

ADDENDUM

No. 03 **Date:** 9/11/2024
Project No. 0020711.01 **Attention:** Leonard D'Souza
Project Name: Princess Margaret Cancer Centre
Stem Cell Transplant 2, MHC, MHDU, DSC
Address: University Health Network
610 University Avenue
Toronto ON

Issued By: Linda Vela

Distribution: Refer to the UHN Cover Letter

This Addendum forms a part of the Bidding and Contract Documents and modifies the original issued Bidding Documents (dated August 13, 2024) for the above titled project, as indicated below, and is hereby incorporated into the Contract Documents as part thereof.

Bidders are required to acknowledge receipt of this Addendum in the space provided on the Proposal/Bid Form.

The following architectural questions have been received by the Bidder(s) and the following answers are being provided to all Bidder(s).

1. (138) To determine the accurate pricing for Whiterock PopArt WP5-[xxx] and IM-[xxx], please consider the following questions:
 - Our understanding is that the pricing should be based on the Image Schedule in the spec and the Wall Protection Plans. The Architect has selected the images to be printed on the WP5-[xxx]. Please confirm.
 - On A1200, it notes that "Contractor to purchase high resolution stock images. Images will be selected by the Architect.", and WP5-[xxx] & IM-[xxx] are custom printed. Please clarify if there will be changes made on the images.
 - Altro does not have the high-resolution option in its book. Please advise.

Response: Image Schedule refers to WP5-[xxx] and IM [xxx] noted on the Wall Protection drawings. High resolution refers to the image quality that is required to be printed at a large scale on wall protection. Images have been selected and are noted in the Image Schedule and referenced on drawings as [xxx] ie. [201]. Refer to Finishes Legend for basis of design supplier. The images do not require 'changes' but cropping of specific parts of the image as shown in the Image Schedule is required.

2. (144) Upon checking the drawings you've provided, there are enlarged floor plans and elevations of some areas of MHU, MHDU, and DSC shown on Drawings A0602A to A0610D where we can check the elevations of windows. However, there are other locations where window elevations are not visible. In order to provide you quotes for window shades, could you please provide us with elevations and window schedules?

Response: Refer to Addendum 3. Exterior as built elevations are provided and site measurements for the height of the window is +/- 82". Width of the window can be scaled from the plans.

3. (145) I have a few questions for clarification. I am reviewing the Appendix E Specs Document for reference.

Regarding the Amico Solution Specs (Page 1787 – 1789), I noticed that the Oxygen, Med gas, and Vacuum outlets are located on the headwalls. Could you please clarify if these devices will be provided by the headwall supplier or if another company will be supplying and installing these outlets?

Unfortunately, DIRTT does not yet have approval in Canada for their Flex Gas Solution, as it is only approved in the USA. We can provide a cutout in our wall system for the medical devices to be installed on.

We would need to know the manufacture and the latch style that is specified for medical outlets.

On pages 1775 – 1784, Ohio Medical is mentioned for the Flowmeter Oxygen and Flowmeter Air, manufactured by Western a Scott Fetzer Company. However, I did not see a Medical Vacuum supplier mentioned. From my research these flowmeters need to be attached to an outlet. Will Western a Scott Fetzer Company be supplying and installing these outlets? *(Attachment has been emailed separately)*

Response: General contractor to coordinate trades. Headwall manufacturer to supply medical gas outlets in the headwall as a prefabricated system (with all medical gas connections brazed and prepiped to a single point location) unless this cannot be provided by the supplier. In such case, refer to Mechanical Specification Section 22 60 00.70, Article 3.08.4, mechanical contractor is to supply medical gas terminal units for factory installation in consoles, headwalls, articulating arms, ceiling service columns, and other such manufactured assemblies, and ship terminal units to manufacturer's plant. Flowmeters and regulators are owner provided, owner installed.

4. (162) Wall Protection:
- INFO:
 - o A1200, WP2, WP3 & WP4
 - QUESTIONS:
 - o Is millwork supplying the Wall Protection or do you have this covered by others?

Response: General contractor to coordinate trades.

5. (163) Glass Glazing:
- INFO:
 - o A0921 Reception Desk, A0924 Reception, A0925 Reception
 - QUESTIONS:
 - o Is millwork supplying the Laminated Glass Glazing?

Response: General contractor to coordinate trades.

6. (164) Metal Frame Work:
- INFO:
 - o A0921, MW001 Bench
 - QUESTIONS:
 - o Is millwork supplying the Metal Frame Work or do have this covered by Misc. Metal?

Response: General contractor to coordinate trades.

7. (181) In this project, drawing sheet A0502 includes the building section, but it only covers the ramp area. The other sections of the building are not provided.

Response: Refer to Addendum 3. As build drawing was provided noting existing floor to floor heights. All walls except where noted go to the u/s of slab.

8. (182) Could you also provide wall heights for the remaining areas?

Response: Refer to Addendum 3. As build drawing was provided noting existing floor to floor heights. All walls except where noted go to the u/s of slab.

9. (187) Can you confirm that aluminum doors FG-3 (2-C025A & 5-402) require panic hardware as shown on the door elevations. If so can you provide a spec

Response: Refer to Hardware Schedule for hardware requirements for doors 2-C025A and 5-402. Panic hardware dotted on door elevations FG-3 on A1000 are a guide only if panic hardware is noted in the hardware schedule.

10. (190) Specifications 11 70 00 specify ceiling-mounted patient lift and track system, however drawing A1105D shows one patient lift (3944-109) located in the Equipment Storage Room 5-858. Please clarify location and quantity of patient lift system.

Response: 3944-109 is mobile patient lift battery powered (O/O). Refer to FFE list included in the Spec.

11. (191) Can Maxi Sky 2 IC (infection control) or Maxi Sky 2 plus IC (bariatric ceiling lift) be acceptable alternative for patient lift and track system?

Response: The tender documents have specified the supplier with whom UHN has a current contract for relevant products. C-625 and C-1000 Bariatric Ceiling Lift by Handicare Canada, X-Y track is UHN standard.

12. (192) Detail # 3-page A 0822 - It shows caulking at the interior windowsill. Is this typical for all windowsills.

Response: Yes.

13. (193) Who is responsible for the terminal cleaning of spaces once handed over to the hospital?

Response: UHN will terminal clean the space after a construction clean is completed by the contractor.

14. (194) Can you please provide an alternative sliding window system for the "B2" screens. The spec notes the sliding pass through windows as "Creative mirrors and showers – ambiance sliding systems pass through windows" on pg 235 of the spec. The specified supplier has informed that they only service Illinois and can't ship to Canada.

Response: CRL Satin Anodized Sharyn Custom Size XO Frameless Pass-Thru (SHCX0A) or equivalent.

15. (195) Can you please provide an alternative sliding window system for the "B2" screens. The spec notes the sliding pass through windows as "Creative mirrors and showers – ambiance sliding systems pass through windows" on pg 235 of the spec. The specified supplier has informed that they only service Illinois and can't ship to Canada.

Response: CRL Satin Anodized Sharyn Custom Size XO Frameless Pass-Thru (SHCX0A) or equivalent.

ATTACHMENTS: The following is a list of the modified documents and a brief description of what has been modified.

SPECIFICATIONS:

A. Incorporate the following new Specification Sections attached to this Addendum 03:

1. Section 01 35 13 with revised working hours as follows:
 - Page 3 item 11 changed 7 working days to 10 working days
 - Page 2 item 7 changed 7 working days to 10 working days and added "Notify owner and obtain Owner's approval minimum 10 working days"
 - Page 2 item 8.3 changed 3 working days to 5 working days
 - Page 9 item 9 revised requirement for temporary window enclosure to be insulated metal panels in lieu of plywood.
1. Section 01 51 00 with revised working hours as follows:
 - Page 1 item 1.2.5.2 changed 2 days to 10 working days

ARCHITECTURAL:

B. Incorporate the following revised Drawing(s) reissued as attachment(s) to this Addendum:

DRAWING G0501 – CONSTRUCTION CONTROL PLANS

Revised legend, added notes for travel paths, exit stairs, compactor in loading, added hoarding for phased construction on Level 5 MHDU.

DRAWING G0502 – CONSTRUCTION CONTROL PLANS

Revised legend, added notes for exit stairs, ceiling types, limitation on Level 9 work, occupancy of the floor.

DRAWING G0504 – RAMP & STAIR DETAILS

Added note that glass guard support be included in the engineered shop drawings for raised floor and ramp area.

DRAWING G0701A – REFLECTED CEILING PLAN - LEVEL 01

Revised ceiling type in loading dock area.

MECHANICAL:

C. Incorporate the following Mechanical Addendum 2, prepared by Quasar Consulting Group, dated September 10, 2024 attached to this Addendum 03.

ELECTRICAL:

D. Incorporate the following Electrical Addendum 2, prepared by Quasar Consulting Group, dated September 10, 2024 attached to this Addendum 03.

Total number of pages: 4

This Addendum consists of 82 pages (including ALL attachments, excluding UHN cover).

PART 1 - GENERAL

1.1 Section Includes

- .1 General scope and responsibility.
- .2 Temporary ventilation.
- .3 Existing facilities.
- .4 Existing services.
- .5 Dust tight partitions and enclosures.
- .6 Infection prevention and control procedures.
- .7 Protection of the existing building.
- .8 Emergency and fire protection.
- .9 Missing patient search.

1.2 General Scope and Responsibility

- .1 For the purposes of this section:
 - .1 The words “worker” or “workers” shall mean the *Contractor*, *Contractor’s* staff or employees, *Subcontractors*, *Subcontractor’s* staff or employees, *Suppliers*, *Supplier’s* staff or employees, or anyone engaged for the *Work*, directly or indirectly, by the *Contractor*, unless specifically noted otherwise.
 - .2 The working day of the healthcare facility is from 7:00 a.m. to 7:00 p.m. every day of the week.
- .2 Conform to the *Owner’s* guidelines and procedures as specified in Section 00 31 00. In case of conflict between *Owner’s* guidelines and procedures and the remainder of the *Contract Documents*, the *Owner’s* guidelines and procedures shall govern.
- .3 Operational limitations:
 - .1 Prior to starting *Work*, prepare a *Work Plan* in accordance with GC 14.1.
 - .2 The existing building will remain in full use and occupancy throughout the *Work*, except for such parts of the building that have been vacated for the *Work*.
 - .3 *Contractor’s* use of the *Place of the Work* is limited to permit regular use of *Owner’s* facilities to continue with the least amount of interference possible.
 - .4 In consultation with, and to acceptance of, the *Consultant* in the presence of the *Owner*, designate an entrance and a circulation route that workers shall use and that shall not be used by *Owner’s* staff, building occupants, or the public.
- .5 Hours of Work:
 - .1 Execute work in existing building at times approved by *Consultant* and as mutually agreeable to *Owner*, in a manner not to inconvenience building occupants or hinder their use of the building. Include for certain work as scheduled with *Owner* to be done in off hours.

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- .2 Work shall be completed to meet *Owner's* prescribed dates and permitted hours of work.
- .3 The cost of premium time shall be included in the Work. No claim for additional cost due to work being done during premium time will be allowed.
- .4 Whenever the *Contractor* contemplates entering any occupied areas, of the building, to carry out work or to obstruct or take out of use, any area of the building, he shall make such request to the *Owner* in writing a minimum of 10 working days before he intends to do the work.
- .5 Execute work as quietly as possible in and around existing building at all times.
- .6 For areas of Work requiring full access for hospital staff during normal hospital business hours, ensure all ceiling areas are enclosed with no obstructions to mechanical and electrical devices in the ceiling in order to maintain appropriate infection control.
- .7 Notify *Owner* and obtain *Owner's* approval minimum ~~10~~ *7 Working Days* in advance prior to any work outside of the hoarded area and in the existing building.
- .8 Noisy Work:
 - .1 Reference section 01 32 16 and submit a two week look ahead schedule of the work being performed along with a noise rating on a scale out of "10" for the work being conducted each day.
 - .2 Very noisy work shall be restricted to times between 10 am and 5 pm. Noisy work shall be included in the look ahead schedule.
 - .3 *Contractor* shall be prepared that noisy work may have to be done in half hour increments to reduce continuous noise impact to patients in the building. *Contractor* shall communicate in writing to the *Owner* a minimum of ~~5~~ *3 Working Days* before such work.
 - .4 Any shut downs affecting occupied area of the building shall be communicated in writing to the *Owner*, on *Owner's* designated forms (Via the Project Manager) with a minimum of 30 days' notice.
 - .1 Approval of shutdowns is not guaranteed to be provided within the identified timelines. *Contractor* shall not claim additional charges if the shutdown cannot occur during the requested timeline.
- .9 All crane operations shall take place on weekends.
- .4 Dust tight enclosure and partition doors or flaps and entrance doors to the *Place of the Work* shall remain closed.
- .5 Areas of the existing building adjacent to the *Place of the Work* or areas affected by the *Work*, including circulation and access routes, shall be maintained in a clean state equivalent to the level of cleanliness maintained in the existing building, and as follows:
 - .1 Clean and vacuum the *Place of the Work* and areas surrounding the *Place of the Work* daily or more frequently as required.
 - .2 Provide tack mats at access doors to the *Place of the Work* so that workers can remove dust and debris from their footwear when exiting the *Place of the Work*. Replace or clean daily, or more frequently as required.

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- .3 Wet mop floor areas in vicinity of access doors to the *Place of the Work* daily, or more frequently as required.
- .4 Vacuum carpeted areas daily or more frequently as required.
- .5 Wet clean carpets in accordance with manufacturer's recommendations once work in such areas is complete.
- .6 Final cleaning shall be in accordance with Section 01 74 00.
- .6 Waste protection and removal:
 - .1 Waste management and disposal shall be in accordance with Section 01 74 00 as supplemented herein.
 - .2 Transport waste in containers with tightly fitting lids or cover waste with a wet sheet.
 - .3 Remove waste as it is created. Debris shall be contained and covered if it cannot be removed immediately.
 - .4 Do not transport waste through occupied areas of existing building.
 - .5 Remove waste at the end of each *Working Day* through construction access routes.
- .7 Document condition of the existing building in areas immediately adjacent to the *Place of the Work* by means of construction photographs in accordance with Section 01 32 00.
- .8 Workers shall remove dust from body and clothing by vacuum cleaning prior to traversing patient care areas.
- .9 In areas designated by the *Owner*, workers shall be required to wear protective clothing as directed by the *Owner*. Protective clothing shall be removed upon exiting designated areas.
- .10 Walkie-talkies shall not be used in the existing building without the express, written approval of the *Owner*.
- .11 Safety clearances are required before any cutting, welding, core drilling, or open flame work is done. A request in writing to the *Owner* must be made and approved a minimum of 107 *Working Days* prior to commencing such work.

1.3 Temporary Ventilation

- .1 Provide temporary ventilation in accordance with Section 01 51 00 supplemented as follows:
 - .1 Provide negative pressure air ventilation as described below.
 - .2 Ensure quality of intake air to existing building through existing intake louvres is not compromised by dust or noxious or odorous fumes.

1.4 Existing Facilities

- .1 Restrict access, parking, material deliveries, execution of work, operations and procedures to designated locations and times and do not deviate from designated procedures without prior acceptance by the *Consultant* in the presence of the *Owner*.

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- .2 Periodically review proposed construction operations with the *Consultant* in the presence of the *Owner* and cooperate as required to ensure that *Owner's* interests and requirements are not unduly compromised with regard to the normal operation and function of occupied areas on the existing building.
- .3 While working in the existing hospital, workers shall not remain in areas in which they are working for meals and breaks. Workers shall not be permitted to have meals or take breaks in the existing hospital.
- .4 Traffic through existing occupied areas of the hospital shall be kept to a minimum. Travel within existing occupied areas of the hospital shall be via the most direct route that does not pass through patient wards or sensitive areas.
- .5 Noise shall be minimized and no dust, debris, and odours shall be present outside of the *Place of the Work* to ensure hospital staff and patients in adjacent areas are disturbed as little as possible. Corrective action to cease or limit disagreeable annoyances to hospital staff and patients shall be implemented immediately upon notification by the *Consultant* or the *Owner*.
- .6 Use of existing laundry and garbage chutes shall not be permitted.
- .7 Use of existing containers and garbage bins shall not be permitted.
- .8 Use of existing elevators shall be permitted to transport garbage to the loading dock garbage bin. Restrict construction movements to designated construction elevator.
- .9 Existing fire protection equipment:
 - .1 Existing fire protection equipment, such as fire extinguishers and hoses, shall only be used in an emergency situation.
 - .2 Do not remove existing fire protection equipment.
 - .3 If any existing fire protection equipment is used or interfered with in any way, the *Owner's* fire equipment inspector shall be retained to inspect, test, recharge, and otherwise repair such equipment at no additional cost to the *Owner*.
- .10 Sanitary facilities: in accordance with Section 01 52 00.

1.5 Existing Services

- .1 Service interruptions:
 - .1 Connection or disconnection of services that will interfere with the operation of the *Owner's* facilities shall not be done without the prior written acceptance of the *Consultant* in the presence of the *Owner* and during the times designated by the *Owner*. Premium charges associated with such work shall be included in the *Contract Price*.
 - .2 Provide written notice to the *Consultant* and the *Owner* of requirement or intention to interrupt services in accordance with GC 14.1.4.
 - .3 In no instance shall interruptions affect the entire existing building.
 - .4 As far as possible, coordinate interruptions with the *Owner's* regular maintenance of building services and systems.

- .5 Areas adversely affected by changes in air flows outside the construction areas as a result of a required shut-down of portions of the existing HVAC system within the construction areas are to be re-balanced to comfortable levels as advised by the *Consultant*.
- .2 Should existing services be interrupted in breach of the above, make good immediately and provide protection against further such disruptions. Costs resulting from such interruptions and for making good shall be the responsibility of the *Contractor* at no additional cost to the *Owner*.

1.6 Dust Tight Partitions and Enclosures

- .1 Dust tight partitions and enclosures shall be in accordance with Section 01 56 00 and Section 01 57 00, as supplemented herein.
- .2 Dust tight partitions:
 - .1 Provide dust tight partitions to localize dust generating activities, and for the protection of workers, hospital staff, patients, the public, and finished areas of the *Work*. Conform to CSA and *Owner's* guidelines and procedures.
 - .2 Dust tight partitions shall be temporary, weather tight, dust, tight, and lockable partitions between occupied areas of the existing hospital and areas where the *Work* is being performed, and shall include treatment of joints, cracks, and openings in partitions to prevent dust from entering occupied areas of the hospital.
 - .3 Dust tight partitions shall be assemblies with 1 hour fire resistance rating complete with doors and frames having 3/4 hour fire resistance ratings.
 - .4 Construct dust tight partitions as follows:
 - .1 Provide 92 mm (3-5/8") steel studs at 400 mm (16") on centre, with 2 rows of bracing between studs and additional bracing for gypsum board finish. Steel studs shall be in accordance with Section 09 22 00.
 - .2 Provide fire resistance rated tarpaulins fastened to studs on the side of the partition opposite to the occupied areas of the hospital. Lap joints 100 mm (4") minimum, and seal laps and perforations dust tight with 75 mm (3") wide plastic film tape.
 - .3 Provide 1 layer of 12.7 mm (1/2") thick square edge fire resistant gypsum board over both side of partition. Seal joints with 75 mm (3") wide plastic film tape. Gypsum board and installation shall be in accordance with Section 09 29 00.
 - .4 Provide felt gaskets around perimeter of partitions.
 - .5 Paint sides of partitions exposed to occupied areas of the existing building in accordance with Section 09 91 00, colour as to later selection by the *Consultant*.
- .3 Dust tight enclosures:
 - .1 Where minor isolated alteration work occurs in the existing building and a dust tight partition is not feasible, provide a mobile containment system, extending floor to ceiling.

- .2 Mobile containment system shall be fabricated of an adjustable aluminum frame, vinyl enclosure with pressure porthole, wheel base platform, and disposable plastic liner, and sized as required.
- .3 Provide HEPA filter vacuum device and manometer and connect to pressure porthole.
- .4 Acceptable *Product*: Kontrol Kube Topsider or Kontrol Kube Topsider Jr., as manufactured by Fiberlock Technologies Inc., or approved alternate.
- .4 Maintain and relocate dust tight partitions and enclosures until dust generating work is complete, or until directed otherwise in writing by the *Consultant* in consultation with the *Owner*.
- .5 Provide "Construction Zone" signage outside dust tight partitions and enclosures, manufactured by signage company, with minimum 75 mm (3") letters.

1.7 Infection Prevention and Control Procedures

- .1 Infection prevention and control procedures shall be in accordance with CAN/CSA Z317.13-17, and Health Canada document "Construction-Related Nosocomial Infections in Health Care Facilities".
- .2 Training:
 - .1 Provide workers with training in infection prevention and control procedures.
 - .2 Training shall be provided a specialized infection prevention and control consultant approved by the *Owner*.
 - .3 The *Contract Price* includes the cost for the required number of training sessions to adequately cover the duration of the *Project*.
 - .4 Proof of successful completion of such training shall be submitted to the *Owner* in the form of a certificate issued by the infection prevention and control consultant providing the training. Training certificate shall be submitted before a worker undertakes any work at the *Place of the Work*.
- .3 Preconstruction Procedures:
 - .1 Before construction begins in areas adjacent to occupied parts of the building, including floors above and below the construction area, and including the systems serving those areas; conduct an assessment with the *Owner* with regard to the risks posed to the occupants; and determine appropriate preventive measures to be taken.
 - .2 *Contractor* shall prepare a Preventive Measures Analysis in accordance with requirements of CSA Z317.13-17 for each occupied area as indicated in CSA Z317.13-17, Preventive Measures Analysis.
 - .3 Submit a copy of Preventive Measures Analysis to the *Owner*, for each occupied part of the building for each population risk group.
- .4 Construction Procedures:

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- .1 *Contractor* shall implement Preventive Measures I, II, III or IV as required in Preventive Measures Analysis in accordance with requirements of CSA Z317.13-17, before construction, during construction and after construction. The Preventive Measures required is Level IV unless otherwise indicated.
- .5 The infection prevention and control representative approved by the *Owner* shall assess the risks related to the *Project* utilizing the Risk Assessment and Preventative Measures Checklist contained in Health Canada Document "Construction-Related Nosocomial Infections in Health Care Facilities". The determination of risk will guide the need for barriers and other infection prevention and control measures required in the *Work*. The *Owner* will advise the *Contractor* of the results of the assessment. The specialized infection prevention and control representative shall advise the *Owner* and the *Contractor* of the results of the assessment.
 - .1 The *Contractor* shall have the authority under the *Contract* with regard to infection prevention and control procedures.
- .6 Field review of the *Work* and on-going infection prevention and control procedures shall be undertaken on a regular basis by the specialized infection prevention and control consultant in the presence of the *Contractor*. Procedures for such field reviews shall be the same as those for inspection and testing in accordance with Section 01 45 00.
- .7 At *Contract* start-up meeting, convened in accordance with Section 01 31 19, review infection prevention and control procedures. The specialized infection prevention and control consultant shall attend the *Contract* start-up meeting. Subjects to be reviewed include, but are not limited to, the following:
 - .1 General information on infection prevention and control procedures.
 - .2 Identification of patient populations that may be at risk.
 - .3 Prevention measures for essential services that may be disrupted.
 - .4 The integrity of the facility's exterior structure, spatial separations, ventilation and water supplies for any infection control problems.
 - .5 Methods for dust containment and removal of construction debris.
 - .6 Traffic patterns for construction workers and supply delivery routes to minimize risks to patients, staff and visitors.
 - .7 The need for increased filter changes during the *Work*.
 - .8 The need to close down dampers temporarily to reduce circulation of contaminated air or fumes.
 - .9 Systems that can provide the required air exchange rates and pressure relationships in critical areas near construction activity.
 - .10 Schedule of field reviews by the specialized infection prevention and control consultant.
- .8 Vacuum cleaners:
 - .1 Vacuums shall be commercial grade complete with HEPA filters.
 - .2 HEPA filter shall be changed as recommended by the manufacturer or required by use. Maintain a filter change log at the *Place of the Work*, available for review by the *Owner*.

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- .9 The following precautions, as a minimum, shall be taken when working on existing walls, ceilings, floor spaces, ducts and piping systems as the dust and dirt collected in these areas may contain disease causing germs:
 - .1 Prior to work being done or the removal of ceiling tiles, or opening of ceiling access hatches, erect floor to ceiling dust tight partitions and enclosures as described above to completely enclose the area where such work is being performed.
 - .2 Remove acoustical ceiling panels keeping horizontal, and vacuum clean the panels immediately prior to removal.
 - .3 Existing air ducts, conduits, and spaces above the ceiling shall be vacuum cleaned prior to the start of work in such areas.
 - .4 Remove dust tight partitions and enclosures when work is finished or prior to the start of hospital working day, and remove marks left by tape or studs, and enclose ceiling areas with no obstructions to mechanical and electrical devices in the ceiling space.
 - .5 Vacuum clean interior of dust tight partitions and enclosures prior to their removal.
 - .6 Vacuum clean area enclosed by dust tight partitions and enclosures after removal of the dust tight partitions and enclosures.
- .10 Negative pressurization
 - .1 Areas where work is being undertaken shall be isolated from occupied areas of the hospital using dust tight partitions and enclosures as described above.
 - .2 The *Place of the Work* will be maintained under negative pressure at all times in relation to the occupied areas of the existing building to prevent dust and airborne pathogens from entering the occupied areas of the existing building.
 - .3 Negative pressure shall be achieved through the use of dedicated (window or otherwise) exhaust units or, if direct access cannot be achieved, by HEPA filtered recirculation units that transfer filtered air from the *Place of the Work* into the occupied areas. Exhaust points will be reviewed with the *Owner* to ensure that the exhaust air from the *Place of the Work* is not affecting pedestrian routes and is not re-entrained back into the existing building through fresh air intakes.
 - .4 Provide construction exhaust/HEPA units and remove at the completion of the *Work*.
 - .5 Air systems serving only the *Place of the Work* will be shut down and all supply, return and exhaust openings shall be sealed to prevent dust and construction debris from entering the air system. As a further precaution, the air system will be reviewed at the end of the *Work* to determine if cleaning is required.
 - .6 Supply and return air ducts entering the *Place of the Work* are to be fitted with a pre-filter unit and sealed within the *Place of the Work* near point of entry or exit prior to the start of disruptive activity to prevent dust and construction debris from entering the air system. As a further precaution, the air system will be reviewed at the end of the *Work* to determine if cleaning is required.
 - .7 During construction, the seal only on the supply air duct may be removed after demolition and clean-up to permit ventilation within the construction area provided no other means is available.

1.8 Protection of the Existing Building

- .1 Protection requirements shall be in accordance with Section 01 56 00, as supplemented herein.
- .2 Keep *Place of the Work* safe and secure, denying access to unauthorized personnel.
- .3 Protect existing work from damage. Make good any damage caused. The onus is on the *Contractor* to substantiate that damage existed prior to commencement of the *Work*.
- .4 Do not overload the existing structure due to the *Work*.
- .5 Take special measures to protect existing work from damage when moving heavy loads or equipment. Protect areas used as passageways or through which materials are moved. Use resilient tired conveyances only when moving materials and equipment inside building. Provide coverings as required to protect existing work from damage.
- .6 Separate exterior access, work and storage areas from *Owner* occupied existing areas, with fencing and hoarding as specified in Section 01 56 00. Rearrange fencing/hoarding as *Work* progresses to suit extent and configuration of the *Work*.
- .7 Provide guards, barricades and other temporary protection to prevent injury to persons.
- .8 Protect existing building components and contents from damage by weather, when executing *Work* affecting integrity of the building envelope. provide temporary insulated and air tight weatherproof closures to protect openings made in existing building envelope. *Make Good* existing building components and contents damaged by weather resulting from inadequate temporary protection measures.
- .9 Protection of existing occupied areas:
 - .1 Existing exterior walls with windows of plain glazing, when exposed to the *Work*, shall be protected with 16 mm (5/8") gypsum board for interior surfaces and insulated metal panels~~9.5 mm (3/8") exterior grade plywood~~ for exterior surfaces, mounted on suitable framing.
 - .1 Plywood: in accordance with Section 06 10 53.
 - .2 Metal framing: in accordance with Section 09 22 00.
 - .3 Gypsum board: in accordance with Section 09 29 00.
 - .2 Maintain such protection throughout the *Work*.
 - .3 Other openings in the existing exterior walls, such as doors and louvres, shall be similarly protected or replaced with doors of solid core wood or hollow steel construction.

1.9 Emergency and Fire Protection

- .1 Provide and maintain ready access to fire protection equipment, in accordance with Section 01 52 00.
- .2 Immediately implement any request or instruction made by the hospital's fire marshal.
- .3 Provide temporary fire resistant closures at existing areas openings exposed to construction areas for the *Work* to maintain fire and life safety of existing building.

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- .4 *Contractor* shall coordinate the work with the *Owner* in order to ensure no disruption to the existing fire detection and annunciation systems. Failure to provide such coordination shall result in the *Contractor* incurring the responsibilities and expenses associated with disruption to the existing fire detection and annunciation systems at no additional cost to the *Owner*.
 - .1 Only Canadian Fire Alarm Association (CFAA) certified alarm system technicians are permitted to maintain, install, or remove alarm system devices. Construction areas shall not be left unprotected; heat sensors, smoke detectors or a fire watch shall be maintained during construction or renovation projects.
 - .2 Whenever a changeover time occurs, which is an outage time of at least a portion of the fire alarm system, the municipal fire department shall be notified of the temporary shutdown and alternative measures shall be devised.
- .5 *Contractor* shall coordinate the work with the *Consultant* in the presence of the *Owner* in order to prevent unapproved disruptions to the existing sprinkler system, standpipe system, or other fire protection systems.
 - .1 Where temporary shut-down is necessitated, such shut down shall be in accordance with the requirements of authorities having jurisdiction and the building code.
- .6 Obtain 'Hot Work Permit' from *Owner* prior to hot work operation, which may cause the building's fire alarm system to be activated or create an unwarranted fire risk condition. The prevention of fires and false fire alarms caused by hot work operations is the primary goal of this procedure. Gas hoses, backflow preventers, fire resistive tarpaulins, curtains and other cutting and welding equipment must be in good repair before the permit is issued.
 - .1 'Hot Work' is defined as work using open flames or sources of heat that could ignite materials in the work area.
- .7 Fire separations:
 - .1 Maintain the integrity of fire separations, fire protection systems, and fire rated assemblies.
 - .2 Make good fire separations, fire protection, and fire rated assemblies compromised as a result of the *Work*.
- .8 Maintaining existing building exit facilities:
 - .1 Maintain exit facilities serving the existing building.
 - .2 Where an exit is blocked-off or deleted as a result of the *Work*, an alternative exit shall be provided that is acceptable to the *Consultant*, the *Owner*, and authorities having jurisdiction.
 - .3 Where it is necessary for access to be gained to an exit through the *Place of the Work*, the access shall be clearly defined and protected so that it is separated from construction areas by a smoke tight fire separation equivalent to a minimum of 1 hour fire resistance rating, unless otherwise indicated.
- .9 Intersecting corridors:
 - .1 Provide temporary fire separations between existing corridors on occupied floor areas and new corridors under construction.

Special Project Procedures for Healthcare Facilities

Section revised and reissued by Addendum No. 3

- .2 Construct temporary fire separations out of steel studs and gypsum board to provide a construction equivalent to a minimum of 1 hour fire resistance rating, unless otherwise indicated.
 - .1 Firestopping and smoke sealant: in accordance with Section 07 84 00.
 - .2 Steel studs: in accordance with Section 09 22 00.
 - .3 Gypsum board: in accordance with Section 09 29 00.
- .3 Where access is required, the doorway shall be protected by a door of solid core wood or hollow steel construction.
- .4 Finish hardware equivalent to a minimum of 1 hour fire resistance rating, unless otherwise indicated.
- .10 Fire department access:
 - .1 Do not obstruct access route designated for fire department equipment.
 - .2 If it is necessary that existing access routes be obstructed or deleted, alternative access routes acceptable to the fire department and in accordance with the requirements of the *Contract Documents* and authorities having jurisdiction shall be provided prior to commencement of work that will obstruct or delete existing access.
- .11 Combustible materials:
 - .1 Stockpiling of combustible materials adjacent to or inside the existing building shall not be acceptable.
- .12 Temporary protection of openings in fire separations:
 - .1 Openings in existing floor assemblies and vertical fire rated assemblies required by the *Work*, shall be temporarily protected with materials as required to maintain continuity of the required fire resistance rating for existing fire rated assembly.

1.10 Missing Patient Search

- .1 In the event that the *Owner* is required to undertake a missing patient search, undertake a detailed search of the *Place of the Work*, under the direction of the *Owner*.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Temporary Utilities

Section revised and reissued by Addendum No. 3

PART 1 - GENERAL

1.1 Section Includes

- .1 Temporary utilities - general.
- .2 Temporary electrical services.
- .3 Temporary water supply.
- .4 Temporary heating and ventilation.

1.2 Temporary Utilities - General

- .1 Provide temporary utilities as specified and as otherwise necessary to perform the *Work* expeditiously.
- .2 Arrange and pay for required temporary services, unless otherwise specified.
- .3 Provide connection and disconnection of temporary services and facilities required in the *Work*, including connection to existing services made available by the *Owner*.
- .4 Remove temporary utilities after use.
- .5 Existing services:
 - .1 Do not use any existing services and facilities during construction unless specific written permission is provided by *Owner*.
 - .2 Protect and maintain without interruption, existing water, heating, drainage, and other services within the *Place of the Work* to existing buildings not within the scope of the *Work* of this *Contract*. Obtain written permission of the *Owner* for services required to be temporarily shut off, at least 10 full *Working Days* in advance.
 - .3 Do not use permanent mechanical, or electrical systems during the course of the *Work* unless specific written permission is provided by the *Consultant*. Use of permanent services for temporary construction service shall not prejudice warranties.

1.3 Temporary Electrical Services

- .1 Provide and maintain an adequate temporary electrical service for performance of the *Work* including, but not limited to, operation of electric pumps, motors, vibrators and other power tools, hoisting and related construction and general illumination during the *Work*.
 - .1 Use existing power, where available, subject to *Owner's* approval. *Owner* will pay electrical bills.
- .2 Provide and maintain any components and equipment necessary to transform supply power to necessary temporary power voltage.

1.4 Temporary Water Supply

- .1 Provide and maintain a temporary supply of water for use in the *Work*.
 - .1 Use existing water supply, where available, subject to *Owner's* approval. *Owner* will pay water bills.

Temporary Utilities

Section revised and reissued by Addendum No. 3

- .2 Extend supply pipe or pipes from nearest available sources and maintain in good condition until permanent system is installed and ready for use.

1.5 Temporary Heating and Ventilation

- .1 Provide and pay for temporary heating, cooling and ventilating required for the *Work*, including attendance, maintenance and fuel.
- .2 Provide temporary heat and ventilation as required to:
 - .1 Facilitate continuous uninterrupted progress of the *Work*.
 - .2 Protect the *Work* and *Products* against damage and defacement caused by weather, harmful levels of temperature, humidity, and moisture.
 - .3 Protect the *Work* against dampness and cold.
 - .4 Prevent moisture condensation on surfaces, freezing, or other damage to finishes or stored *Products*.
 - .5 Provide ambient temperatures and humidity levels for proper storage, installation and curing of materials, in accordance with specified standards and manufacturer's requirements.
 - .6 Provide adequate ventilation to meet health regulations for safe working environment.
- .3 Solid fuel salamanders will not be permitted.
- .4 Furnish other temporary heating as required by various sections of the *Specifications* or by *Product* manufacturers.
- .5 Ventilate to the exterior of the building work areas as required when toxic materials are being utilized or cured.
- .6 Replace with new, any work damaged due to failure to provide adequate heat at no cost to *Owner*.

PART 2 - PRODUCTS

Not applicable.

PART 3 – EXECUTION

Not applicable.

END OF SECTION

**Princess Margaret
Cancer Centre Stem Cell
Transplant 2**

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Toronto, ON Canada M5C 2N8
P: 416.915.0121
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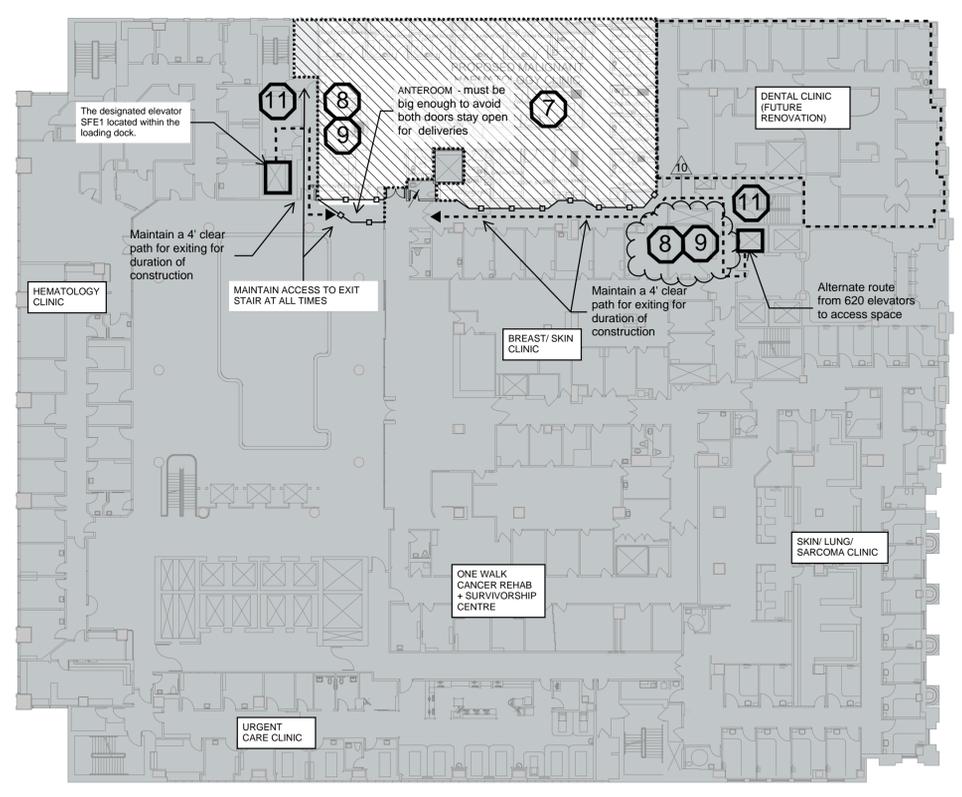
CONSTRUCTION CONTROL LEGEND

- 1 EQUIPMENT AND MATERIAL DROP OFF
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- 4 PARKING FOR CONTRACTOR FORCES
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- 7 AREA OF WORK
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ALL WORK BEING DONE IN PUBLIC SPACES MUST TAKE PLACE AFTER HOURS.
- 9 ACCESS TO SITE BY CONTRACTOR AND THEIR FORCES
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- 10 AREA OF CEILING WORK
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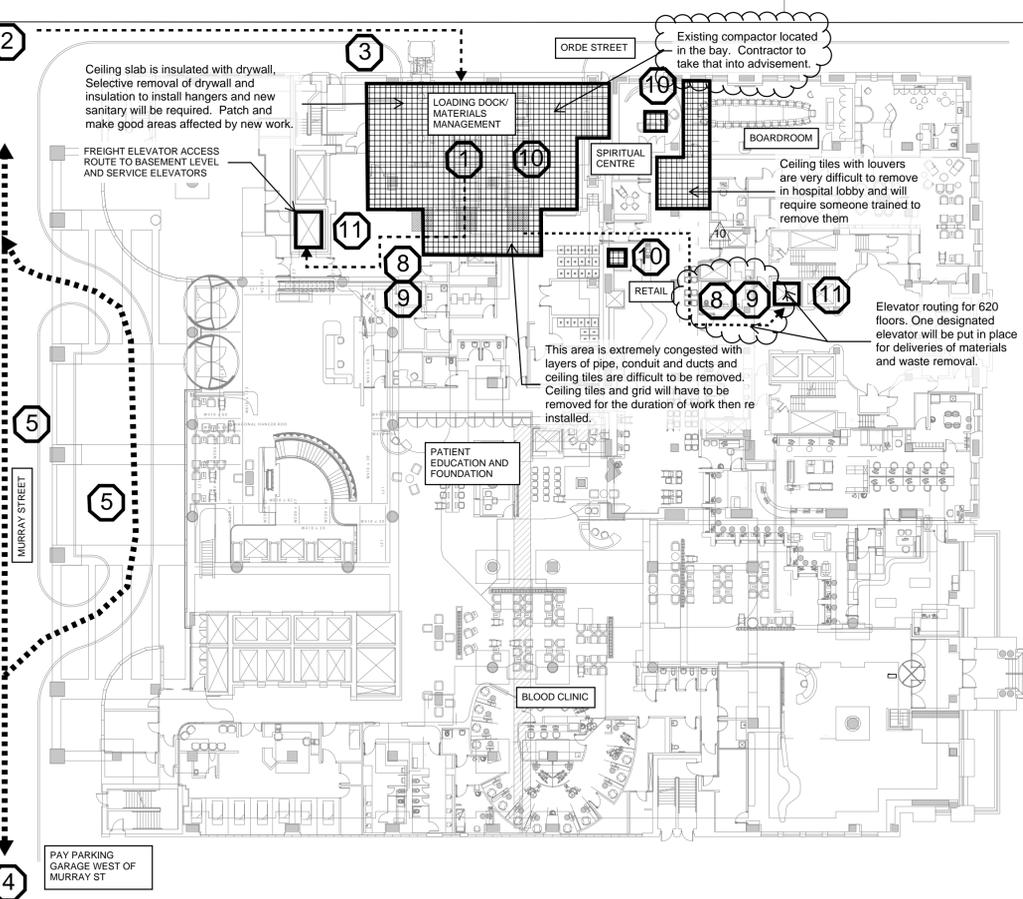
..... EXISTING WALLS TO BE UTILIZED DURING CONSTRUCTION

--- EXTENT OF CONSTRUCTION AREA. HOARDING AND INFECTION CONTROL REQUIREMENTS TO COMPLY WITH UHN PROTOCOLS. HOARDING PLANS TO BE SIGNED OFF ON BY UHN STAKEHOLDERS BEFORE PROCEEDING WITH WORK

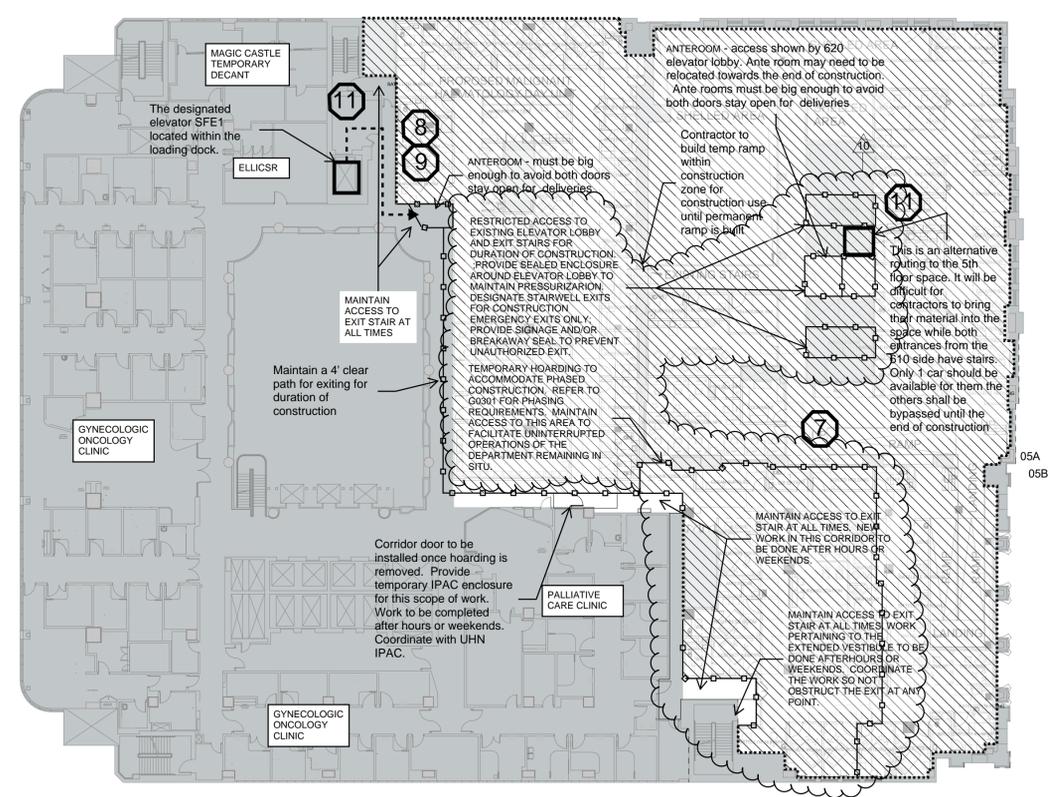
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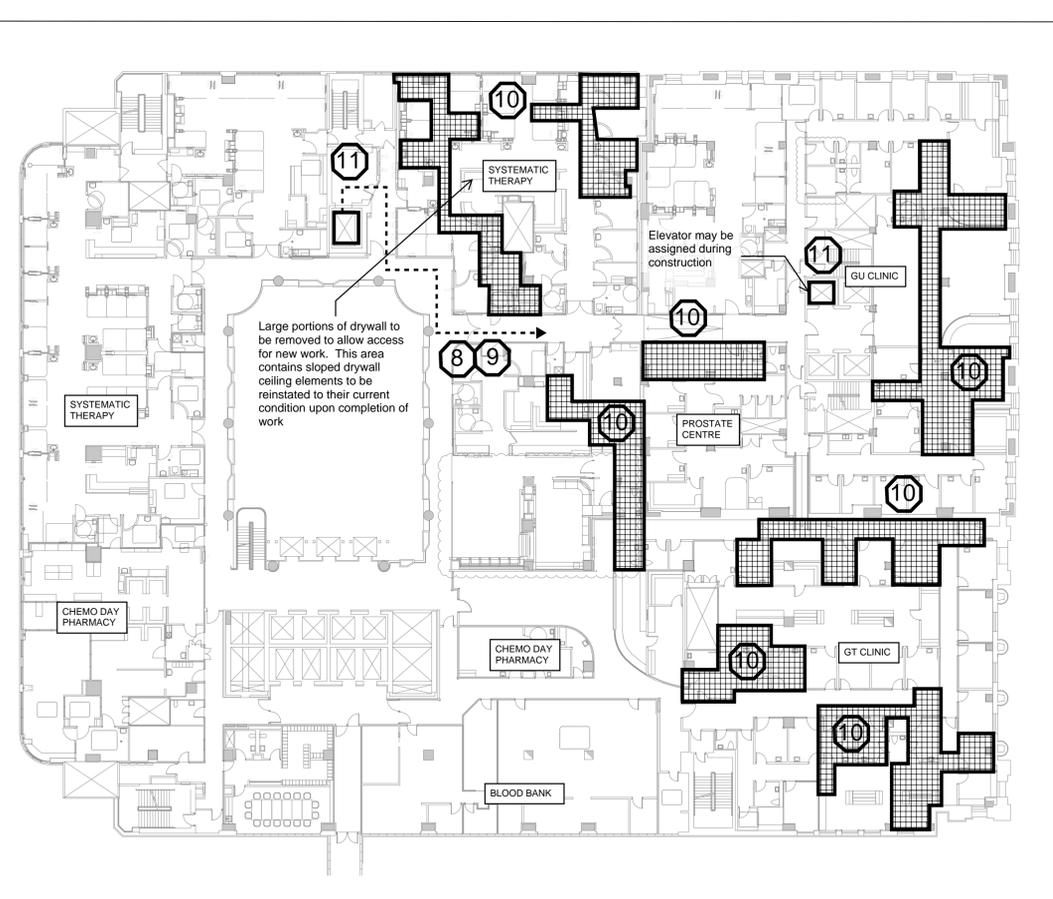
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1 LEVEL 01 - CONSTRUCTION CONTROL PLAN
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4 LEVEL 05 - CONSTRUCTION CONTROL PLAN
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3 LEVEL 04 CONSTRUCTION CONTROL PLAN
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REFER TO UHN CONSTRUCTORS HEALTH AND SAFETY RULES FOR CONSTRUCTION CONTROL PROCEDURES AND COMPLIANCE REQUIREMENTS.

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4	ISSUED FOR 50% CD SUBMISSION	2023-05-08
3	ISSUED FOR MOH 3.2 SUBMISSION	2023-03-13
2	ISSUED FOR DD SIGN-OFF	2022-12-16
1	ISSUED FOR DD SIGN-OFF	2022-12-02

Drawing Title:

CONSTRUCTION CONTROL PLANS

Project No.: 0020711.00 Checked by: Checker

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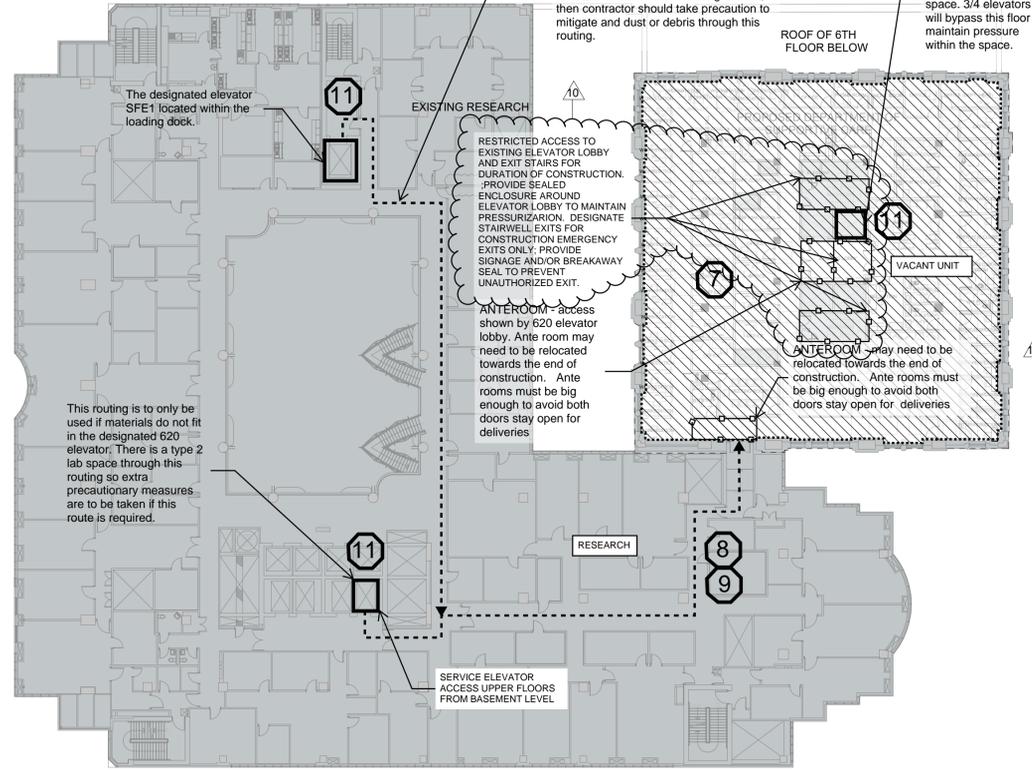
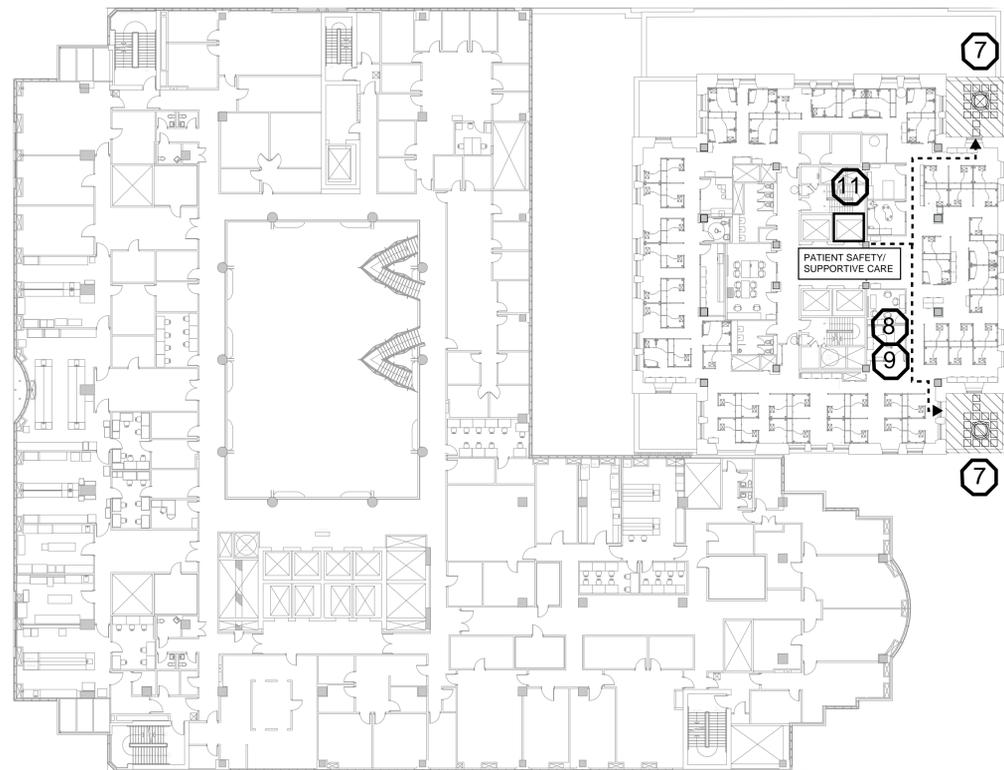
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Transplant 2**

**Part B
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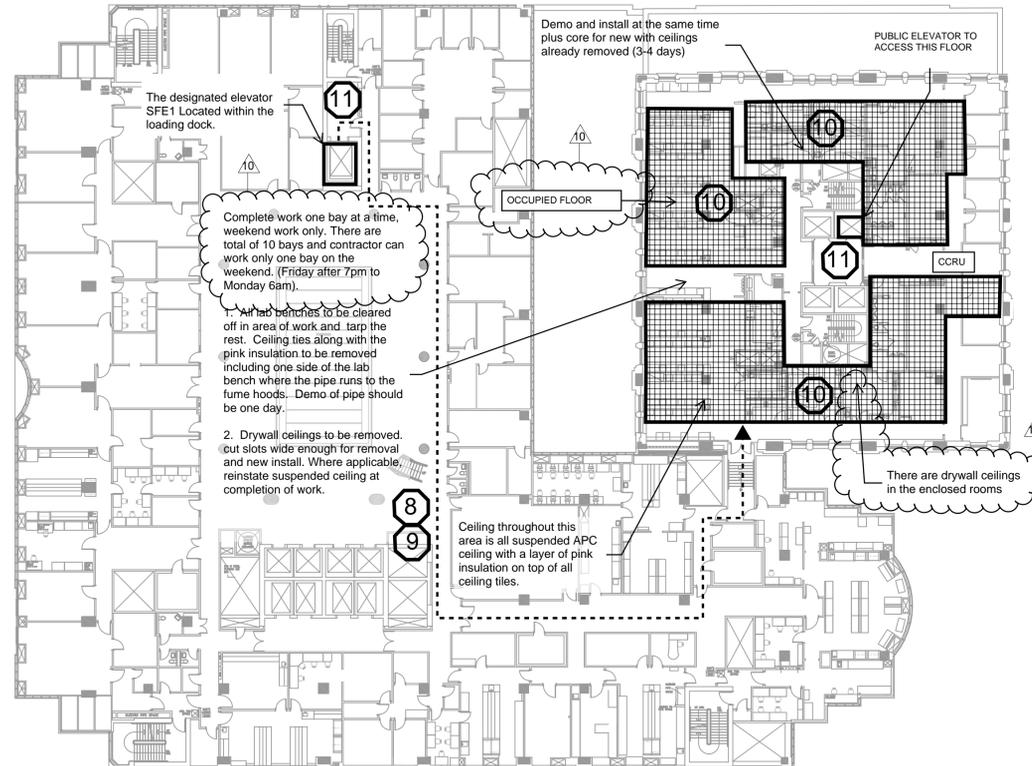
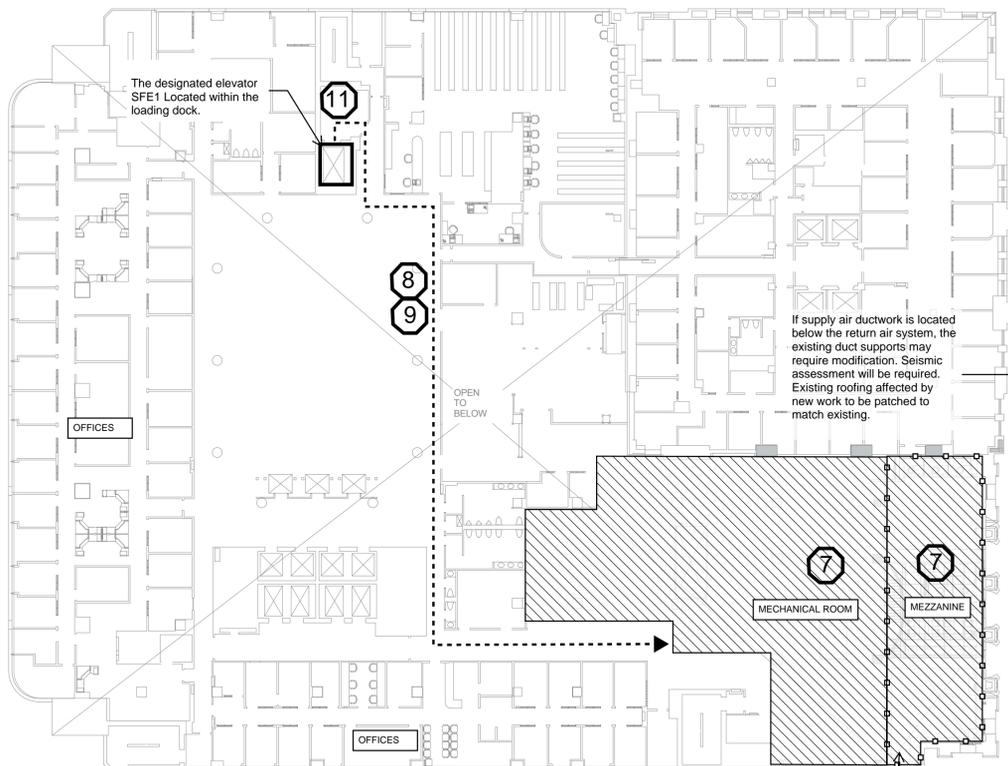
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- CONSTRUCTION CONTROL LEGEND**
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4 LEVEL 11 - CONSTRUCTION CONTROL PLAN
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2 LEVEL 10 - CONSTRUCTION CONTROL PLAN
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3 LEVEL 06 - CONSTRUCTION CONTROL PLAN
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1 LEVEL 09 - CONSTRUCTION CONTROL PLAN
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2	ISSUED FOR DD SIGN-OFF	2022-12-16
1	ISSUED FOR DD SIGN-OFF	2022-12-02

Drawing Title:

CONSTRUCTION CONTROL PLANS

Project No.: 0020711.00 Checked by: Checker

G0502

Princess Margaret
Cancer Centre Stem Cell
Transplant 2

Part B
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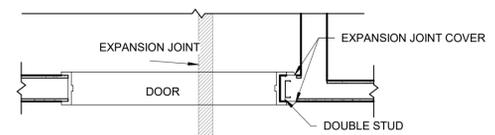
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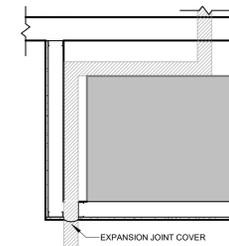
RAMP & STAIR DETAILS

Project No.: 0020711.00 Checked by: Checker

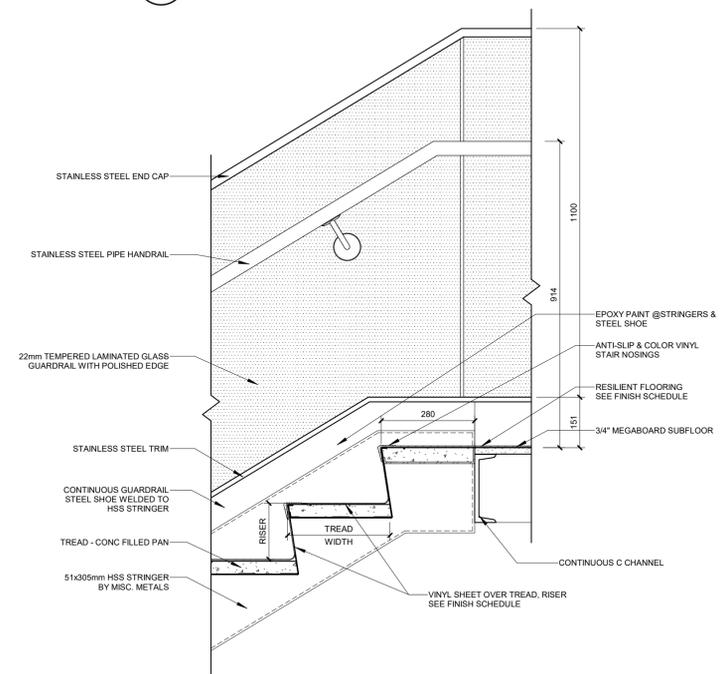
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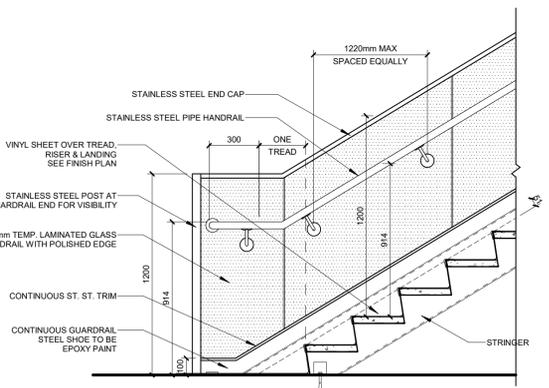
14 TYPICAL EXPANSION JOINT DETAIL AT DOOR
1: 20



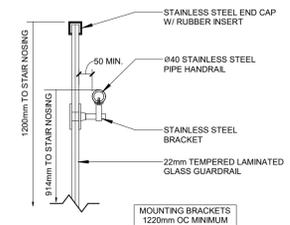
13 TYPICAL EXPANSION JOINT AT COLUMN
1: 20



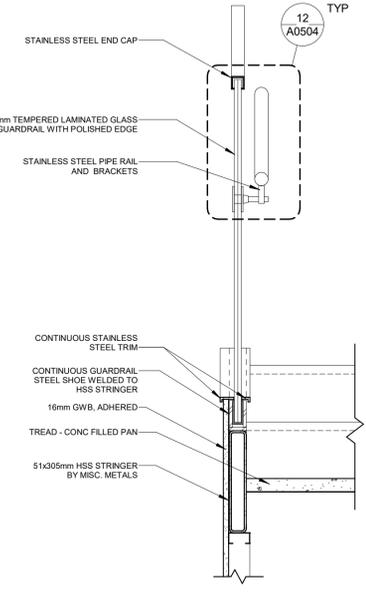
8 STAIR DETAIL - FLOOR LANDING
1: 10



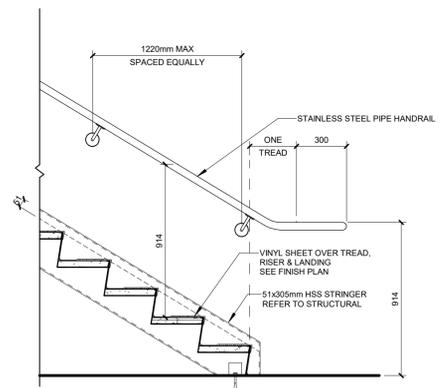
4 STAIR SECTION AT BOTTOM LANDING 1
1: 20



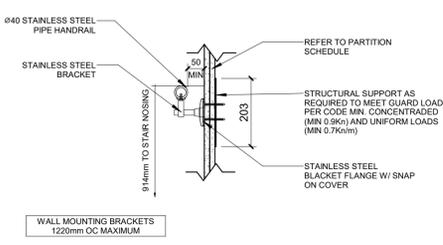
12 HANDRAIL SECTION DETAIL AT GLASS GUARDRAIL
1: 10



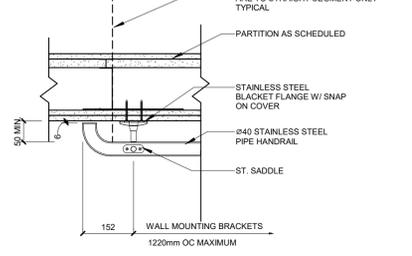
7 GLASS GUARDRAIL AT STAIR MID POINT
1: 10



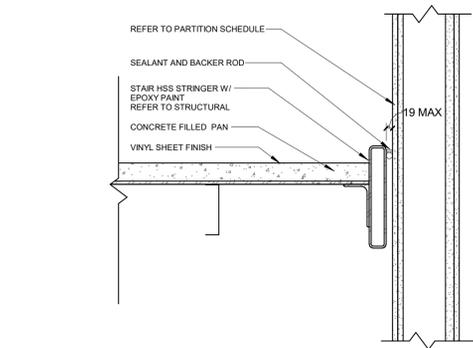
3 STAIR SECTION AT BOTTOM LANDING 2
1: 20



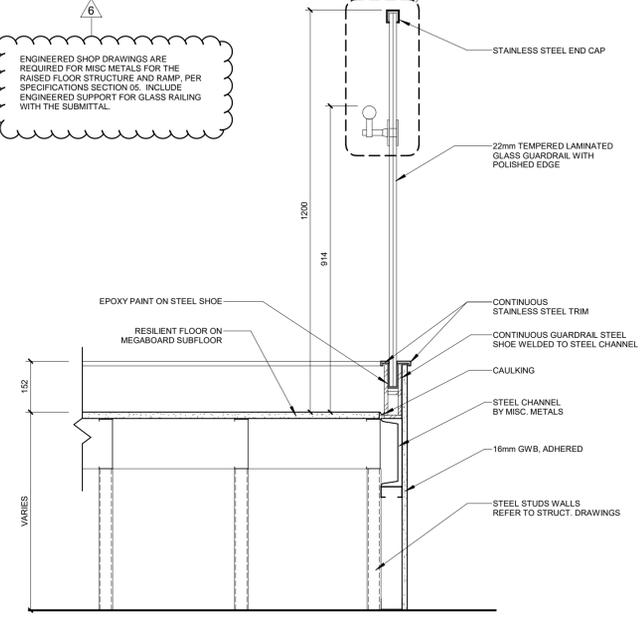
11 HANDRAIL SECTION DETAIL AT PARTITION
1: 10



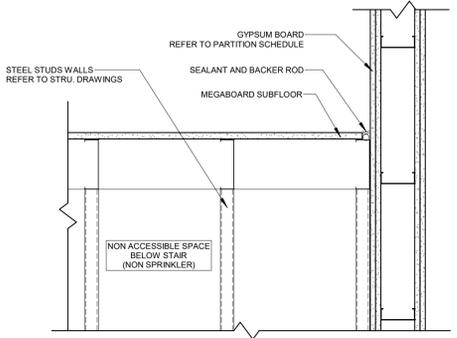
10 HANDRAIL PLAN AT PARTITION
1: 10



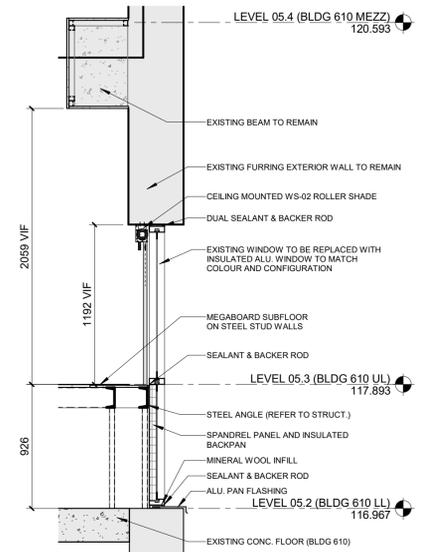
6 DETAIL AT STAIR TREAD AND WALL
1: 10



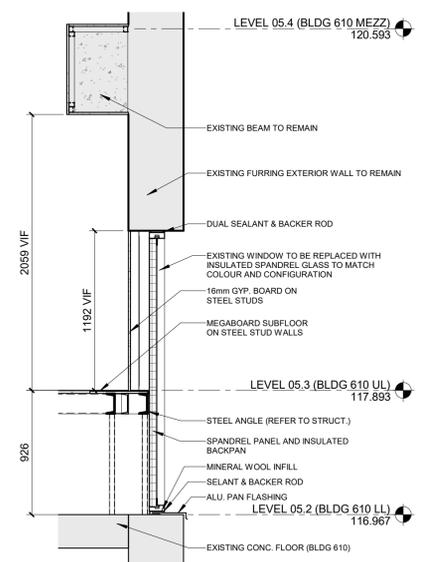
2 GUARDRAIL DETAIL AT MEGABOARD DECK
1: 10



9 DETAIL AT STAIR & RAMP LANDING AND WALL
1: 10



5 HALF WINDOW DETAIL
1: 25



1 SPANDREL WINDOW DETAIL
1: 25

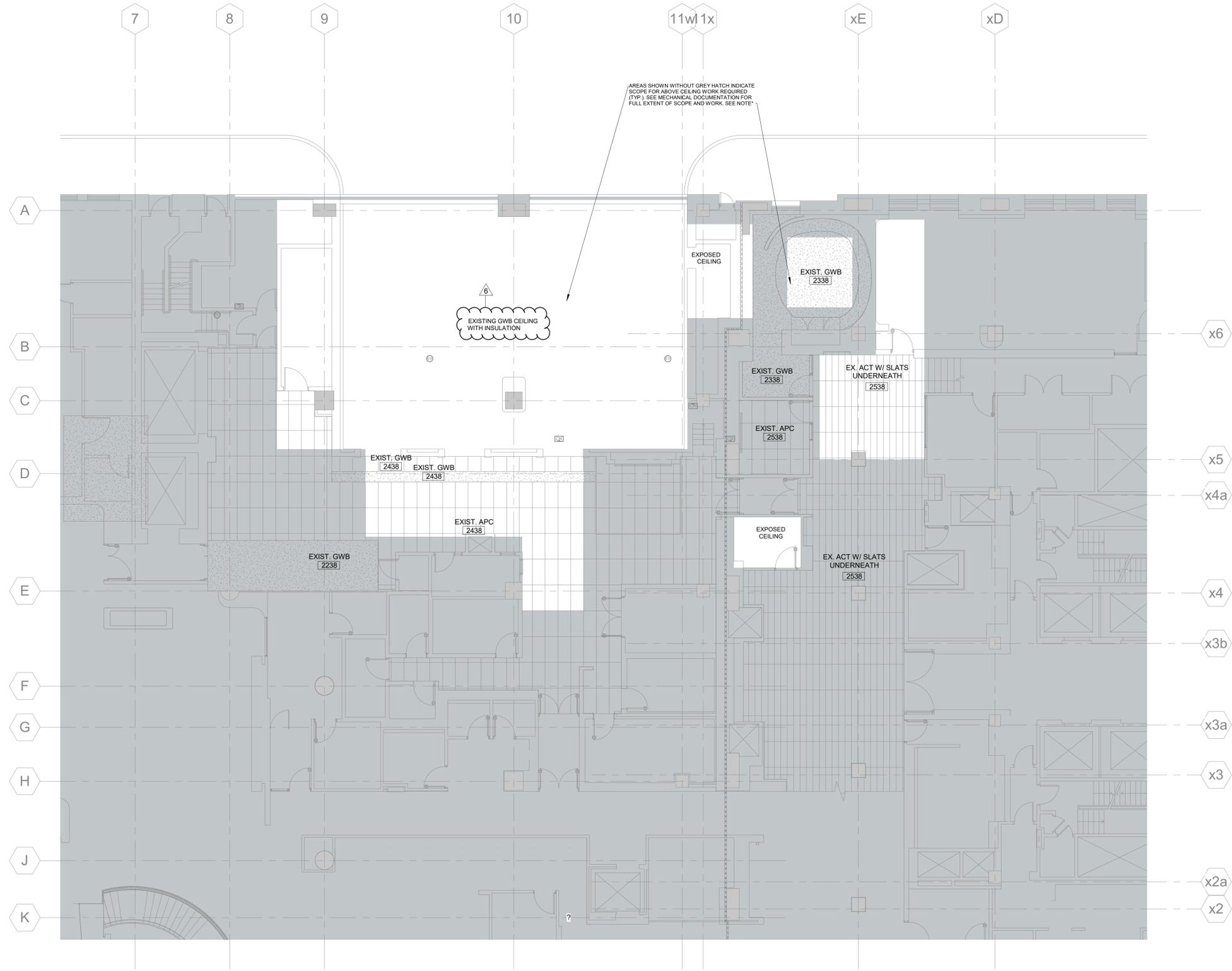
Princess Margaret
Cancer Centre Stem Cell
Transplant 2

Part B
(MHC, MHDU, DSC)

CANNONDESIGN

20 Victoria Street 5th floor
Toronto, ON Canada M5C 2N8
P: 416.915.0121
F: 416.955.0122

www.cannondesign.com



6	ISSUED FOR ADDENDUM #3	2024-09-10
5	ISSUED FOR TENDER	2024-08-13
4	ISSUED FOR BUILDING PERMIT SUBMISSION	2023-12-19
3	ISSUED FOR MOH 4.1 SUBMISSION	2023-09-25
2	ISSUED FOR 95% CD SUBMISSION	2023-09-06
1	ISSUED FOR 90% CD SUBMISSION	2023-07-31

Rev.	Description	Date
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Drawing Title:

**REFLECTED CEILING
PLAN - LEVEL 01**

Project No.: 0020711.00 Checked by: Checker

A0701A

*NOTE:

SCOPE FOR ABOVE CEILING WORK: REMOVE EXISTING CEILINGS WHICH ARE TO REMAIN AS REQUIRED TO MAKE ACCESS FOR NEW WORK BY MECHANICAL AND ELECTRICAL DIVISIONS. REINSTALL EXISTING CEILINGS AND/OR MAKE GOOD WITH NEW TO MATCH EXISTING IMMEDIATELY FOLLOWING COMPLETION OF THE WORK BY OTHER DIVISIONS. WHERE CEILING TILES AND/OR GRID ARE ALTERED OR DAMAGED BY THE WORK, REPLACE THE RECLAIMED TILES IN GOOD CONDITION OR NEW BY SECTION 095123. LEAVE NEW GYPSUM BOARD SURFACES READY FOR PAINT FINISH TO MATCH EXISTING ADJACENT SURFACE BY SECTION 099100. THE TERM 'TO MATCH EXISTING' IMPLIES THAT METHODS OF CONSTRUCTION AND USE OF MATERIAL AND PRODUCTS MEET OWNER'S STANDARDS. THESE STANDARDS SHALL BE ESTABLISHED BY INFORMATION PROVIDED IN DRAWINGS AND SPECIFICATIONS AND BY VISUAL INSPECTION AS AVAILABLE TO THE CONTRACTORS AT THE TIME OF TENDER.

ENGAGE AND COORDINATE WITH OWNER REPRESENTATIVE ALL WORK AFFECTING EXISTING PATIENT CARE SERVICES AND UNDERTAKE WORK NOT TO AFFECT THE ONGOING INTEGRITY OF SERVICES AND SYSTEMS THAT ARE TO BE MAINTAINED OPERABLE DURING CONSTRUCTION.

Project Name:	UHN PM Stem Cell Transplant Phase II Part A	Date Issued:	September 12, 2024
Quasar Project #:	HC-21-058		
Distribution			
Cannon Design Ltd.	Linda Vela	lvela@cannondesign.com	
Cannon Design Ltd.	Jennifer Huynh	jhuynh@cannondesign.com	
Quasar Consulting Group	Alexandra Blagojevic	alexandra.blagojevic@quasarcg.com	
Quasar Consulting Group	Jerry Guidarelli	jerry.guidarelli@quasarcg.com	
Quasar Consulting Group	Jomuel Estranero	jomuel.estraneo@quasarcg.com	
Quasar Consulting Group	Manda Bobinac	manda.bobinac@quasarcg.com	
Addendum #:	M-2		
Revision #:	0		

This Addendum forms part of the Contract Specifications and Drawings, and modifies the Bidding Documents, with Amendments and Additions noted below. This Addendum shall be added to the front of the specifications as issued. Bidders shall acknowledge receipt of this Addendum in the space provided in the Bid Form and include in bid amount.

This addendum includes modifications to the drawings and specifications as summarized below. Unless otherwise noted, all drawings listed below are attached herewith. Changes to drawings are highlighted with a revision bubble; include for all changes highlighted in the revision bubbles including, but not limited to, those items described below. Answers to Requests for Information below shall form part of the project specifications and are identified in bold following QCG (Quasar Consulting Group).

Requests for Information:

1. (95) For AH-Temporary, please list the points that need to be tied into BAS.

QCG M: (95) BAS to monitor status of temporary units, entering and leaving air temperature, differential pressure across prefilter and final filter banks, and shall control heating and cooling control valves to maintain downstream pressure.

2. (96) According to item 3.04.3 in section 25 05 02, plenum rated cable is allowed in ceiling space. But based on PMH's standard, all wiring needs to be in conduit. Please clarify.

QCG M: (96) Wiring is to be run in conduit.

2. 12. (111) Request from HVAC equipment supplier to be added to spec Section 23 75 00 - Custom Air Handling Units

- Specification section 2.01 – 1

Can we use Modular Systems custom AHUs

<https://modular-systems.ca/>

- Specification section 2.01 – 3

Please confirm maximum dimensions for each section (W x H x L)

- Specification section 2.03 – 1 – 9

Can we use 2" Foam Insulation meeting 25/50 flame spread/smoke developed ratings?

- Specification section 2.10 – 4

Is the Belimo damper actuator provided by the AHU manufacturer or the Control Contractor?

QCG M: (111) The list of acceptable manufacturers within specification section 23 75 00 are to be used for Custom Air Handling Units.

3. (112) Request from HVAC equipment supplier to be added to spec requesting addition of Ingenia to list of acceptable manufacturers in Section 23 75 00 – Custom Air Handling Units (page 2 of 7). We have supplied Ingenia air handlers on previous projects from the same consultants.

QCG M: (112) The list of acceptable manufacturers within specification section 23 75 00 are to be used for Custom Air Handling Units.

4. (135) The Section Automated Control Systems specifies that Antec is the basis of the Design for Venturi Valves. Can Accutrol's AccuValve be accepted as equal for this project? Since the AccuValve is designed similarly to a sound attenuator, the

additional cost associated with it can be eliminated. The valve can operate at a low pressure drop between 0.05 and 0.3 inches of W.C. I have attached the sound performance data and product sheet of AVC4000 & AVC6000 to show the valve's performance capabilities

QCG M: (135) The valves should be actuated by Belimo and directly controlled by Distech. The proposed ones are not. Environmental Monitoring by Setra. The vendor's proposal is not suitable for these reasons.

5. (139) The project has specified Antec Controls as the basis of design for Lab Air Valves. We have attached an extract of the specification marking the comparison between Antec & Accutrol. Please advise. **(Note: Email has been forwarded).**

QCG M: (139) Refer to response for RFI-135.

6. (165) Is there only one new AHU for 5th Floor?

QCG M: (165) Yes, there is one new permanent air handling unit consisting of two independent air handling systems (AH-033A and AH-033B). Refer to detail 1 on drawing M7009 for more information.

Changes to Drawings:

1. **Drawing PT-001 – PNEUMATIC TUBE SYSTEM – PLAN SYMBOLS & NOTES**
 - Clarification of Mechanical Contractor's scope of work, as indicated
2. **Drawing PT-100 – PNEUMATIC TUBE SYSTEM – MECHANICAL RISER DIAGRAM**
 - Clarification of Mechanical Contractor's scope of work, as indicated.
3. **Drawing PT-205A – PNEUMATIC TUBE SYSTEM - LEVEL 05 - FLOOR PLAN A**
 - Clarification of Mechanical Contractor's scope of work, as indicated.
4. **Drawing PT-205B – PNEUMATIC TUBE SYSTEM - LEVEL 05 - FLOOR PLAN B**
 - Revision to pneumatic tube routing, as indicated.
 - Clarification of Mechanical Contractor's scope of work, as indicated.
5. **Drawing PT-206 – PNEUMATIC TUBE SYSTEM - LEVEL 06 - FLOOR PLAN**
 - Clarification of Mechanical Contractor's scope of work, as indicated.
6. **Drawing PT-300 – PNEUMATIC TUBE SYSTEM – TUBING & SUPPORT DETAILS**
 - Clarification of Mechanical Contractor's scope of work, as indicated.
7. **Drawing PT-301 – PNEUMATIC TUBE SYSTEM – TUBING & SUPPORT DETAILS**
 - Clarification of Mechanical Contractor's scope of work, as indicated.
8. **Drawing PT-302 – PNEUMATIC TUBE SYSTEM – TRANSFER UNIT DETAILS**
 - Revision to details, as indicated.
 - Clarification of Mechanical Contractor's scope of work, as indicated.
9. **Drawing PT-400 – PNEUMATIC TUBE SYSTEM – COMM RISER DIAGRAM**
 - Clarification of Mechanical Contractor's scope of work, as indicated.

Changes to Specifications:

- 1. Replace Specification Section 25 05 02.01 titled "Princess Margaret BAS Requirements Rev. 2" with the attached revised Specification Section 25 05 02.01 titled "Princess Margaret BAS Requirements Rev 2.3."**
- 2. Refer to Specification Section 25 05 01 titled "Automatic Control Systems"**
 - a. Refer to Article 3.10.3 and revise to read as follows:

"3 Control Wiring in ceiling spaces and wall cavities is to be run in conduit.
- 3. Refer to Specification Section 20 05 00 titled "Common Work Results for Mechanical"**
 - a. **Refer to Article 3.10.3 and revise to read as follows:**

"3 Prior to each shut-down or interruption, inform Owner and the Consultant in writing 10 working days in advance of proposed minor shut-down or interruption, and 30 days in advance of proposed major shut-down or interruption, and obtain written consent to proceed. Do not shut-down or interrupt any system or service without such written consent. Shutdowns of some essential services may require additional advance notification time."
- 4. Refer to Specification Section 20 05 93 titled "Testing, Adjusting, and Balancing for Mechanical Systems"**
 - a. **Refer to Article 3.01.2.8 and revise to read as follows:**

"8 TAB of air handling systems is to include equipment and ductwork air temperatures, capacities and flows. Fans to be dynamically balanced.

.1 AH-033A / AH-033B and RF-033A / RF-033B are to be tested under both parallel (normal) operation and single unit (failure) operation."
 - b. **Refer to Article 3.01.2.9 and revise to read as follows:**

"9 TAB of space air flow to include existing (pre-construction) and new (post-construction) air change rate for each room.
- 5. Refer to Specification Section 23 75 00 titled "Custom Air Handling Units"**
 - a. **Add the following Article 2.14 to read as follows:**

"2.14 FIELD ASSEMBLED AIR-HANDLING UNIT

 - .1 The air-handling unit shall be field assembled on site by the contractor. All parts shall be pre-formed by the manufacturer and partially assembled where access is possible. The parts shall be labeled according to an assembly drawing. All assembly material required such as insulation, sealants, fasteners and hardware shall be supplied by the manufacturer as part of the kit.
 - .2 Where access permits, sections of the exterior casing shall be pre-assembled in the factory. Otherwise, casing panels shall be shipped individually.
 - .3 The unit base shall be made in factory-assembled sections with joining flanges for field assembly. The base and exterior sections shall be pre-painted and pre-insulated in the factory.
 - .4 The doors and frames shall be pre-assembled (complete with windows where specified).
 - .5 Where access permits, the coil and filter racks shall be pre-assembled and pre-painted in the factory.
 - .6 The fan shall be assembled in the factory complete with Baldor motor, protective screening, belt guards and isolation base. The fan and guarding shall be pre-painted in the factory. The fan assembly shall undergo a test run in the factory. Where access permits, the fan assembly shall be shipped in one piece. If access does not permit shipping in one piece, the fan shall be disassembled and shipped in pieces.

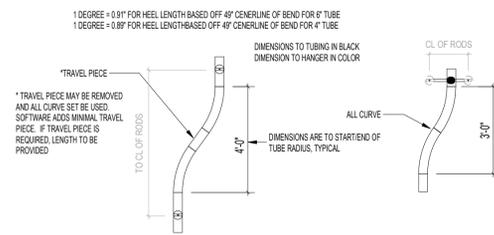
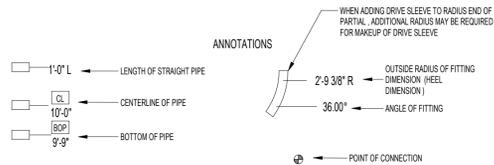
- .1 Fan sections shall include swing out lifting/hoisting beams to allow for replacement of motors.
- .7 The manufacturer shall supply a representative for a minimum of 3 days to supervise the assembly of the air-handling unit on the job-site. Contractor to coordinate exact length of time required to assemble unit with manufacturer.
- .8 The coils shall be installed on site by the contractor.
- .9 The air-handling unit shall be Touch up painted as needed by the contractor
- .10 The electrical panels shall be pre-assembled and pre-tested in the factory. The manufacturer shall provide all necessary conduits and fittings to extend the motor wiring to the electrical panel.
- .11 The air-handling unit manufacturer shall provide marine light fixtures, duplex receptacles, the light switch and the necessary conduit and fittings for field installation of the fixtures.
- .12 The contractor shall be responsible for installation of electrical equipment
- .13 Field wiring and assembly shall be done in accordance with the C.E.C.
- .14 The contractor shall be responsible for obtaining electrical approval of the final assembly.

Quasar Consulting Group



Alexandra Blagojevic, P.Eng.
Sector Lead

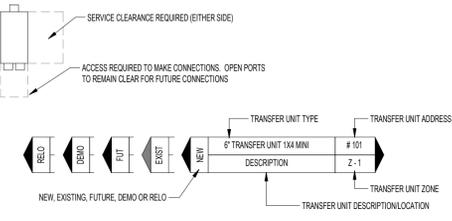
- INSTALLATION NOTES:**
- DIMENSIONS ARE TYPICALLY TO CENTER OF TUBE TO CENTER OF COLUMN LINE, FACE OF CONCRETE, OR FACE OF CMU WALL.
 - DIMENSIONS TO WALLS ARE TO FINISH FACE AND ARE FOR REFERENCE ONLY. VERIFY LOCATION HAS NOT CHANGED IN THE FIELD. ALL DIMENSIONS STRINGS TO BE REFERENCED TO NEAREST COLUMN LINE WITH COLUMN FOR REFERENCE.
 - UNUSED PORTS ON ALL PORT SIDE OF TU TO BE CLEAR OF ALL OBSTRUCTIONS WITH ADEQUATE SPACE PROVIDED TO MAKE FUTURE CONNECTIONS.
 - ALL BENDS AND OFFSETS ARE SHOWN TO END OF CURVE, START OF STRAIGHT, HUB AND ADDITIONAL STRAIGHT NOT REPRESENTED.
 - ALL BENDS & OFFSETS HAVE A STANDARD CENTERLINE RADIUS OF 50' UNLESS OTHERWISE NOTED. THIS INCLUDES VERTICAL & HORIZONTAL CHANGES IN DIRECTIONS.
 - DIMENSIONS TO OFFSETS ARE ALWAYS SHOWN TO THE START OF RADIUS.
 - ALL ELEVATIONS ARE TAKEN FROM FINISH FLOOR. IF BENCHMARK IS PROVIDED, IT SHOULD BE UTILIZED.
 - IF A FIELD MODIFICATION IS NEEDED, GET APPROVAL WITH GC OR CONTACT SWISSLOG COORDINATOR.
 - ANY DEVIATION FROM THE PLANS MUST BE NOTED AND PROVIDED BACK TO SWISSLOG FOR FINAL AS-BUILTS.
 - IF TUBING IS 4" TO USUAL FOOT" IF IS 2" IN USUAL FOOT.
 - STATIONS TYPICALLY DIMENSIONED TO CENTER OF NIPPLE.
 - TRANSFER UNITS TYPICALLY DIMENSIONED TO CENTER OF SINGLE PORT SIDE, FACE OF SINGLE PORT SIDE.
 - BLOWERS TYPICALLY DIMENSIONED TO CENTER OF STAND ANCHOR POINT(S).



TRANSFER UNITS (TU) NOTES, SYMBOLS & TAGS

SEE PLANS FOR LOCATIONS AND TYPES

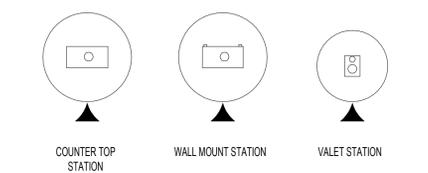
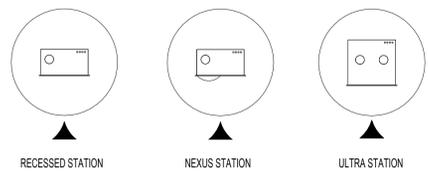
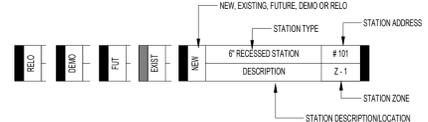
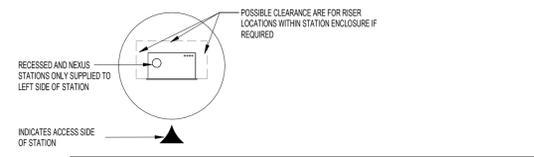
- 110V / 3 AMP, 1 PHASE SERVICE REQUIRED FOR NEW TU, PROVIDED BY OTHERS
- NETWORK DROP PROVIDED INSIDE EACH TU WITH 6' LOOP TERMINATED WITH RJ45 CONNECTOR, BY OTHERS
- UNUSED OPEN PORTS TO BE CLEAR OF OBSTRUCTIONS FOR FUTURE TIE IN SERVICE SIDE OF TU TO BE ACCESSIBLE BY LADDER



STATION PLAN NOTES, SYMBOLS & TAGS

SEE PLANS FOR LOCATIONS AND TYPES

- 110V / 3 AMP, 1 PHASE SERVICE REQUIRED FOR STATION, PROVIDED BY OTHERS
- (2) 110V / 3 AMP, 1 PHASE SERVICE REQUIRED FOR ULTRA STATION, PROVIDED BY OTHERS
- NETWORK DROP PROVIDED INSIDE EACH STATION HOUSING WITH 3' LOOP TERMINATED WITH RJ45 CONNECTOR, BY OTHERS
- STATION ENCLOSURE TO BE CLEAR TO DECK
- ALL FRAMING TO BE LOCATED CLEAR OF PRV
- IF PRV IS OBSTRUCTED, SYSTEM WILL NOT FUNCTION PROPERLY
- IF NOT REQUIRED PER RATING, STATION ENCLOSURE WALLS TO BE TERMINATE ABOVE CEILING TO ALLOW ACCESS TO PRV. IF REQUIRED TO GO TO DECK, ACCESS PANEL REQUIRED (BY OTHERS)
- STATION HOUSINGS ARE NOT FIRE RATED. SIDE WALLS AND BACK WALLS CAN BE RATED BUT STATION FRONT WALL CAN NOT BE RATED



GENERAL NOTES:

- SEE PRODUCT SUBMITTALS FOR ADDITIONAL INFORMATION.
- ALL PNEUMATIC TUBING, BENDS, & STRAIGHTS, HAVE AN OUTSIDE DIAMETER OF 4" OR 6".
- ALL BENDS & OFFSETS HAVE A STANDARD CENTERLINE RADIUS OF 48-50'. THIS INCLUDES VERTICAL & HORIZONTAL CHANGES IN DIRECTIONS.
- TRANSFER UNITS MUST HAVE 24" OF CLEARANCE ON ONE SIDE OF UNIT TO ALLOW FOR MAINTENANCE.
- BLOWERS MUST HAVE CLEARANCE ON ELEC SIDE OF UNIT TO ALLOW FOR MAINTENANCE AS WELL AS FRONT OF UNIT FOR ACCESS TO SHIFTER BOX. REFER TO LOCAL CODES FOR CLEARANCE REQUIREMENTS.
- SYSTEM CONTROL CENTER (SCC) LOCATION TO BE PROVIDED BY OWNER/ARCHITECT. POWER AND DATA TO BE PROVIDED BY OTHERS.
- ARCHITECT TO PROTECT OR PROVIDE CHASE ENCLOSURE FOR NEW P-TUBE RISER(S) INCLUDING ANY REQUIRED MODIFICATIONS AND FINISHING WORK, BY OTHERS.

ABBREVIATIONS:

AFF	ABOVE FINISH FLOOR	SB	SELECTIVE BYPASS
CAI	CARRIER ARRIVAL INDICATOR	SBZ	SELECTIVE BYPASS ZONE
CL	CENTERLINE	SCC	SYSTEM CONTROL CENTER
ETR	EXISTING TO REMAIN	TBD	TO BE DETERMINED
GWB	GYPSONUM WALL BOARD	TCU	TRAFFIC CONTROL UNIT
IZ	INTERZONE	TEU	TRAFFIC ENHANCEMENT UNIT
NIS	NURSE STATION	TU	TRANSFER UNIT
NIC	NOT IN CONTRACT	UNO	UNLESS NOTED OTHERWISE
PRV	PRESSURE RELIEF VALVE	VBV	VACUUM BYPASS VALVE
PFS	PNEUMATIC TUBE SYSTEM STATION	VIF	VERIFY IN FIELD
RPI	REMOTE PERSONAL INDICATOR	XPR	XPRESS

NETWORKING INFORMATION

- EVERY PIECE OF SWISSLOG EQUIPMENT REQUIRES AN ETHERNET DROP. ALL DROPS SHOULD BE LANDED INSIDE OF THE EQUIPMENT AND TERMINATED WITH A RJ45 JACK BY OTHERS.
- A SEGREGATED VIRTUAL LOCAL AREA NETWORK (VLAN) DEDICATED TO THE TUBE SYSTEM IS REQUIRED TO ISOLATE TUBE SYSTEM TRAFFIC, ALLOW FOR PROPER PACKET HANDLING, AND PROVIDE RELIABLE SYSTEM OPERATION.
- EACH DEVICE ON THE NETWORK REQUIRES A UNIQUE IP ADDRESS PROVIDED BY THE SITE NETWORK ADMINISTRATION TEAM. THE IT DEPARTMENT MAY PROVIDE A RANGE OF IP ADDRESSES TO BE USED BY THE SWISSLOG SETUP TEAM TO ADDRESS DEVICES OR MAY PROVIDE A LIST OF IP ADDRESSES ASSIGNED TO SPECIFIC PORTS/DEVICES. THE IP ADDRESS RANGE SHOULD CONSIDER FUTURE EXPANSION AND A MINIMUM OF TWO EXTRA IP ADDRESSES FOR TROUBLESHOOTING PURPOSES.
- STATIC IP ADDRESSING IS CURRENTLY THE ONLY SUPPORTED METHOD OF ADDRESSING FOR SWISSLOG DEVICES.
- MAXIMUM ROUND TRIP NETWORK LATENCY CANNOT EXCEED 100 MILLISECONDS AT ANY TIME DURING SYSTEM OPERATION.
- A HIGH-SPEED INTERNET CONNECTION AT THE PRIMARY SYSTEM CONTROL CENTER (SCC) IS REQUIRED FOR SOFTWARE LICENSING AND REMOTE TECHNICAL SUPPORT.
- FOR MORE IN-DEPTH INFORMATION, PLEASE REFER TO SWISSLOG'S NETWORK COMMUNICATIONS DEPLOYMENT GUIDE.

FLOOR PLAN LEGEND

NEW WORK SOLID AND IN COLOR
ZONE COLORS - REPEAT EVERY 10

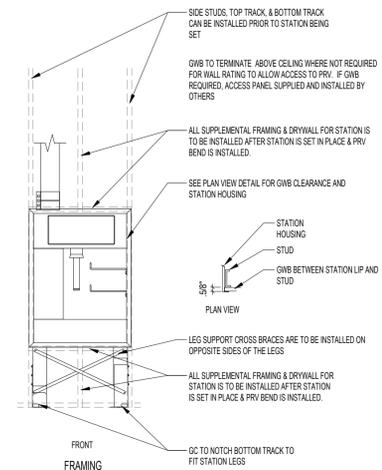
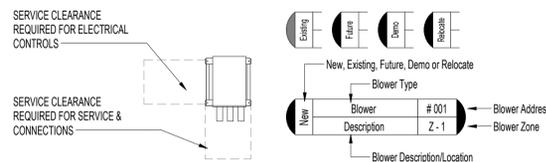
Red	ZONE 1
Orange	ZONE 2
Yellow	ZONE 3
Green	ZONE 4
Cyan	ZONE 5
Blue	ZONE 6
Purple	ZONE 7
Pink	ZONE 8
Light Blue	ZONE 9
Light Green	ZONE 10
Light Purple	IZ
Light Orange	SB(Z)
Light Yellow	XPR
Light Green	EXISTING
Light Purple	DEMO

Point of Connection/Tie-In Point

BLOWER NOTES, SYMBOLS & TAGS

SEE PLANS FOR LOCATIONS AND TYPES

- 115V / 3 AMP, 1 PHASE SERVICE REQUIRED FOR BLOWER CONTROLS, PROVIDED BY OTHERS
- 208-230V, 460V, OR 575V / 3 PHASE SERVICE REQUIRED FOR NEW BLOWER UNIT, PROVIDED BY OTHERS, VERIFY SERVICE
- BLOWER SITS ON STAND. IF OWNER REQUIRES HOUSEKEEPING PAD, TYPICAL PAD IS 3'X3', BY OTHERS
- ELECTRICAL DISCONNECT REQUIRED, BY OTHERS
- REFER TO BLOWER DETAIL SHEET FOR ENVIRONMENTAL REQUIREMENTS, WEIGHT, SOUND LEVELS, AND ELECTRICAL INFO



**Princess Margaret
Cancer Centre Stem Cell
Transplant 2**

**Part B
(MH, MHDU, DSC)**

CANNONDESIGN

20 Victoria Street 5th floor
Toronto, ON Canada M5C 2N8
P: 416.915.0121
F: 416.955.0122

www.cannondesign.com



Mechanical & Electrical
250 Rowntree Dairy Rd.
Woodbridge, ON, Canada L4L 9J7
P: 905 507 0800

www.quasarcm.com



4	ISSUED FOR ADDENDUM M-2	2024-09-10
3	ISSUED FOR TENDER	2024-08-14
2	ISSUED FOR BUILDING PERMIT	2023-12-19
1	ISSUED FOR MOH 4.1 SUBMISSION	2023-09-25

Rev.	Description	Date
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Drawing Title:

**PNEUMATIC TUBE
SYSTEM - PLAN
SYMBOLS & NOTES**

Project No.: 0020711.00 Checked by: Checker

PT-001

CONSULTANT DRAWINGS HAVE BEEN COORDINATED WITH PNEUMATIC TUBE DRAWINGS PROVIDED BY TRANSLOGIC, WHICH HAVE BEEN INCLUDED WITHIN THIS PACKAGE FOR REFERENCE. MECHANICAL CONTRACTOR IS TO ENGAGE TRANSLOGIC TO COMPLETE THE PNEUMATIC TUBE INSTALLATION. MECHANICAL CONTRACTOR IS TO COORDINATE EQUIPMENT LAYOUT AND INSTALLATION WITH ALL AFFECTED TRADES. MECHANICAL CONTRACTOR IS TO PROVIDE ACCESS DOORS AND CORING WORK AS REQUIRED, WHERE PNEUMATIC TUBE SYSTEM DRAWINGS AND DETAILS NOTE WORK TO BE COMPLETED "BY OTHERS" OR "BY OWNER", THIS IS TO BE PROVIDED BY THE MECHANICAL CONTRACTOR.

**Princess Margaret
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Transplant 2**

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(MH, MHDU, DSC)**

CANNONDESIGN

20 Victoria Street 5th floor
Toronto, ON Canada M5C 2N8
P: 416.915.0121
F: 416.955.0122

www.cannondesign.com



Mechanical & Electrical
250 Rowntree Dairy Rd.
Woodbridge, ON, Canada L4L 9J7
P: 905 507 0800

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2	ISSUED FOR BUILDING PERMIT	2023-12-19
1	ISSUED FOR MOH 4.1 SUBMISSION	2023-09-25

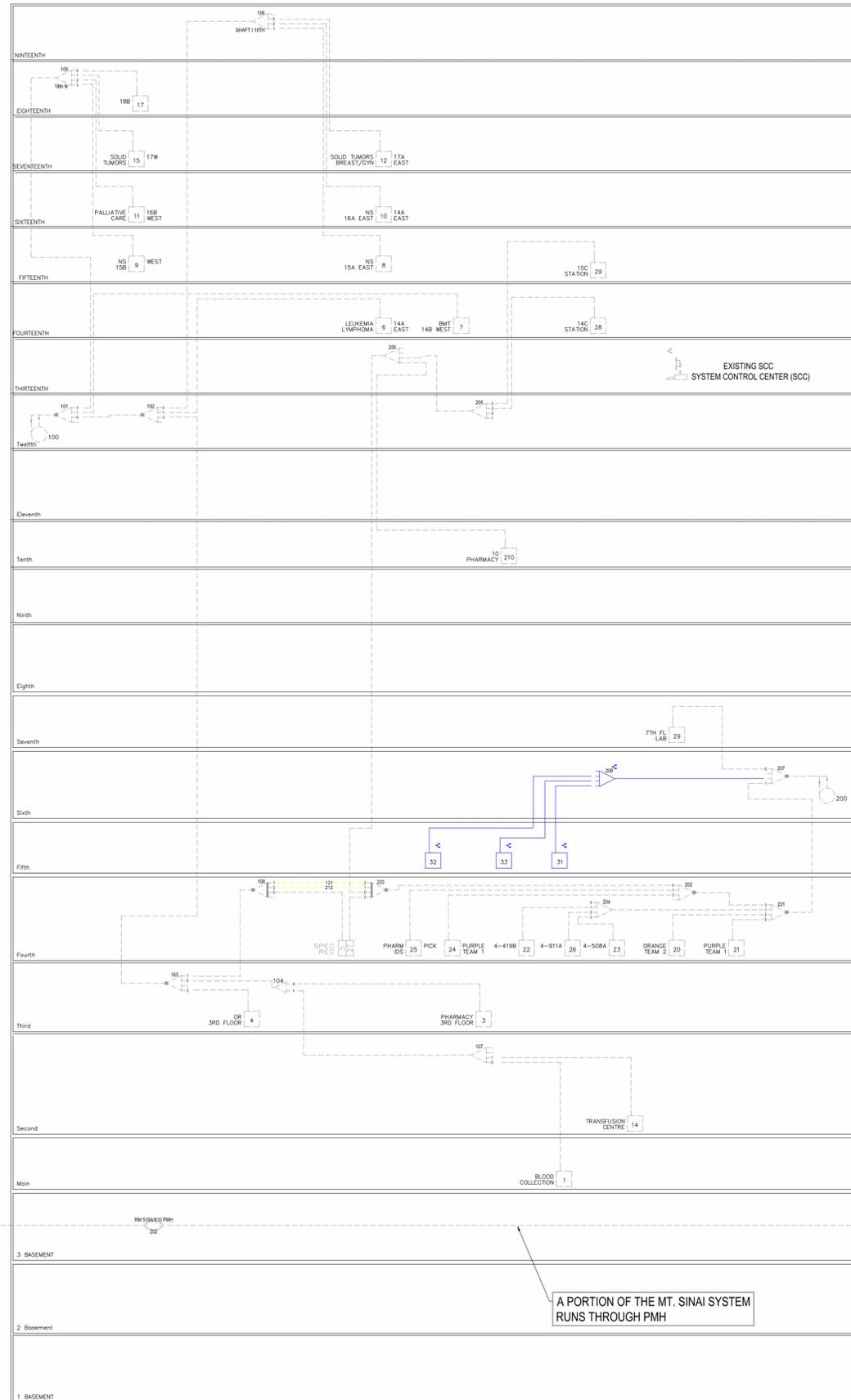
Rev. Description Date

Drawing Title:

**PNEUMATIC TUBE
SYSTEM - MECHANICAL
RISER DIAGRAM**

Project No.: 0020711.00 Checked by: Checker

PT-100



GC TO SCAN / CORE HOLES FOR PNEUMATIC TUBE RISERS

RISER DIAGRAM LEGEND

- ZONE BLOWER
- RECESSED STATION (STANDARD AND RFID)
- COMPACT STATION (STANDARD AND RFID)
- ULTRA STATION (STANDARD AND RFID)
- PRESSURE RELIEF VALVE (PRV) BEND
- INLINE PRESSURE RELIEF VALVE (PRV)
- 1X2 TRANSFER UNIT
- 1X4 TRANSFER UNIT
- 1X6 TRANSFER UNIT
- REPRESENTS HIGH PRIORITY TRANSFER UNIT
- "Q" OR "P" REPRESENTS NON-SWISSLOG EQUIPMENT
- VACUUM BYPASS VALVE NON-SWISSLOG EQUIPMENT
- NEXUS STATION PANEL
- WHOTUBE FEATURE
- SELECTIVE BYPASS (MAY BE COMPOSED OF 1X2, 1X4, or 1X6 TRANSFER UNITS)
- TRAFFIC ENHANCEMENT UNIT (TEU)
- TRANSFER UNIT OPEN PORT
- END CAP OR CAPPED TUBE
- SENSOR RELOCATION KIT
- INTERZONE SLIDEGATE
- BYPASS (BP), STORAGE (S), VAULT (V), OR RESOLUTION (R) PIPE
- POINT OF CONNECTION/TIE-IN POINT
- RECESSED STATION SECURITY ACCESS DOOR
- SYSTEM CONTROL CENTER (SCC)
- HOT BACKUP
- ALERT MESSAGING
- AUTODIALER
- REMOTE PERSONAL INDICATOR (RPI)
- CARRIER ARRIVAL INDICATOR (CAI)
- COMMUNICATION INTERFACE ASSEMBLY (CIA BOX)
- CONTROL CENTER REMOTE ALARM
- COMM. CABLE TERMINATION BOARD (SOLID REPRESENTS LINE IN LOCATION)
- ETHERNET CONNECTION DATA DROP REQUIRED, BY OTHERS
- COMMUNICATION CABLE COUPLER

RISER DIAGRAM LINETYPE LEGEND

- NEW WORK
- EXISTING
- DEMOLISHED
- ABANDONDED
- FUTURE

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Princess Margaret Hospital

A PORTION OF THE MT. SINAI SYSTEM RUNS THROUGH PMH

**Princess Margaret
Cancer Centre Stem Cell
Transplant 2**

**Part B
(MH, MHDU, DSC)**

CANNONDESIGN

20 Victoria Street 5th floor
Toronto, ON Canada M5C 2N8
P: 416.915.0121
F: 416.955.0122

www.cannondesign.com



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Rev. Description Date

GENERAL CONSTRUCTION NOTES:

- ALL PNEUMATIC TUBING, BENDS, & STRAIGHT PIPE, HAVE AN OUTSIDE DIAMETER OF 6"
- ALL BENDS & OFFSETS HAVE A STANDARD CENTERLINE RADIUS OF 50". THIS INCLUDES VERTICAL & HORIZONTAL CHANGES IN DIRECTIONS.
- TRANSFER UNITS & BLOWERS MUST HAVE 24" OF CLEARANCE ON ONE SIDE OF THE UNIT TO ALLOW FOR MAINTENANCE.

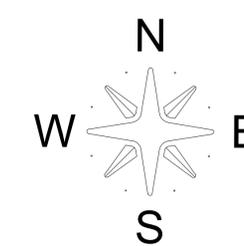
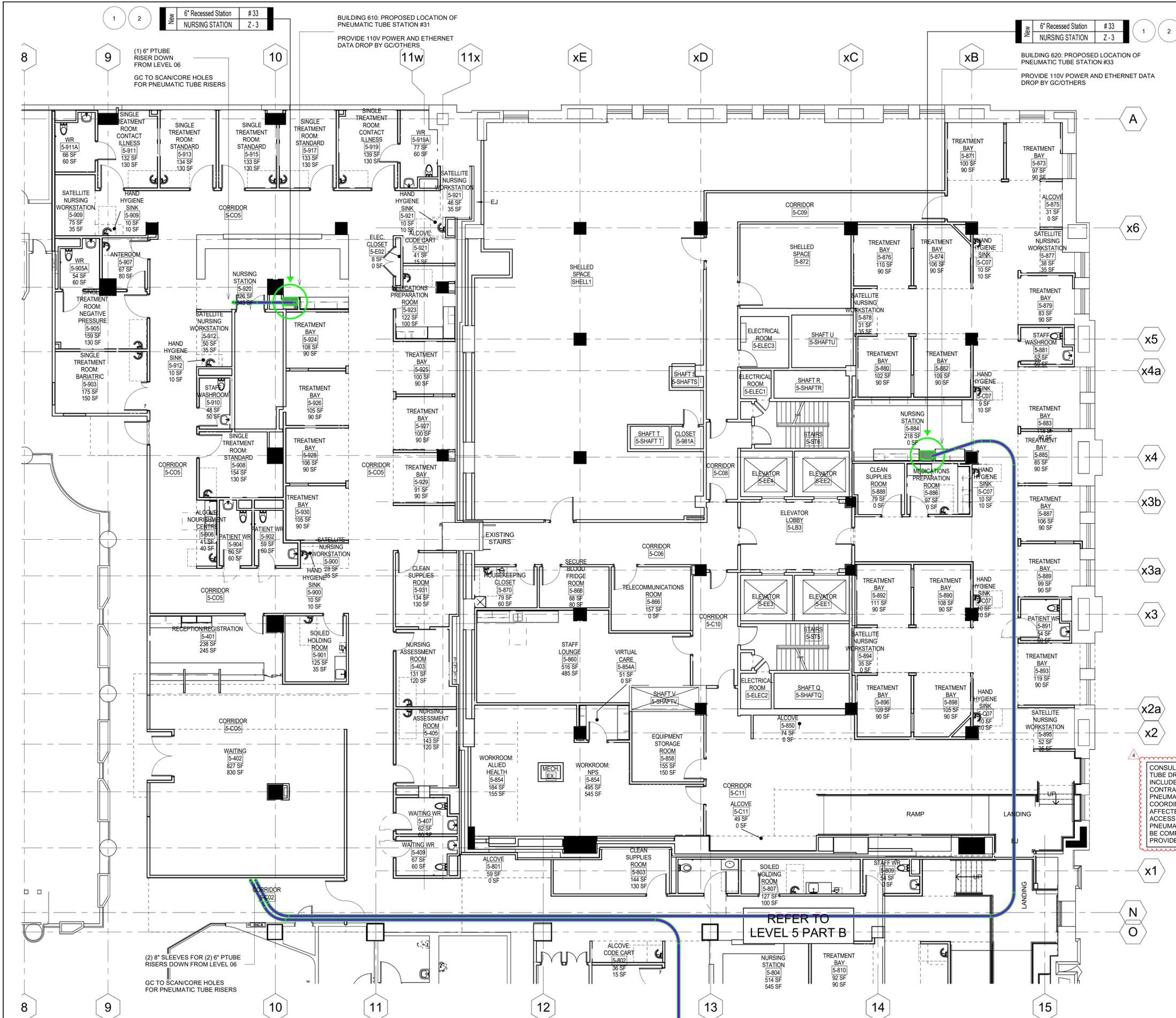
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- PROVIDE NETWORK DROP INTO NEW STATION, TRANSFER UNIT, BLOWER CONTROL ASSEMBLY, OR SYSTEM CONTROL CENTER. (BY GIO/OWNER)
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OTHER CONSTRUCTION NOTES:

- ARCHITECT TO FINALIZE CHASE ENCLOSURE FOR NEW P-TUBE RISER INCLUDING ANY REQUIRED MODIFICATIONS AND FINISHING WORK. (BY GIO/OWNER)
- ARCHITECT TO FINALIZE STATION LOCATION AND PROVIDE FINAL DETAILS FOR STATION ENCLOSURE INCLUDING REQUIRED MODIFICATIONS AND FINISHING WORK TO BE COMPLETED BY OTHERS. ONCE LOCATION IS FINALIZED SWISSLOG WILL PROVIDE ANY REQUIRED ABOVE CEILING MODIFICATIONS ALSO REQUIRED TO BE COMPLETED BY OTHERS.

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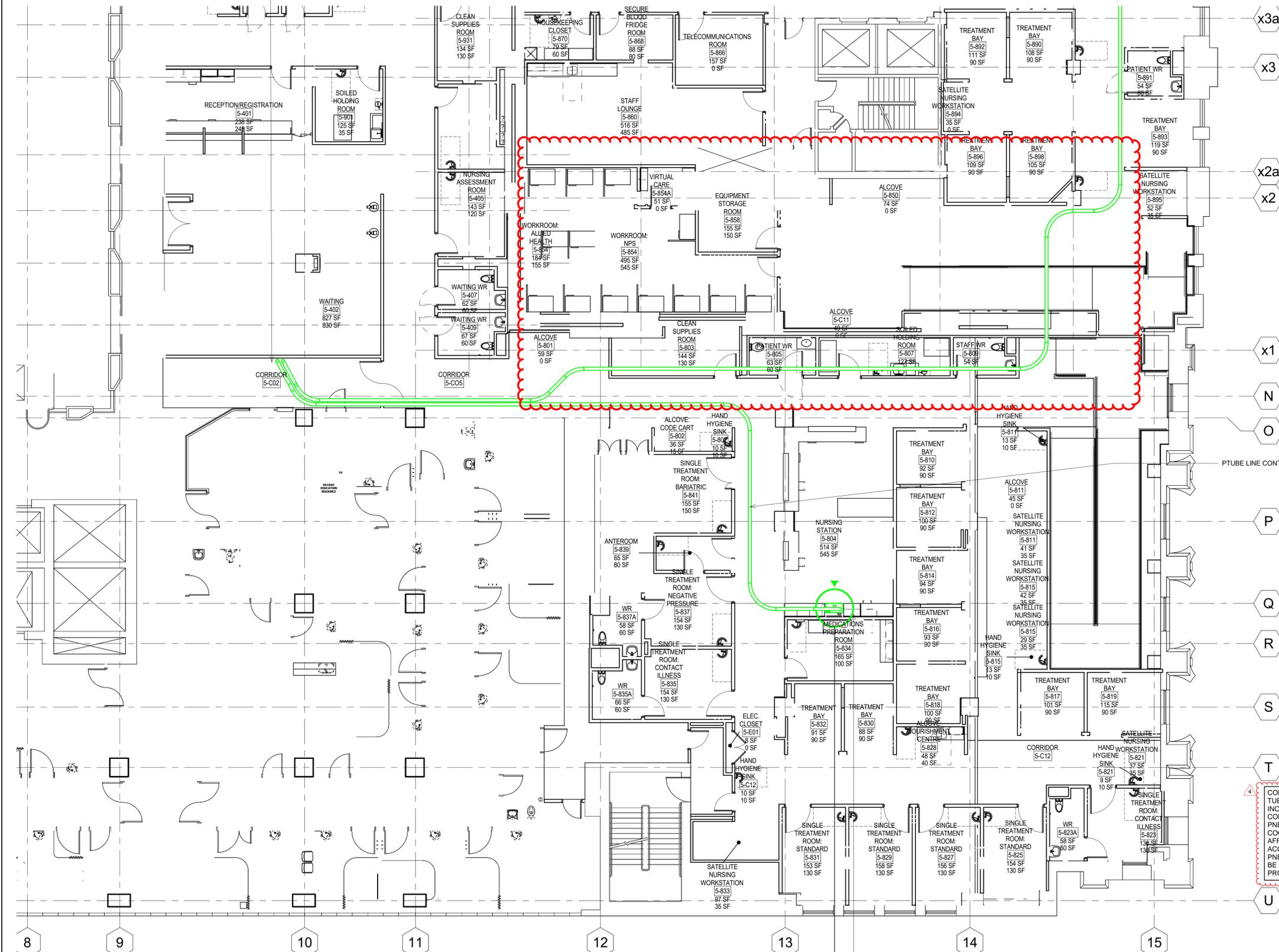
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Drawing Title:
PNEUMATIC TUBE SYSTEM - LEVEL 05 - FLOOR PLAN A

Project No.: 0020711.00 Checked by: Checker

PT-205A

(2) 8" SLEEVES FOR (2) 6" PTUBE RISERS DOWN FROM LEVEL 06
GC TO SCAN/CORE HOLES FOR PNEUMATIC TUBE RISERS



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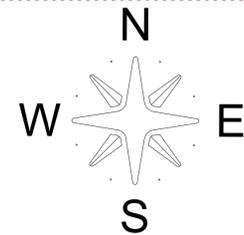
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PTUBE LINE CONTINUES TO PT.

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New	6" Recessed Station	# 32
	NURSING STATION	Z-3

BUILDING 610: PROPOSED LOCATION OF PNEUMATIC TUBE STATION #33
PROVIDE 110V POWER AND ETHERNET DATA DROP BY GC/OTHERS



**Princess Margaret
Cancer Centre Stem Cell
Transplant 2**

**Part B
(MH, MHDU, DSC)**

CANNONDESIGN

20 Victoria Street 5th floor
Toronto, ON Canada M5C 2N8
P: 416.915.0121
F: 416.955.0122

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Mechanical & Electrical
250 Rowntree Dairy Rd.
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Rev. Description Date

Drawing Title:

**PNEUMATIC TUBE
SYSTEM - LEVEL 05 -
FLOOR PLAN B**

Project No.: 0020711.00 Checked by: Checker

PT-205B

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Toronto, ON Canada M5C 2N8
P: 416.915.0121
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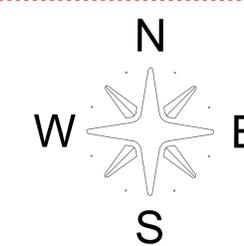
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Rev.	Description	Date
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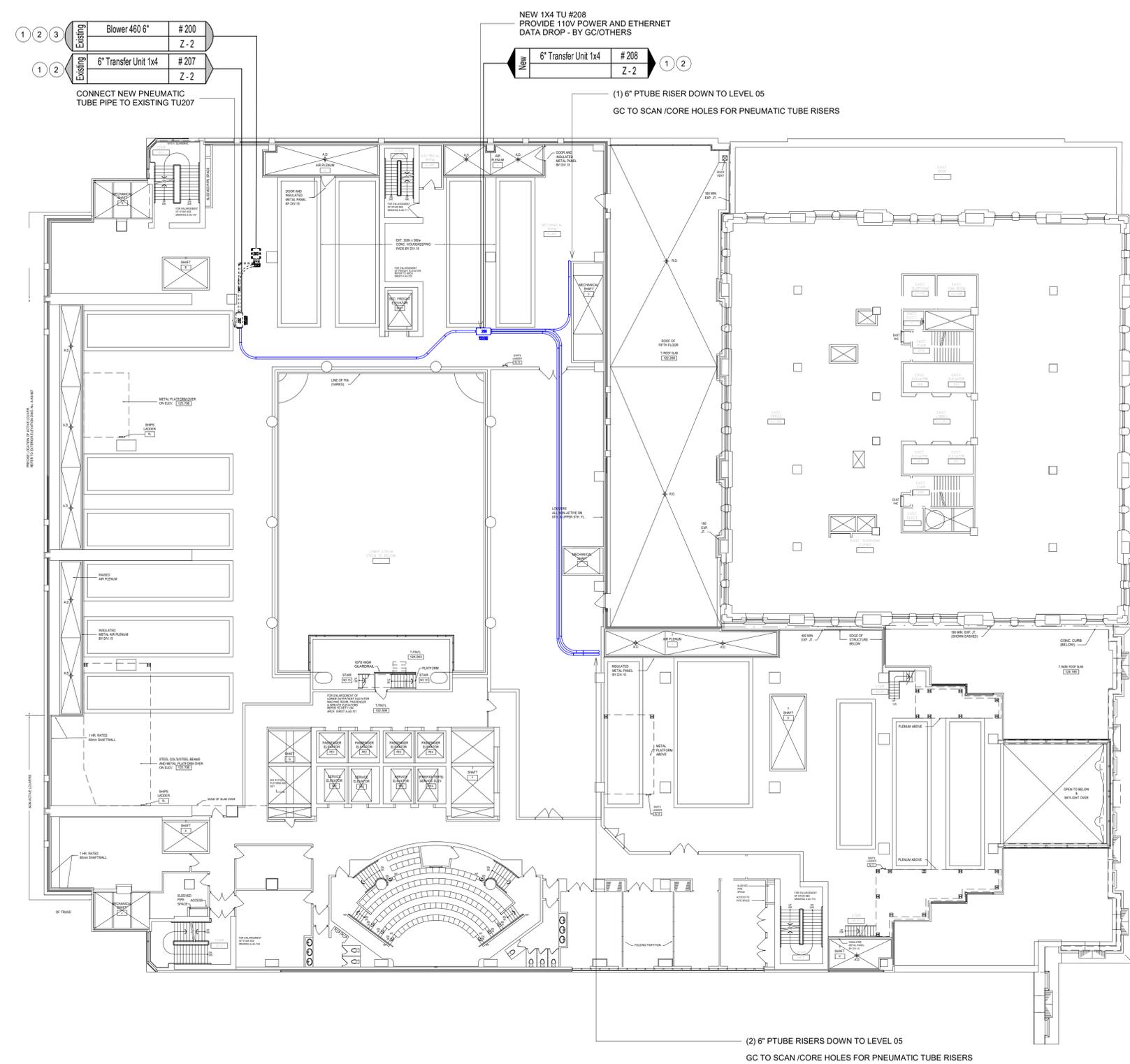


Drawing Title:

**PNEUMATIC TUBE
SYSTEM - LEVEL 06 -
FLOOR PLAN**

Project No.: 0020711.00 Checked by: Checker

PT-206



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20 Victoria Street 5th floor
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P: 416.915.0121
F: 416.955.0122

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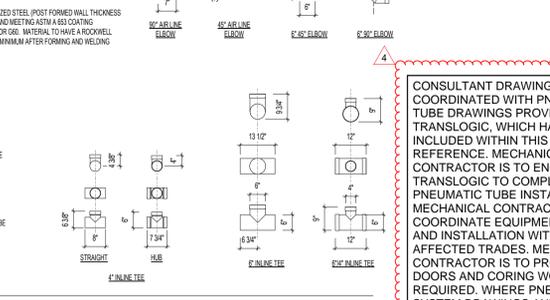
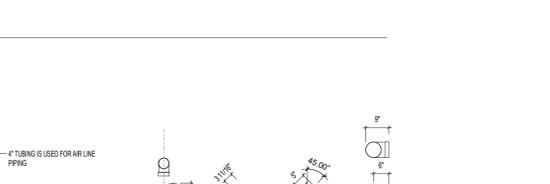
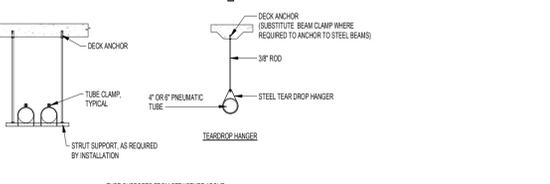
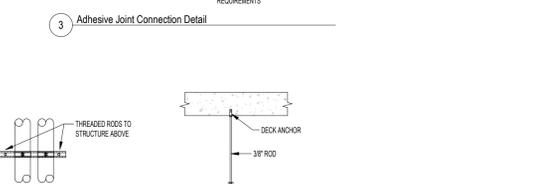
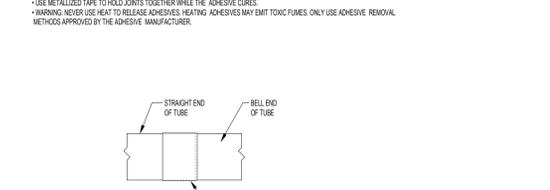
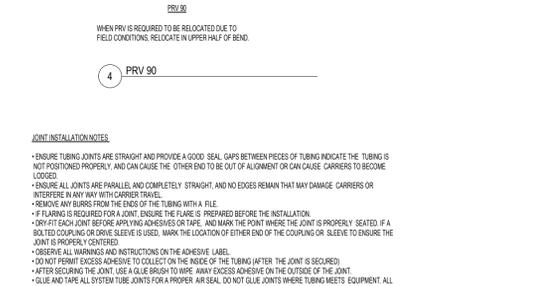
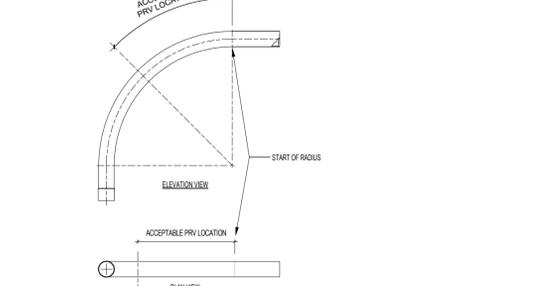
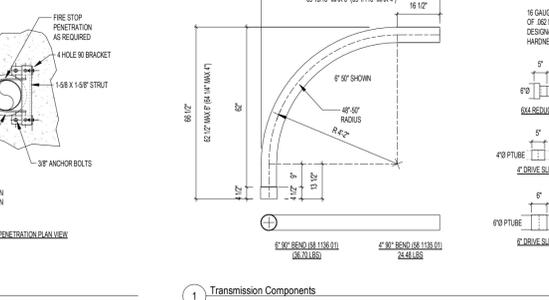
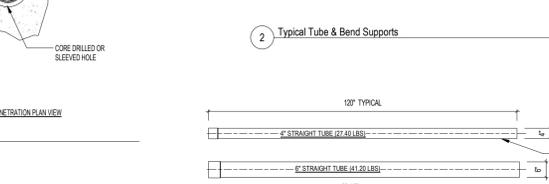
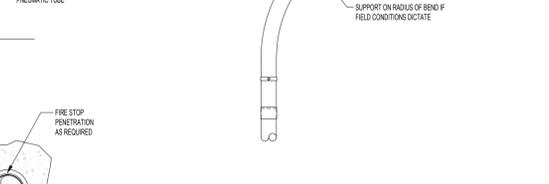
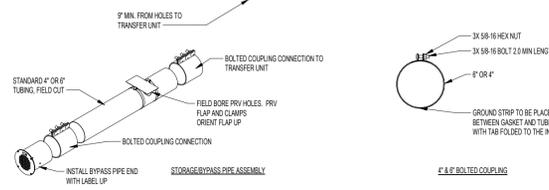
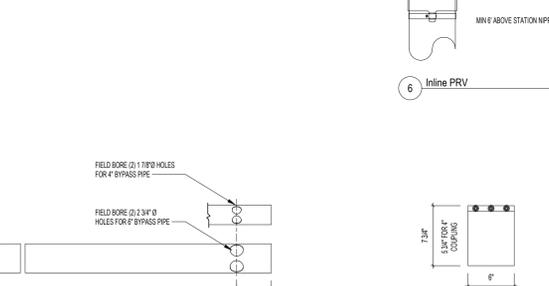
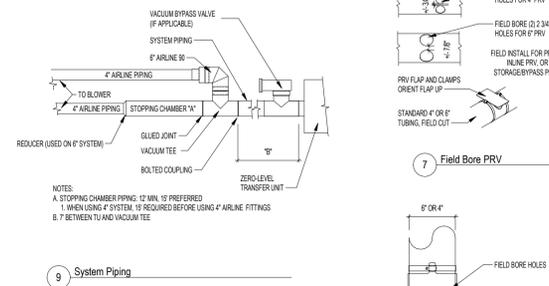
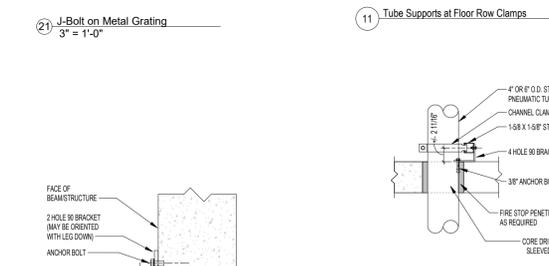
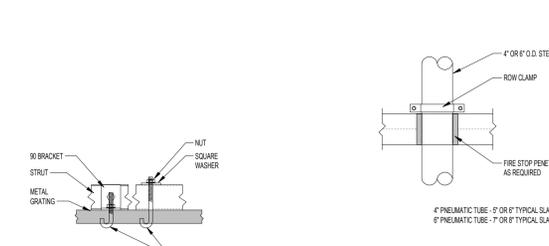
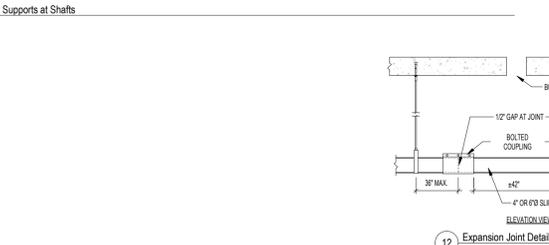
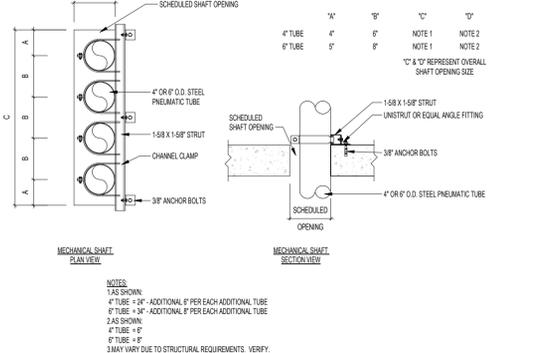
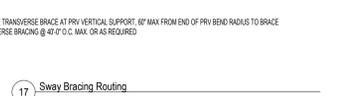
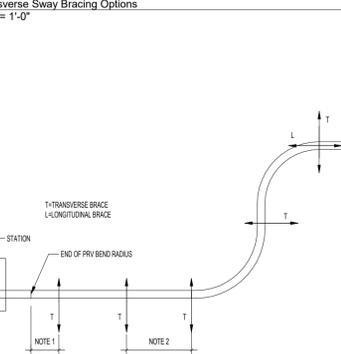
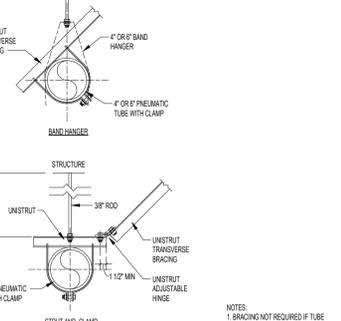
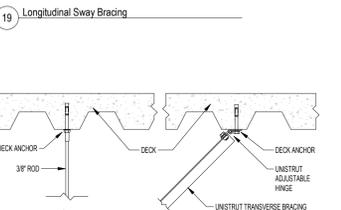
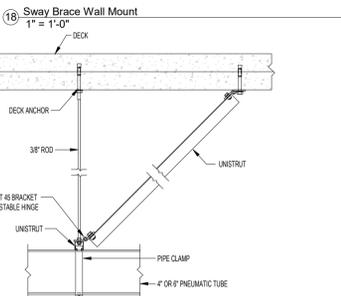
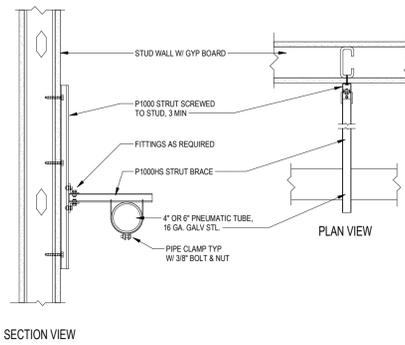
Rev.	Description	Date
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Drawing Title:

PNEUMATIC TUBE SYSTEM - TUBING & SUPPORT DETAILS

Project No.: 0020711.00 Checked by: Checker

PT-300



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TRANSFER UNIT SPECIFICATIONS

DRIVE MECHANISM

Electromechanical

POWER REQUIREMENTS

110 VAC, 1 Ph, 3A, dedicated unswitched circuit, terminated inside the equipment-supplied duplex outlet.

CONTROL REQUIREMENTS

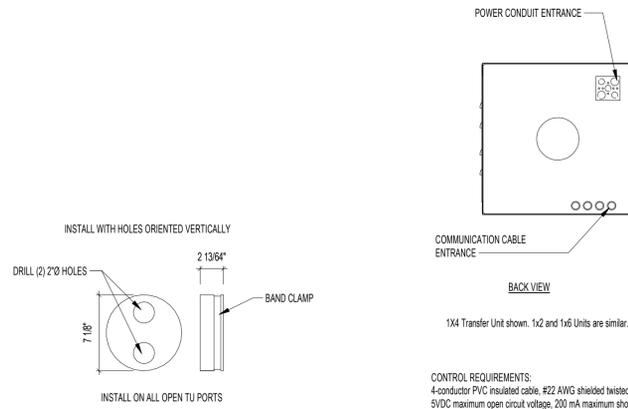
Ethernet Standard Protocol. Data drop required landed in each TU, by others.

ENVIRONMENTAL REQUIREMENTS

Operating Temperature: 0° to 120° F
Storage Temperature: -20° to 180° F
Relative Humidity: 0% to 90%
Maximum System Vacuum/Pressure: 4 psig
Heat output: Approximately 130 BTU/hr

Weights:

1x4 Mini Transfer Unit: 95 lbs. (6" Only)

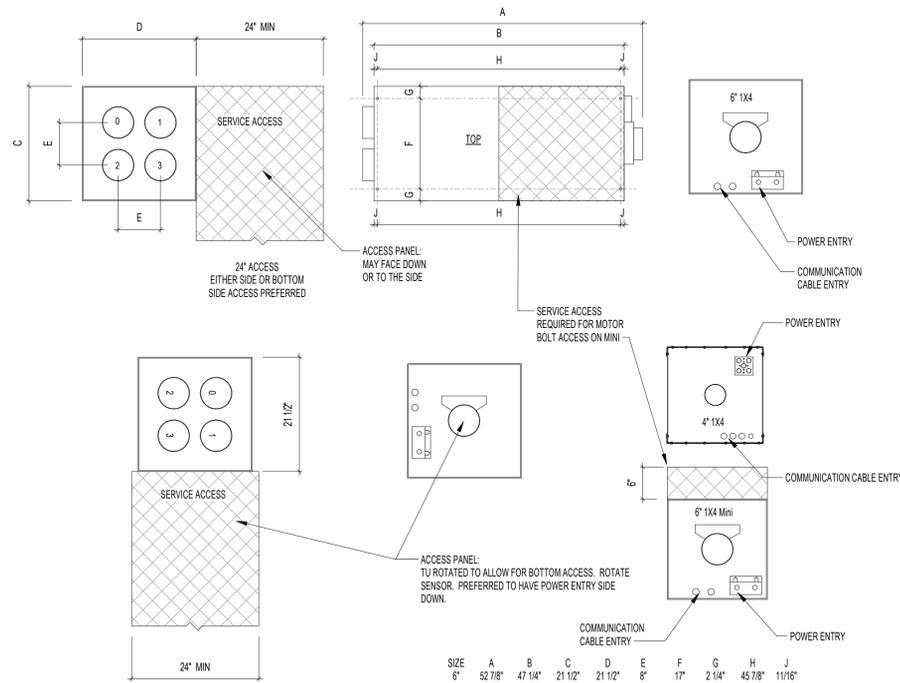


7 6" TU Port Cap

5 Transfer Unit Wiring

CONTROL REQUIREMENTS:
4-conductor PVC insulated cable, #22 AWG shielded twisted pair with ground wire.
5VDC maximum open circuit voltage, 200 mA maximum short circuit current.

1x4 Transfer Unit shown. 1x2 and 1x6 Units are similar.



1 Transfer Unit 1x4

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Rev.	Description	Date
4	ISSUED FOR ADDENDUM M-2	2024-09-10
3	ISSUED FOR TENDER	2024-08-14
2	ISSUED FOR BUILDING PERMIT	2023-12-19
1	ISSUED FOR MOH 4.1 SUBMISSION	2023-09-25

Rev. Description Date

Drawing Title:

**PNEUMATIC TUBE
SYSTEM - TRANSFER
UNIT DETAILS**

Project No.: 0020711.00 Checked by: Checker

PT-302

**Princess Margaret
Cancer Centre Stem Cell
Transplant 2**

**Part B
(MH, MHDU, DSC)**

CANNONDESIGN

20 Victoria Street 5th floor
Toronto, ON Canada M5C 2N8
P: 416.915.0121
F: 416.955.0122

www.cannondesign.com



Mechanical & Electrical
250 Rowntree Dairy Rd.
Woodbridge, ON, Canada L4L 9J7
P: 905 507 0800

www.quasarcg.com



4	ISSUED FOR ADDENDUM M-2	2024-09-10
3	ISSUED FOR TENDER	2024-08-14
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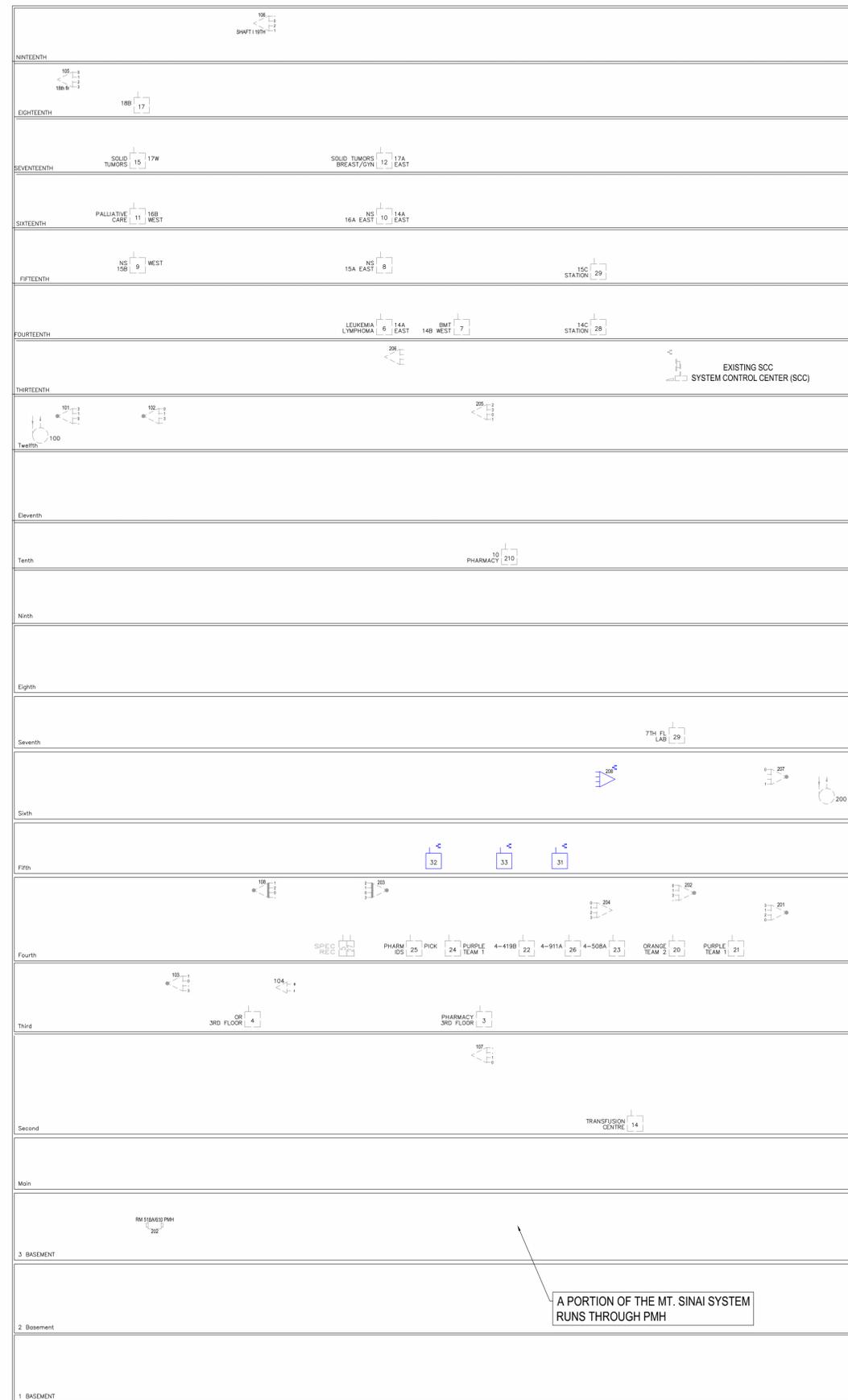
Rev. Description Date

Drawing Title:

**PNEUMATIC TUBE
SYSTEM - COMM RISER
DIAGRAM**

Project No.: 0020711.00 Checked by: Checker

PT-400



A PORTION OF THE MT. SINAI SYSTEM RUNS THROUGH PMH

RISER DIAGRAM LEGEND

- ZONE BLOWER
- RECESSED STATION (STANDARD AND RFID)
- COMPACT STATION (STANDARD AND RFID)
- ULTRA STATION (STANDARD AND RFID)
- PRESSURE RELIEF VALVE (PRV) BEND
- INLINE PRESSURE RELIEF VALVE (PRV)
- 1X2 TRANSFER UNIT
- 1X4 TRANSFER UNIT
- 1X6 TRANSFER UNIT
- TRANSFER UNIT
- VACUUM BYPASS VALVE
- NEXUS STATION PANEL
- WHOTUBE FEATURE
- SELECTIVE BYPASS (MAY BE COMPOSED OF 1X2, 1X4, or 1X6 TRANSFER UNITS)
- TRAFFIC ENHANCEMENT UNIT (TEU)
- TRANSFER UNIT OPEN PORT
- END CAP OR CAPPED TUBE
- SENSOR RELOCATION KIT
- INTERZONE SLIDEGATE
- BYPASS (BP), STORAGE (S), VAULT (V), OR RESOLUTION (R) PIPE
- POINT OF CONNECTION/TIE-IN POINT
- RECESSED STATION SECURITY ACCESS DOOR
- SYSTEM CONTROL CENTER (SCC)
- HOT BACKUP
- ALERT MESSAGING
- AUTODIALER
- REMOTE PERSONAL INDICATOR (RPI)
- CARRIER ARRIVAL INDICATOR (CAI)
- COMMUNICATION INTERFACE ASSEMBLY (CIA BOX)
- CONTROL CENTER REMOTE ALARM
- COMM. CABLE TERMINATION BOARD (SOLID REPRESENTS LINE IN LOCATION)
- ETHERNET CONNECTION
- DATA DROP REQUIRED, BY OTHERS
- COMMUNICATION CABLE COUPLER

RISER DIAGRAM LINETYPE LEGEND

- NEW WORK
- EXISTING
- DEMOLISHED
- ABANDONED

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BAS GUIDELINES. Rev2.3

1. IP Based Controllers.

1.1 IP address – managed by the Facilities.

1.2 BACnet ID – managed by the Facilities.

1.3 Observe a port number (BAC0, BAC1..) for the area.

1.4 General BAS controllers' notes.

Jace type: Jace 9000 (N4 4.13.3.48).

Before planning any job/project verify with the Facilities that new devices can be connected to existing N4 Jace or not (that a new Jace, a network switch and a UPS are needed to be installed under your project).

The hospital in the transition from R2 to N4. Non-mechanical floors are currently planned to have two Jaces per floor, when mechanical rooms have and will have more counts.

There will be no new installations/modifications under R2 System. The R2 components, logic and links have to be properly and fully decommissioned and removed if not no longer in-use. There shall not be any alarms from the system (R2) during the project activities.

A referred location (for the Jace) is in an electrical room at the network switch; both powered by an **online** UPS (a current model Tripplite SU-750XL, and shell be installed); this location has to be confirmed with the Facilities.

Open license.

Device Limit – at least 50.

Mechanical rooms Jaces: Device Limit – at least 25. A preferred way to have more Jaces with less load (and less amount of critical system on one Jace).

EC-Net Support Package shall be installed on each new (or existing) Jace which your project is going to use. The EC-Net Support Package number of controllers shall be the same the Jace “device.limit”

Controllers shall be installed in control cabinets with a backplate. A control cabinet door has to be able to be opened fully.

Jace Controllers, when installed, have to have enough room for their future expansion modules (without further relocating of the controllers). Each Jace has to be mounted horizontally on a dedicated 1-foot-long DIN rail. There has to be clear access to the Jace ports – 2 inches clearance (to Panduit, etc.).

Use Panduit and straps for cable management. Do not tire wrap cables in a cabinet.



1.5 All credentials to access any controller/device/computer will be managed by the Facilities; or if temporarily installed - given to the Facilities at the very day when a controller installed.

1.6 IP controllers can be daisy chained only when they serve FCU and RH and located in one control cabinet. A home run must be CAT6 and connected to the furthest (from entering) controller in the cabinet (that this home run cable can be plugged into any controller in the cabinet).

Cables between IP controllers in a cabinet have to be only long enough for easy plug/unplug action and do not have excessive length neither folded. It acceptable to keep these cables out of the panduit.

These grouped controllers have to be noted directly under BACnet Network by a TextBlock (type there a note of the controller's names which are grouped).

VAV IP controllers can be daisy chained only once (a 1st VAV home run is CAT6) and only if these VAVs serve one tenant.

1.7 For controllers which are connected in a loop (ring) se 2.7.

1.8 BAS field controllers' types allowed to integrate into the PMCC BAS Network:

Tridium Niagara (N4) and Distech Controls ECY and ECB controllers (except ECY-STAT and Power over Ethernet ones).

Any other BACnet controllers can be integrated as "a read only" objects (Danfoss, ABB, etc.) .

There shall not be installations when these read only controllers objects become a part of a control sequence.

There shall not be wireless installations.

There shall not be installations involving other protocols other than BACnet over IP and MSTP (integrated into the existing BAS N4 framework).

2.IP Networking

2.1 Communication cables to be ran in a metal raceway (such as EMT, metal flex, metal liquid tight).

2.2 All cables fitted with connectors are crimped as T568B.

2.3 Network switch types.

Hewlett Packard (not less than 18xx series) or Cisco Business 250 Series. Number of ports: 16 or more.

The switches shall be labelled with their main network settings.

Each network drop shall be labelled on both sides in the same and unique way.

2.4 Network parameters for the switches will be given by the Facilities to implement.

2.5 Do not install network switches ports down.

2.6 For IP controller's daisy chaining see "1.6".

2.6 There shall be only one solid run between switches/controllers, no additional interconnection allowed for CAT5/6 cables.

2.8 IP Controllers serving FCU, RH or VAV which are connected to a network switch that supports Spanning Tree Protocol (and set to it) can be daisy chained in a loop (or ring) with a group of no more than 10 (home runs must be CAT6). The group has to serve one tenant only, and no more than 5 rooms.

These grouped controllers have to be noted directly under BACnet Network by a TextBlock (type there a note of the controller's names which are grouped).

2.9 About a BACnet ID for new IP controllers without mstp port(s): Names come as "SystemAcronym_BACnetID", the last one is derived from a Jace.

Example: Jace PM43_6W to have new FCU11: FCU11_430xx (note, that a name under the Jace BACnet network is shortened to FCU11)

3. Software. Programming.

3.1 All software for configuring, programming, upgrading, etc. of controllers have to be installed (with permanent licenses if required) on the Facilities computer(s). All the credentials to access these computers and the software will be managed by the Facilities or given to the Facilities at the very day or prior of new controller to be installed.

There is the PC (name EC-GFX, IP 192.168.1.242) on site. It has EC-gfx and N4 where all current programming needs. Please, use it for the purposes described in the above paragraph.

It is a mandatory to backup databases of all your newly installed controllers on this computer, including changes in programming of a Distech controller. It shall be done by the end of the day, before a technician leaves PMCC.

It is a mandatory to keep and use all programming objects library on this computer and save EVERY database of each controller installed. Any changes to a program have to be saved on that PC regardless if a programmer works on a project or troubleshooting/servicing type of work.

Databases for Distech controllers sell have folders named as Jace Controllers where they reside in N4.

There will not be remote access for PMCC except an emergency service call. Plan your work counting on this.

3.2 All programming in WPTech and **EC-gfx** to be done on **one wiresheet** (programming sheet) **only**.

An EC-gfx wiresheet (programming sheet) layout has to present programming blocks of inputs on the left, outputs on the right and logic in the middle of the programming sheet (the same as a WPtech existing style).

3.3 About a control strategy in general.

Control of temperature and pressure of air handling units and heat exchangers has to be direct as it is possible. Meaning that if a motor speed is a controllable parameter, then a direct wiring to a VFD (start/stop, speed control) is required and NOT a use of any communication protocol of controlling the VFD.

When controlling a speed of a motor a pressure control is preferred over flow.

When a controlled parameter (temperature, pressure, etc.) is about to be read from a device which may have a communication protocol (BACnet, etc) – a use of a physical electrical signal is mandatory (meaning a use of separate devices for pressure/temperature/etc readings is required, or at worst a voltage/mAmp output of a flowstation/etc).

Each coil (of AHU, RH, ect.) has to have a discharge temperature sensor (a fan coil with heating and cooling may have only one – the resulting supply air temperature).

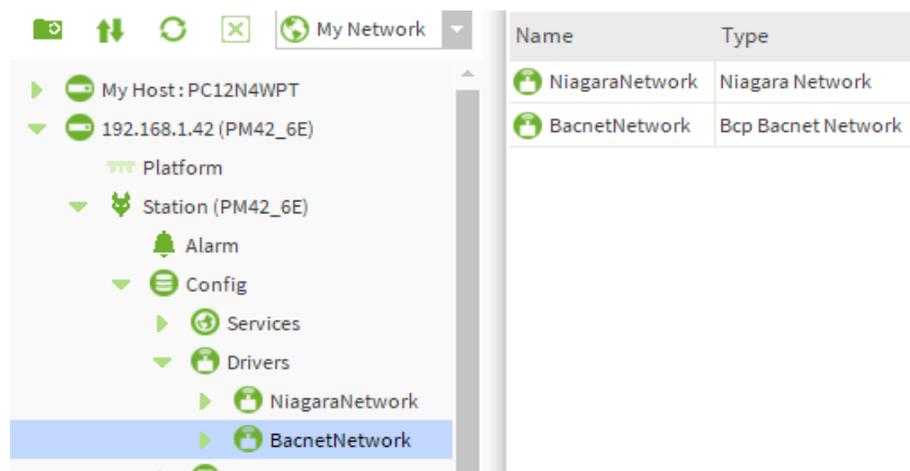
All heating/cooling valves are normally open, failed open, unless confirmed with the Facilities. Steam valves are normally closed, failed closed. A Heat recover systems valves failed position is to be discussed with the Facilities.

3.3 For a motor status use a split core current transducer. That will be a fan/pump status (set in a program by appropriate levels for ON/OFF statuses).

When a VFD is in-use, install the current transducer on incoming wire to the VFD.

3.4 BACnet Network Name.

Under Jace' station:/slot:/Drivers use a "BacnetNetwork" as a name.



4.MSTP Controllers.

4.1 Manufacturer(s) recommendations must be followed.

Such as: Max Mater, EOL, Biasing, No gaps in addresses, etc.

BACnet MSTP network **NAME** (as a container): MSTP## or MSTP### (where ## - is an mstp port number).

4.2 Baud rate: 19.2 or 38.4 kbaud.

For VFDs and other high voltage/current equipment – 19.2kbaud.

4.3 No joins on a mstp trunk allowed (reconnect at the controller terminal only).

4.4 When connecting a cable, the stripped conductors should be no longer than 1 inch. Do not tape two cables together (except of mstp cables at a VFD).

Observe rules for a shield termination.

4.5 Use one type of a cable for one mstp network (no mixed types of communication cables on the one network).

For critical areas (negative/positive pressure rooms, operation rooms, etc.) use high quality cables (ConnectAir W223C-2060YPC, Belden 89841)

For the rest: ConnectAir W241P, Provo 999201, Belden 9842.

Provo 999201 is mostly in use now.

If different – has to be confirmed by the Facilities.

4.6 The mstp network with controllers should not be connected to (or passing through) VFDs and other high voltage/current equipment with built-in controllers (use a dedicated mstp trunk).

4.7 The absolute maximum of the mstp controllers on one trunk has to be less than 40 (or less if a manufacturer recommends).

The last one has to be known and the Facilities have to be notified with this number prior issuing a project control drawing.

Manufacturer(s) recommendations of How To use a shield (and/or drain wire) must be followed.

4.8 An mstp trunk to be ran in an EMT, metal flex or metal liquid-tight.

4.9 An mstp cable is not allowed in a close proximity (~1ft) to a VFD power voltage. The cable has to be in a metal flex (EMT, liquid tight), or entering a low voltage section of the drive directly.

4.10 Use control cabinets with a backplate. A control cabinet door has to be able to be open fully (or at least 90 degree).

Preferred depth of a cabinet is 4 inches.

4.11 Use panduit for cable management. Do not tire wrap cables in a cabinet.

Preferred way for an mstp cable is outside of the rest of the cables:



5. Power Feeds.

5.1 Use emergency breaker panels to feed the BAS controllers and devices.

5.2 Use separate stepdown transformers for the BAS controllers and devices.

Use a separate 24vdc power supply for current loops, etc. (do not use a built-in controller power supply for field devices/current loops).

Exemption: Some controllers do not have a DO connection for an external power. Or they have only one DO available with an external power connection is already used (example: ECY-TU-203).

5.3 A neutral is to be grounded (if the opposite is not stated by a controller installation instruction).

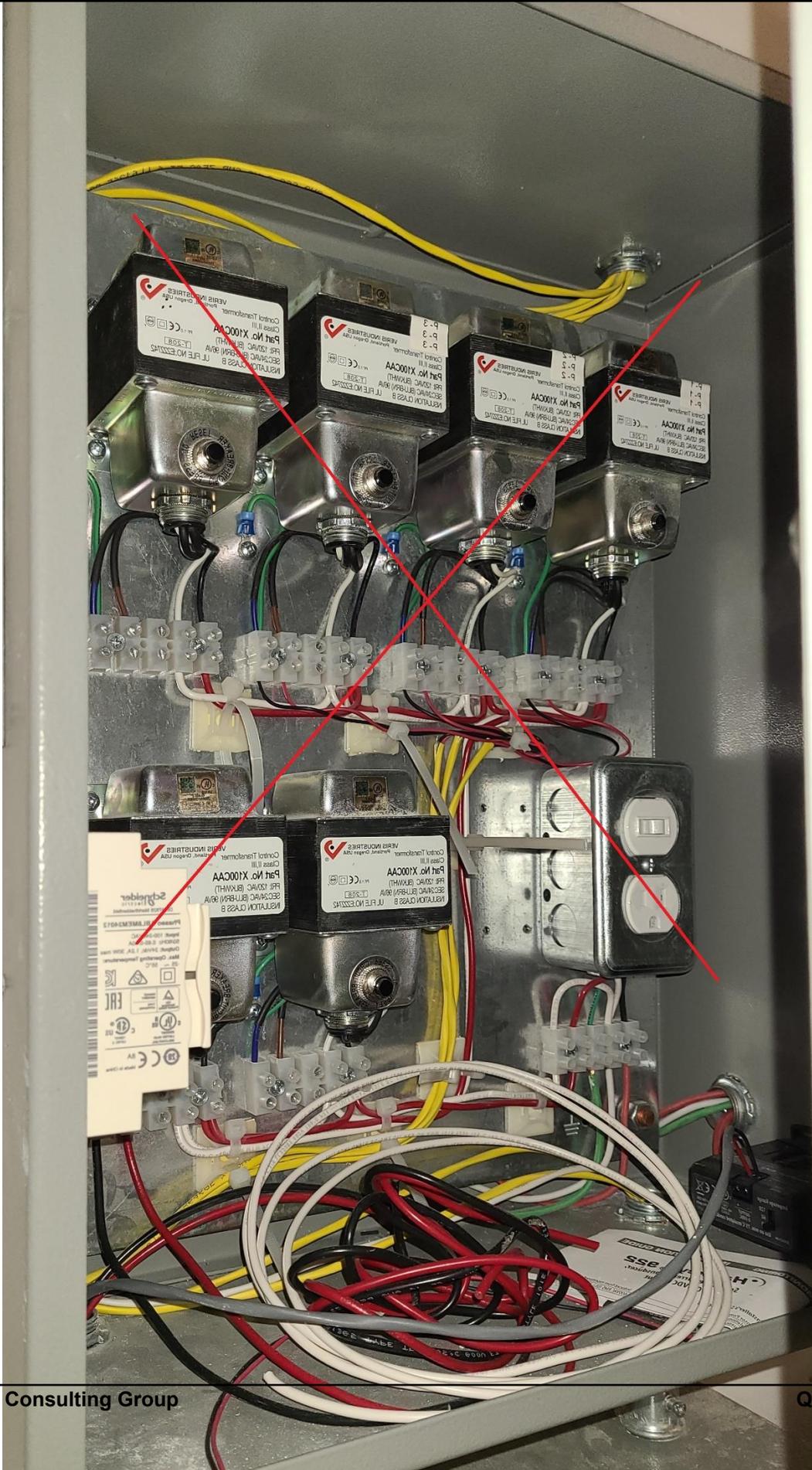
5.4 Most of BAS controllers using a half wave built-in rectifier – count on it and avoid loading a transformer over its limit.

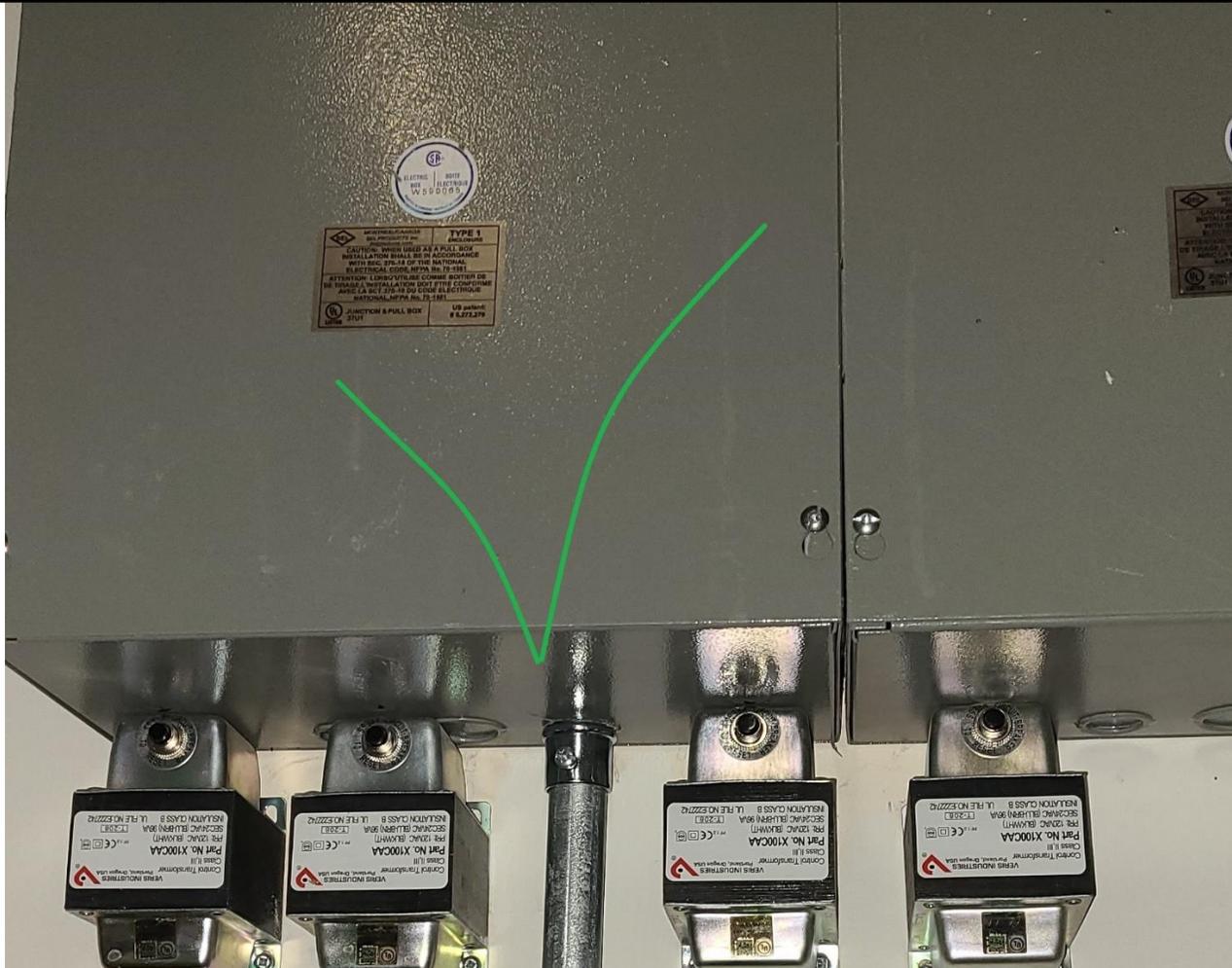
Example: A transformer of 96VA may have up to 12 controllers with maximum consumption of 4VA each.

5.5 Do not install transformers inside of a cabinet/box.

5.6 Do not run together line voltage wires/cables with low voltage wiring.

5.7 See the paragraph 1.8 for the restrictions of different type of controllers and protocols.

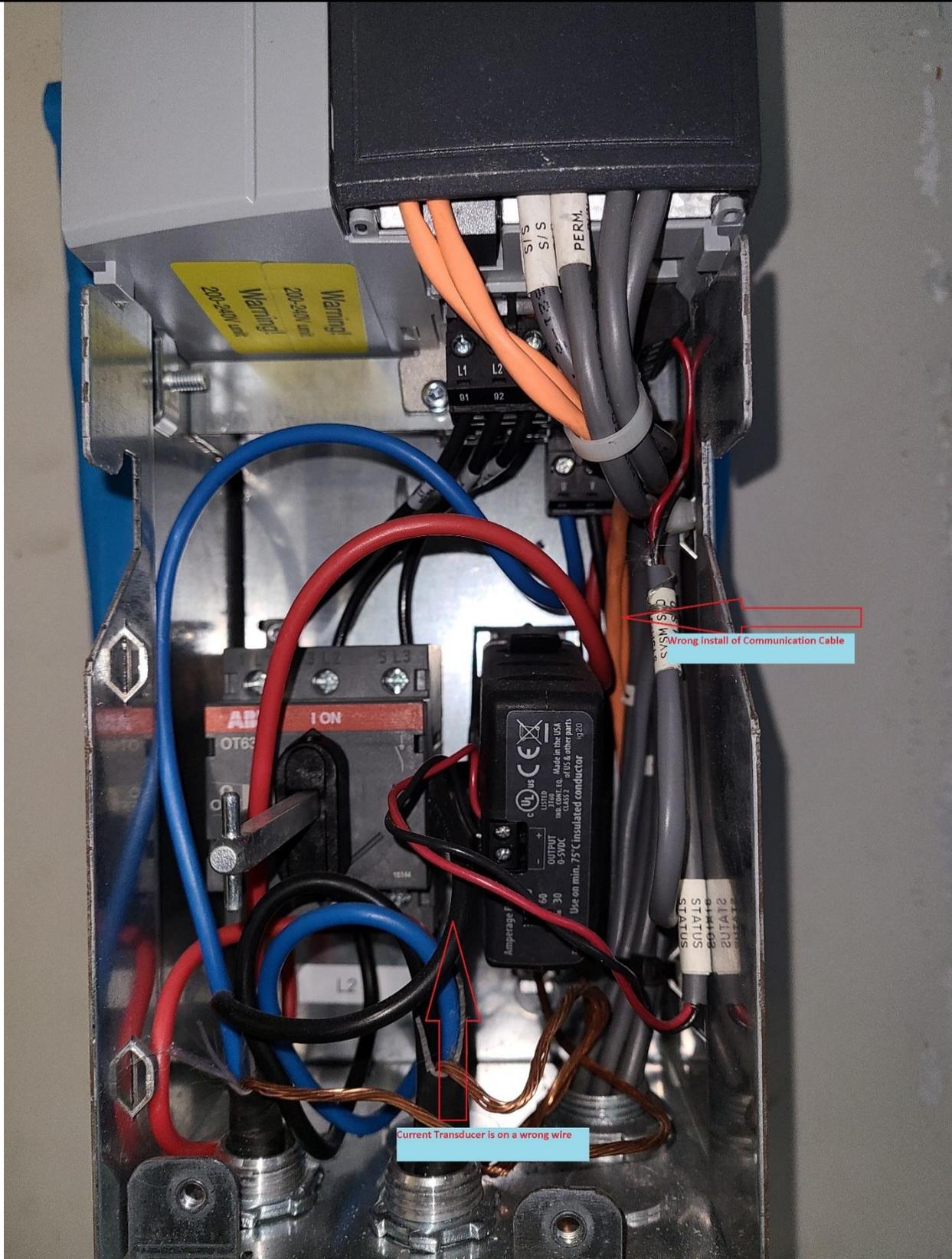


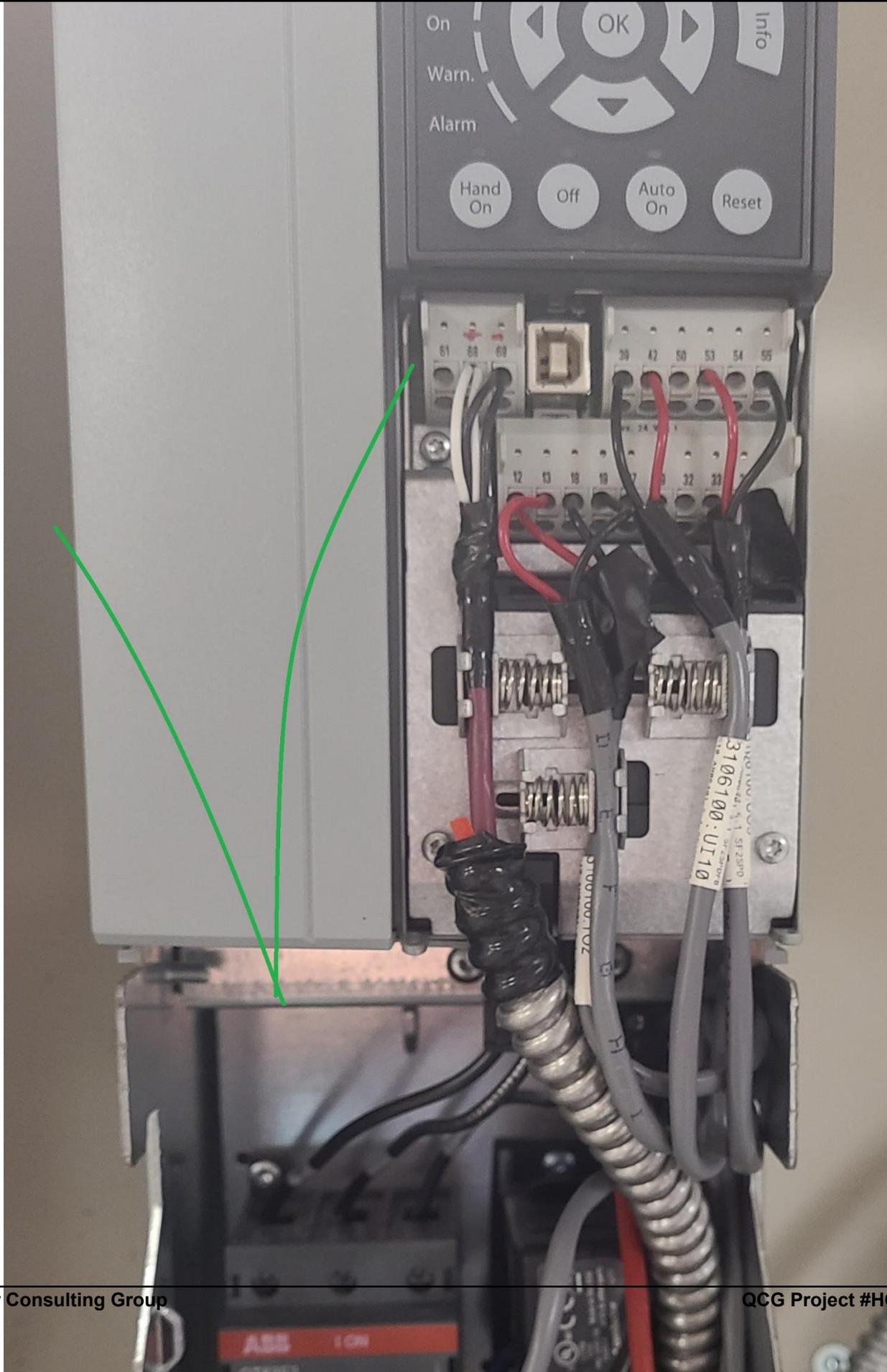


5.7 24v power.

Use a cable with 16awg conductors for field wiring. If one or two low current devices are to be connected at a short distance, a 18awg can be used.

Be sure that a drop of voltage of is less than 1.5 v (or less if a manufacturer recommends)





5.8 DIN rail terminal blocks are only of this type/configuration, with screw-in jumpers:



5.9 Do not use Butt Splices Terminals (Butt Splice Connectors).

6. Graphics.

6.1 Equipment Graphics.

Use existing R2 graphic library or N4 module://kitPxGraphics to built new graphics until further notice.

Grid size is 5.

6.2 Equipment Tables.

See the ones, as examples, of 5th floor 610.

Each project with FCU, RH or VAV shell be presented in such a table.

6.3 Floor plans.

Use a black background for floor plans (see 1B "Planning", or Main Floor).

Each project with FCU, RH or VAV shall be presented on a floor plan of the area.

6.4 Fonts.

#14 of SansSerif (or Arial) for common use. For headers (or other specific areas) see current examples.

6.5 Read only values, alarms and Set (or override) values colors to be followed by examples (see 5th floor, AH38).

6.6 Every System has to have a sequence of operation attached (VAV,FCU,RH can be excluded when have less than 3 points control).

7. Alarms

7.1 Point's Alarm Configuration.

See the ones, as examples, of 5th floor 610.

7.2 Alarm Limits Exposure to Graphics.

Examples: Main Floor South-West; AH17.

7.3 A command failure alarming object to be set in the controller, then exposed to the Jace for further setting of alarm parameters.

7.4 All Alarms have to have their url links to their Graphics.

7.5 Controller Status Alarms have to be configured and have their url links as well.

8. Points Names, etc.

8.1 Do not use characters which are not translated in Tridium directly (space, semicolon, comma...), use an underscore to separate names or abbreviations.

8.2 Current examples will be shown on your request. Do not make your own

My Network

- 3 (PM43_6W)
 - m
 - m
 - 1 (PM43_6W)
 - arm
 - onfig
 - Services
 - Drivers
 - NiagaraNetwork
 - BacnetNetwork
 - Local Device
 - Bacnet Comm
 - Monitor
 - Tuning Policies
 - AH17
 - AH17
 - Alarm Source Info
 - Points**
 - Virtual
 - Alarms
 - Schedules
 - Trend Logs
 - Config
 - Logic
 - SF_VFD
 - Alarm Source Info
 - Points
 - Controller_Status
 - AnalogInput53
 - MotorCurrent
 - Power
 - OperatingHours
 - RunningHours
 - kWhCounter
 - Frequency
 - FAULT
 - HandAuto
 - Warning
 - Trip
 - Running

Database	
Name	Out
N CV_Hi	100 % {ok} @ def
N CV_Lo	0 % {ok} @ def
E Controller_Status	Operational {ok}
B DMPwithMATSP	On {ok} @ def
N EAD	40 % {ok}
B EADC	Off {ok}
B EADM	Off {ok}
B EADO	Off {ok}
N EAD_FB	39 % {ok}
N EAD_Hi	100 % {ok} @ def
N EAD_Lo	0 % {ok} @ def
B EXH	Off {ok} @ def
B Enth	On {ok} @ def
B Enth_Dmd	Off {ok}
B Enth_inUse	On {ok}
N FAD	40 % {ok}
B FADC	On {ok}
B FADM	Off {ok}
B FADO	Off {ok}
N FAD_FB	39 % {ok}
N FAD_Hi	100 % {ok} @ def
N FAD_Lo	0 % {ok} @ def
B Frz_St	Off {ok}
N HCCT	25.7 °C {ok}
N HDCTmin_SP	8.0 °C {ok} @ def
N HV	0 % {ok}
N HV_Hi	100 % {ok} @ def
N HV_Lo	0 % {ok} @ def
N HV_MIN	50 % {ok} @ def
N HumV	0 % {ok}
N HumV_Hi	30 % {ok} @ def
N HumV_Lo	0 % {ok} @ def
N MAT	25.5 °C {ok}
N MAT_DIFF	2.0 °C {ok} @ def

The example above shows the way the names are used (for the hardwired points as well as software points of the main controller and the VFDs).

Observe a precision of the values – to be followed.

8.3 All points names have to be set in the field controller database/program and exposed to the Jace with the same names.

8.4 All points engineering units and COV have to be set in the field controller database/program (WPTech, EC-gfx, etc.) and automatically learned in to Niagara.

8.5 If a point name is not in both examples ask the Facilities – do not make on your own.

9. Logs

History grouping to be followed, as well as log names.

Ask for examples prior programming.

If a new group is need – ask the Facility – do not create on your own.

10. Naming of HVAC Equipment.

Minimize the verities of names of some HVAC equipment. Use FCU, RH, VAV, AH.

A full name will consist of the above and a two-digit number (VAV01, FCU22..). The numbering for VAV, FCU and RH is consistent throughout the floor. It will allow to stay independent from room numbers and names (always a problem). The last ones will be used for equipment descriptions and floor plans (and not as a part of equipment name).

In case of an overlooked (of old existent) unit or a unit to be split, use a letter at the end (RH11, RH11A, RH11B).

The exemptions, for now, are when it serves a big area, such as the whole floor (620 building) or ventilate a big mechanical (such as Cooling Plant) or High Voltage Electrical room.

11. Cables.

Every cable must have a voltage rating printed on its jacket. Cables without it are not permitted.

Once again – all the cables to be ran in a metal flex, EMT or metal liquid tight – no open wiring.

No open wiring applies to field devices which do not have proper connectors (like devices with “pig tales” or meters with sensors which are cabled into the meter). Select devices which can be properly connected with a flex (or use, at worst, a junction box to keep open and/or excessive cables inside).

When wiring a control cabinet, do not extend (or add) a wire or a cable – be sure that it is long enough to reach its final connection.

12. Safety devices.

Freeze stats.

Capillary line Freeze stat coverage: 1 square foot of a coil by 1 linear foot of a capillary line. The last one is installed in a drain manner, with a freeze stat's box installed on the highest point. A freeze stat box (with reset/test button) is NOT to be mounted inside of the plenum of AHU (RTU, etc.). Securing the capillary line: make sure that there less than 2.5ft between points of securing.

For 100% fresh air units, a hardwired interlock of an outside air damper end switch with a fan is require. A whisker blade switch shall be used (not a built-in into an actuator or mounted on a damper shaft).

High and low limit temperature/pressure devices shall be hardwired to corresponding motors to permit their operation.

Do not wire BAS signals a hardwired interlock carries greater than 24v in one conduit (flex, etc.).

12. Decommissioning.

Every BAS device (sensors, controllers, etc.) when disconnected and no longer in use, has to be decommissioned completely and properly:

12.1 Controllers. To be removed, logic/Alarms/Graphics and Facility Navigator corrected. Do not leave external link when an R2 object was removed.

12.2 Devices. Same as 12.1 and Points List updated.

12.3 Pneumatic Controls. All air lines shall be removed.

If a (BAS) compressed air is no longer in use, cut the line and plug it at the nearest "T".

12.4 Removed controllers and devices shall be brought back to the Facilities in undamaged conditions (except of the MicroSmart controllers and pneumatic devices).

13. THESE GUIDELINES ARE NOT THE ONLY SET OF RULES TO DO THE JOB. THERE ARE MULTIPLE REGULATIONS AND BEST PRACTICES FROM MANUFACTURERS AND ELECTRICAL STANDARDS WHICH MUST BE OBSERVED AND FOLLOWED.

We are open to discuss any question which is left behind these lines.

August 2024.

Project Name:	UHN PM Stem Cell Transplant Phase II Part B	Date Issued:	September 10, 2024
Quasar Project #:	HC-21-058		

Distribution

Cannon Design Ltd.	Linda Vela	lvela@cannondesign.com
Cannon Design Ltd.	Jennifer Huynh	jhuynh@cannondesign.com
Quasar Consulting Group	Alexandra Blagojevic	alexandra.blagojevic@quasarcg.com
Quasar Consulting Group	Jerry Guidarelli	jerry.guidarelli@quasarcg.com
Quasar Consulting Group	Jomuel Estranero	jomuel.estraneo@quasarcg.com
Quasar Consulting Group	Manda Bobinac	manda.bobinac@quasarcg.com

Addendum #: E-2

Revision #: 0

This Addendum forms part of the Contract Specifications and Drawings, and modifies the Bidding Documents, with Amendments and Additions noted below. This Addendum shall be added to the front of the specifications as issued. Bidders shall acknowledge receipt of this Addendum in the space provided in the Bid Form and include in bid amount.

This addendum includes modifications to the drawings and specifications as summarized below. Unless otherwise noted, all drawings listed below are attached herewith. Changes to drawings are highlighted with a revision bubble; include for all changes highlighted in the revision bubbles including, but not limited to, those items described below. Answers to Requests for Information below shall form part of the project specifications and are identified in bold following QCG (Quasar Consulting Group).

Requests for Information:

1. (57) Power Distribution Panels – Need photos for number of existing panels where we have to carry out modifications & install new breakers. Please arrange following photos.

- Photos of Switchboard / Distribution & Breaker Panels identification labels stating Switchboard / Panel name, Voltage, Current Capacity, Short Circuit (KA) Breaking Capacity with number of phases & wires details.
- Photos of panel to identify which section is available to install new breakers.
- Photo covering entire panel structure.

QCG E: (57) Some of the pictures are provided as part of this Addendum E-2, these pictures are based on previous electrical walkthroughs. Electrical Contractor can request additional site visit, any additional required information can be gathered as part of the site visit.

2. (63) As per drwgs. E4402 & E4405 Nurse Call & PA Schematic Diagrams –

- 15A UPS are required. Please provide specifications for same.
- Under which systems it falls either Nurse Call or PA System. Please confirm.

QCG E: (63) UPS by UHN Digital, Austco will not be providing the PA speaker, however they are providing the TKIS paging adapter that will connect with the UHN approved 3rd party PA manufacturer and supplier. Updated specs for will be included as part of Addendum E-2.

3. (64) Section 28 49 00 Electronic Personal Protection Systems, clause 1.01.2.1 & clause 1.01.2.2 mentions Appendix J: Security System & Appendix K: CCTV System, which we do not find issued with Tender Documents. Please issue same. (Whereas We found Appendix J 2024-08-14 - UHN SCT2 Part B - IFT – Sdwg & Appendix K - Constructor Safety Rules Combined 2024 with tender documents).

QCG E: (64) Refer to Appendix E-1 28 49 00.00 - Electronic Personal Protection Systems

4. (77) On E4002, E4005 & E4010, please provide the existing panel schedule and feeder/conduit sizes for demolition of these panels: 5LP04, 5ELR01, 2ELP01, 5EDP01, 5EKP01, 5EKP02, 5DP03, RP-5RP06, RP-5RP07, 5DP04, 5DP05, 5KP01, 5KP02, 5KP03, 5KP04, 5LP05, 5RP06, 5RP07, RP-S5, RP-N5, PP-N5, 2RP09, 2LP01, LP-EL10, RP-ES10, RP-1ES10, RP-N10, RP-2S10, RP-C10, LP-L10, RP-1N10, RP-S10, 3S10, RP-2N10, RP-1S10, 3N10.

QCG E: (77) where information is available the size of feeders and conduit will be identified for the demolished panels. Some pictures of the panelboard directories for the panels identified are issued as part of Addendum E2. Electrical Contractor can request additional site visit, any additional required information can be gathered as part of the site visit.

5. (79) Could you please confirm all the light fixtures specified in the luminaire schedule (Drwg E6000) require standard 0-10V dimming except the following: 2LT01, 5LT01, 10LT01, 5LT02, 10LT02, 5LT02A, 10LT02A, 5LT02B, 10LT02C, 10LT02B, 10LT03, 5LT19, 5LT25?

QCG E: (79) All lighting fixture selected, will have factory built in 0-10 dimming typical.

6. (80) We noticed “?” on different pages of the electrical drawings as follows. Please provide/confirm the details as applicable for these.

E4002/E4102 on the 3rd floor transformer,

E4005 on the last 60A breaker for DP-EM1 Panel,

E4006 on the feeder from SWBD 6AAA11E to PDP-M-03E,

E4010 on the bus duct for the 400A load and on the existing breaker in EPP-9EE for the 50A load,

E4105 for the feeder on 2RP09/2LP01 and on the last 60A breaker for DP-EM1 Panel,

E4106 on the feeder from SWBD 6AAA11E to PDP-M-03E,

E4010 on the bus duct for the 400A load and on the existing breaker in EPP-9EE,

E4110 for the 50 A breaker load in EPP-9EE

E2205A- treatment bay adjacent to 5-893 room

QCG E: (80) Single diagram as show on addendum E-1 is as per base building (SLD), some of the areas in question are out of scope, if further electrical information is required, the electrical contractor should include that as a list of items to be investigated during their additional site visit.

7. (123) Reference is made to drawing # E4102. As per this drawing, the feeders for 5UPS1 and 2UPS1 are to bring from existing panel EPP-9EE which is located at RM 918. Please indicate on the drawings, the location of RM918 with respect to location of 5UPS1 and 2UPS1 to help us find the feeder lengths.

QCG E: (123) Existing elec. room 918 on level 9 is right below existing elec. room 10-E02. reference drawing E2110

8. (125) Level 2 already has Austco Nurse Call installed in May of 2023. This unit should be a R&R rather than new equipment. There should be a new two year labour warranty applied to this unit. UHN Digital now wants only Cat6 cable and a two year labour warranty for all nurse call projects.

QCG E: (125) Electrical drawings show nurse call to be re-used. provide cat6a as per uhn design guidelines

9. (126) Drwg. E0106 is not readable. Pls. issue new.

QCG E: (126) Updated Background will be provided as per Addendum E-2

10. (127) Need to know location of Switchboards SWBD-6AA12 & SWBD-6AA9E with 2 associated transformers TX-ACME (225KVA) on floor plans, in order to carry out necessary modifications.

QCG E: (127) The updated background for E0106 will show the location for SWB-6AA12 and SWBD-6AAE and associated transformer.

11. (128) Need to know location of 1EDP02 Panel from first floor.

QCG E: (128) Updated drawings E0101 to show existing panel 1EDP02 this information and will be included in addendum E-2.

12. (129) Need to know locations of 5ELR01 & 5LP04 Panels

QCG E: (129) Panels are already shown on the original tender set, refer to drawings E1105A and E1105B

13. (136) Please confirm who is the existing distribution manufacturer, i.e. Eaton or Schneider?

QCG E: (136) SIEMENS is the existing electrical distribution manufacturer.

14. (137) Please provide the UPS specification. Please confirm input/output voltages for each UPS identified on the single line diagram (diagram emailed separately).

QCG E: (137) UHN will procure along with PDU via Digital team. Electrical contractor to coordinate with UHN Digital.

15. (143) Sources for exhaust fan EF-1 and EF-2 shown on drawing E2111 are 12-EDP01 , whereas as per drawing E4110 , sources for EF-1 and EF-2 are different. We are assuming our estimate as per drawing E4110 .

QCG E: (143) This are existing EF-1 and EF-2 from fed from PP-10NN drawing E4110, not the new EF-1 and EF-2. Refer to Addendum E-2 drawings E2111,E6001 and E6009 for the latest power provisions for EF-1 and EF-2

16. (148) Drwgs. E4102 & E4110 – As per SLD, we have to provide 5, 10 & 15KVA UPS which needs to be mounted on telecom rack. We need following information along with specifications for these UPS. Do

1. With reference to drwg E2102, please provide the preferred manufacturer and product part number for the required 5KVA rack-mount UPS?
2. With reference to drwg E2105A, please provide the preferred manufacturer and product part number for the required 15KVA rack-mount UPS?
3. With reference to drwg E2110, please provide the preferred manufacturer and product part number for the required 10KVA rack-mount UPS?
4. Do 5KVA UPS should come along with built in outgoing breakers or separate panel is required? Pls confirm. from any one out of this system suppliers? Or we have to provide only JCI throughout the project? Pls. confirm.

QCG E: (148) UHN will procure along with PDU via Digital team. Electrical contractor to coordinate with UHN Digital. UPS panels are separate and not included as a package, this panel is located in the same room as the UPS.

17. (151) Drwg. E6005, Panel 5ERP02 schedule is for 100A, 42 circuits whereas note 8 from SLD E4102 mentions 225A, 84 circuits. Please confirm number of circuits & amperage require for panel 5ERP02.

QCG E: (151) Updated SLD referring to panel schedule for exact number of circuits was included in addendum E-1.

18. (152) Drwg. E6006, Panel 5ERP03 schedule is for 100A, 42 circuits whereas note 8 from SLD E4102 mentions 225A, 84 circuits. Please confirm number of circuits & amperage require for panel 5ERP03.

QCG E: (152) Updated SLD referring to panel schedule for exact number of circuits was included in addendum E-1.

19. (153) Drwg. E6002, Panel 2VERP01 schedule is for 225A, 84 circuits whereas note 9 from SLD E4102 mentions 100A, 84 circuits. Please confirm amperage require for panel 2VERP01.

QCG E: (153) Updated SLD referring to panel schedule for exact number of circuits was included in addendum E-1

20. (154) Panel SURP1 requires how many circuits 18 or 24? Pls. confirm

QCG E: (154) Updated SLD referring to panel schedule for exact number of circuits was included in addendum E-1

21. (155) Please confirm the specifications for 5LT06A found on E2205B(Level 5) in the Washroom 5-837A. This fixture type is not listed on the Luminaire scheduled on E6000. (screen shot illustration is being emailed)

QCG E: (155) Refer to the available photos found in this addendum E-2

22. (158) Pls. confirm details of following panels as per panel schedule or SLD E4110.

- a) Panel 10BVERP01 – 84 or 72 circuits?
- b) Panel 10BVERP02 – 84 or 60 circuits?
- c) Panel 10BERP01 – 42 or 84 circuits? And 100A or 225A?
- d) Panel 10BRP01 - 84 or 60 circuits?

QCG E: (158) Updated SLD referring to panel schedule for exact number of circuits was included in addendum E-1

23. (166) Please confirm if the panel/breakers shown within the 2UPS1 are to be packaged within the UPS or is the intention for this to be a separately mounted panel nearby the UPS?

QCG E: (166) Separate panel located near the UPS, not packaged together.

24. (167) Please provide pictures of existing panel 5DP02 and details including the manufacturer/make, model, nameplate, interrupting rating and pictures showing overall panel to validate existing panel & space available

QCG E: (167) Some Pictures will be provided, Electrical contractor to request additional site visit to further investigate their requirements.

25. (168) Please provide pictures of existing panel EPP-9EE and details including the manufacturer/make, model, nameplate, interrupting rating and pictures showing overall panel to validate existing panel & space available.

QCG E: (168) Some Pictures will be provided. Additional information to be gather onsite by electrical contractor.

26. (169) Please provide pictures of existing panel 1ERP01 and details including the manufacturer/make, model, nameplate, interrupting rating and pictures showing overall panel to validate existing panel & space available.

QCG E: (169) Some Pictures will be provided. Additional information to be gather onsite by electrical contractor.

27. (170) Please provide pictures of existing panel 6ELR02 and details including the manufacturer/make, model, nameplate, interrupting rating and pictures showing overall panel to validate existing panel & space available

QCG E: (170) Some Pictures will be provided. Additional information to be gather onsite by electrical contractor.

28. (171) The panel schedules for Panel 2RP09, 2VERP01, 2EPL01, 2LP01, 5DP-5, 5RP06, 5RP07, 5RP12, 5ERP01, 5ERP02, 5ERP03, 5VERP01, 5VERP02, 5VERP03, 5VERP04, 5URP1, 6MEDP1, 6MERP1, PP-10NN, 10BRP01, 10BRP02, EPP-10EE, 10BERP01, 10BVERP01, 10BVERP02 & 10URP1 all show a column of both sides of the panel schedule for "QUA.". Please confirm if this refers to the quantity of breakers required? And if so, there are multiple quantities greater than QTY-1 which will impact the number of circuits in the panel versus what is shown in the respective panel schedules. Please clarify that the "QUA." column in the panel schedules refer to?

QCG E: (171) the QUA. on the panel schedule, shows the quantity of connected device to the circuit only.

29. (172) Interrupting ratings for new panels are not provided in the electrical drawings or panel schedules, please advise and update electrical drawings to indicate required interrupting ratings (kA rating) based on existing upstream equipment.

i) Within Spec Section 26 24 16 for panel boards, articles 2.02.4.1 & 2.02.5 mentions 65kA for 600V and a 10kA for 240V panels, please confirm if kA ratings are not indicated in electrical drawings/panel schedules nor will be updated if we can to utilize these specified interrupting ratings

QCG E: (172) where KA is not indicated on the panel or existing single line diagram, refer to 26 24 16 section 2.02.4.1 & 2.02.5.

30. (174) Please confirm if panel boards can exceed 42 circuits in a single tub where required as shown in panel schedules? Or if multi-section panel will be required for panels exceeding 42 circuits.

QCG E: (174) Panel are shown on floor plan and on single line diagram and circuited as per panel schedule. The Panel will be single tub unless indicated in the floor plan and a double tub.

31. (176) Please confirm if scope of coordination studies and arc-flash hazard analysis is to also include for all existing equipment? The existing equipment is part of a large hospital system where a full-scale formal coordination study should already be existing and for any new coordination studies to include existing equipment is redundant and not feasible

QCG E: (176) Existing Arc-Flash report to be requested by the electrical contractor from UHN.

32. (177) Drawings E-6005, panel schedule for 5ERP01 & 5ERP02 identified as 42 circuit panel, whereas single line diagram E-4102 note-7 & 8 mentioned these are 84 circuit panel. Please clarify.

QCG E: (177) refer to panel schedule for total number of circuits. This issue was address on Addendum E-1

33. (179) Who will be responsible for providing firewatch, will this be owner supplied security or is it the responsibility of the General Contractor?

QCG E: (179) Fire Watch may be required during fire alarm renovation, reprogramming of the fire alarm system. The Contractor shall engage UHN Security team for Fire Watch requirements in the first instance, prior third-party involvement. Refer to Appendix E-1 section 4.3.4

34. (180) Demo drawings for Level-1 (E0101) , Level-4 (E0104) & Level-9 (E0109) show different boundaries and scope of work. Please confirm whether the work on each floor can be completed at the same time or not.

QCG E: (180) This is demo work with relation to plumbing demo, coordinate with mechanical contractor with regards to scheduling.

35. (183) Sources for exhaust fan EF-1 and EF-2 shown on drawing E2111 are 12-EDP01 , whereas as per drawing E4110 , sources for EF-1 and EF-2 are different. We are assuming our estimate as per drawing E4110 .

QCG E: (183) Sources for exhaust EF-1 and EF-2 on drawing E2111 is correct, which is being fed from 12-EDP01. E4110 the EF-1 and EF-2 fed from existing to replaced PP-10NN is a different exhaust fan and is currently existing and transferred to new 72 CCT PP-10NN panel.

36. (185) Reference to SLD E4110, we have to provide 60A / 3P & 30A / 2P Fusible Switch Units in existing panel EPP-9EE. Is it possible to provide as separate sub panel powered through EPP-9EE panel instead of installing the Fusible Switch Units in panel EPP-9EE, in order to get competitive price from all distribution system manufacturer? Pls. advise.

QCG E: (185) Provide 60A/3P and 30A/2P fusible switch in existing panel EPP-9EE, existing space is limited, and we would like to refrain from adding any additional sub panel.

Changes to Specifications:

1. Refer to Specifications section 27 15 01.13 titled "Public Address Systems

- a. In article 2.01 titled "Related Requirements" modified Manufacturers to include:
Conexall as UHN base building paging system

This specification now forms part of the contract documents.

Changes to Drawings:

1. **Drawing E-0101 – ELECTRICAL - 1ST FLOOR DEMOLITION & NEW WORK PLAN (MH)**
 - Modification Clouded in Compliance with RFI question (128)
2. **Drawing E-0106 – ELECTRICAL KEY PLAN -LEVEL 06 (MHDU)**
 - Modification Clouded in Compliance with RFI question (126)
3. **Drawing E-2110 – POWER & SYSTEMS -NEW WORK - LEVEL 10**
 - Modification Clouded in Compliance with RFI question (124)
4. **Drawing E-2111 – POWER & SYSTEMS -NEW WORK - LEVEL 11 PLAN (DSC)**
 - Modification Clouded in Compliance with RFI question (143)
5. **Drawing E-6001– ELECTRICAL MECHANICAL EQUIPMENT SCHEDULE**
 - Modification Clouded in Compliance with RFI question (143)
6. **Drawing E-6009– ELECTRICAL PANEL SCHEDULES - DSC**
 - Modification Clouded in Compliance with RFI question (143)

1 General

1.01 SUMMARY

- .1 This Section covers the Specification and requirements for the provision of a complete Paging (Public Address) System, hereinafter referred to as the System.
- .2 Contractor shall provide all services, labor, materials, tools, and equipment required for the installation of a complete and perfectly operational System, in compliance with the Contract Documents. Materials and equipment shall include all structured cabling, conduits, pull boxes, outlets, sleeves, and all components required for a complete and perfectly functional System.
- .3 Contractor shall comply with all requirements of this Section, Specification and Design Drawings, and all applicable comms Standards and electrical Codes.
- .4 System shall be delivered free of engineering, manufacturing, installation, and functional defects.
- .5 System shall be designed, engineered, and installed to suit the Client's application and the installation environment.

1.02 RELATED REQUIREMENTS

- .1 Section 26 05 00 – Common Work Results for Electrical.
- .2 Section 27 05 00 – Common Work Results for Communications.
- .3 Section 27 05 26 – Grounding and Bonding for Communications Systems.
- .4 Section 27 05 28 – Pathways for Communications Systems.
- .5 Section 27 05 53 – Identification for Communications Systems.
- .6 Section 27 15 13 – Communications Copper Horizontal Cabling.
- .7 Section 28 05 00 – Common Work Results for Electronic Safety and Security.

1.01 DEFINITIONS

- .1 PA: Public Address System a.k.a. Paging System.
- .2 System: Refers to the Paging/Public Address System specified under this Section.
- .3 Provide: Furnish, install, terminate, label, test and certify a complete operating cabling system.
- .4 Contract Documents (CD): Design drawings, Specification, sketches, and schedules provided by the Consultant, which define Scope of Work, responsibilities, and requirements of Project.
- .5 Project: The Construction Project as defined and specified in Contract Documents.
- .6 Building: Building as described in Architectural Drawings and Contract Documents and where the System specified under this Section shall be installed.
- .7 Site: Site means the land and other places, as defined in Contract Documents, where the Works or Temporary Works are to be constructed.
- .8 Facility: Facility means all or any portion of buildings, structures, sites, roads, walks, passageways, parking lots, or other real or personal property, including the site where the building, property, structure, or equipment is located.

- .9 Channel: End-to-end transmission path between two points at which application specific equipment is connected; encompasses all the elements of the horizontal cabling link, plus the equipment cords in the telecommunications spaces and work area.

1.02 REFERENCES

- .1 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .2 CSA Group
 - .1 CSA B651-18, Accessible Design for the Built Environment.
 - .2 CSA C22.1, Canadian Electrical Code, Part 1 Safety Standard for Electrical Installations.
 - .3 Ontario Electrical Safety Code (OESC).
 - .4 CSA C22.2 No. 214-17 (R2021), Communications Cables.
 - .5 CSA C22.2 No. 182.4-M90 (R2010), Plugs, Receptacles, and Connectors for Communication Systems.
 - .6 CSA C22.2 No. 60065:16 (R2020), Audio, video and similar electronic apparatus - Safety requirements (Adopted IEC 60065:2014, eighth edition, 2014-06, with Canadian deviations).
- .3 Ontario Building Code (OBC)
- .4 ANSI/TIA (Latest Revision of Standard)
 - .1 ANSI/TIA-568 – Commercial Building Telecommunications Cabling Standard Set.
 - .2 ANSI/TIA-569 – Telecommunications Pathways and Spaces.
 - .3 ANSI/TIA-606 – Administration Standard for Telecommunications Infrastructure.
 - .4 ANSI/TIA-607 – Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises.
- .5 BICSI
 - .1 BICSI Telecommunications Distribution Methods Manual – Latest Edition
 - .2 BICSI Information Transport Systems Installation Manual – Latest Edition
- .6 Institute of Electrical and Electronic Engineers (IEEE)
- .7 Manufacturer's Specifications, Standards and Manuals – Latest Issue

1.03 SUBMITTALS

- .1 Contractor shall submit complete system design, and shop drawings for all system components and modules, for review and approval by the Consultant and the Owner, prior to any installation.
- .2 Submit for review by Consultant and Owner:
 - .1 Product data sheets of all components
 - .2 Wiring Diagrams

- .3 Sound Pressure Level (SPL) survey results

1.04 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with the requirements of Division 01 and Section 27 05 00.
- .2 Include in Record and Information Manuals:
 - .1 One (1) copy of each approved submittal.
 - .2 Test results.
 - .3 Certificate of System Completion.
- .3 Provide complete turnover package, including:
 - .1 As-Built Drawings.
 - .2 Schedule of cables, indicating for each cable, the cable identifier and the corresponding locations and identifiers of the speakers connected to that cable.
 - .3 Training and operator's manuals.
 - .4 Manufacturer's installation manuals.
 - .5 Software licenses.
 - .6 Configuration files.
 - .7 Preventive maintenance plan.
 - .8 Spare parts list.
 - .9 Warranty certificates and service agreements.
 - .10 Any other documentation required by Owner for proper handover of the system.

1.05 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle materials in accordance with Division 01 and Manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: Deliver materials to Site in original factory packaging, labelled with Manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials indoors and in accordance with Manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect System equipment from nicks, scratches, blemishes, and theft.
 - .3 Remove defective or damaged materials from Site, and replace with new, at no cost to Owner.
- .4 Coordinate storage space requirements with Owner to ensure space is allocated for storing equipment. Plan to potentially store materials off-site in case of insufficient storage space.

1.06 QUALITY ASSURANCE

- .1 Products certified by a recognized testing agency accredited by the Standards Council of Canada, and bear a certification mark from that agency indicating acceptance to Canadian standards.
- .2 Design, work, and materials shall comply with all applicable regulatory requirements and codes of Authority Having Jurisdiction (AHJ).
- .3 Follow closely manufacturer's written instructions. In case of conflict between manufacturer's instructions and Contract Documents, Consultant and Owner shall be informed to arbitrate in writing a final solution.

1.07 WARRANTY

- .1 Contractor shall provide a warranty covering the installation, material and workmanship for a period of two (2) years from the Date of Acceptance of the Project by Owner.
- .2 Contractor shall remedy covered defects within four (4) hours of notification of major failures or within twenty-four (24) hours of notification for individual station related problems.

2 Products

2.01 MANUFACTURERS

- .1 TOA.
- .2 Bogen.
- .3  Conexall (UHN PMH base building paging system)
- .4 Approved equal.

2.02 GENERAL REQUIREMENTS

- .1 Contractor is fully responsible for the ultimate design and implementation of the System topology (physical and logical) best suited for the Project, in compliance with Owner's requirements.
- .2 Contractor shall provide all hardware components, including, speakers, amplifier(s), microphone, interface modules, controllers, cables, connectors, cable managers, mounting brackets, accessories, etc., as required for a complete and fully functional paging system.
- .3 Contractor shall be responsible to ensure that all products meet all requirements of the Drawings and Specification, and fits in the intended space. The final determination of a product being acceptable shall be established by the Consultant.
- .4 Contractor shall provide network cabling as required for system installation, in compliance with Section 27 15 00.
- .5 Contractor shall ensure that proposed equipment is adequate for the planned scope and functionality requirements of the solution, and shall ensure that system is scalable and flexible to accommodate additional capacity and future expansion.
- .6 All equipment installed in part or in whole in a plenum space shall be plenum rated.

2.03 SYSTEM DESCRIPTION

- .1 General

- .1 The Paging (Public Address) System shall be a centrally controlled zone-based audio system capable of transmitting audio messages and music to specific zones, groups of zones, or all zones in the Facility, as required.
- .2 System shall be designed, equipped and configured to function as:
 - .1 An effective audio music system.
 - .2 An effective and reliable building-wide Paging/PA system, for transmitting routine and critical audio announcements.
- .3 System shall allow for the connection of:
 - .1 Paging/Public Address interface modules
 - .2 Local music source (in equipped zones)
 - .3 Personal music sources or entertainers
 - .4 Microphone connections (in equipped zones)
 - .5 Wireless microphone systems
- .4 System shall include a portable music system for special events or outdoor event use.
- .2 Design Requirements
 - .1 Contractor shall provide a standard distributed 70-volt Public Address System, as indicated in the Specification and Drawings. System shall serve as a broadcast solution for live or pre-recorded audio messages, and for background music.
 - .2 System shall be properly rated and designed to deliver routine and critical audio announcements, at the defined audio level and with sufficient clarity, to all occupants of the facility.
 - .3 System shall deliver intelligible audio messages in all specified areas of the facility, including, but not limited to, the following areas:
 - .1 [Lobby.]
 - .2 [Common areas.]
 - .3 [Dining / bistro / bar areas / recreational and communal spaces.]
 - .4 [Hallways on all Building floors.]
 - .5 [Other Spaces as indicated in Specification and Drawings.]
 - .4 Speakers shall be deployed as required to ensure full coverage of specified areas.
 - .5 System and component models and architectures shall be built, proven and tested for use in comparable environments and building spaces.
 - .6 System shall support a minimum of [99] separate paging, unless otherwise noted; with each zone consisting of individually controlled group of speakers.
 - .7 System shall allow for an automated broadcast of scheduled pre-recorded messages to a programmable number or groups of zones.

- .8 System shall allow for broadcast of messages from different audio sources, including but not limited to, telephone, microphone, PC, mobile devices, and portable audio devices.
 - .9 Paging system interface and control unit(s) shall be rackmount and modular, allowing for added functionality and future expansion.
 - .10 System shall include field and termination equipment and all cabling necessary to provide a fully automated and functional System, designed to meet the paging requirements of Owner.
 - .11 Output sound level at 1.5 m above finished floor level shall be at least 10 dB higher than ambient noise level.
 - .12 System shall be non-proprietary and compliant with applicable codes and industry standards.
 - .13 System shall form a complete scalable solution from the existing scope of this project, and future expansion shall not require replacement or upgrading of the hardware and equipment provided as part of the initial solution.
 - .14 Contractor shall coordinate with Owner the placement of speakers, control and interface equipment, and modules.
 - .15 Facility shall be logically divided into separate zones controlled individually. Zones shall be defined based on the Facility's functional program and in coordination with the Owner's representative.
 - .16 System shall provide the following functionality:
 - .1 Single zone and multiple zone paging.
 - .2 Background music assigned by zone.
 - .3 Emergency zone group with choice of built-in tones or external tone source.
 - .4 Emergency all-facility page override.
 - .5 Daily master clock synchronization.
 - .17 System's required interfaces with other systems, such as the fire alarm system, shall be implemented, for muting of public address system upon fire alarm or mass notification announcement.
 - .18 Interconnect with TKIS paging adapter by Austco
 - .19 Interconnect with VOIP Phones (Coordinate Requirements with UHN Digital)
- .3 Design Analysis
- .1 Perform and submit as part of the design process the following analysis and calculations:
 - .1 Power supply requirements for each speaker and speaker zone of the System, in accordance with the manufacturer's specification and guidelines
 - .2 Power consumption and dissipation data under normal and maximum operating conditions
 - .3 Conductor size calculations for each cable run (based on distance between speakers, distance between amplifier and speakers, speaker tapping and number of speakers)

- .4 Cable schedule including cable types, lengths, and conductor sizes

2.04 MATERIALS

- .1 Paging System shall include, but is not limited to, the following components:
 - .1 Communications / audio cable(s).
 - .2 Microphone.
 - .3 Standard 70-volt line speakers.
 - .4 Interface devices / Controllers.
 - .5 Amplifiers.
- .2 Communications / Audio Cable(s):
 - .1 Communications / Audio cable shall be:
 - .1 16 AWG, 2-Conductor Shielded with drain wire, Plenum Rated FT6 Cable.
 - .2 Made with all-copper conductors.
 - .3 Compliant with UL, ULC or CSA and all applicable life safety code and regulations.
 - .4 Suitable and approved by Manufacturer for use as 70-volt speaker cable.
 - .2 Conductor size shall be specified based on design specs, number of speakers, speaker tapping power, and cable run distances. Comply with applicable cable sizing codes and standards.
 - .3 Contractor shall use a lower gauge wire where distances and speaker load requirements exceed the capacity/ampacity of specified cable.
 - .4 All cables running in part or in whole in the outdoor environment shall be weatherproof and outdoor rated.
- .3 Speakers:
 - .1 Type 1 Speaker – TOA PC-580R Standard Commercial Speaker– typically used in corridors, staff rooms, service and other non-client facing areas, requires BB-580 Back Box.
 - .2 Type 2 Speaker – TOA F-2232CU2 Music Zone Speaker – typically used in client facing areas, such as the Main & Private Dining Rooms, Demonstration Kitchens, Pubs, Fitness Rooms, Rev IT Up, Theatre/Chapel, Spa, Salon, Games Room, etc.
 - .3 Type 3 Speaker – TOA F-1300WPWT Outdoor Speaker – typically used in outdoor gathering spaces.
 - .4 Type 4 Speaker – TOA PC-580S Standard Square Surface Mount Commercial Speaker – typically used in service areas such as shipping and receiving where finished ceilings are not installed, requires Type 4 Speaker Back Box (QY-BB-580W).
 - .5 Speakers shall have the following specs:
 - .1 Speaker component diameter size of 250 mm (8 in).
 - .2 Designed for 70-volt audio systems.

- .3 Built-in multi-tap transformer with taps at ¼, ½, 1, 2, and 4 watts.
 - .4 UL 1480 UUMW & UL 2043 plenum rated. Certified to work with emergency announcement systems.
 - .6 Rated for commercial or enterprise use
 - .7 Designed to be installed in both open structure/ceiling and drop ceiling configurations
 - .8 Sized and rated to meet the Specification and design requirements
 - .9 Equipped with built-in audio level adjustment mechanism
 - .10 Speakers installed outdoor shall be weatherproof and outdoor rated.
- .4 Amplifiers:
- .1 Zone Mixer Amplifier – TOA BG-2035, BG-2060, BG-2120, BG-2240, or BG-2480, used to power individual speaker zones (one per zone). Use appropriate model depending on speaker load per zone. Amplifier allows inputs for overhead paging, music and microphone wall plates (where applicable).
 - .2 Amplifier shall be rack mounted in Main IT Room.
 - .3 Amplifier shall be designed to natively support standard 70-volt line PA systems.
 - .4 Amplifier shall be properly sized and rated to provide 25% power over current system power requirement. Power requirement of the present System is defined as the total output power required to drive all speakers in all assigned zones of the facility at maximum capacity.
 - .5 Amplifier shall provide a frequency response of ±1 dB from 70 Hz to 15 kHz, and shall deliver rated power at less than 1% distortion.
 - .6 Amplifier shall allow for paging from telephone and/or microphone. The signal-activated paging channel shall automatically mute background music during a telephone page, eliminating the need for manual activation of switches and the use of external relays. Provision shall be included to set to mute the level of background music during a page. Music level shall be returned to its normal level after a page.
 - .7 The telephone paging channel shall have a VOX sensitivity adjustment to eliminate transmission of background noise, and automatic output leveling (ALC) to compensate for varying voice levels and paging techniques of persons using the system.
 - .8 An Audio Enhancement circuit shall be included to regenerate the harmonics lost during the amplification process and improve intelligibility. A control shall be provided to set the level of this effect.
 - .9 A night ringer shall be included to alert personnel of incoming calls. The night ringer shall be activated by a contact closure or by 90 Volt ring signal from the telephone line.
 - .10 Input terminals shall be furnished for a telephone line and Lo-Z balanced microphone. A choice of RCA jack or screw terminals shall be provided for the music source.
 - .11 Terminals shall also be provided to control music muting, typically during a mic page, and for contact closure or ring signal activation of the night ringer.
 - .12 Amplifier shall provide for 25 V and 70 V speaker line outputs.

- .13 Provision shall be included to drive a 600 ohm telephone line, using an accessory line-matching transformer.
- .14 Individual controls shall be provided to set the telephone and mic page volume, music volume, night ringer volume, VOX sensitivity, and music mute level. Bass and treble controls shall permit tonal adjustments. An automatic level control (ALC) and VOX sensitivity control shall be included. A peak level indicator shall illuminate when the amplifier is driven into clipping. A power indicator shall also be provided.
- .15 The amplifier shall operate from a 120 VAC, 60 Hz source, and shall be equipped with a resettable circuit breaker, and thermal and electronic overload protection or a slow blow fuse.
- .16 Amplifier shall be listed to CSA C22.2 no. 60065.
- .5 Coordinate with Client the provision of a microphone, if needed. Microphone shall be designed with a desk stand and a flexible gooseneck arm, and shall be fully compatible with the system. It shall be rated for commercial and enterprise applications. Microphone shall have control buttons to support multi-zone paging.
- .6 Interface and Control Modules
 - .1 Where applicable, all interface and telephone access modules shall meet the following requirements:
 - .1 Capable of direct connection to loop start and ground start trunks, to PBX or KEY paging ports with DTMF capability, and to IP T/R lines.
 - .2 Programmable using a PC Ethernet/IP interface to configure settings and functionality.
 - .3 Modular and rackmount, allowing for the addition of rackmount modules for future system upgrades and expanded functionality, unless specified otherwise.
 - .7 Contractor shall provide all software licensing required for programming the system and its components.

3 Execution

3.01 GENERAL

- .1 Examine installation areas and substrates prior to installation. Notify Owner and Consultant of any conditions which may adversely affect installation or subsequent use. Do not begin installation before unacceptable conditions have been rectified.
- .2 Install system in compliance with Specification, Design drawings, and Contract Documents.
- .3 Install paging system modules and components in compliance with Manufacturer's written instructions and guidelines.
- .4 Provide the following minimum separation from Electrical Power systems installed in conduits:
 - .1 50 mm from circuits of 300 volt and less.
 - .2 600 mm from circuits of 300 volt and higher.
 - .3 2 m from circuits between 600 V and 15 kV.
 - .4 3 m from circuits above 15 kV.
 - .5 Electrical systems shall NOT share the same pathway.

3.02 INSTALLATION

- .1 Amplifiers and Interface Modules Installation:
 - .1 Mount amplifier, interface modules and controllers in coordination with Owner's IT team, and in accordance with requirements of this Section.
 - .2 Mount amplifier and telephone paging interface on supplied plywood backboard in Main IT Room in proximity to the copper backbone.
- .2 Speakers Installation:
 - .1 Install speakers in accordance with Specification at the locations indicated in Design Drawings.
 - .2 Speakers shall be flush mounted on drop ceiling, or wall (surface) mounted, as required, in accordance with the requirements in this Section and the Design Drawings.
 - .3 Total number of speakers connected per single cable run shall not drive total channel power over eighty percent of the Amplifier's power rating.
 - .4 All speakers shall be tapped at 1 watt, unless specified otherwise.
 - .5 Number, groups and placements of speakers shall be coordinated with and approved by Owner's IT Team, prior to installation.
- .3 Speaker Cables:
 - .1 Speaker cables shall be run free air, supported by cable trays, as conditions permit.
 - .2 Install cables using the provided cable support and pathway systems, as specified in the Design Drawings. Cable runs into secure areas shall be enclosed inside EMT conduit.
 - .3 Conduit installation costs required for the System shall be included in quote.
 - .4 Install all speaker cable in accordance with communications cabling Specification and Owner's structured cabling standard and requirements.
 - .5 All speaker cables shall be home run through the communications riser and terminated in the Facility's Main IT Room.
 - .6 All speaker cables shall be labeled in accordance with Owner's standards and latest ANSI/TIA-606 Standard.
 - .7 Contractor shall provide clear documentation indicating for each cable, the cable identification and the location and identifiers of all speakers connected on that cable.
- .4 System and components shall be grounded and bonded as specified in Manufacturers' instructions and manuals, and in compliance with the latest ANSI/TIA-607 standard.
- .5 Terminate all homerun zone cabling in Main IT Room.
- .6 Install speakers flush mount facing downward on the suspended ceiling. In open ceiling spaces, mount speakers to fixed ceiling structures using manufacturer approved mounting brackets and accessories.
- .7 Where applicable, wire speakers in parallel by zone, based on adopted zone scheme.
- .8 Run all cable in compliance with the Design Drawings, Specification and Section 27 15 00. All cables inside the drop ceiling space shall be supported by J-hooks or cable trays as specified; cables in open ceiling areas shall run inside conduit.

- .9 Comply with the latest TIA-569 Standard. Ensure adequate separation between audio cables, and EMI sources, such as lighting fixtures and power cables, as specified in latest ANSI/TIA-569 Standard.
- .10 Program and configure the System as required, in accordance with specification and functional program, and in coordination with Owner and Consultant. If applicable, ensure all zones are properly configured and approved by Owner.
- .11 Coordinate with Austco & UHN Digital with regards to setting up any zoning.

3.03 SPEAKER ROUGH-IN

- .1 Type 1 & Type 4 Speaker Rough-in Requirements: For accessible ceilings (T-bar), back boxes shall be mounted in ceiling tiles utilizing rails for weight dispersion. Wire rough-in to allow for 1800 mm (6 ft) service loop at each speaker location.
- .2 Type 2 Speaker Rough-in Requirements: For accessible ceilings (T-bar) final installation to take place after ceiling grid installation, final installation will coincide with typical ceiling device installations. Wire rough-in to allow for 1800 mm (6 ft) service loop at each speaker location.
- .3 Type 3 Speaker Rough-in Requirements: Wire rough-in to allow for 1800 mm (6 ft) service loop at each exterior speaker location, cable conduit path (if applicable) should be cut flush to exterior surface to allow for unimpeded surface mount speaker installation.
- .4 Wiring Configuration: One home run 16 gauge 2 conductor cable per zone, terminating to Main IT Room as indicated in Design Documents. All adjacent speakers located in the same zone shall be wired in a daisy chain parallel configuration.

3.01 LABELING

- .1 Comply with latest ANSI/TIA-606, and UL 969 for a system of labeling materials, including label stocks, laminating adhesives, and inks used by label printers.
- .2 Follow requirements of Section 27 05 53 – Identification for Communications Systems.
- .3 Ensure identification on labels matches identification shown on submittal and Record drawings.

3.02 TESTING AND COMMISSIONING

- .1 Perform field tests and verification in accordance with system Manufacturer's standards and written guidelines. Ensure system's functionality passes verification tests, and meets design requirements.
- .2 Perform system commissioning in the presence of Owner, and validate that performance and functionality meet Owner's expectations and requirements.
- .3 Perform zone-by-zone and speaker-by-speaker acceptance tests to ensure that speakers and zones are connected and configured properly.
- .4 Test audio output using the microphone, pre-recorded messages and other audio devices specified for use by Owner.
- .5 Test telephone interface module, and ensure module works correctly, in accordance with System requirements and Manufacturer's instructions.

3.03 TRAINING

- .1 Train system operators and staff on using and performing basic troubleshooting of the system, in coordination with Owner's IT team. Provide one 2-hour training session.

- .2 Prepare and submit a soft copy of training material and manuals in PDF format, a minimum of five (5) business days before the scheduled System's training session.

End of Section

**Princess Margaret
Cancer Centre Stem Cell
Transplant 2**

**Part B
(MH, MHDU, DSC)**

CANNONDESIGN

20 Victoria Street 5th floor
Toronto, ON Canada M5C 2N8
P: 416.915.0121
F: 416.955.0122

www.cannondesign.com



Mechanical & Electrical
250 Rowntree Dairy Rd.
Woodbridge, ON, Canada L4L 9J7
P: 905 507 0800

www.quasarcm.com

8	ISSUED FOR ADDENDUM-E2	2024-09-10
7	ISSUED FOR ADDENDUM E-1	2024-09-05
6	ISSUED FOR TENDER	2024-08-14
5	ISSUED FOR BUILDING PERMIT	2023-12-19
4	ISSUED FOR MOH 4.1 SUBMISSION	2023-09-25
3	ISSUED FOR 95% CD SUBMISSION	2023-09-06
2	ISSUED FOR 90% CD SUBMISSION	2023-07-31
1	ISSUED FOR 50% CD SUBMISSION	2023-05-08

Rev.	Description	Date
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Drawing Title:

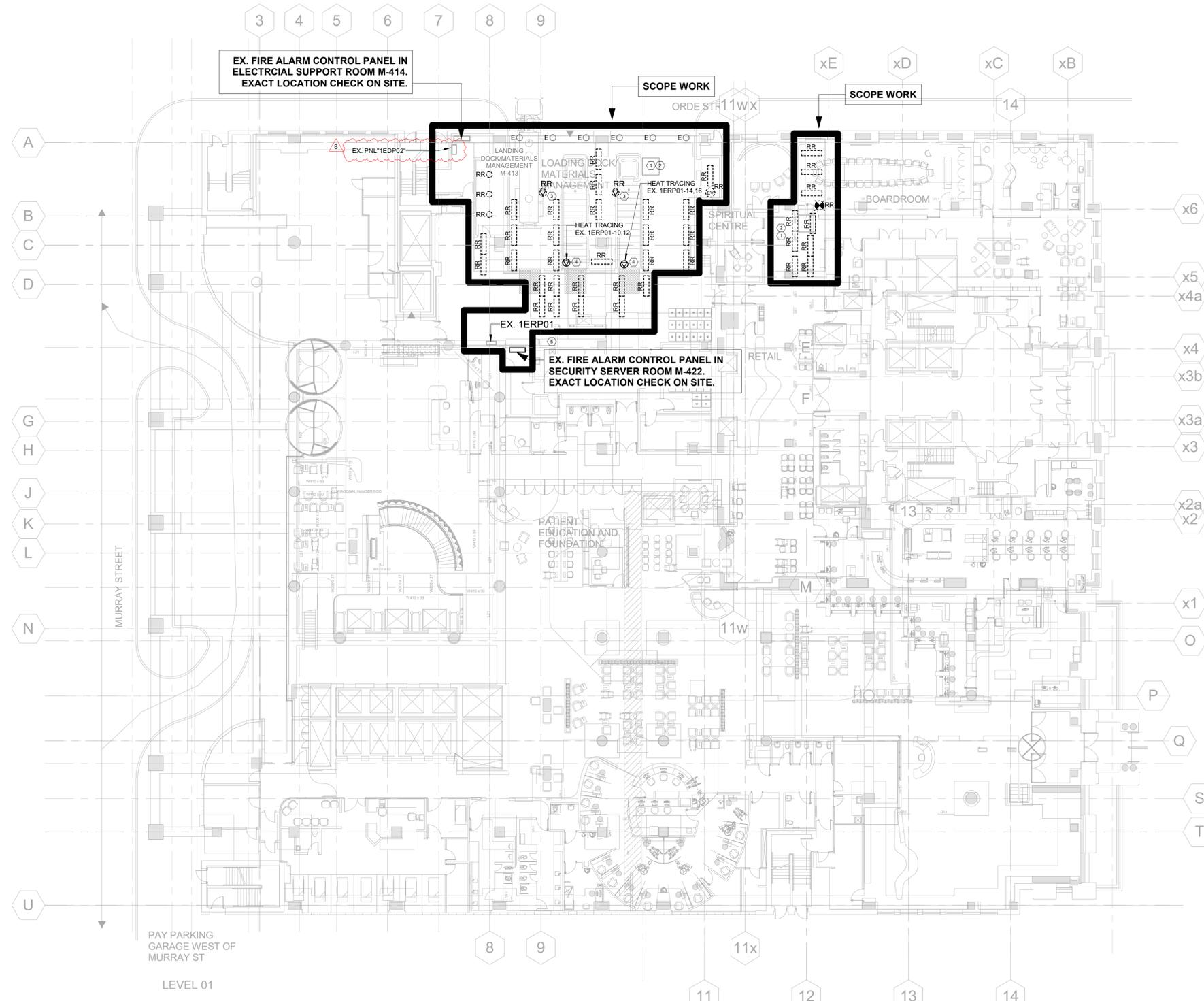
**ELECTRICAL - 1ST FLOOR
DEMOLITION & NEW
WORK PLAN (MH)**

As indicated

Project No.: 0020711.00 Checked by: JG

E0101

SHEET KEYNOTES	
1	REMOVE, RELOCATE AND CONNECT COMPLETE ALL CEILING DEVICES IN DENOTED AREAS TO ALLOW FOR MECHANICAL REWORK TO TAKE PLACE IN THE CEILING SPACE ABOVE. RE-VERIFICATION OF THE FIRE ALARM SYSTEM WILL BE REQUIRED. CONTRACTOR TO CONFIRM EXACT LOCATIONS AND QUANTITIES OF ALL CEILING DEVICES PRIOR TO TENDER CLOSE. CONTRACTOR TO INCLUDE FOR ADDITIONAL VISITS WITH THE UNDERSTANDING THAT DEMOLITION AND NEW WORK MAY NOT BE COMPLETED ON THE SAME DAY. ALL WORK SHALL BE COMPLETED AFTER HOURS TO ALLOW FOR NORMAL OPERATIONS TO CONTINUE DURING HOSPITAL OPERATING HOURS. REFER TO ARCHITECTURAL AND PLUMBING PLANS FOR ADDITIONAL INFORMATION.
2	ELECTRICAL CONTRACTOR TO PRICE FOR UP TO 5% ADDITIONAL DEVICES THAT MAY NOT BE CAPTURED IN PLAN DUE TO EXISTING SITE CONDITIONS.
3	REMOVE THE EXISTING JUNCTION BOX FOR EXISTING HEAT TRACING CONTROLLER. WIRING BACK TO SOURCE. GFI BREAKER FOR THE EXISTING HEAT TRACING SET TO "SPARE". UPDATE PANEL DIRECTORY AFTER COMPLETE.
4	PROVIDE NEW JUNCTION BOX FOR NEW HEAT TRACING CONTROLLER. PROVIDE 30A/2P GFI BREAKER IN EXISTING PANEL 1ERP01 AND WIRING FOR THE HEAT TRACING CONTROLLER. COORDINATE THE JUNCTION BOX WITH MECHANICAL ON SITE. CHECK EXISTING PANEL SPACE AND PANEL CAPACITY PRIOR TO INSTALLED. THE 30A/2P GFI BREAKER KIA RATING TO MATCH EXISTING PANEL KIA RATING.
5	UPDATE EXISTING FIRE ALARM PANEL TO SUIT NEW FIRE ALARM CIRCUITS PROVIDED. PROVIDE NEW SUB FIRE ALARM PANEL IF EXISTING PANEL SPACES ARE NOT ENOUGH.



1 ELECTRICAL - 1ST FLOOR DEMOLITION & NEW WORK PLAN
SCALE 1: 200

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Part B
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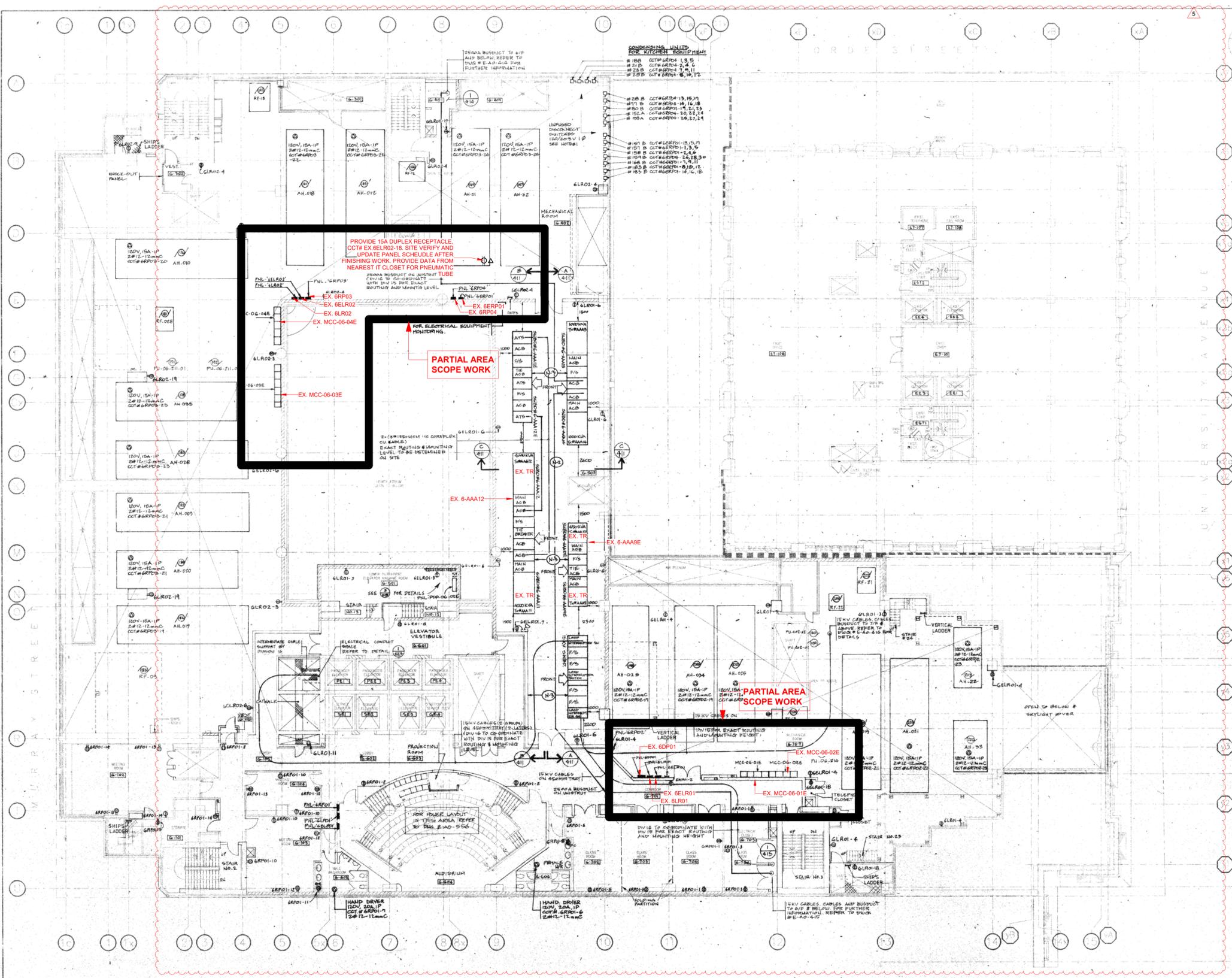
20 Victoria Street 5th floor
Toronto, ON Canada M5C 2N8
P: 416.915.0121
F: 416.955.0122

www.cannondesign.com



Mechanical & Electrical
250 Rowntree Dairy Rd.
Woodbridge, ON, Canada L4L 9J7
P: 905.507.0800

www.quasarqc.com



NO.	REVISION	DATE
1	ISSUED FOR TENDER	2023-09-06
2	ISSUED FOR BUILDING PERMIT SUBMISSION	2023-12-19
3	ISSUED FOR MOH 4.1 SUBMISSION	2023-09-25
4	ISSUED FOR ADDENDUM-E2	2024-09-10
5	ISSUED FOR TENDER	2024-08-14

- NOTES:
- (1) EXACT LOCATION TO BE DETERMINED ON SITE. REFER TO KITCHEN EQUIPMENT SCHEDULE FOR INFORMATION ON EQUIPMENT.
 - (2) HOUSE KEEPING PAD FOR EQUIPMENT SHOWN IN THIS ROOM SHALL BE PROVIDED BY DIVISION 25 STRUCTURAL.
 - (3) KEEP CLEAR FOR EQUIPMENT REMOVAL.

NO.	REVISION	DATE
1	ISSUED FOR TENDER	2023-09-06
2	ISSUED FOR BUILDING PERMIT SUBMISSION	2023-12-19
3	ISSUED FOR MOH 4.1 SUBMISSION	2023-09-25
4	ISSUED FOR ADDENDUM-E2	2024-09-10
5	ISSUED FOR TENDER	2024-08-14

REVISIONS

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CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS ON THE JOB.

THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS COVERED BY:

THE ECE GROUP LTD.
CONSULTING ENGINEERS
205 Lamb Road
100 Lamb, Ontario M8B 2V1
(416) 460-8000 Fax (416) 460-2079

THE ONTARIO
CANCER INSTITUTE
THE PRINCESS
MARGARET HOSPITAL

6TH FLOOR
POWER SYSTEM
LAYOUT

DATE: JUNE 90

Rev.	Description	Date
5	ISSUED FOR ADDENDUM-E2	2024-09-10
4	ISSUED FOR TENDER	2024-08-14
3	ISSUED FOR BUILDING PERMIT SUBMISSION	2023-12-19
2	ISSUED FOR MOH 4.1 SUBMISSION	2023-09-25
1	ISSUED FOR 95% CD SUBMISSION	2023-09-06

Drawing Title:
**ELECTRICAL KEY PLAN -
LEVEL 06 (MHDU)**

1 : 50

Project No.: 0020711.00 Checked by: JG

E0106

Princess Margaret
Cancer Centre Stem Cell
Transplant 2

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CANNONDESIGN

20 Victoria Street 5th floor
Toronto, ON Canada M5C 2N8
P: 416.915.0121
F: 416.955.0122

www.cannondesign.com



Mechanical & Electrical
250 Rowntree Dairy Rd.
Woodbridge, ON, Canada L4L 9J7
P: 905.507.0800

www.quasarcg.com

SHEET KEYNOTES	
1	LOCAL ALARM, MUSHROOM PUSH BUTTON, "PRESS FOR EMERGENCY ASSISTANCE" WITH A LOCAL AUDIBLE ALARM SENT TO DSC RECEPTION (1046).
2	NEW FIRE ALARM DEVICES TO BE UPLOADED TO ICI FIRE WORKSTATION (ACTIVE GRAPHIC) AND FLOOR LAYOUT UPON COMPLETION OF VERIFICATION (TYPICAL).
3	PROVIDE ADDITIONAL 10' OF SLACK CABLE TYPICAL FOR ALL WIRELESS ACCESS POINT (TYPICAL).
4	PROVIDE ADDITIONAL 10' OF SLACK CABLE TYPICAL FOR ALL CCTV CAMERA (TYPICAL).
5	10URP1 CONNECT TO 10URP1 THAT IS 10VIA UPS SET CAV 30 MINS BATTERIES. THE SUPS1 AND SUPR1 EXACT LOCATIONS TO COORDINATE ON SITE.
6	FOR BOOKING SYSTEM MONITOR, POE CABLE SUPPLY POWER FOR THE MONITOR. COORDINATE WITH BOOKING SYSTEM DESIGN REQUIREMENT.
7	SOUND MASK SPEAKER TO BE CONNECTED TO SOUND MASK SYSTEM. PROVIDE 120V 5-20R RECEPTACLE AND CONNECT TO NEAREST 120/208V PANEL FOR THE SOUND MASK SYSTEM DESIGN.
8	NEW RACK MOUNTED 10KVA, 30 MINS. BATTERY IN DADA RACK IN ELEC.COM. ROOM 1036. COORDINATE WITH DATA RACK.
9	EXISTING ROOM 918 ON LEVEL 9 IS RIGHT BELOW EXIST. ELEC. RM 10-E02.

POWER AND SYSTEMS NEW PLAN GENERAL NOTES:	
1.	COMPLY WITH THE ONTARIO ELECTRICAL SAFETY CODE, CSA-232 AND THE ONTARIO BUILDING CODE. SUBMIT FINAL INSPECTION CERTIFICATE UPON COMPLETION OF WORK TO OWNER.
2.	ELECTRICAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ARCHITECTURAL, MECHANICAL AND EQUIPMENT VENDOR DRAWINGS. SUBSEQUENTLY ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ALL SUB-TRADES AND EQUIPMENT VENDORS.
3.	PROVIDE LAMACOID IDENTIFICATION NAMEPLATES FOR ALL EQUIPMENT, FEEDERS, DISCONNECTS, LIGHT SWITCHES AND HOSPITAL GRADE RECEPTACLES.
4.	ALL ELECTRICAL SERVICES SHALL COMPLY WITH CSA-232 STANDARDS. ALL RECEPTACLES ARE CRITICAL CARE AND REQUIRES THIRD PARTY TESTING.
5.	ELECTRICAL EQUIPMENT REMOVED MUST BE ISOLATED AND DISCONNECTED AT THE SOURCE PRIOR TO REMOVAL OPERATIONS. DURING ISOLATION AND DISCONNECTION PROCEDURES DANGER TAGS MUST BE USED TO IDENTIFY ANY FEEDERS OR EQUIPMENT REMAINS ENERGIZED TO ACCOMMODATE NEW CONSTRUCTION. UPDATE TYPE WRITTEN PANEL BOARD DIRECTORIES TO REFLECT 'SPARES' FOR CIRCUITS BEING DEMOLISHED. OBTAIN PERMISSION FOR OUTAGES FROM THE CLIENT'S REPRESENTATIVE AT LEAST 14 DAYS PRIOR TO THE OUTAGE. IN ACCORDANCE WITH THE PROCESS OF THE FACILITY MANAGER. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT OF EQUIPMENT AND RECEPTACLES WITH OWNER ON SITE TO SUIT FINAL PLACEMENT OF EQUIPMENT. FAILURE TO DO SO MAY REQUIRE THE DEVICES TO BE RELOCATED AT THE COST OF THE ELECTRICAL CONTRACTOR.
6.	ALL DEVICES COVER PLATES TO BE ANTIMICROBIAL RECEPTACLE COVER PLATES TO BE STAINLESS STEEL RECEPTACLE FOR PATIENT BED ON EMERGENCY POWER TO BE RED OR MATCH EXISTING BUILDING.
7.	ALL CONDUITS IN EXPOSED CEILING AREAS SHALL BE RUN TIGHT TO THE UNDERSIDE OF THE SLAB ABOVE AND ABOVE EXISTING AND NEW HVAC DUCTWORK. ALLOW FOR LB CONNECTORS AS REQUIRED TO SUIT STRUCTURAL BEAMS. DO NOT RUN CONDUIT MID-SPAN.
8.	UPDATE PANEL SCHEDULE ACCORDINGLY AFTER CONSTRUCTION COMPLETED.
9.	ONCE THE NEW FIRE ALARM DEVICES ARE INSTALLED, TESTED, AND VERIFIED, REMOVE EXISTING DEVICES CIVIL RELATED WIRES AND CONDUITS IN THE RENOVATION AREAS.
10.	POSITIVE PRESSURE ISOLATION ROOM PATIENT BED AREA TO BE CLASSIFIED AS CRITICAL CARE AREA.
11.	SMOKE DETECTORS IN PATIENT ROOM TO BE WITH RELAY CONTACTS TO ACTIVATION DOME LIGHT ABOVE THE DOOR.
12.	CIRCUIT NUMBERING IS FOR GROUPING PURPOSES ONLY. CONTRACTOR TO CONFIRM EXACT CIRCUITING ON SITE AND PRIOR TO TENDER.
13.	CONTRACTOR TO TEST AND VERIFY ALL RELOCATED FIRE ALARM DEVICES IN ACCORDANCE OF THE LATEST ULCS-557.
14.	MAINTAIN CIRCUIT CONTINUITY FOR EXISTING DEVICES TO REMAIN THAT MAY BE AFFECTED BY THE DEMOLITION OF OTHER DEVICES OR FIXTURES.
15.	FOR PLUG-IN EQUIPMENT CONFIRM EXACT CSA CONFIGURATION OF REQUIRED RECEPTACLE PRIOR TO PURCHASE AND INSTALLATION.
16.	THE ELECTRICAL CONTRACTOR SHALL PROVIDE 15A, 120V JUNCTION BOX OUTLETS MOUNTED IN CEILING SPACE FOR USE BY MECHANICAL CONTROLS CONTRACTOR FOR CONTROLS POWER. THE LOCATIONS SHALL BE AS INDICATED ON THIS DRAWING. ALL LOAD SIDE 120V WIRING FROM THIS BOX TO CONTROLS TRANSFORMER AND TERMINATIONS SHALL BE PROVIDED BY MECHANICAL CONTRACTOR.
17.	CONFIRM EXACT LOCATION OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR PRIOR TO ROUGHING IN ELECTRICAL SERVICES. STARTER LOAD SIDE WIRING SHALL BE SAME AS LINE SIDE WIRING.
18.	ALL CONDUITS IN EXPOSED CEILING AREAS SHALL BE RUN TIGHT TO THE UNDERSIDE OF THE SLAB ABOVE AND ABOVE EXISTING AND NEW HVAC DUCTWORK. ALLOW FOR LB CONNECTORS AS REQUIRED TO SUIT STRUCTURAL BEAMS. DO NOT RUN CONDUIT MID-SPAN.
19.	MAINTAIN CIRCUIT CONTINUITY FOR EXISTING DEVICES TO REMAIN THAT MAY BE AFFECTED BY THE DEMOLITION OF OTHER DEVICES OR FIXTURES. PROVIDE ONE (1) CAT6A JACK AND CABLE TO ALL SECURITY CAMERA LOCATIONS. CABLING TO HOMERUN TO THE PRIMARY LAN ROOM (ELECTRICAL ROOM XX-).
20.	PROVIDE ONE (1) CAT6A JACK AND CABLE TO ALL TV LOCATIONS. CABLING TO HOMERUN TO THE PRIMARY LAN ROOM (ELECTRICAL ROOM XX-XX).
21.	ALL OTHER OUTLETS SHALL HAVE TWO (2) CAT6A JACKS (AS INDICATED ON DRAWING).
22.	IN CORRIDORS CAT6A CABLING SHALL BE INSTALLED IN XXX CABLE TRAY OR NEW J-HOOKS. IF CABLE TRAY IS USED, THE FILL RATE SHALL NOT EXCEED 40%. IF NEW J-HOOKS ARE INSTALLED, EACH J-HOOK SHALL NOT HOLD MORE THAN 25 CAT6A CABLES.
23.	ALL EV SPEAKERS IN PATIENT WASHROOMS SHALL BE WATERPROOF TYPE.
24.	PROVIDE HDMI CABLE FOR MAXIMUM 30FT LENGTH. CONFIRM EXACT RUN LENGTH ON-SITE AND IF LENGTH EXCEEDS 30FT, PROVIDE CAT6A CABLE FROM HDMI BEDSITE OUTLET TO HDMI OUTLET BEHIND TV. EXTENDERS BY UHN.

9	ISSUED FOR ADDENDUM-E2	2024-09-10
8	ISSUED FOR TENDER	2024-08-14
7	ISSUED FOR BUILDING PERMIT	2023-12-19
6	ISSUED FOR MOH 4.1 SUBMISSION	2023-09-25
5	ISSUED FOR 95% CD SUBMISSION	2023-09-06
4	ISSUED FOR 90% CD SUBMISSION	2023-07-31
3	ISSUED FOR 50% CD SUBMISSION	2023-05-08
2	ISSUED FOR MOH 3.2 SUBMISSION	2023-03-13
1	DESIGN DEVELOPMENT SIGN-OFF	2022-12-02

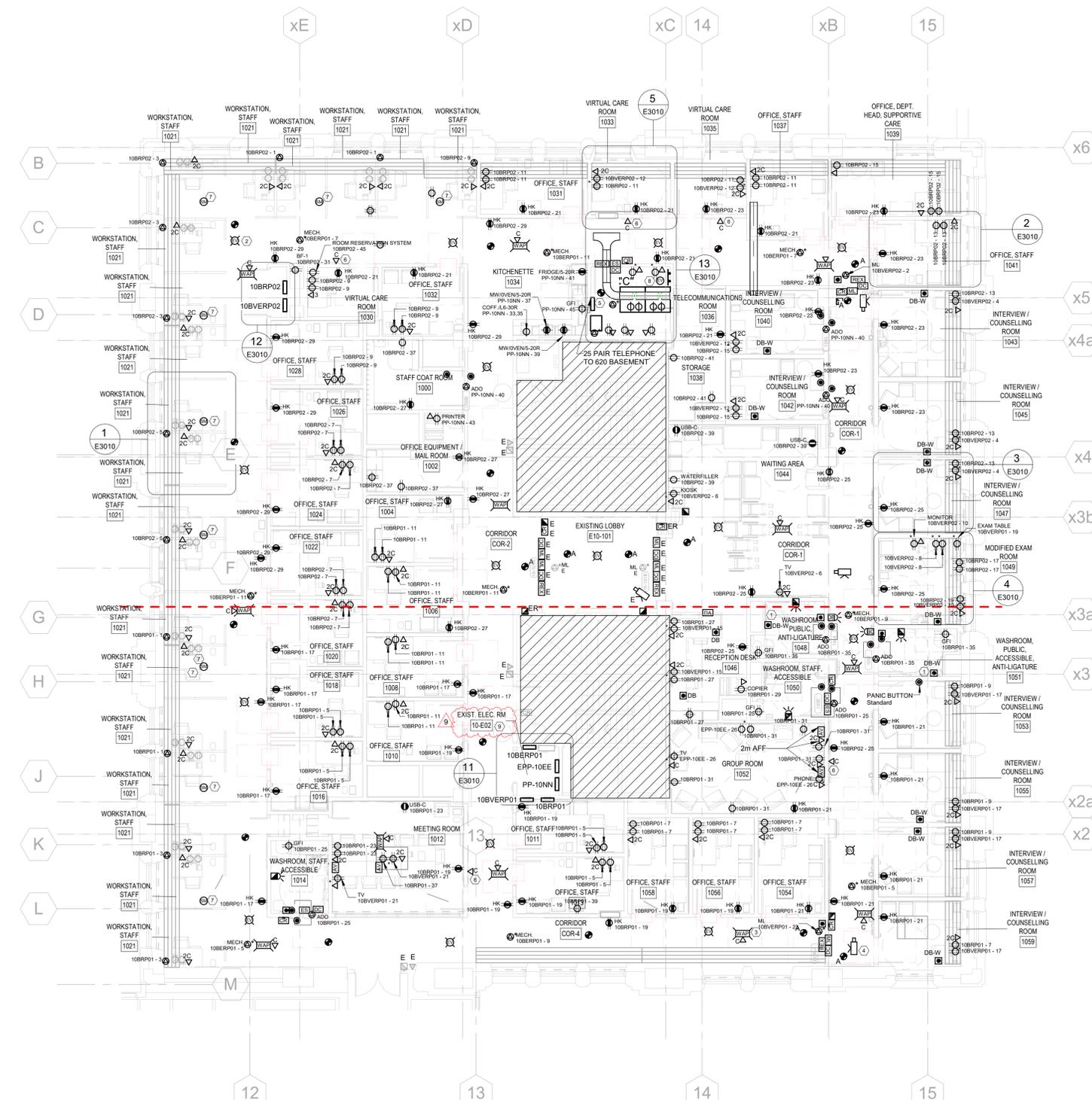
Rev.	Description	Date
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Drawing Title:

**POWER & SYSTEMS -
NEW WORK - LEVEL 10
PLAN (DSC)**
As indicated

Project No.: 0020711.00 Checked by: JG

E2110



1 POWER & SYSTEMS - NEW WORK - LEVEL 10 PLAN (DSC)
SCALE: 1 : 100

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CANNONDESIGN

20 Victoria Street 5th floor
Toronto, ON Canada M5C 2N8
P: 416.915.0121
F: 416.955.0122

www.cannondesign.com



Mechanical & Electrical
250 Rowntree Dairy Rd.
Woodbridge, ON, Canada L4L 9J7
P: 905 507 0800

www.quasarcm.com

3	ISSUED FOR ADDENDUM-E2	2024-09-10
2	ISSUED FOR TENDER	2024-08-14
1	ISSUED FOR BUILDING PERMIT	2023-12-19

Rev.	Description	Date
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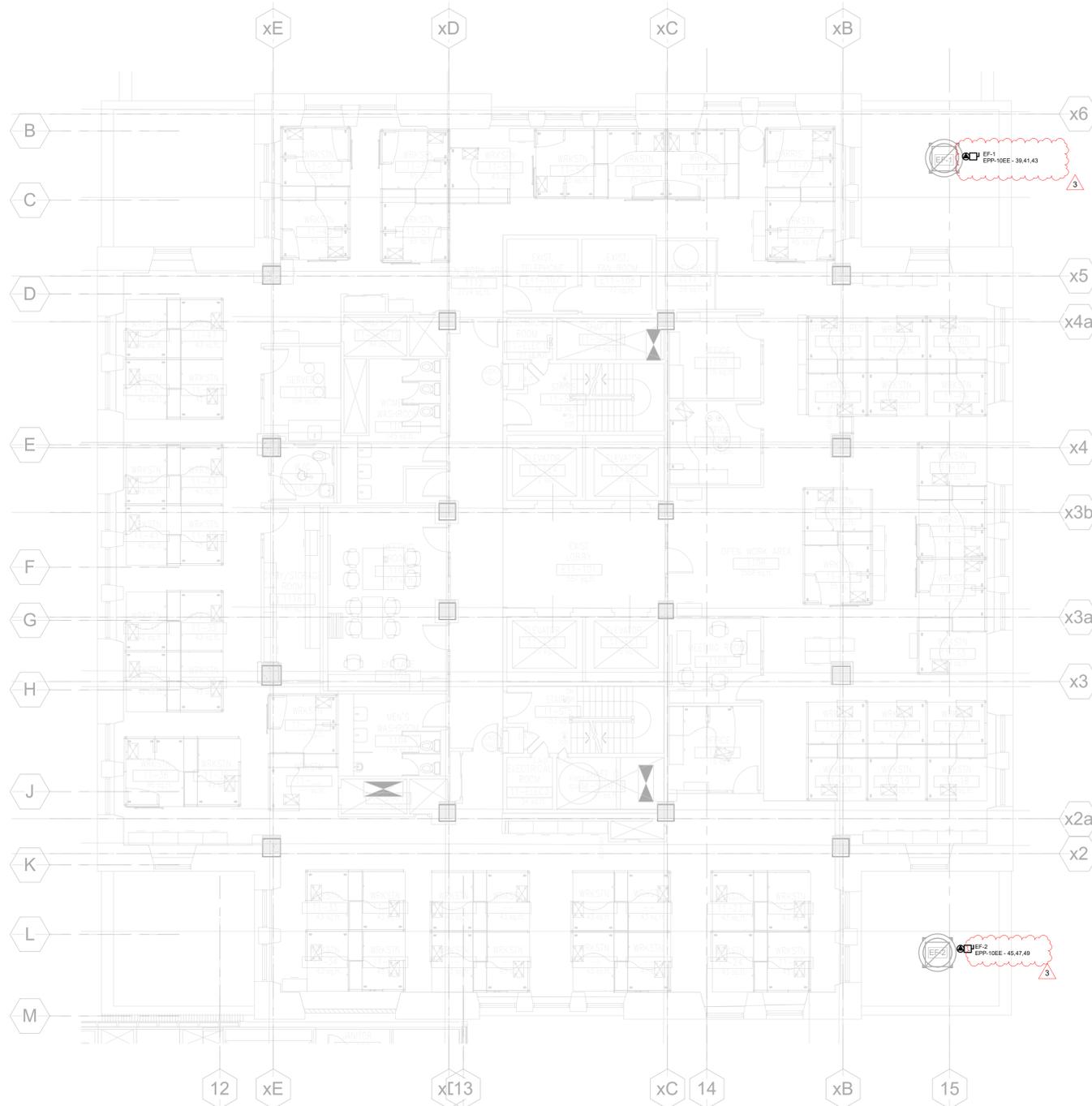
Drawing Title:

**POWER & SYSTEMS -
NEW WORK - LEVEL 11
PLAN (DSC)**

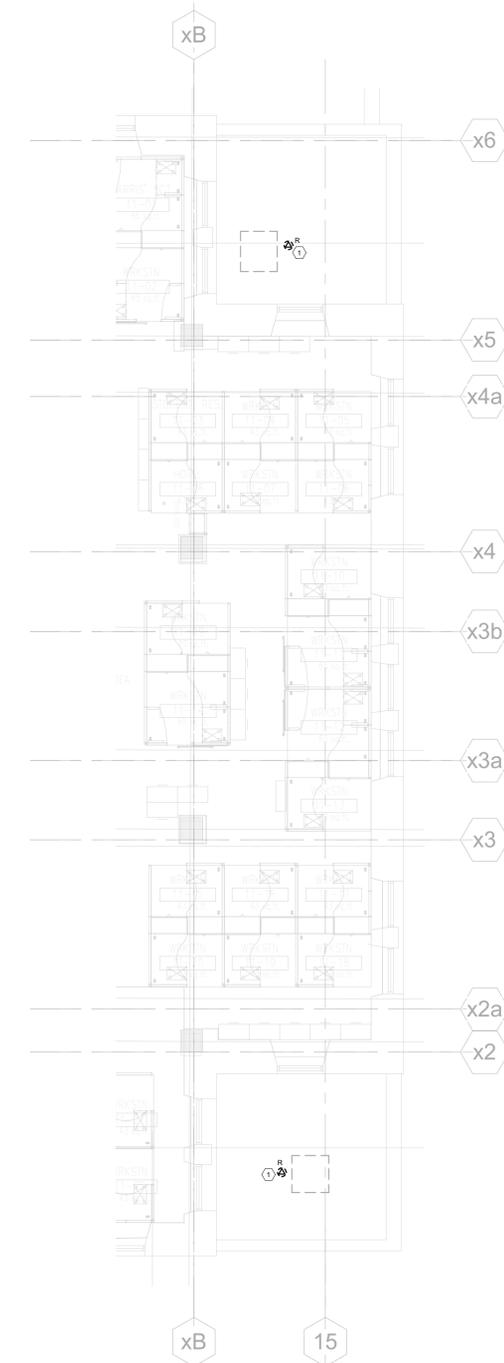
1 : 100

Project No.: 0020711.00 Checked by: JG

E2111



1 **POWER & SYSTEMS - NEW WORK -LEVEL 11 PLAN (DSC)**
SCALE: 1 : 100



2 **LEVEL 11 PART PLAN - POWER - DEMO**
SCALE: 1 : 100

SHEET KEYNOTES

- REMOVE POWER CONNECTION FOR EXISTING MECHANICAL EQUIPMENT ON ROOF. WIRING BACK TO SOURCE. THE BREAKER FOR THE MECHANICAL EQUIPMENT SET TO "SPARE" IF IT IS DEDICATED CIRCUIT FOR THE MECHANICAL EQUIPMENT AFTER COMPLETION. UPDATE PANEL DIRECTORY ACCORDINGLY.

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CANNONDESIGN

20 Victoria Street 5th floor
Toronto, ON Canada M5C 2N8
P: 416.915.0121
F: 416.955.0122

www.cannondesign.com



Mechanical & Electrical
250 Rowntree Dairy Rd.
Woodbridge, ON, Canada L4L 9J7
P: 905 507 0800

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2	ISSUED FOR ADDENDUM-E2	2024-09-10
1	ISSUED FOR TENDER	2024-08-14

Rev. Description Date

Drawing Title:

**ELECTRICAL MECHNCIAL
EQUIPMENT SCHEDULE**

1 : 1

Project No.: 0020711.00 Checked by: JG

E6001

MECHANICAL EQUIPMENT SCHEDULE																													
TAG NO.	LOCATION /DESCRIPTION	MOTOR					FEEDER		PROTECTION				STARTER		FIRE ALARM		REMARKS												
		FLA (A)	MCA (A)	MOP (A)	V/PH/Hz	KILOWATT (KW)	HORSE POWER (hp)	FEEDER SIZE	FED FROM	NON TIME DELAY FUSE (A)	TIME DELAY FUSE (A)	CIRCUIT BREAKER (A)	PACKAGE STARTER BY DIV.20	NON FUSED DISCONNECT AT THE UNIT BY DIV. 20	NON FUSED DISCONNECT BY DIV.26	F/A SHUT DOWN		INTERLOCKED											
AIR HANDLING UNITS - HYDRONIC COOLING & HEATING																													
AH-033A	6TH FLOOR MECHANICAL ROOM / MDHU	14.1	22	30	575/3/60		3#10AWG + #12AWG BND IN 21mmC	MCC-06-01E		30A, 3P		VFD																	
AH-033B	6TH FLOOR MECHANICAL ROOM / MDHU	14.1	22	30	575/3/60		3#10AWG + #12AWG BND IN 21mmC	MCC-06-01E		30A, 3P		VFD																	
AH-TEMPOEARY	6TH FLOOR MECHANICAL ROOM / MDHU				575/3/60			6MEDP1																					
EXHAUST FANS																													
EF-1	PENTHOUSE ROOF / DSC			2	208/3/60	2.24	3#12AWG + #12AWG BND IN 21mmC		EPP-10EE		15A, 3P	ECM																	
EF-2	PENTHOUSE ROOF / DSC				208/3/60	2.24	3#12AWG + #12AWG BND IN 21mmC		EPP-10EE		15A, 3P	ECM																	
RF-033A	LEVEL 5 - MECH. ROOM / MHDU				575/3/60	2.67	3#12AWG + #12AWG BND IN 21mmC		6MEDP1		15A, 3P	ECM																	
RF-033B	LEVEL 5 - MECH. ROOM / MHDU				575/3/60	2.67	3#12AWG + #12AWG BND IN 21mmC		6MEDP1		15A, 3P	ECM																	
AIR HANDLING UNITS - SUPPLY FANS FANS																													
SF-033A/SF-033B		14.1			575/3/60		3#10AWG + #12AWG BND IN 21mmC	MCC-06-01E		30A, 3P		VFD																	
SF-TEMPORARY		8.01			575/3/60	5.59	3#12AWG + #12AWG BND IN 21mmC	6MEDP1			15A, 3P	VFD																	
FAN COIL UNIT																													
FCU-1		6.8			115/1/60		2#12AWG + #12AWG BND IN 21mmC				15A, 1P	ECM																	
FCU-2		2X6.4	14.4		115/1/60		2#12AWG + #12AWG BND IN 21mmC				30A, 1P	ECM																	
FCU-3		2X6.4	14.4		115/1/60		2#12AWG + #12AWG BND IN 21mmC				30A, 1P	ECM																	
FCU-4		6.8			115/1/60		2#12AWG + #12AWG BND IN 21mmC				15A, 1P	ECM																	
FCU-5		6.8			115/1/60		2#12AWG + #12AWG BND IN 21mmC				15A, 1P	ECM																	
HUMIDIFIERS																													
H-1																													
H-TEMPORARY																													
PUMP																													
P-1	LEVEL 6 - MECH. ROOM / MHDU				575/3/60	7.46	3#12AWG + #12AWG BND IN 21mmC	6MEDP1			15A, 3P	VFD						DUTY											
P-2	LEVEL 6 - MECH. ROOM / MHDU				575/3/60	7.46	3#12AWG + #12AWG BND IN 21mmC	6MEDP1			15A, 3P	VFD						STANDBY											

Branch Panel: EPP-10EE

Location: EXIST. ELEC. RM 10-E02
 Supply From: EXISTING PANEL EPP-9EE
 Mounting: SURFACE
 Enclosure:
 Volts: 120/208 Wye
 Phases: 3
 Wires: 4
 A.I.C. Rating:
 Mains Type:
 Mains Rating: 400 A
 MCB Rating:

Notes:

CKT	Circuit Description	QUA.	Trip	Poles	A	B	C	Poles	Trip	QUA.	Circuit Description	CKT
1												
3	EXISTING LP-EPH	--	60 A	3	0 VA	1107 VA	0 VA	1429 VA			10BERP01	2
5												4
7					0 VA	2016 VA		0 VA	1926 VA			6
9	EXISTING RP-1EN10	--	60 A	3	0 VA	2076 VA	0 VA	2076 VA			10BERP01	8
11												10
13					0 VA	910 VA		0 VA	2860 VA			12
15	EXISTING 2EB	--	60 A	3	0 VA	910 VA	0 VA	1768 VA			10BERP02	14
17												16
19					0 VA	3860 VA		0 VA	1805 VA			18
21	EXISTING C.T.R	--	40 A	3			0 VA	3680 VA			10URP1 THROUGH 10UPS1 (10kVA)	20
23												22
25					0 VA	451 VA		0 VA	360 VA			24
27	EXISTING C.T.R	--	40 A	3	0 VA	451 VA	0 VA				RECPT.S IN GROUP ROOM 1052	26
29												28
31	SPARE	--	40 A	2	0 VA	0 VA	0 VA	0 VA			SPARE	30
33												32
35	SPARE	--	60 A	2							SPARE	34
37												36
39					0 VA	0 VA		0 VA	0 VA		SPARE	38
41	EF-1 ON LEVEL 11	1	15 A	3	747 VA	--	747 VA	0 VA			SPARE	40
43												42
45	EF-2 ON LEVEL 11	1	15 A	3	747 VA	--	747 VA	--			SPARE	44
47												46
49					747 VA	--	--	--			SPARE	48
51	SPARE	--	--	1							SPARE	50
53	SPARE	--	--	1							SPARE	52
55	SPARE	--	--	1							SPARE	54
57	SPARE	--	--	1							SPARE	56
59	SPARE	--	--	1							SPARE	58
61	SPARE	--	--	1							SPARE	60
63	SPARE	--	--	1							SPARE	62
65	SPARE	--	--	1							SPARE	64
67	SPARE	--	--	1							SPARE	66
69	SPARE	--	--	1							SPARE	68
71	SPARE	--	--	1							SPARE	70
												72
Total Load:					10437 VA	10446 VA	8244 VA					
Total...					90 A	90 A	69 A					

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	4480 VA	100.00%	4480 VA		
HEALTH CARE FACILITY LIGHTING	120 VA	100.00%	120 VA	Total Conn. Load:	29128 VA
RECEPTACLE	8221 VA	70.00%	5755 VA	Total Est. Demand:	26662 VA
				Total Conn.:	81 A
				Total Est. Demand:	74 A

Notes:

Branch Panel: 10BERP01

Location: EXIST. ELEC. RM 10-E02
 Supply From: EPP-10EE
 Mounting: SURFACE
 Enclosure:
 Volts: 120/208 Wye
 Phases: 3
 Wires: 4
 A.I.C. Rating:
 Mains Type:
 Mains Rating: 225 A
 MCB Rating:

Notes:

CKT	Circuit Description	QUA.	Trip	Poles	A	B	C	Poles	Trip	QUA.	Circuit Description	CKT	
1	FCU-4 IN TELE. RM 1036	1	20 A	1	816 VA	160 VA				15 A	8	SYNC. WIRELESS CLOCKS	2
3	FCU-5 IN TELE. RM 1036	1	15 A	1		816 VA	120 VA			15 A	6	SYNC. WIRELESS CLOCKS	4
5	POWER FOR MECH.	2	20 A	1			1000 VA	140 VA		15 A	8	SYNC. WIRELESS CLOCKS	6
7	POWER FOR MECH.	2	20 A	1	1000 VA	140 VA				15 A	7	SYNC. WIRELESS CLOCKS	8
9	POWER FOR MECH.	2	20 A	1		1000 VA	140 VA			15 A	7	SYNC. WIRELESS CLOCKS	10
11	POWER FOR MECH.	3	20 A	1			1500 VA	--		1	--	SPACE	12
13	POWER FOR LEAK DETECTOR IN...	1	15 A	1	500 VA	--				1	--	SPACE	14
15	SPACE	--	--	1						1	--	SPACE	16
17	SPACE	--	--	1						1	--	SPACE	18
19	SPACE	--	--	1						1	--	SPACE	20
21	SPACE	--	--	1						1	--	SPACE	22
23	SPACE	--	--	1						1	--	SPACE	24
25	SPACE	--	--	1						1	--	SPACE	26
27	SPACE	--	--	1						1	--	SPACE	28
29	SPACE	--	--	1						1	--	SPACE	30
31	SPACE	--	--	1						1	--	SPACE	32
33	SPACE	--	--	1						1	--	SPACE	34
35	SPACE	--	--	1						1	--	SPACE	36
37	SPACE	--	--	1						1	--	SPACE	38
39	SPACE	--	--	1						1	--	SPACE	40
41	SPACE	--	--	1						1	--	SPACE	42
Total Load:					2616 VA	2076 VA	2660 VA						
Total...					22 A	17 A	23 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
RECEPTACLE	720 VA	70.00%	504 VA	Total Conn. Load:	7352 VA
				Total Est. Demand:	7136 VA
				Total Conn.:	20 A
				Total Est. Demand:	20 A

Notes:

Branch Panel: 10BERP01

Location: EXIST. ELEC. RM 10-E02
 Supply From: EPP-10EE
 Mounting: SURFACE
 Enclosure:
 Volts: 120/208 Wye
 Phases: 3
 Wires: 4
 A.I.C. Rating:
 Mains Type:
 Mains Rating: 225 A
 MCB Rating:

Notes:

CKT	Circuit Description	QUA.	Trip	Pole s	A	B	C	Pole s	Trip	QUA.	Circuit Description	CKT	
1	EXIT SIGNS	7	20 A	1	35 VA	0 VA				15 A	--	SPARE	2
3	LTG - COORDIDOR	9	20 A	1		324 VA	0 VA			15 A	--	SPARE	4
5	LTG - WASHROOMS	14	20 A	1			308 VA	0 VA		15 A	--	SPARE	6
7	LTG IN RMS 1049, 1036	4	20 A	1	112 VA	0 VA				15 A	--	SPARE	8
9	SPARE - LTG	--	20 A	1		0 VA	0 VA			15 A	--	SPARE	10
11	SPARE - LTG	--	20 A	1			0 VA	0 VA		15 A	--	SPARE	12
13	SPARE - LTG	--	20 A	1	0 VA	0 VA				15 A	--	SPARE	14
15	RECPT.S IN RECEPTION DESK 1046	2	15 A	1		560 VA	0 VA			15 A	--	SPARE	16
17	RECPT.S IN INTERV.R RMS 1053,1055,1057,1059	4	15 A	1			1120 VA	0 VA		15 A	--	SPARE	18
19	EXAM TABLE IN EXAM RM 1049	1	15 A	1	480 VA	0 VA				15 A	--	SPARE	20
21	TV. & TABLE RECPT.S IN MEETING RM	2	15 A	1		545 VA	0 VA			15 A	--	SPARE	22
23	POWER FOR ML	1	15 A	1			500 VA	0 VA		15 A	--	SPARE	24
25	POWER FOR LTG. CTRL CABINET	1	20 A	1	500 VA	--				1	--	SPARE	26
27	SPARE	--	15 A	1		0 VA	--			1	--	SPACE	28
29	SPARE	--	15 A	1			0 VA	--		1	--	SPACE	30
31	SPARE	--	15 A	1	0 VA	--				1	--	SPACE	32
33	SPARE	--	20 A	1		0 VA	--			1	--	SPACE	34
35	SPARE	--	20 A	1			0 VA	--		1	--	SPACE	36
37	SPARE	--	20 A	1	0 VA	--				1	--	SPACE	38
39	SPARE	--	--	1		--	--			1	--	SPACE	40
41	SPARE	--	--	1		--	--			1	--	SPACE	42
43	SPARE	--	--	1	--	--	--			1	--	SPACE	44
45	SPARE	--	--	1	--	--	--			1	--	SPACE	46
47	SPARE	--	--	1	--	--	--			1	--	SPACE	48
49	SPARE	--	--	1	--	--	--			1	--	SPACE	50
51	SPARE	--	--	1	--	--	--			1	--	SPACE	52
53	SPARE	--	--	1	--	--	--			1	--	SPACE	54
55	SPARE	--	--	1	--	--	--			1	--	SPACE	56
57	SPARE	--	--	1	--	--	--			1	--	SPACE	58
59	SPARE	--	--	1	--	--	--			1	--	SPACE	60
61	SPARE	--	--	1	--	--	--			1	--	SPACE	62
63	SPARE	--	--	1	--	--	--			1	--	SPACE	64
65	SPARE	--	--	1	--	--	--			1	--	SPACE	66
67	SPARE	--	--	1	--	--	--			1	--	SPACE	68
69	SPARE	--	--	1	--	--	--			1	--	SPACE	70
71	SPARE	--	--	1	--	--	--			1	--	SPACE	72
Total Load:					1107 VA	1429 VA	1926 VA						
Total...					9 A	12 A	16 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HEALTH CARE FACILITY LIGHTING	120 VA	100.00%	120 VA	Total Conn. Load:	4462 VA
RECEPTACLE	2685 VA	70.00%	1880 VA	Total Est. Demand:	3657 VA
				Total Conn.:	12 A
				Total Est. Demand:	10 A

Notes:



**Princess Margaret
Cancer Centre Stem Cell
Transplant 2**

**Part B
(MH, MHDU, DSC)**

CANNONDESIGN

20 Victoria Street 5th floor
 Toronto, ON Canada M5C 2N8
 P: 416.915.0121
 F: 416.955.0122

www.cannondesign.com



Mechanical & Electrical
 250 Rowntree Dairy Rd.
 Woodbridge, ON, Canada L4L 9J7
 P: 905.507.0800

www.quasarcg.com

5	ISSUED FOR ADDENDUM-E2	2024-09-10
4	ISSUED FOR TENDER	2024-08-14
3	ISSUED FOR BUILDING PERMIT	2023-12-19
2	ISSUED FOR MOH 4.1 SUBMISSION	2023-09-25
1	ISSUED FOR 95% CD SUBMISSION	2023-09-06

Rev.	Description	Date
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Drawing Title:

**ELECTRICAL PANEL
SCHEDULES - DSC**

Project No.: 0020711.00 Checked by: JG

E6009

Pictures:

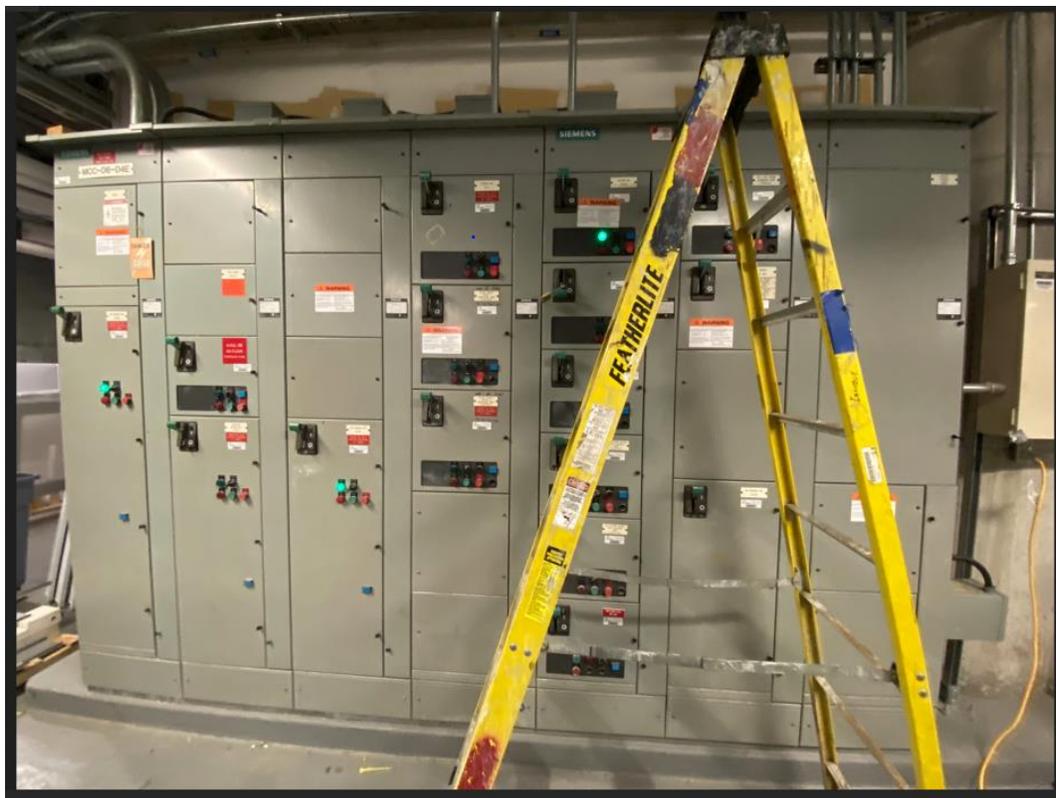
EPP=10EE



4 EDP01



MCC-06-04E



MCC-06-01E



SWBD "6AAA9E"



5DP02



EPP-10EE



LP-EI-10



LP-L10



Quasar Consulting Group



Jomuel Estranero, P.Eng.
Electrical Engineer