestic cold-water lines capped above ceiling. There did not appear to be any nitrous oxide in the vicinity of the proposed space. The new space will require stainless steel ADA compliant sink with ½” CW/HW and 2” waste connection with a 1-½” minimum and vent is to be tied into existing services above and below ceilings. New MRI room requires ¾” WAGD, ½” Nitrous Oxide, ¼” Medical Vacuum, ½” Medical Air and ½” Oxygen connections and a new zone valve box and medical alarms are to be added to the existing area alarm panel or provide a new one if there are not enough points in the AAP.

2. The proposed location option 2 of the net new CT space is currently occupied by cubical office space and conference room. There are no plumbing fixtures in the spaces currently. However, there are hot water and domestic water main lines in the corridor. There is a 1” Oxygen, 1” Vacuum, and ¼” Medical Air med gas lines in the corridor. There did not appear to be any nitrous oxide in the vicinity of the proposed space. The new space will require stainless steel ADA compliant sink with ½” CW/HW and 2” waste connection with a 1-½” minimum and vent is to be tied into existing services above and below ceilings. New MRI room requires ¾” WAGD, ½” Nitrous Oxide, ¼” Medical Vacuum, ½” Medical Air and ½” Oxygen connections and a new zone valve box and medical alarms are to be added to the existing area alarm panel or provide a new one if there are not enough points in the AAP.

Fire Protection Systems Description

A. Fire Sprinkler System

1. The existing spaces have a fully sprinkled system with pendant heads. Replace existing sprinkler heads as necessary where ceilings are replaced and match finish and confirm they are Quick Response type and 155 Deg. Fahrenheit per Moffitt Design guidelines.

B. Fire Alarm System

1) The proposed location of the new PET CT is protected by an existing EST fire alarm voice evacuation panel located in Electrical Room G126.
ELECTRICAL DESIGN

A. Power Distribution

1) General

   a. Project will be submitted/reviewed by AHCA and the new proposed PET/CT is considered a General Care/Treatment Room per FGI Guidelines.
   b. There are no distribution panels located within this area on the 1st floor. Distribution panels are located on the ground level below.
   c. Per the FGI Guidelines, a minimum of five (5) duplex receptacles are required for the new PET/CT room. At a minimum, one (1) duplex receptacle is required to be connected to a critical branch panelboard. One (1) duplex receptacle is required to be connected to a normal branch panelboard. The remaining three (3) receptacles may be either be on normal or the critical branch.
   d. Existing 120/208V, 3 phase, 4 wire, critical branch panelboard LC2 located in Electrical Room 1069A does not have any spares or spaces available to serve new critical branch receptacles. Additional investigation is required to find a suitable 120/208V, 3 phase, 4 wire critical branch panelboard with available spares or spaces that serves this area. A new critical branch panelboard may be required in order to serve this PET/CT and other future imaging rooms within this area. Further investigation is required to determine whether this panelboard will be located within the area or if a new electrical closet is required.
   e. Existing 120/208V 3 phase, 4 wire, normal branch panelboard L2J located in Electrical Room 1069A does have three (3) spaces available to serve new normal branch receptacles. If it is determined that this quantity is not sufficient to serve new receptacles for the new MRI, associated control room, and equipment room, then a new sub panel will need to be provided and fed from these three (3) spaces with a new 3 pole circuit breaker sized as necessary. Further investigation is required to determine whether this panelboard will be located within the area or if a new electrical closet is required.
   f. Per the functionality program of this PET/CT equipment, it will most likely treat patients that may be under anesthesia. Therefore, the new PET/CT will be required to be powered from the critical branch service. The closest critical distribution panel with spare capacity is located on the ground floor in Electrical room G125 located below the location of the new PET/CT. This critical distribution panelboard CHDGP1 is a 480/277V, 3 phase, 4 wire Square D I-Line HCP type panelboard and nameplate indicates a 600A rating. This panelboard has many available spaces. However additional site investigation is required on this panelboard, it is fed from a 800A plug-on lug located within the panel. This may be a code violation.
g. A coordination study will be required on all affected panels serving the new PET/CT.

h. A thirty-day load study will be required on all affected panels serving the new PET/CT.

i. All new backboxes located in the PET/CT room will be required to be non-ferrous.

j. Receptacles located within 6'-0” of any new sinks will be required to be GFCI type.

k. The existing AHU-MCC-GRD-06 is fed from normal branch distribution panel NHDP1 located in the mechanical room in the basement. Further investigation is required to determine if the AHU needs to be recirculated to the equipment branch due to the new PET/CT room being considered a General Care/Treatment Room per FGI guidelines.

2) Scope specific to Option 1.

   a. This proposed location of the net new PET/CT space is currently occupied by cubical office spaces in room 1037, and conference room 1041.

   b. Receptacles are located within these spaces and are circuited to normal branch panels L2J and L2K. These receptacles will be removed including associated conductors and conduit back to source. If these receptacles have dedicated circuits, make existing circuit breaker spare in its respective panel. If existing circuit is still being utilized for receptacles located outside the scope of work, remove back to nearest junction box to remain. It may be possible to reuse these circuits for the new PET/CT. Additional investigation is required. There are no critical branch receptacles located within these spaces.

3) Scope specific to Option 2.

   a. This proposed location of the net new PET/CT space is currently occupied by cubical office spaces in room 1097 and private office 1093.

   b. Receptacles are located within these spaces and are circuited to normal branch panels L2J and L2KT. These receptacles will be removed including associated conductors and conduit back to source. If these receptacles have dedicated circuits, make existing circuit breaker spare in its respective panel. If existing circuit is still being utilized for receptacles located outside the scope of work, remove back to nearest junction box to remain. It may be possible to reuse these circuits for the new PET/CT. Additional investigation is required. There are no critical branch receptacles located within these spaces.
B. **Lighting**

1) Scope specific to Option 1.

   a. Existing light fixtures and associated controls in existing office space room 1037 and conference room 1041 shall be removed.

   b. Existing light fixtures are circuited to a 277V normal branch circuit. This circuit may be retained for reuse in the renovation phase. There were no circuits indicated on existing switch coverplates. Additional investigation is required to determine the existing circuit. There were no 277V critical branch circuits located within these rooms.

   c. New dimmable LED Lighting will be used for the new PET CT and associated Control Room. A portion of the new light fixtures will be connected to the 277V normal branch circuit retained from the demolition of existing light fixtures. The remaining new light fixtures will be connected to the 277V critical branch circuit retained from the demolition of existing light fixtures. Additional site investigation is required to determine exact circuiting and if existing circuits have enough capacity to serve new light fixtures in the PET/CT.

2) Scope specific to Option 2.

   a. Existing light fixtures and associated controls in existing cubical office spaces 1097 and private office 1093 shall be removed.

   b. Existing light fixtures are circuited to a 277V normal branch circuit and 277V critical branch circuit from panel LC3. These circuits may be retained for reuse in the renovation phase. Not all existing switch coverplates indicated exact circuit used. Additional investigation is required to determine the existing circuits.

   c. New dimmable LED Lighting will be used for the new PET CT and associated Control Room. A portion of the new light fixtures will be connected to the 277V normal branch circuit retained from the demolition of existing light fixtures. The remaining new light fixtures will be connected to the 277V critical branch circuit, from panelboard LC3 retained from the demolition of existing light fixtures. Additional site investigation is required to determine exact circuiting and if existing circuits have enough capacity to serve new light fixtures in the PET/CT.

C. **Grounding**

1) All panelboards that serve the new PET/CT shall be bonded together with #10 AWG conductor located in a ½” conduit.
COMMUNICATION DESIGN

A. Telecommunications Infrastructure System (TIS)
   1) New telecommunication devices are required to support new equipment within the PET/CT imaging and Control Room.
   2) All new backboxes located in the PET/CT room will be required to be non-ferrous.
   3) Utilize existing cable tray located in corridors for new data/voice cables and homerun to nearest telecommunications room.

B. Nurse Call System
   1) New Nurse Call devices will be required to support the new PET/CT Imaging and Control Room. These devices will tie into the existing Rauland Borg Responder 5 Nurse Call System.