Appendix E - Specifications - NRPS D6 Tender Set

SPECIFICATIONS

for

NRPS D6 – ENTRANCE- WRS- AND CUSTOMER SERVICE ACCESSIBILITY UPGRADES

THE REGIONAL MUNICIPALITY OF NIAGARA

Project No.

ARCHITECT: MZE/architecture+design inc.
St. Catharines, ON

CONSULTANTS:

MECHANICAL ARC Engineering Inc.
Stoney Creek, ON

ELECTRICAL Seguin Engineering Inc.
Caledonia, ON

NRPS D6 – ENTRANCE- WRS- AND CUSTOMER SERVICE ACCESSIBILITY UPGRADES
THE REGIONAL MUNICIPALITY OF NIAGARA

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Front End from Owner

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SECTION 01 00 10 - GENERAL REQUIREMENTS

PART 1 – GENERAL

1.1 Division One Requirements:

1. The provisions of all Sections of Division One shall apply to each section of the Specifications, including those of Divisions 23, 26, 31, and 32.

1.2 Subdivision of Work:

1. The Specifications have generally been divided into trade divisions, and the trade divisions into sections for the purpose of ready reference, but a section may consist of more than one Subcontractor or supplier. The responsibility for determining which Subcontractor or Supplier provided labour, materials, products, equipment and services to complete the work rest solely with the Contractor.

1.3 CODES AND STANDARDS

1. Perform the work in accordance with the Ontario Building Code containing the Building Code Act and Ontario Regulation 423/06, latest amendments.
2. Comply with all regulations of all public authorities having jurisdiction.
3. Wherever a code or standard is referred to in the drawings or specifications, it shall be understood to be the latest revision of this code or standard that is intended.
4. Supply, to the Owner, copies of material safety data sheets (MSDS) for all products covered under the Ontario Health and Safety Act and Regulations and WHMIS Regulations. These are to be used on or in conjunction with the work. Include information regarding locations and conditions for use.

1.4 PERMITS

1. Note that the Site plan Agreement and Building permit have been received.. These are to be transferred to the contractor.
2. Supply all permits required by local authorities required from them and pay expenses incurred. Permits pertaining to particular trades shall be paid for by the particular trade concerned. Include all permit fees in tender.
3. Be responsible for contacting the Municipal building authority for a field review of the work at those times and in accordance with the directions on the Municipal Building Permit and/or the requirements of the municipality concerned.

1.5 DISCREPANCIES OMISSIONS

1. Report omissions, ambiguities and/or contradictions in the project documentation to the Consultant immediately on discovery in writing. The Consultant will then provide written instructions, clarifications or explanations. The Consultant will not be responsible for oral instruction.

1.6 EXAMINATION DURING TENDERING

1. Examine the site carefully prior to the submission of a tender.
2. Extras will not be considered for any additional Work required to deal with difficulties encountered which could have been foreseen by a close site examination.

1.7 PUBLIC UTILITIES AND SERVICES

1. Verify limitations imposed on the Work by the presence of utilities and services. Ensure that they are not damaged.
2. Notify service authorities to enable them to take appropriate action with regard to the affected areas. Obtain locates as required.
3. Location of existing concealed or buried services or structure indicated in the documents has not necessarily been taken from "as-built" drawings and may be approximate only. Exercise appropriate precautions when carrying out the Work in the area of these services. Notify Consultants immediately of any discrepancies.
4. Locate poles, pipes, conduit, wires, fill pipes, vents, regulators, meters, and sanitary service Work in inconspicuous locations. If not shown on drawings, verify location of service Work with Consultant before commencing installation.

1.8 VERIFICATION OF INVERTS

1. Immediately following award of the Contract, verify all field service connections to ensure that drainage runs can meet the site service inverts.
2. Give notification immediately of any apparent difficulties or discrepancies. No extras will be considered for rerouting drainage lines without prior review with the Consultant.

1.9 COORDINATION OF OTHER CONTRACTORS' WORK

1. Cooperate with other Contractors who may have separate contracts with the Owner, permit the completion of the Work as expeditiously as possible.
2. Prior to commencement of the Work, ensure that all other Contractors understand the extent of the Work, the conditions and materials on the project, the schedule of completion, restrictions to safety, and to access. Ensure that all Sub-contractors fully understand the extent of Work involved with Other Contractors.

1.10 BUILDING DIMENSIONS AND COORDINATION

1. Ensure that all necessary job dimensions are taken and that the Work of trades is coordinated for the proper execution of the Work. Assume complete responsibility for the accuracy and completeness for dimensions, and for coordination.
2. Verify that all Work, as it proceeds is executed in accordance with dimensions and positions indicated. Maintain levels and clearances to adjacent Work, as set out in the drawings; assure that Work installed in error is rectified before constructions resumes.
3. Check and verify all dimensions and the interfacing of all services. Verify with each trade all dimensions, pertaining to the Work of other trades. Be responsible for the cooperation of various trades to achieve the proper performance of the Work.
4. Avoid scaling the drawings. Immediately inform the Consultant of ambiguity or lack of information. Assume the responsibility for non-compliance.
5. Field measure installed Work to assure the fit of dependent details.
6. Advise Consultant of discrepancies, omissions on drawings, such as reflected ceiling plans, jointing patterns for paving, or ceramic tile, which affect aesthetics, or which interfere with services, equipment or surfaces. DO NOT PROCEED without review with the Consultant.

7. Ensure that each Sub-contractor communicates requirements for site conditions and surfaces necessary for the execution of the Sub-contractor's Work, and that he provides setting drawings, templates and all other information necessary for the location and installation of material, holes, sleeves, inserts, anchors, accessories, fastenings, connections and access panels. Inform other Sub-contractors whose Work is affected by these requirements and preparatory Work.
8. Ensure that other Sub-contractors are assisted in the execution of required preparatory Work by Sub-contractors whose own Work is dependent on this preparatory Work
9. Prepare interference drawings to properly coordinate the Work where necessitated. Refer to Section 01340

1.11 LABELS AND NAMEPLATES

1. Do not install permanent or permanently-attached labels, trademarks, and nameplates in visible locations on materials and components, unless required for operating instruction or by Jurisdictional Authorities

1.12 USE OF PREMISES BEFORE SUBSTANTIAL PERFORMANCE

1. The Owner shall have the right to enter and occupy the building, in whole or in part, for the purpose of placing fittings, equipment and the like, before completion of the Contract, such entry and occupancy must not prevent or interfere with the Contractor in the performance of the Work. Such entry shall in no way be considered as an acceptance of the Work in whole, or in part, nor shall it imply acknowledgement that terms of the Agreement are fulfilled.
2. Provide facilities for such access and installation.

1.13 LINES, LEVELS, BUILDING LOCATION AND EXISTING BUILDING SURVEY

1. Existing grades and other known conditions of site are shown on Site Plan. This survey information has been established by personnel engaged by the Owner. No responsibility is assumed by the Owner or Consultant for accuracy of this survey information.
2. Establish all necessary lines and levels, and erect substantial batter boards and maintain their accurate position.
3. Where required, engage and pay an Ontario Land Surveyor to:
   - 3.1 Lay out new building on site and establish a permanent bench mark or widely separated bench marks, as required by building configuration.
   - 3.2 Verify elevations established for each floor as construction proceeds.
   - 3.3 Verify relation of building floor elevations to permanent bench marks.
   - 3.4 Correlate geodetic elevation of bench mark with the elevations in use by all public utilities adjacent to the project.
   - 3.5 Verify accuracy of all site dimensions shown on Drawings.
   - 3.6 Provide to the Consultant a survey certificate, verifying location of building on site.
   - 3.7 Provide to the Consultant a survey certificate, verifying location of all footings relative to property lines, before construction proceeds on the footings.
4. At Substantial Performance take field elevations with respect to final grading and certify that the building constructed and lot grading is in conformity with the registered site plan agreement, and sign off on the site plan in accordance with the requirements of the Municipality.

1.14 WORKMANSHIP

1. Fabricate and install the Work of all Sections in accordance with the best practice by craftsmen skilled in the Work of the respective Section. Unless otherwise specified, the manufacturer's latest printed instructions shall be rigidly complied with in the methods and materials to be used in the installation of the Work. Notify the Consultant in writing if these Specifications and/or drawings conflict in any way with manufacturer's instructions. The Consultant will then rule which specifications shall be followed. If applicable, a copy of those instructions shall be made available at job site.

1.15 REGULATORY REQUIREMENTS

1. Minimum Standard: unless reference is made in the Contract Documents to other standards, all work shall conform to or exceed the minimum applicable standards of the Ontario Building Code, (latest edition), and/or the governing Jurisdictional Authorities.
2. Construction Safety: include all provision for construction safety, such as fences, barricades, bracing supports, storage facilities, sanitation facilities, fire protection, standpipes, electrical supply, temporary heat, ventilation, construction equipment with its supports and guards, stairs, ramps, platforms, runways, ladders, scaffolds, guardrails, temporary flooring, rubbish chutes, walkway lighting, and morality lighting, all as required by the Occupational Health and Safety Act (latest edition), and amendments thereto and the Fire Code (latest edition), as well as all other applicable regulations of Jurisdictional Authorities

1.16 EXAMINATION BEFORE EXECUTION OF WORK

1. Make good defects in the Work on which further execution of work depends.
2. Verify dimensions of prepared work before fabrication of that work which is dependent on the prepared work.
3. Do not proceed with the execution of the work unless the work which is to receive it and site conditions are satisfactory. Commencement of all work of all sections shall imply that prepared work and site conditions are satisfactory

1.17 SPECIFICATION REFERENCE TO STANDARDS AND CODES

1. Where reference is made to published standards and codes, such references shall be considered to refer to the latest edition (revision) approved by the organization issuing that publication, which is current at the date of this specification

1.18 LOCATION OF SERVICES

1. Record exact location of all services with dimensions to the Grid Lines and Datum lines, and show on Record Drawings prior to placing concrete. DO NOT place concrete until this is done. Coordinate Mechanical, Electrical, and concrete trades.

1.19 SLEEVING

1. Assess requirements for sleeving the structural elements for passing of pipes, conduits and other mechanical or electrical components, and include all work required for approved interfacing between the structure, all mechanical and electrical work, and other components of the work.

1.20 CONCEALING MECHANICAL AND ELECTRICAL COMPONENTS

1. Include work required to modify indicated location of pipes, ducts, conduits, and other mechanical or electrical components to fully conceal components from view in finished spaces.

1.21 LIFE AND FIRE SAFETY

1. Enforce all requirements established by jurisdictional authorities and underwriters for life safety, fire prevention, and fire protection

1.22 DRAINAGE

1. Ensure that positive drainage is provided to roof, floor, and site drains and catch basins, as set in their final positions, and at all other locations to prevent water infiltration into the buildings. Provide constant slopes for drained surfaces to drains and drainage courses.
2. If water is found to be ponding on roof areas due to incorrectly located drains, install additional drains to alleviated water ponding. If extra drains are required coordinate the location of rainwater leaders with Consultant.

1.23 MATERIALS SUPPLIED BY OWNER

1. Install materials supplied by Owner where called for in the technical sections of the specifications. Coordinate shipping and delivery with Owner. Provide protected storage on site. Do all work required to complete installation, in accordance with manufacturer's directions.

1.24 WORK SHOWN OR SPECIFIED OUTSIDE PROPERTY LINES

1. Unless specifically indicated or specified, work indicated outside the property lines is to be included in the Contract. Perform all work such as, but not, restricted to landscaping, asphalt, concrete, and mechanical and electrical services in accordance with specifications and details issued by the applicable Municipality.
2. Include connections to all municipal and public service lines, and modifications to sidewalks and roadways where so required to provide access to the project site, unless shown otherwise on the drawings.
3. Where work is required to be done by the Municipality, include cost in the Contract.

1.25 DOCUMENTS ON JOBSITE

1. Maintain at job site, one copy of each of the following and make same available to the Consultant upon request:
   - 1.1 Contract drawings
   - 1.2 Specifications
   - 1.3 Addenda
   - 1.4 Reviewed Shop drawings
   - 1.5 Change Orders
   - 1.6 Other modifications to Contract
   - 1.7 Field Test Reports
   - 1.8 Building Permit Drawings
   - 1.9 Copy of approved work schedule
   - 1.10 Manufacturer's installation and application instructions
   - 1.11 Ontario Building Code and Guide to the Ontario Building Code, latest editions.

1.26 SITE PLAN AGREEMENT

1. Note that this project is under site plan agreement with the Town of Fort Erie and as such is subject to extra Town Inspection of services and parking areas. Ascertain and carry the Town's charges for those special inspections. The Contractor will arrange for an Ontario Land Surveyor's Final Certificate of Compliance, the charges to be paid by the Owner. Owners will post the necessary bond for the site plan agreement.

1.27 SMOKING RESTRICTIONS

1. Smoking will not be permitted anywhere in the building. Any smoking shall take place outside the premises.

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

END OF SECTION

SECTION 01 10 00 - SUMMARY

1.1 RELATED DOCUMENTS

1. This Section describes requirements applicable to all Sections within all Divisions.

1.2 WORDS AND TERMS

1. Refer to and acknowledge other words, terms, and definitions in CCDC 2 - 2020 Definitions

1.3 COMPLEMENTARY DOCUMENTS

1. Drawings, specifications, and schedules are complementary each to the other, what is called for by one to be binding as if called by all. Should any discrepancy appear between documents, which leave doubt as to the intent or meaning, abide by Precedence of Documents article below or obtain direction from the Consultant.
2. Drawings indicate general location and route of conduit and wire/conductors. Install conduit or wiring/conductors and plumbing piping not shown or indicated diagrammatically in schematic or riser diagrams to provide an operational assembly or system.
3. Install components to physically conserve headroom, to minimize furring spaces, or obstructions.
4. Locate devices with primary regard for convenience of operation and usage.
5. Examine all discipline drawings, specifications, and schedules and related Work to ensure that Work can be satisfactorily executed. Conflicts or additional work beyond work described to be brought to attention of Consultant.

1.4 PRECEDENCE OF DOCUMENTS

1. In the event of conflict within and between the Contract Documents, the order of priority within specifications and drawings are – from highest to lowest:
   1.1 Agreement – Between Owner and Contractor,
   1.2 Supplementary Conditions (if any),
   1.3 General Conditions of the Contract,
   1.4 Sections of Division 1 of the specifications,
2. Specifications:
   2.1 Sections of Division 2 through 26 of the specifications, and
   2.2 Specifications specifically indicated on drawings.
3. Schedules and keynotes:
   3.1 Schedules within the specifications, then
   3.2 Schedules on drawings
4. Drawings:
   4.1 Drawings of larger scale shall govern over those of smaller scale of the same date, then
5. Dimensions shown on drawings shall govern over dimensions scaled from drawings.
   5.1 Location of utility outlets indicated on architectural detail drawings takes precedence over positions or mounting heights located on mechanical or electrical drawings.
   5.2 Later dated documents shall govern over earlier documents of the same type.

1.5 WORK COVERED BY CONTRACT DOCUMENTS

1. The Work of this Contract consists of demolition of existing double door system and repair of finishes at St. Catharines Daycare on 179 Carlton Street to upgrade accessibility access.

1.6 CONTRACT METHOD

1. Construct all the Work under single lump-sum Standard Agreement contract.

1.7 OWNER FURNISHED PRODUCTS

1. Products indicated "N.I.C." (Not in Contract) or "E.O." (Equipment by Owner) will be furnished and installed by the Owner. Service lines for such products shall be included under these Construction Contract Documents, if indicated. Final connections from service lines to equipment will be by the Owner, unless otherwise indicated.

1.8 WORK SEQUENCE

1. Construct Work to accommodate Owner's continued use of premises during construction.
2. The renovation of the existing .
3. Coordinate with the Owner all construction activities, including disruption of utility services prior to commencing such activities and disruptions.
4. Preparation of Construction Schedule, must address sequencing as stated in this paragraph.

1.9 CONTRACTOR'S USE OF PREMISES

1. Before commencement of the Work, the Owner, Contractor, and Consultant will agree on a mutually satisfactory access to the site and acceptable locations for the construction office, trailers, material storage area, toilet accommodation and the like.
2. Confine access and construction operations to this agreed area and restore to its original condition following completion of the Work.
3. This need not be within the "developed area" indicated on the Plot Plan
4. Do not unreasonably encumber site with materials or equipment.
5. Owner's existing parking lots and roadways may be used for parking construction Workers' vehicles, but only as directed by the Owner.

1.10 OWNER REQUIREMENTS

1.11 Construction employees shall not use any facilities within existing buildings unless they are instructed to do so as part of construction of alteration Work or unless otherwise indicated within the Contract Documents.

1. At no time shall any of the Work or operations preceding any Work interfere with the Owner's day-to-day activities, unless approved by the Owner.
2. Service of electrical power, light, heat, water, gas, telephone, etc., must be maintained, except temporary shutdowns may be made after arrangements have been made with the Owner. Note that some temporary service shutdowns may require scheduling of Work outside of normal working hours at Owner's cost, but with Owner's prior approval.

1.12 PROJECT SCHEDULE

1. Commence construction on……..
2. Declare Substantial Performance on……..

1.13 TIME OF THE ESSENCE

1. Time is of the essence of this Contract.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01 21 00 - ALLOWANCES

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Canadian Construction Documents Committee (CCDC)
   1.1 CCDC-2-2020 Stipulated Price Contract
2. Supplementary Conditions - Section 00 73 00

1.2 CASH ALLOWANCES

1. Administer cash allowances in accordance with Contract (CCDC2), will include any overhead and profit in connection with cash allowances in the Contract Price.
2. Include in the Contract Price, cash allowances stated herein.
3. Cash allowances, unless otherwise specified cover the net cost to the Contractor, Sub-Contractor, of services, products, construction machinery and equipment, freight, handling, unloading, storage, installation, and other authorized expenses incurred in performing the Work.
4. The Contract Price, and not the cash allowance, includes the Contractor's overhead and profit in connection with such cash allowance.
5. Where one cash allowance is exceeded amounts from other cash allowances can be used. Only when the sum of all cash allowances has been expended will the contractor be compensated for overhead and profit as set out in the contract documents.
6. Progress payments on accounts of work authorized under cash allowances will be included in the Consultant's monthly certificate for payment.

1.3 CONTINGENCY ALLOWANCE

1. See the RMON Tender Pricing table for details.
2. Do not include in the Contract Price, additional sums for products, installation, overhead or profit.
3. Expenditures under the contingency allowance will be authorized in accordance with the procedures provided in GC 6 - Changes in the Work, and evaluated under GC 6.3 Change Directive and Certification of Changes in the Work.

1.4 ALLOWANCES SCHEDULE

1. Panic Buttons: Allow the sum of Twenty Five Hundred ($2,500.00) for the supply and installation of panic buttons.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 25 00 - GENERAL INSTRUCTIONS

1.1 CODES AND STANDARDS

1. Perform the Work in accordance with the Ontario Building Code containing the Building Code Act and Ontario Regulation 350/06, latest revisions.
2. Comply with all regulations of all public authorities having jurisdiction.
3. Wherever a code or standard is referred to in the drawings or specifications, it shall be understood to be the latest revision to this code or standard that is intended.
4. Supply, to the Owner, copies of material safety data sheets (MSDS) for all products covered under the Ontario Health and Safety Act and Regulations and WHMIS Regulations. These are to be used on or in conjunction with the Work. Include information regarding locations and conditions for use.

1.2 PERMITS

1. The Owner has applied and paid for the Building Permit, and Site Plan Agreement fee?
2. Supply all other permits required by local authorities. Pay expenses incurred. Permits pertaining to particular trades shall be paid for by the particular sub-trade concerned. Include all permit fees in tender.
3. Be responsible for contacting the Municipal building authority for a field review of the Work at those times and in accordance with the directions on the Municipal Building permit and/or the requirements of the municipality concerned.
4. The Owner has arranged for a Site Environmental Report. Removal of any offending material will be completed prior to the award of the contract.

1.3 EXAMINATION OF SITE

1. Examine site prior to submission of a tender.
2. No extras will be allowed for additional Work due to lack of labour or equipment or difficulties encountered, which could have been foreseen by close inspection of the site.
3. Include in examination of site all reasonably accessible ceiling and crawl spaces. Check services encountered and required.

1.4 UNIT PRICES

1. The Contractor may be required to meet with the Consultant after the close of tenders and negotiate a list of unit prices to serve as the basis for additions to or deletions from the contract.

1.5 CONSTRUCTION SCHEDULE

1. Submission of a price by any trade will be construed as evidence of agreement with the completion date at the beginning of this specification. Prepare a construction schedule in a form approved by the Consultant in co-operation with the trade Contractors. Provide copies for the Contractor Owner and Trade Contractors.

1.6 JOB MEETINGS

1. At the discretion of the Consultant, the Contractor will convene regular site progress meetings to review construction progress and consider matters arising from or having a bearing on the contract. The agenda for each meeting and the minutes arising there from will be prepared and issued by the Contractor.
2. The Contractor and his superintendent, or senior site representative, shall attend each meeting, together with such members of his staff, as may be required and including responsible representation from Sub-contractors or suppliers.

1.7 PROGRESS REPORTS

1. Submit weekly progress reports to the Consultant in a form approved by the Consultant. Record the following:
   1.1 Activities, which have been worked on and/or completed in the previous week.
   1.2 Anticipated activities to be started, or continued, during the following week.
   1.3 Estimated working days required to complete the Work already in progress.
   1.4 Any proposed revision to the approved construction progress schedule.

1.8 "OWNER" AND "OTHERS" DEFINED

1. "Others" in any trade section refers to other trades within the framework of the contract. Any Work, or material executed outside the contract is designated "N.I.C.", " By Owner", or "By other Contractor.

1.9 CO-OPERATION OF TRADES

1. Co-operate fully with all others employed on the Work and in every way to ensure completion of the Work in a satisfactory manner by the dates required.
2. Make demands upon the Work of others known both to the trade concerned and the Contractor in sufficient time to permit inclusion of such demands in this Work. Should no notification or notification in insufficient time be given, the expense incurred in altering the Work of others shall be borne by those failing to provide the notification. Alterations in Work to suit the Work of other trades shall be done solely by the Contractor for the Work to be altered.

1.10 MATERIALS AND METHODS

1. Materials specified shall form the basis of the tender price except where the Architect's written approval has been obtained for an alternate before the tender closing.
2. All material shall be new (unless used material is specifically called for) and of the best obtainable quality of they're several kinds.
3. Used material shall be removed from the site upon order from the Consultant.
4. Material shall come to the site in containers and packages as shipped from the manufacturer. No loose or improperly stored material will be accepted.
5. Salvaged materials except equipment and items specifically exempted by later portions of this specification will be the property of the Contractor.
6. The submission of a price will be construed as approval of the originally specified or amended materials or methods.

7. Manufactured products specified by name bear the automatic implication that the material is to be installed in accordance with general good practice and in accordance with directions of the manufacturer. Should any bidder believe that the specified material and/or method of installation is not in accordance with good practice and wishes for this reason to limit his guarantee, he shall so indicate to the Architect not less than one week before the close of tenders. The Architect will issue an addendum changing the offending material or method if he considers the point sufficiently serious.

1.11 "OR EQUAL"

1. Where the trade name of a product is followed by the words "or equal", the Consultant will consider submissions from manufacturers wishing to have their material accepted as an alternate. Such submissions shall be made to the Architect not less than one week before the close of tenders so that pertinent data on acceptable materials may be covered in an addendum.

1.12 "REUSE EXISTING"

1. Where drawings or specifications indicate an existing material reused, this will imply that the available quantity of that salvaged material may be reused. It does not imply that there is necessarily enough to perform the entire operation. The Contractor will determine available quantity and reuse those portions in good condition, augmenting it with whatever quantity of new and matching material as may be required. Contractor is to pay all costs.

1.13 CUTTING, CHASING, AND DEMOLITION

1. All demolition, cutting, and chasing shall be the responsibility of the Contractor who shall either perform these operations with his own forces, or in some cases as later set out, engage the particular sub-trade responsible for the material to be cut.
2. The Contractor shall engage the sub-trades as outlined above for holes in structural steel over ½" (13 mm) Φ and steel deck over 4" (100 mm) Φ larger holes will be specifically reinforced.
3. Perform cutting of masonry and concrete surfaces to be done with Carborundum bladed power equipment. Pneumatic or impact tools are not allowed without prior approval from Senior School staff.
4. Obtain approval on structural stability from trades whose Work is to be cut or altered.
5. All the above will also apply where electrical or mechanical specifications call for the installation of extra openings in floors or ceilings after these surfaces are constructed.

1.14 PATCHING AND "MAKING GOOD"

1. All patching and making good generated by the Work of this contract shall be done and paid for by the trade dealing in the particular material to be patched.
2. Wherever existing openings are indicated as filled in, new openings cut into existing walls, existing items removed, or any form of alteration to an existing surface or material indicated, the term "make good" shall be deemed to apply whether specifically noted or not.
3. Where the term "make good" is used or implied on the drawings or in these specifications to refer to repairing or filling operations performed on existing floors, walls, ceilings, or any other exposed surfaces, it is intended that the finished surfaces shall match and align with the existing adjoining surfaces.

4. Unless the entire room in which the patching operations are performed is scheduled to be repainted, the painter shall paint only the specific area of the patch and existing disturbed areas.
5. Where the Contractor is called upon to "make good" old items, he is required to rectify only visible or reasonably inferable defects which would have shown up from reasonable examination of the premises.

1.15 BUILDING DIMENSIONS AND COORDINATON

1. Ensure that all necessary job dimensions are taken and that the Work of trades is coordinated for the proper execution of the Work. Assume complete responsibility for the accuracy and completeness for dimensions, and for coordination.
2. Verify that all Work, as it proceeds is executed in accordance with dimensions and positions indicated. Maintain levels and clearances to adjacent Work, as set out in the drawings; assure that Work installed in error is rectified before constructions resumes.
3. Check and verify all dimensions and the interfacing of all services. Verify with each trade all dimensions, pertaining to the Work of other trades. Be responsible for the cooperation of various trades to achieve the proper performance of the Work.
4. Avoid scaling the drawings. Immediately inform the Consultant of ambiguity or lack of information. Assume the responsibility for non-compliance.
5. Field measure installed Work to assure the fit of dependent details.
6. Advise Consultant of discrepancies, omissions on drawings, such as reflected ceiling plans, jointing patterns for paving, or ceramic tile, which affect aesthetics, or which interfere with services, equipment or surfaces. **DO NOT PROCEED without review with the Consultant.**

1.16 PROTECTING EXISTING SURFACES

1. The Contractor will take all necessary precautions to protect existing surfaces that may be affected by any Work performed under this contract.
2. Any damage caused to existing surfaces will be "made good" at the Contractor's expense.
3. This will include but may not be limited to existing glazed block, Glu-lam structure, tectum panels, and other surface finishes.

1.17 SALVAGED MATERIAL

1. Remove from site.
2. Mechanical or electrical services and/or items scheduled for demolition or removal shall be terminated, disconnected, and/or removed by the Work of Divisions 15 and 16.

1.18 MAINTENANCE MANUAL

1. Supply two copies of a three-ring binder instruction manual as follows:
2. A titled sheet labeled "Manufacturer's Data Book" and project name with a list of contents preceding the data. Copies are to accommodate 82" x 11" sheets.
3. Mark each section by a labeled tag protected with a clear plastic cover.
4. All notes shall be typed or, if applicable, printed literature may be used, and any drawings shall be neatly drafted in ink or white printed.

5. Include maintenance instructions for exterior and interior floor, wall, and ceiling surfaces or as requested.
6. Include construction data and operating and maintenance instructions for mechanical and electrical equipment.
7. Include guarantees on glass, compressors, doors, fans, roofing and the like and any other items whose guarantee is longer than the Contractor's one-year guarantee.

1.19 AS-BUILT DRAWINGS

1. See Divisions 23 and 26. The Contractor will be required to provide two copies of "as built" drawings (white prints) showing all architectural, structural, mechanical, and electrical changes made from the contract plans.

1.20 EXISTING SERVICES AND STRUCTURE

1. Location of existing concealed or buried services or structure indicated on drawings has not necessarily been taken from "as built" drawings and may be approximate only. Contractors carrying out excavation, demolition, or other operations in the area of the services or structure should exercise appropriate precautions.

1.21 SCHEDULING THE WORK

1. The successful Contractor will develop his own sequence of work in consultation with School and Board Staff and Consultants.
2. Perform the Work in a manner, which will cause a minimum amount of disruption to the normal function of the remainder of the dealership.
3. No site Work will commence until delivery dates for mechanical and electrical equipment have been confirmed in writing.

1.22 LIFE AND FIRE SAFETY

1. Enforce all requirements established by jurisdictional authorities and underwriters for life safety, fire prevention, and fire protection.

1.23 TIME IS OF THE ESSENCE

1. Time is of the essence of the Contract.

END OF SECTION

SECTION 01 30 00 - SUBMITTALS

PART 1 - GENERAL

1.1 ADMINISTRATIVE

1. Submit to Consultant submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in the Work. Failure to submit in ample time is not considered sufficient reason for an extension of contract time and no claim for extension by reason of such default will be allowed.
2. Work affected by the submittal shall not proceed until review is complete.
3. Review submittals prior to submission to the Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with the requirements of the Work and the Contract Documents. Submittals not stamped, signed, dated and identified as to the specific project will be returned without being examined and shall be considered rejected.
4. Notify Consultant, in writing at time of submission identifying deviations from requirements of Contract Documents stating reasons for deviations.
5. If specified materials or products are not available and/or if "match exisiting" materials or products are not available the Contractor is responsible to provide alternate options to the Consultant for approval.
6. Verify field measurements and affected adjacent Work are coordinated.
7. Contractor’s responsibility for errors and omissions in submission is not relieved by Consultant’s review of submittals.
8. Contractor’s responsibility for deviations in submission from requirements of Contract Documents is not relieved by consultant review.
9. Keep one reviewed copy of each submission on site.
10. The review of drawings and any notes added does not constitute authorization to proceed with any work, which in the Contractors or Supplier’s opinion will involve extra costs to the Owner.

1.2 SUBMITTALS AT START OF PROJECT

1. Certificates and transcripts: Immediately after Contract Award submit the following:
   - 1.1 Performance, Labour, and Material Payments Bonds.
   - 1.2 Proof of Construction Insurances.
   - 1.3 Workers’ Safety Insurance Board Status Certificate.
   - 1.4 Confirmation of trades and suppliers list.
   - 1.5 Ministry of Labour “Notice of Project”.
   - 1.6 Estimate of monthly progress claims.
   - 1.7 Breakdown of component values.
   - 1.8 Schedule of Shop Drawings and Sample Submissions.
   - 1.9 Product delivery schedule.
   - 1.10 Stage I documentation as required by OAA/OCGA take over procedures Document 100.
2. Construction Schedule:

2.1 Submit initial schedules within fifteen (15) days after award of Contract and resubmit updated schedule with each application for payment.
2.2 Submit one opaque reproduction, plus two (2) copies to be retained by the Consultant.
2.3 Prepare schedule in the form of a horizontal bar chart.
2.4 Provide a separate bar for each trade or operation.
2.5 Provide horizontal time scale identifying the first Work day of each week.
2.6 Format for listings: The Table of Contents of this specification.
2.7 Identification of listings: By specification Section numbers.
2.8 Include the dates for the commencement and completion of each major elements of construction.
2.9 Updated schedule to show changes occurring since previous submission of schedule:
2.9.1 Activities modified since previous submission.
2.9.2 Revised projections of progress and completion.
2.9.3 Other identifiable changes.

1.3 SUBMITTALS DURING CONSTRUCTION

1. Shop Drawings and Product Data:
1.1 Refer to GC 3.11 Shop Drawings.
1.2 Submission will include:
1.2.1 Date and revision dates.
1.2.2 Project title and number.
1.2.3 Name and address of:
1.2.3.1 Subcontractor
1.2.3.2 Supplier.
1.2.3.3 Manufacturer.
1.3 Contractor’s stamp, signed by Contractor’s authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
1.4 Details of appropriated portions of Work as applicable.
1.4.1 Fabrication
1.4.2 Layout, showing dimensions, including identified field dimensions, and clearance.
1.4.3 Setting or erection details.
1.4.4 Capacities.
1.4.5 Standards.
1.4.6 Wiring Diagrams.
1.4.7 Single line and schematic diagrams.
1.4.8 Relationship to adjacent work.
1.5 All shop drawings required for review must include the professional engineer's stamp and signature as required in the contract. Unstamped drawings will not be reviewed.
1.5.1 Include on all submissions the required return date.
1.5.2 Submit 3 copies of shop drawings larger than 11 x 17 in size.
1.5.3 These larger drawings will be marked-up, scanned and returned digitally.
1.5.4 For drawings 11 x 17 or smaller, shop drawings can be emailed.
1.5.5 General Contractor's review stamp confirming his examination to appear on all submissions.

1.5.6 Maintain copies of all reviewed submissions on site.

1.6 Supplement standard information to provide details applicable to project.

1.7 If upon review by the Consultant, no error or omissions are discovered or if only minor corrections are made, the PDF or copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and re-submission of corrected shop drawings, through the same procedure indicated above, shall be performed before fabrication and installation of Work may proceed.

1.8 After Consultant's review, distribute copies in PDF.

2. Samples:

2.1 Samples to provide: Examples of materials, equipment, quality, finishes, and workmanship.

2.2 Where colour, pattern or texture is criterion, submit full range of samples.

2.3 Reviewed and accepted samples will become standard workmanship and material against which installed Work will be verified.

2.4 Submit for review samples in duplicate as requested in respective specification Sections. Label samples as to origin and intended use in the Work.

2.5 Deliver samples prepaid to Consultant's business address.

2.6 Notify the Consultant in writing, at the time of submission of deviations in samples from requirements of Contract Documents.

2.7 Adjustments made on samples by the Consultant are not intended to change the Contract Price. If adjustments affect the value of Work, state such in writing to the Consultant prior to proceeding with the Work.

2.8 Make changes in samples, which the Consultant may require, consistent with Contract Documents.

1.4 SUBMITTALS AT SUBSTANTIAL PERFORMANCE

1. Inspect/Take Over:

1.1 Conform to OAA/OGCA Document No.100 for takeover procedures.

1.2 Prior to application for certificate of Substantial Performance, carefully inspect the Work and ensure it is complete, that major and minor construction deficiencies are complete, defects are corrected and building is clean and in condition for occupancy. Notify Consultant in writing, of satisfactory completion of the Work and request an inspection.

1.3 During Consultant inspection, a list of deficiencies and defects will be tabulated. Correct same. When Consultant considers deficiencies and defects have been corrected and it appears requirements of Contract have been performed, make application for certificate of Substantial Performance.

1.4 Publish a copy of the Substantial Performance once in a construction trade newspaper and provide the payment certifier with proof of the date publication. The day following the date of publication shall be the date of commencement of the 45 day period to release of the basic holdback monies.

1.5 Submit a final statement of accounting giving total adjusted Contract Price, previous payments, and monies remaining due. Consultant will issue a final change order reflecting approved adjustments to Contract Price not previously made.

2. Warranties and Bonds:

2.1 Submit all documents in proper form (including Project Warranty Data Record), contain full information.
2.2 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers and manufacturers within 10 days after completion of the applicable item of work.
2.3 Submit prior to final Application for Payment.
2.4 Execute transition of Performance Bond to warranty period requirements.
2.5 Retain warranties and bonds until time specified for submittal.
2.6 Submit an updated list of company, subcontractor, supplier and manufacturer, with name, address and telephone number of responsible principals.

3. Operating Maintenance Data:
3.1 Two weeks prior to Substantial Performance of the Work, submit to Consultant, two copies of operating and maintenance data. Data to contain operational information on equipment, cleaning and lubrication schedules, filters, overhaul and adjustment schedules and similar maintenance information. Bind contents in a three-ring, hard covered, plastic jacketed binder. Organize contents into applicable categories of work, parallel to specifications Sections.

4. Project Record Manual:
4.1 Submit one hard copy and one soft copy (on disk or stick) of Project Record Manual consisting of operation and maintenance data, current Material Safety Data Sheets and one set of record (as-built) hardcopy drawings and softcopy files on Revit 2024 or higher. Project Record Manual is also to include copy of "Project Warranty Data Record" both in hardcopy and softcopy form. Collect reviewed submittals and assemble documents executed by Subcontractors, suppliers, and manufacturers and submit material prior to final application for payment.

5. Final Hydro Inspection: collect the following from each trade requiring hydro inspection/approval certificates, and submit same to Consultant:
5.1 Original, final Hydro Inspection Certificates.
5.2 Original approval certificates (CSA, ULC, etc.) for specified equipment.

6. Extra Materials: Provide the Owner with extra materials for future maintenance use, as specified in the technical Sections of the Specifications.

7. Sprinkler Installation Certificate: Submit to the Consultant certificates of test required by NFPA 13.

8. Record Drawings:

9. Manufacturers' Data Book:
9.1 Supply two copies of a three ring binder, to accommodate 213mm x 275mm (8½" x 11") sheets. Binders should match in all dimensions. Include a title sheet labeled "Manufacturers' Data Book" with project name, date and list of contents. Organize required material into applicable sections of work. Mark each section by labeled tabs protected with celluloid covers fastened to hard paper dividers.
9.2 Data Book to include:
9.2.1 Equipment and operating instruction on all operable equipment and on all mechanical and electrical equipment, plumbing fixtures, and architectural hardware. Type notes. Drawings should be neatly drafted and inked or white

printed.

9.2.2 Maintenance instructions.

9.2.3 Original brochures on all equipment.

9.2.4 Parts lists on all equipment including al list of suppliers.

9.2.5 All additional material used in the project beyond that indicated by brochures listed under the various sections, showing manufacturers and sources of supply.

9.2.6 Names, addresses and telephone numbers of the designer(s) and major contractor(s) who worked on the building.

9.2.7 Commissioning data such as air and water flows and regulating valve positions.

PART 2 - PRODUCTS - NOT USED.

PART 3 - EXECUTION - NOT USED.

END OF SECTION

SECTION 01 50 00 - TEMPORARY FACILITIES

PART 1 – GENERAL

1.1 SITE ACCESS AND WORK AREA

1. Before commencement of the job, the Owner's representative, the Contractor, and the Consultant will agree on a mutually satisfactory access to the site of the Work and mutually satisfactory locations for such items as construction office, trailers, material storage area, toilet accommodation, and the like.

1.2 TEMPORARY OFFICE

1. Provide temporary office within the Work area (coordinate with Owner's Representative) on site of sufficient size to permit use by the Owner, Consultant, and Contractor.
2. Supply heat and light.
3. Keep one bound set of drawings and specifications, change orders, colour schedule, construction schedule, shop drawings, meeting diaries, and hardware lists in the office at all times.
4. Provide adequate flat surfaces for viewing plans and file cabinets for shop drawings and the like are to be provided.

1.3 TEMPORARY EQUIPMENT

1. Supply telephone and laptop with printer to temporary office.
2. Maintain the telephone throughout the course of the Work.
3. Fit the telephone with a suitable outside bell OR with an answering service during construction hours.

1.4 TEMPORARY PROTECTION

1. General:
2. Take all necessary steps to protect the general public from injuries and properties from damage during course of the Work.
   - 2.1 Should the Work be closed down due to any cause whatsoever, it shall be the responsibility of the Contractor to protect all finished or unfinished Work and material from damage from any source.
   - 2.2 Methods to secure the site against unauthorized entry will be subject to the Consultant's approval.
3. Sheds and Covering - Provide temporary covers, sheds and platforms for the protection of materials susceptible to damage.
4. Equipment Installed by Owner - Be responsible for any damages or disfigurement.

1.5 DUMPSTER LOCATION

1. A space will be allocated in the south parking lot. Exact placement to be determined prior to commencement of the Work with Owner's Representative.

1.6 TEMPORARY POWER AND LIGHT

1. Provide temporary power facilities and lighting (minimum of 20 foot candles) for all Work in all portions of the building for the use of all trades from commencement of the Work until the

time of final acceptance.

2. Power supply to be adequate to operate all sub-trades equipment. Contractor shall bring temporary power to within 50'-0"(15 M) of Sub-contractor's equipment.
3. Connect to Owner's existing electrical panel for temporary power; Owner paying for power consumed.

1.7 TEMPORARY SANITARY FACILITIES

1. Provide sufficient sanitary facilities for workers in accordance with requirements of Local Health Regulations

1.8 TEMPORARY HEAT

1. Use existing system – if required.
2. The Mechanical Contractor will make every effort to have the air handling system completed as quickly as possible to the point where it can be used for providing heat and air conditioned air while interior Work is in progress.
3. Temporary use of the permanent heating system shall not affect the warranty.
4. Install temporary filters in all unit ventilators and air handling units for the duration of construction. At the date of Substantial Performance or Owner occupancy, replace with permanent filters. Thoroughly clean ductwork and/or mechanical systems as required.

1.9 TEMPORARY WATER

1. Make necessary connection to the Owner's existing water supply and run all temporary lines required. Owner to pay for all water used.

1.10 TEMPORARY VENTILATION OF BUILDING

1. For the purpose of humidity relief, maintain a ventilation system handling a minimum of cfm/ft-squared of floor are between November 20th and March 31st. Increase capacity to 1.5 cfm/ft-squared during the remaining construction period.
2. Combine temporary ventilation system with temporary heating system as required to avoid exposure of materials to damaging cold or direct air movement.

1.11 CONSTRUCTION STAFF PARKING

1. Use parking lot where directed by Owner’s representative.

1.12 DUST-TIGHT SCREENS

1. Provide dust-tight partitions and screens to localize dust-generating activities and for the protection of workers, finished areas of Work and the public.
2. Fabricate partitions using .92mm x .55mm studs @ 410mm with .62mm Type “X” drywall on both sides. Include doors where necessary. Insulate partitions between heated and unheated areas or where sound control is required.
3. Maintain and relocate protection until such Work is complete

1.13 PROTECTION OF BUILDING FINISHES AND EQUIPMENT

1. Provide protection for finished and partially finished building finishes and equipment during performance of Work.
2. Be responsible for damage incurred due to lack of or improper protection.

3. Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.

1.14 FIRE SAFTEY

1. Provide fire prevention and protection measures to existing building as required by all authorities having jurisdiction.
2. Maintain exits, including stairways and exterior doors to the outside. Provide acceptable alternative exits where an existing exit is blocked off or deleted due to construction activities.
3. Where access to an exit through construction area is absolutely necessary, clearly define, protect and separate access from the construction area by a smoke tight fire separation equivalent to minimum ¾ hr fire resistance rating.
4. Reactivate all deactivated Life Safety systems at the end of each day.

END OF SECTION

SECTION 02 41 00 - DEMOLITION

PART 1 GENERAL

Comply with requirements of Division 1 and supplementary conditions.

1.1 REFERENCE STANDARDS

1. CEPA - Canadian Environmental Protection Act; 1999.

1.2 REGULATORY REQUIREMENTS

1. Environment and Climate Change Canada:
   1.1 CEPA.
2. Perform demolition Work in accordance with requirements of the Occupational Health and Safety Act Ont. Reg. 213/91.
3. Ministry of the Environmental and Energy "Waste Audits and Waste Reduction Work Plans O.R. 102/94".
4. Asbestos on construction projects - OHSA Ont. Reg. 838/90 as amended by 510/92 and pipe duct insulation Ont. Reg 837/90 as amended by 385/00.

1.3 PROTECTION

1. Protect existing surfaces.
2. Protect entire floor with either ¼" tempered masonite or ⅜" G.I.S ply prior to commencing any demolition.
3. Provide for complete and safe access at all times to areas and building adjacent to demolition Work.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.1 GENERAL PROCEDURES AND PROJECT CONDITIONS

1. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1.1 Obtain required permits.
   1.2 Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   1.3 Provide, erect, and maintain temporary barriers and security devices.
   1.4 Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   1.5 Do not close or obstruct roadways or sidewalks without permit.
   1.6 Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
   1.7 Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
2. Do not begin removal until receipt of notification to proceed from Owner.

3. Protect existing structures and other elements that are not to be removed.
   3.1 Provide bracing and shoring.
   3.2 Prevent movement or settlement of adjacent structures.
   3.3 Stop work immediately if adjacent structures appear to be in danger.
4. If hazardous materials are discovered during removal operations, stop work and notify Consultant and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

3.2 SELECTIVE DEMOLITION FOR ALTERATIONS

1. Owner will remove loose equipment and furniture from areas of work.
2. Remove existing work as indicated and as required to accomplish new work.
3. Remove and salvage carpet tile and acoustic ceiling tile for reuse in construction.
   3.1 Remove carpet tile to extent of construction area (reference architectural drawings).
   3.2 Remove only required acoustical ceilings (reference drawings).
   3.3 Remove items indicated on Drawings.
4. Remove and salvage demountable partitions and doors as noted on drawings.
5. Protect existing work to remain.
   5.1 Prevent movement of structure; provide shoring and bracing if necessary.
   5.2 Perform cutting to accomplish removals neatly and as specified for cutting new work.
   5.3 Repair adjacent construction and finishes damaged during removal work.
   5.4 Patch as specified for patching new work.

3.3 DEBRIS AND WASTE REMOVAL

1. Remove debris, junk, and trash from site.
2. Leave site in clean condition, ready for subsequent work.
3. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 GENERAL

1.1 REFERENCE STANDARDS

1. CAN/CSA O121 - Douglas Fir Plywood; 2017 (Reaffirmed 2022).
2. CAN/CSA O141 - Softwood Lumber; 2005 (Reaffirmed 2019).
3. CAN/CSA O151 - Canadian Softwood Plywood; 2017 (Reaffirmed 2022).
4. NLGA (SGRNL) - Standard Grading Rules for Canadian Lumber; 2017.

1.2 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

1.3 QUALITY ASSURANCE

1. **Lumber Identification**: By grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
2. **Plywood Identification**: By grade, mark in accordance with applicable CSA Standards.
3. Mark each piece of wood, which is rated non-combustible by fire retardant pressure treatment with ULC fire hazard classification label.

1.4 DELIVERY, STORAGE, AND HANDLING

1. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

1.5 WARRANTY

1. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.1 LUMBER MATERIALS

1. **Board Lumber**: Unless specified otherwise, Spruce or Jackpine, S4S, moisture content 19% or less in accordance with following standards:
   - 1.1 CAN/CSA-0141-05.
   - 1.2 NLGA Standard Grading Rules “Select Merchantable” grade for boards, “Select Structural” grade for framing.
   - 1.3 Identification: by grade stamp of an agency certified by the Canadian Lumber Standards accreditation.
2. **Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers**:
   - 2.1 S2S is acceptable.
   - 2.2 Board Sizes: "Standard" or better grade.
   - 2.3 Dimension Sizes: "Standard" light framing or better grade.

2.2 PANEL MATERIALS

1. **Douglas Fir Plywood (DFP)**: To CSA 0121-08 standard construction, formaldehyde free.
2. **Canadian Softwood Plywood (CSP)**: To CSA 0151-09, standard construction, formaldehyde free.

2.3 ACCESSORIES

1. **Nails, Spikes and Staples**: To CSA B111.
2. **Bolts**: 12.5mm ½" Φ diameter unless indicated otherwise, complete with nuts and washers.
3. **Proprietary Fasteners**: Toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.
4. **Galvanizing**: To CAN/CSA-G164, use galvanized fasteners for exterior Work, interior highly humid areas and pressure-preservative treated lumber.
5. **Wood Preservative**: Super Solignum by Solignum Inc., Pentox by Osmose-Pentox Inc., or other acceptable equivalents. For painted surfaces use clear type and for concealed surfaces use green tinted type. Provide compatible surface applied preservative for cut ends.
6. **Fire Retardant Treatment**: to provide flame spread, fuel contributed and smoke developed ratings of 25 or less apply Non-Com or Dricon Fire retardant chemicals by Koppers Company Inc., Flame Proof LHC by Timber Specialties Ltd., or other acceptable equivalents.

PART 3 EXECUTION

3.1 PREPARATION

1. Treat surfaces of material with wood preservative, before installation.
2. Apply preservative by dipping, or by brush to completely saturate and maintain wet film on surface for minimum 3 minute soak on lumber and one minute soak on plywood.
3. Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.
4. Treat material as follows: Wood cants, fascia backing, curbs, nailers, sleepers on roof deck
5. Coordinate installation of rough carpentry members specified in other sections.

3.2 INSTALLATION

1. Comply with requirements of NBC, supplemented by the following paragraphs.
2. **Millwork**:
   - 2.1 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding and other Work as required.
   - 2.2 Align and plumb faces of furring and blocking to tolerance of [1:600].
   - 2.3 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other Work.

3.3 ERECTION

1. Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
2. Install builder's hardware including nails, screws, bolts, washers, brackets, joist hangers and all fastening devices.
3. Countersink bolts where necessary to provide clearance for other Work.
4. Pre-Cast Concrete Stairs: Apply ⅜" plywood to treads and risers as protection during construction access. Remove at conclusion of painting stairwells.

3.4 SITE APPLIED WOOD TREATMENT

1. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.
2. Allow preservative to dry prior to erecting members.

3.5 SITE QUALITY CONTROL

1. See Section 01 40 00 - Quality Requirements, for additional requirements.

3.6 CLEANING

1. Waste Disposal: Comply with the requirements of Section 01 74 19 - Construction Waste Management and Disposal.
   - 1.1 Comply with applicable regulations.
   - 1.2 Do not burn scrap on project site.
   - 1.3 Do not burn scraps that have been pressure treated.
   - 1.4 Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.
2. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
3. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 06 20 00 - FINISH CARPENTRY

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 06 10 00 - Rough Carpentry: Support framing, grounds, and concealed blocking.

1.2 REFERENCE STANDARDS

1. AWMAC (GIS) - Guarantee and Inspection Services Program; current edition at www.awmac.com/gis.php.
2. CAN/CSA O151 - Canadian Softwood Plywood; 2017 (Reaffirmed 2022).
3. NLGA (SGRNL) - Standard Grading Rules for Canadian Lumber; 2017.

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements for submittal procedures.
2. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
   2.1 Provide data sheets with shop drawings attesting to the formaldehyde free manufacture of all plywood, particleboard and the like
3. Samples:
   3.1 Provide samples of plastic laminate finish colours and textures.
   3.2 Provide a sample of the shop-applied finish.
4. Samples: Submit two samples of wood trim ____ mm long.

1.4 FINISHING HARDWARE

1. Install at no extra charge, all finishing hardware supplied under Section 08700. This may include butts, hinges, snaps, catches, signs, letters, latch sets, lock sets, cupboard locks, drawer/door pulls, automatic closers, panic hardware, strikes, bolts, escutcheons and any other supplied.
2. **Locksets and Latchsets**: Cylindrical. Finishing hardware.
3. **Safeguard 'Keys'**: tag with opening number and deliver to Consultant at Substantial Performance

1.5 DELIVERY, STORAGE, AND HANDLING

1. Protect work from moisture damage.
2. Do not deliver wood materials to project site until building is fully enclosed and interior temperature and humidity are in accordance with recommendations of AWMAC/WI (NAAWS).

PART 2 PRODUCTS

2.1 FINISH CARPENTRY MATERIALS

1. **General**
   1.1 Include all rough hardware required for its execution. Use non-corrosive hardware at exterior locations.
   1.2 Wood: Grade marker under rules of National Grades Authority for softwoods and similarly as applicable for hardwoods: Finish Work and Trim; select Factory or Yard Lumber, clear where surfaces given transparent finish, sound where painted, unless

otherwise specified. For framing Work; structural lumber, appearance grade. Species for each application is indicated under Execution or on drawings.

1.3 Dimensions of solid wood members to conform to dressed sizes specified in CSA Standard 0141 unless otherwise indicated or specified. Moisture content of wood at time of installation not to exceed 12%.

1.4 Wood Preservative: Green Pentox, Osmose Wood Preserving Company of Canada Limited: Osmose Colourless compatible with finish specified in Section 0900 for members given stained or natural finish.

2. Plastic Laminate:
   2.1 Typical Face Panel at Service Counter Wilsonart, High Pressure Laminate (HPL) Virtual Design Library, Woodgrain Staining, Pre-Curated Collection, Walnut Navy, YS019K-05 Timbergrain Finish, w/ AEON Scratch Resistance
   2.2 Typical Kickplate at Service Counter Wilsonart, Decorative Metal Alumasteel, 6277-00-419
   2.3 Typical Gables and Face Panel (Staff side) at Service Counter Wilsonart, High Pressure Laminate (HPL) Wood Collection, Premium Laminates Landmark Wood, 7981K-12 Softgrain Finish, w/ AEON Scratch Resistance.
   2.4 Acceptable Products: “Corian” by Dupont – Price Group ‘D’, “Staron” by Samsung, Avonite
3. **Solid Surfacing**: to ANSI – Z124.3 with flammability to CAN/ULC S120 – ½” (13mm) thick solid acrylic polymer. Homogenous sheet composed of natural minerals and 100% acrylic resin.
   3.1 Acceptable Products: Wilsonart Solid Surfacing, or approved equal.
   3.2 Colour: Beige Travertine 9236SS
   3.3 Finish: Semi-gloss range 20-50 (matte polished)
   3.4 Edge treatment as noted.
4. Solid Surfacing Adhesive:
   4.1 Bonding solid surfacing
   4.2 As per Manufacturer’s instructions
   4.3 Bonding to other products single component silicone to ASTM C920
   4.4 **Sealer**: Water-resistant sealer or glue acceptable to laminate manufacturer.
5. **Cupboard Hardware**:
   5.1 Blum concealed cabinet hinges – Blumotion (soft close).
   5.2 Accuride full extension drawer slides.
   5.3 Standard wire pulls brushed chrome finish.
   5.4 ⅝” pilaster and clips for adjustable shelves

PART 3 EXECUTION

3.1 GENERAL

1. Prior to commencing fabrication, take site measurements of construction to which Work of this section must conform and through which access must be made.
2. Install materials in accordance with manufacturer's recommendations

3.2 FABRICATION AND INSTALLATION

1. **Hollow Metal Doors:** Install hollow metal doors supplied under Section 08 11 13.

2. **Hollow Metal Frames**
   - 2.1 Set, secure and brace hollow metal frames supplied under Section 08 11 13
   - 2.2 Remove spreaders at floor after frames are anchored.
   - 2.3 Prior to final takeover of building, readjust doors and hardware to function freely and correctly.

3. **Solid Surfacing**:
   - 3.1 Exposed edges of splash backs and nosing round off to ⅛" (3mm) radius.
   - 3.2 Install sill sections in maximum lengths, plumb, level, and rigid adhesively on a ½" thick plywood base.
   - 3.3 Scribe as required to adjacent finishes.
   - 3.4 Form hairline field joints using manufacturer's adhesive.
   - 3.5 Anchor securly to supporting surface to manufacturer's printed instructions.
   - 3.6 Apply a fine, straight bead of clear caulking to joints at dissimilar materials.

4. **Cabinet Work**:
   - 4.1 Assemble Work in mill in units as large as possible. Make joints only when lengths of plastic laminate facing exceeds 12'-0" (3600mm).
   - 4.2 Make necessary drillings, cut-outs and the like to template information provided by Divisions 23 and 26.
   - 4.3 Plywood Edges: edge with solid wood matching face veneer.
   - 4.4 Plastic laminate faced particle board edges edge with matching plastic laminate.
   - 4.5 Furnish recesses for receiving pilaster strips at required locations. All shelving to be adjustable unless noted otherwise.
   - 4.6 Apply plastic laminate facing sheet to core on backside of panels faced with plastic laminate.

5. **Counter Tops**:
   - 5.1 Counter tops fabricate with integral 4" (100mm) high riser at back and at ends abutting walls (where shown).
   - 5.2 Permanently secure cabinet and counter bases to floor or wall by bolting.
   - 5.3 Use Tite Joint fasteners and splines in countertop joints. Make flush hairline joints.

6. **Millwork and Trim**
   - 6.1 Examine previous construction to ensure adequacy of grounds, blocking, strapping, framing and other surfaces before finish Work begins, and make deficiencies good. Verify by site measurements that access for shop fabricated Work is assured.
   - 6.2 Include finish wood Work and installation of items specified in this Section and as otherwise indicated on drawings.
   - 6.3 "Exposed to view" means: surfaces which can be seen from all vantage points, from both within and without the building, and including faces and edges of opened doors, bottom surfaces that are higher than 1,220 mm above floors, and top surfaces lower than 1,980 mm above floor
   - 6.4 Cooperate to ensure that fastenings set by Others are provided and located, that Work supplied by Others is installed to their specification, and that those responsible for back priming are notified in sufficient time to schedule their Work.
   - 6.5 Brace Work where required and remove when no longer needed.

6.6 Cut and fit Work with clean, sharp profiles, and closely fitted joints. Cope trim and mouldings at interior corners and returns, and meter at external corners. Scribe and joint accurately at junctions, and finish flat, true and smooth at joints. Install trim or filler panels to close gaps.

6.7 Fasten Work to blind nailing wherever possible. Set nails where they occur on surfaces exposed to view or weather for filling under Work of Section 09900. Glue and block built-up Work. Use screws where strain, usage or excessive shrinkage is anticipated, and where indicated on drawings.

6.8 Set thresholds provided from Hardware Allowance in a bed of caulking to prevent air and water infiltration beneath sill.

6.9 Clean hardware as recommended by supplier, clean wood to leave free from finish defects on any exposed surface.

6.10 Wood Preservative Treatment: give two coats of preservative to wood installed at exterior of building. Give end grain of treated members two soaking coats after cutting to length.

6.11 Dampproof Membrane: Install membrane between wood member concrete slabs and masonry against earth.

6.12 Window Stools: Solid surfacing. Set all fastenings and finish smooth and flush.

6.13 Trim: Generally half-rounds, trims around doors, bases and similar Work of profiles indicated on drawings and schedules.

7. **Finish Hardware**

7.1 Install all finish hardware in accordance with manufacturer's printed instructions.

7.2 Safeguard keys; tag them with opening number and deliver them to person designated by Consultant at building completion.

END OF SECTION

SECTION 07 92 00 - JOINT SEALANTS

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 09 21 16 - Gypsum Board Assemblies: Sealing acoustical and sound-rated walls and ceilings.

1.2 REFERENCE STANDARDS

1. ASTM C794 - Standard Test Method for Adhesion-In-Peel of Elastomeric Joint Sealants; 2018 (Reapproved 2022).
2. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2016.

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
2. Samples for Verification: Where custom sealant colour is specified, obtain directions from Consultant and submit at least two physical samples for verification of colour of each required sealant.
3. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.
4. Site Quality Control Plan: Submit at least two weeks prior to start of installation.
5. Site Quality Control Log: Submit filled out log for each length or instance of sealant installed, within 10 days after completion of inspections/tests; include bagged test samples and photographic records, if any.

1.4 QUALITY ASSURANCE

1. Maintain one copy of each referenced document covering installation requirements on site.
2. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.
3. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
   - 3.1 Adhesion Testing: In accordance with ASTM C794.
   - 3.2 Compatibility Testing: In accordance with ASTM C1087.
   - 3.3 Allow sufficient time for testing to avoid delaying the work.
   - 3.4 Deliver to manufacturer sufficient samples for testing.
   - 3.5 Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.
   - 3.6 Testing is not required if sealant manufacturer provides data showing previous testing, not older than 24 months, that shows satisfactory adhesion, lack of staining, and compatibility.
4. Site Quality Control Plan:
   - 4.1 Site testing agency's qualifications.
   - 4.2 Site Quality Control Log Form: Show same data fields as on Preinstallation Site Adhesion Test Log, with known information filled out and lines for multiple tests per

sealant/substrate combinations; include visual inspection and specified site testing; allow for possibility that more tests than minimum specified may be necessary.

1.5 ENVIRONMENTAL AND SAFETY REQUIREMENTS

1. Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets acceptable to Labour Canada.
2. Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

1.6 WARRANTY

1. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
2. Correct defective work within a five year period after Date of Substantial Performance.
3. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal , exhibit loss of adhesion or cohesion, or do not cure.
4. Contractor hereby guarantees that caulking Work will not leak, crack, crumble, melt, shrink, run, lose adhesion to or stain adjacent surfaces in accordance with GC 12.3 **but for a period of three (3) years from date of Substantial Performance. Provide sealant validation by the Sealant Weatherproofing Restoration Institute (SWRI)**.

PART 2 PRODUCTS

2.1 MATERIALS

1. **Primers**: Type recommended by sealant manufacturer.
2. **Joint backing material**:
   2.1 Vertical surfaces (excluding EIFS) – equal to Soft Rod an extruded polyolefin foam by Tremco Ltd.
   2.2 Horizontal surfaces and EIFS surfaces – equal to Standard Backer Rod closed cell polyethylene foam by Tremco Ltd.
3. **Bond breaker**: pressure sensitive plastic tape, which will not bond to the sealant 3M #226 or #481 or Valley Industries #40 place at the back of the joint.
4. **Void Filler**: Loose glass fibre.
5. **Sealants**: (types and applications)
   5.1 Multi-component, polyepoxide urethane: Equal to CGSB specification CAN/CGSB-19.24-M90, Type 2, Class B. DYmeric by Tremco Ltd.
   Use: at all interior locations, except where another type is specified.
   5.2 One part moisture curing polyurethane: to CAN/CGSB-19.13-M, Classification MC-2-25-B-N Dymonic or Dymonic FC by Tremco Ltd. Use: interior locations
   5.3 Medium modulus, moisture curing, one part silicone sealant: to ASTM C920, CAN/CGSB-19.13-M, Classification MCG-2-25-A-L equal to Dow Corning 795, Dow Corning CWS, or Spectrem 2 by Tremco Ltd.
   Use in glass-to-glass, glass to metal, and metal-to-metal curtain wall joints.
   5.4 Mildew resistant, one component silicone sealant: to ASTM C920 CAN/CGSB 19.13M equal to Dow Corning Tub, Tile, and Ceramic or Tremsil 200 White and Clear by Tremco

Ltd.
Use on fixtures, bathtubs and vanity tops.

5.5 One component, non-skinning, non-hardening acoustical sealant: to CAN/CGSB-19.21-M equal to Acoustical Sealant by Tremco Ltd.
Use at all vapour barrier joints and openings in drywall systems as shown on the drawings or specified.

5.6 One component, paintable acrylic latex sealant: to CGSB-19-GP-17M equal to Tremflex 834 by Tremco Ltd.
Use in interior non-moving joints that may be painted.

5.7 Equilvalent products by GE Sonneborn and SIKA are acceptable. Indicate the manufacturer and proposed product.

6. Colour selection from Manufacturer's standard range.
7. Cleaning material for surfaces to receive sealant as recommended by the manufacturer of sealant.

PART 3 EXECUTION

3.1 EXAMINATION

1. For unusual or complicated caulking conditions meet at the site with sealant manufacturer's representative to discuss procedures before commencing the Work.
2. Before commencing Work, verify at the site that joint configuration and surfaces have been provided as specified under Work of other sections to meet intent of sealant specification
3. Verify that joints are ready to receive work.
4. Verify that backing materials are compatible with sealants.

3.2 PROTECTION

1. Protect installed Work of other trades from staining or contamination.

3.3 PREPARATION OF JOINT SURFACES

1. Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.
2. Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter, which may impair Work.
3. Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
4. Ensure joint surfaces are dry and frost free.
5. Prepare surfaces in accordance with manufacturer's directions

3.4 PRIMING

1. Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.
2. Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.5 BACKUP MATERIAL

1. Apply bond breaker tape where required to manufacturer's instructions.
2. Install joint filler to achieve correct joint depth and shape, with approx. 30% compression.

3.6 MIXING

1. Mix materials in strict accordance with sealant manufacturer's instructions.

3.7 APPLICATION

1. **Sealant**:
   - 1.1 Apply sealant in accordance with manufacturer's written instructions.
   - 1.2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
   - 1.3 Apply sealant in continuous beads.
   - 1.4 Apply sealant using gun with proper size nozzle.
   - 1.5 Use sufficient pressure to fill voids and joints solid.
   - 1.6 Form surface of sealant with bull bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
   - 1.7 Tool exposed surfaces before skinning begins to give slightly concave shape.
   - 1.8 Remove excess compound promptly as Work progresses and upon completion.
2. **Caulk But do not Restrict it to The Following**:
   - 2.1 Exterior and interior hollow metal steel door frames: interior screens (both sides of frames).
   - 2.2 Exposed control joints in masonry walls; masonry wall corners; masonry-to-column junctures; joints in front of steel lintels bearing on exterior masonry jambs.
   - 2.3 Raked joints in junction of walls running at different angles, and at junction of walls to columns.
   - 2.4 Joints between washroom vanities, and other counters, urinals, and adjacent surfaces.
   - 2.5 Wall to floor junctions and joints in floor, where typically indicated on drawings.
   - 2.6 Joints between masonry and concrete surfaces.
   - 2.7 Joints between new work and existing.
   - 2.8 Joints between gypsum board and masonry, or other materials.
   - 2.9 Penetrations through roofs, floors and walls other than firestopping.
   - 2.10 At locations shown on drawings
3. **Curing**:
   - 3.1 Cure sealants in accordance with sealant manufacturer's instructions.
   - 3.2 Do not cover up sealants until proper curing has taken place.
4. **Cleanup**:
   - 4.1 Clean adjacent surfaces immediately and leave Work neat and clean.
   - 4.2 Remove excess and droppings, using recommended cleaners as Work progresses.
   - 4.3 Remove masking tape after initial set of sealant.

END OF SECTION

SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 08 70 00 - Door Hardware.
2. Section 08 80 00 - Glazing: Glass for doors and borrowed lites.
3. Section 09 91 23 - Interior Painting: Site painting.

1.2 REFERENCE STANDARDS

1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2020.
2. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2021a.
3. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2018a.
4. CSDMA Storage and Installation Guide - Guide Specification for Installation and Storage of Hollow Metal Doors and Frames; 2012.
5. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2016.

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
2. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.
3. Samples: Submit two samples of metal, 50 mm by 50 mm in size showing factory finishes, colours, and surface texture.

1.4 DELIVERY, STORAGE, AND HANDLING

1. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.1 MANUFACTURERS

1. Hollow Metal Doors and Frames:

2.2 DESIGN CRITERIA

1. Requirements for Hollow Metal Doors and Frames:
   1.1 Steel used for fabrication of doors and frames shall comply with one or more of the following requirements; Galvannealed steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, Commercial Steel (CS) Type B for each.
2. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for

instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.3 HOLLOW METAL DOORS

1. **Steel:** Commercial grade tension-levelled to ASTM A924-97 (M97), galvanized to ASTM A653-97 (M97), coating designation A 40 (ZF 120) paintable galvaneal.
2. **Door Cores**:
   - 2.1 Standard Interior: Honeycomb 1" (25mm) Kraft paper - weight 36.3 kg. (80lbs) per ream, minimum density: 16.5 kg/m; (1.03 pcf) minimum sanded to required thickness.
   - 2.2 Insulated Exterior: Rigid foam polyisocyanyurate to ASTM C1289 closed cell board total R= 11.
   - 2.3 Temperature Rise Rated (T.R.R): core composition to limit temperature rise on exposed side to 250°C @ 30 minutes.
3. **Adhesives**:
   - 3.1 Honeycomb cores and steel components: Heat resistant, single component polyurethane reactive (water) hot melt ULC approved.
   - 3.2 Lock Seam Doors: Resin reinforced polychloroprene fire resistant high viscosity UL approved.
   - 3.3 Insulated core: Epoxy based ULC contact cement.
4. **Primers**: Rust inhibitive touch-up only.
5. **Miscellaneous**:
   - 5.1 Door Silencers: Single stud neoprene/rubber type.
   - 5.2 Exterior Topcaps: Rigid polyvinlychloride extension.
   - 5.3 Frame Thermal Breaks: As topcaps.
   - 5.4 Fire Labels: Metal rivetted

2.4 HOLLOW METAL FRAMES

1. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.
2. **General**:
   - 2.1 Exterior Frames: 16 gauge welded construction thermally broken.
     Interior Frames: 16 gauge welded construction.
   - 2.2 Blank, reinforce, drill and tap for mortised, templated hardware.
   - 2.3 Protect mortised cutouts with steel guard boxes. Delete at drywall applications.
   - 2.4 Reinforce frames where required, for surface mounted hardware. Drilling and tapping is by others, on site, at time of installation.
   - 2.5 Provide for appropriate anchorage to floor and wall construction. Locate each wall anchor immediately above or below each hinge reinforcement on the hinge jamb and directly opposite on the strike jamb. For rebate opening heights up to and including 1520mm (60") provide two (2) anchors, and an additional anchor for each additional 760mm (30") of height except as indicated below. Provide frames in previously placed concrete, masonry or structural steel with anchors located not more than 150mm (6") from the top and bottom of each jamb, and intermediate anchors at 660mm (26") on

centre maximum. Fasteners for such anchors: Provided by others.

2.6 Prepare each door opening for single stud rubber door silencers, three (3) for single door openings, two (2) for double door openings.

2.7 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

3. **Welded Type**:
   - 3.1 Accurately mitred or mechanically jointed, securely welded on the inside of the profile.
   - 3.2 Cope butt joints of mullions, transom bars, centre rails and sill accurately and weld securely.
   - 3.3 Welding: To CSA W59-M89.
   - 3.4 Grind welded joints to a smooth, uniform finish.
   - 3.5 Attach floor anchors securely to the inside of each jamb profile.
   - 3.6 Weld in two (2) temporary jamb spreaders per frame to maintain proper alignment during shipment.
   - 3.7 Glazing stops: Formed channel, minimum 16mm (5/8") height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.
   - 3.8 When required due to site access, as specified on Architect drawings or due to shipping limitations, frame product for large openings shall be fabricated in sections, with splice joints for field assembly by others.
4. **Knocked-Down Type**:
   - 4.1 Ship knocked down type frames unassembled.
   - 4.2 Include mechanical joints which interlock securely.
   - 4.3 Securely attach floor anchors to the inside of each jamb profile.
5. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.
6. Frames in Masonry Walls: Size to suit masonry coursing with head member 100 mm high to fill opening without cutting masonry units.

2.5 FABRICATION

1. **General**:
   - 1.1 Swing type, flush, with provision for glass and/or louvre openings as indicated on schedules.
   - 1.2 Blank, reinforce, drill and tap for mortised, templated hardware.
   - 1.3 Holes 12.7mm (.5") diameter and larger factory prepared in shop.
   - 1.4 Reinforce where required, for surface mounted hardware. Drilling and tapping is by others, on site, at time of installation.
   - 1.5 Fit top and bottom of doors with inverted, recessed, spot welded channels.
   - 1.6 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.
   - 1.7 Include fire labeled doors where scheduled.
   - 1.8 Transoms or Other Panels: Construct in same manner as doors.
2. **Interior**:
   - 2.1 Form each face from 16 GA steel.

2.2 Laminate each face to Honeycomb core under pressure.
2.3 Mechanically interlock longitudinal edges.
2.4 Fill all voids with honeycomb for temperature rise rated core.

2.6 FINISHES

1. Fill and sand smooth tool marks, abrasions, and surface blemishes to present smooth uniform surfaces.
2. Primer: Shop apply zinc rich primer to repair damaged zinc coatings arising from fabrication; cure primer fully before shipping to site; include compatible primer for site finishing and correction of surface abrasions to zinc coatings and factory applied primer.
3. Factory Finish: Manufacturer's standard coating.
   3.1 Colour: As selected by Consultant from manufacturer's standard range.
   3.2 Colour: As indicated on Drawings.

2.7 ACCESSORIES

1. Glazing: As specified in Section 08 80 00, factory installed.
2. Grout for Frames: Portland cement grout with maximum 100 mm slump for hand troweling; thinner pumpable grout is prohibited.
3. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.
4. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.1 EXAMINATION

1. Verify existing conditions before starting work.
2. Verify that opening sizes and tolerances are acceptable.
3. Verify that finished walls are in plane to ensure proper door alignment.

3.2 PREPARATION

1. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.3 INSTALLATION

1. Install doors and frames in accordance with reviewed Shop Drawings, CSDMA Storage and Installation Guide, manufacturer's instructions, related requirements of specified door and frame standards, and custom guidelines indicated.
2. Install prefinished frames after painting and wall finishes are complete.
3. Install fire rated units in accordance with NFPA 80.
4. Coordinate frame anchor placement with wall construction.
5. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.
6. Install door hardware as specified in Section 08 71 00.
7. Comply with glazing installation requirements of Section 08 80 00.

8. Coordinate installation of electrical connections to electrical hardware items.
9. Touch up damaged factory finishes.

3.4 ADJUSTING

1. Adjust for smooth and balanced door movement.
2. Adjust sound control doors so that seals are fully engaged when door is closed.
3. Test sound control doors for force to close, latch, and unlatch; adjust as necessary in compliance with requirements.

END OF SECTION

SECTION 08 11 16 - ALUMINUM DOORS AND FRAMES

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 07 92 00 - Joint Sealants: Sealing joints between door frames and adjacent construction.
2. Section 08 71 00 - Door Hardware: Hardware for aluminum doors.
3. Section 08 80 00 - Glazing: Glazing materials for aluminum doors and frames.

1.2 REFERENCE STANDARDS

1. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document); 2015.
2. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2016).

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements for submittal procedures.
2. Shop Drawings: Include elevations of each opening type.
3. Selection Samples: Complete set of colour and finish options, using actual materials, for Consultant's selection.
4. Verification Samples: Actual pieces of products in each finish specified, not less than 150 mm square or 150 mm long for linear components. For finishes subject to colour variation, include not less than two samples illustrating extreme range to be anticipated.
5. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.4 DELIVERY, STORAGE, AND HANDLING

1. Deliver aluminum components in manufacturer's standard protective packaging, palleted, crated, or banded together.
2. Store components in clean, dry, indoor area, under cover in manufacturer's packaging until installation.
3. Delivery and Acceptance Requirements: Deliver doors and frames to project site; provide protection during transit and site storage to prevent distortion or indentation, and any additional protection required to prevent damage to finish of doors and frames and as follows:
   - 3.1 Inspect doors and frames on delivery for damage, and notify shipper and supplier if damage is found.
   - 3.2 Minor damages may be repaired provided refinished items match new work and are acceptable to the Consultant.
   - 3.3 Remove and replace damaged items that cannot be repaired as directed by the Consultant, at no additional cost to the Owner.
4. Protect materials and finish from damage during handling and installation.

1.5 SITE CONDITIONS

1. Do not begin installation of interior aluminum components until space has been enclosed and ambient thermal conditions are being maintained at levels consistent with final project requirements.

1.6 WARRANTY

1. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.
2. Correct defective Work within a five year period after Date of Substantial Performance.

PART 2 PRODUCTS

2.1 DOORS AND FRAMES

1. This Specification is based on Alumicor entrance systems.
   1.1 Approved manufacturers: Kawneer, Oldcastle and Commdor.
2. **Aluminium Extrusions**: Aluminium Association Alloy AA 6063-T5.
3. **Sheet and Plate Aluminum**: Aluminum Association Alloy AA 1100, anodizing quality.
4. **Steel Reinforcement**: To CAN3 G40.21-M, Grade 300W.
5. **Fasteners**: 300 Series stainless steel or 400 Series stainless steel cadmium plated.
6. **Weatherstripping**: Elastomeric weathering of tubular shape and Work pile at meeting rails.
7. **Aluminum Doors**:
   7.1 Acceptable Material: 400-A medium stile swing door, 600A wide stile Alumicor (for insulated doors add Insul).
   Acceptable Alternates: Kawneer, Commdor, Old Castle.
   7.2 Centre rail nominal – Change door type to a eg. 100-B.
   7.3 Dual moment welded corner construction.
   7.4 Glazing Stops: Square interlocking snap-in type for dry glazing. Exterior stops: tamperproof type (Interior stops).
   7.5 Hinges: Butt stainless steel 5 knuckle 2 ball bearing – 2 pairs per door.
   7.6 Deadlock Cylinder at exterior doors (provided from hardware allowance).
   7.7 Push: 246.
   7.8 Pull: 1180 c/w mounting bolts.
   7.9 Bolt: Top and bottom on one leaf of pair doors.
   7.10 Mullion: Purpose-made removable extruded aluminum at pairs of doors - Von Duprin 5754.
   7.11 Door Holder: Glynn Johnson 90 series overhead door stops.
   7.12 Exit Devices: Von Duprin 98/99 Rim type.
   7.13 Threshold: Aluminum.
   7.14 Glazing Tape at Doors: equal to Tremco 100% premoulded polyisobutylene cross-link butyl.
   7.15 Caulking: To CGSB-19-13M one part silicone equal to Dow Corning 795 Sealant.
8. **Aluminum Frames**:
   8.1 Acceptable Material:

8.1.1 Alumicor 1800 series store front system 1¾" x 4½" (44.5 x 114.3) nominal dimension, non-thermal, weatherseal, centered weather seal glazed, shear block
AND/OR
8.1.2 Alumicor 3400 series store front system 2" x 4½" (50.8 x 114.3) nominal dimension, thermal, weatherseal, centered weather seal glazed, shear block.

9. **Aluminum Finishes**:
   9.1 Finish exposed surfaces of aluminum components in accordance with Aluminum Association. Designation System for Aluminum Finishes.
   9.2 Bronze anodized finish to match existing exterior frames.
   9.3 Appearance and properties of anodized finishes designated by the Aluminum Association as Architectural Class 1, Architectural Class 2, and Protective and Decorative.
10. **Steel Finishes**: Finish steel clips and reinforcing steel with [steel primer to CGSB 1-GP-40M] [zinc coating to CSA G164].
11. **Fabrication**:
   11.1 Doors and framing to be by same manufacturer.
   11.2 Fabricate doors and frames to profiles and maximum face sizes as shown. Provide minimum 22mm bite for insulating glazed units.
   11.3 Provide structural steel reinforcement as required.
   11.4 Fit joints tightly and secure mechanically.
   11.5 Conceal fastenings.
   11.6 Mortise, reinforce, drill and tap doors, frames and reinforcements to receive hardware using templates provided from Door Hardware.
   11.7 Isolate aluminum from direct contact with dissimilar metals, concrete and masonry.
12. Dimensions and Shapes: As indicated on Drawings; dimensions indicated are nominal.
   12.1 Provide the following clearances:
      12.1.1 Hinge and Lock Stiles: 3 mm.
      12.1.2 Between Meeting Stiles: 6 mm.
      12.1.3 At Top Rail and Bottom Rail: 3 mm.

PART 3 EXECUTION

3.1 EXAMINATION

1. Verify that wall surfaces and openings are ready to receive frames and are within tolerances specified in manufacturer's instructions.
2. Verify that frames installed by other trades for installation of doors of this section are in strict accordance with recommendations and approved Shop Drawings and within tolerances specified in manufacturer's instructions.
3. If substrate preparation is the responsibility of another installer, notify Consultant of unsatisfactory preparation before proceeding.

3.2 PREPARATION

1. Perform cutting, fitting, forming, drilling, and grinding of frames as required for project conditions.
2. Replace components with damage to exposed finishes.

3. Separate dissimilar metals to prevent electrolytic action between metals.

3.3 INSTALLATION

1. Install doors and frames in accordance with manufacturer's instructions and approved Shop Drawings.
2. Set frames plumb, square, level, and aligned to receive doors. Anchor frames to adjacent construction in strict accordance with manufacturer's recommendations and within specified tolerances.
3. Where aluminum surfaces contact metals other than stainless steel, zinc, or small areas of white bronze, protect from direct contact by painting dissimilar metal with heavy coating of bituminous paint.
4. Hang doors and adjust hardware to achieve specified clearances and proper door operation.
5. Install door hardware as specified in Section 08 71 00.
6. Comply with glazing installation requirements of Section 08 80 00.
7. Where heads of frames, or screens, abut false ceiling or soffits, brace back to firm structure above. Do not fasten solely to the ceiling, or soffit.
8. Be responsible that anchors and inserts, whether installed by the Work of this section or others, are adequate to meet the specified requirements.
9. Coordinate frame installation with installation of electric swing door operator.

3.4 CAULKING

1. Seal joints to provide weathertight seal at outside [and air, vapour seal at inside].
2. Apply sealant in accordance with Section 07 92 00 - Sealant. Conceal sealant within the aluminum Work except where exposed use is permitted by Consultant.

3.5 CLEANING

1. Upon completion of installation, thoroughly clean door and frame surfaces in accordance with AAMA 609 & 610.
2. Do not use abrasive, caustic, or acid cleaning agents.

3.6 PROTECTION

1. Protect products of this section from damage caused by subsequent construction until Date of Substantial Performance.
2. Replace damaged or defective components that cannot be repaired to a condition indistinguishable from undamaged components.

END OF SECTION

SECTION 08 42 29.23 - SLIDING AUTOMATIC ENTRANCES

PART 1 – GENERAL

1.1 RELATED WORK

1. Openings: Division 08, applicable sections.
2. Electrical: Division 26, applicable sections

1.2 REFERENCE STANDARDS

1. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015.
2. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.
3. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
4. NFPA 101 - Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
5. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

1.3 SUBMITTALS

1. PRODUCT DATA: Submit manufacturer's complete product and installation data.
2. SHOP DRAWINGS: Submit drawings showing layout, profiles, product components including anchorage, accessories, finish and glazing details (where required).
3. CLOSEOUT SUBMITTALS: Submit the following:
   - 3.1 Owner’s Manual.
   - 3.2 Warranty document as specified herein.
   - 3.3 AAADM inspection compliance form completed and signed by certified AAADM inspector prior to doors being placed in operation as proof of compliance with ANSI A156.10.

1.4 QUALITY ASSURANCE AND PERFORMANCE REQUIREMENTS

1. INSTALLERS QUALIFICATIONS: Installer shall be factory trained, certified by AAADM, and experienced to perform work of this section.
2. MANUFACTURER’S QUALIFICATIONS: Manufacturer to have minimum (5) five years successful experience in the fabrication of automatic doors of the type required for this project. Manufacturer capable of providing field service representation during installation, approving acceptable installer and approving application method.
3. CERTIFICATIONS: Automatic sliding door systems and options shall be factory certified to meet performance design criteria in accordance with the following standards:
   - 3.1 ANSI A156.10: For Power Operated Pedestrian Doors; Sliding Doors section.
   - 3.2 NFPA 101: Code for Safety to Life from Fire in Buildings & Structures.
   - 3.3 UL 325: Electrical Door, Drapery, Gate, Louver, and Window Operators and Systems.
   - 3.4 BOCA: Means of Egress, Power Operated Doors
   - 3.5 ICBO/UBC: Egress Through Lobbies
   - 3.6 ICC/IBC: Egress Section

4. FORCED ENTRY RESISTANCE: Sliding doors shall meet requirement of AAMA 1303.5.
5. OPERATING RANGE: -30° F to 130° F (-34° C to 54° C)
6. OPENING FORCE REQUIREMENTS FOR EMERGENCY EGRESS:
   6.1 Slide-swing panels shall require no more than 50 lbf. (222 N) of force to swing open. Slide-swing panels shall be capable of swinging out 90° from any position of slide movement.
   6.2 Slide-swing panels and swing-out sidelites shall have torsion spring designed to re-close panel if pushed open in the direction of egress.
   6.3 If power fails, slide panels can be manually slid open with no more than 15 lbf (222 N) of force.
   6.4 Units are UL listed as an exit way and are compliant with NFPA 101.
7. CLOSING FORCE REQUIREMENTS: Maximum force required to prevent sliding panel from closing = 28 lbf. (124.5 N) Adjustable Reversing Circuit will reopen door unit if closing path is obstructed.
8. HEADER CAPACITY: Header shall be capable of supporting up to 90 lbs. (40.8 kg) per slide panel over spans up to 14’-0” (4267mm) without intermediate supports.

1.5 WARRANTIES

1. MANUFACTURER'S WARRANTY: Units to be warranted against defect in material and workmanship for a period of one year from the Date of Substantial Completion.
   1.1 Manufacturer's warranty is in addition to, and not a limitation of, other rights owner may have under Contract Documents.
2. DISTRIBUTOR'S WARRANTY: One year warranty: Labor & transportation charges for defective parts replacement.

1.6 PROJECT CONDITIONS

1. FIELD MEASUREMENTS: Verify actual dimensions/openings by field measurements before fabrication and record on shop drawings. Coordinate with fabrication and construction schedule to avoid construction delays.

1.7 DELIVERY, STORAGE AND HANDLING

1. ORDERING AND DELIVERY: Comply with factory's ordering instructions and lead time requirements. Delivery shall be in factory's original, unopened, undamaged containers with identification labels intact.
2. STORAGE AND PROTECTION: Provide protection from exposure to harmful weather conditions and vandalism.

PART 2 – PRODUCTS

2.1 MANUFACTURER

1. HORTON AUTOMATICS, a division of Overhead Door Corporation, shall manufacture automatic sliding door(s) of type(s) and size(s) specified on plans and door schedule.

2.2 EQUIPMENT

1. MANUFACTURED DOOR UNITS: Shall include operator, header with roller track, carrier assemblies, framing jambs, sliding door panel(s), sidelite(s), activation, safety devices and

accessories required for complete installation. Leading slide panel will open twice as fast as adjacent sliding panel. When unit slides in full open position, maximum slide opening will be approximately 70% of overall package width.

1.1 Configuration: Single Telescoping (3 panels) or Biparting (6 panels).

1.2 Mounting Type:

1.2.1 Perimeter mounted within rough opening with sliding panel(s) sliding along sidelite.

1.2.2 Surface mounted with sliding panel(s) sliding along wall eliminating need for sidelite.

1.3 Door Type:

1.3.1 Type 010T: Sliding panel(s) 'X' shall slide along interior side.

1.3.2 Type 110T: Slide-swing panel(s) 'SX' shall slide along exterior side.

1.3.3 Type 310T: Slide-swing panel(s) 'SX' shall slide along interior side. Unit has Swing-out sidelite 'SO'. Note: Not available as surface mount.

2. OPERATOR: The Electric Operating Mechanism shall be ProSlide® Telescoping Series 2003T Belt Drive. The operator shall be mounted and concealed within the header.

2.1 Operating force shall be accomplished through a 1/8 HP DC permanent magnet motor with worm gear transmission and 1800 RPM working with drive belt, attached door hangers, and idler pulley. Maximum

2.1.1 current draw shall not exceed 3.15 amps. Drive belt to be steel reinforced nylon, 1/2" (13mm) wide. Idler pulley to be reinforced, metallic material.

2.2 Microprocessor-based control shall include a 40 character alphanumeric display to provide ease of adjustment and comprehensive diagnostics, including error and alarm logging. All speeds, forces and time delays shall be independently adjustable. Actuating and safety sensors that provide self-monitoring are supported. Supported operating modes include 2-Way Automatic / 1-Way Exit, Full / Reduced Door Opening, and Day / Night Operation.3. Finger Safety: When unit slides open, strike rail of sliding panel will stop short of adjacent sidelite; resulting opening is net slide.

2.3 4. On/Off Switch shall be supplied. When switched OFF, unit reverts to free manual operation (likewise during electrical power failure).

3. SECURITY AND SAFETY POWER FAIL OPTIONS:

3.1 Automatic lock: Automatically locks slide function of door when in closed position. Additional power supply for autolock not acceptable.

3.1.1 Autolock Fail Secure: If power fails the lock engages.

3.1.2 Autolock Fail Safe: If power fails the lock disengages.

3.2 Monitored Power Fail Options (battery back-up):

3.2.1 Software Selectable Power Fail Open: If power fails the door slides open.

3.2.2 Software Selectable Power Fail Close: If power fails the door slides closed.

4. PROSLIDE® TELESCOPING HEADER: Shall be 8" (152mm) deep by 6" (152mm) high. Header shall be aluminum construction with removable face plate.

5. CARRIER ASSEMBLIES AND HEADER ROLLER TRACK: Shall be double track system that will provide for two-speed travel of sliding panels. Carrier assemblies shall support door panels with four rollers per panel. Rollers will be non-metallic, high quality ball bearing wheels 2" (51mm) diameter. Anti-Derailing shall be accomplished by means of two additional adjustable

rollers per panel. Overhead header roller track shall be continuous aluminum and replaceable.

6. SLIDING PANEL(S) AND SIDELITE(S): Shall be aluminum, 1-3/4" (44mm) deep with narrow stile rails. An intermediate, horizontal rail (muntin bar) or push bar shall be furnished for safety on breakaway panels. Standard bottom rail shall be 4" (102mm) tall. Slide panels to have synchronizing cable and speed regulating mechanism. Sliding panels shall have concealed bottom guides to stabilize slide travel.
   - 6.1 Weather-stripping to be along perimeter of sliding panel(s) and swing-out sidelite(s) and to be captured in extruded aluminum door panel. Surface applied self-adhesive weatherstripping not acceptable. Adjustable spring-loaded double astragal weather-stripping at lead edge, double mohair at interlock rails
   - 6.2 Standard glazing prep to be for 1/4” (6mm) glass.
   - 6.3 Sliding Panel and Sidelite Options shall be:
     - 6.3.1 Medium stile construction: 3 3/4” (95mm) wide vertical rails with 6 1/2” (165mm) tall bottom rail. Note: Medium stile construction will reduce slide opening.
     - 6.3.2 Wide stile construction: 5” (127mm) wide vertical rails with 6 1/2” (165mm) tall bottom rail. Note: Wide stile construction will reduce slide opening.
     - 6.3.3 Surface applied push bar 1 1/2” (32mm) wide in lieu of standard muntin bar.
     - 6.3.4 Horizontal muntins 2 1/4” (57mm) wide or custom muntins from 1/2” (13mm) to 10” (254mm) wide.
     - 6.3.5 Custom bottom rails up to 10” (254mm) tall.
     - 6.3.6 Additional and/or extra wide sidelites of size and type indicated.
     - 6.3.7 Recessed sidelite and track and non-threshold application.
     - 6.3.8 Prep for glazing 5/16" (16mm) to 1" (25mm).
7. BREAKOUT PANELS: Slide-swing panels can swing out 90° from any position of slide movement and require no more than 50 lbf. (222 N) of force applied at the lock stile to open. Slide-swing panels and swing-out sidelites shall utilize spring loaded ball detent.
   - 7.1 Slide-swing panels and swing-out sidelites shall have torsion spring designed to re-close panel if pushed open in the direction of egress.
   - 7.2 Breakout mechanism shall provide support across full width of the door, in normal operating mode. In breakout mode, torsion assembly shall support weight of the door to minimize drop during emergency egress.
   - 7.3 Slide-swing panels shall include intermediate horizontal rail.
   - 7.4 Units with breakout feature are UL listed as an exit away and are compliant with NFPA 101.
8. JAMBS/FRAME: Shall be aluminum with dimensions of 1 3/4" (44mm) deep by 6" (152mm) wide.
   - 8.1 Optional 1 3/4" (44mm) deep by 8" (152mm) wide.
   - 8.2 Optional transom of size and type indicated, mounted on header
9. THRESHOLD: Shall be aluminum and:
   - 9.1 Type 310T: Continuous (jamb-to-jamb) 1/2" (25mm) tall by 9” (229mm) wide. Optional recessed.
   - 9.2 Type 110T & 010T: 1/2" (25 mm) tall by 7” (178mm) wide or 4” (102mm) wide. Optional non-threshold application.

10. HARDWARE: ANSI A156.5, Grade 1, 2-Point Locking provided and installed in strike rail shall include:
    - 10.1 Hookbolt Latch, 5/8” laminated stainless steel, latching into jamb or adjacent strike rail.
    - 10.2 3/8” hex-bolt into breakout carrier frame.
    - 10.3 Keyed 1 5/32" (29mm) Cylinder mounted on exterior side with 31/32" (25mm) backset
    - 10.4 Thumb-turn mounted on interior side.
    - 10.5 Hardware Options:
        - 10.5.1 3-Point locking for biparting doors
        - 10.5.2 Flush Panic Exit Device recessed in 6 ½” muntin bar for door types 110T and 310T.
        - 10.5.3 Surface mounted Panic Exit Device for door type 310.
        - 10.5.4 Lock Position Indicator.
        - 10.5.5 Cylinder Guard.
        - 10.5.6 Cylinder Escutcheon.

2.3 RELATED EQUIPMENT

1. BASIC SENSOR SYSTEM: Shall be 24 VDC, class ll circuit and shall be adjusted and installed in compliance with ANSI A156.10. System shall include the following:
    - 1.1 ACTIVATION SENSORS: Microwave or active infrared sensor shall be header-mounted each side of door unit for detection of traffic from each direction.
    - 1.2 THRESHOLD PRESENCE SENSORS:
        - 1.2.1 Header mounted sensors shall provide active infrared presence detection on each side of the door unit and shall remain active throughout the entire door opening and closing cycle.
        - 1.2.2 Hold-open beams: Two pulsed infrared photoelectric beams to be mounted in vertical rails of sidelite or in jambs. Sender/receiver arrangement parallels door opening.

2.4 RELATED WORK REQUIREMENTS

1. ELECTRICAL: 120 VAC, 50/60 cycle, single phase, dedicated 20 amp circuit per operator. Non-North American voltages can be 240 VAC 50/60 cycle (operator must have 240 volt power supply).
2. GLASS AND GLAZING: Glass stops, glazing vinyl and setting blocks for field glazing as per Safety Glazing standard ANSI Z97.1.2. Contractor to coordinate acquisition of glass in thickness and type in accordance with manufacturer's recommendations for prescribed design.

2.5 MATERIALS, FINISHES AND FABRICATION

1. EXTRUDED ALUMINUM: ASTM B221, 6063-T5 alloy and temper, anodized:
    - 1.1 Structural Header Sections: Minimum 3/16" (5 mm) thickness.
    - 1.2 Structural Frame Sections: Minimum 1/8" (3 mm) thickness.
    - 1.3 Structural Panel Sections: Commercial grade.
2. FINISHES (for all exposed aluminum surfaces): Shall be one of the following:
    - 2.1 Bronze anodized finish to match existing aluminum frame, Architectural Class 1 Anodized Coating, AA-MI2C22A44.
3. PANEL CONSTRUCTION:

3.1 Corner block type with 3/16” steel backup plate construction, mechanically secured with minimum of four hardened steel screws. Sash consists of snap-in glass stops, snap-in glazing beads and vinyl gaskets.

3.2 Slide-swing doors to be supplied with adjustable glass setting block to allow for adjusting of door to meet site conditions eliminating the need for additional shims.

4. FRAME CONSTRUCTION: Butt joints, mechanically secured with screws and formed alum. corner brackets.

5. OPERATOR CONSTRUCTION: Electromechanical, modular type construction.

PART 3 - EXECUTION

3.1 EXAMINATION

1. SITE VERIFICATION OF CONDITIONS: Installer must verify that base conditions previously installed under other sections are acceptable for product installation according to with manufacturer's instructions. Notify the Contractor in writing of conditions detrimental to the proper and timely completion of work. Do not start work until all negative conditions are corrected in a manner acceptable to the installer and manufacturer.

3.2 INSTALLATION

1. GENERAL: Installer shall be factory trained, certified by AAADM, and experienced to perform work of this section. Install door units plumb, level and true to line, without warp or rack of frames or sash with manufacturer's prescribed tolerances. Provide support and anchor in place.

2. DISSIMILAR MATERIALS: Comply with AAMA 101, Appendix Dissimilar Materials by separating aluminum materials and other corrodible surfaces from sources of corrosion or electrolytic action contact points.

3. WEATHER-TIGHT CONSTRUCTION: Install header and framing members in a bed of sealant or with joint filler or gaskets. Coordinate installation with wall flashings and other components of construction.

4. ELECTRICAL: General or electrical contractor to install all wiring to operator on a separate circuit breaker routed into header. General or electrical contractor also to install all necessary power and low voltage wiring for proper operation of associated security systems.

3.3 CLEANING, ADJUSTMENT AND PROTECTION

1. CLEANING: After installation, installer to take following steps:
   1.1 Remove temporary coverings and protection of adjacent work areas.
   1.2 Remove construction debris from construction site and legally dispose of debris.
   1.3 Repair or replace damaged installed products.
   1.4 Clean product surfaces and lubricate operating equipment for optimum condition and safety.

2. ADJUSTMENT: AAADM certified technician to inspect and adjust installation. Comply with ANSI A156.10.

3. ADVISE CONTRACTOR: Of precautions required through the remainder of the construction period, to ensure that doors will be without damage or deterioration (other than normal weathering) at the time of acceptance.

END OF SECTION

SECTION 08 70 00 - INSTALLATION OF DOORS, FINISH HARDWARE AND ELECTRONIC DEVICES

PART 1 - GENERAL

1.1 RELATED WORK

1. Comply with requirements of Division 1 and Supplementary Conditions.
2. Section 08 10 00
3. Section 08 45 00
4. Section 26 00 00

1.2 PRODUCT DELIVERY, STORAGE AND HANDLING

1. Accept delivery of doors and finish hardware.

1.3 Inspect doors for damage, upon delivery to the site. Hollow metal doors, which cannot be readily corrected by sanding, should be promptly returned to the manufacturer for replacement.

1. Store doors in a dry and clean location. Store in a temperature and humidity-controlled area. Stack 150mm off the floor.
2. Be responsible for any damage to doors and hardware from time of delivery until accepted by Owner after installation.

1.4 JOBSITE CONTROL AND DISTRIBUTION OF HARDWARE

1. Provide locked room for storage of hardware at the job and a person responsible for the control and distribution of hardware.
2. It is the intent of this section to establish a single, competent source to be responsible for the installation of finish hardware, which is listed in Section 08 71 00. Faulty installation of electronic hardware shall therefore be traced back to this section, not to division 26

1.5 FINISHING HARDWARE

1. This section will include to install at no extra charge, all finishing hardware purchased under the hardware allowance, this may include butts, hinges, snaps, catches, signs, letters, latch sets, lock sets, automatic closers, strikes, bolts, escutcheons, and any other supplied items.
2. Locksets and Latchsets: mortise type.

PART 2 - PRODUCTS

2.1 Hardware

1. Refer to the Door Schedule on the Architectural Drawings for hardware to be included in the base bid.

PART 3 – EXECUTION

3.1 EXAMINATION

1. Examine substrate surfaces to receive the Work of this Section and ensure that Work done as part of the Work of other Sections is complete and that there are no conditions which will adversely affect the performance of the Work. Notify the Contractor of any unsatisfactory conditions. Do not proceed with this Work until unsatisfactory conditions have been corrected. Commencement of Work implies acceptance of surfaces and conditions.

3.2 INSTALLATION

1. Finish Hardware:
   - 1.1 Handling, Storage, and Installation: to ANSI/DH1 A115.1G.94 – for finishing hardware, doors and frames.
   - 1.2 Other trades installing hardware must follow all manufacturer's instructions including door closer adjustment, handing of locksets as required, and degree of door swing. Advise the Consultants if door frames are not square and plumb and prevent proper door installation
   - 1.3 Mount hardware to suit door elevations. Unless otherwise directed by the Consultant, install hardware heights indicated in finish hardware list.
   - 1.4 When requested, the hardware supplier will instruct the installer regarding the installation of unfamiliar items.
   - 1.5 Set, fit and adjust hardware according to manufacturer's directions. For trouble-free operation. After installation, adjust door closers for closing and latching speed and panic devices for proper latching. Protect installation from damage and paint spotting.
   - 1.6 Predrill kickplates and doors before attachment of plates. Apply with water resistant adhesive and countersunk steel screws.
   - 1.7 Locate hardware in accordance with requirements specified in Section 08 71 00.
   - 1.8 Thresholds: site measure openings before cutting. Set thresholds on two continuous beads of caulking conforming to Section 07 92 00.
   - 1.9 Door Closers and Holders: Install do or closers so that door opening is unaffected, and to allow maximum swing.
   - 1.10 Weatherstripping of Doors:
     - 1.10.1 Install weatherstripping so that the entire perimeter of doors is tightly sealed. Secure in place with nor-ferrous screws, in accurate alignment.
     - 1.10.2 Maintain integrity of weatherseal at head of doors fitted with closers. Adapt weatherstripping as required to achieve specified performance and provide any necessary accessories.
2. Electronic Devices:
   - 2.1 Install all electric swing operator components, security components including door status switches, card readers, processors, transformers, and other electronic devices.
   - 2.2 All Wiring: supplied and installed by Electrical Division 26 including conduit, boxes and other electrical appurtenances, including connections and terminations. Be responsible for ensuring that all wiring work is done in accordance with the suppliers wiring diagrams and directions.
   - 2.3 Arrange for testing and commissioning of system by the distributor of the system. Submit a copy of reports to the Consultant.
   - 2.4 Note: When installing electric strikes, it is imperative that doors are perfectly aligned to enable the bolt to close properly. Also ensure that rubber silencers do not impair the proper strike action required. Adjust or remove silencers, as necessary.
3. Hollow Metal Swing Doors:
   - 3.1 Hang doors to swing easily and freely on their hinges, to remain stationary in any position, and to close tightly and evenly on frames without binding.

3.2 Provide 2mm clearance at head and jambs, 3mm clearance between pairs of doors, or panels and no more than 10 mm at floor. Provide clearance for specified finished flooring.

4. Locksets and Latches: Mortise type (cylindrical) hardware
5. Safeguard Keys: tag with opening number and deliver to Consultant at Substantial Performance.

3.3 ADJUSTING, AND CLEANING OF FINISH HARDWARE

1. Check and adjust each operating hardware item to ensure proper operation and function of unit.
2. Lubricate moving parts as recommended by hardware manufacturer. Use graphite type lubricant if no other is recommended.
3. Repair or replace defective materials and units which cannot be adjusted and lubricated to operate freely and smoothly. Re-install items found improperly installed.
4. Prior to date of Substantial Performance, re-adjust and re-lubricate as necessary.
5. Instruct Owner's designated personnel in the proper adjustment and maintenance of hardware and finishes at time of final hardware adjustment.

END OF SECTION

SECTION 08 71 13 - POWER DOOR OPERATORS

PART 1 – GENERAL

1.1 REFERENCE STANDARDS

1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.
2. BHMA A156.19 - American National Standard for Power Assist and Low Energy Power Operated Doors; 2013.
3. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
4. NFPA 101 - Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
5. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

1.2 SUMMARY

1. WORK INCLUDED: Furnish exterior and interior power door operators with visible mounting, as specified, that has been manufactured, fabricated and installed to maintain performance criteria stated by manufacturer without defects, damage or failure. Automatic door operators shall be configured as follows:
   1.1 Single doors: Outswing or Inswing.
   1.2 Simultaneous pairs: Outswing or Inswing.
   1.3 Double Egress: Outswing and Inswing.

1.3 RELATED WORK:

1. Division 8 Section "Aluminum-Framed Entrances and Storefronts" for entrances furnished separately.
2. Division 8 Section "Door Hardware" for hardware to the extent not specified in this Section.
3. Division 16 Sections for electrical connections including conduit and wiring for power door operators.

1.4 SUBMITTALS

1. PRODUCT DATA: Submit manufacturer's complete product and installation data.
2. SHOP DRAWINGS: Submit drawings showing layout, profiles, product components including anchorage, accessories, finish and glazing details (where required).
3. CLOSEOUT SUBMITTALS: Submit the following:
   3.1 Owner’s Manual.
   3.2 Warranty document as specified herein.
   3.3 AAADM inspection compliance form completed and signed by certified AAADM inspector prior to doors being placed in operation as proof of compliance with ANSI A156.19.

1.5 QUALITY ASSURANCE AND PERFORMANCE REQUIREMENTS

1. INSTALLERS QUALIFICATIONS: Installer shall be factory trained, certified by AAADM, and experienced to perform work of this section.

2. MANUFACTURER'S QUALIFICATIONS: Manufacturer to have minimum (5) five years successful experience in the fabrication of automatic doors of the type required for this project. Manufacturer capable of providing field service representation during installation, approving acceptable installer and approving application method.
3. CERTIFICATIONS: Automatic sliding door systems and options shall be factory certified to meet performance design criteria in accordance with the following standards:
   3.1 ADA 1990: Americans With Disabilities Act
   3.2 ANSI A156.19: For Power Assist and Low Energy Power Operated Doors
   3.3 ANSI.117.1: Accessible and Usable Buildings and Facilities
   3.4 NFPA 101: Code for Safety to Life from Fire in Buildings & Structures.
   3.5 UL 325: Electrical Door, Drapery, Gate, Louver, and Window Operators and Systems.
   3.6 BOCA: Means of Egress, Power Operated Doors
   3.7 ICBO/UBC: Egress Through Lobbies
   3.8 ICC/IBC: Egress Section
4. SOURCE LIMITATIONS: Obtain automatic door operators through one source from a single manufacturer.
5. PRODUCT OPTIONS: Drawings indicate sizes, profiles, and dimensional requirements of automatic entrance door assemblies and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."
6. POWER OPERATED DOOR STANDARD: ANSI/BHMA A156.19.
7. OPERATION: Automatic and/or Manual:
   7.1 Automatic: Pushbutton/Push Plate switch actuates door open; door closes after time delay expires. Opening and closing force, measured 1" (25.4 mm) out from the lock stile of the door, not to exceed 15 pounds (67 N) of force to stop the door when operating in either direction. Operator to include the following variable adjustments so as to comply with ANSI Standard A156.19: Opening speed – 4 1/2 to 6 seconds; Closing speed – 4 1/2 to 6 seconds.
   7.2 Manual: Push-N-Go™: Manually pushing door activates automatic opening cycle; door closes after time delay expires (approximately 30% less than after pushbutton actuation).
8. ELECTRICAL COMPONENTS, DEVICES AND ACCESSORIES: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
9. OPERATING RANGE: -30° F to 130° F (-34° C to 54° C)
10. OPENING FORCE REQUIREMENTS FOR EGRESS DOORS: In the event power failure to the operator, swinging automatic entrance doors shall open with a manual force, not to exceed 30 lbf (133 N) applied at 1" (25 mm) form the latch edge of the door.
11. DOOR ENERGY: The kinetic energy of a door in motion shall not exceed 1.25 lbd-ft (1.69 Nm).
12. CLOSING TIME:
    12.1 Doors shall be field adjusted to close from 90 degrees to 10 degrees in 3 seconds or longer.
    12.2 Doors shall be field adjusted to close from 10 degrees to fully closed in not less than 1.5 seconds.

1.6 WARRANTIES

1. MANUFACTURER'S WARRANTY: Units to be warranted against defect in material and workmanship for a period of one year from the Date of Substantial Completion.
2. Manufacturer's warranty is in addition to, and not a limitation of, other rights owner may have under Contract Documents.
3. DISTRIBUTOR'S WARRANTY: One year warranty: Labor & transportation charges for defective parts replacement.

1.7 PROJECT CONDITIONS

1. FIELD MEASUREMENTS: Verify actual dimensions/openings by field measurements before fabrication and record on shop drawings. Coordinate with fabrication and construction schedule to avoid construction delays.

1.8 DELIVERY, STORAGE AND HANDLING

1. ORDERING AND DELIVERY: Comply with factory's ordering instructions and lead time requirements. Delivery shall be in factory's original, unopened, undamaged containers with identification labels intact.
2. STORAGE AND PROTECTION: Provide protection from exposure to harmful weather conditions and vandalism.

PART 2 - PRODUCTS

2.1 MANUFACTURER

1. HORTON AUTOMATICS, a division of Overhead Door Corporation, shall manufacture automatic swing door(s) of type(s) and size(s) specified on plans and door schedule.
   1.1 Note: Horton Automatics reserves the right to make product improvements and change specifications without notice.

2.2 EQUIPMENT

1. MANUFACTURED DOOR UNITS: EASYACCESS ® Series 7100: Surface Applied Operator with connecting arms and linkage shall provide positive control of door through entire swing; units shall permit use of butt hung and center pivot doors.
   1.1 Mounting: The operator header shall be mounted to the surface of the existing door frame or wall.
   1.2 Door Arms: Connecting hardware shall be a double arm arrangement that can either push the door or pull the door open to suit the job condition. When the operator mounting is on the pull side and adjacent wall is within 4" (102 mm) of the door frame, specify a parallel arm.
   1.3 Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.
2. EASYACCESS ® HEADER CASE: Shall be a side access extruded aluminum case. Standard header size shall be 4" x 6" (102 mm x 152 mm).
3. OPERATOR: The Electric Operating Mechanism shall be Series 7000: Operator shall be mounted and concealed in an extruded aluminum case for smooth and quiet operation. Maximum current draw shall not exceed 3.15 amps.

3.1 Opening Action: Shall be accomplished by a 1/15 HP D.C. permanent magnet motor working through reduction gears to the output shaft.

3.2 Field Adjustable Spring Closing Action: shall be accomplished by a field replaceable spring. When the door is in the closing mode or fully closed, motor voltage shall not be required and will be off. The door can be manually operated with power on or off without damage to the operator.

3.3 Independent Adjustable Closing and Latching Speed Control: The operator shall employ a rheostat module to allow for independent field adjustment of closing and latching speeds using the motor as a dynamic brake.

3.4 Field Adjustable Open Stop: The operator shall provide a field adjustable open stop to accommodate opening angles from 80 to 135 degrees without the need for additional components.

3.5 Consistent Cycle: The operator shall deliver an even, consistent open force across the entire transition from door fully closed to door open check. Additionally, the range of the force shall be field adjustable to accommodate a wide range of on-site conditions.

3.6 Manual Use: The operator shall function as a manual door closer in the direction of swing with or without electrical power. The operator shall deliver an even, consistent open force across the entire transition from door fully closed to door fully open.

3.7 Controller Protection: The controller shall incorporate the following features to ensure trouble free operation:

- 3.7.1 Automatic Reset upon power up.
- 3.7.2 Main fuse protection.
- 3.7.3 Electronic surge protection.
- 3.7.4 Internal power supply protection.
- 3.7.5 Resettable sensor supply fuse protection.

3.8 Push Button Interface: The controller shall have push button switches with to allow for selection or change of the following parameters: carpet or timer logic, single or dual door, activation options, normal back check or large back check, push-to-open assist on/off.

3.9 Soft Start/Stop: A “soft-start” “soft-stop” motor driving circuit shall be provided for smooth normal opening and recycling.

3.10 Control Switch: Automatic door operators shall be equipped with a three position function switch to control the operation of the door. Control switch shall provide three modes of operation, Automatic, Off, and Hold-Open.

3.11 Master Control: Shall incorporate the following features:

- 3.11.1 Adjustable time delay of 2 to 30 seconds (ANSI A156.19 requirement is 5 second minimum time delay).

3.12 Infinite adjustment to opening and open check speeds including adjusting the opening force without affecting the opening speed.

- 3.12.1 Immediate reversal of door motion without undue strain on the drive train. This will be accomplished by supplying stepped voltage to the motor. The door shall reverse when closing if an object stops the door.
- 3.12.2 Motor Protection Circuit: A locked door motor protection circuit will be supplied that will shut off current to the motor when the door is inadvertently locked or otherwise prevented from opening.

2.3 RELATED EQUIPMENT

1. ACTIVATING DEVICE: Shall be located on each side of the opening as per ANSI Safety Standard A117and shall be hardwired to door operator controls. Activating device shall be momentary contact microswitch assembly in the following configuration:
2. PUSH PLATE: 4.5” (114.3mm) square, stainless steel switch. Wall mounted. Engravings shall be:
   2.1 International symbol for accessibility and “Press To Open”.

2.4 RELATED WORK REQUIREMENTS

1. ELECTRICAL: To be provided under Division 16: 120 or 220 VAC, 60 cycle, 1 phase, 10 amps for doors with operators in pairs, 5 amps for single doors. Non-North American voltages can be 240 VAC (operator must have 240 volt power supply)

2.5 MATERIALS, FINISHES AND FABRICATION

1. EXTRUDED ALUMINUM: ASTM B221, 6063-T5 alloy and temper, anodized: Structural Header Sections: Minimum 1/8" (3 mm) thickness.
2. FINISHES (for all exposed aluminum surfaces): Shall be the following:
   2.1 204-R1 Clear: Arch. Class 2 Clear Anodized Coating, AA-MI2C22A31.
3. OPERATOR CONSTRUCTION: Electromechanical.

PART 3 - EXECUTION

3.1 EXAMINATION

1. SITE VERIFICATION OF CONDITIONS: Installer must verify that base conditions previously installed under other sections are acceptable for product installation according to with manufacturer's instructions. Notify the Contractor in writing of conditions detrimental to the proper and timely completion of work. Do not start work until all negative conditions are corrected in a manner acceptable to the installer and manufacturer.

3.2 INSTALLATION

1. GENERAL: Installer shall be factory trained, certified by AAADM, and experienced to perform work of this section. Install door units plumb, level and true to line, without warp or rack of frames or sash with manufacturer's prescribed tolerances. Provide support and anchor in place.
2. DISSIMILAR MATERIALS: Comply with AAMA 101, Appendix Dissimilar Materials by separating aluminum materials and other corrodible surfaces from sources of corrosion or electrolytic action contact points.
3. WEATHER-TIGHT CONSTRUCTION: Install header and framing members in a bed of sealant or with joint filler or gaskets. Coordinate installation with wall flashings and other components of construction.
4. ELECTRICAL: General or electrical contractor to install all wiring to operator on a separate circuit breaker routed into header.

3.3 CLEANING, ADJUSTMENT AND PROTECTION

1. CLEANING: After installation, installer to take following steps:
   1.1 Remove temporary coverings and protection of adjacent work areas.
   1.2 Remove construction debris from construction site and legally dispose of debris.
   1.3 Repair or replace damaged installed products.

1.4 Clean product surfaces and lubricate operating equipment for optimum condition and safety.

2. ADJUSTMENT: AAADM certified technician shall inspect and adjust installation to assure compliance with ANSI A156.19.
3. ADVISE CONTRACTOR: Of precautions required through the remainder of the construction period, to ensure that doors will be without damage or deterioration (other than normal weathering) at the time of acceptance.
4. FIELD QUALITY CONTROL: Testing Services: Factory Trained Installer shall test and inspect each swinging automatic entrance door to determine compliance of installed systems with applicable ANSI standards.

END OF SECTION

SECTION 08 80 00 - GLAZING

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 08 11 13 - Hollow Metal Doors and Frames: Glazed lites in doors and borrowed lites.
2. Section 08 42 29 - Automatic Entrances: Glazing provided as part of door assembly.
3. Section 08 54 13 - Fibreglass Windows: Glazing provided by window manufacturer.

1.2 REFERENCE STANDARDS

1. CAN/CGSB 12.1 - Safety Glazing; 2017.
2. CAN/CGSB 12.3 - Flat, Clear Float Glass; 1991 (R2017).

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements for submittal procedures.
2. Samples: Submit two samples 12" by 26" mm in size of glass units for both vision and spandrel glass.
3. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.4 WARRANTY

1. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.
2. Insulating Glass Units: Provide a five (5) year manufacturer warranty to include coverage for seal failure, interpane dusting or misting, including providing products to replace failed units.
3. Laminated Glass: Provide a five (5) year manufacturer warranty to include coverage for delamination, including providing products to replace failed units.

PART 2 PRODUCTS

2.1 GLASS MATERIALS

1. **Clear Vision Bullet Resistant Speak-thru** : Equal to C.R. Laurence model CAD101 complete with 6” Φ speaker hole, stainless steel studs. Install to manufacturer’s printed directions.
2. **Tempered or Laminated Safety Glass**: To CAN/CGSB-12.1-M90.
   - 2.1 Insulating Glass Units: at exterior doors and frames, except as later noted.
   - 2.2 To CAN/CGSB-12.8-M90. 6mm per sheet, ½” air space and overall thickness 1". Dual seal design with a white 1.35" warm edge spacer as manufactured by Trulite Industries, Triple Seal or Surelite
     - 2.2.1 **Unit Description**: Equal to Guardian “Sun-Guard Low E” series SN-68, argon filled air space.
     - 2.2.2 **Outdoor Appearance**: Neutral
     - 2.2.3 **Outboard Lite Substrate**: Clear, 6 mm float, tempered.
     - 2.2.4 **Inboard Lite Substrate**: 6 mm float.
     - 2.2.5 **Coatings, Location**: Surface # 2 coating SN-68.
     - 2.2.6 **Performance Values**: As published.
3. **Balistic Glazing**: UL752, Level 3 balistic glazing.

4. **Sealants**: One part high modulus silicone equal to 999 by Dow.
5. **Doors and Sidelights**: as laminated safety glazing (at exterior doors and frames, at inner pane).

PART 3 EXECUTION

3.1 VERIFICATION OF CONDITIONS

1. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.
2. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

3.2 PREPARATION

1. Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.
2. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
3. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

3.3 INSTALLATION, GENERAL

1. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.
2. Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.
3. Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.
4. Set glass lites in proper orientation so that coatings face exterior or interior as indicated.
5. Prevent glass from contact with any contaminating substances that may be the result of construction operations such as, and not limited to the following; weld splatter, fire-safing, plastering, mortar droppings, etc.
6. **Exterior Glazing**: Entrances
   - 6.1 Glazing Gaskets
7. **Interior Glazing**: Steel Doors and screens
   - 7.1 Bed glass continuously on both faces to ensure a solid, rattle free installation.
   - 7.2 Remove and replace screw-on stops where applicable.
8. **Exterior Glazing**:
   - 8.1 Size glass units to accurately fit openings with a ⅛" (3mm) edge clearance.
   - 8.2 Solvent clean contact surfaces, apply primer sealer.
   - 8.3 Apply glazing tape to face of stop.
   - 8.4 Install glass on setting blocks to centre in opening and maintain clearance; ensure full contact and adhesion with tape at perimeter.
   - 8.5 Use butyl tape, reinforced butyl tape or spacer blocks to maintain glass in centre of rebate in accordance with glazing systems manufacturer's specifications.
   - 8.6 Apply continuous heel bead (air seal); one part polyurethane.
   - 8.7 Apply cap bead at exterior perimeter of glass; one part silicone.

8.8 Cap beads to be sloped to shed water away from face of glass.

8.9 Install materials to ensure vent holes in frame remain clear.

9. **Unit Glazing**: all sash-factory glazed.

10. **Finishing**:

10.1 Remove labels after Work is completed.

10.2 Immediately remove stains, deposits, marks or blemishes caused by the Work of this Section

10.3 Replace scratched, etched or defective glazing

3.4 CLEANING

1. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.
2. Remove non-permanent labels immediately after glazing installation is complete.
3. Clean glass and adjacent surfaces after sealants are fully cured.
4. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Performance in accordance with glass manufacturer's written recommendations.

3.5 PROTECTION

1. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.
2. Remove and replace glass that is damaged during construction period prior to Date of Substantial Performance.
3. Replace scratched, etched, or defective glazing.

END OF SECTION

SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 06 10 00 - Rough Carpentry: Building framing and sheathing.
2. Section 07 25 00 - Weather Barriers: Water-resistive barrier over sheathing.

1.2 REFERENCE STANDARDS

1. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2020.
2. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2017.
3. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2022.
4. GA-216 - Application and Finishing of Gypsum Panel Products; 2016.

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

PART 2 PRODUCTS

2.1 GYPSUM BOARD ASSEMBLIES

1. Provide completed assemblies complying with ASTM C840 and GA-216.

2.2 BOARD MATERIALS

1. Gypsum Board: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1.1 Standard: with tapered edges.
2. **Metal Studs**: To ASTM C645
   2.1 Non-load Bearing Channel Stud Framing: To ASTM 645, rolled from hot dipped galvanized sheet steel for screw attachment of gypsum board, size: 3⅝” x 25GA (92mm x 0.55m) thickness. Knock-out service holes at 406mm oc (16").
   2.2 Floor and Ceiling Tracks: to suit width of studs, bridging, metal channel bridging, angles, channels, and the like to form a rigid framing capable of supporting the drywall and other indicated and related loads.
   2.3 Load-bearing metal studs & Brick Veneer anchors: See section 05410

2.3 ACCESSORIES

1. Water-Resistive Barrier: As specified in Section 07 25 00.
2. Galvanized corner bead, 1-1/4" (32mm) perforated flanges.
3. Galvanized Type "L" casing bead with single perforated flange for joint filling.
4. Galvanized channel casing with single perforated flange for joint filling.
5. Screws: Self-drilling, self-tapping, case hardened Phillips head drywall screws with corrosion resistant finish to CAN/CSA-A82.31.
6. Corner Beads at VH1: SO-HSE-90 by Pittcon, or equal by Fry Chicago Metallics.
7. Bracing Channels: ASTM C645, for partitions, 19 x 9.5 x 1.2mm cold-rolled, galvanized steel.

8. Furring Channels: ASTM C645, #25 galvanized, nominal size of 22mm deep by 32mm face, hat type with knurled face.
9. Resilient Channels: ASTM C645, CGC "RC-1" or equivalent by Bailey Metals
10. **Reinforcing Tape**: 2" (50mm) wide Kraft paper perforated joint tape with feathered edges to ASTM C475
11. **Joint Filler and Topping Compound**: To CAN/CSA-A82.31 asbestos-free. Specific to each type of gypsum board.
12. **Sound Insulation**: Rockwool "Safe'n'Sound" batt insulation for metal stud @ 16" o.c.
13. **Acoustical Sealant**: To CGSB 10-GP-21M.
14. **Ceiling Suspension**: CSA A82.30.
    14.1 Runner Channels: ½" x ¾" x 16GA - 2m coated.
    14.2 Furring Channels: ¾" x 3/8" x 16GA - 2m coated.
    14.3 Wire Hangers: 12 GA Galvanized Annealed Steel.
    14.4 Tile Wires: 18 GA Galvanized Annealed Steel.
15. **Insulating Strip**: Rubberized, moisture resistant 3mm thick foam strip, 12mm wide with self-sticking adhesive on one side.
16. **Stud Adhesive**: To CAN/CGSB-71.25.
17. **Laminating Compound**: As recommended by manufacturer asbestos free.

PART 3 EXECUTION

3.1 EXAMINATION

1. Verify that project conditions are appropriate for work of this section to commence.

3.2 BOARD INSTALLATION

1. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
2. **Steel Studs**:
    2.1 Execute under competent supervision by mechanics skilled in this trade.
    2.2 Install all materials in accordance with manufacturer's specifications except where indicated otherwise.
    2.3 Align partition tracks at floor and ceiling and secure at (600) mm o.c. maximum.
    2.4 Install dampproof course under stud shoe tracks of partitions on slabs on grade.
    2.5 Place studs vertically at (406) mm oc and not more than (50) mm from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs are required to provide rigid installation to manufacturer's instructions.
    2.6 Erect metal studding to tolerance of 1:1000.
    2.7 Attach studs to bottom ceiling track using screws.
    2.8 Coordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
    2.9 Coordinate erection of studs with installation of door/window frames and special supports or anchorage for specified in other Sections.

2.10 Double studs at all door jambs. At each jamb of doors exceeding either 900mm width or 60mm in thickness or both, install a structural channel reinforcing extending from floor structure to structure above, and adequately anchored at each end.

2.11 Brace studs with stiffeners over doors in partitions of greater height than 3000mm spaced as preceding, and above and below window type openings spaced not more than 150mm fro the top and bottom of openings. Stiffeners shall be 19mm bracing channels, wire tied or welded to each stud, and extending horizontally across entire length of each braced partition and across two full stud spaces at each side of door and window openings.

2.12 Splice studs only when unavoidable by nesting with 200mm minimum lap, and fastened with one screw in each flange.

2.13 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.

2.14 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.

2.15 Provide 40 mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.

2.16 Install steel studs or furring channel between studs for attaching electrical and other boxes.

2.17 Extend partitions to ceiling height except where noted otherwise on drawings (extend to underside of structure).

2.18 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use 50mm leg ceiling tracks. Use double track slip joint (as indicated) or slotted top track.

2.19 Install continuous insulating strips to isolate studs from uninsulated surfaces.

2.20 Install two continuous beads of acoustical sealant insulating strip under studs and tracks around perimeter of sound control partitions.

3. **Ceiling Suspension**:

3.1 Attach wire hangers to joists and beams not to steel deck.

3.2 Install runners level to tolerance of 3mm over 3.5m. Provide runners at interruptions of continuity and change in direction.

3.3 Frame with furring channels, perimeter of openings to accommodate access panels, light fixtures, diffusers, grilles, and the like.

3.4 Furr for vertical bulkheads within or at termination of ceilings.

3.5 Furr above suspended ceilings for fire and sound stops and to form plenum areas indicated.

3.6 Provide clearance under beams and structural slabs to prevent transmission of structural loads to vertical furring.

3.7 Leave finished work rigid, secure, square, level, plumb, (curved to detailed radius) and erected to maintain finish line dimensions and contours. Drywall allowance for thermal movement.

3.8 Use galvanize supports, members, angles and metal lathing in wet areas, exterior walls and exterior soffits.

3.9 Attach suspension to:

3.9.1 Existing structure by ramset, cinch anchor.

3.9.2 Metal joists at panel points of joist.

3.10 Secure grid members at perimeter of ceiling to wall mould with concealed fastenings.

3.11 Wrap the free end of all hangers and tie wires in a triple pigtail.

3.12 Install grid assemblies true, rigid, and level within a tolerance not exceeding 1:1000.

4. **Gypsum Board**:

4.1 Erect In accordance with CAN/CSA-A82.31-M gypsum board application, except where indicated otherwise.

4.2 Apply board only after anchors, blocking and the like have been installed and the electrical and mechanical are approved.

4.3 Install board to minimize end joints; apply with long dimension parallel to framing members and with edge joints over bearing.

4.4 Locate all end joints over bearing.

4.5 Space screws as follows:

4.5.1 **All Board**: Walls and ceilings - 8" (200mm) at edges.

4.5.2 **Fire Rated Board**: Walls - 12" (300mm) at field; ceiling 8" (200mm) at field.

4.5.3 **Non-rated Board**: Walls and ceilings - 12" (300mm) at field.

4.6 Install perimeter screws at not less than 3/8" (10mm) nor more than 2" (13mm) from edges and ends and shall be opposite the screws on adjacent boards.

4.7 Apply corner beads, Type "L" casing beads and channel casing beads (no J mould permitted).

4.8 Caulk between casing beads and other construction where junctions are exposed to view in accordance with the requirements of Section 07 92 00.

4.9 Wherever drywall abuts a dissimilar material, finish the drywall edge with a type L casing bead. (No J-mould permitted.)

4.10 Review structural drawings to determine the nature and extent of the conditions.

4.11 Construct fire rated assemblies in accordance with the requirements of the authorities having jurisdiction and/or the U.L.C. test design of the assembly. Co-operate with others and note particularly, special construction required where mechanical ducts pass through fire rated assemblies.

4.12 Extend all fire rated and sound isolated partitions together with wallboard facings above ceilings to underside of structure above unless specifically noted otherwise.

4.13 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.

4.14 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.

4.15 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.

4.16 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.

4.17 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

5. **Shadowmould** - Install shadowmould at wall/ceiling juncture.

6. **Access Doors**:
   6.1 Install access doors at locations of mechanical and electrical equipment and services.
   6.2 Rigidly secure frames to furring or framing system. Seal perimeter of frame.

7. **Sound Insulation**: Install friction fit insulation to fill stud space for full height of studs. Pack all voids.

8. **Drywall Over Masonry or Concrete**:
   8.1 Apply purpose-made adhesive to back of drywall in accordance with manufacturer's latest printed instructions.
   8.2 Secure panels to masonry or concrete with laminating compound and concrete nails.
   8.3 Finish joints and nail heads as previously specified.

9. **Load Bearing Studs**:
   9.1 Review installation of type and spacing of built-in brick ties with section 04 20 0.

3.3 ADJUSTMENT AND CLEANING

1. Make GWB good at cut-outs for services and other projections; fill in defective joints, holes and other depressions with joint compound.

2. Clean off beads, casings and other trim. Make good all defective work and ensure that surfaces are smooth, evenly textured and within specific tolerances and left ready to receive specified finishes.

END OF SECTION

SECTION 09 30 00 - TILING

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 09 21 16 - Gypsum Board Assemblies: Tile backer board.

1.2 REFERENCE STANDARDS

1. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone; 2005 (Reaffirmed 2010).
2. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation; 2010 (Reaffirmed 2016).
3. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2012.
4. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2021.
5. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2022.

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements for submittal procedures.
2. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.
3. Shop Drawings: Indicate tile layout, patterns, colour arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
4. Samples: Mount tile and apply grout on two plywood panels, minimum 460 mm by 460 mm in size illustrating pattern, colour variations, and grout joint size variations.

1.4 MOCK-UPS

1. See Section 01 40 00 - Quality Requirements for additional requirements.
2. Construct tile mock-up where indicated on Drawings, incorporating all components specified for the location.
   - 2.1 Minimum size of mock-up is indicated on Drawings.
   - 2.2 Approved mock-up may remain as part of the Work.
   - 2.3 Demolish mock-up when directed by Consultant, and remove debris from the site.

1.5 DELIVERY, STORAGE, AND HANDLING

1. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.6 SITE CONDITIONS

1. Do not install solvent-based products in an unventilated environment.
2. Maintain ambient and substrate temperature no lower than 10 degrees C during installation of mortar materials.

PART 2 PRODUCTS

2.1 TILE

1. Porcelain Tile, Type Floor/Wall: ANSI A137.1 standard grade.
   - 1.1 Daltile, Slate Attache Collection, Porcelain Tile, or approved equal.
     - 1.1.1 Type 1 (Floor): 610 x 610mm, nominal.
     - 1.1.2 Type 2 (Wall): 305 x 610mm, nominal.
     - 1.1.3 Type 3 (Accent): Format 2x2 Straight-Joint Mosaic, 1/4" thick, Matte Finish (Accent Tile for Floors & Walls)
   - 1.2 Thickness: 9.5 mm.
   - 1.3 Edges: Square.
   - 1.4 Surface Finish: Non-slip.
   - 1.5 Colour(s): To be selected by Consultant. Allow for 2 colours from full range. See Floor Finish Plans & Interior Elevations for locations & layouts

2.2 MATERIALS

1. **Adhesives**:
   - 1.1 Thin Set Mortar: Equal to Laticrete 254 "Platinum" multipurpose thick set mortar with Microban to A.N.S.I 118.4 (interior/exterior) or equal by Mapei.
2. **Water**: potable, free of minerals which are detrimental to mortar and grout mixes.
3. **Control Joint Sealant**: equal to Latasil tile and stone sealant with Alickoba.

2.3 TRIM AND ACCESSORIES

1. Schluter Systems profiles or equal by Benguard Floor Mouldings. See Interior Finishes Schedule for product details.

2.4 GROUTS

1. High Performance Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
   - 1.1 Equal to Laticrete tripoly fortified Portland cement grout fortified with Laticrete 1776 grout Admix Plus – with Microban.
   - 1.2 Applications: Use this type of grout where indicated and where no other type of grout is indicated.
   - 1.3 Use sanded grout for joints 3.2 mm wide and larger; use unsanded grout for joints less than 3.2 mm wide.
   - 1.4 Grout mixtures, colours, additives and preparation will be in accordance with manufacturer's recommendations.
   - 1.5 Portland cement grout.
   - 1.6 Dry curing wall grout
   - 1.7 Colour(s): As selected by Consultant from manufacturer's full line.
   - 1.8 Colour(s): As indicated on Drawings.

PART 3 EXECUTION

3.1 EXAMINATION

1. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.

2. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.
3. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of setting materials to sub-floor surfaces.
4. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.
5. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within the following limits:
   5.1 Moisture Vapour Emission Rate: Not greater than 7.1 kg per 100 sq m per 24 hours, test in accordance with ASTM F1869.
   5.2 Alkalinity (pH): Verify pH range of 5 to 9, test in accordance with ASTM F710.
6. Verify that required floor-mounted utilities are in correct location.

3.2 PREPARATION

1. Protect surrounding work from damage.
2. Vacuum clean surfaces and damp clean.
3. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
4. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

3.3 INSTALLATION - GENERAL

1. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
2. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.
3. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.
4. Form internal angles square and external angles bullnosed.
5. Sound tile after setting. Replace hollow sounding units.
6. Keep control and expansion joints free of mortar, grout, and adhesive.
7. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
8. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.
9. At changes in plane and tile-to-tile control joints, use flexible grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.4 INSTALLATION - FLOORS - MORTAR BED METHODS

1. Mortar Bed Thickness: 16 mm, unless otherwise indicated.

3.5 CLEANING

1. Clean tile and grout surfaces.

3.6 PROTECTION

1. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION

SECTION 09 50 00 - ACOUSTICAL WORK

PART 1 – GENERAL

1.1 RELATED WORK

1. Comply with requirements of Division 1 and Supplementary Conditions.
2. Diffuser and grille design - Division 23
3. Light Fixture types - Division 26
4. Sprinkler Heads - Division 26

1.2 EXISTING CEILINGS

1. Fire-resistance Rated Floor/Ceiling Assembly: Certified by a Canadian certification.

1.3 TEST REPORTS

1. Organization accredited by the Standards Council of Canada.

1.4 SAMPLES

1. On request submit samples of acoustic material and suspension systems for approval.

1.5 ENVIRONMENTAL REQUIREMENTS

1. Permit wet Work to dry before commencement of installation.
2. Maintain uniform minimum temperature of 15□C and humidity of 20 - 40% before and during installation.
3. Store materials in Work area 48 hours prior to installation.

1.6 MAINTENANCE MATERIALS

1. Provide acoustical units amounting to 2% of gross ceiling area for each pattern and type required for project.
2. Extra materials to be from same production run as installed materials.
3. Clearly identify each type of acoustic unit, including colour and texture.
4. Deliver to Consultant, upon completion of the Work of this section.
5. Store where directed by Consultant.

PART 2 - PRODUCTS

2.1 GENERAL

1. Suspension System:
   - 1.1 Intermediate duty main beam classification to ASTM C635.
   - 1.2 Basic Materials: commercial quality cold rolled elected galvanized steel - exposed surfaces chemically cleansed capping prefinished in white baked polyester.
   - 1.3 Standard Non-fire Rated: 2 directional exposed tee-bar grid 24" x 24" (60 x 60 m) 24" x 48" (610R x 1200 mm) Acceptable material: Armstrong Prelude ML 15/16" exposed tee system, Donn DX class A standard grid Balley Lance-lock exposed grid.
   - 1.4 Accessories: provide and/or fabricate all necessary clips, splicers, connectors, screws, or other special accessories in galvanized or coated steel of such strength and design compatible with the system to be installed.
   - 1.5 Hangers: No. 12 GA. galvanized annealed steel wire.

1.6 Tie Wire: No. 18 GA. galvanized annealed steel wire.

1.7 Hold-Down Clips: purpose made to secure acoustic panels to suspension; approved for use in fire rated systems.

1.8 Wall Moulding: standard angle mould - ¾ x ¾

OR

1.9 Stepped Shadow mould ¾ - ½" - ¾".

2. Acoustical Panels: to CAN/CGSB-92.1. ASTM 1268

2.1 Acceptable Products: Armstrong, CGC, CertainTeed.

2.2 Standard, Type: Lay-in.

2.2.1 Size: 24" x 24" (610 x 610 mm), 24" x 48" (610 x 1220mm).

2.2.2 Texture: medium, non-directional, colour - white. Equal to Armstrong [select texture] Cortega (823).

PART 3 - EXECUTION

3.1 INSTALLATION

1. Install all materials in accordance with the manufacturers' recommendations for installation.
2. Before commencing examine the Work of others upon which the Work of this section depends. Do not commence until defects are remedied.
3. Ensure that all installations in the ceiling space have received the final review of the Architect and Structural, Mechanical, and Electrical Consultants before closing in with acoustic ceiling panels. The Contractor may, however, with the Consultant's approval, proceed with perimeter panels and those at ceiling fixtures, detectors, diffusers, and the like.
4. Install ceilings to layout shown and/or as approved by the Consultant. Note location of electrical fixtures, detectors, diffusers, grilles, and the like installed under Divisions 15 and 16.
5. Terminate ceilings at walls, bulkheads, or other ceilings with the perimeter detail indicated on the plans and/or spec sheets.
6. Ensure that all surface or recessed ceiling-mounted electrical fixtures and/or other electrical and mechanical equipment is fully supported (by others) independent of the grid.
7. Unless specified otherwise install all hangers at 4'-0" o.c. (1200 mm) in each direction from building structure over. Where hanger locations conflict with ductwork, piping, or other equipment, introduce the necessary intermediate steel framing to ensure that hangers are supported from building structure.
8. Attach suspension to:
   8.1 Cast-in-place concrete deck by ramset, cinch anchors, or pre-installed purpose made hanger attachments.
   8.2 Metal joists at panel points of joist.
9. Secure grid members at perimeter of ceiling to wall mould with concealed fastenings.
10. Wrap the free end of all hangers and tie wires in a triple pig tail.
11. Install grid assemblies true, rigid, and level within a tolerance not exceeding 1:1000.
12. Identify, in a manner acceptable to the Consultant, those tiles providing access to mechanical and/or electrical equipment.

13. Cut tile must be large enough to lap all edges of grid by 1/4" regardless of the position of the tile within the panels.
14. Wherever possible ensure that no row of tile shows less than 50 percent of its normal face.

3.2 PROTECTION

1. Protect Work of this section and adjacent Work from damage. "Make good" all damaged Work to the satisfaction of the Consultant.

3.3 ADJUSTMENT AND CLEANING

1. Clean soiled or discoloured surfaces of Work on completion.
2. Replace components which are visibly damaged, marred, or unable to be cleaned.

3.4 EXISTING CEILINGS

1. "Make good" all ceilings as noted in room finish schedule. Remove and re-install ceilings as required by the Work of Divisions 23 and 26.

END OF SECTION

SECTION 09 51 00 - ACOUSTICAL CEILINGS

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 05 31 00 - Steel Decking: Placement of special anchors or inserts for suspension system.

1.2 REFERENCE STANDARDS

1. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
2. Shop Drawings: Indicate grid layout and related dimensioning.
3. Product Data: Provide data on suspension system components.

1.4 SITE CONDITIONS

1. Maintain uniform temperature of minimum 16 degrees C, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.1 ACOUSTICAL UNITS

1. **Suspension System**:
   - 1.1 Intermediate duty main beam classification to ASTM C635.
   - 1.2 Basic Materials: commercial quality cold rolled elected galvanized steel - exposed surfaces chemically cleansed capping prefinished in white baked polyester.
   - 1.3 Non-fire Rated: 2 directional exposed tee-bar grid 24" x 24" (60 x 60 m) 24" x 48" (610R x 1200 mm) Acceptable material: Armstrong Prelude ML 15/16" exposed tee system, Donn DX class A standard grid Balley Lance-lock exposed grid, Chicago Metallic snap grid 200
   - 1.4 Accessories: provide and/or fabricate all necessary clips, splicers, connectors, screws, or other special accessories in galvanized or coated steel of such strength and design compatible with the system to be installed.
   - 1.5 Hangers: No. 12 GA. galvanized annealed steel wire.
   - 1.6 Tie Wire: No. 18 GA. galvanized annealed steel wire.
   - 1.7 Stepped Shadow mould: ¾" – ½" – ¾".
2. **Acoustical Panels**: to CAN/CGSB-92.1.
   - 2.1 Standard, Type: drop-in.
   - 2.2 Size: 24" x 24" (610 x 610 mm), 24" x 48" (610 x 1220mm).
   - 2.3 Standard Lay-in (Type 1): equal to Armstrong Cirrus Second Look III 15/16 – fine texture - bevelled
   - 2.4 Size: 24" x 48" x ¾" (1220 x 2440 x 22mm)
   - 2.5 Patterned Type - Tegular (Type 2): equal to Armstrong "Fine fissured" open plan square lay-in
   - 2.6 Size: 24" x 48" x ⅞" (1220 x 2440 x 19mm)

2.7 Borders at corridor ceilings – Standard Lay-in Type 1

2.8 Texture: fine fissured, colour - white equal to Armstrong “Cortega” “Second Look III”.

2.9 Wood Panels

2.10 : quarter-sliced Maple 4’-0 x 4’-0 x ½”, cut hole for light fixture.

PART 3 EXECUTION

3.1 EXAMINATION

1. Verify existing conditions before starting work.
2. Verify that layout of hangers will not interfere with other work.

3.2 INSTALLATION

1. Install all materials in accordance with the manufacturers' recommendations for installation.
2. Install fire-rated ceilings in accordance with the particular U.L.C. design no. required and/or in accordance with the requirements of the authorities having jurisdiction.
3. Before commencing examine the Work of others upon which the Work of this section depends. Do not commence until defects are remedied.
4. Ensure that all installations in the ceiling space have received the final review of the Consultants and Mechanical, and Electrical Consultants before closing in with acoustic ceiling panels. The Contractor may, however, with the Consultant's approval, proceed with perimeter panels and those at ceiling fixtures, detectors, diffusers, and the like.
5. Install ceilings to layout shown and/or as approved by the Consultant. Note location of electrical fixtures, detectors, diffusers, grilles, and the like installed under Divisions 23 and 26.
6. Terminate ceilings at walls, bulkheads, or other ceilings with the perimeter detail indicated on the plans and/or spec sheets.
7. Ensure that all surface or recessed ceiling-mounted electrical fixtures and/or other electrical and mechanical equipment is fully supported (by others) independent of the grid.
8. Unless specified otherwise install all hangers at 4'-0" o.c. (1200 mm) in each direction from building structure over. Where hanger locations conflict with ductwork, piping, or other equipment, introduce the necessary intermediate steel framing to ensure that hangers are supported from building structure.
9. Attach suspension to:
   9.1 Precast concrete deck by ramset, cinch anchors, or dropping hanger wires through slab joints prior to grouting.
10. Secure grid members at perimeter of ceiling to wall mould with concealed fastenings.
11. Wrap the free end of all hangers and tie wires in a triple pigtail.
12. Install grid assemblies true, rigid, and level within a tolerance not exceeding 1:1000.
13. Fit lay in tile in areas subject to uplift drafts (i.e. vestibules) with approved hold-down clips.
14. Identify in a manner acceptable to the Consultant those tiles providing access to mechanical and/or electrical equipment.
15. Cut tile must be large enough to lap all edges of grid by ¼” regardless of the position of the tile within the panels.

16. Wherever possible insure that no row of tile shows less than 50 percent of its normal face.

3.3 ADJUSTMENT AND CLEANING

1. Clean soiled or discoloured surfaces of Work on completion.
2. Replace components, which are visibly damaged, marred, or unable to be cleaned.

END OF SECTION

SECTION 09 65 00 - RESILIENT FLOORING

GENERAL

1.1 RELATED REQUIREMENTS

1. Section 03 35 00 – Concrete Finishing
2. Section 06 10 00 – Rough Carpentry
3. Section 07 92 00 – Joint Sealants

1.2 REFERENCES

1. ASTM International (ASTM)
   - 1.1 ASTM F710-19e1, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
   - 1.2 ASTM F1066-04 (2018), Standard Specification for Vinyl Composition Floor Tile.
   - 1.3 ASTM F1303-04(2021), Standard Specification for Sheet Vinyl Floor Covering with Backing.
   - 1.4 ASTM F1344-21a, Standard Specification for Rubber Floor Tile.
   - 1.5 ASTM F1861-21, Standard Specification for Resilient Wall Base.
   - 1.6 ASTM F1869-16a, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
   - 1.7 ASTM F2034-18, Standard Specification for Sheet Linoleum Floor Covering.
   - 1.8 ASTM F2169-15 (2020), Standard Specification for Resilient Stair Treads.
   - 1.9 ASTM F2170-19a, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
2. Health Canada/Workplace Hazardous Materials Information System (WHMIS)
   - 2.1 SDS - Safety Data Sheets.
3. South Coast Air Quality Management District (SCAQMD), California State
   - 3.1 SCAQMD Rule 1113-16, Architectural Coatings.
   - 3.2 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.
4. ULC Standards
   - 4.1 CAN/ULC 102.2-2018, Standard Method of Test for Surface Burning Characteristics of Floor Coverings and Miscellaneous Materials and Assemblies.

1.3 ACTION SUBMITTALS / INFORMATIONAL SUBMITTALS

1. Submit in accordance with Division 01 requirements.
2. Product data:
   - 2.1 Submit one copy of product data for each type of product specified.
   - 2.2 Submit WHMIS SDS - Safety Data Sheets for flooring adhesive and seam welding. Indicate VOC content.
3. Samples:
   - 3.1 Submit duplicate full-sized samples of luxury vinyl tile planks.
   - 3.2 Submit duplicate 100 x 100 mm pieces of vinyl composite tile material, showing pattern, colour, and finish.

3.3 Submit duplicate manufacturer samples of resilient base, full profile, minimum 50 mm long.

3.4 Submit duplicate manufacturer samples of each type of transition strip, full profile, minimum 50 mm long.

4. Shop Drawings: Indicate:
   4.1 Tile installation orientation.
   4.2 Seam layout.
   4.3 Cut-outs: Show locations where cut-outs are required.
   4.4 Locations of transition strips.

1.4 CLOSEOUT SUBMITTALS

1. Provide manufacturer's printed recommendations for general maintenance, including cleaning instructions and guidelines for use of waxes and other protective coatings and appearance enhancers.

1.5 MAINTENANCE MATERIAL SUBMITTALS

1. Extra Materials:
   1.1 Provide extra materials of resilient sheet flooring and adhesives.
   1.2 Provide 5% of each colour, pattern and type of flooring material required for project for maintenance use.
   1.3 Extra materials one piece and from same production run as installed materials.
   1.4 Deliver to Owner upon completion of the work of this Section.
   1.5 Store where directed by Consultant.

1.6 QUALITY ASSURANCE

1. Regulatory Requirements: Provide products that meet requirements of CAN/ULC S102.2 as applicable for required flame spread ratings; labelled and listed by Underwriters Laboratories of Canada (ULC), or another testing and inspecting agency acceptable to authorities having jurisdiction.
2. Provide preparation, materials, and workmanship in accordance with NFCA requirements as detailed in latest edition of NFCA Floor Covering Reference Manual of Canada, (www.floorcoveringreferencemanual.com) and material manufacturer's written recommendations for conditions of work and warranty periods stated.
3. Qualifications: Provide proof of qualifications when requested by Consultant:
   3.1 Installer shall be Trade Qualified for their specific flooring products by the National Floor Covering Association.
   3.2 Resilient Flooring Installer: employ installer who has minimum five years' documented experience in installation of resilient sheet flooring in accordance with manufacturer's training or certification program:
   3.3 Source Limitations: Obtain each type, colour, and pattern of flooring or accessories specified from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.
4. Mock-Up:
   4.1 Provide mock-up in accordance with Division 01 requirements.

4.2 Construct mock-ups as directed by Consultant to verify selections made under sample Submittals and to demonstrate aesthetic effects, patterns, and qualities of materials, and execution before installing flooring materials and accessories.

4.3 Install in area designated by Consultant, sample flooring installation of at least 10 m2 in area, showing pattern as directed by Consultant, colour matching, and longitudinal and transverse joints for Consultant's review and acceptance.

4.4 The mock-up room shall represent minimum acceptable standard for the Work when identified modifications to mock-up are completed, reviewed, and accepted by the Consultant.

4.5 Accepted mock-up may remain as part of the Work.

1.7 DELIVERY, STORAGE, AND HANDLING

1. Deliver, store and handle materials in accordance with Division 01 requirements.
2. Deliver materials in good conditions to the jobsite in manufacturer's original unopened containers that bear name and brand of manufacturer, project identification, and shipping and handling instructions.
3. Store materials in clean, dry, enclosed space off ground, and protect from weather and extremes of heat and cold. Protect adhesive from freezing. Store flooring, adhesives, and accessories in spaces where they will be installed for at least 48 hours before beginning installation.

1.8 SITE CONDITIONS

1. Maintain air temperature and structural base temperature at flooring installation area above 20°C for 48 hours before, during and 48 hours after installation.

1.9 WARRANTY

1. Provide Manufacturer's Warranty for product to be free from manufacturer defects for period of five years from date of substantial performance.

PRODUCTS

2.1 RESILIENT FLOORING

1. **Vinyl Composition Tile**: to ASTM F1066, and as follows:
   1.1 Class: Two – through pattern tile.
   1.2 Wearing surface: smooth.
   1.3 Thickness: 3.2 mm.
   1.4 Tile size: 305 x 305 mm.
   1.5 Acceptable material:
      1.5.1 Standard Excelon Imperial Texture by Armstrong.
      1.5.2 Colour: Match existing floor finish.

2.2 RESILIENT BASE

1. Resilient Base: to ASTM F1861, and as follows: at Resilent Floors
   1.1 Type: TP – rubber, thermoplastic.
   1.2 Group: One – solid.
   1.3 Thickness: 3.2 mm.
   1.4 Height: 100 mm.

1.5 Length: 36.5 meter rolls.
1.6 Profile: Cove (with toe).
1.7 Acceptable material:
1.7.1 Johnsonite Traditional Wallbase.
1.7.2 Colour: Match existing where scheduled.

2.3 ACCESSORIES

1. Resilient Transition and Edge Strips: Extruded vinyl shapes meeting or exceeding ADA Recommendations for change of level transitions for transition between floors finishes having different levels; acceptable materials as follows:
   1.1 The following list is included to indicate the most commonly used transition and edge strip accessories; additional materials may be required where transition heights differ from the products listed and shall be included as a part of the Contract.
      1.1.1 Transition Strip: Carpet to Resilient Flooring Transition: Johnsonite CTA-XX-A Transitional Moulding between flooring materials having dissimilar thicknesses; colour: selected from manufacturer's standard range.
      1.1.2 Transition Strip: Ceramic Tile to Resilient Flooring Transition: Johnsonite CTA-XX-K Transitional Moulding between flooring materials having dissimilar thicknesses; colour: selected from manufacturer's standard range.
      1.1.3 Transition Strip: Carpet to Concrete Slab Transition: Johnsonite EG-XX-H Transitional Moulding between materials having a thickness to materials having no thickness; colour: selected from manufacturer's standard range.
      1.1.4 Transition Strip: Resilient Flooring to Concrete Slab Transition: Johnsonite SSR-XX-B Transitional Moulding between materials having a thickness to materials having no thickness; colour: selected from manufacturer's standard range.
      1.1.5 Transition Strip: Resilient Flooring to Resilient Flooring Transition: Johnsonite CTA-XX-N Transitional Moulding between materials having the same thickness; colour: selected from manufacturer's standard range.
2. Metal edge strips:
   2.1 Extruded, smooth, anodized aluminum with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.
3. Sub-floor filler and leveller: as recommended by flooring manufacturer for use with their product.
4. Primers and adhesives: of types recommended by resilient flooring manufacturer for specific material on applicable substrate.
5. Sealer and wax: type recommended by resilient flooring material manufacturer for material type and location.

EXECUTION

3.1 EXAMINATION

1. Install flooring and accessories after other finishing operations, including painting, have been completed. Close spaces to traffic during the installation of the flooring. Do not install flooring over concrete slabs until they are sufficiently dry to achieve bond with adhesive, in accordance with manufacturer's recommended bond and moisture tests.

2. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring substrate.
3. Ensure concrete floors have maximum 2.5% moisture content, exhibit normal alkalinity and no carbonization or dusting.
4. Ensure concrete floors are clean, smooth, and flat to plus or minus 3 mm over 3 metres.

3.2 PREPARATION

1. Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.
2. Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with sub-floor filler.
3. Prohibit traffic until filler is cured.
4. Clean substrates of contaminates.
5. Alkalinity and Adhesion Testing: perform tests recommended by manufacturer. Proceed with installation after substrates pass testing.
6. Moisture Testing: perform tests recommended by manufacturer and as follows:
   6.1 Perform anhydrous calcium chloride test ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapour-emission rate of 3 lb of water/1000 sq. ft in 24 hours.
   6.2 Perform relative humidity test using in situ probes, ASTM F2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level measurement.
   6.3 Proceed with installation after substrates pass testing.
7. Prime or seal concrete slab to resilient flooring manufacturer's printed instructions.

3.3 INSTALLATION: GENERAL

1. Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.
2. Provide high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to outside. Do not let contaminated air recirculate through district or whole building air distribution system.
3. Apply adhesive uniformly using recommended trowel in accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.
4. Cut flooring around fixed objects.
5. Continue flooring over areas which will be under built-in furniture.
6. Continue flooring through areas to receive movable type partitions without interrupting floor pattern.
7. Terminate flooring at centreline of door in openings where adjacent floor finish or colour is dissimilar.
8. Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.4 INSTALLATION: SHEET FLOORING

1. Apply adhesive uniformly using recommended trowel. Do not spread more adhesive than can be covered by flooring before initial set takes place. At perimeter of flooring and at seam locations provide minimum 100 mm wide strip of seaming adhesive.
2. Always lay sheets in sequence and follow numerical consecutive order of rolls. Unless otherwise indicated, lay flooring with seams parallel to building lines to produce a minimum number of seams.
3. Double cut sheet joints for tight fit according to manufacturer's recommendations when seams required. Provide additional length on the second and succeeding sheets to allow for proper pattern alignment. Always position flooring using Reverse method.
4. Unless otherwise indicated lay flooring with seams parallel to building lines to produce a minimum number of seams. No end seams unless room length exceeds length of roll.
5. As installation progresses, and after installation, roll flooring with roller of weight recommended by manufacturer to ensure full adhesion and to expel trapped air.
6. Heat-weld seams in accordance with flooring manufacturer's written instructions. At all seams, groove out joints and heat weld seams with suitable welding equipment and welding rod of colour as selected by Consultant, to matching flooring. Trim flush with surface of flooring. Finish flooring in accordance with material manufacturer's written requirements.
7. Adhere sheet flooring goods directly to the substrate using manufacturer’s recommended adhesive, depending on the application. Follow instructions on the adhesive pail or those available from the flooring manufacturer.
8. As installation progresses and after installation is complete, roll resilient sheet flooring in accordance with manufacturer’s instructions.
9. Clean and polish linoleum floor surface to flooring manufacturer's printed instructions.

3.5 INSTALLATION: FLOOR TILE

1. Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half tile width.
2. As installation progresses and after installation is complete, roll resilient tile flooring in accordance with manufacturer’s instructions.

3.6 INSTALLATION: RESILIENT BASE

1. Lay out base to keep number of joints at minimum.
2. Clean substrate and prime with one coat of adhesive.
3. Apply adhesive to back of base.
4. Set base against wall and floor surfaces tightly by using 3 kg hand roller.
5. Install straight and level to variation of 1:1000.
6. Scribe and fit to door frames and other obstructions. Use pre-moulded end pieces at flush door frames.
7. Cope internal corners. Use pre-moulded corner units for right angle external corners. Use formed straight base material for external corners of other angles.

8. Use toeless type base where floor finish will be carpet, coved type elsewhere.
9. Install toeless type base before installation of carpet on floors.
10. Heat weld base in accordance with manufacturer's printed instructions.

3.7 APPLICATION: STAIRS

1. Install cove filler strips at joints between risers and treads.
2. Scribe each tread and riser to ensure correct fit.
3. Install stair treads and risers in one-piece full width of stairs, with top of riser scribed against next nosing. Apply adhesive evenly to back of coverings at rate sufficient to bond and to completely fill gaps between step treads and risers, particularly at junctions.
4. Set firmly in position tight to nosing and set with hand roller.
5. Install tactile warning strips at stair landings where shown, width of stair x 900 mm deep, set back from front edge of stair one tread depth.

3.8 INSTALLATION: ACCESSORIES

1. Install transition strips with manufacturer’s recommended adhesive at unprotected and exposed edges where flooring terminates.

3.9 CLEANING

1. Progress Cleaning: clean in accordance with Division 01 requirements. Leave Work area clean at end of each day.
2. Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment. Perform cleaning after installation to remove construction and accumulated environmental dirt.
3. Manage and dispose of demolition and construction waste materials in accordance with Division 01 requirements.

3.10 PROTECTION

1. Protect new floors from time of final set of adhesive until final inspection.
2. Prohibit traffic on floor for 48 hours after installation.

END OF SECTION

SECTION 09 68 13 - TILE CARPETING

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 01 74 19 - Construction Waste Management and Disposal: Reclamation/Recycling of removed carpet tile.
2. Section 03 30 00 - Cast-in-Place Concrete: Restrictions on curing compounds for concrete slabs and floors.
3. Section 09 05 61 - Common Work Results for Flooring Preparation: Independent agency testing of concrete slabs, removal of existing floor coverings, cleaning, and preparation.

1.2 PRICE AND PAYMENT PROCEDURES

1. Section 01 21 00 - Allowances: Cash allowances affecting this section.

1.3 REFERENCE STANDARDS

1. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2021.
2. NFCA (FCRM) - National Floor Covering Association, Floor Covering Reference Manual; Current Edition.

1.4 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
2. Shop Drawings: Indicate layout of joints, direction of carpet pile, and location of edge moldings.

1.5 QUALITY ASSURANCE

1. Installation Requirements: Install tile carpeting in accordance with written requirements of NFCA (FCRM), and manufacturer's written instructions.
2. Installer Qualifications: Company specializing in installing carpet tile with minimum three years documented experience and approved by carpet tile manufacturer.

1.6 SITE CONDITIONS

1. Store materials in area of installation for minimum period of 24 hours prior to installation.
2. Protect salvaged material from damage for reinstallation.

PART 2 PRODUCTS

2.1 MATERIALS

1. **Carpet Tile**: Existing tile to be removed and salvaged for reinstallation.

2.2 ACCESSORIES

1. Sub-Floor Filler: White premix latex; type recommended by flooring material manufacturer.
2. Carpet Tile Adhesive: Recommended by carpet tile manufacturer; releasable type.
3. Carpet Protection: Non-staining heavy-duty Kraft paper, or 6 mil (0.15 mm) thick poly film.
4. Transition Strips: by Schluter Schiene stainless steel appropriate for the location

5. Rubber Base: To match existing. Similar to Johnsonite/Tarkett, Traditional Wall Base, 4" high w/ Toe

PART 3 EXECUTION

3.1 EXAMINATION

1. Verify that sub-floor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.
2. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive carpet tile.
3. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.
4. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for flooring installation by testing for moisture and pH.
   - 4.1 Test in accordance with Section 09 05 61.
   - 4.2 Test in accordance with ASTM F710.
   - 4.3 Conduct tests by an independent testing agency acceptable to Owner.
     - 4.3.1 Acceptable Testing Agencies:
       - 4.3.1.1 Other testing agency approved by Owner.
       - 4.3.1.2 Substitutions: Not permitted.
   - 4.4 Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.
5. Verify that required floor-mounted utilities are in correct location.

3.2 PREPARATION

1. Remove existing floor finish.
2. Prepare floor substrates for installation of flooring in accordance with Section 09 05 61.
3. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
4. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.
5. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.
6. Vacuum clean substrate.

3.3 INSTALLATION

1. Starting installation constitutes acceptance of sub-floor conditions.
2. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
3. Lay carpet tile in square pattern, with pile direction parallel to next unit, set parallel to building lines.
4. Locate change of colour or pattern between rooms under door centerline.
5. Fully adhere carpet tile to substrate.
6. Adhere carpet tile to substrate along centerline of rooms, at perimeter of rooms, where tiles are cut, and at 4.5 m intervals throughout rooms. Lay remainder of tile dry over substrate.

7. Trim carpet tile neatly at walls and around interruptions.
8. Complete installation of edge strips, concealing exposed edges.

3.4 CLEANING

1. Remove excess adhesive without damage, from floor, base, and wall surfaces.
2. Clean and vacuum carpet surfaces.

END OF SECTION

SECTION 09 91 23 - INTERIOR PAINTING

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 05 50 00 - Metal Fabrications: Shop-primed items.
2. Section 09 91 13 - Exterior Painting.
3. Section 09 96 00 - High-Performance Coatings.

1.2 REFERENCE STANDARDS

1. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials; 2020.

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements for submittal procedures.
2. Samples: Submit paper "draw down" samples, 216 by 279 mm in size, illustrating range of colours available for each finishing product specified.
   2.1 Where sheen is specified, submit samples in only that sheen.
   2.2 Where sheen is not specified, submit each colour in each sheen available.

1.4 QUALITY ASSURANCE

1. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.
2. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 5 years experience and approved by manufacturer.
3. **Standard of Acceptance**:
4. Walls: No defects visible from a distance of 1000 mm at 90° to surface.
   4.1 Ceilings: No defects visible from floor at 45° to surface when viewed using final lighting source.
   4.2 Final coat to exhibit uniformity of sheen across full surface area

1.5 DELIVERY, STORAGE, AND HANDLING

1. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
2. **Indicate on containers or wrappings**:
   2.1 Manufacturer’s name and address.
   2.2 Type of paint.
   2.3 Compliance with applicable standard.
   2.4 Colour number in accordance with established colour schedule.
3. Remove damaged, opened and rejected materials from site.
4. Provide and maintain dry, temperature controlled, secure storage.
5. Observe manufacturer’s recommendations for storage and handling.
6. Store materials and supplies away from heat generating devices.
7. Store materials and equipment in a well ventilated area with a temperature range of 7° to 30°C.

8. Store temperature-sensitive products above minimum temperature as recommended by manufacturer
9. Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Consultant. After completion of operations, return areas to clean condition to approval of Consultant.
10. Remove only in quantities required for same day use.
11. **Fire Safety Requirements**:
    - 11.1 Provide minimum one 9 kg. Type ABC dry chemical fire extinguisher adjacent to storage area
    - 11.2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
    - 11.3 Handle, store use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

1.6 SITE CONDITIONS

1. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
2. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
3. Do not apply materials when relative humidity exceeds 85 percent; at temperatures less than 3 degrees C above the dew point; or to damp or wet surfaces.
4. Minimum Application Temperature for Paints: 10 degrees C for interiors unless required otherwise by manufacturer's instructions.
5. Provide lighting level of 860 lx measured mid-height at substrate surface.
6. **Safety**: Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
7. **Ventilation**:
    - 7.1 Consultant will arrange for ventilation system to be operated during application of paint. Ventilate area of Work as directed by Consultant by use of approved portable supply and exhaust fans.
    - 7.2 Provide continuous ventilation during and after application of paint. Run ventilation system 24 hours per day during installation; provide continuous ventilation for seven days after completion of application of paint.
    - 7.3 Apply paint finishes only when temperature at location of installation can be satisfactorily maintained within manufacturer’s recommendations.
    - 7.4 Substrate and ambient temperature must be within limits prescribed and by manufacturer to approval of Consultant.
    - 7.5 Maintain minimum substrate and ambient air temperature of 5°C for Alkyd and 7°C for latex paints. Maximum relative humidity 85%. Maintain supplemental heating until paint has cured sufficiently.
    - 7.6 Provide temporary heating where permanent facilities are not available to maintain minimum recommended temperatures?

7.7 Apply paint finish only in areas where dust is no longer being generated by related construction operations such that airborne particles will not affect the quality of the finished surface.

7.8 Apply paint only when surface to be painted is dry, properly cured and adequately prepared.

7.9 Provide minimum 270 lx on surfaces to be painted.

1.7 EXTRA MATERIALS

1. Submit one four litre can of each type and colour of [primer] [finish coating]. Identify colour and paint type in relation to established colour schedule and finish formula.
2. Deliver to site, inform Consultant and store where directed.

1.8 WASTE MANAGEMENT

1. Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.
2. Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal
3. Set aside and protect the following surplus and uncontaminated waste finish materials: Deliver to or arrange collection by [employees], [individuals], [organizations] for verifiable re-use or re-manufacturing.
4. Close and seal tightly all partly used sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.
5. Do not dispose of paints or solvents by pouring on the ground, Place in designated containers and ensure proper disposal.
6. Solvent based paints, wood preservatives, stains and finishes, which cannot be reused, must be treated as hazardous waste and disposed of in an appropriate manner in accordance with hazardous wasted regulations. Empty paint cans are to be dry prior to disposal or recycling (where available).
7. Where paint recycling is available, collect all waste paint by type and provide for delivery to recycling or collection facility.
8. Paints, stains, and finishes are regarded as hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from the Provincial Ministries of Environment and Regional levels of Government.

PART 2 PRODUCTS

2.1 PAINTS AND FINISHES - GENERAL

1. **Qualified Products**:
2. Paint: To match existing. Sherwin-Williams, Para, ICI (formerly Glidden and Devoe, CIL), Pittsburg, Benjamin Moore. Final coat tints to include “Low” to “0” VOC’s. Provide data sheets prior to commencing on site.
   2.1 Exposed pre-cast concrete ceilings: spray a 20-25 mil thickness of Niagara Protective Coatings “Liquistone” # 50 in a 2 coat application
3. Paints and Finishes: Ready mixed, unless intended to be a site-catalyzed paint.

3.1 Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.

3.2 Supply each paint material in quantity required to complete entire project's work from a single production run.

3.3 Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

2.2 COLOURS

1. Colour to match existing.
2. Perform all colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials allowed only with Consultant's written permission.
3. Tint second coat in a three coat system slightly lighter colour than top coat to show visible difference between coats.

PART 3 EXECUTION

3.1 EXAMINATION

1. Do not begin application of paints and finishes until substrates have been properly prepared.
2. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
3. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.
4. If substrate preparation is the responsibility of another installer, notify Consultant of unsatisfactory preparation before proceeding.
5. Test shop-applied primer for compatibility with subsequent cover materials.
6. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
   6.1 Gypsum Wallboard: 12 percent.
   6.2 Plaster and Stucco: 12 percent.
   6.3 Masonry, Concrete, and Concrete Masonry Units: 12 percent.
   6.4 Interior Wood: 15 percent, measured in accordance with ASTM D4442.
   6.5 Concrete Floors and Traffic Surfaces: 8 percent.

3.2 PREPARATION

1. Remove electrical cover plates, light fixtures, surface hardware on doors, door stops, bath accessories. Reinstall when painting is completed.
2. As painting operations progress, place "WET PAINT" signs in occupied areas to approval of Consultant.
3. Cut out as required and fill depressions, scratches, cracks, abrasions, etc... flushing patches with adjoining surfaces and allowing to dry before sealing and priming.
4. Fill or remove drywall imperfections, which become visible after prime coat has been applied. Make flush with adjoining surfaces, and spot-primed.
5. Clean all paintable surfaces and floors of loose dirt, dust or grit prior to application of materials.
6. Solvent-clean metal surfaces to remove grease and oil.

7. Fill with wood paste filler nail holes, cracks, etc... in woodwork after first coat specified has been applied.
8. If applied prime coat does not dry to uniform sheen over entire surface, spot-prime areas indicating suction before applying finish.
9. Spot-prime coat with shop coat caused by cleaning, repairing, erection, etc...
10. Tint filler to match stain for stained woodwork.
11. Wash galvanized metal surfaces thoroughly with mineral spirits followed by one coat of purpose made etch type primer.
12. Ensure that humidity level and concrete floor cure are acceptable to permit application of Dry-Fall paint at exposed structure and steel deck areas.
13. Preparation of existing surfaces may include but not be confined to cleaning, filling, sanding, scraping, wire brushing, acid etching and sand blasting.

3.3 APPLICATION

1. **General**:
   - 1.1 Install each material in strict accordance with the manufacturer's printed instructions.
   - 1.2 Workmanship to be of the very best; materials uniformly spread and flowed on without runs, sags or evidence of applicator marks.
   - 1.3 Employ only skilled mechanics to do finish Work.
   - 1.4 Unless otherwise indicated in the schedule, or in alteration Work where they have been previously painted, no painter's finishes are required on acoustic tile ceilings, concrete floors, exterior concrete, exterior brick, rubber base, ceramic tile, copper, bronze, chromium plate, nickel, stainless steel, anodized or lacquered aluminum monel metal, factory-finished metals, cork.
   - 1.5 Paint metal access and electrical panels with doors open and leave until dry.
   - 1.6 Paint both sides and edges of plywood backboards for mechanical/electrical equipment before installation.
   - 1.7 Fill all voids and pinholes before application of final coat(s).
2. **Finishing**:
   - 2.1 Sand gloss enamel, varnish and undercoater, prior to applying succeeding coats. Sand lightly with 00 sandpaper between coats on wood and metal.
   - 2.2 Tint undercoats of paint or enamel to approximate finish colour, allowing enough colour variation for guide coat. Allow coats to dry thoroughly before applying succeeding coats.
   - 2.3 Four Door Edges: Finished similarly to door face after fitting.
   - 2.4 Paint paintable surfaces reasonably visible through grilles and openings in ducts, convectors, walls, or ceilings, or through grilles and baffles.
   - 2.5 Finish closets same as adjoining rooms unless otherwise specified.
   - 2.6 Exposed wiring, piping, ductwork, and insulation shall be painted.
   - 2.7 Prime caulking with oil paint before application of final finish.
3. **Gloss Values**:
   - 3.1 Gloss value shall be in accordance with ASTM D523 tentative method of test for 60 Deg. Specular gloss.
   - 3.2 Gloss values shall be as follows:

Flat	Less than 10
Eggshell	10 to 35
Semi-gloss	35 to 60
Gloss	60 to 80
High Gloss	80 to 90

3.4 INTERIOR FINISHES

1. **General**:
   1.1 Paint to match existing
2. **Metal**:
   2.1 One coat Zinc Chromate primer (unless shop primed by others).
   2.2 Two coats oil based enamel.
   Note: Galvanized metal to receive one coat of galvanized iron primer.
3. **Masonry Block**:
   3.1 One coat tinted block filler. Spray applied, then rolled.
   3.2 Two coats of acrylic latex, Eggshell.
4. **Drywall**:
   4.1 One coat latex sealer.
   4.2 Two coats acrylic latex paint, eggshell.
5. **Concrete Floors**:
   5.1 Equal to Sherwin-Williams armor-seal tread-flex water-based single component acrylic coating.
   5.2 First coat application 1.5-2.0 mils primer - second coat 1.5-2.0 finish- semi-gloss.
   5.3 Remove sealer, fill bug hole, voids, sweep clean.
   5.4 Entire installation to manufacturers latest printed instruction. Including adequate curing time, moisture content and temperature.
6. **Glazed Coated Areas**: Doors, door frames, grilles, convectors, trims and the like in glazed coated areas are to be painted as specified.
7. **Painting Above New Open Grid or Louvered Luminous Ceiling or Luminous Interior Soffit Areas**: All structure, pipes, ducts and the like, above the level of the lamps of the luminous ceiling shall receive one spray coat of flat back acrylic latex paint. Portions between the lamps and the ceiling shall receive two coats of white alkyd paint.

3.5 CLEANING

1. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.
2. On completion, touch up and refinish minor defective Work. Refinish entire surfaces where finish is damaged or not acceptable. Remove spills or spots from surfaces of others and be totally responsible for damage to same.

3.6 PROTECTION

1. Protect finishes until completion of project.

2. Touch-up damaged finishes after Substantial Performance.

END OF SECTION

SECTION 10 28 00 - MISCELLANEOUS ACCESSORIES

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 04 20 00 Masonry
2. Section 10 21 13.13 - Metal Toilet Compartments.
3. Section 10 21 13.16 - Plastic-Laminate-Clad Toilet Compartments.
4. Section 10 21 13.17 - Phenolic Toilet Compartments.
5. Section 10 21 13.19 - Plastic Toilet Compartments.

1.2 REFERENCE STANDARDS

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements for submittal procedures.
2. **Shop Drawings**:
   - 2.1 Submit drawings and/or fixture cuts, which clearly show the materials being supplied including dimensions, clearances, anchorages and attachments.
   - 2.2 Include Manufacturer's installation instructions

PART 2 PRODUCTS

2.1 MATERIALS

1. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
2. **Washroom Accessories**:
   - 2.1 General: Specified manufacturer's catalogue references establish minimum acceptable standards for Work of this section. Accessories listed below refer to the design, size, finish and basic quality of products manufactured by Bobrick.
   - 2.2 Approved Alternate Manufacturers: ASI Group Canada, Twin-Cee Ltd., Frost Products Ltd., and Bradley Corporation.
   - 2.3 Framed Mirror:
     - 2.3.1 Mirrors must be max 1000 mm AFF and not be inclined/tilted. Full length mirrors must start max 175 mm AFF

     Mounting: Flat mounted, Vandalproof
     Frame: Stainless Steel
   - 2.4 Toilet Tissue Dispenser:
     Location: At each toilet
     Mounting: Recessed
     Finish: Stainless Steel, No. 4 finish
     Type: Bobrick Classic Series Multi-roll toilet dispenser, reserve roll, B3888
   - 2.5 Sanitary Napkin Disposal:
     Finish: 18-8 Type 304, 22GA satin finish stainless steel with 313/16 x 8" L shelf.
     Mounting: Surface.
     Size: 7⅞" w x 11" h x 33/16" d.

Locations: 1 at each wc at public washrooms.

2.6 Grab Bars: 1¼" (32mm) Φ 18GA type – 304 stainless steel tubing c/w mandrel bends. 4" (100mm) bends and 2⅝" (65mm) No. 14 screws capable of supporting a 2.3 Kn pull.
Location: see typical plan for location
Mounting: surface
Lengths: see D-sheet

2.7 Heavy Duty Paper Towel Dispenser:
Location: At public washroom
Mounting: Surface
Finish: Stainless steel.

2.8 Soap Dispenser: One heavy duty soap dispenser/lather at each lav.
Finish: Stainless steel.

2.9 Waste Paper Receptacle: One wall mounted waste paper receptacle at lav.
Finish: Stainless steel.

3. **Identifying Devices**:
   3.1 Provide sign "Washroom"
   3.2 Purchase from Hardware Allowance. Install under this contract.

4. **Corner Guards**:
   4.1 Equal to C/S surface mounted corner guards model SM-20 (¼", 6.35mm radius) as manufactured by Construction Specialties, Mississauga.
   4.2 Manufacture from c/w Acrovyn vinyl/acrylic extrusions in nominal wall thickness of .078" (1.98mm). Include end closers.
   Finish: Stainless steel - adhesion strips.

PART 3 EXECUTION

3.1 EXAMINATION

1. Verify existing conditions before starting work.
2. Verify exact location of accessories for installation.
3. For electrically-operated accessories, verify that electrical power connections are ready and in the correct locations.
4. Verify that site measurements are as indicated on Drawings.

3.2 PREPARATION

1. Deliver inserts and rough-in frames to site for timely installation.
2. Provide templates and rough-in measurements as required.

3.3 INSTALLATION

1. Install accessories in accordance with manufacturers' instructions in locations indicated on Drawings.
2. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.
   2.1 Grab Bars: As indicated on Drawings.
      2.1.1 At stud partitions: Secure grab bar mounting fasteners to steel or wood reinforcing, purposely built into the partition.
   2.2 Mirrors: measured from floor to bottom of mirrored surface.

2.3 Electric Hand Dryers: Measured from floor to bottom of nozzle:
- 2.3.1 Men: 1110 mm.
- 2.3.2 Women: 1060 mm.
- 2.3.3 Teenager: 1035 mm.
- 2.3.4 Child: 810 mm.
- 2.3.5 Handicap: 910 mm.

2.4 Other Accessories: As indicated on Drawings.

2.5 Install Work plumb, level, straight, tight and secure to mounting surfaces.

2.6 Use only fasteners that match material and finish of fastened Work where exposed to view

2.7 Use tamper proof screws or bolts to fasteners

3.4 PROTECTION

1. Protect installed accessories from damage due to subsequent construction operations.

END OF SECTION

INTERIOR FINISHES SCHEDULE/

NRPS D6 Renovation
501 Fielding Avenue, Port Colborne

for Niagara Region

Project No 24-12

Sept. 2024

IFC

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1 Contractor to read this schedule in conjunction with the Drawings.

2 The following schedule excludes mechanical and electrical: see Drawings for information on those trades.

3 All interior finishes to comply with the requirements of the building code, latest revision, and authorities having jurisdiction.

4 Contractor to refer to **Interior Finishes Schedule** for all finish specifications; and **Room by Room Interior Finishes Schedule**, and all **Drawings** issued for construction, to determine locations & layouts for finishes.

5 Apply scheduled finishes to all applicable surfaces in the room in which they are indicated. Wall surfaces not shown in elevation are still to receive scheduled finishes.

6 Contractor to refer to **Specification** for installation instructions. All interior finishes to be installed as per manufacturer's written instructions, so as to obtain full warranty available. General Contractor required to warranty all materials supplied and installed.

7 Samples of all finish materials to be submitted to the Designer for approval, prior to installation. No substitutions for any specified finishes will be permitted unless approved in writing by the Designer.

8 All new partitions in areas with false ceilings to be carried up to the underside of firm structure above. Plaster or GWB is to extend 200mm above ceilings, except as required for soundproofing and firestopping. GWB above ceiling line to have taped joints. No filling, sanding, or painting required.

9 Carry walls and partitions indicated as rated separations up to the underside of deck above and seal to it with filler material approved for maintenance of rating. GWB joints of stud partitions should be taped and filled, but not finished in ceiling spaces.

10 Fire-rated bulkheads to be 16mm fire-rated GWB on each side of steel studs.

11 Use shadow mold trim detail at all suspended ceiling-wall and ceiling-bulkhead intersections, UNO.

12 Install sealant between all dissimilar materials, at conditions like, but not limited to door frames to floor; GWB to concrete block, etc.

13 Refer to **Specification, Millwork Detail Drawings** and **Interior Finishes Schedule** for all plastic laminate specifications, relating to millwork construction, and assignment of plastic laminate selections.

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14 Install all floor finishes in pattern(s) & layouts shown on Floor Finish drawings.

15 Floor finishes shall extend under all radiators / convectors, new millwork units, and plumbing fixtures - typical, unless noted otherwise (UNO).

16 Contractor to refer to **Room by Room Interior Finishes Schedule** for coordination between floor finish and wall base finish specifications.

17 All wall bases 100mm high, UNO.

18 Change in flooring material is to be centered under door in closed position - typical, UNO.

19 Contractor to ensure smooth and level transitions between different floor finishes. Where a change of floor material thickness occurs, provide feathered floor as required.

20 Install edge strips at unprotected or exposed edges, where floor finish terminates.

21 Contractor is responsible for the protection of all existing and new floor finishes upon completion of installation, as required for the duration of construction. Refer to **Specification** for protection requirements.

22 *Reserved*

23 *Reserved*

24 *Reserved*

25 *Reserved*

26 *Reserved*

27 *Reserved*

28 *Reserved*

29 *Reserved*

30 *Reserved*

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CERAMIC TILE (CT)/

	TYPE	Description		Installation
	**CT 1** Floor Field	MFR - Style - Colour - Code - Finish - Size -	Daltile Slate Attache Meta Dark Gray SA07 Matte - Stepwise 24 x 24 in.	Install in Grid Pattern - Typ. Install w/ Tile Grout GRT 1. Refer to Floor Finishes Plan.
	**CT 2** Wall Field	MFR - Style - Colour - Code - Finish - Size -	Daltile Slate Attache Meta Light Gray SA06 Matte 12 x 24 in.	Install Stack Bond - Typ. Align joints w/ floor tile joints. Install w/ Tile Grout GRT 2. Refer to Interior Elevations.
	**CT 3** Wall Accent	MFR - Style - Colour - Code - Finish - Size -	Daltile Slate Attache Meta Dark Gray SA07 Matte 2 x 2 in. Mosaic	Accent Band shown shaded. Install Stack Bond - Typ. Install w/ Tile Grout GRT 1. Refer to Interior Elevations.
RESERVED				
RESERVED				
RESERVED				

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MISCELLANEOUS FINISHES /

	TYPE	Description		Installation
	**ET 1** Edge Trim	MFR - Style - Mat'l. - Finish - Size -	Schluter Systems Schluter-Jolly Stainless Steel V2A Brushed SST To suit CT thickness	Install at Ceramic Tile wall base - typ. Refer to Plans & Int. Elevs. for locations.
	GRT 1 Tile Grout	MFR - Colour - Code -	To Match: Mapei Iron 107	Install at CT 1 & CT 3 Refer to Plans & Interior Elevations for locations.
	GRT 2 Tile Grout	MFR - Colour - Code -	To Match: Mapei Alabaster 01	Install at CT 2 Refer to Interior Elevations for locations.
RESERVED				
RESERVED				
RESERVED				

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PLASTIC LAMINATE (PL)/

	TYPE	Description		Installation
	PL 1	MFR - Style - Colour- Code - Finish -	Wilsonart HPL, Wood Coll. Landmark Wood 7981K-12 Softgrain Fin. w/ AEON Scratch Resist	Typ. Gables & Face Panel (Office Side). Refer to Interior Elevations.
	PL 2	MFR - Style - Colour- Code - Finish -	Wilsonart HPL VDL, Woodgrain Staining PreCurated Walnut Navy YS019K-05 Timbergrain Fin.	Typ. Face Panel (Lobby Side). Refer to Interior Elevations.
	PL 3	MFR - Style - Colour- Code - Finish -	Wilsonart, Decorative Metal Alumasteel 6277-00-419 Softgrain Fin. w/	Typ. Kickplate. Refer to Interior Elevations.
RESERVED				
RESERVED				
RESERVED				

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SOLID SURFACING (SS)/

	TYPE	Description		Installation
	SS 1	MFR - Style - Colour - Code -	Wilsonart Solid Surface Beige Travertine 9236SS	Typical Countertop. Refer to Interior Elevations.
RESERVED				
RESERVED				
RESERVED				
RESERVED				
RESERVED				

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VINYL COMPOSITE TILE (VCT)/

	TYPE	Description		Installation
 No Image Available	VCT 1 To Match Existing	MFR - Style - Colour - Size -	Similar to: Armstrong Standard Excelon Match Existing 12 x 12 in.	Typical at Storage / IT Room. Match existing floor finish. Refer to Plans for location.
RESERVED				
RESERVED				
RESERVED				
RESERVED				
RESERVED				

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WALL BASE (WB)/

	TYPE	Description		Installation
	**WB 1**	MFR - Style - Colour - Code - Finish - Height -	Daltile Slate Attache Meta Dark Gray SA07 Matte - Stepwise 4 in.	Typical wall base at Vestibule and Lobby. Cut from full-sized **CT 1** tile. Install edge trim **ET 1** - typ. Refer to Interior Elevations.
	**WB 2** To Match Existing	MFR - Style - Colour - Height -	Similar to: Johnsonite/Tarkett Traditional Wall Base Match Existing Match Existing	Typical wall base, UNO. Image for profile/style only. Match existing wall base. Refer to Interior Elevations.
	**WB 3** To Match Existing	MFR - Style - Colour - Height -	Similar to: Johnsonite/Tarkett Traditional Wall Base Match Existing Match Existing	Typical wall base, UNO. Image for profile/style only. Match existing wall base. Refer to Interior Elevations.
RESERVED				
RESERVED				
RESERVED				

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GENERAL PAINTING NOTES/

NRPS D6 Renovation, for Niagara Region

PAINT SHEEN/ Typical, unless noted otherwise (UNO)

Ceiling/	Walls & Bulkheads/	H.M. Doors & Trim/	Metal Handrails/
Flat	Eggshell	Semi-Gloss	Semi-Gloss

1 Contractor to refer to **Room by Room Interior Finishes Schedule** and **Door and Frame Paint Assignment** for all paint, stain and coating finish assignments, UNO.

2 Contractor to refer to **Specification** for installation instructions. All paint, stain, and coating finishes to be installed as per manufacturer's written instructions, so as to obtain full product warranty available. General Contractor required to warranty all materials supplied and installed.

3 All paintable surfaces in all rooms indicated in this schedule shall receive paint (or plastic coating, or wall vinyl, or wallpaper, where specifically indicated), UNO.

4 Samples of all paint, stain and coating finishes to be submitted to the Designer for approval prior to installation. No substitutions for any specified finishes will be permitted unless approved in writing by the Designer.

5 Contractor to properly prepare all new and existing surfaces scheduled to receive new paint finishes, as per **Specification.**

6 All new and existing GWB ceilings to receive new paint finish **PT 1** as specified, UNO.

7 All new and existing exposed deck, joists, ductwork, conduit and the like, at ceilings to receive new paint finish to match ceiling paint colour on which located as specified, UNO.

8 All new and existing GWB partitions, columns, interior core, and perimeter walls to receive new paint finish **PT 2** as specified, UNO.

9 Contractor to site match existing paint colours, where scheduled.

10 All mechanical louvres, conduit and the like at walls to receive new paint finish to match wall paint colour on which located as specified, UNO.

11 Wood components of new Vest. Bench to receive stain finish **ST 1**; and steel components to receive paint finish **PT 6** as specified, UNO.

12 Contractor to refer to **Room by Room Interior Finishes Schedule** and **Plans** for accent paints locations, where identified.

13 *Reserved*

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NRPS D6 Renovation, for Niagara Region

PAINT (PT)/

	TYPE	Description		Installation
	PT 1 Ceiling	MFR - Colour - Code - Finish -	Benjamin Moore Alabaster OC-129 Flat	Refer to **General Paint Notes** for Sheen. Refer to **Room by Room Int. Fin. Sched., Door + Frame Paint Assignment & RCP Dwgs** for locations.
	PT 2 Wall	MFR - Colour - Code - Finish -	Benjamin Moore Classic Gray OC-23 Eggshell	Refer to **General Paint Notes** for Sheen. Refer to **Room by Room Int. Fin. Sched., Door + Frame Paint Assignment & RCP Dwgs** for locations.
No Image Available	**PT 3** Wall To Match Existing	MFR - Colour - Finish -	Benjamin Moore Match Existing Match Existing	Refer to **General Paint Notes** for Sheen. Refer to **Room by Room Interior Finishes Schedule** for locations.
No Image Available	**PT 4** Wall To Match Existing	MFR - Colour - Finish -	Benjamin Moore Match Existing Match Existing	Refer to **General Paint Notes** for Sheen. Refer to **Room by Room Interior Finishes Schedule** for locations.
	PT 5 Door	MFR - Colour - Code - Finish -	Benjamin Moore Flagstone CC-516 Semi-Gloss	Refer to **General Paint Notes** for Sheen. Refer to **Room by Room Interior Finishes Schedule** and **Door + Frame Paint Assignment** for locations.
	PT 6 Door Frame & Steel Bench Frame	MFR - Colour - Code - Finish -	Benjamin Moore Gray 2121-10 Semi-Gloss	Refer to **General Paint Notes** for Sheen. Refer to **Room by Room Interior Finishes Schedule** and **Door + Frame Paint Assignment** for locations.

STAIN (ST) + COATINGS (FC)/

	TYPE	Description		Installation
	**ST 1** To match PL	MFR - Style - Colour- Code - Finish -	Wilsonart HPL, Wood Coll. Landmark Wood 7981K-12 Satin	Stain to match PL 1 - typ. Wood components at Vestibule Bench. Refer to Interior Elevations.
RESERVED				
RESERVED				
RESERVED				
RESERVED				
RESERVED				

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DOOR + FRAME PAINT ASSIGNMENT/

NRPS D6 Renovation, for Niagara Region

NOTES/	
1	At Interior Doors - Apply paint colours scheduled below.
2	At Exterior Door & Interior Slider - Bronze Fin. by MFR. to match exist'g door & window finish - typ.
3	*Reserved*
4	*Reserved*
5	*Reserved*
6	*Reserved*
7	*Reserved*
8	*Reserved*

DOORS/

No.	LOCATION	SIDE/FACE	DOOR	FRAME
D01	Slider - Vestibule to Lobby	Both	Bronze	Bronze
D02	Main Entrance	Both	Bronze	Bronze
D03	Lobby to General Office	Both	PT 5	PT 6
D04	Criminal Investigation to Storage / IT Room	Exterior	PT 4 Match Ex. Wall	PT 4 Match Ex. Wall
		Interior	PT 3 Match Ex. Wall	PT 3 Match Ex. Wall
D05	Lobby to Universal WR	Both	PT 5	PT 6
D06	Lobby to Storage Closet	Exterior	PT 2	PT 2
		Interior	PT 2	PT 2

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ROOM BY ROOM INTERIOR FINISHES SCHEDULE/

NRPS D6 Renovations, Port Colborne
for Niagara Region

24-12
Sep-24

REMARKS LEGEND: **Refer to General Notes to Interior Finishes Schedule**

Refer to Interior Finishes Schedule - Door + Frame Paint Assignment - DFPA

1. Refer to Finish Selections - Ceramic Tile & Miscellaneous Finishes for Tile Gout GRT colours & assignments.
2. Wall Base **WB 1** - 4" high cut from full-sized tile **CT 1**. Align joints w/ floor tile joints. Install edge trim **ET 1** - typ.
3. New Vestibule Bench - Wood components receive stain fin. **ST 1**, and steel components receive paint fin. **PT 6**
4. New Service Desk Millwork - Refer to Interior Elevations & Details for P.Lam assignments.
5. Install ceramic wall tile **CT 2** - typ. Align joints w/ floor tile joints. Refer to Int. Elevs. for **CT 3** accent band.
6. Install new VCT to match existing floor finish.
7. Install new wall base to match existing, UNO.
8. Patch paint at disturbed. Match existing paint colour, UNO.
9. Install salvaged carpet tile to make good floor finish. - typ.
10. Paint new GWB bulkhead to match existing wall paint colour.
11. *Reserved.*
12. *Reserved.*

ROOM		FLOOR					WALL								CEILING				DOOR		MILLWORK		REMARKS
No.	NAME	FLOOR	BASE				NORTH		EAST		SOUTH		WEST						DOOR	FRAME	COUNTER	BODIES / DOORS	
			NORTH	EAST	SOUTH	WEST	MAT'L.	FIN.	MAT'L.	FIN.	MAT'L.	FIN.	MAT'L.	FIN.	MAT'L.	SIZE	HGT.	FIN.					
GROUND FLOOR LEVEL																							
101	VESTIBULE	CT 1	WB 1, ET 1	WB 1, ET 1	WB 1, ET 1	WB 1, ET 1	—	—	GWB	PT 2	GWB	PT 2	EX GWB, GWB	PT 2	GWB	—	2400 ±	PT 1	Refer to DFPA		ST 1	PT 6	1, 2, 3
102	LOBBY	CT 1	WB 1, ET 1	WB 1, ET 1	WB 1, ET 1	WB 1, ET 1	GWB	PT 2	GWB	PT 2	—	—	EX GWB, GWB	PT 2	AP	610x1220	2400 ±	—	Refer to DFPA		SS 1	PL 1, 2 & 3	1, 2, 4
103	STORAGE CLOSET	CT 1	WB 1, ET 1	WB 1, ET 1	WB 1, ET 1	WB 1, ET 1	EX GWB	PT 2	GWB	PT 2	GWB	PT 2	EX GWB, GWB	PT 2	GWB	—	2400 ±	PT 1	Refer to DFPA		—	—	1, 2
104	UNIV. WR	CT 1	CT 2	CT 2	CT 2	CT 2	GWB	CT2 & 3	GWB	CT2 & 3	GWB	CT2 & 3	EX GWB, GWB	CT2 & 3	GWB	—	2400 ±	PT 1	Refer to DFPA		—	—	1, 5
105	STORAGE / IT ROOM	EX VCT, VCT 1 Match	WB 2 Match	WB 2 Match	WB 2 Match	WB 2 Match	EX GWB	PT 3 Match	EX GWB, GWB	PT 3 Match	EX GWB, GWB	PT 3 Match	EX GWB	PT 3 Match	GWB	—	2400 ±	PT 1	Refer to DFPA		—	—	6, 7, 8
106	GENERAL OFFICE	EX CPT	WB 3 Match	WB 3 Match	WB 3 Match	WB 3 Match	EX GWB, GWB	PT 4 Match	—	—	EX GWB, GWB	PT 4 Match	GWB	PT 4 Match	EX AP, GWB BLKHD	610x1220 Match	2438 ±	PT 4 at GWB BLKHD	Refer to DFPA		SS 1	PL 1 & 3	7, 8, 9, 10
107	CRIM. INVESTIGATION	EX CPT	WB 3 Match	WB 3 Match	WB 3 Match	WB 3 Match	EX GLAZ	—	EX GWB	—	EX GWB, GWB	PT 4 Match	EX GWB, GWB	PT 4 Match	AP	610x1220 Match	2438 ±	—	Refer to DFPA		—	—	7, 8, 9

NRPS D6 RENOVATION

NIAGARA REGION

501 Fielden Ave, Port Colborne, ON L3K 4T9

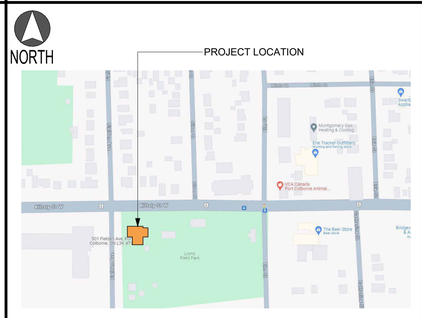
24-12 PROJECT NUMBER

Revision Schedule		
No.	Revisions:	Revision Date
1	TENDER/PERMIT SET	09/25/2024

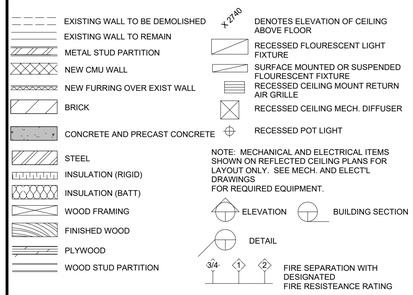
ABBREVIATIONS

A.B.	ANCHOR BOLT	JAN.	JANITOR
A.F.F.	ABOVE FINISH FLOOR	LAM.	LAMINATED
A.P.	ACOUSTIC PANEL (CEILING)	LAV.	LAVATORY
ALT.	ALTERNATIVE	LG.	LONG
ADJ.	ADJUSTABLE	LTD. PT.	LIMITED PAINTING
A/C	AIR CONDITIONING	LIN.	LINOLEUM
ALUMIN.	ALUMINUM	M.C.C.	METAL CHANNEL CEILING
A/V.B.	AIR VAPOUR BARRIER	MECH.	MECHANICAL
BLK.	BLOCK	M.H.	MANHOLE
B.H.	BORE HOLE	MTD.	MOUNTED
BOTT.	BOTTOM	N.R.	NAPKIN RECEPTACLE
BLKHD.	BULKHEAD	NOM.	NOMINAL
BRK.	BRICK	N.I.C.	NOT IN CONTRACT
CAB.	CABINET	N.T.S.	NOT TO SCALE
CARP.	CARPET	O.C.	ON CENTRE
C.B.	CARPET BASE	OPENG	OPENING
C.I.	CAST IRON	O.W.S.J.	OPEN WEB STEEL JOIST
C.B.	CATCH BASIN	O.D.	OUTSIDE DIAMETER
CLG.	CEILING	O/H	OVERHEAD
C.M.T.	CERAMIC MOSAIC TILE	O.S.	OPERATOR SWITCH
C.T.	CERAMIC TILE	O.P.	OPERATOR PADDLE
CHKBD.	CHALKBOARD	PT.	PAINT
COL.	COLUMN	PARTN	PARTITION
CONC.	CONCRETE	PL.	PLASTER
CONC. BLK.	CONCRETE BLOCK	PL.C.	PLASTIC COATING
CMU.	CONCRETE MASONRY UNIT	P.L.F.	PLASTIC LAMINATED FACED
CONT.	CONTINUOUS	PLYWD	PLYWOOD
C.J.	CONTROL JOINT	P.C.	PRE CAST CONCRETE
C.G.	CORNER GUARD	PREFAB.	PREFABRICATED
CONST.	CONSTRUCTION	P.F.	PRE FINISHED
CUPB.	CUPBOARD	P.F.G.W.B.	PRE FINISHED GYPSUM WALLBOARD
DIA.	DIAMETER	Q.T.	QUARRY TILE
DN.	DOWN	RES.	RESILIENT
DWG.	DRAWING	REQ'D	REQUIRED
D.F.	DRINKING FOUNTAIN	REINF.	REINFORCING
DEMO.	DEMOLITION	R.W.L.	RAINWATER LEADER
ELEC.	ELECTRICAL	R.C.	REINFORCED CONCRETE
E.H.D.	ELECTRIC HAND DRYER	RM.	ROOM
ELEV.	ELEVATION	R.O.	ROUGH-OPENING
EQ.	EQUAL	R.B.	RUBBER BASE
EXT.	EXTERIOR	RFT'D	REFLECTED
EXST'G./EX.	EXISTING	R.T.	RUBBER TILE
E.M.D.	EXPOSED METAL DECK	R.T.U.	ROOF TOP UNIT
E.C.D.	EXPOSED CONCRETE DECK	SAN.	SANITARY
ENCL.	ENCLOSED	S.N.R.	SANITARY NAPKIN RECEPTACLE
FIN.	FINISH	S.D.	SOAP DISPENSER
F.E.	FIRE EXTINGUISHER	S.F.	STEPPED FOOTING
F.E.C.	FIRE EXTINGUISHER CABINET	S.S.	STAINLESS STEEL
F.H.C.	FIRE HOSE CABINET	STL.	STEEL
F.H.	FIRE HYDRANT	STM.	STORM
F.R.	FIRE RATED	S.M.	SURFACE MOUNTED
FR.	FRAME	S.O.F.	SPRAYED-ON FIREPROOFING
F.R.R.	FIRE RESISTANCE RATING	SK.	SINK
FLR.	FLOOR	STRUCTL	STRUCTURAL
F.D.	FLOOR DRAIN	SPEC.	SPECIFICATION
FLUOR.	FLUORESCENT	SCH.	SCHEDULE
FTG.	FOOTING	STOR.	STORAGE
FDN.	FOUNDATION	TERR.	TERRAZZO
F.S.	FLOOR SOCKET	T.T.H.	TOILET TISSUE HOLDER
G.W.P.G.	GEORGIAN WIRE POLISHED GLASS	TYP.	TYPICAL
GL.	GLASS	T/O	TOP OF
G.T.	GLAZED TILE	U/S	UNDERSIDE
G.B.	GRAB BAR	URIN.	URINAL
G.W.B.	GYPSUM WALLBOARD	U.L.C.	UNDERWRITERS LABORATORY OF CANADA
G.C.	GLAZED COATING	V.B.	VAPOR BARRIER
G.F.R.C.	GLASS FIBER REINFORCED CONCRETE	V.S.	VINYL SHEET
H.M.	HOLLOW METAL	V.W.F.	VINYL WALL FABRIC (FIELD APPLIED)
HR.	HOUR	V.C.T.	VINYL COMPOSITE TILE
H.I.G.W.B.	HIGH IMPACT GYPSUM WALLBOARD	V.I.F.	VERIFY IN FIELD
I.D.	INSIDE DIAMETER	W.C.	WATER CLOSET
INT.	INTERIOR	W.T.	WEEPING TILE
INST.	INSTALL/INSTALLATION	W.W.F.	WELDED WIRE FABRIC
		WD.	WOOD
		W.R.	WATER RESISTANT

VICINITY PLAN



SYMBOLS



MATRIX

ITEM	ONTARIO BUILDING CODE MATRIX PARTS 3 & 9			OBC REFERENCE	
1	□ PROJECT DESCRIPTION: INTERIOR RENOVATIONS □ CHANGE OF USE ☒ ALTERATION □ NEW BUILDING			☒ PART 3	□ PART 9
2	MAJOR OCCUPANCY(S): D			3.1.2.1.(1)	9.10.2
3	BUILDING AREA (m²): 486 (EXISTING)			1.1.3.2	1.1.3.2
4	GROSS AREA (m²): 486 (EXISTING)			1.1.3.2	1.1.3.2
5	NUMBER OF STOREYS: ABOVE GRADE: 1 BELOW GRADE: N/A			3.2.1.1. & 1.1.3.2	2.1.1.3
6	HEIGHT OF BUILDING (m): 4.57				2.1.1.3
7	NUMBER OF STREETS/ACCESS ROUTES: 2			3.2.2.10 & 3.2.5.5	
8	BUILDING CLASSIFICATION: 3.2.2.64 GROUP D, UP TO 2 STOREYS			3.2.2.20-.83	9.10.4
9	SPRINKLER SYSTEM PROPOSED	□ ENTIRE BUILDING □ BASEMENT ONLY □ IN LIEU OF ROOF RATING ☒ NOT REQUIRED		3.2.2.20-.83 3.2.1.5 3.2.2.17	9.10.4
	STANDPIPE REQUIRED	□ YES	☒ NO	3.2.9	
	FIRE ALARM REQUIRED	☒ YES	□ NO	3.2.4	9.10.18.2
	WATER SERVICE/SUPPLY IS ADEQUATE	☒ YES	□ NO		
10	HIGH BUILDING	□ YES	☒ NO	3.2.6	
11	PERMITTED CONSTRUCTION:	☒ COMBUSTABLE	☒ NON-COMBUSTABLE	3.2.2.20-.83	9.10.6
12	ACTUAL CONSTRUCTION:	☒ COMBUSTABLE	☒ NON-COMBUSTABLE		
13	MEZZANINE(S) AREA (m²): N/A			3.2.1.1 (3)-(8)	9.10.4.1
14	OCCUPANT LOAD BASED ON:	□ SF/PERSON	☒ DESIGN OF BUILDING	3.1.17.1	9.9.1.3
15	BARRIER-FREE DESIGN:	☒ YES	□NO	3.8	9.5.2
16	HAZARDOUS SUBSTANCES:	□ YES	☒NO	3.2.1.2.(1)& 3.3.1.19(1)	9.10.1.3
17	REQUIRED FIRE RESISTANCE RATING (FRR)	HORIZONTAL ASSEMBLIES FRR (HOURS)	LISTED DESIGN NO. OR DESCRIPTION (SG-2)	3.2.2.20-.83& 3.2.1.4	9.10.8 9.10.9
18		BASEMENT: N/A			
19		FLOORS: N/A			
		ROOF: N/A			
		SUPPORTING MEMBERS FRR (HOURS)	LISTED DESIGN NO. OR DESCRIPTION (SG-2)		
		BASEMENT: N/A			
		FLOORS: N/A			
		ROOF: N/A			
20	SPATIAL SEPARATION - CONSTRUCTION OF EXTERIOR WALLS:		NO NEW EXT. WALLS	3.2.3	9.10.14

WALL	AREA OF EBF(m²)	LD (m)	L/H OR H/L	PERMITTED MAX % OF OPENINGS	PROPOSED % OF OPENINGS	FRR (HRS)	LISTED DESIGN OR DESCRIPTION	COMB. CONST	COMB. CONST. NONC. CLADDING	NON-COMB. CONSTR.
NORTH										
SOUTH										
EAST										
WEST										

21	CHANGE OF USE		
	EXISTING MAJOR OCC.	PROPOSED MAJOR OCC.	COMPLIANCE ALTERNATIVE PROPOSED: NO
	EXISTING SUBSIDIARY	PROPOSED SUBSIDIARY	COMPLIANCE ALTERNATIVE PROPOSED: NO
22	OTHER		

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DRAWING LIST

DRAWING LIST

A0.0	TITLE SHEET
A2.1	DEMO & PROPOSED PLANS
A2.2	REFLECTED CEILING, DOORS, W.R. ACCESSORY PLAN
A2.3	DETAILS & INT ELEVATION PLANS
A2.4	SERVICE COUNTER & ACCESS COUNTER DETAIL

ELECTRIAL DRAWINGS

E0	GENERAL NOTES, LEGEND AND DRAWING LIST
E1	SPECIFICATIONS
E2	SPECIFICATIONS
E3	PART PLAN - DEMOLITION POWER, SYSTEM AND LIGHTING
E4	PART PLAN - DEMOLITION POWER, SYSTEM AND LIGHTING
E5	DETAILS

MECHANICAL DRAWINGS

M-100	LEGENDS, SCHEDULES AND MECHANICAL DETAILS
M-101	SPECIFICATIONS
M-200	PLUMBING DEMOLITION AND NEW CONSTRUCTION
M-300	HVAC DEMOLITION AND NEW CONSTRUCTION

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A0.0

DEMOLITION NOTES	
Note Number	REMOVE THE FOLLOWING:
1	INTERIOR G.W.B. PARTITION
2	PLUMBING FIXTURES
3	WOOD DOOR & FRAME AND RELATED
4	COUNTER TOP H.M. FRAME AND GLAZING
5	COUNTER AND SUPPORTING G.W.B. WALL CONST.
6	WALL TILE AND G.W.B.
7	SUSP. A.P. CEILING
8	CERAMIC TILE FLOORING
9	CARPET TILE FLOORING
10	CARD READER - HOLD TO SALVAGE
11	ALUM. DOOR AND FRAME AND RELATED
12	FABRIC WALL FINISH
13	WHITEBOARD / TACKBOARD - HOLD TO SALVAGE
14	WALL MOUNTED MONITOR - HOLD TO SALVAGE

GENERAL DEMOLITION NOTES

- ITEMS TO BE REMOVED SHOWN WITH DOTTED LINES.
- REFER ALSO TO DEMOLITION NOTES.
- DEMOLITION CONTRACTOR TO REVIEW THIS DRAWING IN CONJUNCTION WITH ALL OTHER CONTRACT DOCUMENTS TO DETERMINE EXTENT OF DEMOLITION.
- REPORT DISCOVERY OF HAZARDOUS SUBSTANCES TO OWNER IMMEDIATELY UPON DISCOVERY.
- OWNER IS TO PROPERLY REMOVE AND DISPOSE ALL DESIGNATED SUBSTANCES.
- SITE VERIFY EXIST'G CONSTRUCTION.
- OWNER TO REMOVE ALL LOOSE FURNITURE, EQUIPMENT, WALL MOUNTED DISPLAYS / INSTRUCTION / NOTICES AND THE LIKE TO BE SALVAGED.
- VERIFY PARTITIONS INDICATED TO BE REMOVED ARE NOT LOAD BEARING.
- THE CONTRACTOR IS RESPONSIBLE FOR HOARDING THE RENOVATION AREA TO PROTECT THE REMAINDER OF THE BUILDING FROM CONSTRUCTION DUST AND DEBRIS FOR THE DURATION OF THE PROJECT.

GENERAL NOTES

- INSTALL NEW PARTITIONS TO U/S OF EXISTING STRUCTURE ABOVE SUSPENDED G.W.B. OR A.P. CEILING AS APPLICABLE.
- MAKE GOOD EXISTING SURFACES AT ITEMS REMOVED, MODIFIED OR DISTURBED.
- NEW DIMENSIONS ARE TO NEW STUD FRAMING AND EXISTING SURFACE
- REMOVE EXISTING CARD READER AT EXT WALL. BEING REMOVED AND HOLD TO SALVAGE
- REMOVE EXISTING WINDOW INTERCOM AT EXT WALL. HOLD TO BE SALVAGE
- FIRE SAFETY EQUIPEMENT ON CEILING AND WALL TO REMOVE AND RETURN TO OWNER
- SECURITY EQUIPMENT ON CEILING AND WALL TO BE REMOVE AND RETURN TO OWNER
- LOCK SETS AND DOOR HANDLES EXCLUDING HINGES TO BE BY OTHERS
- REFER TO MANUFACTURE STANDARD METAL HARDWARE FOR MODEL NUMBER K10A FOR KICK PLATE TYPE.
- REFER TO MANUFACTURE ASSA ABLOY MODEL NUMBER HES 1006CLB FOR ELECTICAL STRIKE TYPE.
- REFER TO MANUFACTURE IVES MODEL NUMBER 5BB1 FOR DOOR HINGE TYPE.
- REFER TO MANUFACTURE STANDARD METAL HARDWARE FOR MODEL NUMBER 3015-2 FOR DOOR PULL TYPE.
- REFER TO MANUFACTURE STANDARD METAL HARDWARE FOR MODEL NUMBER 6034-2 FOR DOOR PUSH BAR TYPE.
- REFER TO MANUFACTURE LCN FOR MODEL NUMBER 4040XP FOR DOOR CLOSER TYPE.
- PDO BUTTON TO BE LOCATED MIN 2' FROM ACTIVATED DOOR

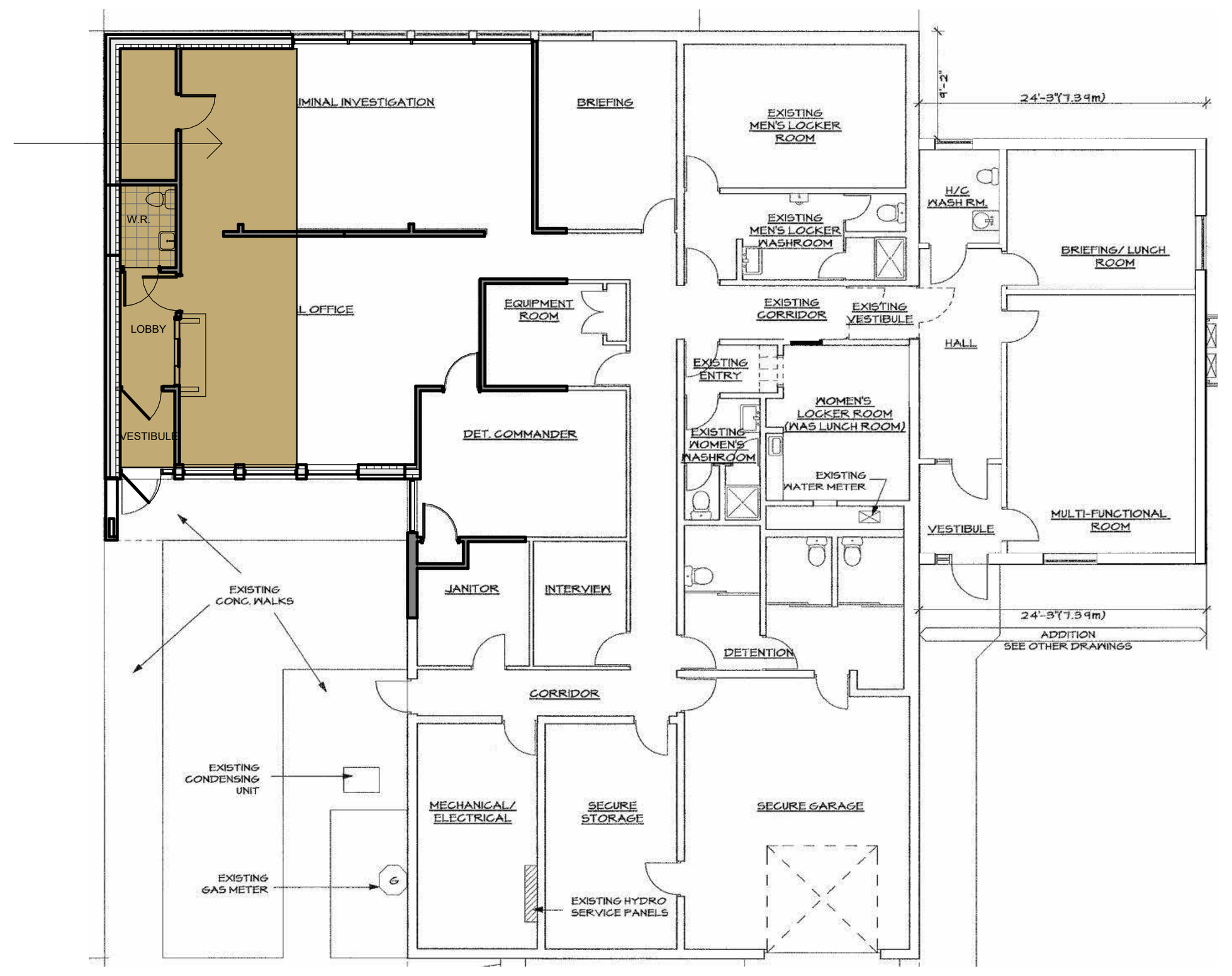
GENERAL NOTES TO DOOR AND FRAME SCHEDULE

- READ THESE NOTES IN CONJUNCTION WITH THE DRAWINGS AND THE DOOR AND FRAME SCHEDULE.
- DOOR OPENINGS NUMBERED ON PLANS ARE THOSE WHERE PHYSICAL WORK (OTHER THAN PAINTING) IS BEING DONE. THIS PHYSICAL WORK MAY CONSIST OF REPAIR, REPLACEMENT, ALTERATIONS, REMOVAL, OR FITTING OF NEW HARDWARE TO EITHER THE DOOR, OR TO THE FRAME.
- ALL GLASS IN DOORS AND SIDELIGHTS AND SCREENS IS TRANSPARENT, TEMPERED AND UNWIRED UNLESS OTHERWISE INDICATED.
- ALL DOORS 1¾" UNLESS OTHERWISE INDICATED.
- ALL DOORS TO BE SOLID CORE UNLESS OTHERWISE NOTED.
- 101XA DOOR NUMBERS IN RECTANGLES ARE EXTERIOR DOORS.
- INSTALL NEW DOORS AND FRAMES AT EXISTING OR MODIFIED OPENINGS TO SUIT OPENING

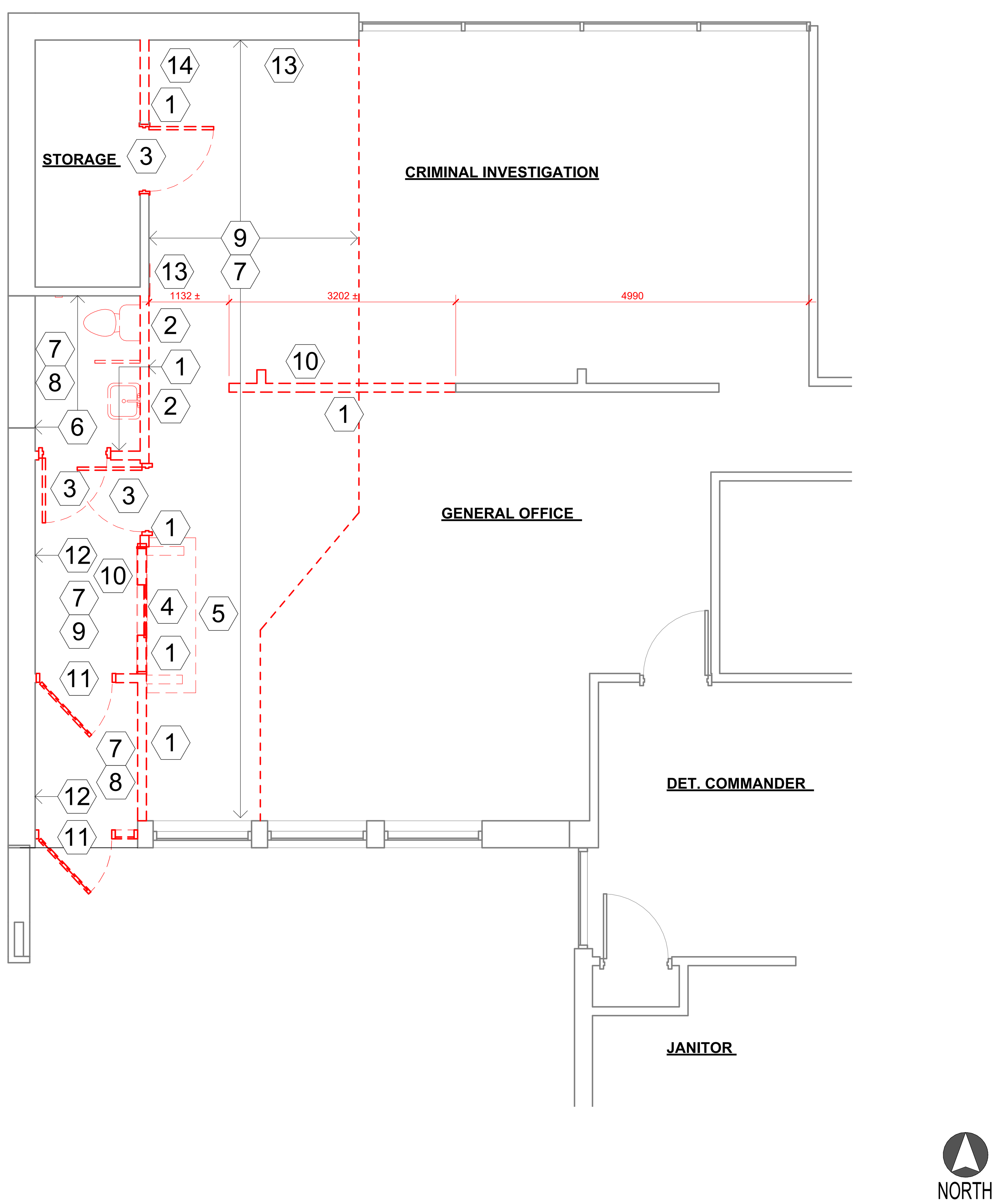
GENERAL NOTES TO ROOM FINISH SCHEDULE

- READ THESE NOTES IN CONJUNCTION WITH THE DRAWINGS AND THE ROOM FINISH SCHEDULE.
- THE FOLLOWING NOTES EXCLUDE MECHANICAL AND ELECTRICAL: SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR INFORMATION ON THOSE TRADES.
- A NUMBER IS ASSIGNED TO ALL ROOMS IN WHICH ARCHITECTURAL WORK IS TO TAKE PLACE.
- NUMBERED ROOMS ON PLANS ARE THOSE WHERE ALTERATIONS, NEW WORK, MAKING GOOD, OR ALL THREE ARE PORPOSED. SEE ROOM SCHEDULE FOR DETAILS.
- NUMBERED ROOMS APPEARING ON THE ROOM FINISH SCHEDULE WILL RECEIVE SIGNIFICANT WORK. NUMBERED ROOMS NOT APPEARING ON THE ROOM SCHEDULE SHALL GENERALLY RECEIVE MINOR PATCHING OF EXISTING SURFACES, MAKING GOOD AT OPENINGS FILLED, OR CREATED.
- ALL PAINTABLE SURFACES, INCLUDING - BUT NOT LIMITED TO: EXPOSED DUCTS, CONDUIT, GRILLS, LOUVRES AND THE LIKE, IN ALL ROOMS INDICATED IN THIS SCHEDULE TO RECEIVE A FINISH. PAINT, PLASTIC COATING, WALL VINYL, OR WALLPAPER, WHERE SPECIFICALLY INDICATED UNLESS OTHERWISE NOTED.
- APPLY SCHEDULED FINISHES TO ALL APPLICABLE SURFACES IN THE ROOM IN WHICH THEY ARE INDICATED. WALL SURFACES NOT SHOWN IN ELEVATION ARE TO RECEIVE SCHEDULED FINISHES.
- WHERE ROOM FINISH SCHEDULE CALLS FOR BOTH EXISTING AND NEW MATERIALS, DRAWINGS INDICATE THE EXTENT OF THE NEW MATERIALS. INDICATION OF A ROOM FINISH ON THIS SCHEDULE AS "EXISTING" DOES NOT PRECLUDE FILLING, PATCHING, OR "MAKING GOOD" OF THIS SURFACE. EVERY ATTEMPT HAS BEEN MADE TO INDICATE LARGE PATCHED AND FILLED AREAS ON DRAWINGS.
- ALL WALL BASE 4" HIGH, UNLESS OTHERWISE INDICATED.
- ALL NEW PARTITIONS IN FALSE-CEILINGED SPACES TO BE CARRIED UP TO THE UNDERSIDE OF FIRM STRUCTURE ABOVE. EXTEND G.W.B. TO 8" ABOVE CEILINGS. DRYWALL ABOVE CEILING LINE TO HAVE JOINTS TAPED. NO FILLING, SANDING, OR PAINTING REQUIRED.
- STUD BRACE STRUCTURE OF NON-RATED WALLS AND PARTITIONS UP TO THE STRUCTURE OVER, EXCEPT WHERE SPECIFICALLY INDICATED, AT RATED OR SOUND-SENSITIVE AREAS. CARRY GWB AND BATTS TO 8" ABOVE CEILING.
- USE SHADOW MOLD TRIM DETAIL AT ALL NEW CEILING-WALL AND CEILING-BULKHEAD INTERSECTIONS UNLESS OTHERWISE NOTED.
- ALL STUD PARTITIONS: CARRY UP TO UNDERSIDE OF FIRM STRUCTURE OVER, FACE TWO SIDES WITH G.W.B., INSTALL SOUND INSULATION IN STUD SPACE.
- ALL GLASS CLEAR, LAMINATED AND TEMPERED UNLESS OTHERWISE NOTED.

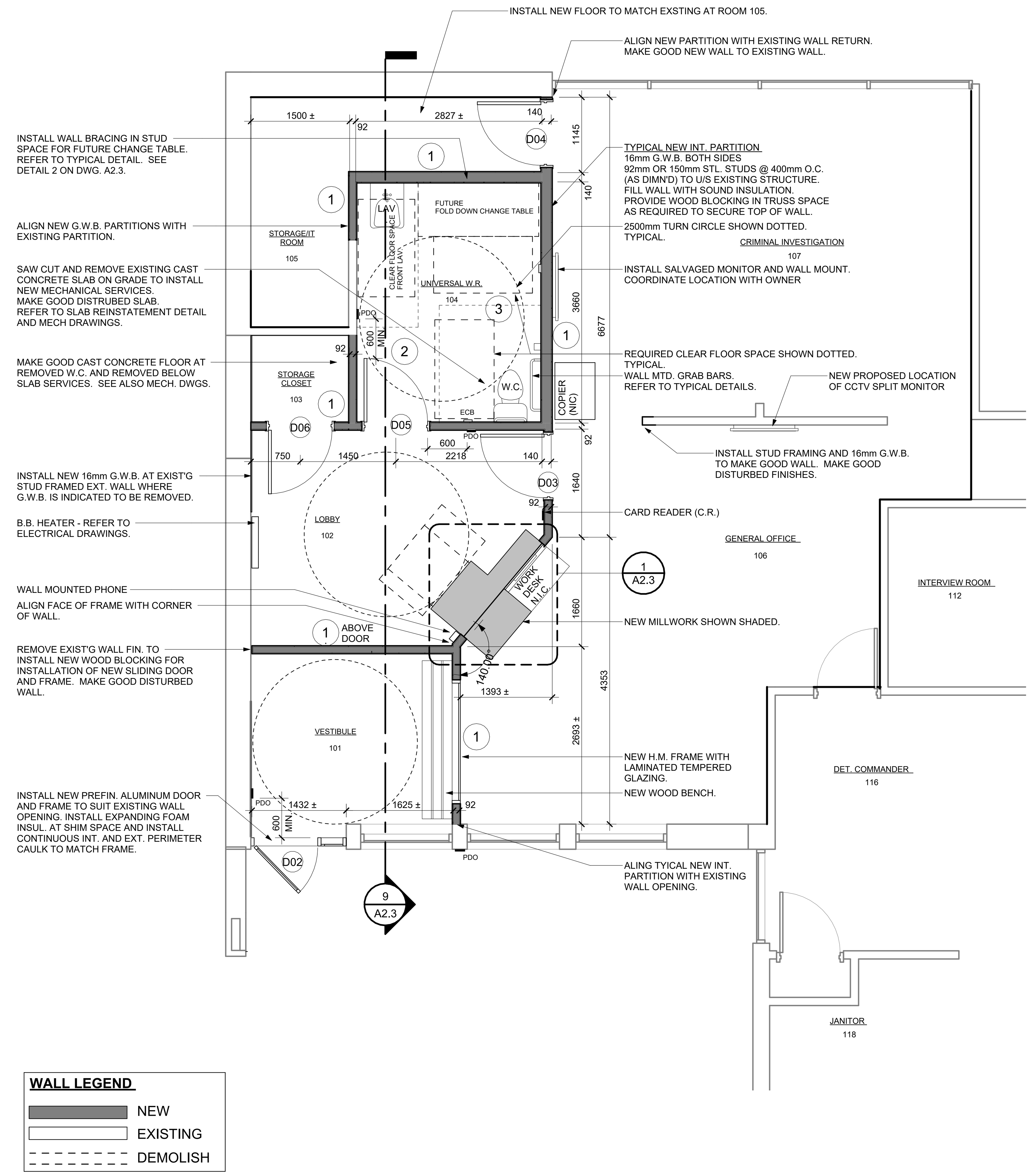
AREA OF WORK SHOWN SHADED



1 A2.1 KEY PLAN 1 : 200



11 A2.1 ENLARGE DEMO FLOOR PLAN 1 : 50



2 A2.1 ENLARGE FLOOR PLAN 1 : 50

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NRPS D6 RENOVATION

NIAGARA REGION

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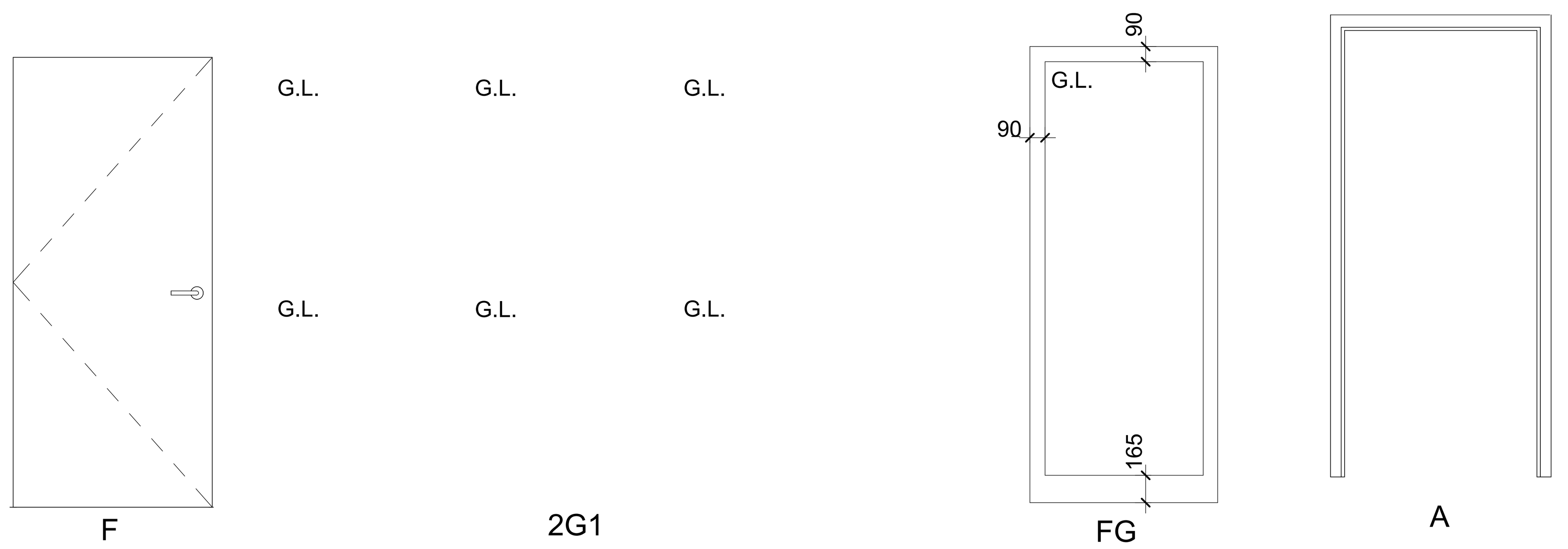
DEMO & PROPOSED PLANS

A2.1

DOOR AND FRAME SCHEDULE

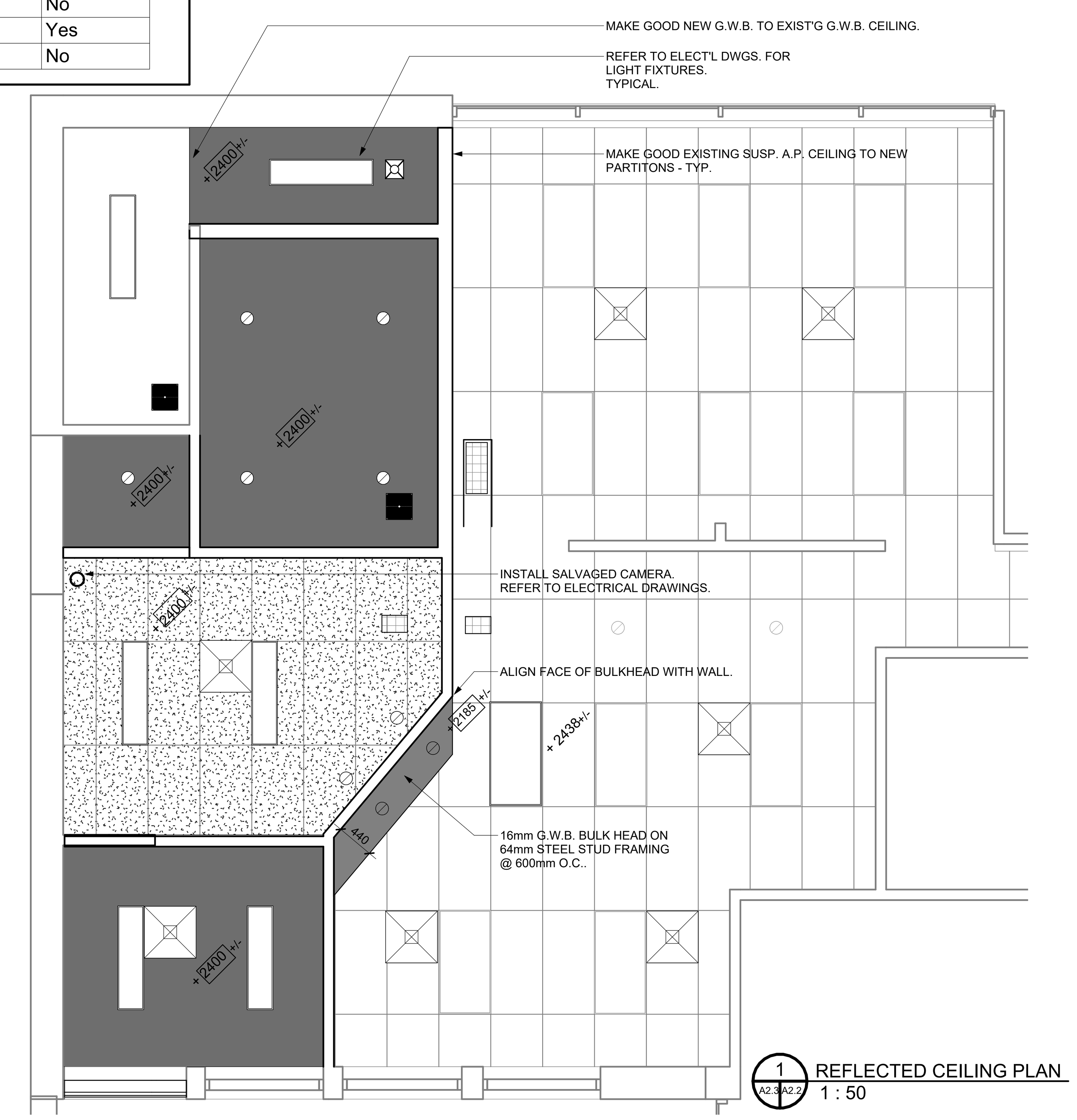
Number	Size	Height	Door Details: Material	Type	Thickness	Fire Label	Frame Details: Frame Type	Frame Material	Hinge	Kick Plate	Electrical Strike	Door Pull/Push	Door closer	Power Door Operator
D01	3041 mm X 2134 mm	2134 mm	NEW ALUM.	M	44 mm		A	NEW H.M.	YES	YES	N/A	NO	YES	No
D02	965 mm X 2261 mm	2261 mm	NEW ALUM.	FG	44 mm		A	NEW ALUM.	YES	N/A	YES	YES	YES	Yes
D03	965 mm X 2134 mm	2134 mm	NEW H.M.	M	44 mm		A	NEW H.M.	YES	YES	YES	NO	YES	Yes
D04	965 mm X 2134 mm	2134 mm	NEW H.M.	M	44 mm		A	NEW H.M.	YES	YES	N/A	NO	YES	No
D05	965 mm X 2134 mm	2134 mm	NEW H.M.	M	44 mm		A	NEW H.M.	YES	YES	YES	NO	YES	Yes
D06	965 mm X 2134 mm	2134 mm	NEW H.M.	M	44 mm		A	NEW H.M.	YES	YES	N/A	NO	YES	No

DOOR TYPE **FRAME TYPE**

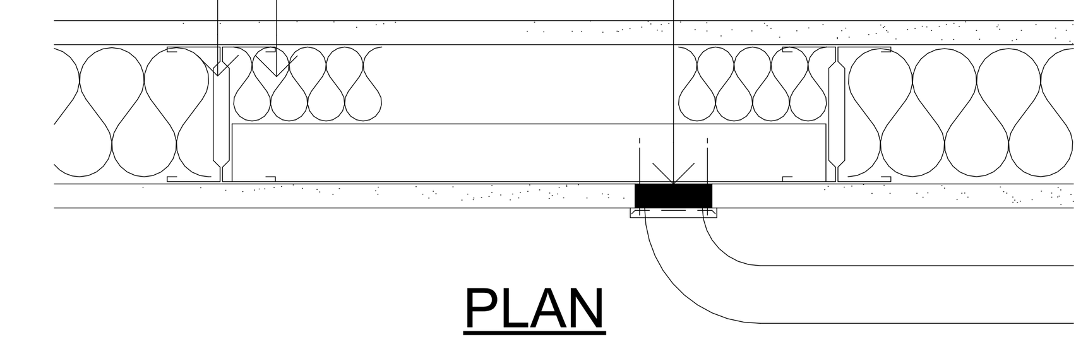


CEILING LEGEND

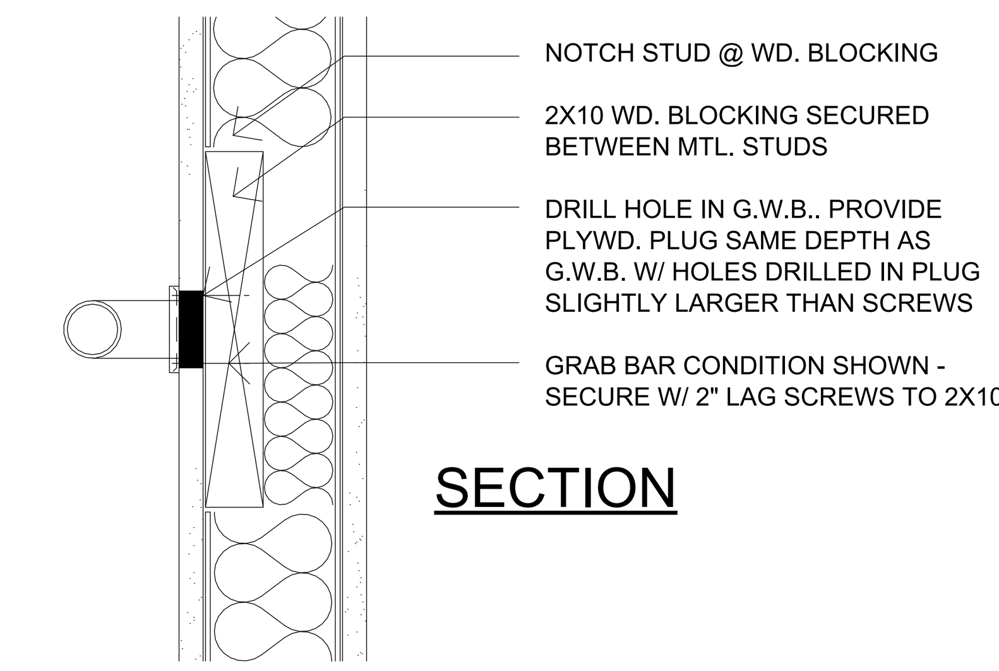
- SUSPENDED G.W.B.
- NEW A.C.T.
- EXISTING A.C.T.



1 REFLECTED CEILING PLAN 1 : 50



PLAN

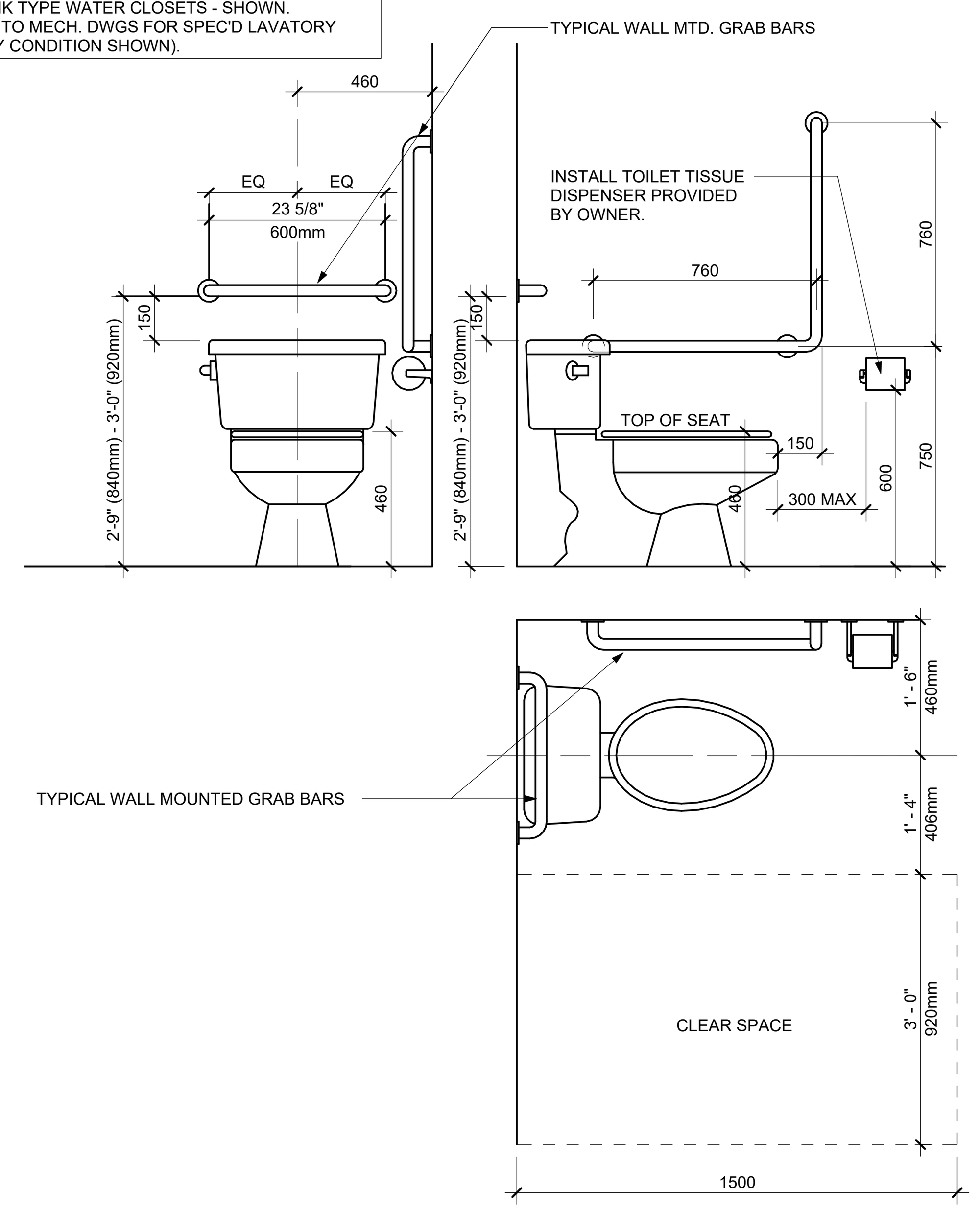


SECTION

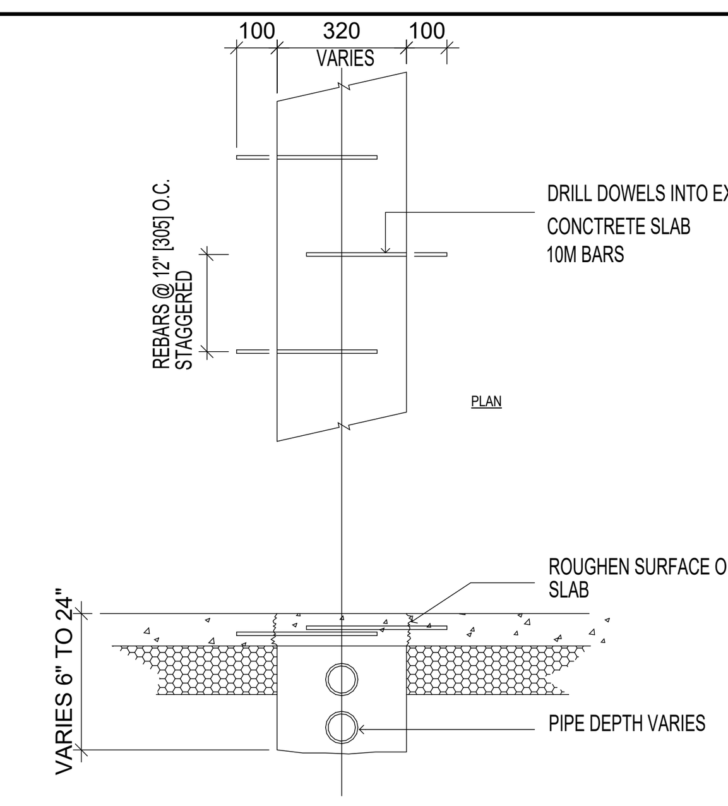
STUD WALL REINFORCEMENT - TYPE 2

FOR THE FOLLOWING ITEMS MOUNTED ON STUD WALLS:
- GRAB BARS
- ADULT SIZE FOLD-UP CHANGE TABLES
- WALL MOUNT CONTINUOUS COAT RACKS
- ANY HIGH-WEIGHT, POINT LOAD WALL HUNG ITEM

NOTES:
- HORIZONTAL GRAB BAR AT BACK OF TOILET MUST NOT INTERFERE WITH W.C. SEAT LID IN UP POSITION FOR FLUSH VALVES OR WITH ACCESS TO THE TANK ON TANK TYPE WATER CLOSETS - SHOWN.
- REFER TO MECH. DWGS FOR SPEC'D LAVATORY (VANITY CONDITION SHOWN).

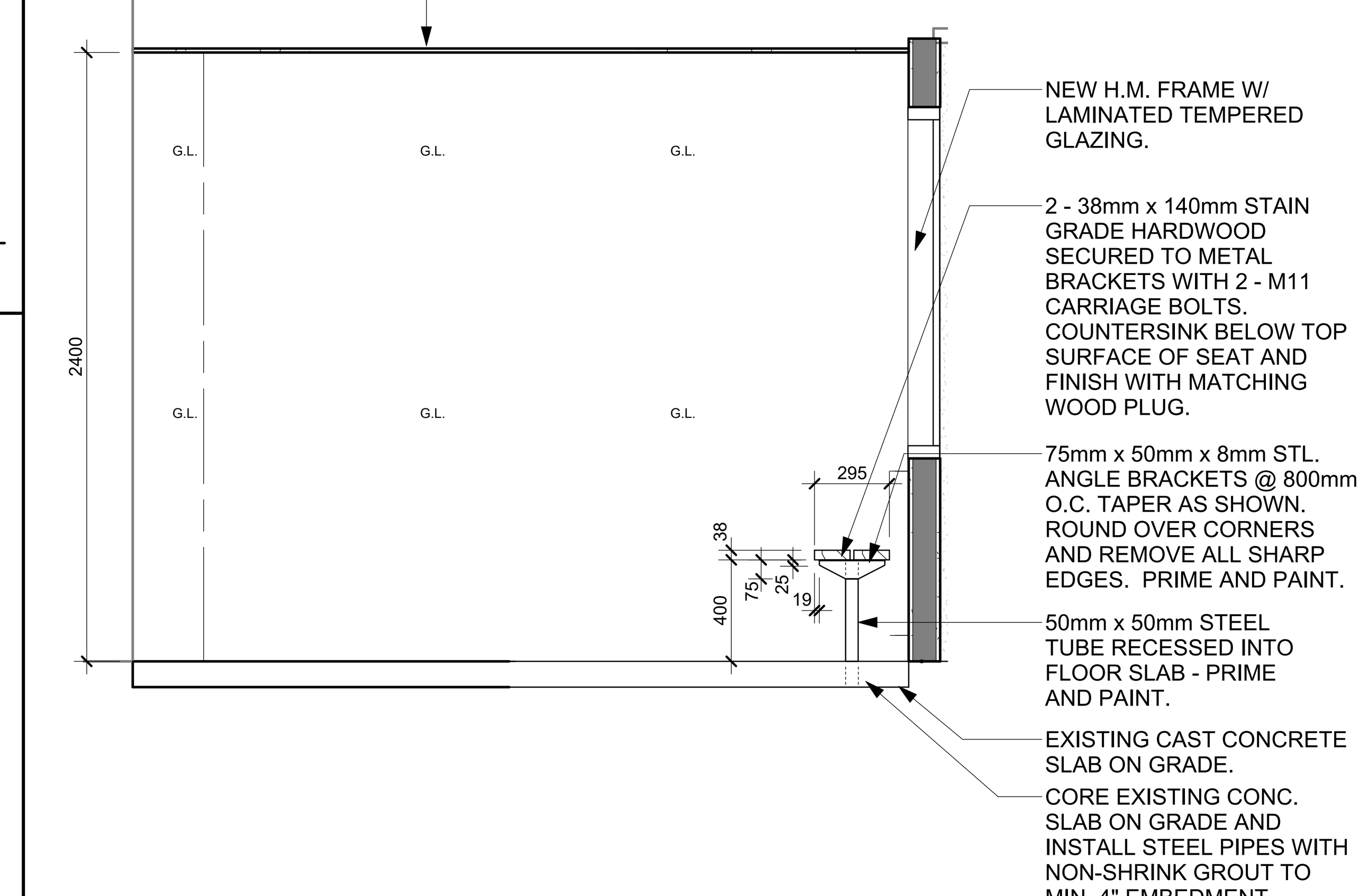


4 TYPICAL GRAB BAR INSTALLATION AND W.C. CLEARANCE 1 : 20

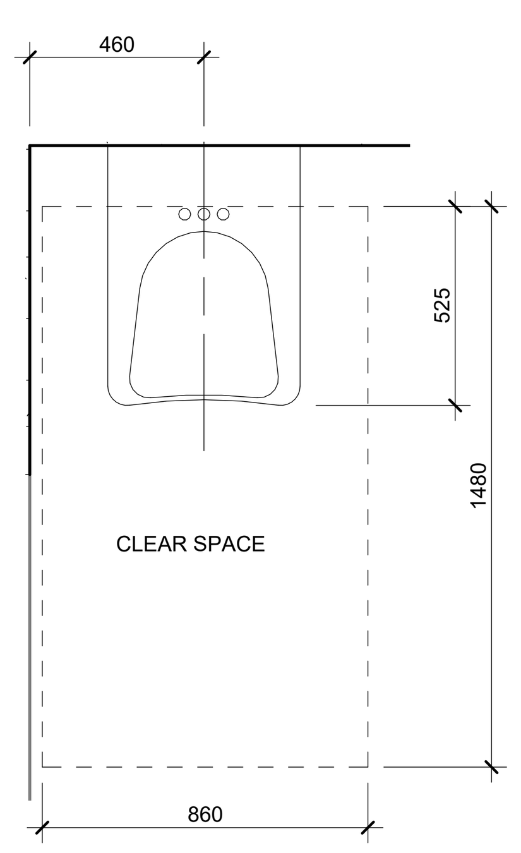


REINSTATEMENT DETAIL
Scale = NTS

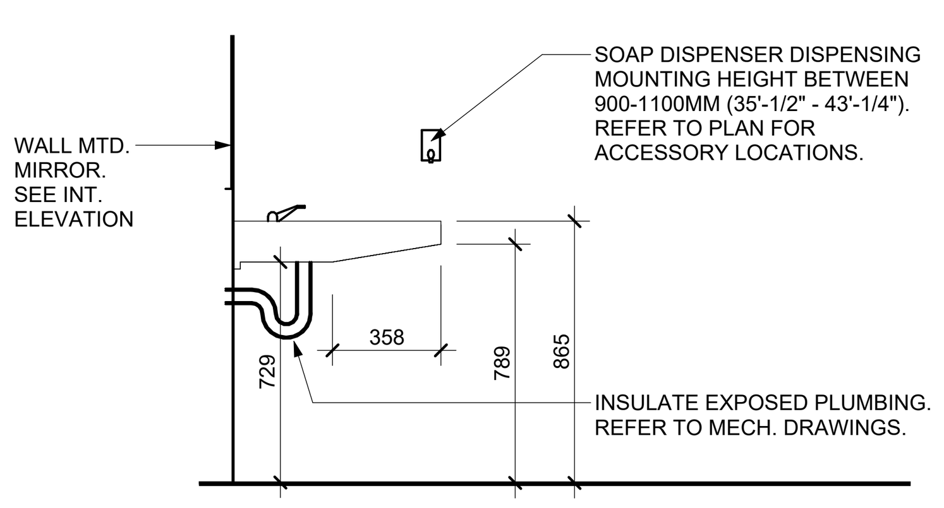
12 TYPICAL GRAB BAR REFORCEMENT DETAIL 1 : 5



8 NORTH WALL VESTIBULE 101 1 : 25

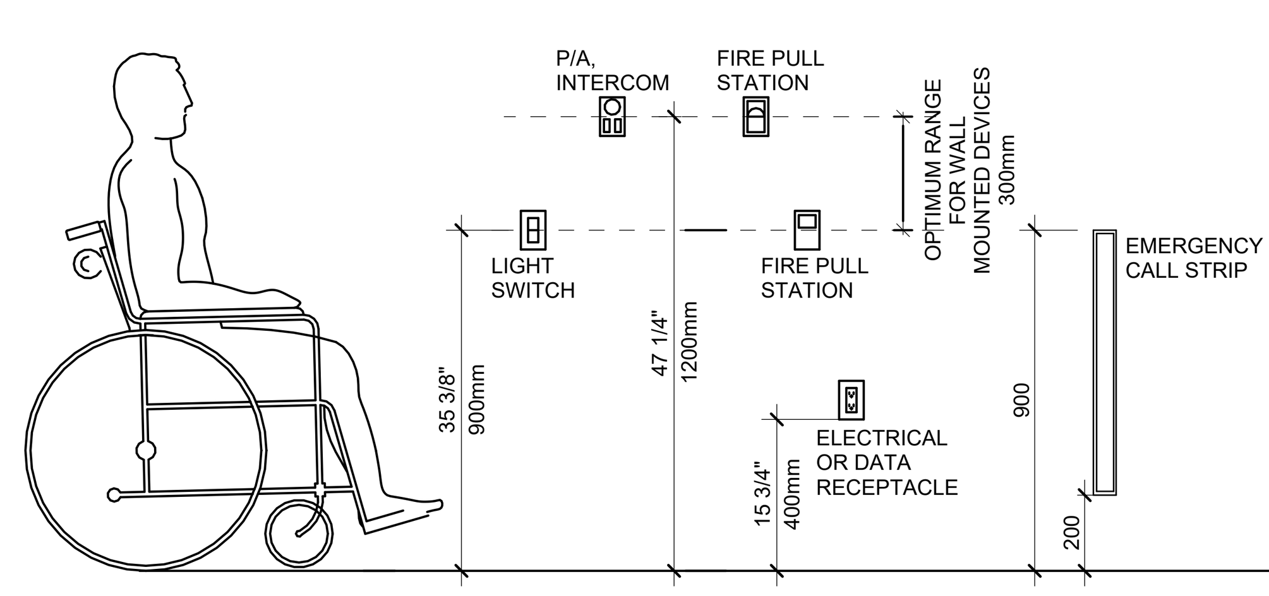


PLAN



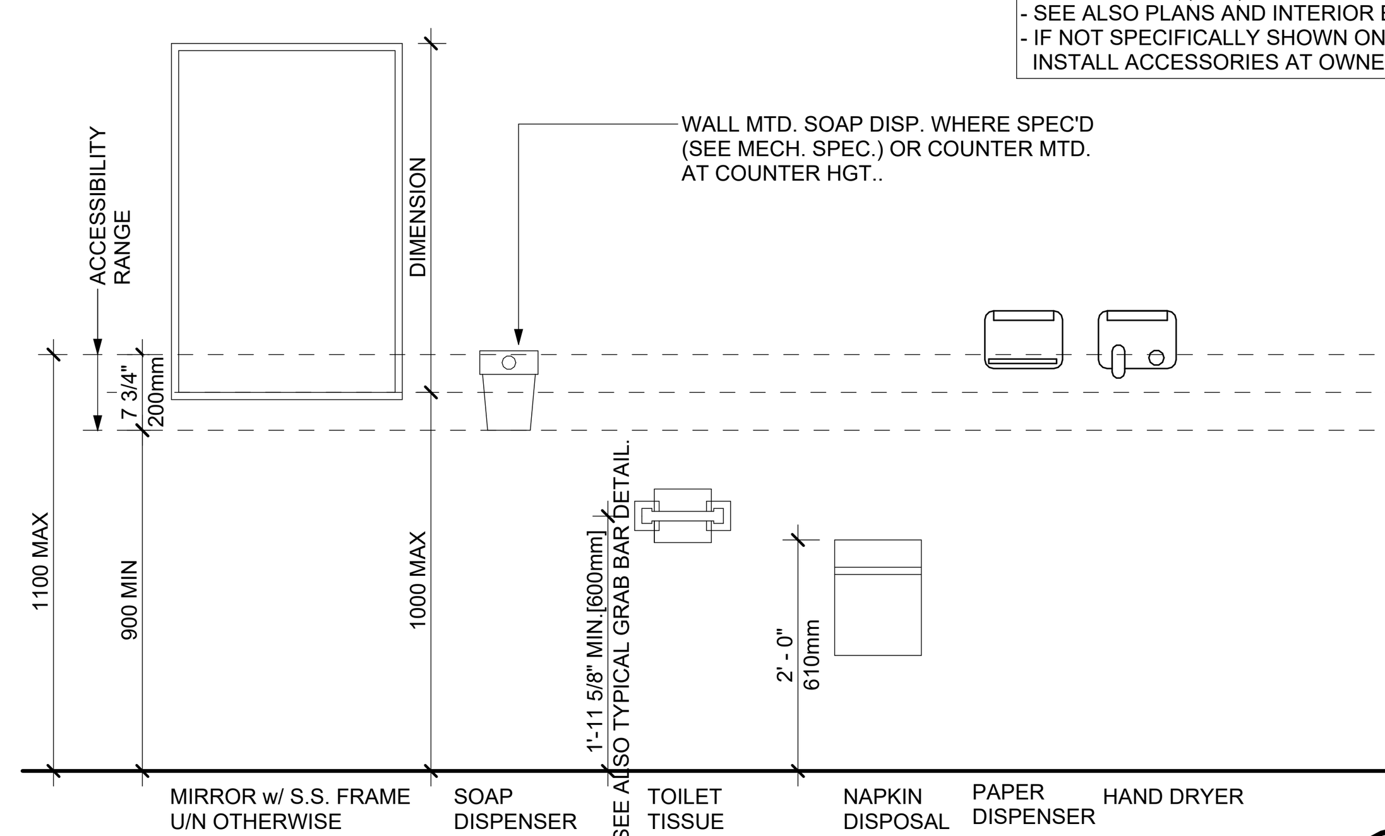
SECTION

6 ACCESS LAV. MOUNTING HEIGHTS AND CLEARANCE 1 : 25

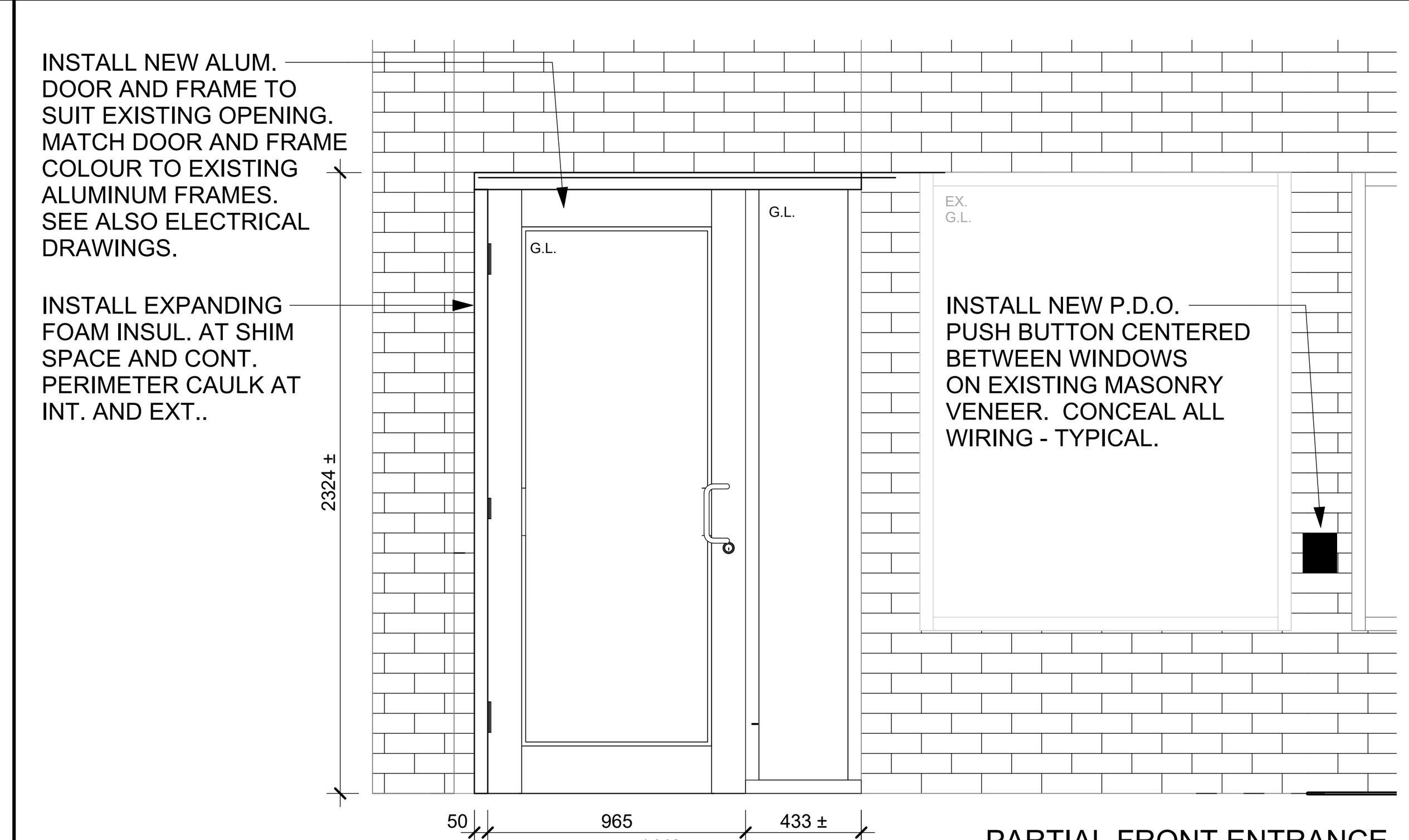


3 WALL MOUNTED DEVICE ACCESSIBLE HEIGHTS 1 : 20

NOTES:
- INCLUDE ONE (MIN.) OF EACH AT UNIVERSAL WASHROOM.
- SEE ALSO PLANS AND INTERIOR ELEVATIONS.
- IF NOT SPECIFICALLY SHOWN ON PLANS OR ELEVATIONS, INSTALL ACCESSORIES AT OWNER'S DIRECTION.



5 WASHROOM ACCESSORY MOUNTING HEIGHTS 1 : 20



9 PARTIAL FRONT ENTRANCE ELEVATION 1 : 25

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NRPS D6 RENOVATION
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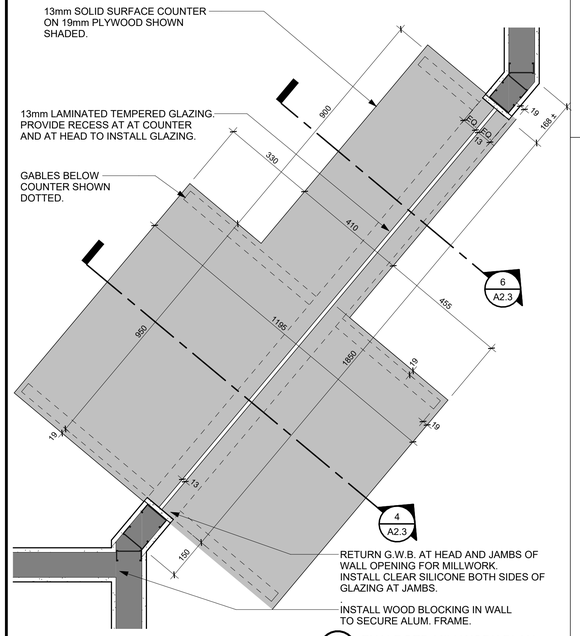
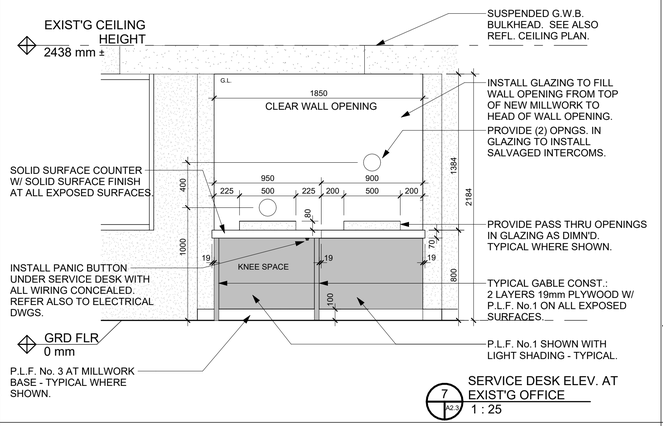
REFLECTED CEILING, DOORS, W.R. ACCESSORY PLAN

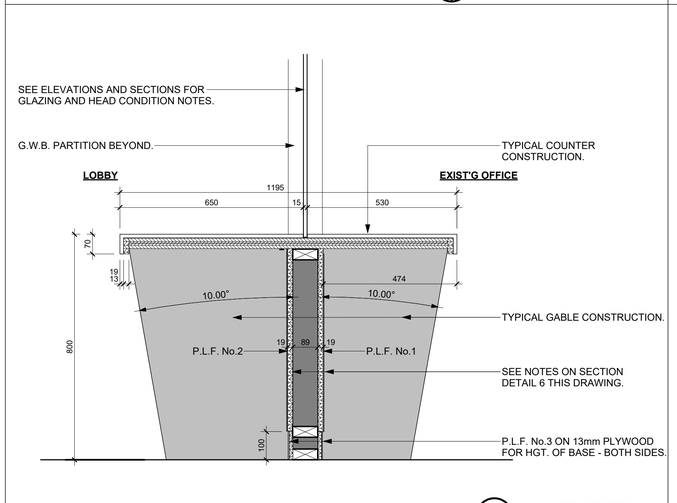
A2.2



1 A2.3 A2.3 ENALRGED MILLWORK PLAN
1 : 10

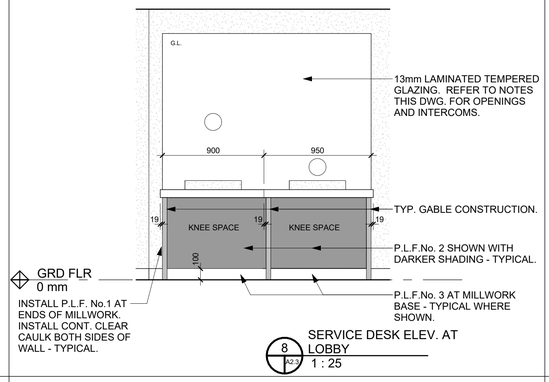


7 A2.3 SERVICE DESK ELEV. AT EXIST'G OFFICE
1 : 25

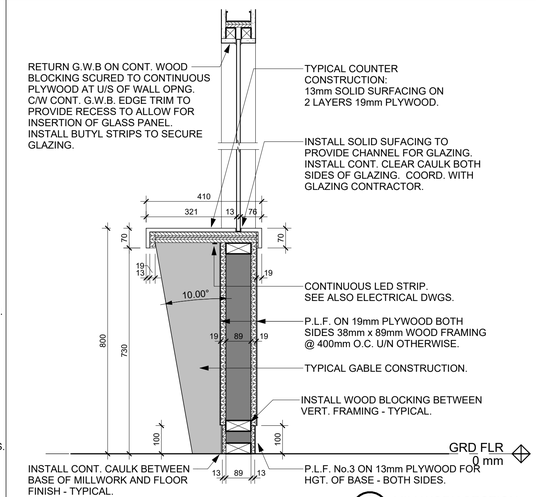


4 A2.3 A2.3 MILLWORK SECTION
1 : 10

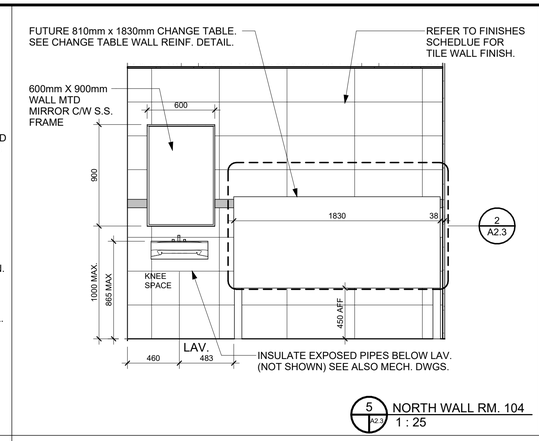
NOTE:
REFER TO ALSO TO NOTES AND DIMENSIONS ON DETAIL 7/A2.3 THIS DRAWING.



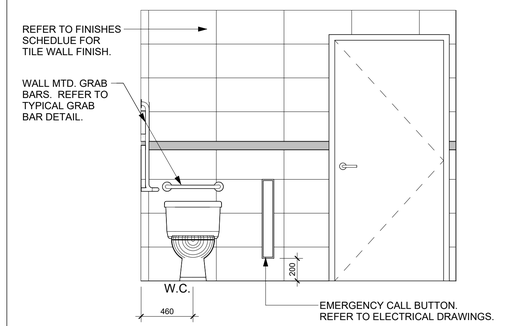
8 A2.3 SERVICE DESK ELEV. AT LOBBY
1 : 25



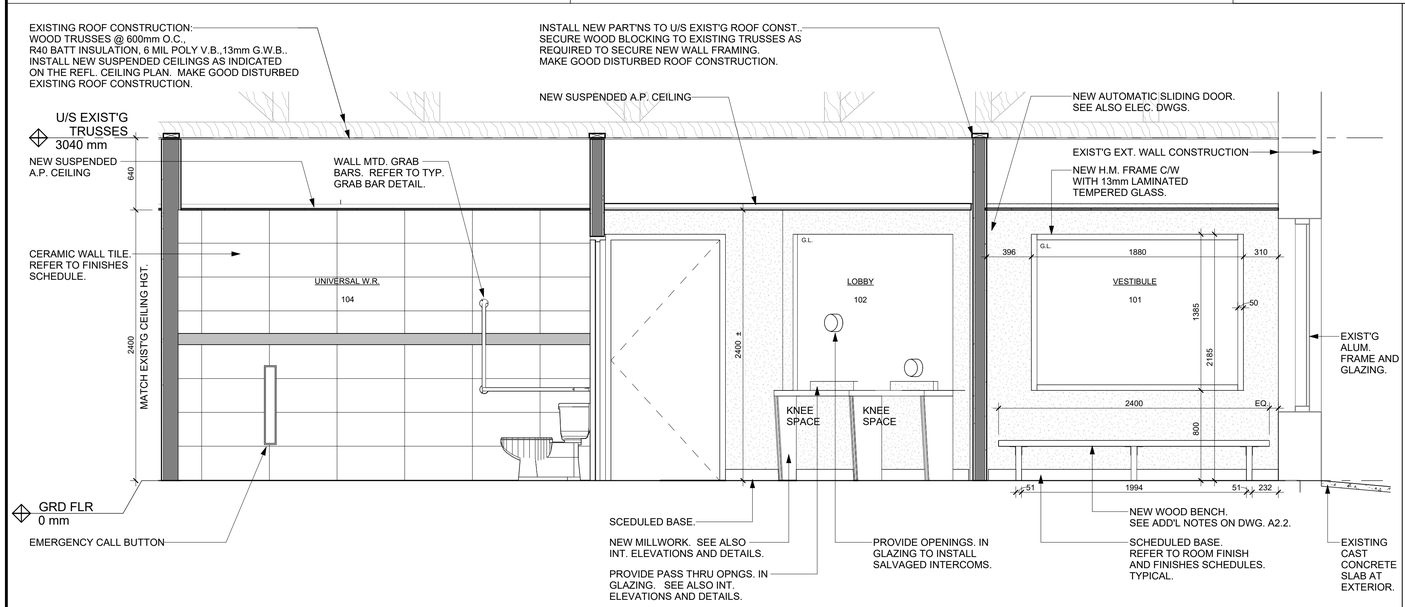
6 A2.3 A2.3 MILLWORK SECTION
1 : 10



5 A2.3 NORTH WALL RM. 104
1 : 25

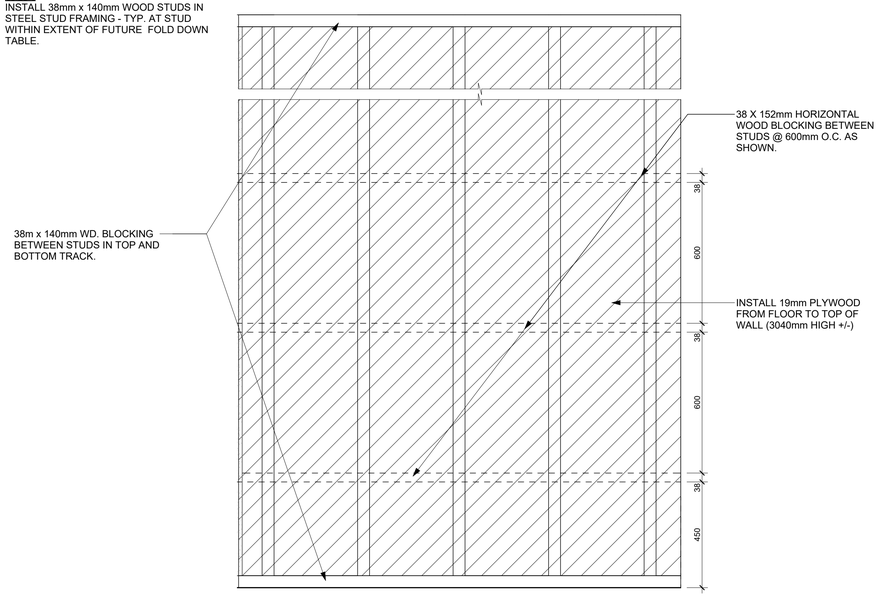


3 A2.3 SOUTH WALL RM. 104
1 : 25



9 A2.3 A2.3 SECTION
1 : 25

NOTE
INSTALL 38mm x 140mm WOOD STUDS IN STEEL STUD FRAMING - TYP. AT STUD WITHIN EXTENT OF FUTURE FOLD DOWN TABLE.



2 A2.3 A2.3 CHANGE TABLE DETAIL
1 : 12

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DETAILS & INT ELEVATION PLANS

A2.3

LIGHTING FIXTURE SCHEDULE

GENERAL NOTES:

1. CONTRACTOR IS TO INCLUDE FOR ALL ACCESSORIES AS REQUIRED FOR A FULL AND COMPLETE INSTALLATION. PARTS NUMBERS SHOWN ARE GENERALLY FOR FIXTURE ONLY. REFER TO ARCHITECTURAL CEILING SCHEDULE FOR CEILING TYPES AND PROVIDE REQUIRED ACCESSORIES (IE DRYWALL FLANGE KIT, ETC). DISCREPANCIES BETWEEN THE DESCRIPTION AND PART NUMBER SHALL BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO SUBMITTING A BID.
2. THE CONTRACTOR IS TO ALLOW FOR NORMAL DELIVERY ON FIXTURES (6–8 WEEKS FROM ACCEPTANCE OF SHOP DRAWINGS). FIXTURES FROM A QUICK SHIP PROGRAM WILL BE NOTED WHERE APPLICABLE. CONTRACTOR IS TO SUBMIT SHOP DRAWINGS FOR FIXTURES AS SOON AS POSSIBLE TO AVOID DELAY OF THE PROJECT. ALTERNATES WILL NOT BE ACCEPTED TO EXPEDITE A SCHEDULE.
3. PENDANT AND LINEAR FIXTURES SHOWN AS END TO END ARE TO BE ORDERED AS CONTINUOUS RUN FIXTURES UNLESS SPECIFICALLY NOTED OTHERWISE. FIXTURES ARE GENERALLY LISTED AS A MODULE TO CLARIFY THE BALLAST AND LAMP REQUIRED FOR EACH MODULE.
4. CONTRACTOR SHALL SUPPLY TO OWNER AND/OR CONSULTANT ANY DOCUMENTATION AS REQUIRED FOR OWNER TO APPLY FOR ENERGY INCENTIVES INCLUDING BUT NOT LIMITED TO BILLS OF SALE, ETC.
5. CONTRACTOR SHALL VERIFY AND INCLUDE FOR MULTIPLE BALLASTS REQUIRED FOR MULTIPLE SWITCHING.
6. ALL FIXTURES ARE TO HAVE SHOP DRAWINGS SUBMITTED TO THE CONSULTANT PRIOR TO ORDERING FOR GENERAL REVIEW. CONTRACTOR MUST INCLUDE SHOP DRAWINGS FOR ALL LAMPS BEING INSTALLED WITH FIXTURES.
7. DIMMERS SHALL BE COMPATIBLE WITH LIGHT FIXTURE AND BE CAPABLE OF 0–100% OPERATION. ELV DIMMERS TO BE PROVIDED FOR ELECTRONIC OR LED FIXTURES. DIMMER SHALL BE BY LUTRON, CANLYTE OR APPROVED EQUAL.
8. FIXTURES BEING SUBMITTED AS AN APPROVED EQUAL ARE TO BE SUBMITTED TO THE CONSULTANT FOR APPROVAL NO LESS THAN 5 BUSINESS DAYS BEFORE CLOSING. SUBMITTALS SHALL BE CLEARLY LABELLED AND INCLUDE COMPLETE FIXTURE CUTS STATING INCLUDED OPTIONS, ACCESSORIES AND FIXTURE EFFICIENCY. SUBMITTALS NOT MEETING THIS CRITERIA WILL BE REJECTED. IES FILES FOR FIXTURES MUST HAVE AN IES LAB CERTIFICATION.

ITEM	DESCRIPTION
A	4" ROUND, RECESSED, LED LIGHTING DOWNLIGHT FIXTURE SUITABLE FOR DRYWALL OR ACT CEILING. C/W FRAME–IN KIT, LIGHT ENGINE AND TRIM, SPECULAR CLEAR REFLECTOR, WHITE FLANGE. 500 LUMENS, 80 CRI, 4000K, 120V. PHILLIPS: 4RN C4L05840W210U C4RDLCL OR APPROVED EQUAL
B	1'x4'– RECESSED LED LIGHT PANEL FIXTURE SUITABLE FOR LAY–IN T–BAR ACT CEILING. LUMEN SELECTABLE, C/E OPAL DIFFUSER 32WATTS, 4095 NOMINAL DELIVERED LUMENS, 4000K, 120V. PHILLIPS: ISBP3040L8CS–4–UNV OR APPROVED EQUAL
C	1'x4', SURFACE MOUNT LED WRAP LIGHTING FIXTURE. C/W FROSTED LENS, 26WATTS, 4000 NOMINAL DELIVERED LUMENS, 4000K, 120V. PHILLIPS DAY–BRITE : NWL WRAP CAT # NWL–4–3050–8CST–UNV, OR APPROVED EQUAL

SENSOR NOTES AND SCHEDULE

GENERAL NOTES:

1. ALL DEVICES AND SENSORS ARE TO HAVE SHOP DRAWINGS SUBMITTED TO THE CONSULTANT FOR REVIEW AND COMMENT PRIOR TO ORDERING.
2. ALL SENSORS ARE TO BE IN COMPLIANCE WITH NEMA WD 7–2011. ANY SENSORS NOT IN COMPLIANCE WILL BE REJECTED.
3. PROVIDE ALL SENSORS, POWER PACKS AND RELAY UNITS AS REQUIRED FOR A COMPLETE INSTALLATION. PASSIVE INFRARED SENSOR, ULTRASONIC AND MULTI TECHNOLOGY OCCUPANCY SENSORS SHALL BE AS NOTED BELOW (REFER TO PLANS FOR DEVICE LAYOUT). PART NUMBERS SHOWN ARE GENERAL, FOR DEVICE ONLY.
4. THIS CONTRACTOR SHALL ALLOW FOR ON SITE ADJUSTMENTS OF TIME DELAY, AIMING AND SENSITIVITY.
5. FINAL PLACEMENT OF SENSORS SHALL BE CONFIRMED ON SITE WITH ALL PIPING, DUCTWORK, EQUIPMENT, ETC. PRIOR TO ROUGH–IN, TO ENSURE CLEAR VIEW OF THE ENTRANCE DOOR AND THE OVERALL SPACE. THIS CONTRACTOR TO REFER TO AND FOLLOW MANUFACTURERS SPECIFICATIONS AND INSTALLATION INSTRUCTIONS FOR PLACEMENT LOCATIONS AND SENSOR COVERAGE.
6. CEILING MOUNTED SENSORS SHALL BE AT AT CEILING LEVEL WHERE CEILING EXISTS. WHERE CEILING IS NOT PRESENT SENSORS TO BE MOUNTED AT HEIGHT OF PARTITIONS. WALL/CORNER MOUNTED SENSORS SHALL BE MOUNTED 8'–0" A.F.F. WALL STATION SENSORS SHALL BE AS PER SPECIFICATIONS AND STANDARD SWITCH LOCATIONS. ALL MOUNTING HEIGHTS ARE TO BE CONFIRMED ON SITE AND ADJUSTED ACCORDINGLY TO ENSURE PROPER COVERAGE.
7. APPROVED ALTERNATE BY: WATTSTOPPER, LUTRON, H–MOSS, LEVITON, SENSORSWITCH. SENSORS BEING SUBMITTED AS EQUALS SHALL MEET SPECIFIED CAPABILITIES, COVERAGE(S), SENSITIVITY ADJUSTMENT, TIME DELAYS, ETC. AS OUTLINED ABOVE AND AS PER SPECIFICATIONS. SHALL AN ALTERNATE FAIL TO MEET INTENT OF DESIGN, CONTRACTOR WILL BE RESPONSIBLE TO PROVIDE ADDITIONAL SENSORS AND OR PARTS TO MEET INTEND OF DESIGN AND FUNCTIONALITY.
8. ELECTRICAL CONTRACTOR SHALL ALLOW FOR TRAINING AND EXPLANATION OF CONTROLLED SYSTEMS TO END USER.
9. ELECTRICAL CONTRACTOR TO ENGAGE THIRD PARTY FOR FUNCTIONAL TESTING OF LIGHTING CONTROL DEVICES AND CONTROL SYSTEM AND PROVIDE CERTIFICATE OF ACCEPTANCE TO ENGINEER UPON COMPLETION PRIOR TO OCCUPANCY.

ITEM	DESCRIPTION
OS–1	WALL MOUNTED, DUAL–TECH SENSOR IN AREAS AS SHOWN. CONNECT TO LIGHTS WITH 30 MINUTE TIME DELAY. SENSOR TO BE SET FOR VACANCY MODE FOR MANUAL 'ON' AND AUTOMATIC 'OFF' AFTER PRESET TIME. MANUAL "ON–OFF" VIA BUILT–IN PUSH BUTTON WATTSTOPPER/LEGRAND CAT.# DSW–301–W, OR APPROVED EQUAL
OS–2	WALL MOUNTED, DUAL–TECH, DOUBLE RELAY SENSOR MOUNTED IN WASHROOMS AS SHOWN AND CONNECTED TO LIGHTS AND EXHAUST FAN, WITH 15 MINUTE TIME DELAY ON LIGHTS AND 30 MIN TIME DELAY ON EXHAUST. RELAY DIP SWITCHES TO BE SET FOR VACANCY MODE AUTO 'ON' AND AUTO 'OFF' AFTER PRESET TIME. MANUAL "ON–OFF" VIA BUILT–IN PUSH BUTTON. WATTSTOPPER/LEGRAND CAT.# DSW–302–W, OR APPROVED EQUAL

COMMUNICATIONS

◀	TELEPHONE OUTLET IN CONDUIT C/W DATA CABLING (SEE SPECS) AND RJ11 OUTLET
◁	COMPUTER OUTLET IN CONDUIT C/W DATA CABLING (SEE SPECS) AND RJ45 OUTLET
◁ᵥₒᵢₚ	VOIP OUTLET IN CONDUIT C/W DATA CABLING (SEE SPECS) AND RJ45 OUTLET
◀	COMBINATION TELEPHONE AND COMPUTER OUTLET IN CONDUIT C/W 2x DATA CABLING (SEE SPECS). 1x RJ45 AND 1x RJ11 OUTLETS
◀FAX	SPECIAL TELEPHONE OUTLET FOR FAX AND MODEM. DATA CABLE AND RJ11 OUTLET. RUN SEPARATE LINE TO MAIN TERMINAL BOARD
((ᵂᴬ))	WIRELESS ACCESS POINT BACKBOX, FACEPLATE, CONDUIT C/W DATA CABLING (SEE SPECS) AND RJ45 OUTLET
	COMBINATION TELEPHONE AND COMPUTER OUTLET FOR MODULAR FURNITURE. 2x DATA CABLING (SEE SPECS) 1x RJ45 AND 1x RJ11 OUTLETS. FISH CABLING THROUGH FURNITURE AND TERMINATE AT DESK. PROVIDE ADAPTER PLATES FOR DESK.
	COMPUTER OUTLET FOR MODULAR FURNITURE. DATA CABLING (SEE SPECS) AND RJ45 OUTLET. FISH CABLING THROUGH FURNITURE AND TERMINATE AT DESK. PROVIDE ADAPTER PLATES FOR DESK.
TV	CABLE TV OUTLET – 3/4" (19mm) CONDUIT C/W RG6 CABLING AND F CONNECTOR.
	CLOCK
	COMMUNICATION DEVICES MOUNTED IN 2 CHANNEL RACEWAY
2	COMMUNICATION NOTES: NUMBER BESIDE THE OUTLET DENOTES NUMBER OF OUTLETS

PUBLIC ADDRESS SYSTEM

Ⓢ	CEILING MOUNTED SPEAKER
	WALL MOUNTED SPEAKER
M	MICROPHONE
	INTERCOM
V	VOLUME CONTROL

PANIC BUTTON

ELECTRICAL CONTRACTOR SHALL ENGAGE DUPONT SECURITY TO SUPPLY AND INSTALL WIRELESS PANIC BUTTON AT NEW WORK STATION AS FOLLOWS:

SECURITY SYSTEM CONTRACTOR SHALL ONE PANIC BUTTON C/W WIRELESS TRANSMITTER AT NEW WORK STATION C/W WITH AN AUDIBLE AND VISUAL NOTIFICATION DEVICE, LOCATE IN SECURITY OFFICE (OR AS DIRECTED BY CLIENT). CONTRACTOR SHALL CARRY A CASH ALLOWANCE OF $2,500.00 TO COMPLETE THIS WORK. COORDINATE DEVICE LOCATIONS WITH ELECTRICAL CONTRACTOR TO ASSIST IN PROVISION FOR ROUGH–IN AND IN ARCHITECTURAL MILL WORK DRAWINGS FOR PUSHBUTTON LOCATION.

WIRING DEVICES

	SPECIAL RECEPTACLE. REFER TO NOTES OR DESCRIPTION FOR TYPE
	125 VOLT, 2–POLE, 3–WIRE, STRAIGHT BLADE RECEPTACLE. 15 AMP SIMPLEX UNO.
	125 VOLT, 2–POLE, 3–WIRE, STRAIGHT BLADE RECEPTACLE. 15 AMP DUPLEX UNO.
	125 VOLT, 2–POLE, 3–WIRE, STRAIGHT BLADE RECEPTACLE. 15 AMP DUPLEX CONTROLLED BY OCCUPANCY SENSOR (AUTO ON/OFF)
	2x 125 VOLT, 2–POLE, 3–WIRE, STRAIGHT BLADE RECEPTACLE. 15 AMP DUPLEX UNO.
	125/250 VOLT, 3–POLE, 4–WIRE, STRAIGHT BLADE RECEPTACLE, AMPERAGE AS NOTED
	125 VOLT, 2–POLE, 3–WIRE, STRAIGHT BLADE RECEPTACLE. 15 AMP DUPLEX UNO ON EMERGENCY OR UPS POWER
	125 VOLT, 2–POLE, 3–WIRE, STRAIGHT BLADE HALF–SWITCHED RECEPTACLE. 15 AMP DUPLEX CONTROLLED VIA LOCAL SWITCH
	VERTICAL LINE THROUGH ANY RECEPTACLE SYMBOL INDICATES A NON–STANDARD MOUNTING HEIGHT THAT MUST BE FIELD DETERMINED.
	125 VOLT, 2–POLE, 3–WIRE, STRAIGHT BLADE RECEPTACLE. 15 AMP DUPLEX FOR SYSTEMS FURNITURE
	125 VOLT, 2–POLE, 3–WIRE, STRAIGHT BLADE RECEPTACLE. 15 AMP DUPLEX FOR SYSTEMS FURNITURE CONTROLLED BY OCCUPANCY SENSOR (AUTO ON/OFF)
	125 VOLT, 2–POLE, 3–WIRE, STRAIGHT BLADE RECEPTACLE. 15 AMP DUPLEX FOR SYSTEMS FURNITURE ON EMERGENCY OR UPS POWER
	RECEPTACLES MOUNTED IN 2 CHANNEL RACEWAY
B–1	TYPICAL RECEPTACLE NOTES. CIRCUITING: B–PANELBOARD I.D., 1–BRANCH CIRCUIT. SUBSCRIPT: XX–CURRENT RATING (IF NOTED).

POWER LAYOUT

	DISCONNECT SWITCH (DS)
	COMBINATION STARTER (CS)
	MAGNETIC STARTER (MG)
	MANUAL STARTER (MS)
	POWER PANEL – EXISTING
	POWER PANEL – NEW
	POWER TRANSFORMER
	ELECTRIC HEATING EQUIPMENT
	EQUIPMENT SUPPLIED BY OTHERS REQUIRING ELECTRICAL POWER CONNECTION REFER TO EQUIPMENT SCHEDULE
	EQUIPMENT SUPPLIED BY OWNER REQUIRING ELECTRICAL POWER CONNECTION REFER TO OWNER EQUIPMENT SCHEDULE
	MECHANICAL EQUIPMENT/MOTOR REQUIRING ELECTRICAL POWER
	ALL MODES OF OPERATION OF EQUIPMENT SO NOTED TO BE SHUT DOWN BY THE ALARM CONDITION OF THE FIRE ALARM CONTROL PANEL.
	PUSH BUTTON
	PUSH BUTTON STATION
T	THERMOSTAT
T	TIME CLOCK
J	JIFFY POLE
	120V HARDWIRE CONNECTION
	208V, 1ø HARDWIRE CONNECTION
	208V, 3ø HARDWIRE CONNECTION
	600V, 3ø HARDWIRE CONNECTION
JB	JUNCTION BOX
H	HAND DRYER
	FLOOR BOX

SECURITY, ACCESS CONTROL, CCTV

	AREA TYPE BREAK GLASS DETECTOR
D	SINGLE–PANE TYPE BREAK GLASS DETECTOR
	DOOR CONTACT
	ROLL–UP OR OVERHEAD DOOR DOOR CONTACT
	MOTION DETECTOR
	PHOTO–ELECTRIC BEAM SOURCE
	PHOTO–ELECTRIC BEAM REFLECTOR
	SECURITY SYSTEM ALARM SIGNAL
	VIDEO MONITORING CAMERA
	POWER DOOR PUSH BUTTON OPERATOR
ADO	AUTOMATIC DOOR OPENER
C	CARD READER
ES	ELECTRIC STRIKE
ELR	ELECTRIC LATCH RETRACTION
EPB	EMERGENCY PUSH BUTTON PART OF CAMDEN EMERGENCY CALL KIT
K	ELECTRONIC KEY PAD
MAG	MAGNETIC LOCK
OCC	OCCUPIED LIGHT CAMDEN LED ANNUNCIATOR CM–AF–500
PTR	PUSH TO RELEASE
PTL	PUSH TO LOCK CAMDEN PUSHBUTTON CM–400/8
REX	REQUEST TO EXIT
SP	SCRAMBLE PAD
W	HANDS FREE SWITCH CAMDEN SUREWAVE CM–324/3

LEGEND

THIS LEGEND REPRESENTS THE SYMBOLS COMMONLY USED. NOT ALL SYMBOLS MAY APPEAR ON THE DRAWINGS. SHOULD A SYMBOL BE FOUND ON THE DRAWING AND NOT APPEARING ON THE LEGEND, THE CONTRACTOR SHALL SUBMIT A QUESTION TO HAVE THE SYMBOL CLARIFIED IN AN ADDENDUM PRIOR TO SUBMITTING A BID.

ABBREVIATIONS

20A	DENOTES 5–20R DEVICE
AC	ABOVE COUNTER
ADO	AUTOMATIC DOOR OPENER
AE	APPROVED EQUAL
AFF	ABOVE FINISHED FLOOR
AN	FIRE ALARM ANNUNCIATOR
BED	RECEPTACLE DEDICATED FOR PATIENT BED
BH	BASEBOARD HEATER
CB	CIRCUIT BREAKER
ER	EXISTING TO BE RELOCATED
EX	EXISTING TO REMAIN
FH	FORCED–AIR HEATER
GFI	EQUIPMENT SO NOTED TO BE SUPPLIED WITH A GROUND FAULT CIRCUIT INTERRUPTER
HSKP	HOUSEKEEPING
JB	JUNCTION BOX
PD	POWER DOOR
R	RELAY WITH AUXILIARY CONTACTS
REL	RELOCATED ITEM IN NEW LOCATION
REM	EXISTING TO BE REMOVED IN IT'S ENTIRETY
T	TRANSFORMER
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
W	WALL MOUNT – VERIFY HEIGHT
WP	EQUIPMENT SO NOTED TO BE SUPPLIED WITH THE MANUFACTURER'S WEATHER–PROOFING OPTION(S)
(3)	KEYNOTE – SEE KEYNOTE No. 3 ON DRAWINGS
(3)	KEYNOTE – SEE KEYNOTE No. 3 ON DRAWINGS

LIGHTING FIXTURES

	SURFACE OR RECESS MOUNTED LIGHTING FIXTURES. LETTER DENOTES TYPE
	SURFACE OR RECESS MOUNTED LIGHTING FIXTURES ON AN EMERGENCY OR NIGHT LIGHT CIRCUIT. LETTER DENOTES TYPE.
	SURFACE OR RECESS MOUNTED LIGHTING FIXTURES. LETTER DENOTES TYPE.
	SURFACE OR RECESS MOUNTED LIGHTING FIXTURES ON AN EMERGENCY OR NIGHT LIGHT CIRCUIT. LETTER DENOTES TYPE.
	WALL OR COLUMN MOUNTED LIGHTING FIXTURES. LETTER DENOTES TYPE.
	WALL OR COLUMN MOUNTED LIGHTING FIXTURES ON AN EMERGENCY OR NIGHT LIGHT CIRCUIT. LETTER DENOTES TYPE.
	SURFACE MOUNTED STRIP FLUORESCENT LIGHTING FIXTURE.
B–1–2	LIGHTING CIRCUITING NOTE. B–PANELBOARD I.D., 1–BRANCH CIRCUIT, 2–LOCAL (SWITCH) CIRCUIT.
	SWITCH. SINGLE–POLE, SINGLE–THROW
RC	ROOM CONTROLLER FOR LIGHTING CONTROLS
	CEILING MOUNTED OCCUPANCY SENSOR
	WALL MOUNTED OCCUPANCY SENSOR
B–1–2	TYPICAL SWITCH NOTES. CIRCUITING: B–PANELBOARD I.D., 1–BRANCH CIRCUIT,2–LOCAL (SWITCH) CIRCUIT. XX–SUBSCRIPT(S): D–DIMMING, P–PILOT LIGHT, 3–THREE WAY, 4–FOUR WAY, OS–OCCUPANCY SENSOR, VS–VACANCY SENSOR

FIRE ALARM

	PHOTOELECTRIC TYPE SMOKE DETECTOR
	PHOTOELECTRIC TYPE SMOKE DETECTOR WITH A RELAY BASE.
	PHOTOELECTRIC TYPE SMOKE ALARM, 120VAC WITH BATTERY BACKUP, INTERCONNECTED AS SHOWN
	PHOTOELECTRIC TYPE DUCT SMOKE DETECTOR
	RATE OF RISE AND 57°C FIXED TEMPERATURE HEAT DETECTOR
	92°C FIXED TEMPERATURE HEAT DETECTOR
F	MANUAL PULL STATION
FSV	ELECTRIC SUPERVISED VALVE
FS	FLOW SWITCH
PS	PRESSURE SWITCH
	FIRE ALARM SIGNALLING APPLIANCE – BELL
	FIRE ALARM SIGNALLING APPLIANCE – HORN
	FIRE ALARM SIGNALLING APPLIANCE – STROBE
	FIRE ALARM SIGNALLING APPLIANCE – COMBINATION HORN AND STROBE WALL/COLUMN MOUNT
	FIRE ALARM SIGNALLING APPLIANCE – COMBINATION HORN AND STROBE CEILING MOUNT
	FIRE ALARM DOOR RELEASE DEVICE
S	FIRE ALARM SPEAKER – WALL/COLUMN MOUNT
S	FIRE ALARM SPEAKER – CEILING MOUNT
	FIRE FIGHTERS HANDSET
FAA	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
	FIRE ALARM – CARBON MONOXIDE DETECTOR
	FIRE ALARM – CARBON DIOXIDE DETECTOR
SD/FD	SMOKE OR FIRE DAMPER CONNECT TO FIRE ALARM SYSTEM AND POWER

DEMOLITION NOTES

1. THE CONTRACTOR SHALL ARRANGE TO TOUR THE FACILITY WITH MAINTENANCE STAFF PRIOR TO SUBMITTING A BID ON THE PROJECT.
2. DURING THE CONTRACTORS SITE TOUR THEY SHALL BECOME FAMILIAR WITH THE EXISTING BUILDING CONSTRUCTION AND THE LOCATIONS OF THE EXISTING COMMUNICATION CLOSETS, LOCAL POWER PANELS, FIRE ALARM AND OTHER SYSTEMS BEING WORKED ON AS PART OF THIS CONTRACT.
3. THE CONTRACTOR AND MAINTENANCE STAFF SHALL OPEN EXISTING PANELS AND SYSTEMS TO BECOME FAMILIAR WITH THE EXISTING SYSTEMS AND TO DETERMINE THE FULL SCOPE OF WORK REQUIRED TO CARRY OUT THE PROJECT. THE CONTRACTOR SHALL PROVIDE NEW BREAKERS, DATA/VOICE COMPONENTS, FIRE ALARM DEVICES, LIGHTING SYSTEM COMPONENTS, ETC TO FACILITATE A COMPLETE AND FUNCTIONING SYSTEM AT PROJECT COMPLETION.
4. THE CONTRACTOR SHALL MEASURE OFF ANY DISTANCES NOT INDICATED FOR HOME RUNNING NEW SERVICES (POWER, FIRE ALARM, SECURITY ETC) AND INCLUDE MATERIALS AND LABOUR REQUIRED IN THEIR BID PRICE.
5. COORDINATE ALL DEMOLITION WITH GENERAL CONTRACTOR. EVERY EFFORT HAS BEEN MADE TO OUTLINE THE DEMOLITION SCOPE OF WORK, HOWEVER THE DEMOLITION DRAWINGS REPRESENT ONLY THE GENERAL LOCATION AND NUMBER OF FITTINGS, FIXTURES, DEVICES, EQUIPMENT ETC. TO ASSIST IN EVALUATING THE DEMOLITION SCOPE OF WORK. DRAWINGS ARE BASED ON PREVIOUS AS–BUILTS OR FIELD EVALUATIONS.

   IT IS THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE SITE DURING THE TENDER PERIOD TO DETERMINE THE EXACT SCOPE OF DEMOLITION WORK, QUANTITIES AND THOROUGHLY UNDERSTAND THE SITE CONDITIONS FOR CARRYING OUT THE SAME. REQUESTS FOR EXTRAS DUE TO FAILURE TO PROPERLY EVALUATE THE CONDITIONS THAT AFFECT DEMOLITION SCOPE OF WORK WILL NOT BE CONSIDERED.
6. SHOULD THE CONTRACTOR ENCOUNTER ANY ASBESTOS DURING THE WORK, THEY SHALL STOP WORK AND NOTIFY THE OWNER IMMEDIATELY.
7. THE CONTRACTOR SHALL PATCH, REPAIR AND RESTORE FIRE–SEPARATIONS AS REQUIRED FOR INSTALLATION OF ELECTRICAL RACEWAYS AND OUTLETS IN WALLS AND EXTERIOR WALLS.
8. THE CONTRACTOR SHALL SUBMIT QUESTIONS IN WRITING 5 DAYS PRIOR TO TENDER CLOSING TO ALLOW FOR QUESTIONS TO BE FORMALLY ANSWERED IN AN ADDENDUM.
9. UNLESS EXISTING CIRCUITS NUMBERS ARE INDICATED ON THE DEMOLITION PLANS, ALL CIRCUITS SHOWN ON THE NEW LAYOUTS ARE NEW CIRCUITS. EXCEPTIONS TO THIS INCLUDE CIRCUITS SHOWN ON THE DEMOLITION PLAN AND AGAIN ON THE NEW LAYOUT. THE CIRCUIT SHOWN BOTH TIMES IS EXISTING AND LOCALIZED IN THE AREA OF WORK. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING FOR ALL NEW CIRCUITS: NEW CONDUIT, WIRING, BREAKERS, SUPPORTS, BACKBOXES, FACEPLATES, RECEPTACLES, ETC FOR A COMPLETE SYSTEM.
10. EXISTING CIRCUITS BEING REUSED WILL BE INDICATED BY A CIRCUIT NUMBER (IE 2A15) OR A GENERIC NUMBER (IE CCT7). CCT 7 INDICATES THAT THE LIGHTING OR DEVICE IS TO BE CONNECTED TO 1 OF 7 EXISTING CIRCUITS IN THE AREA THAT HAS BECOME FREE AFTER DEMOLITION. THE CONTRACTOR SHALL BALANCE LOADS AND SHUFFLE BREAKERS AFTER THE PANEL LOADS HAVE BEEN CONNECTED TO EQUALLY LOAD EACH PHASE.
11. WHERE EXISTING LIGHTING CIRCUITS HAVE BEEN REUSED, CONTRACTOR SHALL VERIFY EXISTING VOLTAGE OF CIRCUITS PRIOR TO SUBMITTING ANY SHOP DRAWINGS OR ORDERING OF FIXTURES, SENSORS, CONTROLS, ETC. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES IN FIXTURE VOLTAGE AND EXISTING CIRCUIT VOLTAGE.

GENERAL NOTES

1. THE ELECTRICAL DRAWINGS REPRESENT A PORTION OF THE CONTRACT. THE CONTRACTOR IS TO FAMILIARIZE THEMSELVES WITH ALL OF THE DRAWINGS IN THE PACKAGE AS SOME WORK MAY BE SHOWN ON OTHER DRAWINGS IN THE PACKAGE. CONTRACTOR IS TO DETERMINE FULL EXTENT OF PROJECT PRIOR TO SUBMITTING BID.
2. THE DRAWINGS ARE NOT TO BE SCALED FOR INSTALLATION PURPOSES. ALL MEASUREMENTS ARE TO BE OBTAINED FROM ARCHITECTURAL PLANS, ELEVATIONS, SHOP DRAWINGS OR BE OBTAINED FROM FIELD MEASUREMENTS.
3. CONTRACTOR IS TO REVIEW ARCHITECTURAL DRAWINGS AND PROVIDE ALL NECESSARY PARTS AND ACCESSORIES AND FIRESTOPPING AS REQUIRED TO CONFORM WITH ARCHITECTURAL FIRE RATINGS.
4. CONTRACTOR IS TO REMOVE ALL EXISTING DEAD AND ABANDONED CONDUIT AND WIRING BACK TO SOURCE. WHERE NOT POSSIBLE TO REMOVE EXISTING CONDUIT, CONDUIT IS TO BE LEFT BEHIND AND EXISTING WIRE IS TO BE REMOVED AND REPLACED WITH A PULL ROPE.
5. CONTRACTOR IS TO PROVIDE ELECTRONIC CAD "AS–BUILT" DRAWINGS IN DWG AND PDF FORMAT AT THE COMPLETION OF THE PROJECT. CAD FILES ARE TO BE AUTOCAD 2010.
6. UNLESS NOTED OTHERWISE ALL WIRING SHALL BE IN CONDUIT AND CONCEALED IN WALLS AND CEILING SPACES. BX IS PERMITTED IN SPECIAL CIRCUMSTANCES AND SHORT DROPS FROM JUNCTION BOXES TO LIGHT FIXTURES, REFER TO SPECIFICATIONS. CONDUIT RUNS ARE TO BE PARALLEL TO WALL STUDS AND DROP FROM JUNCTION BOXES MOUNTED IN THE CEILING SPACE. HORIZONTAL RUNS IN WALLS WILL ONLY BE ACCEPTED UNDER SPECIAL CIRCUMSTANCES (IE OFFSET TO AVOID STRUCTURAL ABOVE) WITH WRITTEN APPROVAL FROM THE OWNER/CONSULTANT.
7. ALL DATA/COMM WIRING FROM EACH OUTLET IS TO BE PROVIDED IN MIN. 1" (25mm) CONDUITS FROM OUTLET TO THE SOURCE (RACK AND/OR BIX BLOCK). CONTRACTOR CAN GROUP CABLING AND INSTALL A LARGER RUN BACK TO THE SOURCE. WHERE CABLE IS PERMITTED TO RUN FREE–AIR; A CONDUIT SHALL BE INSTALLED FROM THE OUTLET INTO AN ACCESSIBLE CEILING SPACE. PROVIDE BUSHINGS AT TOP OF WALL AND TRANSITION TO J–HOOKS (WITHIN ROOM) OR CABLE TRAY (AT CORRIDOR). CABLE IS NOT PERMITTED TO BE LAYING ON CEILING. COMM WIRING SHALL BE IN CONDUIT FOR ALL EXPOSED AREAS. FREE AIR COMM WIRING TRANSITIONING FROM ACCESSIBLE CEILINGS TO EXPOSED CEILINGS SHALL BE IN CONDUIT THROUGHOUT THE EXPOSED AREA. PROVIDE 12" (300mm) STUBS INTO THE EXPOSED AREAS WITH BUSHINGS. CONDUIT SHALL NOT EXCEED 40% FILL.
8. UNLESS SPECIFICALLY NOTED AS "CABLING BY OTHERS", THE CONTRACTOR SHALL INCLUDE FOR ALL CABLING TO DEVICES, OUTLETS, ETC AS SHOWN FOR A COMPLETE AND FUNCTIONING SYSTEM(S).
9. CONTRACTOR IS TO MAINTAIN POWER AND COMMUNICATION CIRCUITS IN AREAS OUTSIDE OF THE CONSTRUCTION AREA. PROVIDE TEMPORARY CONNECTIONS AS REQUIRED, COORDINATE WITH OWNER.
10. EQUIPMENT BEING REMOVED AND NOT BEING REUSED REMAIN THE PROPERTY OF THE OWNER AND IS TO BE STORED ON SITE. ANY EQUIPMENT THE OWNER DEEMS NO INTEREST IN IS TO BE DISPOSED OF IN A LAWFUL AND SAFE MANNER BY THIS TRADE.
11. CONTRACTOR IS TO REFER TO ARCHITECTURAL PLANS AND CEILING LAYOUTS TO VERIFY THAT NO INTERFERENCES EXIST PRIOR TO THE INSTALLATION OF FIXTURES AND DEVICES IN WALLS AND CEILINGS.

DRAWING LIST

E0	GENERAL NOTES, LEGEND AND DRAWING LIST
E1	SPECIFICATIONS
E2	SPECIFICATIONS
E3	PART PLAN – DEMOLITION – POWER, SYSTEMS AND LIGHTING
E4	PART PLAN – PROPOSED – POWER, SYSTEMS AND LIGHTING
E5	DETAILS

Notes:

No.	Revision	Date	By
0	ISSUED FOR PERMIT AND TENDER	2024.09.10	DP
A	ISSUED FOR COMMENTS AND REVIEW	2024.08.01	DP

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Title
GENERAL NOTES, LEGEND AND DRAWING LIST

Drawn By:	Designed By:	Approved By:	Date:
DN	DP	DP	JULY, 2024

Project No.	Scale
24-103	NTS

Drawing No.	Sheet	Revision
E0	1 of 6	0

ORIGINAL SHEET – ARCH D

File: X:\Projects\2024\24-103 Port Colborne Police Accessibility ARC\E\24-103 E0 LEGEND.dwg
September 10, 2024 – 03:42pm Plotted by: Dominic

1. GENERAL

1.1. THIS SPECIFICATION SHALL APPLY TO AND GOVERN ALL WORK OF DIVISION 16. THE ELECTRICAL CONTRACTOR SHALL BE A SUBCONTRACTOR TO THE GENERAL CONTRACTOR AND HIS BID SHALL BE TENDERED DIRECTLY TO THE GENERAL CONTRACTOR. THE CONTRACTOR SHALL SUPPLY, INSTALL, WIRE AND CONNECT ALL EQUIPMENT, ACCESSORIES, DEVICES ETC SHOWN UNLESS SPECIFICALLY NOTED OTHERWISE. SHOULD THE CONTRACTOR BE UNSURE, THEY ARE TO SUBMIT A QUESTION 3 WORKING DAYS PRIOR TO TENDER CLOSE TO HAVE AN ADDENDUM ISSUED TO CLARIFY THE DEVICE, EQUIPMENT OR WORK SCOPE IN QUESTION.

1.2. IT IS THE CONTRACTORS RESPONSIBILITY TO OBTAIN ALL DRAWINGS AND SPECIFICATIONS PRIOR TO TENDER SUBMITTAL. ELECTRICAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS. ANY DISCREPANCIES BETWEEN THESE SPECIFICATIONS AND THE DRAWINGS THAT CAUSES DOUBT AS TO THE TRUE MEANING OF INTENT OF THE DRAWINGS AND SPECIFICATIONS, A RULING SHALL BE OBTAINED FROM THE ENGINEER PRIOR TO TENDER SUBMITTAL. NO ALLOWANCE WILL BE MADE FOR FAILURE TO DO SO. IF CLARIFICATION CAN NOT BE OBTAINED IN TIME, THE CONTRACTOR SHALL INCLUDE FOR THE MORE COSTLY INSTALLATION IN THEIR BID.

1.3. LIABILITY INSURANCE: OBTAIN AND CARRY PROPER INSURANCE TO FULLY PROTECT BOTH THE OWNER AND HIMSELF FROM ANY AND ALL CLAIMS DUE TO ACCIDENTS, MISFORTUNES, ACTS OF GOD, ETC.

1.4. CODES, PERMITS AND INSPECTION

1.4.1. BE RESPONSIBLE FOR AND OBTAIN ALL PERMITS, INSPECTION, ETC., AS REQUIRED BY ALL AUTHORITIES HAVING JURISDICTION OVER THIS WORK AND PAY FOR ALL FEES RELATED TO SAME.

1.4.2. DELIVER ALL PERMITS TO THE ENGINEER AS SOON AS THEY BECOME AVAILABLE.

1.5. CLOSE OUT DOCUMENTS AND AS-BUILT DRAWINGS;

1.5.1. THE CONTRACTOR SHALL SUBMIT AN ENQUIRY TO THE ARCHITECT/OWNER TO OBTAIN THE FINAL ROOM NAMES AND NUMBERS TO BE USED IN ALL THE CLOSE OUT DOCUMENTS, REPORTS, FIRE ALARM/NURSE CALL PROGRAMMING, PANEL SCHEDULES ETC. FAILURE TO USE THE FINAL NAMES AND NUMBERS WILL REQUIRE THE CONTRACTOR TO REPLACE DOCUMENTATION/REPROGRAM AS REQUIRED AT THEIR EXPENSE. THEY SHALL KEEP A SEPARATE SET OF WHITE PRINTS ON THE SITE AND NOTE ALL CHANGES AND DEVIATIONS FROM THE ORIGINAL DESIGN. DEVICES ETC NOTED AS "EX" (EXISTING) AND "REL" RELOCATED ARE TO HAVE THE CIRCUIT TRACED AND DESIGNATED ON THE DRAWINGS. DEVICES ETC DESIGNATED AS CONNECT TO EXISTING CIRCUIT IN AREA ARE TO HAVE THE CIRCUIT INDICATED ON THE PLANS. PROVIDE AS-BUILT DRAWINGS IN AUTOCAD FORMAT (MIN. RELEASE 2010), PDF FORMAT AND (2) TWO SETS OF THESE PLANS SHOWING ALL AS-BUILT CONDITIONS TO THE OWNER AT THE COMPLETION OF THIS CONTRACT AND BEFORE APPLYING FOR FINAL PAYMENT. (INCLUDE IN-SLAB CONDUIT RUNS). SHOULD NO MARKUPS BE REQUIRED TENDER AND/OR SEALED PLANS BY THE ENGINEER WILL NOT BE ACCEPTED.

1.5.2. CLOSE OUT BINDERS SHALL BE PROVIDED WITH ALL TEST RESULTS, WARRANTY LETTERS AND SHOP DRAWINGS. A PDF COPY SHALL BE PROVIDED ALONG WITH THE HARD COPY VERSIONS. PDF VERSION SHALL BE ASSEMBLED VERSIONS WHERE POSSIBLE. SHOULD A DOCUMENT REQUIRE SCANNING, IT SHALL BE PROVIDED IN HIGH RESOLUTION AND BE CLEARLY LEGIBLE. ILLEGIBLE DOCUMENTS WILL NOT BE ACCEPTED.

1.6. CODES AND STANDARDS; (CURRENT EDITIONS)

1.6.1. DO COMPLETE INSTALLATION IN ACCORDANCE WITH C.S.A C22.1 EXCEPT WHERE SPECIFIED OTHERWISE.

1.6.2. COMPLY WITH C.S.A. ELECTRICAL BULLETINS IN FORCE AT TIME OF TENDER SUBMISSION, WHILE NOT IDENTIFIED AND SPECIFIED BY NUMBER IN THIS DIVISION, ARE TO BE CONSIDERED AS FORMING PART OF RELATED C.S.A. PART II STANDARD.

1.6.3. DO OVERHEAD AND UNDERGROUND SYSTEMS IN ACCORDANCE WITH C.S.A. C22.3 NO. 1 EXCEPT WHERE SPECIFIED OTHERWISE.

1.6.4. ABBREVIATIONS FOR ELECTRICAL TERMS: TO C.S.A. Z85.

1.6.5. COMPLY ALSO WITH THE FOLLOWING CODES:
    1.6.5.1. ONTARIO ELECTRICAL SAFETY CODE
    1.6.5.2. NATIONAL BUILDING CODE
    1.6.5.3. ONTARIO BUILDING CODE
    1.6.5.4. LOCAL HYDRO UTILITY REQUIREMENTS
    1.6.5.5. CAN/ULC S524, S537 AND S1001

1.7. VISITING THE SITE: VISIT THE SITE OF THE PROJECT AND BECOME FAMILIAR WITH THE SITE CONDITIONS. REPORT ANY DEVIATION AND/OR CONFLICTS BETWEEN TENDER DOCUMENTS AND SITE CONDITIONS PRIOR TO SUBMITTING TENDER.

1.8. LOCATION OF OUTLETS; CHANGE LOCATION OF OUTLETS, EQUIPMENT AT NO EXTRA COST OR CREDIT, PROVIDING DISTANCE DOES NOT EXCEED 10'-0" (3m) AND INFORMATION IS GIVEN BEFORE INSTALLATION.

1.9. CUTTING AND PATCHING: PROVIDE ALL CUTTING, PATCHING AND PAINTING FOR ELECTRICAL WORK, UNLESS NOTED OTHERWISE.

1.10. EQUIPMENT AND MATERIAL: ALL EQUIPMENT AND MATERIAL, UNLESS SPECIFICALLY NOTED OTHERWISE, SHALL BE NEW AND WITHOUT BLEMISH OR DEFECT. ALL MATERIAL AND EQUIPMENT SHALL BEAR U.L.C. OR C.S.A. LABELS.

1.11. WARRANTY: WARRANT ALL WORK AND APPARATUS INSTALLED UNDER THIS CONTRACT FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF SAME BY THE OWNER.

1.12. MAINTENANCE OF SERVICE; PROVIDE ALL LABOUR AND MATERIALS NECESSARY TO ENSURE THAT POWER, LIGHTING AND ALL OTHER MISCELLANEOUS ELECTRICAL SERVICES ARE MAINTAINED IN FULL OPERATING CONDITION, IN ALL AREAS OF THE EXISTING BUILDING, DURING THE CONSTRUCTION PERIOD. DISCONNECT, MOVE, RELOCATE, AND RECONNECT CONDUIT AND WIRING AS NECESSARY TO ACCOMMODATE THE NEW WORK AND MECHANICAL INSTALLATION.

1.13. CLEANING

1.13.1. DO FINAL CLEANING.

1.13.2. AT TIME OF FINAL CLEANING, CLEAN EQUIPMENT SURFACES THAT HAVE BEEN EXPOSED TO CONSTRUCTION DUST AND DIRT.

1.13.3. VACUUM INSIDE OF ALL PANEL BOARDS, ETC., ON COMPLETION OF THE PROJECT.

1.14. SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

1.14.1. SUBMIT SHOP DRAWINGS, PRODUCT DATA AND/OR SAMPLES FOR ALL EQUIPMENT, POWER DISTRIBUTION, POWER DEVICES, COMMUNICATIONS DEVICES, RACEWAY, LIGHT FIXTURES, EMERGENCY LIGHTING, ETC. THE DRAWINGS ARE TO BE REVIEWED AND STAMPED BY BOTH THE GENERAL AND ELECTRICAL CONTRACTOR PRIOR TO SUBMITTAL.

1.14.2. SHOP DRAWINGS SHALL INCLUDE ALL RELEVANT ACCESSORIES AND LAYOUTS WHERE REQUESTED.

1.14.3. SHOP DRAWINGS THAT ARE ILLEGIBLE AND OF POOR QUALITY WILL BE REJECTED.

1.14.4. SHOP DRAWINGS WILL BE REVIEWED AND RETURN MARKED "REVIEWED", "REVIEWED AS MODIFIED" OR "REVISE AND RESUBMIT". THE DRAWING REVIEW DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR ITS ACCURACY OR FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS.

1.14.5. INSTALLATION OF ANY EQUIPMENT SHALL NOT START UNTIL AFTER FINAL REVIEW OF SHOP DRAWINGS BY THE CONSULTANT HAS BEEN OBTAINED.

1.14.6. INCOMPLETE OR INCORRECT SHOP DRAWINGS THAT ARE REJECTED, WHICH ADVERSELY CAUSE OR RESULT IN ANY DELAY OF THE DELIVER SCHEDULE OF ANY EQUIPMENT SHALL BE THE CONTRACTORS RESPONSIBILITY.

1.14.7. IF INCORRECT SHOP DRAWINGS ARE SUBMITTED AND REJECTED ANY SUBSEQUENT DELIVERY DELAY WILL RESULT IN THE CONTRACTOR PROVIDING TEMPORARY FACILITIES UNTIL SAID EQUIPMENT IS DELIVERED AND INSTALLED AT NO EXTRA COST TO THE OWNER.

1.14.8. PROVIDE SPACE FOR SHOP DRAWING REVIEW STAMPS FOR THE CONTRACTOR AND CONSULTANT. THIS SPACE SHALL BE CLEAR OF ALL TECHNICAL INFORMATION AND SHALL NOT BE ON THE BACK OF ANY SHEETS.

1.14.9. SUBMIT SHOP DRAWINGS IN DIGITAL (PDF) FORMAT.

1.14.10. ONE (1) ORIGINAL COPY IN DIGITAL FORMAT (PDF) WILL BE RETURNED. ALL COPIES REQUIRED BY TRADES, SUPPLIERS OR OTHER CONSULTANTS WILL BE PROVIDED AND/OR PRINTED BY THE CONTRACTOR.

1.14.11. FAILURE TO SUBMIT SHOP DRAWINGS WILL NOT RELIEVE THIS CONTRACTOR FROM ENSURING THAT ALL INSTALLED EQUIPMENT MEETS THE INTEND OF DESIGN DOCUMENTS. ALL COSTS ASSOCIATED WITH ANY ISSUES ASSOCIATED WITH ALTERNATE OR NOT SUBMITTED EQUIPMENT WILL THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR.

1.14.12. SHOP DRAWING SUBMITTAL SHALL BE (BUT NOT LIMITED TO) FOR ANY EQUIPMENT AS LISTED;
    1.14.12.1. HIGH VOLTAGE EQUIPMENT
    1.14.12.2. SWITCHBOARD, METER CENTERS, PANEL BOARDS
    1.14.12.3. FIRE ALARM SYSTEMS
    1.14.12.4. LUMINAIRES INCLUDING LAMPS AND BALLASTS
    1.14.12.5. LIGHTING CONTROLS
    1.14.12.6. EMERGENCY BATTERY UNITS AND FIXTURES
    1.14.12.7. ELECTRICAL HEATERS
    1.14.12.8. SECURITY SYSTEM
    1.14.12.9. MASTER CLOCK AND PROGRAM
    1.14.12.10. INTERCOM SYSTEM
    1.14.12.11. PUBLIC ADDRESS SYSTEM
    1.14.12.12. MILLWORK
    1.14.12.13. DEVICES

1.15. DRAW BREAKDOWNS:

1.15.1. THIS CONTRACTOR MUST SUBMIT A BREAKDOWN OF THE TENDER PRICE INTO SEPARATE CLASSIFICATION TO THE SATISFACTION OF THE CONSULTANT AND TOTALING THE TOTAL CONTRACT AMOUNT. EACH ITEM IS TO BE BROKEN INTO MATERIAL AND LABOUR COSTS.

1.15.2. PROGRESS DRAWS, WHEN SUBMITTED, ARE TO BE ITEMIZED AGAINST EACH OF THE DRAW BREAKDOWNS AND SHALL BE IN TABLE FORM IDENTIFYING CONTRACT AMOUNT, AMOUNT OF THIS DRAW, TOTAL TO DATE, PERCENTAGE COMPLETE AND BALANCE.

1.15.3. BREAKDOWN SHALL FOLLOW, BUT NOT BE LIMITED TO;
    1.15.3.1. PERMITS AND FEE
    1.15.3.2. MOBILIZATION
    1.15.3.3. DEMOLITION
    1.15.3.4. DISTRIBUTION EQUIPMENT (IE. SWITCHBOARDS, PANELBOARDS, ETC.)
    1.15.3.5. INCOMING FEEDERS AND CONDUITS
    1.15.3.6. BRANCH WIRING CONDUITS
    1.15.3.7. BRANCH WIRING
    1.15.3.8. MECHANICAL EQUIPMENT WIRING
    1.15.3.9. FIRE ALARM DEVICES
    1.15.3.10. FIRE ALARM WIRING
    1.15.3.11. FIRE ALARM VERIFICATION AND CERTIFICATION
    1.15.3.12. EXIT AND EMERGENCY LIGHTING
    1.15.3.13. LIGHTING
    1.15.3.14. LIGHTING CONTROLS
    1.15.3.15. VOICE AND COMMUNICATION CONDUITS
    1.15.3.16. VOICE AND COMMUNICATION WIRING AND TERMINATIONS
    1.15.3.17. ACCESS CONTROL AND SECURITY
    1.15.3.18. MISCELLANEOUS AND SPECIALTY EQUIPMENT (IE. PUBLIC ADDRESS, SOUND, ETC.)

1.15.4. ABOVE BREAKDOWN MUST BE APPROVED BY THE CONSULTANT PRIOR TO SUBMISSION OF THE FIRST DRAW, MOBILIZATION AMOUNT MAY ONLY BE DRAWN WHEN ALL REQUIRED SHOP DRAWINGS HAVE BEEN REVIEWED BY THE CONSULTANT

1.16. REVISIONS TO CONTRACT:

1.16.1. PROVIDE ITEMIZED LISTS OF MATERIALS/ASSOCIATED COSTS, LABOUR RATE/LABOUR FOR EACH ITEM, COPY OF MANUFACTURERS INVOICE, IF REQUESTED, FOR EACH ITEM GIVEN CHANGE NOTICE.

1.17. ROOF AND WALL OPENINGS:

1.17.1. LOCATION OF CONDUITS PASSING THROUGH ROOF AND WALLS TO BE COORDINATED WITH DIVISION 15. ALL OPENINGS TO BE MADE WATERTIGHT.

1.18. SCHEDULE OF CONSTRUCTION:

1.18.1. CONSULT GENERAL DIVISION FOR SCHEDULE OF CONSTRUCTION BEFORE COMMENCING WORK AND COORDINATE DETAILS WITH ENGINEER, OWNER AND ALL TRADES DURING CONSTRUCTION.

1.19. DIRECTORIES AND LABELLING:

1.19.1. IDENTIFY ALL ELECTRICAL EQUIPMENT. IDENTIFICATION SHALL CONSIST OF ENGRAVED LAMACOID NAMEPLATES HAVING BLACK BACKGROUND WITH WHITE LETTERS. FASTEN NAMEPLATES TO DEVICE USING SELF-TAPPING, COUNTERSUNK SCREWS. TAPE-TYPE NAMEPLATES WILL NOT BE ACCEPTED.

1.19.2. ALL RECEPTACLE COVER PLATES SHALL BE LABELED WITH TAPE-TYPE NAMEPLATES. THE LABEL SHALL INDICATE THE PANEL DESIGNATION AND CIRCUIT NUMBER. (IE A19). TAPE SHALL BE NEATLY TRIMMED ON EACH END AND PLACED PLUMB AND LEVEL ON THE FACE PLATE. LABELS SHALL HAVE A NEAT, CLEAN AND PROFESSIONAL APPEARANCE. LABELS NOT TRIMMED OR POORLY POSITIONED WILL NOT BE ACCEPTED.

1.19.3. ALL PANELS WITH CIRCUITS ADDED OR REMOVED SHALL HAVE NEW COMPUTER GENERATED PANEL SCHEDULES PLACED IN THEM. SCHEDULE SHALL INDICATE PANEL DESIGNATION, WHERE PANEL IS FED FROM, VOLTAGE, PHASE, BRANCH CIRCUIT NUMBERS, BREAKER AMPERAGE AND CIRCUIT DESCRIPTION.

1.20. GROUNDING;

1.20.1. GROUND ALL EQUIPMENT IN ACCORDANCE WITH CODE REQUIREMENTS AND AS INDICATED.

1.20.2. GROUNDING CONDUCTORS: COPPER, INSULATED (GREEN); SIZE PER CODE.

1.20.3. GROUNDING LUGS, CONNECTORS: APPROVED GROUNDING TYPE.

1.20.4. ALL GROUND CONDUCTORS #8AWG OR SMALLER SHALL BE RUN IN EMT.

1.21. FIREPROOFING;

1.21.1. WHERE CABLES PASS THROUGH FLOORS OR FIRE RATED WALLS, PACK SPACE BETWEEN WIRING AND SLEEVE FULL WITH APPROVED RATED FIRE STOPS AND SEAL WITH CAULKING COMPOUND CONFORMING TO CGSB 19-GP-9Ma.

1.22. MOUNTING HEIGHTS:

1.22.1. MOUNTING HEIGHT OF EQUIPMENT IS FROM FINISHED FLOOR TO CENTRELINE OF EQUIPMENT UNLESS SPECIFIED OR INDICATED OTHERWISE.

1.22.2. IF MOUNTING HEIGHT OF EQUIPMENT IS NOT SPECIFIED OR INDICATED, VERIFY BEFORE PROCEEDING WITH INSTALLATION

1.22.3. INSTALL ELECTRICAL EQUIPMENT AS SPECIFIED IN THE OBC FOR BARRIER FREE DESIGN. IF NOT NOTED, INSTALL AT FOLLOWING CENTERLINE HEIGHTS:
    1.22.3.1. LOCAL SWITCHES: 3'-5" (1050mm).
    1.22.3.2. WALL RECEPTACLES:
        1.22.3.2.1. GENERAL: 1'-6" (450mm).
        1.22.3.2.2. ABOVE TOP OF CONTINUOUS BASEBOARD HEATER: 10" (250mm).
        1.22.3.2.3. ABOVE TOP OF COUNTERS OR COUNTER SPLASH BACKS: 6" (150mm).
        1.22.3.2.4. MECHANICAL ROOMS: 3'-5" (1050mm).
    1.22.3.3. PANELBOARDS: AS REQUIRED BY CODE OR AS INDICATED.
    1.22.3.4. TELEPHONE AND INTERPHONE OUTLETS: 1'-6" (450mm).
    1.22.3.5. TELEVISION OUTLETS: 1'-6" (450mm).
    1.22.3.6. FIRE ALARM PULL STATIONS: 3'-9" (1150mm).

1.23. LOAD BALANCE:

1.23.1. MEASURE PHASE CURRENT TO PANELBOARDS WITH NORMAL LOADS (LIGHTING) OPERATING AT TIME OF ACCEPTANCE. ADJUST BRANCH CIRCUIT CONNECTIONS AS REQUIRED TO OBTAIN BEST BALANCE OF CURRENT BETWEEN PHASES AND RECORD CHANGES.

1.23.2. MEASURE PHASE VOLTAGES AT LOADS AND ADJUST TRANSFORMER TAPS TO WITHIN 2% OF RATED VOLTAGE OF EQUIPMENT.

1.23.3. SUBMIT, AT COMPLETION OF WORK, REPORT LISTING PHASE AND NEUTRAL CURRENTS ON PANELBOARDS, DRY-CORE TRANSFORMERS AND MOTOR CONTROL CENTRES, OPERATING UNDER NORMAL LOAD. STATE HOUR AND DATE ON WHICH EACH LOAD WAS MEASURED, AND VOLTAGE AT TIME OF TEST.

1.24. SECURITY DOOR

1.24.1. THE CONTRACTOR SHALL INCLUDE FOR ALL WORK (CUTTING, PATCHING, CONDUIT, PULLING CABLE, EQUIPMENT, LICENCES, INSTALLATION, ETC) FOR SECURITY DOORS. MAGNETIC LOCK DOORS SHALL INCLUDE POWER FOR THE CONTROLLER AND CONDUIT/CABLING TO CONNECT TO THE THE KEY RESET SWITCH. CONFIRM LOCATION AND ROUTING PRIOR TO BID. ALL DOORS SHALL BE FULLY FUNCTIONAL AT COMPLETION OF PROJECT. WHERE SPECIFIED VENDORS ARE INDICATED, THE CONTRACTOR SHALL COORDINATE WITH THIS VENDOR AND INCLUDE FOR ALL WORK NOT IN THE SCOPE OF THE SPECIFIED VENDOR. CONTRACTOR SHALL MAKE ANY ADJUSTMENTS AFTER INSTALLATION AS REQUIRED BY THE OWNER.

1.24.2. REFER TO THE FIRE ALARM SECTION FOR VERIFICATION AND TESTING. DOORS SHALL BE TESTED AS A SYSTEM WITH THE FIRE ALARM AND OPERATION SHALL BE CONFIRMED PRIOR TO BRINGING CITY OFFICIALS, BUILDING OWNERS AND THE ENGINEER TO SITE TO WITNESS DOORS.

1.25. CONDUIT AND CABLE INSTALLATION:

1.25.1. INSTALL CONDUIT AND SLEEVES PRIOR TO POURING OF CONCRETE. SLEEVES THROUGH CONCRETE: SCHEDULE 40 STEEL PIPE, SIZED FOR FREE PASSAGE OF CONDUIT, AND PROTRUDING 2" (50mm).

1.25.2. IF PLASTIC SLEEVES ARE USED IN FIRE RATED WALLS OR FLOORS, REMOVE BEFORE CONDUIT INSTALLATION.

1.25.3. INSTALL CABLES, CONDUITS AND FITTINGS TO BE EMBEDDED OR PLASTERED OVER, NEATLY AND CLOSE TO BUILDING STRUCTURE SO FURRING CAN BE KEPT TO MINIMUM.

1.26. DEFINITIONS:

1.26.1. THE FOLLOWING ARE DEFINITIONS OF WORDS FOUND IN THE SPECIFICATION AND ON ASSOCIATED DRAWINGS:
    1.26.1.1. "CONCEALED" – HIDDEN FROM NORMAL SIGHT IN FURRED IN SPACES, SHAFTS, CEILING SPACES, WALLS, UNDERFLOOR AND PARTITIONS.
    1.26.1.2. "EXPOSED" – ALL ELECTRICAL WORK EXPOSED TO BUILDING OCCUPANTS. WIRE AND CABLING SHALL BE IN CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE.
    1.26.1.3. "PROVIDE" (AND ALL TENSES OF "PROVIDE") SUPPLY, INSTALL, WIRE AND CONNECT COMPLETE.
    1.26.1.4. "INSTALL" (AND ALL TENSES OF "INSTALL") INSTALL WIRE AND CONNECT COMPLETE, PRODUCTS AND SERVICES SPECIFIED.
    1.26.1.5. "SUPPLY" SUPPLY ONLY
    1.26.1.6. "OR APPROVED EQUAL" MATERIAL OR EQUIPMENT PROPOSED BY THE CONTRACTOR IN LIEU OF THAT SPECIFIED AS APPROVED BY THE CONSULTANT. MATERIAL OR EQUIPMENT SHALL MEET OR EXCEED THE SAME QUALITY, MATERIAL, EFFICIENCY, ETC AS THE SPECIFIED PRODUCTS.
    1.26.1.7. "AS INDICATED" AS SHOWN ON DRAWINGS AND/OR NOTED IN SPECIFICATIONS.

1.27. MILLWORK

1.27.1. THE CONTRACTOR SHALL COORDINATE THE LOCATIONS OF THE ELECTRICAL DEVICES WITH THE MILLWORK DRAWINGS. THE CONTRACTOR SHALL REVIEW THE ARCHITECTURAL DRAWINGS AND SECTIONS FOR LOCATIONS OF MILLWORK PRIOR TO ROUGH-IN. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES.

1.27.2. MILLWORK DRAWINGS SHALL INDICATE LOCATIONS OF ELECTRICAL OUTLETS, DEVICES ETC.

1.27.3. EXTRAS WILL NOT BE CONSIDERED FOR DEVICES INSTALLED IN THE INCORRECT LOCATION AND NOT INDICATED ON THE SHOP DRAWINGS. THE CONTRACTOR SHALL RELOCATE THAT DEVICE AT THEIR EXPENSE TO THE CORRECT LOCATION.

1.28. PHASING

1.28.1. THE CONTRACTOR SHALL REVIEW THE PHASING AS INDICATED ON ALL PLANS. THIS INCLUDES ARCHITECTURAL, MECHANICAL PLANS ETC IN THE ENTIRE DRAWING PACKAGE.

1.28.2. THE CONTRACTOR SHALL INCLUDE FOR TEMPORARY CONNECTIONS AS REQUIRED TO FACILITATE THE WORK.

1.28.3. THE CONTRACTOR SHALL INCLUDE FOR ALL WEEKEND AND PREMIUM TIME REQUIRED TO FACILITATE THE PHASING AS INDICATED IN THE PLANS PACKAGE.

2. PRODUCTS

2.1. ELECTRICAL EQUIPMENT

2.1.1. EQUIPMENT SHALL HAVE 1.0m (39") CLEARANCE IN FRONT OF SAID EQUIPMENT

2.1.2. ELECTRICAL EQUIPMENT RATED AT 1200A AND OVER SHALL HAVE 1.5m (59") CLEARANCE IN FRONT OF SAID EQUIPMENT.

2.1.3. ALL EQUIPMENT INSTALLED IN SPRINKLERED AREAS ARE TO BE COMPLETE WITH DRIP SHIELDS.

2.2. PANEL BOARDS

2.2.1. PANEL BOARDS: TO C.S.A. C22.2, NO. 29. LOADCENTRES ARE NOT ACCEPTABLE.

2.2.2. PANEL BOARDS ARE TO BE THE PRODUCT OF ONE (1) MANUFACTURER

2.2.3. 120/208V-3 PHASE-4 WIRE PANEL BOARDS: BUS AND BREAKERS RATED FOR MINIMUM 10,000A (SYMMETRICAL) INTERRUPTING CAPACITY OR AS INDICATED ON THE DRAWINGS.

2.2.4. MAIN BREAKER SHALL OCCUPY A SEPARATE COMPARTMENT FROM BRANCH BREAKERS. PANELS WITH MAIN BREAKERS IN BRANCH BREAKER COMPARTMENT WILL NOT BE ACCEPTED.

2.2.5. SEQUENCE PHASE BUSSING WITH ODD NUMBERED BREAKERS ON LEFT AND EVEN ON RIGHT, WITH EACH BREAKER IDENTIFIED BY PERMANENT NUMBER IDENTIFICATION AS TO CIRCUIT NUMBER.

2.2.6. PANEL BOARDS: MAINS, NUMBER OF CIRCUITS, AND NUMBER AND SIZE OF BRANCH CIRCUIT BREAKERS AS INDICATED

2.2.7. TWO (2) KEYS FOR EACH PANEL BOARD AND KEY PANEL BOARDS ALIKE.

2.2.8. COPPER BUS WITH FULL SIZE COPPER MAINS AND NEUTRAL.

2.2.9. MAINS FOR BOLT-ON BREAKERS.

2.2.10. FINISH TRIM AND DOOR BAKED GRAY ENAMEL. PAINT TUB SAME AS DOOR.

2.2.11. COMPLETE CIRCUIT DIRECTORY WITH TYPEWRITTEN LEGEND SHOWING CIRCUIT LABEL, AMPERAGE AND PANEL LOCATION UNDER PLASTIC COVER.

2.2.12. EATON CUTLER HAMMER, SQUARE D, SIEMENS CANADA MANUFACTURE.

2.3. BREAKERS GENERAL

2.3.1. BOLT-ON MOLDED CASE CIRCUIT BREAKER, FULL MODULE (I.E.. 1"MINIMUM WIDTH), QUICK-MAKE, QUICK-BREAK TYPE, FOR MANUAL AND AUTOMATIC OPERATION WITH TEMPERATURE COMPENSATION FOR 400C AMBIENT. (MINI-BREAKERS NOT ACCEPTABLE)

2.3.2. MAGNETIC INSTANTANEOUS TRIP ELEMENTS IN CIRCUIT BREAKERS, TO OPERATE ONLY WHEN THE VALUE OF CURRENT REACHES SETTING.

2.4. DISCONNECT SWITCHES FUSED AND UNFUSED

2.4.1. ENCLOSED MANUAL AIR BREAK SWITCHES IN NON-HAZARDOUS LOCATIONS: TO C.S.A. C22.2 NO. 4.

2.4.2. FUSE HOLDER ASSEMBLIES TO C.S.A. C22.2 NO. 39.

2.4.3. FUSIBLE AND NON-FUSIBLE DISCONNECT SWITCHES AS INDICATED.

2.4.4. PROVISION FOR PADLOCKING IN ON/OFF SWITCH POSITION BY THREE LOCKS

2.4.5. MECHANICALLY-INTERLOCKED DOOR TO PREVENT OPENING WHEN HANDLE IN "ON" POSITION

2.4.6. QUICK-MAKE, QUICK-BREAK ACTION.

2.4.7. ON/OFF SWITCH POSITION INDICATION ON SWITCH ENCLOSURE COVER.

2.4.8. C.S.A. ENCLOSURE 1 UNLESS NOTED OTHERWISE.

2.4.9. EATON CUTLER HAMMER, SQUARE D, SIEMENS CANADA MANUFACTURE.

2.5. CONDUCTORS

2.5.1. ALL CONDUCTORS SHALL BE COPPER UNLESS INDICATED OTHERWISE.

2.5.2. CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID. CONDUCTORS #8 AND LARGER SHALL BE STRANDED.

2.5.3. CONDUCTORS SHALL BE SIZED #12 AWG MINIMUM, EXCEPT FOR CONTROL CIRCUITS WHERE #14 AWG MINIMUM SIZE IS PERMITTED. FEEDER SIZES AS INDICATED.

2.5.4. PANEL FEEDER LENGTHS SHALL BE CONTRACTOR VERIFIED FOR LENGTH OF PROPOSED INSTALLATION PATH SO AS NOT TO EXCEED 3% VOLTAGE DROP ON INSTALLATION. FEEDERS EXCEEDING THE LENGTH OF THE ALLOWABLE AMPACITY SHALL BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO BEGINNING ANY ROUGH-INS.

2.5.5. SIZE CONDUCTORS FOR A 2% MAXIMUM VOLTAGE DROP FROM OVERCURRENT DEVICE TO FARTHEST OUTLET.

2.5.6. CONDUCTOR INSULATION RATED FOR 600V MINIMUM UNLESS STATED OTHERWISE.

2.5.7. CONDUCTOR TYPES:
    2.5.7.1. TW75, TWU TO C.S.A. #C22.2 NO. 75
    2.5.7.2. RW90, RWU90 (XLPE) TO C.S.A. #C22.2 NO. 38
    2.5.7.3. TW75, RW90 (XLPE) – INSIDE BUILDING.
    2.5.7.4. TWU, RWU90 (XLPE) – CONDUCTORS DIRECT BURIED OR IN CONDUIT OUTSIDE BUILDING.
    2.5.7.5. BX (ARMOURED CABLE) IS ONLY PERMITTED FOR LIGHT FIXTURE DROPS IN ACCOUSTIC CEILINGS (MAX LENGTH 5'-0"), AND MAY BE USED IN HOLLOW PARTITIONS FOR SWITCH RECEPTACLE DROPS OR SUSPENDED CEILING FOR FIXTURE DROPS ONLY. ANY DROPS SHALL NOT EXCEED 3.0m (10'-0"). AC-90 (BX ARMOURED CABLE) IS NOT TO BE INSTALLED IN OPEN CEILINGS OR ANY OTHER EXPOSED APPLICATION. ALL CABLES ARE TO BE PROPERLY FASTENED TO BUILDING STRUCTURE IN A NEAT AND PROFESSIONAL MANNER. USE OF AC-90 IN METAL STUD CONSTRUCTION HOLLOW PARTITION IS TO BE LIMITED TO A MAXIMUM OF 3.0m (10'-0"). EXCESSIVE USE OF AC-90, IN THE OPINION OF THE ENGINEER, WILL REQUIRE ELECTRICAL CONTRACTOR TO REPLACE ALL NEW WIRING WITH PROPER CONDUIT AND WIRE AT CONTRACTORS EXPENSE.

2.6. FASTENINGS AND SUPPORTS

2.6.1. SUPPORT EQUIPMENT, CONDUIT OR CABLES USING CLIPS, SPRING-LOADED BOLTS, CABLE CLAMPS DESIGNED AS ACCESSORIES TO BASIC CHANNEL MEMBERS.

2.6.2. INSTALL FASTENINGS AND SUPPORTS AS REQUIRED FOR EACH TYPE OF EQUIPMENT CABLES AND CONDUIT AND IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION.

2.7. CONDUITS

2.7.1. RIGID, GALVANIZED STEEL THREADED CONDUIT TO C.S.A. C22.2, NO. 45, SIZE AS INDICATED.

2.7.2. ELECTRICAL METALLIC TUBING (EMT) WITH COUPLINGS AND EXPANDED ENDS AS REQUIRED, TO C.S.A. C22.2, NO. 83, SIZE AS INDICATED.

2.7.3. RIGID PVC (UNPLASTICIZED) CONDUIT FOR EXPOSED, ABOVE GROUND WORK, TO C.S.A. C22.2, NO. 211.2, SIZE AS INDICATED. FLEXIBLE PVC IS NOT PERMITTED.

2.7.4. FLEXIBLE METAL CONDUIT AND LIQUID-TIGHT FLEXIBLE METAL CONDUIT TO C.S.A. C22.2, NO. 56.

2.7.5. EMT CONDUIT FITTINGS, IE. CONNECTORS, COUPLINGS, TO C.S.A. C22.2, NO. 18, ZINC-PLATED STEEL/MALLEABLE IRON CONSTRUCTION. ALL CONNECTIONS AND COUPLINGS TO BE SET SCREW TYPE, IE. CONCRETE TIGHT.

2.7.6. CONDUIT SIZES SHALL BE A MINIMUM OF 3/4" AND CONFORM TO ELECTRICAL SAFETY CODE. WHERE SIZES ARE INDICATED AND THEY EXCEED CODE, THEY SHALL NOT BE REDUCED.

2.7.7. USE RIGID, GALVANIZED STEEL, THREADED CONDUIT WHERE CONDUIT IS SUBJECT TO MECHANICAL INJURY.

2.7.8. RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES.

2.7.9. USE EMT FOR ALL WIRING FROM OUTLET BOX TO SOURCE.

2.7.10. INSTALL NYLON FISH WIRE IN EMPTY CONDUITS AND TERMINATE UNDER SCREW LEAVING 12' SLACK. TAG FISH WIRE IDENTIFYING SYSTEM.

2.7.11. DO NOT LOCATE CONDUITS LESS THAN 3" (75 MM) PARALLEL TO STEAM OR HOT WATER LINES WITH A MINIMUM OF 1" (25 MM) AT CROSS-OVERS.

2.7.12. IN-SLAB CONDUIT: LOCATE TO SUIT REINFORCING STEEL. INSTALL IN CENTRE 1/2 OF SLAB.

2.7.13. PROVIDE AND INSTALL 4-38mm (4 1-1/2") SPARE CONDUITS UP TO CEILING SPACE FROM EACH FLUSH MOUNTED ELECTRICAL PANEL. TERMINATE IN 300mm X 300mm (12"x12") JUNCTION BOXES IN ACCESSIBLE CEILING SPACE.

2.8. JUNCTION AND PULL BOXES

2.8.1. WELDED STEEL CONSTRUCTION WIRE SCREW-ON FLAT COVERS FOR SURFACE MOUNTING.

2.8.2. COVERS WITH 1" (25 MM) MINIMUM EXTENSION ALL AROUND, FOR FLUSH-MOUNTED PULL AND JUNCTION BOXES.

2.8.3. INSTALL PULL BOXES IN CONDUIT RUNS SO AS NOT TO EXCEED 30 M OF CONDUIT RUN OR THE EQUIVALENT OF TWO (2) 90° BENDS BETWEEN PULL BOXES.

2.9. OUTLET AND CONDUIT BOXES;

2.9.1. ALL LIGHTING FIXTURES, RECEPTACLES AND OTHER WIRING DEVICES FOR ANY CONDUIT SYSTEM SHOWN SHALL BE PROVIDED WITH AN OUTLET BOX.

2.9.2. 4" (102 MM) OCTAGON OR SQUARE OUTLET BOXES OR LARGER, COMPLETE WITH FITTINGS FOR LIGHTING FIXTURES AND AS REQUIRED FOR SPECIAL DEVICES.

2.9.3. WALL OUTLET BOXES SHALL BE:
    2.9.3.1. NO. 1104 SERIES, FLUSH MOUNTED IN DRYWALL PARTITIONS, U.N.O.
    2.9.3.2. MBS SERIES MASONRY BOXES (GALVANIZED STEEL) FLUSH MOUNTED IN MASONRY WALLS (BLOCK WALLS).
    2.9.3.3. GANG BOXES SHALL BE USED AT LOCATIONS WHERE DEVICES ARE GROUPED. PROVIDE BARRIERS AS REQUIRED.
    2.9.3.4. BLANK COVER PLATES FOR BOXES WITHOUT WIRING DEVICES.

2.10. TRANSFORMERS

2.10.1. TRANSFORMERS SHALL BE COMPLETE WITH COPPER WINDINGS AND MEET THE REQUIREMENTS OF CSA 802.2-CURRENT EDITION FOR ENERGY EFFICIENCY.

2.10.2. TRANSFORMERS SHALL BE GENERAL PURPOSE, SUITABLE FOR SPRINKLER LOCATION WITH DELTA/WYE CONFIGURATION 600/120/208V, 3PH, 4W SECONDARY C/W THREE (3) COPPER WINDINGS.

2.10.3. MOUNT DRY TYPE TRANSFORMER UP TO 75kVA ON WALL WITH ANGLE IRON FRAME SECURELY SUPPORTED FROM STRUCTURE AND VIBRO-ACOUSITC ISOLATORS, UNO.

2.10.4. MOUNT DRY TYPE TRANSFORMER 75kVA AND ABOVE ON 4" CONCRETE PAD C/W VIBRO-ACOUSTIC ISOLATORS, UNO.

2.10.5. ACCEPTABLE MANUFACTURERS: HAMMOND POWER SOLUTIONS (HPS), MARCUS AND REX POWER MAGNETICS.

2.11. WIRING DEVICES;

2.11.1. SUPPLY AND INSTALL WIRING DEVICES AS INDICATED COMPLETE WITH COVERPLATES.

2.11.2. SWITCHES; MANUALLY OPERATED, GENERAL PURPOSE, AC, SPECIFICATION GRADE, TOTALLY ENCLOSED BODY, RATED 120V, 20 AMPERES MINIMUM OR AS REQUIRED BY CIRCUIT COMPLETE WITH WHITE DECORATIVE DESIGNER SERIES TOGGLE. (ROCKER)

2.11.3. RECEPTACLES; 3 WIRE, U-GROUND TYPE, PREMIUM SPECIFICATION GRADE COMPLETE WITH SCREW-TYPE TERMINALS, DOUBLE WIRE CONTACTS, RIVETED GROUND CONTACTS, BREAK-OFF LINKS FOR SPLIT RECEPTACLES AND WHITE MOLDED HOUSING. RECEPTACLES WITHIN 1.5m OF A SINK ARE TO BE PROTECTED BY GFI. EXTERIOR RECEPTACLES ARE TO BE GFI AND INCLUDE "EXTRA DUTY IN USE" WEATHERPROOF COVER. HUBBELL CAT No. MM420C.

2.11.4. OTHER RECEPTACLES WITH AMPACITY AND VOLTAGE AS INDICATED.

2.11.5. PRODUCTS; DEVICES TO BE HUBBELL MANUFACTURE, STYLE LINE SERIES;
    2.11.5.1. LIGHT SWITCH (STYLE LINE DECORATOR SERIES):
        2.11.5.1.1. 20A-120V SINGLE POLE WHITE – DS120W
        2.11.5.1.2. 20A-120V 3-WAY WHITE – DS320W
        2.11.5.1.3. 20A-120V 4-WAY WHITE – DS420W
        2.11.5.1.4. 20A-347V SINGLE POLE WHITE – COOPER AH18221W
        2.11.5.1.5. 20A-347V 3-WAY WHITE – COOPER AH18223W
    2.11.5.2. RECEPTACLES (STYLE LINE DECORATOR SERIES):
        2.11.5.2.1. 15A-125V DUPLEX WHITE – DR15WHI
        2.11.5.2.2. 20A-125V DUPLEX WHITE – DR20WHI
        2.11.5.2.3. 15A-125V GFCI DUPLEX – GF15WLA
        2.11.5.2.4. 20A-125V GFCI DUPLEX – GF20WLA
    2.11.5.3. TAMPER RESISTANT RECEPTACLES (STYLE LINE DECORATOR SERIES):
        2.11.5.3.1. 15A-125V DUPLEX WHITE – DR15WHITR
        2.11.5.3.2. 20A-125V DUPLEX WHITE – DR20WHITR
        2.11.5.3.3. 15A-125V GFCI DUPLEX – GFTR15W
        2.11.5.3.4. 20A-125V GFCI DUPLEX – GFTR20W
    2.11.5.4. USB RECEPTACLE (STYLE LINE DECORATOR SERIES)
        2.11.5.4.1. 15A-125V USB DUPLEX WHITE, 5A USB A/C – USB15AC5W
    2.11.5.5. WALL PLATES (STYLE LINE): STANDARD SIZE STAINLESS;
        2.11.5.5.1. 1-GANG – SS26
        2.11.5.5.2. 2-GANG – SS262
        2.11.5.5.3. 3-GANG – SS263
        2.11.5.5.4. 4-GANG – SS264, ETC.

2.11.6. ACCEPTABLE MANUFACTURER PASS & SEYMOUR AND COOPER

3. LIGHTING

3.1. MANUFACTURER'S OPERATIONAL TESTS:

3.1.1. TEST FIXTURE FOR ACCEPTANCE OF LAMP MADE TO MAXIMUM TOLERANCE AS REQUIRED IN A.N.S.I. STANDARDS.
    3.1.1.1. TEST FIXTURES WITH RATED LAMPS FOR STARTING AND OPERATION.
    3.1.1.2. CHECK WIRING FOR AGREEMENT WITH DESIGN CIRCUIT.
    3.1.1.3. TEST FOR SHORT CIRCUITS AND IMPROPER GROUNDS.

3.2. HANGERS AND FITTINGS

3.2.1. SUPPORT FIXTURES AS SHOWN ON THE DRAWINGS, LEVEL, PLUMB AND TRUE WITH THE STRUCTURE AND OTHER EQUIPMENT, AND IN A HORIZONTAL OR VERTICAL POSITION AS INTENDED.

3.2.2. WALL OR SIDE BRACKET MOUNTED FIXTURE HOUSINGS SHALL BE RIGIDLY INSTALLED AND ADJUSTED TO GIVE A NEAT FLUSH FIT TO THE SURFACE ON WHICH IT IS MOUNTED.

3.3. SUPPORTS;

3.3.1. SUPPORT FIXTURES BY HANGERS AND MOUNTING ARRANGEMENTS WHICH WILL NOT CAUSE THE FIXTURE FRAME, HOUSING, SIDES OR LENS FRAME TO BE DISTORTED; OR PREVENT COMPLETE ALIGNMENT OF SEVERAL FIXTURES IN A ROW.

3.3.2. MOUNTING METHODS FOR FIXTURES ON OR IN SUSPENDED CEILINGS ARE TO BE AS FOLLOWS:

3.3.3. WHERE LIGHTING FIXTURES ARE RECESSED INTO SUSPENDED CEILINGS, THESE FIXTURES ARE TO BE SUPPORTED INDEPENDENTLY OF THE CEILING USING #12 JACK CHAIN HANGERS. EACH CHAIN IS TO BE SECURED SEPARATELY TO THE STRUCTURE ABOVE SO THAT NO WEIGHT FALLS ON THE CEILING SUSPENSION SYSTEM.

3.3.4. IN NO CASE WILL REINFORCEMENT OF THE CEILING SUSPENSION SYSTEM BE CONSIDERED TO BE ADEQUATE SUPPORT FOR THE LIGHTING FIXTURES.

3.3.5. WHERE CROSS MEMBER SUPPORTS ARE REQUIRED ABOVE THE CEILING TO PROVIDE SUPPORT POINTS, THESE ARE TO BE STEEL CHANNELS OR ANGLES.

3.4. INSTALLATION:

3.4.1. INSTALLATION OF ALL LIGHTING EQUIPMENT SHALL COMPLY WITH THE RELEVANT SECTIONS OF THE ONTARIO ELECTRICAL SAFETY CODE.

3.4.2. CLUSTER OF RECESSED FIXTURES SHALL BE WIRED WITH BX90 OR R90 WIRE IN FLEXIBLE STEEL CONDUIT TO ADJACENT OUTLET BOXES PLACED ABOVE THE FINISHED CEILING, WITHIN REACH OF THE FIXTURE HOLES. MAIN HOME RUNS TO BE EMT FROM JUNCTION BOX AT CLUSTER OF FIXTURES TO PANEL.

3.4.3. AT THE COMPLETION OF CONSTRUCTION AND ACCEPTANCE OF WORK, ALL LIGHTING FIXTURES SHALL BE CLEAN, COMPLETE WITH ALL NECESSARY ACCESSORIES AND PROVIDED WITH THE REQUIRED OPERATING LAMP(S).

3.4.4. FIXTURES AS SHOWN ON THE ELECTRICAL DRAWINGS ARE APPROXIMATE LOCATIONS ONLY. INSTALLATION OF FIXTURES SHALL BE IN ACCORDANCE WITH REFLECTED CEILING PLANS, DETAILS AND/OR FIELD INSTRUCTIONS ISSUED BY THE ARCHITECT.

3.4.5. ALL 347V FIXTURES TO HAVE LOCAL DISCONNECT TO COMPLY WITH THE ONTARIO ELECTRICAL SAFETY CODE.

3.4.6. UPON COMPLETION CLEAN LIGHTING REFLECTORS, LENSES AND OTHER LIGHTING SURFACES THAT HAVE BEEN EXPOSED TO CONSTRUCTION DUST AND DIRT.

3.4.7. THE MOUNTING HEIGHTS OF BUILDING MOUNTED FIXTURES SHALL BE CONFIRMED PRIOR TO ROUGH-IN. REVIEW ARCHITECTURAL PLANS/ELEVATIONS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN PLANS AND INDICATED MOUNTING HEIGHTS IN SCHEDULES/PLANS BETWEEN METRIC AND IMPERIAL DESIGNATED HEIGHTS.

4. COMPUTER/TELECOM CABLING SYSTEM

4.1. SCOPE OF WORK

4.1.1. SUPPLY AND INSTALL A STRUCTURED WIRING SYSTEM USING CATEGORY 6A TWISTED PAIR TECHNOLOGY IN ACCORDANCE WITH EIA/TIA 568B WIRING SPECIFICATION.

4.1.2. EACH COMPUTER OUTLET SHOWN NEW ON THE DRAWINGS SHALL MEET OR EXCEED CATEGORY 6A EIA/TIA SPECIFICATION.
    4.1.2.1. CATEGORY 6A, 4 PAIR TWISTED CABLE FT6 (PLENUM RATED) HOME RUN CABLE FROM EACH INDIVIDUAL OUTLET TO HUB CLOSET VIA CONDUIT AND/OR WIREWAY SYSTEM. NO RUNS FROM THE COMPUTER OUTLET TO THE WIRING CLOSET SHALL EXCEED THE RECOMMENDED EIA/TIA 568B SPECIFICATION.
    4.1.2.2. CABLING SHALL TERMINATE AT THE COMPUTER OUTLET WITH AN RJ45 WHICH MEETS/EXCEEDS CATEGORY 6A (EIA/TIA 568B) SPECIFICATIONS.
    4.1.2.3. ALL TERMINATIONS, AT THE PATCH PANELS OR OUTLETS SHALL MEET EIA/TIA 568B WIRING CONFIGURATIONS.
    4.1.2.4. PROVIDE SLEEVES AND FIRESTOP ALL CABLING PENETRATIONS THROUGH FIRE RATED ASSEMBLIES.
    4.1.2.5. CABLING SHALL BE IN CONDUIT IN EXPOSED AREAS. J HOOKS MAY BE USED IN CONCEALED SPACES WHERE NOTED AS ACCEPTABLE. OUTLETS IN NEW WALLS SHALL BE PROVIDED IN CONDUIT COMPLETE WITH BUSHINGS TO ACCESSIBLE CEILING SPACES.

4.1.3. HOME RUN ALL CABLES AND TERMINATE IN THE IT AND TELECOM CLOSET.

4.1.4. PROVIDE PATCH PANELS AND TERMINATE ALL OUTLET CABLES. EACH SYSTEM SHALL HAVE IT'S OWN PATCH PANEL. DATA AND VOICE OUTLETS SHALL NOT BE TERMINATED ON THE SAME PANEL UNLESS DIRECTED BY THE OWNER. PANELS SHALL HAVE A MINIMUM OF 25% SPARE CAPACITY. PROVIDE AN ADDITIONAL PANEL IF CAPACITY IS LESS THAN 25%.

4.1.5. PROVIDE HORIZONTAL CABLE MANAGERS UNDER AND ABOVE EACH PATCH PANEL.

4.1.6. PROVIDE VERTICAL CABLE MANAGERS ON EACH SIDE OF THE RACK. RACKS MOUNTED IN ROWS SHALL NOT SHARE A COMMON MANAGER UNLESS IT IS DOUBLE CAPACITY.

4.1.7. ALL REQUIRED COMPUTER EQUIPMENT AND ASSOCIATED WIRING CONNECTIONS WILL BE SUPPLIED AND INSTALLED BY OWNER.

4.1.8. AT THE END OF THE PROJECT, SUPPLY AND TURN OVER TO THE OWNER, ONE 7'-0" CATEGORY 6A PATCH CORD FOR EVERY RJ45 COMPUTER JACK SPECIFIED ON THIS PROJECT. PROVIDE PATCH CABLES OF SUFFICIENT LENGTH TO ALLOW THE OWNER TO PATCH ALL OUTLETS INTO THEIR EQUIPMENT AT THE RACK. CABLING IS TO BE SMALL DIAMETER FOR ALL APPLICATIONS UPTO 30W POE. APPLICATIONS OVER THIS ARE TO USE REGULAR DIAMETER CABLING FOR PATCH CORDS.

4.1.9. COMPUTER CABLING SYSTEM (HARDWARE, CABLES, CONNECTORS AND INSTALLATION) SHALL ALL BE IN ACCORDANCE WITH EIA/TIA 568B SPECIFICATIONS.

4.1.10. PROVIDE FULL HEIGHT 2 POST DATA RACKS AND SECURELY ANCHOR TO FLOOR. RACKS ARE TO BE CAPABLE OF ATTACHING VERTICAL CABLE MANAGERS.

4.1.11. PROVIDE FULL HEIGHT POWER STRIPS WITH 15/20A OUTLETS (MIN 10) ON THE BACKSIDE OF THE RACK. STRIP IS TO INCLUDE 15'-0" CORD.

4.2. COORDINATION

4.2.1. VERIFY AND COORDINATE THE DETAILS OF THE ENTIRE SYSTEM WITH THE END USER PRIOR TO SUBMITTING SHOP DRAWINGS.

4.3. CONSTRUCTION DRAWINGS

4.3.1. THE SYSTEM INTEGRATOR SHALL PROVIDE, UPON COMPLETION OF SHOP DRAWINGS, IN AUTOCAD 2010 FORMAT (ON CD), CONSTRUCTION DRAWINGS. THESE DRAWINGS SHALL HAVE ALL DETAILS IN REGARDS TO THE CABLING SYSTEM, SUCH AS CLOSET LOCATION AND DESIGNATION, CABLE ROUTING AND JACK LOCATION.

4.4. PRODUCTS

4.4.1. CATEGORY 6A CABLE IN ACCORDANCE WITH EIA/TIA 568B CRITERIA. PROVIDE BLUE CABLE FOR DATA WIRING AND PROVIDE WHITE CABLE FOR VOICE WIRING.

4.4.2. COMPUTER FACE PLATES, CAPABLE OF ACCEPTING 4 MODULES FOR

Notes:

No.	Revision	Date	By
0	ISSUED FOR PERMIT AND TENDER	2024.09.10	DP
A	ISSUED FOR COMMENTS AND REVIEW	2024.08.01	DP

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Seal

Project
NRPS D6 RENOVATION
NIAGARA REGION

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Title
SPECIFICATIONS

Drawn By:	Designed By:	Approved By:	Date:
DN	DP	DP	JULY, 2024

Project No.	Scale
24-103	NTS

Drawing No.	Sheet	Revision
E1	2 of 6	0

ORIGINAL SHEET – ARCH D

File: X:\Projects\2024\24-103 Port Colborne Police Accessibility ARC\E\24-103 E1 SPECIFICATIONS.dwg
September 10, 2024 – 03:40pm Plotted by: Dominic

DATA, PROVIDE BLANKS FOR UNUSED JACK LOCATIONS IN FACEPLATE.

4.4.3. DATA TERMINATIONS MUST BE WIRED TO EIA/TIA 568B WIRING SCHEMATIC IN RJ45 JACKS.

4.4.4. OUTLETS ARE TO BE CATEGORY 6A, MODULAR TYPE, PROVIDE INTERNATIONAL WHITE FOR VOICE AND BLUE FOR DATA UNLESS SPECIFIED OTHERWISE.

4.4.5. PLATES SHALL BE PLASTIC, INTERNATIONAL WHITE IN COLOUR.

4.4.6. NECESSARY 3/4" (19mm) FIRE RATED PLYWOOD BACKBOARDS AS SHOWN ON DRAWINGS.

4.4.7. INDIVIDUAL OUTLET CONDUITS AND TERMINAL FEEDER CONDUITS TO BE EMT IN ACCORDANCE WITH SECTION 2.6.

4.5. OUTLET BOXES

4.5.1. TELEPHONE OUTLET: LOW VOLTAGE RING, FLUSH FACEPLATE WITH STANDARD RJ11 TELEPHONE JACK. OR RJ45 VOIP JACK.

4.5.2. COMPUTER OUTLET: LOW VOLTAGE RING, FLUSH FACEPLATE WITH RJ45 JACK.

4.5.3. COMBINATION TELEPHONE/COMPUTER OUTLET: LOW VOLTAGE RING, FLUSH FACEPLATE WITH STANDARD RJ11 TELEPHONE JACK VOIP RJ45 JACK FOR COMPUTER, BOTH ON A COMMON SINGLE GANG PLATE.

4.5.4. WIRELESS ACCESS POINT: SURFACE MOUNT BACKBOX, FACEPLATE AND RJ45 JACK.

4.6. PRODUCT MANUFACTURERS:

4.6.1. CATEGORY 6A TWISTED PAIR CABLE:

4.6.1.1. BELDEN

4.6.1.2. PANDUIT

4.6.2. COMPUTER INFRASTRUCTURE COMPONENTS

4.6.2.1. PANDUIT

4.6.2.2. BELDEN

4.6.3. RACKS

4.6.3.1. ELECTRON METAL

4.6.3.2. PANDUIT

4.6.4. POWER STRIPS

4.6.4.1. ELECTRON METAL

4.6.4.2. PANDUIT

4.6.5. OTHER MANUFACTURES SUBJECT TO APPROVAL PRIOR TO BID.

4.7. SYSTEM INSTALLERS

4.7.1. ACCEPTABLE INSTALLERS OF THE SYSTEM SPECIFIED HEREIN AND AS DESCRIBED ON THE DRAWINGS SHALL BE CERTIFIED BY THE VENDOR OF THE COMPONENTS BEING INSTALLED.

4.8. COMPUTER TERMINATION EQUIPMENT

4.8.1. SUPPLY AND INSTALL IN-BUILDING DISTRIBUTION EQUIPMENT AS FOLLOWS:

4.8.1.1. NECESSARY PANDUIT MINI-COM MOUNTING FRAMES (24 PORTS CPPL24WBLY) FOR TERMINATING ALL COMPUTER CABLES AND TELEPHONE CABLES PLUS 25% SPARE CAPACITY. PROVIDE ADDITIONAL SPARE FRAMES TO ACCOMMODATE THE 25% SPARE CAPACITY.

4.8.1.2. NECESSARY MINI COM OUTLETS FOR TERMINATING ALL COMPUTER CABLES (RJ45) AND TELEPHONE (RJ11)

4.8.1.3. TEST/CERTIFY CABLING AND CHECK SERVICE.

4.8.1.4. PROVIDE PIG TAILS (RJ45 CABLE THAT IS RUN OVER AND PUNCHED DOWN TO BIX BLOCK]

4.9. EXECUTION – INSTALLATION

4.9.1. INSTALL OUTLET BOXES SO THAT COVERPLATES ARE VERTICAL AND EVEN WITH ADJACENT OUTLETS.

4.9.2. CONDUITS TO INDIVIDUAL OUTLETS TO CABLE TRAYS TO BE 25mm (1" EMT) STUBBED INTO ACCESSIBLE CEILING SPACE COMPLETE WITH BUSHINGS

4.9.3. TELEPHONE/COMPUTER SYSTEM SHALL SHARE ONE OUTLET BOX AND ONE CONDUIT.

4.9.4. PROVIDE JUNCTION AND PULL BOXES AS REQUIRED.

4.9.5. INSTALL TWO PULL ROPES IN CONDUIT SYSTEM FOR EACH OUTLET.

4.9.6. TERMINATE INDIVIDUAL OUTLET CONDUITS INTO CEILING SPACES.

4.9.7. INSTALL ALL JUNCTION AND PULL BOXES SO AS NOT TO INTERFERE WITH, NOR BE INTERFERED WITH, BY PIPING, DUCTWORK OR OTHER BUILDING SYSTEMS.

4.9.8. MOUNT EQUIPMENT FRAMES IN COMMUNICATION ROOM. TERMINATE ALL COMPUTER WIRING FOR COMPLETE INSTALLATION.

4.9.9. HOME RUN EACH CABLE FROM TELEPHONE/COMPUTER OUTLETS IN CONDUIT TO CORRIDOR, THEN IN CABLE TRAY TO COMMUNICATION ROOM.

4.9.10. LONG DISTANCE DATA AND VOIP OUTLETS (APPROXIMATELY 70m(225'-0") AND LONGER) ON PLANS SHALL HAVE THE DISTANCE MEASURED PRIOR TO BEGINNING ROUGH-IN ALONG THE INTENDED INSTALLATION PATH. SHOULD THE OUTLET EXCEED 90m OR 305'-0"; THE CONTRACTOR SHALL NOTIFY THE ENGINEER FOR INSTRUCTION ON HOW TO PROCEED.

4.10. WIRING

4.10.1. FROM EACH TELEPHONE JACK SHOWN, PROVIDE HOME RUN CABLE, 4 PAIR CATEGORY 6A, FT6 (PLENUM) RATED CABLE FROM JACK TO MAIN EXISTING TELEPHONE BOARD VIA CONDUIT, J HOOKS OR CABLE TRAYS.

4.10.2. FROM EACH COMPUTER JACK SHOWN, PROVIDE A HOME RUN CABLE, 4 PAIR, CATEGORY 6A, FT6 (PLENUM) RATED CABLE IN ACCORDANCE WITH EIA/TIA 568B CRITERIA RUN TO EXISTING HUB VIA CONDUIT, J HOOKS OR CABLE TRAYS.

4.10.3. FROM EACH WIRELESS ACCESS POINT SHOWN, PROVIDE A HOME RUN CABLE, 4 PAIR CATEGORY 6A, FT6 (PLENUM) RATED CABLE IN ACCORDANCE WITH EIA/TIA 568B CRITERIA RUN TO EXISTING HUB VIA CONDUIT, J HOOKS OR CABLE TRAYS.

4.10.4. CONTRACTOR SHALL PROVIDE ALL WIRING SUPPORTS.

4.11. IDENTIFICATION

4.11.1. ALL PULL AND JUNCTION BOXES SHALL BE LABELED TO INDICATED SYSTEMS AND TERMINATION LOCATIONS OF RACEWAYS IN AND OUT.

4.11.2. PULL ROPES SHALL BE TAGGED WITH OUTLET LOCATIONS.

4.12. INSTALLATION, TESTING AND CERTIFICATION

4.12.1. TOTAL COMPONENTS AND WIRING SYSTEM MUST MEET CATEGORY 6A AND EIA/TIA 568B SPECIFICATIONS.

4.12.2. 100% TOTAL TESTING TO TIA/EIA 568B, CATEGORY 6A SPECIFICATIONS AT 500MHz.

4.12.3. TELEPHONE OUTLETS ARE TO BE QUALIFIED. CABLING IS TO BE TESTED ACROSS ALL PAIRS. INSTALL RJ11 JACK FOR NON-VOIP INSTALLATIONS AFTER CABLING IS QUALIFIED.

4.12.4. A FULL TESTING REPORT SHALL BE PROVIDED AS PART OF THE CLOSE OUT DOCUMENTS.A PASS/FAIL SUMMARY SHEET SHALL BE PROVIDED IN ADDITION TO THE TEST SHEET FOR EVERY OUTLET IN THE PROJECT. A FLOOR PLAN SHALL BE PROVIDED WITH ALL THE JACKS IDENTIFIED AND LABELED PER THE OWNERS SCHEME. THE TEST REPORT SHALL REFERENCE THE SAME NUMBERING SCHEME. THE REPORT SHALL LIST THE DATE OF THE TEST, HEADROOM, TEST LIMIT CABLE TYPE, THE EQUIPMENT MODEL AND SERIAL USED FOR THE TESTING, THE SOFTWARE VERSION, THE DATE OF LAST CALIBRATION, OPERATORS NAME. EACH CABLE SHALL BE TESTED FOR LENGTH, DELAY, SKEW, RESISTANCE, INSERTION LOSS, FREQUENCY, ALONG WITH GRAPHS FOR EACH TEST, ETC. EXAMPLE FLUKE LINKWARE PC OUTPUTS.

4.12.5. WARRANTY

4.12.5.1. MINIMUM 1 YEAR WARRANTY.

4.12.5.2. MINIMUM 15 YEAR FACTORY WARRANTY ON ALL PASSIVE COMPONENTS (PHYSICAL CABLING PLANT)

4.12.5.3. MINIMUM 10 YEAR CERTIFICATION FOR 100Mbps/1Gbps/10Gbps DATA TRANSMISSION.

4.12.5.4. IF AN APPLICATION FAILS TO PERFORM DUE TO PROBLEMS WITH THE CABLING SYSTEM WITHIN A 10 YEAR PERIOD AFTER SYSTEM IS ACCEPTED BY CUSTOMER, THE SYSTEM INTEGRATOR SHALL PROVIDE TECHNICAL ASSISTANCE (AT NO COST TO THE END USER) TO HELP RESOLVE THESE PROBLEMS.

4.12.5.5. CABLE PLAN MUST ADHERE TO EIA/TIA COMMERCIAL BUILDING WIRING SPECIFICATION AND CSA TS29-M91.

4.12.5.6. CABLE PLAN MUST MEET THE ONTARIO BUILDING FIRE REGULATIONS AS RELATED TO PLENUM CABLE.

4.12.5.7. IDENTIFY, TAG AND LABEL ALL WIRING TO CORRESPONDING OUTLETS TO ALLOW OWNER TO MAKE FINAL CONNECTIONS TO HIS EQUIPMENT.

4.13. SYSTEM INTEGRATOR

4.13.1. ENGAGE THE SERVICES OF AN EXPERIENCED CABLE INSTALLATION COMPANY FOR THE COMPLETE SUPPLY, INSTALLATION, TERMINATIONS, TESTING AND CERTIFICATION OF THE COMPLETE COMPUTER CABLING SYSTEM. ALL COSTS ARE TO BE INCLUDED IN THE ELECTRICAL TENDER PRICE.

5. TELECOMMUNICATIONS RACEWAY SYSTEM

5.1. SYSTEM DESCRIPTION

5.1.1. TELECOMMUNICATIONS RACEWAYS SYSTEM CONSISTS OF OUTLET BOXES, COVER PLATES, TERMINAL DISTRIBUTION CABINETS, CONDUITS, PULL BOXES, SLEEVES AND CAPS, FISH WIRES, SERVICE POLES, SERVICE FITTINGS, CONCRETE ENCASED DUCTS.

5.1.2. MATERIAL

5.1.2.1. CONDUITS: REFER TO CONDUITS, CONDUIT FASTENINGS AND CONDUIT FITTINGS.

5.1.2.2. JUNCTION BOXES, CABINETS TYPE E: SPLITTERS, JUNCTION, PULL BOXES AND CABINETS.

5.1.2.3. OUTLET BOXES, CONDUIT BOXES AND FITTINGS: SPLITTERS, JUNCTION, PULL BOXES AND CABINETS.

5.1.2.4. FISH WIRE: POLYPROPYLENE TYPE.

5.1.2.5. BLANK STAINLESS STEEL PLATES FOR ALL UNUSED OUTLETS, WHICH DID NOT RECEIVE A DATA AND TELEPHONE JACKS SUPPLIED AND INSTALLED BY OWNER, AT SUBSTANTIAL COMPLETION OF THE PROJECT.

5.1.3. INSTALLATION

5.1.3.1. INSTALL RACEWAY SYSTEM, INCLUDING OVERHEAD DISTRIBUTION SYSTEM, FISH WIRE, TERMINAL CABINETS, OUTLET BOXES, FLOOR BOXES, PULL BOXES, COVER PLATES, CONDUIT, SLEEVES AND CAPS, SERVICE POLES, MISCELLANEOUS AND POSITIONING MATERIAL TO CONSTITUTE COMPLETE SYSTEM.

5.1.3.2. ALL SPECIFIED TELEPHONE AND DATA TERMINATION BOXES ARE TO BE FLUSH MOUNTED IN THE WALL 300mm ABOVE THE FLOOR UNLESS OTHERWISE SPECIFIED. THE WALL TERMINATION BOXES ARE TO BE 100mm X 54mm TO ACCOMMODATE 25mm CONDUIT. ALL CONDUIT FROM WALL TERMINATION BOXES IS TO BE 25mm UNLESS OTHERWISE SPECIFIED.

5.1.3.3. ALL CONDUIT RUNS ARE TO BE CONTINUOUS FROM THE SPECIFIED OUTLET LOCATION TO THE ELECTRICAL ROOM OR TELEPHONE BACKBOARD. ALL JUNCTION AND PULL BOXES ARE TO BE ACCESSIBLE.

5.1.3.4. ALL EMPTY CONDUIT IS TO HAVE BOTH ENDS OF THE CONDUIT RUN LABELLED AS ITS PURPOSE AND DESTINATION. ALL EMPTY CONDUIT RUNS ARE TO HAVE A PULL CORD INSTALLED THROUGH THEIR ENTIRE RUN WITH BOTH ENDS BEING TIED OFF.

5.1.3.5. CONDUITS FROM EACH TELEPHONE AND DATA OUTLET TO BE 25mm (1") EMT INTO ACCESSIBLE CEILING SPACE OR AS SHOWN ON DRAWINGS.

5.1.3.6. INSTALL BLANK PLATES FOR ALL UNUSED OUTLETS.

6. SURFACE RACEWAY SYSTEM

6.1. PRODUCT DATA

6.1.1. SUBMIT PRODUCT DATA IN ACCORDANCE WITH SECTION 1.14

6.1.2. INDICATE TYPES OF RACEWAYS WITH TERMINOLOGY SIMILAR TO THAT USED IN THIS SECTION.

6.1.3. ALL WIRING IS TO BE FISHED IN WALLS WITH CONDUITS. SURFACE RACEWAY SHALL BE INSTALLED WHERE WALLS ARE NOT FISHABLE (IE. STRUCTURAL CONCRETE) AND MUST BE DONE WITH PERMISSION OF THE OWNER/CONSULTANT UNLESS SPECIFICALLY NOTED AS SURFACE RACEWAY ON THE DRAWINGS.

6.2. PRODUCTS

6.2.1. LOW PROFILE RACEWAY

6.2.1.1. TWO PIECE, STEEL ASSEMBLY

6.2.1.2. FINISH: IVORY

6.2.1.3. NECESSARY SWITCH, RECEPTACLE, EXTENSION BOXES, ADAPTERS AND UTILITY FITTINGS REQUIRED FOR COMPLETE INSTALLATION.

6.2.1.4. HUBBELL 500 SERIES, WIREMOLD 500 SERIES OR APPROVED EQUAL

6.2.2. TWO CHANNEL RACEWAY

6.2.2.1. TWO PIECE, STEEL ASSEMBLY, C/W CENTRE BARRIER.

6.2.2.2. FINISH: GRAY OR AS INDICATED BY ARCHITECT FROM STANDARD COLOUR CHOICE.

6.2.2.3. NECESSARY SWITCH, RECEPTACLE, EXTENSION BOXES, ADAPTERS AND UTILITY FITTINGS REQUIRED FOR COMPLETE INSTALLATION.

6.2.2.4. HUBBELL 4700 SERIES, WIREMOLD DS4000, OR APPROVED EQUAL

6.3. FITTINGS

6.3.0.1. ELBOWS, TEES, COUPLINGS AND HANGER FITTINGS: MANUFACTURED AS ACCESSORIES TO RACEWAY SUPPLIED.

6.4. INSTALLATION

6.4.1. INSTALL RACEWAYS BEFORE INSTALLATION OF WIRING. INSTALL COVERS FOR RACEWAYS AND FITTINGS AFTER INSTALLATION OR WIRING.

6.4.2. INSTALL CONDUIT FOR RACEWAY IN WALL. NO RACEWAY SHALL BE INSTALLED FROM THE CEILING TO FEED HORIZONTAL RUNS.

6.4.3. INSTALL SUPPORTING BRACKETS, ELBOWS, TEES, CONNECTORS, FITTINGS, BUSHINGS, ADAPTORS AS REQUIRED.

6.4.4. KEEP NUMBER OF ELBOWS, OFFSETS, CONNECTIONS TO MINIMUM.

6.4.5. USE WIRING WITH MECHANICAL PROTECTION IN CHANNEL RACEWAYS.

6.4.6. INSTALL BARRIERS IN RACEWAYS WHERE DIFFERENT VOLTAGE SYSTEMS ARE INDICATED.

7. EXISTING FIRE ALARM SYSTEM

7.1. GENERAL

7.1.1. THE EXISTING FIRE ALARM SYSTEM IS OF MIRCOM MANUFACTURE .

7.1.2. ALL FIRE DETECTION AND SIGNALING DEVICES SHALL BE CONNECTED TO ZONES AS INDICATED ON PLANS.

7.1.3. SUPPLY AND INSTALL ADDITIONAL THERMAL DETECTORS, MANUAL PULL STATIONS, FIRE BELLS AND SMOKE DETECTORS, ALL AS SHOWN ON DRAWINGS. DEVICES WITH RELAY CONTACTS SHALL BE COMPLETE WITH WIRING BACK TO ASSOCIATED AUXILIARY SYSTEM AS REQUIRED AND INDICATED ON DRAWINGS (IE NURSECALL, DOOR HOLD OPENS, ELEVATOR SMOKE DETECTORS, ETC).

7.1.4. WIRE NEW AND RELOCATED DEVICES INTO FIRE ALARM ZONE IN THIS AREA.

7.1.5. ALL NEW WIRING FOR ALARM SYSTEM SHALL BE MINIMUM #14 RW90 RUN IN CONCEALED CONDUIT.

7.1.6. ELECTRICAL CONTRACTOR IS TO ENGAGE AN APPROVED TESTING COMPANY TO VERIFY THAT ALL NEW AND EXISTING FIRE ALARM DEVICES WITHIN SCOPE OF WORK AREA HAVE BEEN WIRED AND ARE OPERATING PROPERLY. PROVIDE A CERTIFICATE OF VERIFICATION AND TEST REPORT. ELECTRICAL CONTRACTOR TO PROVIDE ASSISTANCE TO TESTING COMPANY AS REQUIRED BY THEM. INCLUDE ALL COSTS IN TENDER PRICE.

7.1.7. SYSTEM TO BE INSTALLED IN ACCORDANCE WITH CAN/ULC S-524 (CURRENT EDITION) AND OFC-410(M).

7.1.8. TESTS AND VERIFICATION TO BE PERFORMED IN ACCORDANCE WITH CAN/ULC-S537 (CURRENT EDITION).

7.1.9. WHERE FIRE PROTECTION AND LIFE SAFETY SYSTEMS, AND SYSTEMS WITH FIRE PROTECTION AND LIFE SAFETY FUNCTIONS ARE INTEGRATED WITH EACH OTHER; THE SYSTEMS SHALL BE TESTED AS A WHOLE IN ACCORDANCE WITH CAN/ULC-S1001, "INTEGRATED SYSTEMS TESTING OF FIRE PROTECTION AND LIFE SAFETY SYSTEMS", TO VERIFY THAT THE SYSTEMS HAVE BEEN PROPERLY INTEGRATED.

7.1.10. PROVIDE AND INSTALL LAMACOID GRAPHICS BESIDE MAIN CONTROL PANEL AND ANNUNCIATOR PANEL.

7.1.11. INCLUDE FOR ALL COSTS INVOLVED FROM BOTH MANUFACTURERS AND THE ELECTRICAL CONTRACTOR'S WORK IN TOTAL TENDER PRICE FROM THE ELECTRICAL CONTRACTOR.

7.1.12. THE CONTRACTOR SHALL ENSURE THE VERIFICATION OF THE FIRE ALARM INCLUDES ANY SECURITY DOORS. THE CONTRACTOR AND FIRE ALARM COMPANY SHALL TEST THE DOORS TO ENSURE THEY CLOSE AND/OR UNLOCK ON LOCAL CONTROL AND ON FACILITY WIDE. THE DOORS ARE TO BE TESTED AS A COMPLETE SYSTEM WITH THE SECURITY AND FIRE ALARM DEVICES.

8. EMERGENCY LIGHTING SYSTEM:

8.1. GENERAL

8.1.1. SUPPLY AND INSTALL SEPARATE 12 VOLT DC LIGHTING SYSTEMS AS SHOWN ON THE PLANS AND AS DESCRIBED HEREIN.

8.1.2. WIRE 120 VOLT NORMAL POWER TO ALL EMERGENCY LIGHT FIXTURES AND ALL "EXIT" FIXTURES AS SHOWN ON THE PLANS.

8.1.3. THE BATTERY UNIT SHALL MEET THE REQUIREMENTS OF CSA STANDARD C22.2, NO. 141 – UNIT EQUIPMENT FOR EMERGENCY LIGHTING.

8.1.4. THE EMERGENCY UNITS SHALL BE CAPABLE OF SUPPLYING THE WATTAGE AS INDICATED, FOR AT LEAST THIRTY (30) MINUTES TO 91% END VOLTAGE; AND FOR NINETY (90) MINUTES TO AUTOMATIC CUT-OFF.

8.1.5. CHARGER AND CONTROLS SHALL CONSIST OF THE FOLLOWING STANDARD FEATURES:

8.1.5.1. SOLID STATE AUTOMATIC-TYPE CHARTER.

8.1.5.2. PRESS TO TEST SWITCH.

8.1.5.3. "ON" AND "HIGH CHARGE" PILOT LIGHTS.

8.1.5.4. READY DISCONNECT SWITCH AND LIGHT.

8.1.5.5. FUSED PROTECTION.

8.1.5.6. AUTOMATIC TEST FEATURE COMPLETE WITH ALARM.

8.1.5.7. 120 VOLT PLUG AND CORD.

8.1.5.8. REMOTE TEST FEATURE.

8.1.5.9. SUPPLY VOLTAGE: 120 VAC.

8.1.5.10. OUTPUT VOLTAGE: 12 VDC, SELF-POWERED

8.1.5.11. SEALED, MAINTENANCE FREE.

8.1.5.12. LED HEADS WHERE SPECIFIED AS A BATTERY UNIT WITH HEADS.

8.1.6. EACH BATTERY SHALL OPERATE AT LEAST TEN (10) YEARS ENTIRELY UNATTENDED. THE BATTERY SHALL BE SEALED LEAD, LONG-LIFE TYPE.

8.1.7. MOUNTING HEIGHTS OF ALL BATTERY UNITS TO BE 2130 MM (7'). INSTALL UNIT AS INDICATED ON DRAWINGS.

8.1.8. WARRANTY: ALL EQUIPMENT IS TO BE WARRANTED FOR A PERIOD OF TWO (2) YEARS FROM THE DATE OF FINAL ACCEPTANCE. FOR BATTERIES, THE WARRANTY IS EXTENDED TO 120 MONTHS, WITH A NO-CHARGE REPLACEMENT DURING THE FIRST 5 YEARS AND A PRO-RATE CHARGE ON THE SECOND 5 YEARS.

8.1.9. WIRING: WIRING TO THE EMERGENCY LIGHTS AND EXIT FIXTURES SHALL BE RW90 MINIMUM #10 GAUGE FOR EACH CIRCUIT AND RUN IN CONDUIT. WIRING SIZES IN ACCORDANCE WITH MANUFACTURERS COMMENDATIONS FOR DISTANCES REQUIRED.

8.1.10. REMOTE EMERGENCY LIGHTING FIXTURES: SUPPLY AND INSTALL EXIT LIGHTING FIXTURES, TYPE 'X', AND LAMPS AS SPECIFIED IN LIGHT FIXTURE SCHEDULE AND SHOWN ON DRAWINGS.

8.1.11. WIRE ALL SYSTEMS USING CONCEALED #10 AWG WIRING RUN IN EMT OR ARMOURED CABLE.

8.1.12. TESTING AND VERIFICATION:

8.1.12.1. WHEN THE INSTALLATION OF THE BATTERY UNITS, AND ALL ASSOCIATED REMOTE EMERGENCY LIGHTS HAVE BEEN COMPLETED, RETAIN THE SERVICES OF A QUALIFIED REPRESENTATIVE OF THE EQUIPMENT MANUFACTURER TO TEST THE COMPLETION AND OPERATION OF THE SYSTEM.

8.1.12.2. FOLLOWING COMPLETION OF THE TEST, OBTAIN A LETTER FROM THE MANUFACTURER/SUPPLIER, STATING THAT THE NEW BATTERY UNIT AND ASSOCIATED LIGHTS HAVE BEEN COMPLETELY CHECKED AND ARE OPERATING SATISFACTORILY.

8.1.12.3. A COPY OF THIS LETTER IS TO BE FORWARDED TO THE CONSULTING ENGINEER AND ONE COPY TO THE ARCHITECT.

9. EXIT LIGHTS:

9.1. PRODUCTS

9.1.1. AS SHOWN ON DRAWINGS.

9.1.2. ALL EQUIPMENT IS TO BE WARRANTED FOR A PERIOD OF TWO (2) YEAR FROM DATE OF FINAL ACCEPTANCE.

9.1.3. EXIT LIGHT TO BE SUITABLE FOR 120V AC AND 12V DC.

9.2. INSTALLATION

9.2.1. INSTALL EXIT LIGHTS.

9.2.2. CONNECT FIXTURES TO EXIT LIGHT CIRCUITS.

9.2.3. CONNECT EMERGENCY LAMP SOCKETS TO EMERGENCY CIRCUITS.

9.2.4. ENSURE THAT EXIT LIGHT CIRCUIT BREAKER IS LOCKED IN ON POSITION.

10. INTRUDER ALARM SPECIFICATIONS

10.1 SCOPE OF WORK

.1 THE CONTRACTOR SHALL SUPPLY AND INSTALL REGION OF NIAGARA DESIGNATED SECURITY VENDOR AND SUPPLY AND INSTALL ALL COMPONENTS OF INTRUDER ALARM SYSTEM (COMPATIBLE WITH EXISITNG SECURITY SYSTEM) AND AS INDICATED AND/OR SPECIFIED ON THE DRAWINGS, HEREIN AND/OR SPECIFIED ON THE DRAWINGS, HEREIN AND/OR AS REQUIRED.

.2 WORK INCLUDED COMPRISES OF BUT IS NOT LIMITED TO:
SUPPLY AND INSTALLATION OF ALL ROUGH-IN FOR SYSTEM INCLUDING BACKBOXES, CONDUITS, PULL BOXES AND JUNCTION BOXES.

.3 SUPPLY AND INSTALLATION OF ALL WIRING AND CABLING.

.4 SUPPLY AND INSTALLATION OF ALL 120V POWER SUPPLIES.

.5 SUPPLY AND INSTALLATION OF ALL COMPONENTS LIKE BREAK-GLASS SENSORS, MAGNETIC DOOR CONTACTS, CONTROLLER EXPANDERS, KEYPADS, ETC.

10.2 PRODUCTS

.1 USE CONDUITS AND BOXES AS SHOWN ON THE DRAWINGS AND SUPPLY AND INSTALL NEW AS REQUIRED.

11.0 WIRING FOR MECHANICAL EQUIPMENT

.1 OTHER DIVISIONS SUPPLYING MOTOR-DRIVEN EQUIPMENT SHALL SUPPLY AND INSTALL ALL NECESSARY MOTORS WITH SUCH EQUIPMENT. ALL INTERNAL CONTROL WIRING IN SUCH EQUIPMENT SHALL BE FACTORY INSTALLED, OR SHALL BE SUPPLIED AND INSTALLED BY THOSE SUPPLYING THE EQUIPMENT.

.2 REFER TO MECHANICAL DRAWINGS AND SPECIFICATION SECTIONS DURING TENDERING AND CONSTRUCTION TO ENSURE ENTIRE MECHANICAL EQUIPMENT WIRING SCOPE OF WORK IS UNDERSTOOD.

.3 THIS DIVISION IS RESPONSIBLE FOR THE FOLLOWING:

.1 SUPPLY AND INSTALLATION OF ALL STARTERS, DISCONNECT SWITCHES, PUSHBUTTON STATIONS, SPLITTER TROUGHS, JUNCTION BOXES AND TIME SWITCHES, ETC., AS NOTED ON DRAWING.

.2 INSTALLATION AND WIRING OF ALL SEPARATELY MOUNTED THERMOSTATS, MOTOR CONTROLLERS AND CONTROL UNITS SUPPLIED BY MECHANICAL.

.3 SUPPLY AND INSTALLATION OF ALL POWER WIRING AND CONDUITS FROM THE DISTRIBUTION PANEL THROUGH THE STARTER AND DISCONNECT SWITCH ONTO THE MOTOR (OR EQUIPMENT).

.4 SUPPLY AND INSTALLATION OF ALL CONTROL WIRING FROM REMOTE SWITCHES OR PUSHBUTTON STATIONS TO CONTROL STARTERS.

.5 SUPPLY AND INSTALLATION OF ALL WIRING TO PROVIDE INTERLOCKING BETWEEN STARTERS COMPLETE WITH NECESSARY DOUBLE VOLTAGE RELAYS.

.6 SUPPLY AND INSTALLATION OF TRANSIENT (SURGE) SUPPRESSERS ON HOLDING COILS OF MAGNETIC STARTERS, RELAYS, ETC., WHERE INDICATED FOR PROTECTION TO SOLID STATE EQUIPMENT THAT IS SENSITIVE TO SURGES, SPIKES, ETC.

.7 INSTALLATION OF LOW VOLTAGE TRANSFORMERS, AND POWER SUPPLIES FOR INFRARED TOUCHLESS PLUMBING FIXTURES, AND SINKS.

12. ROOF TOP EQUIPMENT (IF APPLICABLE)

12.1 COORDINATE SIZE OF BREAKERS AND FEEDERS WITH MECHANICAL. FEEDERS ON DRAWINGS ARE BASED ON DESIGN LOADS PROVIDED IN MECHANICAL DRAWINGS. CONTRACTOR SHALL CONFIRM THE FEEDER SIZES AND BREAKERS ON SHOP DRAWINGS PRIOR TO ROUGH-IN AND PURCHASE OF MATERIAL/EQUIPMENT TO POWER UP UNITS. DISCREPANCIES ARE TO BE NOTED TO THE ENGINEER.

12.2 PROVIDE MAINTENANCE RECEPTACLES AS REQUIRED BY ESA. COORDINATE WITH MECHANICAL; SHOULD THE EQUIPMENT NOT INCLUDE A MAINTENANCE RECEPTACLE AS AN OPTION, THE CONTRACTOR SHALL INCLUDE TO PROVIDE A 15/20R GFI RECEPTACLE AND A 1P-20A BREAKER FROM THE LOCAL PANEL FOR EACH GROUP OF UNITS. UNITS MORE THAN 50'-0" APART SHALL HAVE ITS OWN RECEPTACLE. RECEPTACLE SHALL BE MOUNTED TO A PEDESTAL OR ROOF CURB AND SEALED WATERTIGHT. PROVIDE AN IN-USE COVER FOR THE RECEPTACLE.

13. PROVISIONS FOR SOUND SYSTEM

13.1 THE CONTRACTOR SHALL PROVIDE A ROUGH IN SYSTEM INCLUDING TWO (2) 1-1/2" CONDUITS WITH PULL STRINGS FROM A FLUSH 8X8 PULL BOX AT THE SOUND SYSTEM LOCATION IN THE STEREO CLOSET/ELECTRICAL ROOM UP INTO ACCESSIBLE CEILING SPACE, TERMINATING WITH JUNCTION BOXES.

14 PROVISIONS FOR CCTV SECURITY SYSTEM

14.1 THE CONTRACTOR SHALL PROVIDE ROUGH IN FOR RELOCATED OR NEW CCTV CAMERAS OR SYSTEM COMPONENTS C/W AND INCLUDING CAT6 (POE) CABLE IN 25mm EMT CONDUIT, JUNCTION BOXES, AND SUPPORTS. RUN CONDUIT RACEWAY AND CABLES FROM EACH CCTV CAMERA LOCATION SHOWN ON DRAWINGS TO CCTV HEAD-END EQUIPMENT LOCATION (TBD).

15 PROVISIONS FOR DISPLAY MONITORS AND TV'S

15.1 EXISTING OR TV MONITORS (BY OTHERS), ELECTRICAL CONTRACTOR SHALL PROVIDE TWO CONDUIT RACEWAYS C/W 120V CIRCUIT FOR POWER CONDUIT AND CAT6 DATA TO EACH MONITOR LOCATION AS SHOWN ON DRAWING C/W POWER AND DATA CABLE IN 25MM EMT CONDUIT, JUNCTION BOXES, AND SUPPORTS. RUN CONDUIT AND CABLES FROM LOCATION OF HEAD END EQUIPMENT TO EACH DISPLAY MONITOR LOCATION AS SHOWN ON DRAWING AND TERMINATE IN JUNCTION BOX.

16. PROVISIONS FOR OVERHEAD DOOR AND FRONT DOOR PUSHBUTTON SYSTEMS

16.1 ELECTRICAL CONTRACTOR SHALL PROVIDE ADDITIONAL CONDUIT, LINE VOLTAGE OR LOW VOLTAGE CONTROL WIRING AS REQUIRED TO EXTEND AND RELOCATE EXISTING OVERHEAD DOOR AND FRONT DOOR RELEASE PUSHBUTTONS FOR AND WIRING AS REQUIRED.

Notes:

No.	Revision	Date	By
0	ISSUED FOR PERMIT AND TENDER	2024.09.10	DP
A	ISSUED FOR COMMENTS AND REVIEW	2024.08.01	DP

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Title
SPECIFICATIONS

Drawn By:	Designed By:	Approved By:	Date:
DN	DP	DP	JULY, 2024

Project No.	Scale
24-103	NTS

Drawing No.	Sheet	Revision
E2	3 of 6	0

ORIGINAL SHEET – ARCH D

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September 10, 2024 - 03:39pm Plotted by: Dominic

GENERAL NOTES:

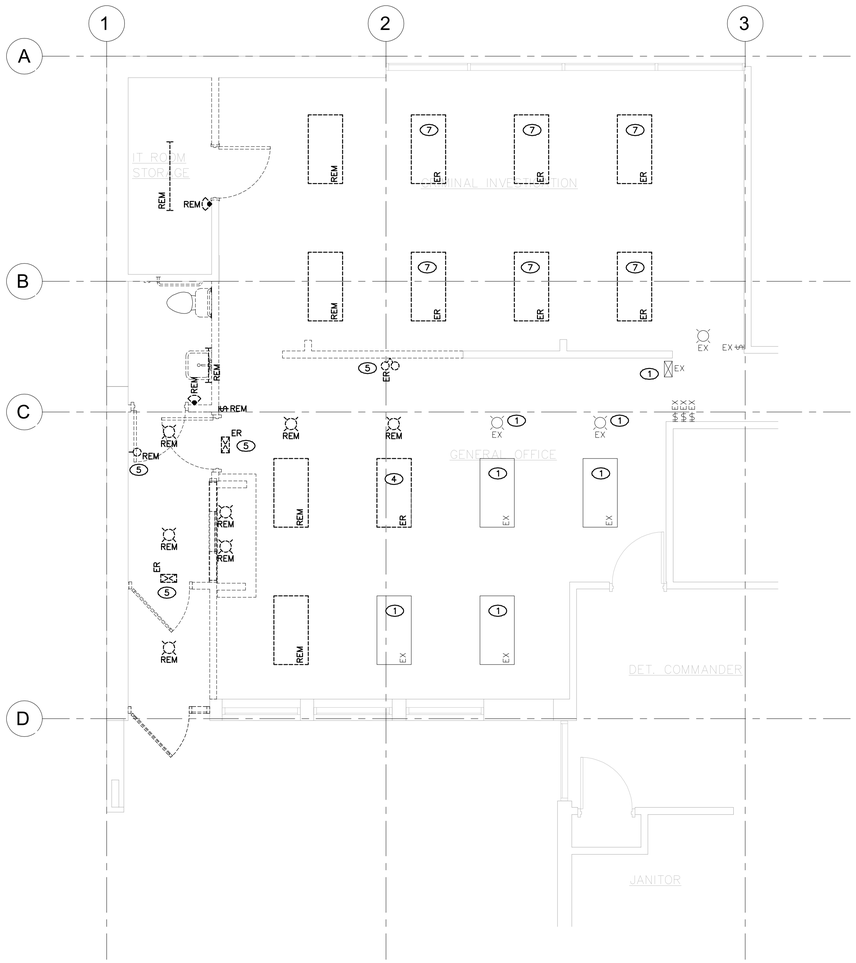
A. THE FACILITY IS TO REMAIN IN OPERATION DURING THE COURSE OF CONSTRUCTION. THE CONTRACTOR SHALL INCLUDE FOR MAKING TEMPORARY CONNECTIONS AND EXTENDING CONDUIT AND WIRE AS REQUIRED TO FACILITATE RELOCATING AND REMOVING DEVICES. ALL SERVICES ARE TO REMAIN OPERATIONAL. COORDINATE ANY OUTAGES REQUIRED WITH THE OWNER IN WRITING A WEEK IN ADVANCE OF THE WORK.

B. THE EXISTING IT CLOSET IS WITHIN THE DEMOLITION SCOPE. THE CONTRACTOR SHALL WORK WITH THE OWNER AND INSTALL TEMPORARY HOARDING TO SECTION OFF THE RACK AND KEEP IT FREE OF DUST AND DEBRIS. PROVIDE ZIPPERED ENCLOSURES AND SEAL AIR TIGHT. ACCESS TO THE RACK IS TO BE AVAILABLE AT ALL TIMES SHOULD THE OWNER NEED ACCESS TO IT. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE OWNERS IT REPRESENTATIVE.

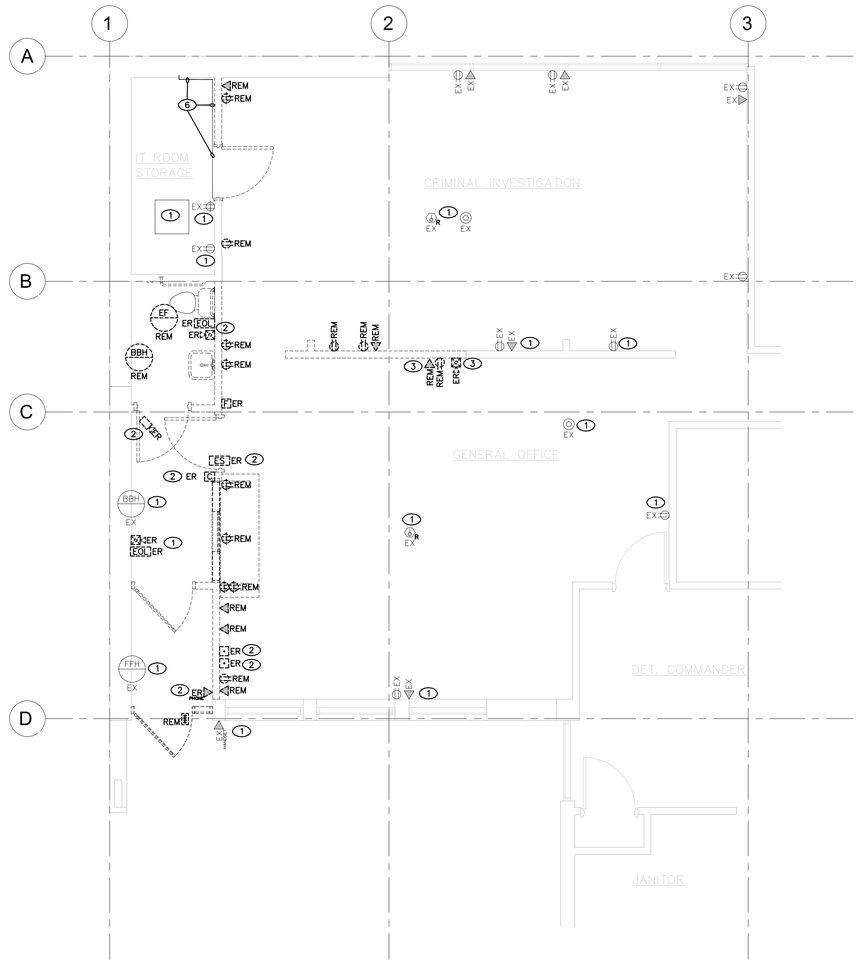
C. EXISTING LIGHTING AND POWER CIRCUITS ARE TO BE REUSED IN THE NEW LAYOUT.

DRAWING NOTES:

1. EXISTING LIGHTING, DEVICE OR EQUIPMENT TO REMAIN AND BE REUSED IN PRESENT LOCATION UNLESS NOTED OTHERWISE.
2. EXISTING DEVICE OR EQUIPMENT TO BE RELOCATED AND RE-INSTALLED IN NEW LOCATION. CAREFULLY DISCONNECT AT SOURCE, MAKE SAFE AND STORE IN SAFE LOCATION FOR RE-INSTALLATION (REFER TO DRAWING E4).
3. EXISTING SECURITY DEVICE OR CCTV EQUIPMENT TO BE RELOCATED AND RE-INSTALLED IN NEW LOCATION. ELECTRICAL CONTRACTOR TO ENGAGE REGION OF NIAGARA PREFERRED SECURITY CONTRACTOR TO CAREFULLY DISCONNECT AT SOURCE, MAKE SAFE AND STORE IN SAFE LOCATION FOR RE-INSTALLATION (REFER TO DRAWING E4).
4. EXISTING LIGHT TO BE RELOCATED TO SUIT NEW CEILING GRID CAREFULLY DISCONNECT AT SOURCE, MAKE SAFE AND STORE IN SAFE LOCATION FOR RE-INSTALLATION (REFER TO DRAWING E4).
5. EXISTING EXIT SIGN OR EMERGENCY LIGHT TO BE RELOCATED AND RE-INSTALLED IN NEW LOCATION. CAREFULLY DISCONNECT AT SOURCE, MAKE SAFE AND STORE IN SAFE LOCATION FOR RE-INSTALLATION (REFER TO DRAWING E4).
6. CAREFULLY REMOVE CABLE SUPPORTS AND MAINTAIN CONTINUITY OF ALL CABLES CONNECTED TO WALL TO BE DEMOLISHED AND PROVIDE NEW SUPPORT TO CEILING.
7. SIX (6) EXISTING 2x4 LAY-IN LIGHT FIXTURES IN THIS ROOM TO BE RELOCATED ONE TILE OVER EXTEND CIRCUITS AS REQUIRED (REFER TO DRAWING E4)



2 PART PLAN – DEMOLITION – LIGHTING
SCALE: 1:50



1 PART PLAN – DEMOLITION – POWER AND SYSTEMS
SCALE: 1:50

Notes:

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0	ISSUED FOR PERMIT AND TENDER	2024.09.10	DP
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Title
PART PLAN - DEMOLITION POWER, SYSTEMS AND LIGHTING

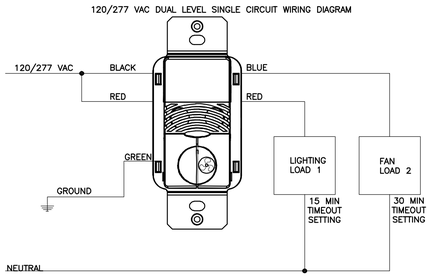
Drawn By:	Designed By:	Approved By:	Date:
DN	DP	DP	JULY, 2024

Project No.	Scale
24-103	1:50

Drawing No.	Sheet	Revision
E3	4 of 6	0

ORIGINAL SHEET – ARCH D

File: X:\Projects\2024\24-103 Port Colborne Police Accessibility ARC\E\24-103 E3 DEMO.dwg
September 10, 2024 - 03:39pm Plotted by: Dominic



THREE-WAY WIRING DIAGRAM:
LIGHTS WILL TURN OFF AUTOMATICALLY WHEN SENSOR THAT DETECTED MOTION LAST, TIMES OUT.

1/E4 UNIVERSAL WASHROOM EXHAUST FAN & LIGHTING CONTROL WIRING

SCALE: N.T.S.

GENERAL NOTES:

A. THE FACILITY IS TO REMAIN IN OPERATION DURING THE COURSE OF CONSTRUCTION. THE CONTRACTOR SHALL INCLUDE FOR MAKING TEMPORARY CONNECTIONS AND EXTENDING CONDUIT AND WIRE AS REQUIRED TO FACILITATE RELOCATING AND REMOVING DEVICES. ALL SERVICES ARE TO REMAIN OPERATIONAL. COORDINATE ANY OUTAGES REQUIRED WITH THE OWNER IN WRITING A WEEK IN ADVANCE OF THE WORK.

B. THE EXISTING IT CLOSET IS WITHIN THE DEMOLITION SCOPE. PRIOR TO ANY DEMOLITION THE CONTRACTOR SHALL WORK WITH THE OWNER AND INSTALL TEMPORARY HOARDING TO SECTION OFF THE RACK AND KEEP IT FREE OF DUST AND DEBRIS. PROVIDE ZIPPERED ENCLOSURES AND SEAL AIR TIGHT. ACCESS TO THE RACK IS TO BE AVAILABLE AT ALL TIMES SHOULD THE OWNER NEED ACCESS TO IT. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE OWNERS IT REPRESENTATIVE.

C. EXISTING LIGHTING AND POWER CIRCUITS ARE TO BE REUSED IN THE NEW LAYOUT.

DRAWING NOTES (CONT'D):

(18) PANIC BUTTON
ELECTRICAL CONTRACTOR SHALL ENGAGE DUPONT SECURITY TO SUPPLY AND INSTALL WIRELESS PANIC BUTTON AT NEW WORK STATION AS SHOWN. C/W WIRELESS TRANSMITTER AND AUDIBLE AND VISUAL NOTIFICATION DEVICE, LOCATE IN SECURITY OFFICE (OR AS DIRECTED BY CLIENT). CONTRACTOR SHALL CARRY A CASH ALLOWANCE TO COMPLETE THIS WORK. COORDINATE DEVICE LOCATIONS WITH ELECTRICAL CONTRACTOR ELECTRICAL ROUGH-INS SECURITY VENDOR AND ARCHITECTURAL MILL WORK DRAWINGS FOR PUSHBUTTON LOCATION.

(19) SLIDING DOOR POWER SUPPLY:
SUPPLY AND INSTALL ONE (1)15A, 120V CIRCUIT COMPLETE WITH WIRING AND CONDUIT (2C@12+GRD IN 21mm EMT) AT THIS LOCATION FOR SLIDING DOOR OPERATOR. INCLUDING ONE (1) SINGLE POLE 15A BRANCH BREAKER IN EXISTING ELECTRICAL PANEL BOARD "DP-L" BRANCH POSITION #20 LOCATED IN ELECTRICAL ROOM. DOOR OPERATOR AND ALL WIRING TERMINATIONS AND CONTROLS SUPPLIED AND INSTALLED AND WIRED BY DOOR VENDOR/INSTALLER.

DRAWING NOTES (CONT'D):

(11) DOOR OPERATOR POWER SUPPLY:
SUPPLY AND INSTALL TWO (2) 15A, 120V CIRCUITS COMPLETE WITH WIRING AND CONDUIT (2C@12+GRD IN 21mm EMT) ONE EACH AT THESE TWO LOCATIONS AND INCLUDING TWO (2) SINGLE POLE 15A BRANCH BREAKERS IN EXISTING ELECTRICAL PANEL BOARD "DP-L" LOCATED IN ELECTRICAL ROOM.

UNIVERSAL WASHROOM LIGHTING AND POWER:
(12) SUPPLY AND INSTALL ONE (1)15A, 120V CIRCUIT COMPLETE WITH WIRING AND CONDUIT (2C@12+GRD IN 21mm EMT) AT THIS LOCATION INCLUDING ONE (1) SINGLE POLE 15A BRANCH BREAKER IN EXISTING ELECTRICAL PANEL BOARD "DP-L" LOCATED IN ELECTRICAL ROOM. WIRE TO NEW COMBINATION LIGHT SWITCH FAN SWITCH.

(13) UNIVERSAL WASHROOM HAND DRYER:
SUPPLY AND INSTALL ONE (1)20A, 120V CIRCUIT COMPLETE WITH WIRING AND CONDUIT (2C@12+GRD IN 21mm EMT) AT THIS LOCATION INCLUDING ONE (1) SINGLE POLE 20A BRANCH BREAKER IN EXISTING ELECTRICAL PANEL BOARD "DP-L" LOCATED IN ELECTRICAL ROOM, WIRE TO NEW HAND DRYER.

(14) PHOTOCOPIER:
SUPPLY AND INSTALL ONE (1)20A, 120V CIRCUIT COMPLETE WITH WIRING AND CONDUIT (2C@12+GRD IN 21mm EMT) AND ONE NEW RJ45 DATA DROP AT THIS LOCATION FOR RELOCATED PHOTOCOPIER INCLUDING ONE (1) SINGLE POLE 20A BRANCH BREAKER IN EXISTING ELECTRICAL. RUN CAT6A DATA CABLE FROM DATA DROP TO SERVER ROOM TO SERVER ROOM

(15) NEW DATA OUTLET
SUPPLY AND INSTALL ONE NEW COMPUTER/DATA OUTLET AT THIS LOCATION C/W BACK BOX, RJ45 JACK, COVER PLATE AND CAT6A DATA CABLE. RUN CAT6A DATA CABLE FROM DATA DROP TO SERVER ROOM DATA RACK AND TERMINATE TO PATCH PANEL.

(16) EXISTING WALL MOUNTED PHONE NEW LOCATION, RE-USE EXISTING MOUNTING WALL BRACKET IF PRACTICAL. OTHERWISE PROVIDE NEW WALL BRACKET. CONTRACTOR TO SUPPLY AND INSTALL NEW BACK BOX C/W RJ11 PHONE JACK AND WIRING TO THIS LOCATION, RUN WIRING TO IT SERVER ROOM, TELEPHONE PUNCH DOWN BOARD OR IF VOIP TO DATA RACK.TERMINATE BOTH ENDS TO RESTORE PHONE TO GOOD WORKING ORDER.

(17) CONTRACTOR SHALL RECORD AND RE-USE ANY/ALL CIRCUITS MADE AVAILABLE IN DEMOLITION PHASE AND RE-PURPOSE THESE CIRCUITS TO ACCOMMODATE NEW RECEPTACLES, LIGHTING CIRCUITS, OR POWER SUPPLIES TO NEW EQUIPMENT. CONTRACTOR SHALL REVISE AND UPDATE PANEL BOARD SCHEDULES TO REFLECT THERE CORRESPONDING BRANCH BREAKERS ACCORDINGLY.

DRAWING NOTES:

(1) THE EXISTING IT CLOSET IS WITHIN THE DEMOLITION SCOPE. THE CONTRACTOR SHALL WORK WITH THE OWNER AND INSTALL TEMPORARY HOARDING TO SECTION OFF THE RACK AND KEEP IT FREE OF DUST AND DEBRIS. PROVIDE ZIPPERED ENCLOSURES AND SEAL AIR TIGHT. ACCESS TO THE RACK IS TO BE AVAILABLE AT ALL TIMES SHOULD THE OWNER NEED ACCESS TO IT. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE OWNERS IT REPRESENTATIVE.

(2) EXISTING SECURITY CAMERA TO BE REINSTALLED. COORDINATE LOCATION ON SITE WITH OWNER AND ADJUST VIEWING ANGLE TO SUIT OWNERS PREFERENCE.

(3) EXISTING SECURITY DOOR DEVICES TO BE RELOCATED AND REINSTALLED AT THIS NEW LOCATION. REWORK WIRING AS REQUIRED AND EXTEND CONDUIT TO SUIT NEW LOCATIONS. COORDINATE WORK WITH THE OWNERS ACCESS CONTROL VENDOR FOR TERMINATING IN EXISTING SECURITY HEAD END EQUIPMENT. SEE DETAIL DWG

(4) REINSTALL FIRE ALARM DEVICES. DEVICES ARE TO BE RECESSED INTO THE WALL. THE CONTRACTOR IS TO INCLUDE FOR TESTING AND VERIFICATION OF EVERY DEVICE ON ANY LOOP THAT IS MODIFIED AS PART OF THIS PROJECT. PROVIDE A TESTING REPORT AS PART OF THE MANUALS AT PROJECT CLOSEOUT.

(5) EXISTING PUSHBUTTONS TO BE RELOCATED TO NEW WALL. EXTEND EXISTING CONDUIT AND WIRE AS REQUIRED TO NEW LOCATION. COORDINATE EXACT LOCATION ON SITE WITH THE OWNER AND WORK STATION LAYOUT AT TIME OF ROUGH-IN.

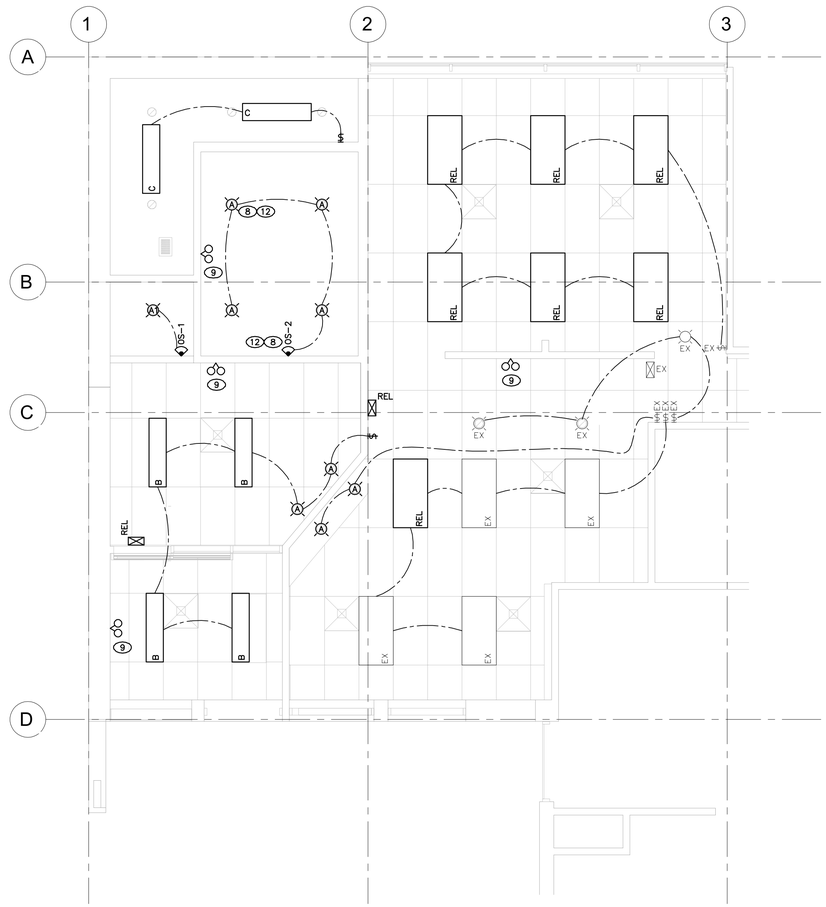
(6) PROVIDE NEW SURFACE MOUNTED BACKBOX AND CONDUIT INTO THE SOFFIT. ROUTE CONDUIT INTO THE BUILDING TO CONNECT TO THE NEW DOOR OPERATOR. COORDINATE RELOCATION OF EXISTING MAILBOX WITH GENERAL CONTRACTOR.

(7) EXISTING PHONE TO REMAIN. PROTECT FROM POSSIBLE DAMAGE REWORK CONDUIT AND WIRE AS REQUIRE TO FACILITATE WORK BY OTHERS IN THE AREA.

(8) NEW EXHAUST FAN TO BE CONNECTED WITH THE LIGHTING IN THE BATHROOM WITH A NEW DUEL RELAY OCCUPANCY SENSOR. UTILIZE THE SECOND RELAY OF THE OCCUPANCY SENSOR FOR THE FAN CONTROL. RELAY 1 SHALL BE FOR THE LIGHTING CONTROL. COORDINATE FAN AND LIGHTING TIMEOUT SETTINGS WITH THE OWNER AND ADJUST TO SUIT.
REFER TO WIRING DETAIL-1 (THIS DRAWING).

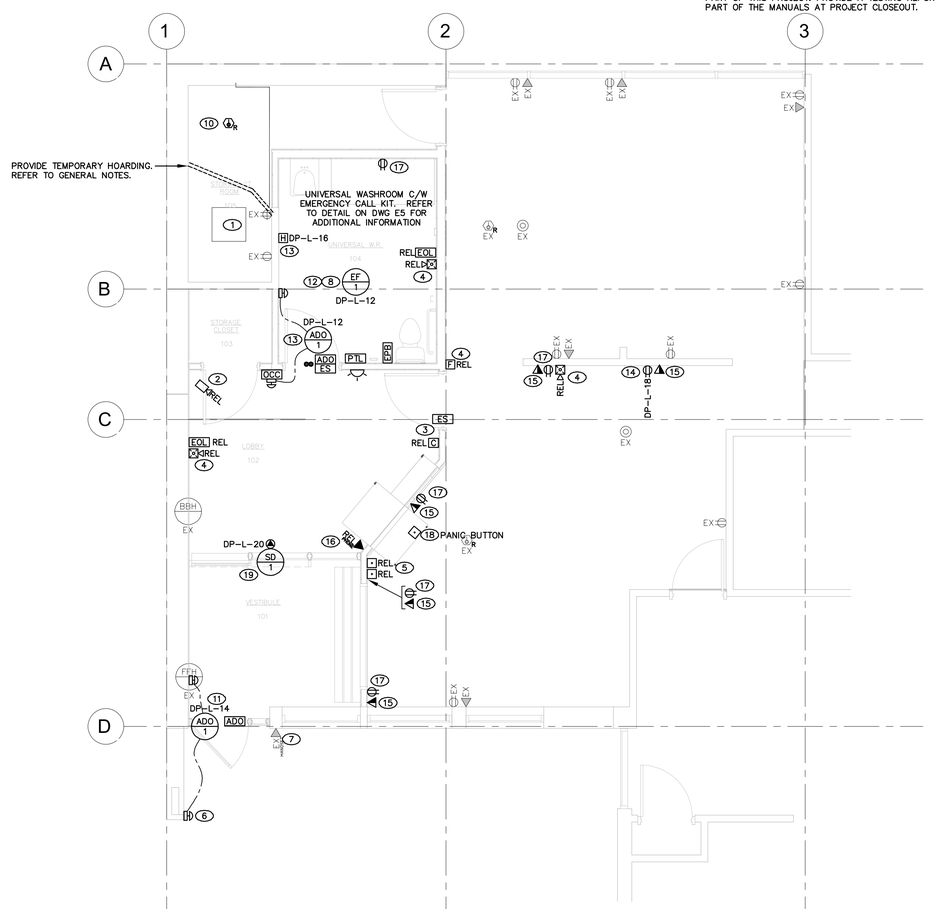
(9) PROVIDE NEW LED HEADS FOR EMERGENCY LIGHTING. CONNECT LIGHTING TO EXISTING BATTERY PACK IN THE ELECTRICAL ROOM. EXTEND EXISTING DC WIRES AS REQUIRED. TEST SYSTEM AT COMPLETION AND PROVIDE REPORT WITH RUN TIME AND REMAINING WATTAGE AVAILABLE ON THE BATTERY.

(10) SUPPLY AND INSTALL ONE NEW CEILING MOUNT FIRE ALARM SMOKE DETECTOR IN RENOVATED IT ROOM, COMPATIBLE WITH EXISTING MIRCOM FIRE ALARM SYSTEM. CONTRACTOR TO INCLUDE FOR TESTING AND VERIFICATION OF NEW DEVICE ON ANY LOOP THAT IS MODIFIED AS PART OF THIS PROJECT. PROVIDE A TESTING REPORT AS PART OF THE MANUALS AT PROJECT CLOSEOUT.



2/E4 PART PLAN – PROPOSED – LIGHTING

SCALE: 1:50



1/E4 PART PLAN – PROPOSED – POWER AND SYSTEMS

SCALE: 1:50

Notes:

No.	Revision	Date	By
0	ISSUED FOR PERMIT AND TENDER	2024.09.10	DP
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Title
PART PLAN - PROPOSED POWER, SYSTEMS AND LIGHTING

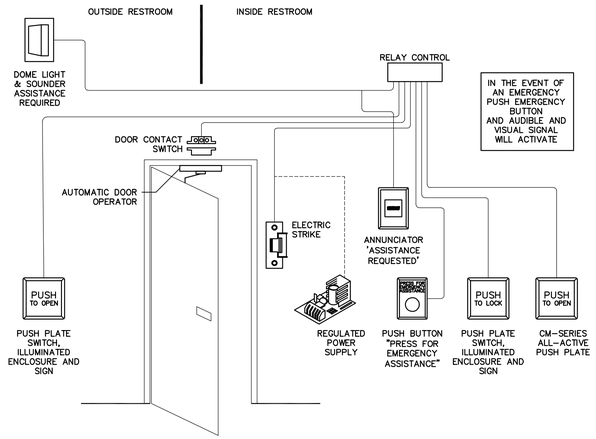
Drawn By:	Designed By:	Approved By:	Date:
DN	DP	DP	JULY, 2024

Project No.	Scale
24-103	1:50

Drawing No.	Sheet	Revision
E4	5 of 6	0

ORIGINAL SHEET – ARCH D

File: X:\Projects\2024\24-103 Port Colborne Police Accessibility ARC\E\24-103 E4 NEW.dwg
September 10, 2024 - 03:40pm Plotted by: Dominic



DETAIL NOTES:

A. UNIVERSAL WASHROOM SHALL BE EQUIPPED WITH AN AUTOMATIC DOOR OPENER. THE OPENER SHALL ALSO INCLUDE A "PUSH TO LOCK" BUTTON ON THE INSIDE. ONCE ENGAGED, THIS WILL DISABLE THE EXTERIOR DOOR OPERATOR BUTTON. THE EXTERIOR OCCUPIED LIGHT WILL ILLUMINATE. WHEN THE PATRON HAS FINISHED USING THE WASHROOM, THEY SHALL PRESS THE DOOR OPERATOR BUTTON AND THE "PUSH TO LOCK" WILL DISENGAGE AND THE DOOR OPERATOR WILL OPEN THE DOOR AND TURN OFF THE OCCUPIED LIGHT.

B. THE JUNCTION BOX SHALL BE MOUNTED AT HIGH LEVEL ON THE INSIDE OF THE ROOM.

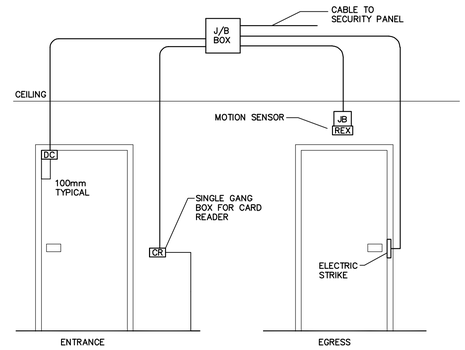
C. ALL CONDUITS SHALL BE A MINIMUM OF 3/4". PROVIDE PULL ROPES FOR LOW VOLTAGE WIRING BY OTHERS. CONDUITS ARE TO BE CONCEALED IN WALL. SURFACE DEVICES AND CONDUIT IS NOT PERMITTED.

D. COORDINATE THE LOCATION OF ALL DEVICES PRIOR TO ROUGH-IN WITH DOOR HARDWARE SUPPLIER/INSTALLER.

E. COORDINATE WORK WITH HARDWARE SUPPLIER AND PROVIDE ANY MATERIALS NOT INCLUDED IN THEIR QUOTE TO FACILITATE A COMPLETE SYSTEM.

F. TEST AND ADJUST THE OPERATION OF THE DOOR TO THE OWNERS SATISFACTION. PROVIDE TRAINING AS REQUIRED TO OWNERS MAINTENANCE STAFF ON DOOR OPERATION, MAINTENANCE AND ADJUSTMENT.

1 / E5 TYPICAL UNIVERSAL WASHROOM DETAIL
SCALE: N.T.S.



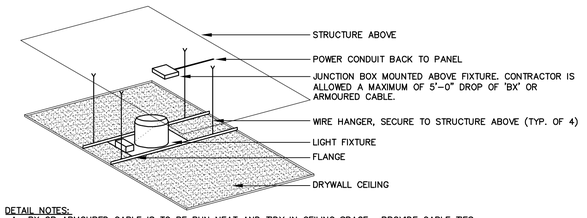
DETAIL NOTES:

A. THE CONTRACTOR SHALL PROVIDE ALL ROUGH-INS REQUIRED FOR THE SECURITY WORK. THE CONTRACTOR SHALL PULL ALL ASSOCIATED CABLES. TERMINATIONS WILL BE BY OTHERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK LISTED BY OTHERS. THE DOORS SHALL BE FULLY FUNCTIONING AND COMMISSIONED AS PART OF THIS CONTRACT.

B. ALL CONDUIT IS TO BE CONCEALED IN THE WALL. CONDUIT SHALL BE 1" UNLESS NOTED OTHERWISE. SURFACE RACEWAY WILL ONLY BE ALLOWED UNDER SPECIAL CIRCUMSTANCES AND MUST HAVE WRITTEN APPROVAL FROM THE OWNER AND CONSULTANT.

C. PROVIDE A 120V CIRCUIT FROM LOCAL PANEL TO POWER SECURITY DEVICES.

2 / E5 TYPICAL SECURITY DOOR DETAIL
SCALE: NTS

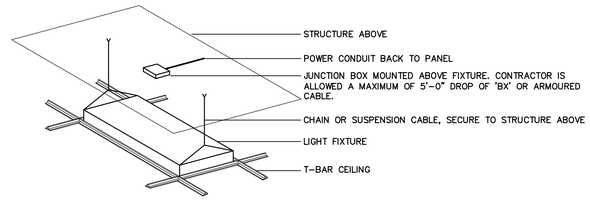


DETAIL NOTES:

A. BX OR ARMOURED CABLE IS TO BE RUN NEAT AND TIDY IN CEILING SPACE. PROVIDE CABLE TIES TO AFFIX TO SUSPENSION CHAINS. CLIP ENDS OF TIES.

B. JUNCTION BOXES ARE TO BE LOCATED CLOSE TO FIXTURES. PROVIDE P-TOUCH TYPE LABEL ON COVER PLATE WITH CIRCUIT NUMBER.

x / xx INSTALLATION OF RECESSED FIXTURE IN DRYWALL CEILING
SCALE: NTS

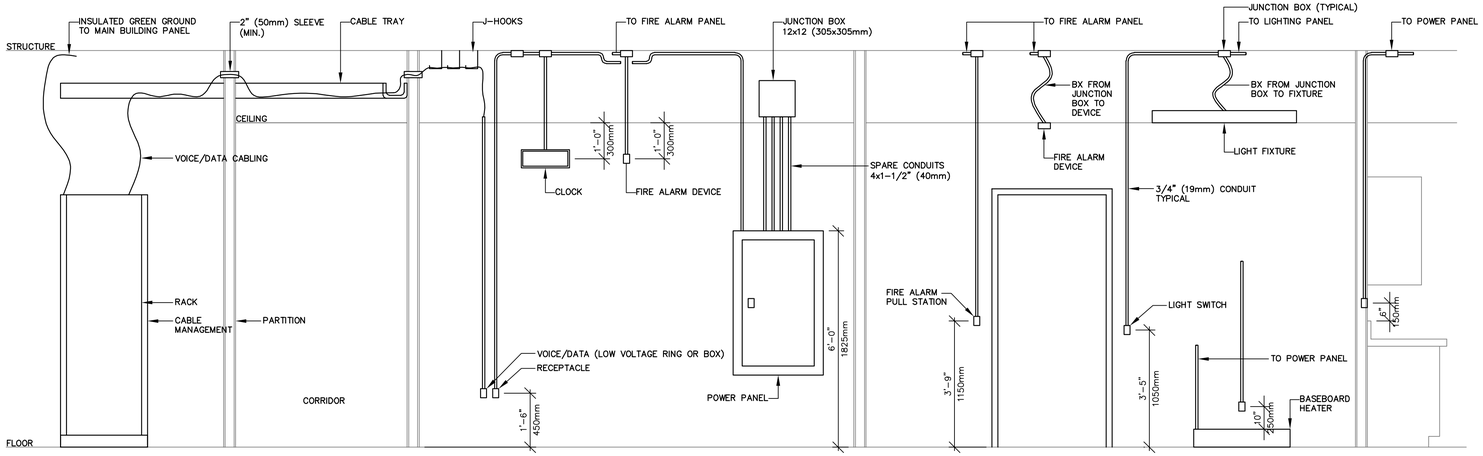


DETAIL NOTES:

A. BX OR ARMOURED CABLE IS TO BE RUN NEAT AND TIDY IN CEILING SPACE. PROVIDE CABLE TIES TO AFFIX TO SUSPENSION CHAINS. CLIP ENDS OF TIES.

B. JUNCTION BOXES ARE TO BE LOCATED CLOSE TO FIXTURES. PROVIDE P-TOUCH TYPE LABEL ON COVER PLATE WITH CIRCUIT NUMBER.

3 / E5 INSTALLATION OF RECESSED FIXTURE IN 'T' BAR CEILING
SCALE: NTS



DETAIL NOTES:

A. DETAIL IS APPLICABLE FOR DEVICES SHOWN ON PLANS. ALL THE DEVICES INDICATED IN THE DETAIL MAY NOT OCCUR ON THE PLANS.

B. CONDUIT SHALL BE PROVIDED IN ALL CASES UNLESS DENOTED AS BX OR AS ALLOWED IN THE SPECIFICATIONS.

C. ALL CONDUITS FOR LOW VOLTAGE CABLING AND WIRING SHALL HAVE BUSHINGS INSTALLED TO PREVENT CHAFFING OF WIRE(S).

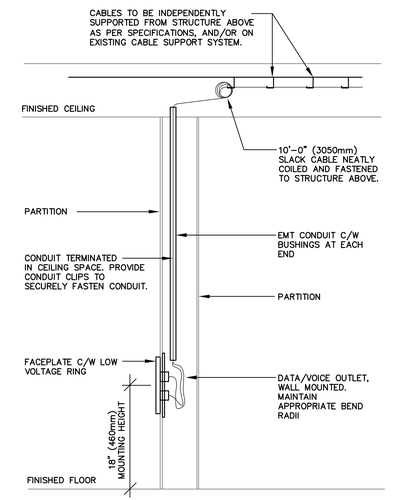
D. ALL CONDUITS ARE TO GO DIRECTLY FROM THE OUTLET BOX UP THE WALL INTO THE CEILING SPACE. NO HORIZONTAL RUNS OF CONDUIT, OR GROUPING OF CONDUITS WITH OTHER SERVICES IN CLOSE PROXIMITY.

E. CONDUITS ARE TO HAVE PULL ROPES INSTALLED AND LEFT BEHIND TO ALLOW THE PULLING OF ADDITIONAL SERVICES IN THE FUTURE.

F. ALL BREACHES IN WALLS ARE TO BE FIRESTOPPED TO MAINTAIN THE FIRE SEPARATIONS.

G. PROVIDE SUPPORTS FOR ALL CEILING MOUNTED ELEMENTS (IE CHAIN HANGERS FOR FIXTURES ETC.) DEVICES SHALL NOT BE SUPPORTED BY A CEILING TILE.

4 / E5 TYPICAL MOUNTING HEIGHTS/INSTALLATION DETAIL
SCALE:



5 / E5 SECTION THROUGH VOICE/DATA OUTLET
SCALE: NTS

Notes:

No.	Revision	Date	By
0	ISSUED FOR PERMIT AND TENDER	2024.09.10	DP
A	ISSUED FOR COMMENTS AND REVIEW	2024.08.01	DP

Electrical Engineering
12 Argyle Street N., Caledonia, ON, N3W 1B6
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Seal

Project
NRPS D6 RENOVATION
NIAGARA REGION
501 FIELDEN AVE, PORT COLBORNE, ON

Title
DETAILS

Drawn By:	Designed By:	Approved By:	Date:
DN	DP	DP	JULY, 2024

Project No.	Scale
24-103	NTS

Drawing No.	Sheet	Revision
E5	6 of 6	0

ORIGINAL SHEET – ARCH D

File: X:\Projects\2024\24-103 Port Colborne Police Accessibility ARC\E\24-103 E5 DETAILS.dwg
September 10, 2024 – 03:38pm Plotted by: Dominic

LEGEND – HVAC

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
HWS	HEATED WATER SUPPLY		SINGLE LINE RIGID DUCT
HWR	HEATED WATER RETURN		SINGLE LINE DUCT WITH ACOUSTIC LINING
RWS	RADIATION WATER SUPPLY		SINGLE LINE FLEXIBLE DUCT
RWR	RADIATION WATER RETURN		DOUBLE LINE FLEXIBLE DUCT
CHWS	CHILLED WATER SUPPLY		SUPPLY AIR DIFFUSER
CHWR	CHILLED WATER RETURN		RETURN AIR GRILLE
CWS	CONDENSER WATER SUPPLY	2–150ø / S1–100	NUMBER/DIFF NECK SIZE / DIFF TYPE/SUPPLY AIR L/S
CWR	CONDENSER WATER RETURN	FD	FIRE DAMPER
S	STEAM MAIN (PRESSURE AS INDICATED)	SD	SMOKE DAMPER
C	CONDENSATE RETURN	MD	MOTORIZED DAMPER
RL	REFRIGERANT LIQUID	BD	MANUAL BALANCING DAMPER
RD	REFRIGERANT DISCHARGE	BDD	BACK DRAFT DAMPER
RS	REFRIGERANT SUCTION	FS	MOTORIZED COMBINATION FIRE AND SMOKE DAMPER
GS	GLYCOL SUPPLY		FIRE DAMPER (IN RISER)
GR	GLYCOL RETURN		SMOKE & FIRE DAMPER (IN RISER)
	SUPPLY OR OUTSIDE AIR DUCT		BALANCING DAMPER IN (IN RISER)
	RETURN OR EXHAUST DUCT		MOTORIZED DAMPER (IN RISER)
	SUPPLY DUCT DOWN	T	THERMOSTAT
	RETURN DUCT DOWN	H	HUMIDSTAT
	ROUND DUCT UP	UC	DOOR UNDERCUT
	ROUND DUCT DOWN	DG	DOOR GRILLE
	DUCT WITH ACOUSTIC LINING	OA	OUTDOOR AIR
	DOUBLE LINE DUCT	RA	RETURN AIR
	SOUND ATTENUATOR	RF	RELIEF AIR
		SA	SUPPLY AIR

EXHAUST FAN SCHEDULE

TAG	SYSTEM	LOCATION	TYPE	MODEL	CAPACITY		ESP		VOLTAGE	MOTOR		REMARKS
					L/S	CFM	Pa	in.w.c		KW	HP	
EF–1	SANITARY EXHAUST	UNIVERSAL WR.	CEILING EXHAUST FANS	SP–A390–VG	57	120	75	.30	115/1/60	0.01	.020	COMPLY WITH BACKDRAFT DAMPER

NOTES:
1. SPECIFICATIONS BASED ON GREENHECK

DIFFUSER/GRILLE SCHEDULE

TAG	TYPE	MANUFACTURER	MODEL	REMARKS
S1	610mm x 610mm SQUARE CONE DIFFUSER	E.H. PRICE	SCD/4C/B12	SIZE AS INDICATED ON DRAWING.
S2	610mm x 610mm SQUARE CONE DIFFUSER	E.H. PRICE	SCD/4C/B12	SIZE AS INDICATED ON DRAWING.
R1	300mm x 200mm EGGCRATE TRANSFER GRILLE	E.H. PRICE	80/F/B12	SIZE AS INDICATED ON DRAWING.
R2	600mm x 250mm EGGCRATE TRANSFER GRILLE	E.H. PRICE	80/F/B12	SIZE AS INDICATED ON DRAWING.

NOTES:
1. SPECIFICATIONS BASED ON EH PRICE.

ELECTRICAL WALL HEATER SCHEDULE

TAG	LOCATION	MODEL #	STYLE	TOTAL CAPACITY	LENGTH	WEIGHT	REMARKS
				WATTS	mm	kg	
BB–01	EXISTING LOBBY CORRIDOR	--	ELECTRICAL	500	--	--	EXISTING TO REMAIN
BB–02	EXISTING WASHROOM	--	ELECTRICAL	500	--	--	EXISTING TO REMOVE
CUH	EXISTING VESTIBULE	--	ELECTRICAL	1000	--	--	EXISTING TO REMAIN
BB–03	NEW WASHROOM	OFM0502	ELECTRICAL	500	945	3.3	NOTE: 1, + 2

NOTES:
1. SPECIFICATIONS BASED ON OUELLET.
2. COMPLY WITH KIT–OFM–THA BUILT–IN ELECTRONIC THERMOSTAT WITH ROTARY KNOB INSTALLED IN THE RIGHT JUNCTION BOX ONLY: 12.5A AT 120V, 208V, 240V

DRAWING SCHEDULE

DWG NO	DRAWING TITLE
M–100	LEGENDS, SCHEDULES AND MECHANICAL DETAILS
M–101	SPECIFICATIONS
M–200	PLUMBING DRAWINGS
M–300	HVAC DRAWINGS

LEGEND – PLUMBING & DRAINAGE

SYMBOL	DESCRIPTION
SAN	SANITARY DRAIN – NEW
SAN	BURIED SANITARY DRAIN
ST	STORM DRAIN
ST	BURIED STORM DRAIN
PD	PUMPED DRAIN
PD	PUMPED DRAIN UNDER FLOOR
V	VENT PIPE
	DRAIN WITH CLEANOUT
	DRAIN WITH CLEANOUT UP TO FLOOR
	DRAIN WITH CLEANOUT UP TO FLOOR
	RUNNING TRAP WITH CLEANOUT
	RUNNING TRAP WITH CLEANOUT
	NON–POTABLE WATER
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RECIRC
T	DOMESTIC TEMPERED WATER
GW	GREY WATER
G	GAS PIPE
A	COMPRESSED AIR
CD	CONDENSATE DRAIN
LS	LIQUID SOAP
	PIPE UP
	PIPE DOWN
	CAPPED PIPE
	DIRECTION OF FLOW
HB WH	HOSE BIBB/WALL HYDRANT
	SHOWER HEAD
	FLOOR DRAIN OR ROOF DRAIN
	FLOOR DRAIN (PARKING)
	SCUPPER DRAIN
CB	CATCHBASIN
MH	MANHOLE
SS	SOIL STACK
WS	WASTE STACK
VS	VENT STACK
VTR	VENT THROUGH ROOF
RWL	RAINWATER LEADER
GT	GREASE TRAP

IMPERIAL TO METRIC SIZING CONVERSION

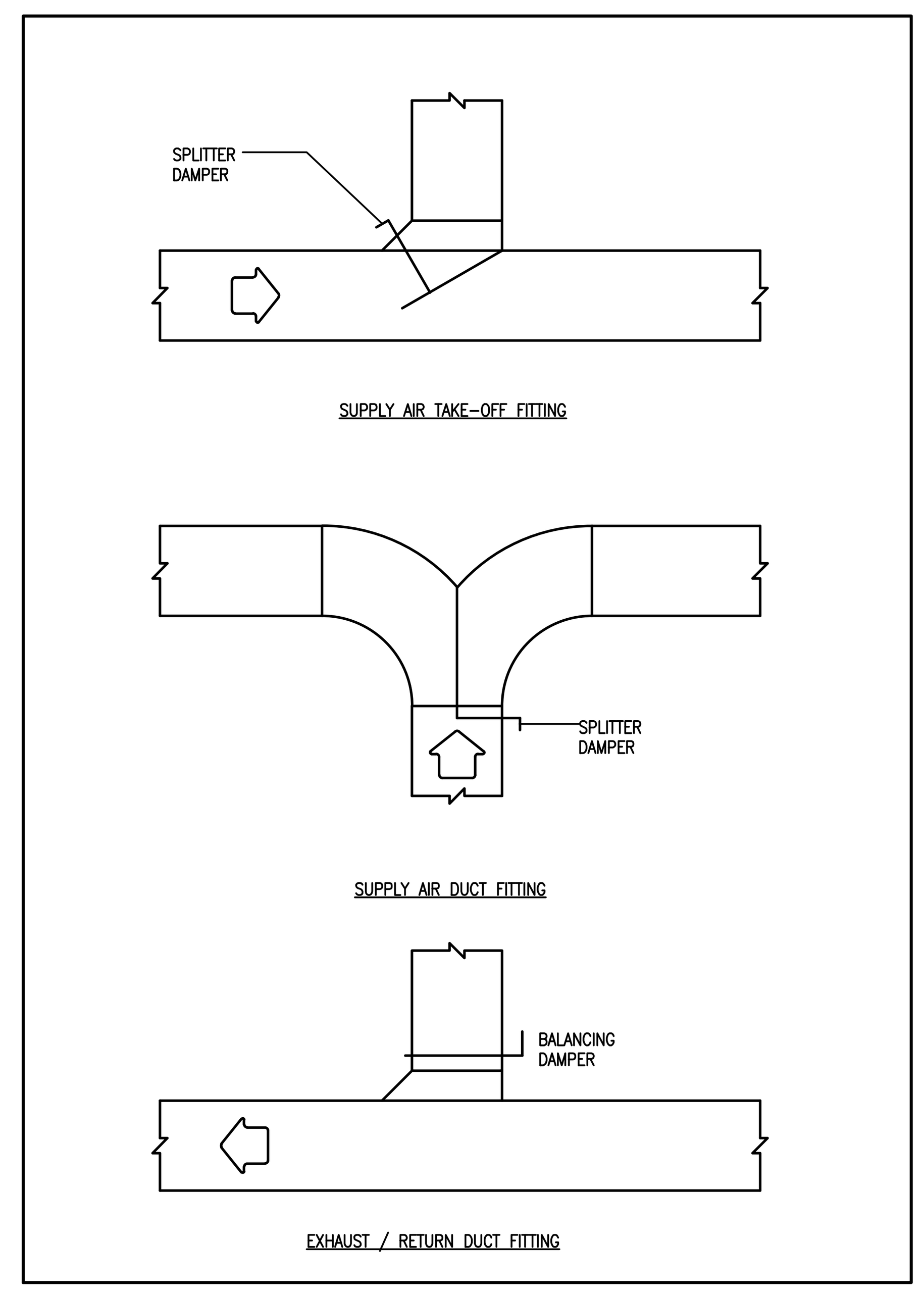
1/8"	3mm	1 1/4"	32mm
1/4"	8mm	1 1/2"	40mm
3/8"	10mm	2"	50mm
1/2"	15mm	2 1/2"	65mm
3/4"	20mm	3"	80mm
1"	25mm	4"	100mm

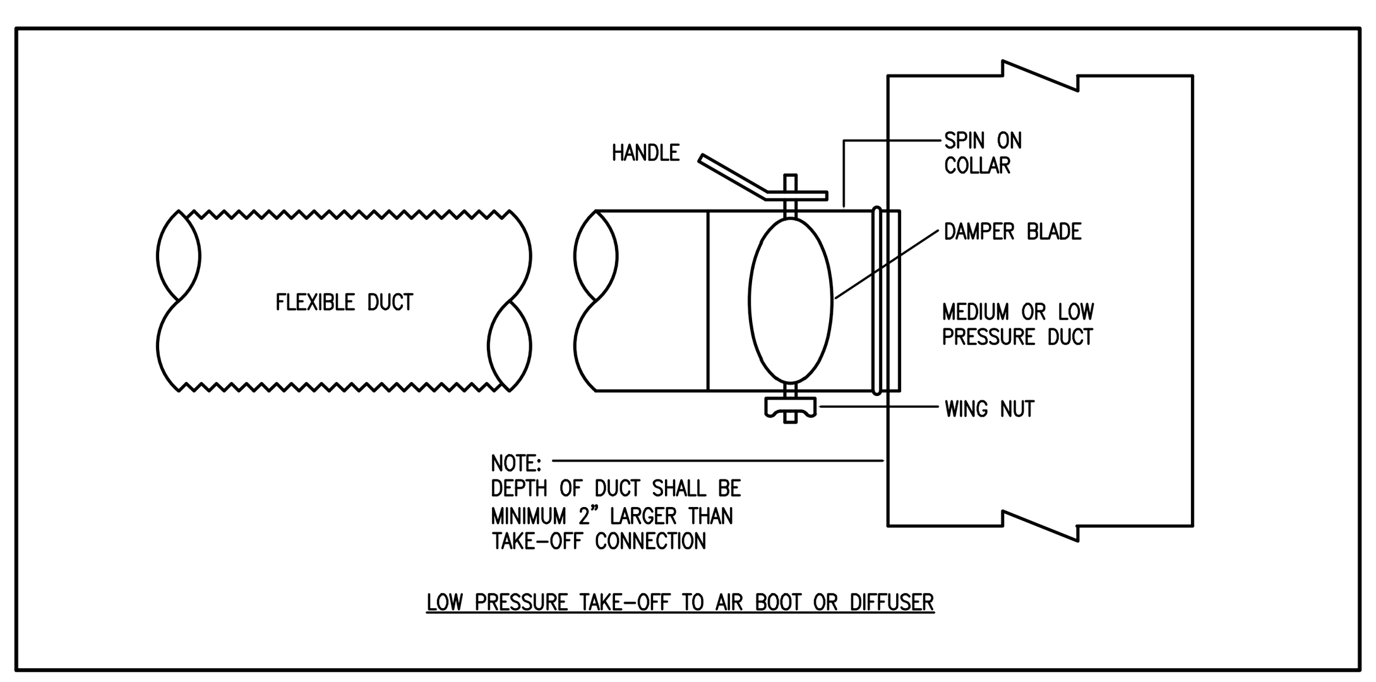
PLUMBING FIXTURES SIZING TABLE

FIXTURE DESCRIPTION	DRAIN	VENT	DCW	DWH
LAVATORY	32mm 1 1/4"	32mm 1 1/4"	15mm 1/2"	15mm 1/2"
SINK – 1 COMPARTMENT	40mm 1 1/2"	32mm 1 1/4"	15mm 1/2"	15mm 1/2"
SINK – 2 COMPARTMENT	40mm 1 1/2"	32mm 1 1/4"	15mm 1/2"	15mm 1/2"
SERVICE SINK	80mm 3"	40mm 1 1/2"	15mm 1/2"	15mm 1/2"
MOP SINK	80mm 3"	40mm 1 1/2"	15mm 1/2"	15mm 1/2"
DRINKING FOUNTAIN	32mm 1 1/4"	32mm 1 1/4"	15mm 1/2"	

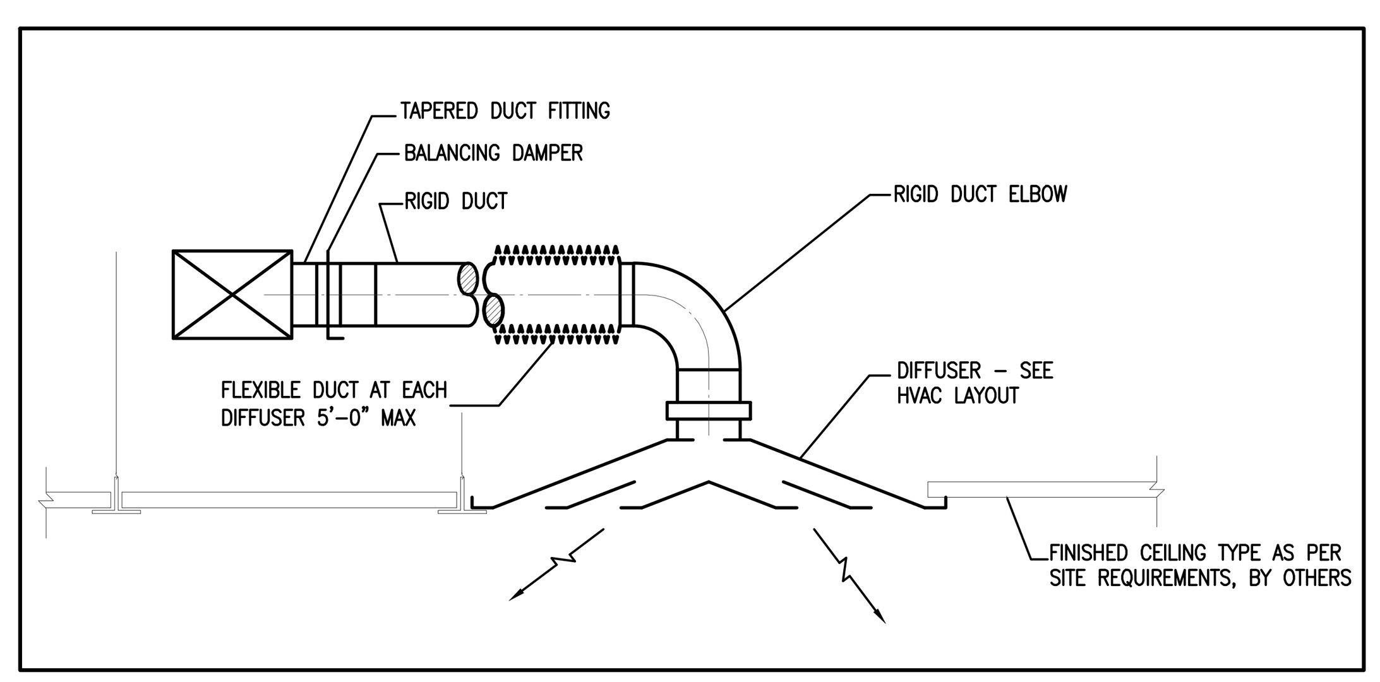
PLUMBING FIXTURE LIST

ITEM	DESCRIPTION
WC–01	AMERICAN STANDARD 2467016.020 TOILET – CADET®, TANK TYPE TOILET, FLOOR MOUNTED WITH FLOOR OUTLET, LOW CONSUMPTION 6.0 LPF (1.6 GPF), WHITE FINISH VITREOUS CHINA, EVERCLEAN® ANTIMICROBIAL SURFACE, ELONGATED BOWL, RIGHT HEIGHT® RIM AT 419 MM (16–1/2"), MINIMUM 305 MM (12") ROUGH–IN FROM WALL TO THE CENTER OF WASTE OUTLET, SIPHON JET FLUSH ACTION, MANUAL, POLISHED CHROME LEFT–HAND TRIP LEVER (7381886–201.0020A), TANK NOT LINED, WITHOUT TANK COVER LOCKING DEVICE, PRESSURE–ASSISTED FLUSH, SPEED CONNECT® TANK/BOWL COUPLING SYSTEM, CLOSE–COUPLED FLUSHOMETER TANK, 254 X 305 MM (10" X 12") WATER SURFACE AREA, FULLY–GLAZED 54 MM (2–1/8") TRAPWAY, SANITARY DAM ON BOWL, TOILET SEAT NOT INCLUDED, TWO (2) BOLT CAPS, 516 MM (20–5/16") WIDE, 768 MM (30–1/4") FROM FINISHED WALL, 781 MM (30–3/4") HIGH COMPLIANCES: ASME A112.19.2 COMPLIANT, CSA B45.1 COMPLIANT. CENTOCO 820STSFE–001 SEAT – FAST–N–LOCK, FOR ELONGATED BOWL, OPEN FRONT, HEAVY–DUTY, FOR COMMERCIAL APPLICATIONS, POLYPROPYLENE, TOILET SEAT, WITH SEAT COVER, PLASTIC COMMERCIAL CHECK HINGES, AND STAINLESS STEEL HINGE PIN, SPECIFIED IN WHITE FINISH, FAST–N–LOCK MOUNTING SYSTEM TAKES THE GUESS WORK OUT WHEN TIGHTENING THE HARDWARE. THE SPECIALLY DESIGNED FASTENERS IN CLICK" WHEN THE APPROPRIATE TORQUE IS REACHED. THE BOLT AND NUT MATERIAL SHALL BE STAINLESS STEEL, DIMENSIONS:25 MM (1") HIGH, 470 MM (18–1/2") LONG, 362 MM (14–1/4") WIDE MCGUIRE LFBV172 SUPPLY – CONVERTIBLE™ COMMERCIAL TOILET SUPPLY KIT, CONSISTING OF (1) STOP VALVE, (1) RISER, (1) FLANGE, LEAD FREE CHROME–PLATED FINISH BRASS BODY, 138 – 862 KPA (20 – 125 PSI) OPERATING PRESSURE, CONVERTIBLE LOOSE KEY/TRIANGLE HANDLE, QUARTER TURN BALL VALVE, ANGLE STOP, C.P. WROUGHT STEEL DEEP BELL WALL FLANGE (STANDARD), C.P. PREFABRICATED 127 MM (5") COPPER SWEAT TUBE EXTENSION NIPPLE, 305 MM (12") C.P. TOILET FLEXIBLE COPPER RISER TUBE (STANDARD), 13 MM (1/2") SWEAT INLET X 10 MM (3/8") O.D. OUTLET, AB 100 COMPLIANT, ASME A112.18.1 COMPLIANT, ASME A112.18.2–2 (RISERS), CSA B125.2 COMPLIANT (RISERS), CERTIFIED TO NSF/ANSI 372, CERTIFIED TO NSF/ANSI 61, UPC COMPLIANT.
HS–01	AMERICAN STANDARD 0355012.020 BASIN – WALL–HUNG LAVATORY, VITREOUS CHINA, WHITE FINISH. AMERICAN STANDARD 7075005.002 FAUCET – COLONY®, MANUAL, SINGLE HANDLE, LAVATORY FAUCET. LAWLER TMM–1070–87500 MIXING VALVE – THE POINT OF USE MECHANICAL MIXING VALVE WITH THERMOSTATIC LIMIT STOP, MECHANICAL MIXING VALVE, 1.8 LPM (0.5 GPM) TEMPERED FLOWRATE @ 5 PSI PRESSURE DROP, 8 LPM (2.1 GPM) FLOWRATE @ 45 PSI AMERICAN STANDARD 7723018.002 FIXTURE DRAIN – GRID DRAIN, FOR WHEELCHAIR LAVATORY, BRASS CONSTRUCTION, POLISHED CHROME FINISH, 267 MM (10–1/2") HIGH, 4–3/4" TO 5" OFFSET, WITH OVERFLOW MCGUIRE LFCK165LK SUPPLY – ICV DEFENDER, LEAD FREE, WITH CHROME–PLATED FINISH, INTEGRAL CHECK SUPPLY KIT, FAUCET PIPE TO COMPRESSION CONNECTION, 3/8" I.P.S X 3/8" O.D CONNECTION, SHALLOW WALL FLANGE, LOOSE KEY HANDLE.
FD–01	FLOOR DRAIN – AREA DRAIN – WATTS FD–320–Y–4 FLOOR DRAIN, EPOXY COATED, CAST IRON BODY, 3" NO HUB OUTLET





1 M–100 DUCT TAKE–OFF
SCALE: NTS



2 M–100 SQUARE DIFFUSER CONNECTION DETAIL
SCALE: NTS

3 M–100 DUCT FITTINGS
SCALE: NTS

GENERAL NOTES

No.	DESCRIPTION	DATE	BY
0	ISSUED FOR PERMIT AND TENDER.	SEP. 10, 2024	P.G

REVISIONS

LICENSED PROFESSIONAL ENGINEER P. L. GABANY 100212113 9/11/2024 PROVINCE OF ONTARIO

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contact@arcengineering.ca

PROJECT:
D6 POLICE STATION RENOVATION
501 FIELDEN AVENUE
PORT COLBORNE, ONTARIO, L3K 4T9

START DATE:	DRAWN BY:	DESIGNED BY:
2024-06-24	A.A	P.G.

DRAWING TITLE:
LEGENDS , SCHEDULES AND MECHANICAL DETAILS

SCALE: AS NOTED
DRAWING No.: M-100
PROJECT: 24-116-070

PLOT DATE: September 11, 2024
ORIGINAL SHEET SIZE: ARCH D
30cm 20cm 10cm 0

1. GENERAL

1.1. The scope of work is to re-work of existing HVAC, plumbing systems to suit new renovation on the main floor of D6 POLICE STATION. located at 501 FIELDEN AVENUE PORT COLBORNE, ON, L3K 4T9.

1.2. Perform all mechanical work detailed on these drawings to provide a complete and fully functional operating system to the satisfaction of the owner and mechanical consultant.

1.3. Where there is discrepancy between specified, or scheduled equipment, and information indicated elsewhere on the drawings, the most stringent shall apply.

1.4. Where there is apparent discrepancy of any kind, between any drawings, equipment tables, schedules, specifications, or other bid documents, notify the Consultant, for direction and clarification during the tender period.

1.5. Consideration will not be granted for misunderstanding the intent of the contractual documents, the extent of work to be performed, or the intent required to provide complete and fully operational and controlled systems upon completion installation.

1.6. Specified work described or indicated on drawings does not delegate function to any specified subcontractor or identify absolute contractual limits between mechanical or subcontractors.

1.7. Arrange for milestone inspections. Contact ARC Engineering Tel: (905) 643-8530 E-mail: contact@arcengineering.ca.

1.8. As a minimum, base building standards shall form the basis for this construction. Comply with Landlord's requirements for system shutdown and connection.

1.9. Coordinate all work with base building work. Refer to base building drawings and specifications.

1.10. Codes and bylaws shall be strictly adhered to. Obtain necessary permits, approvals and inspections from the authorities having jurisdiction.

1.11. Permits and fees required by the authorities having jurisdiction shall be obtained and paid for by this contractor. Include all applicable taxes.

1.12. Existing site conditions affecting the work of this trade shall be reviewed prior to tender submission. Contractor shall conduct ongoing reviews during demolition and construction and immediately notify the consultants of any deviations from drawing dimensions/details/schematics. Failure to do so shall not relieve contractor of full contract responsibility.

1.13. Cutting, patching and core drilling required by this trade shall be paid for by this contractor. Provide details of new opening through structural components for engineer's approval. Incur all costs related for structural approval.

1.14. Fire stop shall be ULC listed for the required separation and provided at all pipe and duct penetrations through rated assemblies.

1.15. Premium time costs shall be included for work outside of normal working hours. Comply with construction schedule prepared by Management.

1.16. Flashing and counter flashing for exterior penetrations or water-proofed floors shall be provided under this contract.

1.17. Shop drawings shall be complete with contractors reviewed stamp. Submit four (4) copies and/or one (1) electronic copy of all shop drawings. Allow one (1) week for consultant's review.

1.18. Base bid equipment and suppliers in Base Building Mechanical Specifications shall apply to this contract.

1.19. If the Contractor chooses to submit alternates:

1.19.1. Contractor to submit alternates in addition to base bid products, and show savings by utilizing alternates. Where modifications to the work of Other Trades are required as a result or part of the alternative offered, include the cost of said modifications in the alternative price offered.

1.19.2. Contractor responsible for ensuring alternate equipment meets physical requirements of existing site conditions to remain and proposed design with respect to but not limited to: size, weight, service access clearances, duct connection arrangement, & air intake clearances.

1.19.3. Contractor responsible for ensuring alternate equipment meets functions and performance specifications specified in schedule and/or shown on Drawings.

1.20. Equipment substitutions after award of contract will not be considered without written explanation and consultant's written authorization. The quality and performance characteristics of substituted product shall be equivalent to the specified product. All substitute products shall be approved by consultants. Any additional costs incurred by all trades for substituted equipment installation must be incurred by this contract.

1.21. Control wiring and devices shall be provided under this contract.

1.22. Electrical devices shall be provided for all Division 15 equipment, including load side wiring, starters, disconnect, etc. Verify and coordinate voltage, phase, and short circuit interrupting capacity with the electrical contractor prior to ordering equipment. Provide conduit and wiring materials and methods in strict accordance with Division 16 requirements.

1.23. Access doors shall be provided for all inaccessible mechanical equipment and services requiring inspection or service. Finish shall suit architect/designers requirements. Access doors shall be recessed as required to suit wall finish (e.g., tile).

1.24. Architect/Designer/Owner approval of air terminal, thermostat, and access door locations must be obtained prior to installation.

1.25. One (1) year written warranty shall be provided for the complete mechanical installation from date of acceptance.

1.26. CAD as-built drawings shall be completed utilizing AutoCAD. Record accurately installed work on white prints transferring to AutoCAD. Submit both copies.

1.27. Operating and maintenance manuals containing approved shop drawings, air and water balancing reports, equipment data sheets, written warranty, operating instructions and maintenance procedures shall be submitted to consultant for review. Manuals shall be separated with dividers in appropriate sections. Make all corrections requested by consultant and resubmit for review.

1.28. Provide, at minimum, one (1) hard copy and one (1) electronic copy of the operating and maintenance manuals referenced in section 1.27 to the building owner.

1.29. Change Notice Quotations shall be submitted complete with cost breakdown of labour and materials. Failure to provide will result in rejection. All Mechanical Change Notices shall be priced in accordance with "MECHANICAL CONTRACTORS ASSOCIATION" (MCA) labour units strictly for labour.

2. DEMOLITION

2.1. Provide labour, materials, products, equipment and services required to complete the demolition work specified herein.

2.2. Dispose, off site, of all debris in accordance with the jurisdictional authorities.

2.3. Removal and storage of salvageable items as directed by this specification section and the Owner of their representative.

2.4. Mechanical demolition work associated with this building is indicated on the demolition drawings and generally consists of the following:

- Plumbing and Drainage
- HVAC systems and equipment

2.5. Disposed materials which have not been designated for salvage from the demolition shall become the property of the Contractor. Remove all material and debris from the site as quickly as possible and dispose of legally. Burning of debris or selling of materials on the site will not be permitted.

2.6. Present to the Owner exisiting equipment removed but not identified for salvage on site. Acceptance of removed equipment is at the discretion of the Owner. Remove such items from site when deemed unsuitable.

2.7. Conform to requirements of municipality's Works Department regarding disposal of waste materials.

2.8. Materials prohibited from municipality waste management facilities shall be removed from site and disposed to recycling companies specializing in recyclable materials.

2.9. Contractor shall be responsible for all fees required for the disposal of demolished materials, equipment, etc.

2.10. Store materials only in areas designated by the Owner and as permitted by the local jurisdictional authorities.

3. PLUMBING SYSTEM

3.1. EXISTING SANITARY DRAIN locations and invert elevations shall be verified on site prior to commencement of work.

3.2. PIPING MATERIALS:

3.2.1. Domestic hot and cold water piping – type "L" copper with copper fittings use 95/5 tin/antimony solder. Provide type "K" soft copper piping without joints below ground.

3.2.2. Drainage and Vent Piping (60mm [2-1/2"] and smaller):

3.2.2.1. Sanitary piping, above ground – DWV copper pipe with drainage fittings and 50/50 solder joints.

3.2.2.2. Sanitary piping, below ground – Type L copper with 50/50 solder joints.

3.2.2.3. Vent piping, above ground – DWV copper pipe with drainage fittings, 50/50 solder joints.

3.2.2.4. Vent piping, below ground – Type L copper pipe with wrought copper fittings and 50/50 solder joints.

3.2.3. Drainage and Vent Piping (75mm [3"] and larger):

3.2.3.1. Sanitary piping, above ground – CSA class 4000 cast iron soil pipe and fittings, with mechanical joints.

3.2.3.2. Sanitary piping, below ground – CSA class 4000 cast iron soil pipe and fittings, with mechanical joints.

3.2.3.3. Vent piping, above ground – CSA class 4000 cast iron soil pipe and fittings, with mechanical joints.

3.2.3.4. Vent piping, below ground – CSA class 4000 cast iron soil pipe and fittings, with mechanical joints.

3.3. Ball valves are to be solid ball style only.

3.4. Provide ball valves for all shut-off requirements. Gate valves will not be approved.

3.5. Provide all bronze ball type shut off valves on main and branch lines and isolating valves for each individual plumbing fixture served.

3.6. Plumbing fixtures shall be new, of first quality, in perfect condition and installed in best workmanlike manner. Verify plumbing fixture quantities and locations with Architect's/Designer's drawings. Reuse of domestic water heater is not permitted.

3.7. Provide di-electric couplings for connection of dissimilar piping materials.

3.8. Trap seal primer must be provided on all new Floor Drains, Funnel Floor Drains and Hub Drains.

3.9. Exposed piping and fittings within washrooms shall be chrome plated. Provide chrome plated escutcheons on all piping passing through finished surfaces and millwork.

3.10. Stainless steel water hammer arrestors equal to Zurn Shoktrol shall be provided on all lines serving groups of fixtures, quick closing valves and flush valves.

3.11. Provide ULC classified firestopping products by 3M or Hilti which have been tested in accordance with CAN4-S115, install firestopping systems in accordance with the appropriate ULC system number for the products and type of penetration.

3.12. Ensure that fire ratings of floors and walls are maintained, fill spaces between openings and pipes passing through fire separations.

4. INSULATION

4.1. Provide all labour, materials, products, equipment and services to supply and install thermal insulation, vapour barriers and finishes for mechanical work as indicated on the drawings and specified in this section of these specifications.

4.2. PIPING INSULATION:

4.2.1. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics and insulating cements.

4.2.2. Insulation materials must be manufactured at facilities certified and registered with an approved Registrar to conform o ISO 9000 quality standard.

4.2.3. All insulation pertaining to Division 15 shall be carried out by one firm specializing in insulation work. Do not mix similar products of multiple manufacturers.

4.2.4. Acceptable insulation manufacturers are Owens Corning Canada, Johns Manville, Manson Insulation Inc. Knauf Fiber Glass and Certainteed.

4.2.5. Provide insulation and covers in strict accordance with authorities governing combustibility and fireproofing of materials and in accordance with manufacturer's recommendations.

4.2.6. Provide non-combustible insulation, jackets and finishes having a Flame Spread/Smoke Developed rating of 25/50 or less.

4.2.7. Provide insulation materials with a minimum thermal conductivity of 0.24BTU.in/(hr. sq.ft°F) at 100°F mean temperature.

4.2.8. On hot piping applications, hold insulation in place with flare type staples (outward clinch).

4.2.9. Apply pipe insulation over 1-1/2" thickness in two layers with joints staggered.

4.2.10. Insulate fittings with fabricated mitered or preformed sections of specified insulation.

4.2.11. Insulate over flanges and mechanical couplings with specified insulation and thickness, sized to suit flange diameters. Fill spaces between insulation and adjoining pipe insulation with similar material.

4.2.12. Insulate valves and inline components with flexible insulation density (3/4 lbs./cu.ft.) compressed not more than 50% of original thickness. Build up to specified thickness with approved asbestos free finishing cement.

4.2.13. Do not insulate terminal unit automatic control valves installed in hot piping.

4.2.14. Under all domestic cold water, provide an insert between support shield and piping for piping 1-1/2" or larger.

4.2.15. Provide the following pipe insulation type as indicated in the pipe insulation table below.

'Type P1' – Owens Corning Fiberglas Pipe Insulation, Johns Manville Micro-Lok Pipe Insulation, Manson Alley-K Pipe Insulation or Knauf Earthwool 1000° Pipe Insulation with factory applied all purpose vapour barrier jacket where scheduled.

'Type P2' – Armacell AC Accoflex fiber-free piping insulation, painted with WB Finish where installed outdoors.

DUTY	INSULATION TYPE	THICKNESS	VAPOUR BARRIER
DOMESTIC COLD WATER			
Less than 1"	P-1	1/2"	Yes
Less than 8"	P-1	1"	Yes
8" and larger	P-1	1-1/2"	Yes
DOMESTIC HOT WATER			
Less than 1-1/2"	P-1	1"	No
1-1/2" and larger	P-1	1-1/2"	N

4.3. DUCTWORK INSULATION

4.3.1. Provide insulation with a minimum thermal resistance of 0.25 BTU.in/hr. sq.ft °F at 75°F mean temperature.

4.3.2. Apply vapour barrier over insulation on cold temperature ductwork.

4.3.3. Circular silencers and acoustic plenums need not be externally insulated.

4.3.4. Ductwork and casings lined with acoustic insulation 1" or more in thickness need not be externally insulated.

4.3.5. Provide the following ductwork insulation type as indicated in the ductwork insulation table below.

Type D1: Owens Corning 703 Fiberglas Insulation with FRK facing, John Mansville 814 Spin-Glas with FSK Facing, Manson AK Board with FSK facing, or Knauf Earthwool Insulation Board with FSK facing. Density shall be not less than 3lbs./cu.ft. Impale on mechanically fastened pins located at not greater than 12" centers. Secure with speed washers. Butt joints tightly together and seal washers, breaks and joints with self-adhering 4" wide plain aluminum tape, or adhere foil with Childers CP82 or Bakor 230-38 adhesive.

Type D2: Owens Corning SOFTR Duct Wrap FRK, Johns Manville Microlite EQ FSK Duct Wrap, Manson Alley Wrap with FSK facing or Knauf Atmosphere Duct Wrap with FSK facing. 12kg/cubic metre [3/4lb./cu.ft.] density with factory applied reinforced foil facing. Adhere insulation to duct surface with Childers CP82 or Bakelite 230-39 adhesive, which shall be applied in strips 150mm [6"] wide at not greater than 300mm [12"] centres. Butt edges of insulation tightly together, and seal breaks and joints of facing with self-adhering 100mm [4"] wide aluminum tape or adhere foil with Childers CP82 or Bakor 230-38 adhesive.

DUTY	INSULATION TYPE	THICKNESS	VAPOUR BARRIER
Relief and exhaust air plenums	D1	1-1/2"	Yes
Final 3m (10') of exhaust duct before exiting building or up to motorized damper if distance exceeds 3m (10')	D2	1"	Yes
Concealed supply air duct, excluding flexible ducts	D2	1"	Yes

4.3.6. Protect the work of this trade from being defaced by other trades. Make good any damage and leave in perfect condition, ready for final painting.

4.3.7. Apply insulation over clean dry surfaces, firmly butting all sections together.

5. DUCTWORK

5.1. Provide all labour, materials, products, equipment and services to supply and install the sheet metal and ductwork systems as indicated on the Drawings and specified in this Section of the Specifications.

5.2. Meet Standards described in the latest Edition of HVAC Duct Construction Standards handbook from Sheet Metal and Air Conditioning Contractors National Association (SMACNA).

5.3. Duct dimensions shown on Drawings are net, inside insulation and acoustic duct lining.

5.4. RIGID DUCTWORK

5.4.1. Fabricate ductwork from galvanized sheet metal with a minimum coating of 1.83 grams/m² (G60 coating) unless other materials are specifically named.

5.4.2. Ductwork shall be smooth on the inside and free of obstructions, vibration and rattle.

5.4.3. Fabricate ductwork, except as described in the next item, according to the following classifications:

Class 1: All ducting subject to positive or negative static pressure of 250 Pa or less with maximum velocities of 1.5m/s shall be constructed in accordance with SMACNA construction standards for 250 Pa duct.

5.4.4. Provide duct transformation with expansion fittings having slopes not exceeding 1 to 7 and contraction fittings having slopes not exceeding 1 to 4.

5.4.5. Provide full radius tees, bends, and elbows for changes in direction except where square elbows are required due to space restrictions. Provide DuroDyne double thickness 0.8 mm turning vanes assembled in top and bottom rails in square elbows.

5.4.6. Provide balancing dampers free to move in either direction without binding and rattling. Construct dampers in ductwork from 1.2 mm galvanized sheet metal. Use manual quadrants on small ducts. On dampers longer than 375mm use push rods with DuroDyne Model SRP ball joints. Use two push rods on ducts wider than 600 mm. Provide OBD balancing dampers where shown on the drawings.

5.4.7. Isolate equipment with DuroDyne neoprene 0.8 mm thick flexible connectors with finished fabric width not less than 150mm.

5.4.8. Provide 50mm insulated sheet metal blank off panels behind unused portions of exterior louvers.

5.4.9. Seal all joints in low, medium and high pressure ductwork with Transcontinental MP for low and medium pressure or DuroDyne S2 duct sealer for high pressure. Joints shall be sealed to conform to the following SMACNA standards:

Seal Class	Sealing Required	Static Pressure Construction Class
A	All transverse joints, longitudinal seams and duct wall penetrations.	[1000 Pa] [4" w.g. and up]
B	All transverse joints and longitudinal seams.	[500-750 Pa] [2" – 3" w.g.<-]
C	Transverse joints	Up to [500 Pa] [2" w.g.<-]

5.4.10. Seal joints in exhaust ducting where fan intake is further than 25 m from furthest intake in accordance with seal Class A

5.5. FLEXIBLE DUCTWORK:

5.5.1. Provide Flexmaster T/L-A, flexible ductwork upstream and downstream of air terminal control units and/or other locations indicated on the Drawings.

5.5.2. Construct ductwork from a tape of soft annealed aluminum sheet, spiral wound into a tube and spiral corrugated to provide strength and flexibility. Provide a triple mechanical lock to form a continuous secure air joint without the use of adhesives for pressures up to 3000 Pa.

5.5.3. Conform to the requirements of NFPA 90 and Underwriters Laboratories classification for round duct to specification UL 181.

5.5.4. Provide flexible ductwork in minimum lengths of 1500 mm and maximum lengths of 3600 mm Class 1 pressure systems. For Class 2 and higher pressure systems restrict minimum and maximum lengths to 1200 mm.

5.6. CLEAN UP

5.6.1. Vacuum clean the inside of all air handling systems, including fans, plenums, ducts, coils and terminal units to ensure that they are free from debris and dust.

6. TESTING, ADJUSTING, AND BALANCING

6.1. Balancing contractor shall be qualified by the following:

6.1.1. Associated Air Balance Council (AABC) National Standards for Total System Balancing, NM-1

6.1.2. National Balancing Council (NBC) Certified Air Balancing Specifications and Certified Hydronic Balancing Specifications

6.1.3. National Environmental Balancing Bureau (NEBB) TABES Proceedural Standard for Testing, Adjusting, and Balancing Environmental Systems

6.1.4. Sheet Metal and Air Conditioning Contractors National Association (SMACNA) HVAC TAB HVAC Systems – Testing, Adjusting and Balancing

6.2. Balancing contractor shall be one of:

- Troup Engineering Services Inc.
- Air Audit
- Dynamic

6.3. List selected balancing contractor on tender form. Balancing scope of work shall include water and air side balancing of all equipment, ductwork and terminal devices provided as part of this contract, as well as base building equipment revised by this contract.

6.4. Balance as listed on mechanical drawings.

6.5. Balance to the following tolerances of design values:

6.5.1. HVAC systems: +/- 5%

6.5.2. Measured volumes to be accurate to with 2% of actual volumes.

6.6. Instruments

6.6.1. Prior to balancing, submit to owner representation a list of instruments to be used together with matching serial numbers.

6.6.2. Calibrate instruments in accordance with requirements of most stringent of referenced standard for applicable system.

6.6.3. Calibrate instruments with (3) months of balancing and provide certificate of calibration to owner's representative.

6.7. Submit balancing report in triplicate to the consultant and the owner, indicating terminal design and measured flow rates.

7. EQUIPMENT NAMEPLATES

7.1. Contractor to installed equipment nameplates stickers in Accordance with Niagara Region labeling standards. coordinate new equipment with the region to update the master equipment list.

GENERAL NOTES

No.	DESCRIPTION	DATE	BY
0	ISSUED FOR PERMIT AND TENDER.	SEP. 10, 2024	P.G

REVISIONS

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PROJECT:

D6 POLICE STATION RENOVATION

501 FIELDEN AVENUE
PORT COLBORNE, ONTARIO, L3K 4T9

START DATE:	DRAWN BY:	DESIGNED BY:
2024-06-24	A.A	P.G.

DRAWING TITLE:

SPECIFICATIONS

SCALE: AS NOTED

DRAWING No.: M-101

PROJECT: 24-116-070

PLOT DATE: September 11, 2024

ORIGINAL SHEET SIZE: ARCH D

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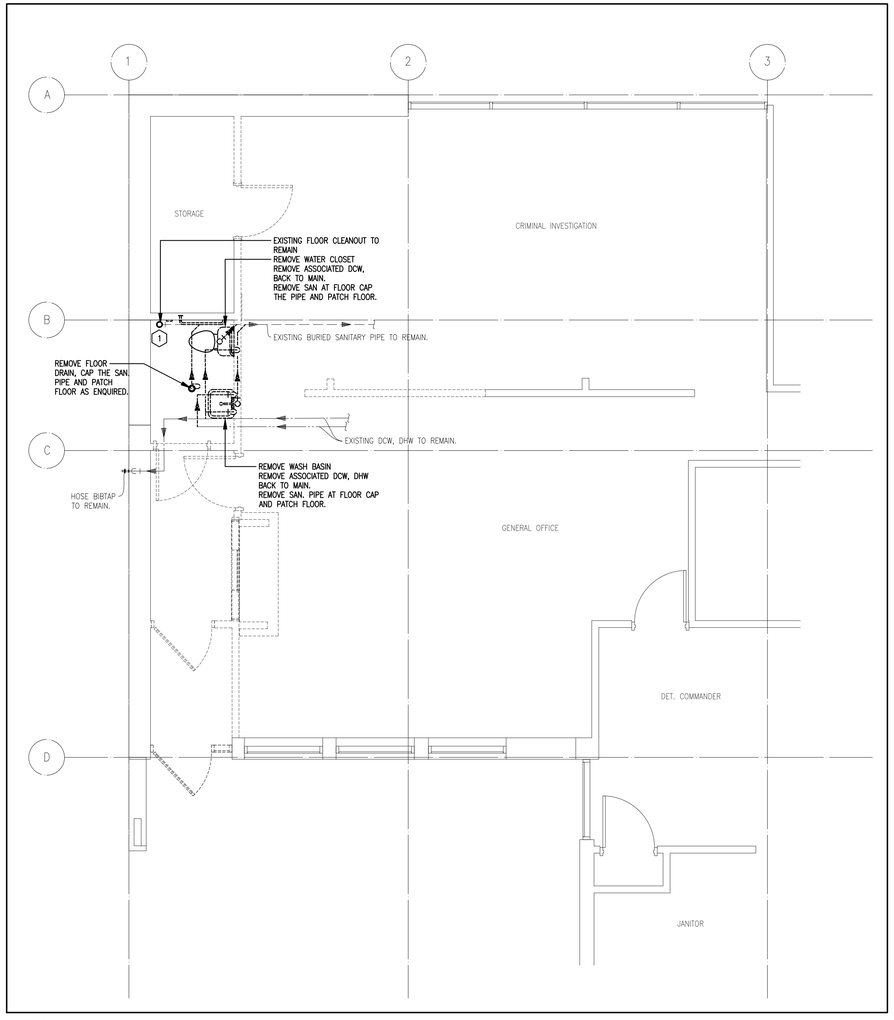
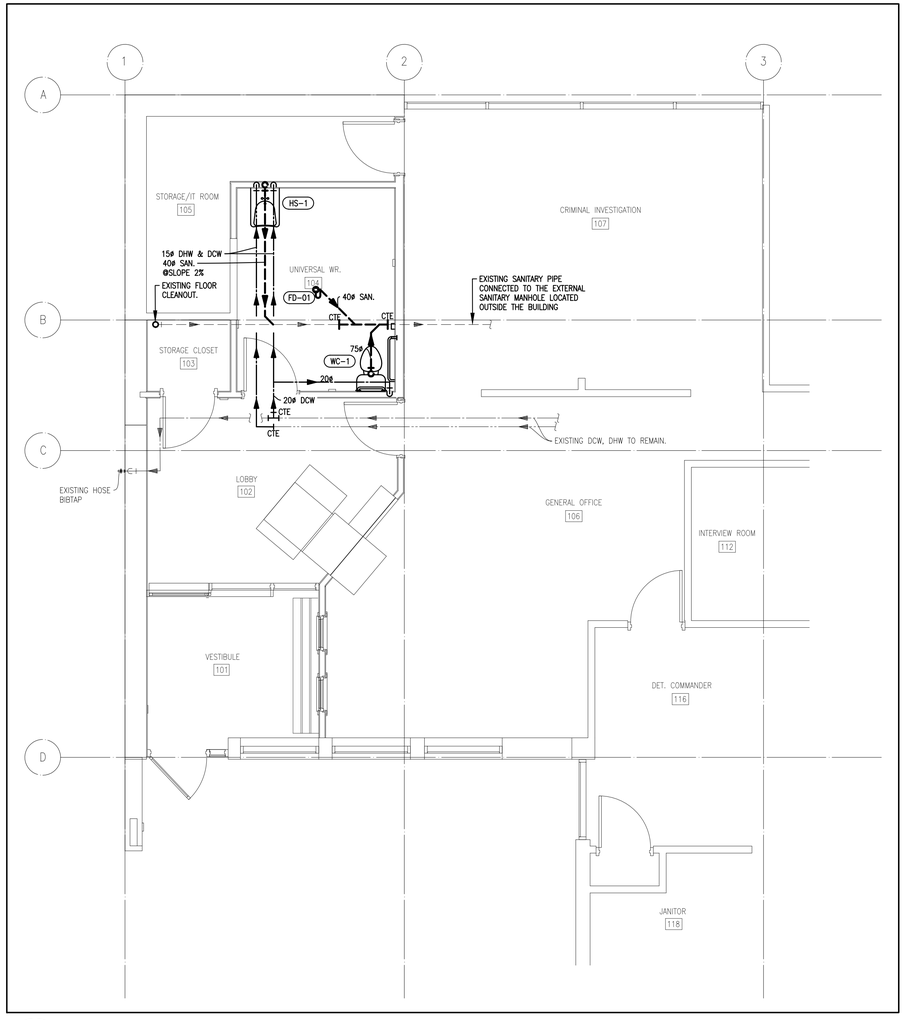


1 M–200 GROUND FLOOR PLUMBING DEMOLITION PLAN
SCALE: 1:50



2 M–200 GROUND FLOOR NEW PLUMBING PLAN
SCALE: 1:50

DEMOLITION DRAWING NOTES:

1. CONTRACTOR TO VERIFY THE SANITARY PIPE CONDITION, BY CAMERA INSPECTION.
   PROVIDE INSPECTION REPORT TO THIS CONSULTANT AND THE OWNER FOR REVIEW.
   INDICATE ANY BREAKAGE AND GENERAL PIPE CONDITION.
   SCOPE 50 FT OF THIS CLEANOUT AND REMOVE ANY PIPE BLOCKAGE OR DEBRIS.

GENERAL NOTES

No.	DESCRIPTION	DATE	BY
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START DATE:	DRAWN BY:	DESIGNED BY:
2024-06-24	A.A	P.G.

DRAWING TITLE:
PLUMBING DEMOLITION AND NEW CONSTRUCTION

SCALE:	DRAWING No.:
1:50	M-200
PROJECT: 24-116-070	

PLOT DATE: September 11, 2024

ORIGINAL SHEET SIZE: ARCH D

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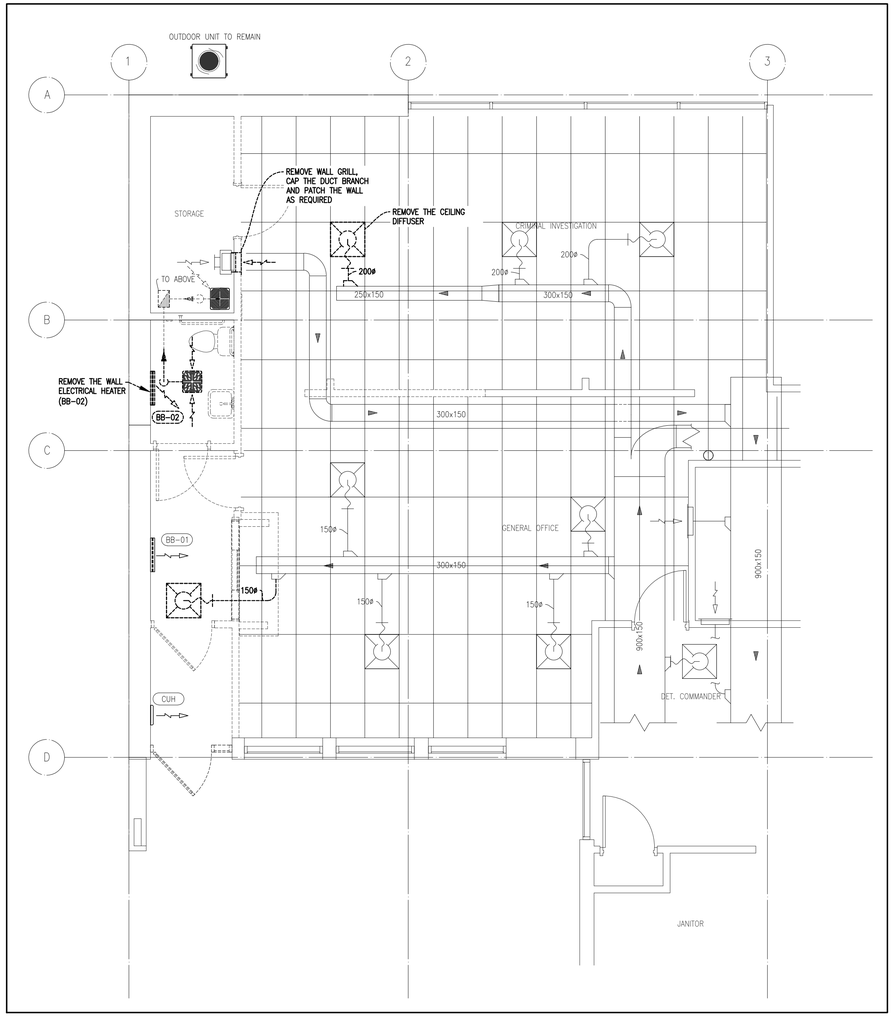
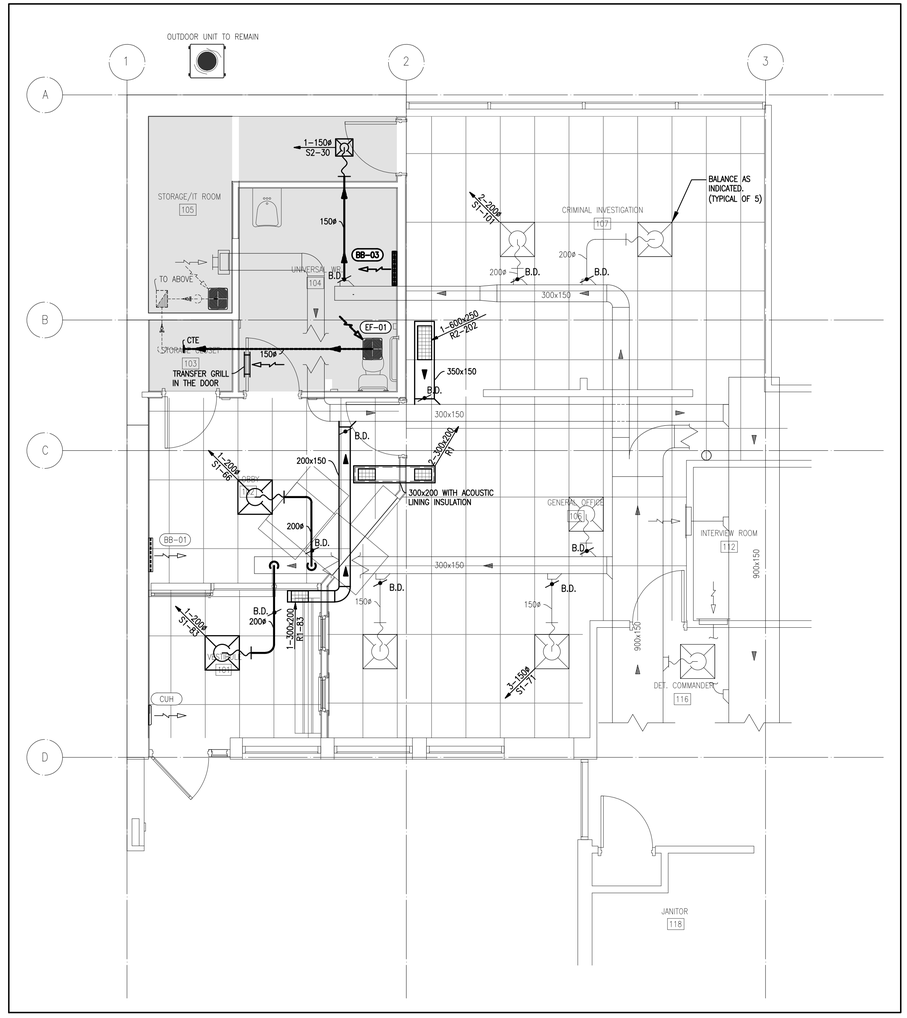


1 M-300 GROUND FLOOR HVAC DEMOLITION PLAN
SCALE: 1:50



2 M-300 GROUND FLOOR NEW HVAC PLAN
SCALE: 1:50

GENERAL NOTES

No.	DESCRIPTION	DATE	BY
0	ISSUED FOR PERMIT AND TENDER.	SEP. 10, 2024	P.G

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START DATE:	DRAWN BY:	DESIGNED BY:
2024-06-24	A.A	P.G.

DRAWING TITLE:
HVAC DEMOLTION AND NEW CONSTRUCTION

SCALE:	DRAWING No.:
1:50	M-300
PROJECT: 24-116-070	

PLOT DATE: September 11, 2024

ORIGINAL SHEET SIZE: ARCH D

30cm 20cm 10cm 0