

## INVITATION TO TENDER

**RETURN BIDS TO:**

**Bid Receiving / Agriculture and Agri-Food Canada**

**BY EMAIL ONLY**

Agriculture and Agri-Food Canada  
 Eastern Service Centre  
 Tender Receiving Unit  
 2001 Robert-Bourassa Blvd., Suite 671-TEN  
 Montréal, Quebec  
 H3A 3N2

**TENDER TO:**

**Agriculture and Agri-Food Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the construction listed herein and on any attached sheets at the price(s) set out therefor.

Comments  
 Tenders must be received by email only at the following email address :

[aaafc\\_escprocurement-cseapprovisionnement.aac@agr.gc.ca](mailto:aaafc_escprocurement-cseapprovisionnement.aac@agr.gc.ca)

Notes : Tenders received at an email address other than this one will be rejected.

**ISSUING OFFICE**

Agriculture and Agri-Food Canada  
 Eastern Service Centre  
 Tender Receiving Unit  
 2001 Robert-Bourassa Blvd., Suite 671-TEN  
 Montréal, Quebec  
 H3A 3N2

Title Renovation of Building 26 - Accommodation Fit-Up - Central Experimental Farm	
Solicitation No. 01B46-21-155	Date 2022-01-18
Client Reference No.	
File No. 01B46-21-155	
Solicitation Closes: Tuesday, February 1, 2022, at 02:00 PM, EST.	
F.O.B <input type="radio"/> Plant <input checked="" type="radio"/> Destination <input type="radio"/> Other	
Address Enquiries to: Claudia Lauzier	
Title: Procurement Officer	
Email: claudia.lauzier@agr.gc.ca	
Telephone Number    Ext. 438 455-2392	Fax Number
Destination Central and Experimental Farm (CEF) Agriculture and Agri-Food Canada K.W. Neatby Building 960 Carling Avenue, Ottawa, ON K1A 0C6	

**Instructions: See Herein**

Delivery Required May 31st, 2022	Delivery Offered
Vendor / Firm Name and Address	
Telephone Number    Ext.	Fax Number
Name and title of person authorized to sign on behalf of Vendor / Firm (type or print)	
Signature _____	Date _____



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## Appendix "A"

### GENERAL INSTRUCTIONS TO BIDDERS



## GENERAL INSTRUCTIONS TO BIDDERS

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### **GI01 COMPLETION OF BID**

- 1) The bid shall be:
  - (a) submitted on the BID AND ACCEPTANCE FORM provided by AAFC with the bid package or on a clear and legible reproduced copy of such BID AND ACCEPTANCE FORM that must be identical in content and format to the BID AND ACCEPTANCE FORM provided by AAFC;
  - (b) based on the Bid Documents listed in the Special Instructions to Bidders;
  - (c) correctly completed in all respects;
  - (d) signed, with an original signature, by a duly authorized representative of the Bidder; and
  - (e) accompanied by
    - (i) bid security as specified in GI07; and
    - (ii) any other document or documents specified elsewhere in the solicitation where it is stipulated that said documents are to accompany the bid.
- 2) Subject to paragraph 6) of GI10, any alteration to the pre-printed or pre-typed sections of the Bid and Acceptance Form, or any condition or qualification placed upon the bid shall be cause for disqualification. Alterations, corrections, changes or erasures made to statements or figures entered on the Bid and Acceptance Form by the Bidder shall be initialed by the person or persons signing the bid. Alterations, corrections, changes or erasures that are not initialed shall be deemed void and without effect.
- 3) Unless otherwise noted elsewhere in the Bid Documents, facsimile copies of bids are not acceptable.

## **GENERAL INSTRUCTIONS TO BIDDERS (Continued)**

### **GI02 IDENTITY OR LEGAL CAPACITY OF THE BIDDER**

- 1) In order to confirm the authority of the person or persons signing the bid or to establish the legal capacity under which the Bidder proposes to enter into Contract, any Bidder who carries on business in other than its own personal name shall, if requested by Canada, provide satisfactory proof of
  - (a) such signing authority; and
  - (b) the legal capacity under which it carries on business;

prior to contract award. Proof of signing authority may be in the form of a certified copy of a resolution naming the signatory(ies) that is (are) authorized to sign this bid on behalf of the corporation or partnership. Proof of legal capacity may be in the form of a copy of the articles of incorporation or the registration of the business name of a sole proprietor or partnership.

### **GI03 APPLICABLE TAXES**

- 1) "Applicable Taxes" means the Goods and Services Tax (GST), the Harmonized Sales Tax (HST), and any provincial tax, by law, payable by Canada such as, the Quebec Sales Tax (QST) as of April 1, 2013.

### **GI04 CAPITAL DEVELOPMENT AND REDEVELOPMENT CHARGES**

- 1) For the purposes of GC1.8 LAWS, PERMITS AND TAXES in the General Conditions of the Contract, only fees or charges directly related to the processing and issuing of building permits shall be included. The Bidder shall not include any monies in the bid amount for special municipal development, redevelopment or other fees or charges which a municipal authority may seek as a prerequisite to the issuance of building permits.

### **GI05 REGISTRY AND PRE-QUALIFICATION OF FLOATING PLANT**

- 1) Dredges or other floating plant to be used in the performance of the Work must be of Canadian registry. For dredges or other floating plant that are not of Canadian make or manufacture, the Bidder must obtain a certificate of qualification from Industry Canada and this certificate must accompany the bid. Plant so qualified by Industry Canada may be accepted on this project.

### **GI06 LISTING OF SUBCONTRACTORS AND SUPPLIERS**

- 1) Notwithstanding any list of Subcontractors that the Bidder may be required to submit as part of the bid, the Bidder shall, within 48 hours of receipt of a notice to do so, submit all information requested in the said notice including the names of Subcontractors and Suppliers for the part or parts of the Work listed. Failure to do so shall result in the disqualification of its bid.

### **GI07 BID SECURITY REQUIREMENTS**

- 1) The Bidder shall submit bid security with the bid in the form of a bid bond or a security deposit in an amount that is equal to not less than 10 percent of the bid amount. Applicable Taxes shall not be included when calculating the amount of any bid security that may be required. The maximum amount of bid security required with any bid is \$2,000,000.00.

## GENERAL INSTRUCTIONS TO BIDDERS (Continued)

- 2) A bid bond shall be in an approved form <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494#appS>, properly completed, with original signature(s) and issued by an approved company whose bonds are acceptable to Canada either at the time of solicitation closing or as identified in Treasury Board Appendix L: [Acceptable Bonding Companies](#).
- 3) A security deposit shall be an original, properly completed, signed where required and be either:
  - (a) a bill of exchange, bank draft or money order made payable to the Receiver General for Canada and certified by an approved financial institution or drawn by an approved financial institution on itself; or
  - (b) bonds of, or unconditionally guaranteed as to principal and interest by, the Government of Canada;
- 4) For the purposes of subparagraph 3) (a) of GI07
  - (a) a bill of exchange is an unconditional order in writing signed by the Bidder and addressed to an approved financial institution, requiring the said institution to pay, on demand, at a fixed or determinable future time a sum certain of money to, or to the order of, the Receiver General for Canada;
  - (b) if a bill of exchange, bank draft or money order is certified by or drawn on an institution or corporation other than a chartered bank, it must be accompanied by proof that the said institution or corporation meets at least one of the criteria described in subparagraph 4.c. of GI07, either by letter or by a stamped certification on the bill of exchange, bank draft or money; and
  - (c) An approved financial institution is:
    - (i) a corporation or institution that is a member of the Canadian Payments Association as defined in the [Canadian Payments Act](#);
    - (ii) a corporation that accepts deposits that are insured, to the maximum permitted by law, by the Canada Deposit Insurance Corporation or the "Autorité des marchés financiers";
    - (iii) a corporation that accepts deposits from the public if repayment of the deposit is guaranteed by Her Majesty the Queen in right of a province;
    - (iv) a corporation, association or federation incorporated or organized as a credit union or co-operative credit society that conforms to the requirements of a credit union which are more particularly described in paragraph 137(6) of the [Income Tax Act](#); or
    - (v) Canada Post Corporation.
- 5) Bonds referred to in subparagraph 3)(b) of GI07 shall be provided on the basis of their market value current at the date of solicitation closing, and shall be:
  - (a) payable to bearer;
  - (b) accompanied by a duly executed instrument of transfer of the bonds to the Receiver General for Canada in the form prescribed by the Domestic Bonds of Canada Regulations; or
  - (c) registered as to principal or as to principal and interest in the name of the Receiver General for Canada pursuant to the Domestic Bonds of Canada Regulations.

## GENERAL INSTRUCTIONS TO BIDDERS (Continued)

- 6) As an alternative to a security deposit an irrevocable standby letter of credit is acceptable to Canada and the amount shall be determined in the same manner as a security deposit referred to above.
- 7) An irrevocable standby letter of credit referred to in paragraph 6) of GI07 shall
  - (a) be an arrangement, however named or described, whereby a financial institution (the "Issuer") acting at the request and on the instructions of a customer (the "Applicant") or on its own behalf,
    - (i) is to make a payment to, or to the order of, the Receiver General for Canada as the beneficiary;
    - (ii) is to accept and pay bills of exchange drawn by the Receiver General for Canada;
    - (iii) authorizes another financial institution to effect such payment or accept and pay such bills of exchange; or
    - (iv) authorizes another financial institution to negotiate against written demand(s) for payment provided that the terms and conditions of the letter of credit are complied with;
  - (b) state the face amount which may be drawn against it;
  - (c) state its expiry date;
  - (d) provide for sight payment to the Receiver General for Canada by way of the financial institution's draft against presentation of a written demand for payment signed by the Departmental Representative identified in the letter of credit by his/her office;
  - (e) provide that more than one written demand for payment may be presented subject to the sum of those demands not exceeding the face value of the letter of credit;
  - (f) provide that it is subject to the International Chamber of Commerce (ICC) Uniform Customs and Practice (UCP) for Documentary Credits, 2007 Revision, ICC Publication No. 600; pursuant to the ICC UCP; a credit is irrevocable even if there is no indication to that effect; and
  - (g) be issued or confirmed, in either official language, by a financial institution which is a member of the Canadian Payments Association and is on the letterhead of the Issuer or Confirmer. The format is left to the discretion of the Issuer or Confirmer.
- 8) Bid security shall lapse or be returned as soon as practical following:
  - (a) the solicitation closing date, for those Bidders submitting non-compliant bids; and
  - (b) the administrative bid review, for those Bidders submitting compliant bids ranked fourth to last on the schedule of bids; and
  - (c) the award of contract, for those Bidders submitting the second and third ranked bids; and
  - (d) the receipt of contract security, for the successful Bidder; or
  - (e) the cancellation of the solicitation, for all Bidders.
- 9) Notwithstanding the provisions of paragraph 8) of GI07 and provided more than three compliant bids have been received, if one or more of the bids ranked third to first is withdrawn or rejected for whatever reason then Canada reserves the right to hold the security of the next highest ranked compliant bid in order to retain the bid security of at least three valid and compliant bids.

## **GENERAL INSTRUCTIONS TO BIDDERS (Continued)**

### **GI08 SUBMISSION OF BID**

- 1) The Bid and Acceptance Form, duly completed, and the bid security shall be enclosed and sealed in an envelope provided by the Bidder, and shall be addressed and submitted to the office designated on the INVITATION TO TENDER Form for the receipt of bids. The bid must be received on or before the date and time set for solicitation closing.
- 2) Unless otherwise specified in the Special Instructions to Bidders
  - (a) the bid shall be in Canadian currency;
  - (b) exchange rate fluctuation protection is not offered; and
  - (c) any request for exchange rate fluctuation protection shall not be considered.
- 3) Prior to submitting the bid, the Bidder shall ensure that the following information is clearly printed or typed on the face of the bid envelope:
  - (a) Solicitation Number;
  - (b) Name of Bidder;
  - (c) Return address; and
  - (d) Closing Date and Time.
- 4) Timely and correct delivery of bids is the sole responsibility of the Bidder.

### **GI09 REVISION OF BID**

- 1) A bid submitted in accordance with these instructions may be revised by letter or facsimile provided the revision is received at the office designated for the receipt of bids, on or before the date and time set for the closing of the solicitation. The letter or facsimile shall be on the Bidder's letterhead or bear a signature that identifies the Bidder;
- 2) A revision to a bid that includes unit prices must clearly identify the changes(s) in the unit price(s) and the specific item(s) to which each change applies.
- 3) A letter or facsimile submitted to confirm an earlier revision shall be clearly identified as a confirmation.
- 4) Failure to comply with any of the above provisions shall result in the rejection of the non-compliant revision(s) only. The bid shall be evaluated based on the original bid submitted and all other compliant revision(s).

### **GI10 REJECTION OF BID**

- 1) Canada may accept any bid, whether it is the lowest or not, or may reject any or all bids.
- 2) Without limiting the generality of paragraph 1) of GI10, Canada may reject a bid if any of the following circumstances is present:
  - (a) the Bidder, or any employee or subcontractor included as part of the bid, has been



## GENERAL INSTRUCTIONS TO BIDDERS (Continued)

convicted under Section 121 ("Frauds on the government" & "Contractor subscribing to election fund"), 124 "Selling or purchasing office"), 380 ("Fraud committed against Her Majesty") or 418 ("Selling defective stores to Her Majesty") of the Criminal Code of Canada, or under paragraph 80(1)(d) ("False entry, certificate or return"), subsection 80(2) ("Fraud against Her Majesty") or Section 154.01 ("Fraud against Her Majesty") of the *Financial Administration Act*,

- (b) the Bidder's bidding privileges are suspended or are in the process of being suspended;
  - (c) the bidding privileges of any employee or subcontractor included as part of the bid are suspended or are in the process of being suspended, which suspension or pending suspension would render that employee or subcontractor ineligible to bid on the Work, or the portion of the Work the employee or subcontractor is to perform;
  - (d) the Bidder is bankrupt, or where for whatever reason, its activities are rendered inoperable for an extended period;
  - (e) evidence, satisfactory to Canada, of fraud, bribery, fraudulent misrepresentation or failure to comply with any law protecting individuals against any manner of discrimination, has been received with respect to the Bidder, any of its employees or any subcontractor included as part of its bid;
  - (f) evidence satisfactory to Canada that based on past conduct or behavior, the Bidder, a sub-contractor or a person who is to perform the Work is unsuitable or has conducted himself/herself improperly;
  - (g) with respect to current or prior transactions with Canada
    - (i) Canada has exercised, or intends to exercise, the contractual remedy of taking the work out of the contractor's hands with respect to a contract with the Bidder, any of its employees or any subcontractor included as part of its bid; or
    - (ii) Canada determines that the Bidder's performance on other contracts is sufficiently poor to jeopardize the successful completion of the requirement being bid on.
- 3) In assessing the Bidder's performance on other contracts pursuant to subparagraph 2)(g)(ii) of GI10, Canada may consider, but not be limited to, such matters as:
- (a) the quality of workmanship in performing the Work;
  - (b) the timeliness of completion of the Work;
  - (c) the overall management of the Work and its effect on the level of effort demanded of the department and its representative; and
  - (d) the completeness and effectiveness of the Contractor's safety program during the performance of the Work.
- 4) Without limiting the generality of paragraphs 1), 2) and 3) of GI10, Canada may reject any bid based on an unfavourable assessment of the:
- (a) adequacy of the bid price to permit the work to be carried out and, in the case of a bid providing prices per unit or a combination of lump sum and prices per unit, whether each such price reasonably reflects the cost of performing the part of the work to which that

## **GENERAL INSTRUCTIONS TO BIDDERS (Continued)**

price applies;

- (b) Bidder's ability to provide the necessary management structure, skilled personnel, experience and equipment to perform competently the work under the Contract; and
  - (c) Bidder's performance on other contracts.
- 5) Where Canada intends to reject a bid pursuant to a provision of paragraphs 1), 2), 3) or 4) of GI10, other than subparagraph 2)(g) of IT10, the contracting authority will inform the Bidder and provide the Bidder ten (10) days within which to make representations, before making a final decision on the bid rejection.
- 6) Canada may waive informalities and minor irregularities in bids received if Canada determines that the variation of the bid from the exact requirements set out in the Bid Documents can be corrected or waived without being prejudicial to other Bidders.

### **GI11 BID COSTS**

- 1) No payment will be made for costs incurred in the preparation and submission of a bid in response to the bid solicitation. Costs associated with preparing and submitting a bid, as well as any costs incurred by the Bidder associated with the evaluation of the bid, are the sole responsibility of the Bidder.

### **GI12 COMPLIANCE WITH APPLICABLE LAWS**

- 1) By submission of a bid, the Bidder certifies that the Bidder has the legal capacity to enter into a contract and is in possession of all valid licences, permits, registrations, certificates, declarations, filings, or other authorizations necessary to comply with all federal, provincial and municipal laws and regulations applicable to the submission of the bid and entry into any ensuing contract for the performance of the work.
- 2) For the purpose of validating the certification in paragraph 1) of GI12, a Bidder shall, if requested, provide a copy of every valid licence, permit, registration, certificate, declaration, filing or other authorization listed in the request, and shall provide such documentation within the time limit(s) set out in the said request.
- 3) Failure to comply with the requirements of paragraph 2) of GI12 shall result in disqualification of the bid.

### **GI13 APPROVAL OF ALTERNATIVE MATERIALS**

- 1) When materials are specified by trade names or trademarks, or by manufacturers' or suppliers' names, the bid shall be based on use of the named materials. During the solicitation period, alternative materials may be considered provided full technical data is received in writing by the Contracting Officer at least 10 calendar days prior to the solicitation closing date.

### **GI14 CONFLICT OF INTEREST - UNFAIR ADVANTAGE**

- 1) In order to protect the integrity of the procurement process, bidders are advised that Canada may reject a bid in the following circumstances:
- (a) if the Bidder, any of its subcontractors, any of their respective employees or former

## GENERAL INSTRUCTIONS TO BIDDERS (Continued)

employees was involved in any manner in the preparation of the bid solicitation or in any situation of conflict of interest or appearance of conflict of interest;

- (b) if the Bidder, any of its subcontractors, any of their respective employees or former employees had access to information related to the bid solicitation that was not available to other bidders and that would, in Canada's opinion, give or appear to give the Bidder an unfair advantage.
- 2) The experience acquired by a bidder who is providing or has provided the goods and services described in the bid solicitation (or similar goods or services) will not, in itself, be considered by Canada as conferring an unfair advantage or creating a conflict of interest. This bidder remains however subject to the criteria established above.
  - 3) Where Canada intends to reject a bid under this section, the Contracting Authority will inform the Bidder and provide the Bidder an opportunity to make representations before making a final decision. Bidders who are in doubt about a particular situation should contact the Contracting Authority before bid closing. By submitting a bid, the Bidder represents that it does not consider itself to be in conflict of interest nor to have an unfair advantage. The Bidder acknowledges that it is within Canada's sole discretion to determine whether a conflict of interest, unfair advantage or an appearance of conflict of interest or unfair advantage exists.

### GI15 INTEGRITY PROVISIONS - BID

- 1) Ineligibility and Suspension Policy (the "Policy"), and all related Directives, are incorporated by reference into, and form a binding part of the procurement process. The Supplier must comply with the Policy and Directives, which can be found at *Ineligibility and Suspension Policy*.
- 2) Under the Policy, charges and convictions of certain offences against a Supplier, its affiliates or first tier subcontractors, and other circumstances, will or may result in a determination by Public Works and Government Services Canada (PWGSC) that the Supplier is ineligible to enter, or is suspended from entering into a contract with Canada. The list of ineligible and suspended Suppliers is contained in PWGSC's Integrity Database. The Policy describes how enquiries can be made regarding the ineligibility or suspension of Suppliers.
- 3) In addition to all other information required in the procurement process, the Supplier must provide the following:
  - a. by the time stated in the Policy, all information required by the Policy described under the heading "Information to be Provided when Bidding, Contracting or Entering into a Real Property Agreement"; and
  - b. with its bid / quote / proposal, a complete list of all foreign criminal charges and convictions pertaining to itself, its affiliates and its proposed first tier subcontractors that, to the best of its knowledge and belief, may be similar to one of the listed offences in the Policy. The list of foreign criminal charges and convictions must be submitted using an Integrity Declaration Form, which can be found at *Declaration form for procurement*.
- 4) Subject to subsection 5, by submitting a bid / quote / proposal in response a request by AAFC, the Supplier certifies that:
  - a. it has read and understands the *Ineligibility and Suspension Policy*;
  - b. it understands that certain domestic and foreign criminal charges and convictions, and

## GENERAL INSTRUCTIONS TO BIDDERS (Continued)

- other circumstances, as described in the Policy, will or may result in a determination of ineligibility or suspension under the Policy;
- c. it is aware that Canada may request additional information, certifications, and validations from the Supplier or a third party for purposes of making a determination of ineligibility or suspension;
  - d. it has provided with its bid / quote / proposal a complete list of all foreign criminal charges and convictions pertaining to itself, its affiliates and its proposed first tier subcontractors that, to the best of its knowledge and belief, may be similar to one of the listed offences in the Policy;
  - e. none of the domestic criminal offences, and other circumstances, described in the Policy that will or may result in a determination of ineligibility or suspension, apply to it, its affiliates and its proposed first tier subcontractors; and
  - f. it is not aware of a determination of ineligibility or suspension issued by PWGSC that applies to it.
- 5) Where a Supplier is unable to provide any of the certifications required by subsection 4, it must submit with its bid/ quote / proposal a completed Integrity Declaration Form, which can be found at [Declaration form for procurement](#).
- 6) Canada will declare non-responsive any bid / quote / proposal in respect of which the information requested is incomplete or inaccurate, or in respect of which the information contained in a certification or declaration is found by Canada to be false or misleading in any respect. If Canada establishes after award of the Contract that the Supplier provided a false or misleading certification or declaration, Canada may terminate the Contract for default. Pursuant to the Policy, Canada may also determine the Supplier to be ineligible for award of a contract for providing a false or misleading certification or declaration.

Ineligibility and Suspension Policy - <http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>

Declaration form for procurement - <http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>

### GI16 CODE OF CONDUCT FOR PROCUREMENT - BID

- 1) The Code of Conduct for Procurement provides that Bidders must respond to bid solicitations in an honest, fair and comprehensive manner, accurately reflect their capacity to satisfy the requirements set out in the bid solicitation and resulting contract, submit bids and enter into contracts only if they will fulfill all obligations of the Contract. By submitting a bid, the Bidder is certifying that it is complying with the Code of Conduct for Procurement. Failure to comply with the Code of Conduct for Procurement may render the bid non-responsive.



## Appendix "B"

### SPECIAL INSTRUCTIONS TO BIDDERS



## SPECIAL INSTRUCTIONS TO BIDDERS (SI)

SI01	Bid Documents
SI02	Enquiries during the Solicitation Period
SI03	<b>Non-Mandatory Site Visit</b>
SI04	Revision of Bid
SI05	Bid Results
SI06	Insufficient Funds
SI07	Bid Validity Period
SI08	Construction Documents
SI09	Web Sites
SI10	Personnel Security Requirements
SI11	Certifications – Bid
SI12	Rights of Canada
SI13	COVID-19 Vaccination Requirement
SI14	COVID-19 Vaccination Requirement Certification
SI15	COVID-19 Vaccination Requirement Certification (Site Visit)

### **SI01 BID DOCUMENTS**

- 1) The following are the bid documents:
  - (a) INVITATION TO TENDER - Page 1 form AAFC / AAC5323-E;
  - (b) SPECIAL INSTRUCTIONS TO BIDDERS form AAFC / AAC5301-E;
  - (c) GENERAL INSTRUCTIONS TO BIDDERS form AAFC / AAC5313-E;
  - (d) Clauses and Conditions identified in “CONTRACT DOCUMENTS”;
  - (e) Drawings and Specifications;
  - (f) BID AND ACCEPTANCE form AAFC / AAC5320-E and any Appendices attached thereto; and,
  - (g) Any amendment issued prior to solicitation closing.

Submission of a bid constitutes acknowledgement that the Bidder has read and agrees to be bound by these documents.

### **SI02 ENQUIRIES DURING THE SOLICITATION PERIOD**

- 1) Enquiries regarding this bid must be submitted in writing to the Contracting Officer named on the INVITATION TO TENDER - Page 1 as early as possible within the solicitation period. Except for the approval of alternative materials as described in GI13 of the GENERAL INSTRUCTIONS TO BIDDERS, enquiries should be received no later than five (5) calendar days prior to the date set for solicitation closing to allow sufficient time to provide a response. Enquiries received after that time may not result in an answer being provided.
- 2) To ensure consistency and quality of the information provided to Bidders, the Contracting Officer shall examine the content of the enquiry and shall decide whether or not to issue an amendment.
- 3) All enquiries and other communications related to this bid sent throughout the solicitation period are to be directed ONLY to the Contracting Officer named on the INVITATION TO TENDER - Page 1. Non-compliance with this requirement during the solicitation period can, for that reason alone, result in disqualification of a bid.

## SPECIAL INSTRUCTIONS TO BIDDERS (Continued)

### SI03 NON-MANDATORY SITE VISIT

1) There will be a site visit on **Wednesday**, **January**, **26**, **2022** at **10:00**  **AM**  **PM** **Local Standard Time.**

Interested bidders are to meet at:  
Central Experimental Farm - Building 26  
960 Carling Avenue, Ottawa, ON K1A 0C6

This site visit is subject to the COVID-19 Vaccination Policy for Supplier Personnel. The person(s) who attend must be fully vaccinated against COVID-19 with a Health Canada-approved COVID-19 vaccine(s), or, for personnel that are unable to be vaccinated due to a certified medical contraindication, religion or other prohibited grounds of discrimination under the *Canadian Human Rights Act*, subject to accommodation and mitigation measures that have been presented to and approved by Canada.

Bidders must communicate with the Contracting Authority no later than **2022-01-25** **12:00PM**  
Date(YYYY-MM-DD) Time(HH:MM)

**Local Standard Time** to confirm attendance and provide the name(s) of the person(s) who will attend. Bidders must also complete and submit the following certification found in SI15.

### SI04 REVISION OF BID

1) A bid may be revised by letter, facsimile or e-mail in accordance with GI09 of the GENERAL INSTRUCTIONS TO BIDDERS. **The e-mail address for receipt of revisions is:**

Email address **claudia.lauzier@agr.gc.ca**

### SI05 BID RESULTS

1) Following bid closing, bid results may be obtained from the bid receiving office by email at **claudia.lauzier@agr.gc.ca**.

### SI06 INSUFFICIENT FUNDING

- 1) In the event that the lowest compliant bid exceeds the amount of funding allocated for the Work, Canada in its sole discretion may:
- (a) cancel the solicitation; or
  - (b) obtain additional funding and award the Contract to the Bidder submitting the lowest compliant bid; and/or
  - (c) negotiate a reduction in the bid price and/or scope of work of not more than 15% with the Bidder submitting the lowest compliant bid. Should an agreement satisfactory to Canada not be reached, Canada shall exercise option (a) or (b).

## **SPECIAL INSTRUCTIONS TO BIDDERS (Continued)**

### **SI07 BID VALIDITY PERIOD**

- 1) Canada reserves the right to seek an extension to the bid validity period prescribed in Clause 4 of the BID AND ACCEPTANCE Form. Upon notification in writing from Canada, Bidders shall have the option to either accept or reject the proposed extension.
- 2) If the extension referred to in paragraph 1) of SI07 is accepted, in writing, by all those who submitted bids, then Canada shall continue immediately with the evaluation of the bids and its approvals processes.
- 3) If the extension referred to in paragraph 1) of SI07 is not accepted in writing by all those who submitted bids then Canada shall, at its sole discretion, either:
  - (a) continue to evaluate the bids of those who have accepted the proposed extension and seek the necessary approvals; or
  - (b) cancel the invitation to bid.
- 4) The provisions expressed herein do not in any manner limit Canada's rights in law or under G110 of the GENERAL INSTRUCTIONS TO BIDDERS.

### **SI08 CONSTRUCTION DOCUMENTS**

- 1) The successful contractor will be provided with one paper copy of the sealed and signed plans, the specifications and the amendments upon acceptance of the offer. Additional copies, up to a 

maximum of zero
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 ), will be provided free of charge upon request by the Contractor. Obtaining more copies shall be the responsibility of the Contractor including costs.

### **SI09 WEB SITES**

The connection to some of the Web sites in the solicitation documents is established by the use of hyperlinks. The following is a list of the addresses of the Web sites:

Treasury Board Appendix L, Acceptable Bonding Companies  
<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494&section=text#appL>

Canadian economic sanctions  
<http://www.international.gc.ca/sanctions/index.aspx?lang=eng>

### **SI10 PERSONNEL SECURITY REQUIREMENTS**

- 1) The successful Bidder's personnel, as well as any subcontractor and its personnel, who are required to perform any part of the work pursuant to the subsequent contract, must meet the following contract security requirements:
  - Personnel who are required to perform any part of the work must EACH hold a valid personnel security screening at the level of RELIABILITY STATUS, granted or approved by Agriculture and Agri-Food Canada. Until the security screening of the personnel has been completed satisfactorily by Agriculture and Agri-Food Canada, the Contractor/Subcontractor personnel MAY NOT perform contract work. Each of the proposed staff must complete "Security Clearance Form" (TBS 330-23E) upon request from Canada.

### **SI11 Certifications – Bid**

Compliance with the certifications bidders provide to Canada is subject to verification by Canada during the bid evaluation period (before award of a contract) and after contract award. The Contracting Authority will have the right to ask for additional information to verify bidders' compliance with the certifications before award of a contract. The bid will be declared non-



## **SPECIAL INSTRUCTIONS TO BIDDERS (Continued)**

ive if any certification made by the Bidder is untrue, whether made knowingly or unknowingly. Failure to comply with the certifications or to comply with the request of the Contracting Authority for additional information will also render the bid non-responsive.

### **SI12 Rights of Canada**

Canada reserves the right to:

- a) Reject any or all bids received in response to the bid solicitation;
- b) Enter into negotiations with bidders on any or all aspects of their bids;
- c) Accept any bid in whole or in part without negotiations;
- d) Cancel the bid solicitation at any time;
- e) Reissue the bid solicitation;
- f) If no compliant bids are received and the requirement is not substantially modified, reissue the bid solicitation by inviting only the bidders who bid to resubmit bids within a period designated by Canada; and
- g) Negotiate with the sole compliant Bidder to ensure best value to Canada.

### **SI13 COVID-19 Vaccination Requirement**

This requirement is subject to the COVID-19 Vaccination Policy for Supplier Personnel. Failure to complete and provide the COVID-19 Vaccination Requirement Certification as part of the bid will render the bid non-responsive.

### **SI14 COVID-19 Vaccination Requirement Certification**

In accordance with the COVID-19 Vaccination Policy for Supplier Personnel, all Bidders must provide with their bid, the COVID-19 Vaccination Requirement Certification attached to this bid solicitation, to be given further consideration in this procurement process. This Certification incorporated into the bid solicitation on its closing date is incorporated into, and forms a binding part of any resulting Contract. The resulting contract COVID-19 Vaccination Requirement Certification is found in the Bid and Acceptance form.

**SPECIAL INSTRUCTIONS TO BIDDERS (Continued)**

**SI15 COVID-19 Vaccination Requirement Certification (Site Visit)**

I, , as the representative of  
 pursuant to  
, warrant and certify that all personnel that will attend this

site visit on the business' behalf are:

- (a) fully vaccinated against COVID-19 with Health Canada-approved COVID-19 vaccine(s); or
- (b) for personnel that are unable to be vaccinated due to a certified medical contraindication, religion or other prohibited grounds of discrimination under the Canadian Human Rights Act, subject to accommodation and mitigation measures that have been presented to and approved by Canada.

I certify that all personnel that will attend on behalf of

have been notified of the vaccination requirements of the Government of Canada's COVID-19 Vaccination Policy for Supplier Personnel, and that the

has certified to their compliance with this requirement.

I certify that the information provided is true as of the date indicated below and will continue to be true for the duration of the site visit. I understand that the certifications provided to Canada are subject to verification at all times. Canada reserves the right to request additional information to verify the certifications at all times. I also understand that Canada will declare a bid non-responsive or a contractor in default, if a certification is found to be untrue, whether made knowingly or unknowingly.

\_\_\_\_\_  
Signature Date(YYYY-MM-DD)

Information you provide on this Certification Form and in accordance with the Government of Canada's COVID-19 Vaccination Policy for Supplier Personnel will be protected, used, stored and disclosed in accordance with the Privacy Act. Please note that you have a right to access and correct any information on your file, and you have a right to file a complaint with the Office of the Privacy Commissioner regarding the handling of your personal information. These rights also apply to all individuals who are deemed to be personnel for the purpose for the Contract and who require access to federal government workplaces where they may come into contact with public servants.

Bidders who do not confirm attendance, provide the name(s) of the person(s) who will attend, or who do not complete and submit the above certification as required will not be allowed access to the site. Bidders will be requested to sign an attendance sheet. No alternative appointment will be given to bidders who do not attend or do not send a representative. Bidders who do not participate in the visit will not be precluded from submitting a bid. Any clarifications or changes to the bid solicitation resulting from the site visit will be included as an amendment to the bid solicitation.



## Appendix "C"

### BID AND ACCEPTANCE FORM

## BID AND ACCEPTANCE FORM

### CONSTRUCTION CONTRACT - MAJOR WORKS

BA01 IDENTIFICATION					
<p>Description of the Work Central Experimental Farm's Ottawa Research and Development Centre is requesting the renovation of Building 26 in order to bring it up to the latest National building code and the Government of Canada workplace Fit-up Standards 2.0.</p> <p>Specifications and plans can be found in Appendix E. *AMENDMENT to the Specifications (Appendix E)* : Section 01 32 16.19, 1.4.1.1 Project Milestones : REPLACE : Final Completion by March 31, 2022 BY : Final Completion by May 31, 2022</p> <p>Presentation of Tenders: Tenders will be received at the following email address:  aafc.escprocurement-cseapprovisionnement.aac@agr.gc.ca</p> <p>Tenderers must submit their tenders by email only to the email address mentioned above. The subject of the email containing the proposal should include the project reference number 01B46-21-155.</p> <p>Instructions contained in clause GI08, Appendix A - Submission of Bid are amended as follows:</p> <p>1) The BID AND ACCEPTANCE FORM, duly completed, and the bid security shall be sent by email only, in two (2) separate attachments. Subject of the email should include the project reference number. The bid must be received on or before the date and time set for solicitation closing.</p>					
Solicitation Number 01B46-21-155			File / Project Number 01B46-21-155		
BA02 BUSINESS NAME AND ADDRESS OF BIDDER					
Name					
Address					
Unit/Suite/Apt.	Street number	Number suffix	Street name	Street type	Street direction
PO Box or Route Number			Municipality (City, Town, etc.)		Province
Postal code		Phone number		Fax number	Email address
BA03 THE OFFER					
<p>1) The Bidder offers to Canada as represented by the Minister of Agriculture and Agri-food Canada to perform and complete the Work for the above named project in accordance with the Bid Documents for the Total Bid Amount of:</p> <p style="margin-left: 20px;">\$ _____ excluding Applicable Taxes (GST/HST/QST). (to be expressed in numbers only)</p>					
BA04 BID VALIDITY PERIOD					
<p>1) The bid shall not be withdrawn for a period of <u>60</u> days following the date of solicitation closing.</p>					
BA05 APPENDICES					
<p>1) The following appendices are included in this Bid and Acceptance Form:</p> <p><input checked="" type="checkbox"/> Appendix 2</p> <p><input checked="" type="checkbox"/> COVID-19 Vaccination Requirement Certification</p>					
BA06 ACCEPTANCE AND CONTRACT					
<p>1) Upon acceptance of the Bidder's offer by Canada, a binding Contract shall be formed between Canada and the resulting Contractor. The documents forming the Contract shall be the contract documents referred to in SC01 CONTRACT DOCUMENTS.</p>					

**BA07 CONSTRUCTION TIME**

1) The Contractor shall perform and complete the Work on or before 2022-05-31

**BA08 BID SECURITY**

- 1) The Bidder shall enclose bid security with its bid in accordance with GI07 BID SECURITY REQUIREMENTS.
- 2) If a security deposit is furnished as bid security, it shall be forfeited in the event that the bid is accepted by Canada and the Contractor fails to provide Contract Security in accordance with GC9 CONTRACT SECURITY, provided that Canada may, if it is in the public interest, waive the right of Canada to forfeiture any or all of the security deposit.

**BA09 SIGNATURE**

Name and title of person authorized to sign on behalf of Bidder (type or print)	Name
	Title
	_____
	Signature _____ Date _____
	Name
	Title
_____	
Signature _____ Date _____	

**BA10 INTEGRITY PROVISIONS - LIST OF NAMES**

If the required list of names has not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to provide the names within the time frame specified will render the bid non-responsive. Providing the required names is a mandatory requirement for contract award.

Bidders who are incorporated, including those bidding as a joint venture, must provide a complete list of names of all individuals who are currently directors of the Bidder.

Bidders bidding as sole proprietorship, as well as those bidding as a joint venture, must provide the name of the owner(s).

Bidders bidding as societies, firms or partnerships do not need to provide lists of names.

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

**BID AND ACCEPTANCE FORM**  
CONSTRUCTION CONTRACT - MAJOR WORKS  
APPENDIX 2

**LIST OF SUBCONTRACTORS**

The Bidder will subcontract the parts of the work listed below to the subcontractor named for each part. The Bidder agrees not to make changes in the list of subcontractors without the written consent of the Departmental Representative. The Bidder understands that for each part of the work, if more than one subcontractor is named, or no subcontractor is named, or, the Bidder fails to state that the work will be done by its own forces where applicable, the bid will be subject to disqualification.

**LIST OF EQUIPMENT**

**LIST OF MATERIALS**

## BID AND ACCEPTANCE FORM

In accordance with the COVID-19 Vaccination Policy for Supplier Personnel, all Bidders must provide with their bid, the COVID-19 Vaccination Requirement Certification attached to this bid solicitation, to be given further consideration in this procurement process. This Certification incorporated into the bid solicitation on its closing date is incorporated into, and forms a binding part of any resulting Contract.

### COVID-19 Vaccination Requirement Certification

I, \_\_\_\_\_ (first and last name), as the representative of \_\_\_\_\_ (name of business) pursuant to \_\_\_\_\_ (insert solicitation number), warrant and certify that all personnel that \_\_\_\_\_ (name of business) will provide on the resulting Contract who access federal government workplaces where they may come into contact with public servants will be:

- (a) fully vaccinated against COVID-19 with Health Canada-approved COVID-19 vaccine(s); or
- (b) for personnel that are unable to be vaccinated due to a certified medical contraindication, religion or other prohibited grounds of discrimination under the Canadian Human Rights Act,

until such time that Canada indicates that the vaccination requirements of the COVID-19 Vaccination Policy for Supplier Personnel are no longer in effect.

I certify that all personnel provided by \_\_\_\_\_ (name of business) have been notified of the vaccination requirements of the Government of Canada's COVID-19 Vaccination Policy for Supplier Personnel, and that the \_\_\_\_\_ (name of business) has certified to their compliance with this requirement.

I certify that the information provided is true as of the date indicated below and will continue to be true for the duration of the Contract. I understand that the certifications provided to Canada are subject to verification at all times. I also understand that Canada will declare a contractor in default, if a certification is found to be untrue, whether made knowingly or unknowingly, during the bid or contract period. Canada reserves the right to ask for additional information to verify the certifications. Failure to comply with any request or requirement imposed by Canada will constitute a default under the Contract.

Signature \_\_\_\_\_

Date \_\_\_\_\_

Information you provide on this Certification Form and in accordance with the Government of Canada's COVID-19 Vaccination Policy for Supplier Personnel will be protected, used, stored and disclosed in accordance with the Privacy Act. Please note that you have a right to access and correct any information on your file, and you have a right to file a complaint with the Office of the Privacy Commissioner regarding the handling of your personal information. These rights also apply to all individuals who are deemed to be personnel for the purpose for the Contract and who require access to federal government workplaces where they may come into contact with public servants.



## Appendix "D"

### MAJOR WORKS - GENERAL CONDITIONS





**MAJOR WORKS GENERAL CONDITIONS :**

GC1	GENERAL PROVISIONS	R2810D (2017-11-28)
GC2	ADMINISTRATION OF THE CONTRACT	R2820D (2016-01-28)
GC3	EXECUTION AND CONTROL OF THE WORK	R2830D (2018-11-28)
GC4	PROTECTIVE MEASURES	R2840D (2008-05-12)
GC5	TERMS OF PAYMENT	R2850D (2019-11-28)
GC6	DELAYS AND CHANGES IN THE WORK	R2865D (2019-05-30)
GC7	DEFAULT, SUSPENSION OR TERMINATION OF CONTRACT	R2870D (2018-06-21)
GC8	DISPUTE RESOLUTION	R2880D (2019-11-28)
GC9	CONTRACT SECURITY	R2890D (2018-06-21)
GC10	INSURANCE	R2900D (2008-05-12)

The documents identified by title, number and date above are incorporated by reference and are set out in the Standard Acquisition Clauses and Conditions (SACC) manual, issued by Public Works and Government Services Canada (PWGSC). The SACC manual is available on the PWGSC web site:

<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>

All reference to the Minister of Public Works and Government Services Canada shall be deleted and replaced with the Minister of the Agriculture and Agri-Food Canada.



## Appendix "E"

### SPECIFICATIONS & PLANS

# **SPECIFICATIONS**

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CENTRAL EXPERIMENTAL FARM – Accommodation Fit-Up  
Building 26, 960 Carling Avenue, Ottawa, Ontario

**ISSUE FOR TENDER SET  
DECEMBER 15, 2021**

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**END OF TABLE**

**Part 1            General**

**1.1                Drawing List**

No.	Description	Date
A-000	Cover Sheet	
A-100	Basement: Demolition Floor Plan, Proposed Floor Plan	
A-101	Ground and Second: Demolition Floor Plans, Proposed Floor Plans	
A-102	Ground and Second: Demolition Reflected Ceiling Plans, Proposed Reflected Ceiling Plans	
A-103	Basement, Ground and Second Finish Plans	
A-200	Elevations & Exterior Details	
A-300	Details	
M-000	Mechanical Drawing List, Legends, Notes and Schedules	
M-001	Mechanical Specifications	
M-002	Mechanical Details	
M-100	Basement Demolition and New Plumbing Plans	
M-101	Ground and Second Floor Demolition and New Plumbing Plans	
M-200	Basement Demolition and New HVAC Plans	
M-201	Ground and Second Floor Demolition and New HVAC Plans	
E-000	Electrical Drawing List, Legend, Notes and Key Plan	
E-001	Electrical Specifications	
E-100	Basement Electrical Floor Plans	
E-101	Ground Floor: Electrical Demolition and New Floor Plans	
E-103	Second Floor: Electrical Demolition and New Floor Plans	

**END OF SECTION**

**Part 1            General**

**1.1                WORK COVERED BY CONTRACT DOCUMENTS**

- .1            Work of this Contract comprises renovation of Building 26, located at Central Experimental Farm, Ottawa, ON ; and further identified as CEF 26.

**1.2                SUBMITTALS**

- .1            Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2            Submit Project construction progress schedule in accordance with Section 01 32 16.19 - Construction Progress Schedule - Bar (GANNT) Chart.

**1.3                WORK BY OTHERS**

- .1            Co-operate with other Contractors in carrying out their respective works and carry out instructions from Departmental Representative.
- .2            Co-ordinate work with other contractors. If any part of work under this Contract depends for its proper execution or result upon work of another contractor, report promptly to Departmental Representative, in writing, any defects which may interfere with proper execution of Work.

**1.4                WORK SEQUENCE**

- .1            Co-ordinate Progress Schedule.
- .2            Maintain fire access/control.
- .3            Protect workers and public safety.

**1.5                CONTRACTOR USE OF PREMISES**

- .1            Co-ordinate use of premises under direction of Departmental Representative.
- .2            Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .3            Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Departmental Representative.
- .4            Ensure that operations conditions of exiting work at completion are still the same, equal to or better than that which existed before new work started.

**1.6                ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING**

- .1            Execute work with least possible interference or disturbance to building operations and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

**1.7 EXISTING SERVICES**

- .1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance.
- .3 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.
- .4 Submit schedule for approval by Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .5 Provide temporary services to maintain critical building and tenant services.
- .6 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
- .7 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .8 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .9 Record locations of maintained, re-routed and abandoned service lines.
- .10 Construct barriers, as required, in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

**1.8 DOCUMENTS REQUIRED**

- .1 Maintain at job site, one copy of each document as follows:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Reviewed Shop Drawings.
  - .5 List of Outstanding Shop Drawings.
  - .6 Change Orders.
  - .7 Other Modifications to Contract.
  - .8 Field Test Reports.
  - .9 Copy of Approved Work Schedule.
  - .10 Health and Safety Plan and Other Safety Related Documents.
  - .11 Other documents as specified.



**Part 2            Products**

**2.1                NOT USED**

.1                Not used.

**Part 3            Execution**

**3.1                NOT USED**

.1                Not used.

**END OF SECTION**

**Part 1            General**

**1.1                DEFINITIONS**

- .1     Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2     Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.
- .3     Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.
- .4     Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5     Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.
- .6     Master Plan: summary-level schedule that identifies major activities and key milestones.
- .7     Milestone: significant event in project, usually completion of major deliverable.
- .8     Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9     Project Planning, Monitoring and Control System: overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

**1.2                REQUIREMENTS**

- .1     Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2     Plan to complete Work in accordance with prescribed milestones and time frame.
- .3     Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.
- .4     Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

### 1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental Representative within 10 working days of Award of Contract Bar (GANNT) Chart as Master Plan for planning, monitoring and reporting of project progress.
- .3 Submit Project Schedule to Departmental Representative within 5 working days of receipt of acceptance of Master Plan.

### 1.4 PROJECT MILESTONES

- .1 Project milestones form interim targets for Project Schedule.
  - .1 **Final Completion by March 31, 2022.**

### 1.5 MASTER PLAN

- .1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANNT).
- .2 Departmental Representative will review and return revised schedules within 5 working days.
- .3 Revise impractical schedule and resubmit within 5 working days.
- .4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

### 1.6 PROJECT SCHEDULE

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
  - .1 Award.
  - .2 Shop Drawings, Samples.
  - .3 Mobilization.
  - .4 Excavation.
  - .5 Backfill.
  - .6 Building footings.
  - .7 Slab on grade.
  - .8 Structural Steel.
  - .9 Interior Architecture (Walls, Floors and Ceiling).
  - .10 Plumbing.
  - .11 Lighting.
  - .12 Electrical.
  - .13 Piping.
  - .14 Controls.
  - .15 Heating, Ventilating, and Air Conditioning.

- .16 Millwork.
- .17 Testing and Commissioning.
- .18 Supplied equipment long delivery items.

**1.7 PROJECT SCHEDULE REPORTING**

- .1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

**1.8 PROJECT MEETINGS**

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- .2 Weather related delays with their remedial measures will be discussed and negotiated.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not used.

**END OF SECTION**

**Part 1            General**

**1.1                ADMINISTRATIVE**

- .1     Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2     Do not proceed with Work affected by submittal until review is complete.
- .3     Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4     Where items or information is not produced in SI Metric units converted values are acceptable.
- .5     Review submittals prior to submission to Departmental Representative This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6     Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7     Verify field measurements and affected adjacent Work are co-ordinated.
- .8     Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9     Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10    Keep one reviewed copy of each submission on site.

**1.2                SHOP DRAWINGS AND PRODUCT DATA**

- .1     The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2     Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
- .3     Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4     Allow 10 days for Departmental Representative's review of each submission.

- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter, containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity of each shop drawing, product data and sample.
  - .5 Other pertinent data.
- .8 Submissions include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Subcontractor.
    - .2 Supplier.
    - .3 Manufacturer.
  - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
  - .5 Details of appropriate portions of Work as applicable:
    - .1 Fabrication.
    - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
    - .3 Setting or erection details.
    - .4 Capacities.
    - .5 Performance characteristics.
    - .6 Standards.
    - .7 Operating weight.
    - .8 Wiring diagrams.
    - .9 Single line and schematic diagrams.
    - .10 Relationship to adjacent work.
- .9 After Departmental Representative's review, distribute copies.
- .10 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

- .12 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
  - .2 Testing must have been within 3 years of date of contract award for project.
- .13 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
  - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit electronic copies of manufacturer's instructions for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Pre-printed material describing installation of product, system or material, including special notices and Safety Data Sheets concerning impedances, hazards and safety precautions.
- .15 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
- .16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .17 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
- .18 Delete information not applicable to project.
- .19 Supplement standard information to provide details applicable to project.
- .20 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

### **1.3 SAMPLES**

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Departmental Representative's business address.
- .3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

- .6 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

**1.4 PHOTOGRAPHIC DOCUMENTATION**

- .1 Submit electronic colour digital photography in jpg format, standard resolution as directed by Departmental Representative.
- .2 Project identification: name and number of project and date of exposure indicated.
- .3 Number of viewpoints: 2 locations.
  - .1 Viewpoints and their location as determined by Departmental Representative.
- .4 Frequency of photographic documentation: as directed by Departmental Representative.
  - .1 Upon completion of: of Work, foundation, excavation, framing and services before concealment, as directed by Departmental Representative.

**1.5 CERTIFICATES AND TRANSCRIPTS**

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**



**Part 1            General**

**1.1                REFERENCE STANDARDS**

- .1        Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2        Province of Ontario
  - .1        Occupational Health and Safety Act and Regulations for Construction Projects, R.S.O. 1990, c.0.1, as amended and O. Reg. 213/91 as amended.

**1.2                ACTION AND INFORMATIONAL SUBMITTALS**

- .1        Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2        Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
  - .1        Results of site-specific safety hazard assessment.
  - .2        Results of safety and health risk or hazard analysis for site tasks and operation.
- .3        Submit copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative.
- .4        Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .5        Submit copies of incident and accident reports.
- .6        Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 10 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 10 days after receipt of comments from Departmental Representative.
- .7        Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .8        Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative

**1.3                FILING OF NOTICE**

- .1        File Notice of Project with Provincial authorities prior to beginning of Work.
- .2        Contractor shall agree to install proper site separation and identification in order to maintain time and space at all times throughout life of project.

**1.4                SAFETY ASSESSMENT**

- .1        Perform site specific safety hazard assessment related to project.

**1.5 MEETINGS**

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

**1.6 REGULATORY REQUIREMENTS**

- .1 Do Work in accordance with Section 01 41 00 - Regulatory Requirements.

**1.7 PROJECT/SITE CONDITIONS**

- .1 Work at site will involve contact with:
  - .1 Non-Applicable

**1.8 GENERAL REQUIREMENTS**

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

**1.9 RESPONSIBILITY**

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Contractor will be responsible and assume the role Constructor as described in the Ontario Occupational Health and Safety Act and Regulations for Construction Projects.
- .3 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

**1.10 COMPLIANCE REQUIREMENTS**

- .1 Comply with Ontario Occupational Health and Safety Act, R.S.O. 1990, c. 0.1 and Ontario Regulations for Construction Projects, O. Reg. 213/91.
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

**1.11 UNFORSEEN HAZARDS**

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, advise Health and Safety co-ordinator and follow procedures in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

**1.12 POSTING OF DOCUMENTS**

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Departmental Representative.

**1.13 CORRECTION OF NON-COMPLIANCE**

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

**1.14 BLASTING**

- .1 Blasting or other use of explosives is not permitted.

**1.15 POWDER ACTUATED DEVICES**

- .1 Use powder actuated devices only after receipt of written permission from Departmental Representative.

**1.16 WORK STOPPAGE**

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not used.

**END OF SECTION**

**Part 1 General**

**1.1 SUMMARY**

- .1 This Section references to laws, by laws, ordinances, rules, regulations, codes, orders of Authority Having Jurisdiction, and other legally enforceable requirements applicable to Work and that are; or become, in force during performance of Work.

**1.2 REFERENCES TO REGULATORY REQUIREMENTS**

- .1 Department of Justice Canada (Jus)
  - .1 SOR/2018-196 Prohibition of Asbestos and Products Containing Asbestos Regulations.
  - .2 Perform Work in accordance with National Building Code of Canada (NBC) 2015 including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
  - .3 Specific design and performance requirements listed in specifications or indicated on Drawings may exceed minimum requirements established by referenced Building Code; these requirements will govern over the minimum requirements listed in Building Code
    - .1 Meet or exceed requirements of:
      - .1 Contract documents.
      - .2 Specified standards, codes and referenced documents.

**1.3 HAZARDOUS MATERIAL DISCOVERY**

- .1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Departmental Representative.
- .2 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Departmental Representative.
- .3 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Departmental Representative.

**1.4 BUILDING SMOKING ENVIRONMENT**

- .1 Comply with smoking restrictions and municipal by-laws.

**1.5 QUALITY ASSURANCE**

- .1 Regulatory Requirements: Except as otherwise specified, Constructor shall apply for, obtain, and pay fees associated with, permits, licenses, certificates, and approvals required by regulatory requirements and Contract Documents, based on General Conditions of Contract and the following:
  - .1 Regulatory requirements and fees in force on date of Bid submission, and

- .2 A change in regulatory requirements or fees scheduled to become effective after date of tender submission and of which public notice has been given before date of tender submission

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                INSPECTION**

- .1        Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2        Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.
- .3        If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4        Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.

**1.2                INDEPENDENT INSPECTION AGENCIES**

- .1        Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.
- .2        Provide equipment required for executing inspection and testing by appointed agencies.
- .3        Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4        If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and reinspection.

**1.3                ACCESS TO WORK**

- .1        Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2        Co-operate to provide reasonable facilities for such access.

**1.4                PROCEDURES**

- .1        Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2        Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3        Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

**1.5 REJECTED WORK**

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

**1.6 REPORTS**

- .1 Submit copies of inspection and test reports to Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested.

**1.7 TESTS AND MIX DESIGNS**

- .1 Furnish test results and mix designs as requested.
- .2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

**1.8 MILL TESTS**

- .1 Submit mill test certificates as required of specification Sections.

**1.9 EQUIPMENT AND SYSTEMS**

- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                INSTALLATION AND REMOVAL**

- .1    Provide temporary controls in order to execute Work expeditiously.
- .2    Remove from site all such work after use.

**1.2                HOARDING**

- .1    Erect temporary site enclosure using new 1.2 m high snow fence wired to rolled steel "T" bar fence posts spaced at 2.4 m on centre. Maintain fence in good repair.
- .2    Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

**1.3                GUARD RAILS AND BARRICADES**

- .1    Provide secure, rigid guard rails and barricades around deep excavations.
- .2    Provide as required by governing authorities.

**1.4                WEATHER ENCLOSURES**

- .1    Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
- .2    Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.
- .3    Design enclosures to withstand wind pressure and snow loading.

**1.5                DUST TIGHT SCREENS**

- .1    Provide dust tight screens or partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
- .2    Maintain and relocate protection until such work is complete.

**1.6                ACCESS TO SITE**

- .1    Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

**1.7                PUBLIC TRAFFIC FLOW**

- .1    Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

**1.8                FIRE ROUTES**

- .1    Maintain access to property including overhead clearances for use by emergency response vehicles.



**1.9 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY**

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

**1.10 PROTECTION OF BUILDING FINISHES**

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Confirm with Departmental Representative locations and installation schedule 3 days prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCE STANDARDS**

- .1        Within text of each specifications section, reference may be made to reference standards.
- .2        Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3        If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .4        Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

**1.2                QUALITY**

- .1        Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2        Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3        Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4        Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
- .5        Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6        Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

**1.3                AVAILABILITY**

- .1        Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2        In event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

#### **1.4 STORAGE, HANDLING AND PROTECTION**

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

#### **1.5 TRANSPORTATION**

- .1 Pay costs of transportation of products required in performance of Work.
- .2 Transportation cost of products supplied by Owner will be paid for by Departmental Representative. Unload, handle and store such products.

#### **1.6 MANUFACTURER'S INSTRUCTIONS**

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

#### **1.7 QUALITY OF WORK**

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.

- .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

**1.8 CO-ORDINATION**

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

**1.9 CONCEALMENT**

- .1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation inform Departmental Representative if there is interference. Install as directed by Departmental Representative.

**1.10 REMEDIAL WORK**

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

**1.11 LOCATION OF FIXTURES**

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Departmental Representative of conflicting installation. Install as directed.

**1.12 FASTENINGS**

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

**1.13 FASTENINGS - EQUIPMENT**

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

**1.14 PROTECTION OF WORK IN PROGRESS**

- .1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Departmental Representative.

**1.15 EXISTING UTILITIES**

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and pedestrian and vehicular traffic.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                ACTION AND INFORMATIONAL SUBMITTALS**

- .1        Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2        Submit written request in advance of cutting or alteration which affects:
  - .1        Structural integrity of elements of project.
  - .2        Integrity of weather-exposed or moisture-resistant elements.
  - .3        Efficiency, maintenance, or safety of operational elements.
  - .4        Visual qualities of sight-exposed elements.
  - .5        Work of Owner or separate contractor.
- .3        Include in request:
  - .1        Identification of project.
  - .2        Location and description of affected Work.
  - .3        Statement on necessity for cutting or alteration.
  - .4        Description of proposed Work, and products to be used.
  - .5        Alternatives to cutting and patching.
  - .6        Effect on Work of Owner or separate contractor.
  - .7        Written permission of affected separate contractor.
  - .8        Date and time work will be executed.

**1.2                MATERIALS**

- .1        Required for original installation.
- .2        Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

**1.3                PREPARATION**

- .1        Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2        After uncovering, inspect conditions affecting performance of Work.
- .3        Beginning of cutting or patching means acceptance of existing conditions.
- .4        Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5        Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

**1.4                EXECUTION**

- .1        Execute cutting, fitting, and patching including excavation and fill, to complete Work.
- .2        Fit several parts together, to integrate with other Work.

- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Remove samples of installed Work for testing.
- .6 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .7 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .8 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .10 Restore work with new products in accordance with requirements of Contract Documents.
- .11 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .12 Provide firestopping to maintain the integrity of fire separations, including:
  - .1 Protecting penetrations at fire-resistance rated wall, ceiling or floor construction.
  - .2 Using construction joint fire stops and building perimeter fire stops to protect gaps at fire separations and between fire separations and other construction assemblies.
- .13 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .14 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

**Part 2**

**Part 3 Products**

**3.1 NOT USED**

- .1 Not Used.

**Part 4 Execution**

**4.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                PROJECT CLEANLINESS**

- .1      Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Owner or other Contractors.
- .2      Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .3      Clear snow and ice from access to building.
- .4      Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5      Provide on-site containers for collection of waste materials and debris.
- .6      Provide and use marked separate bins for recycling.
- .7      Dispose of waste materials and debris off site.
- .8      Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .9      Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10     Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .11     Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .12     Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

**1.2                FINAL CLEANING**

- .1      When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2      Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3      Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4      Remove waste products and debris other than that caused by Owner or other Contractors.
- .5      Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .6      Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7      Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.



- .8 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, floors.
- .9 Clean lighting reflectors, lenses, and other lighting surfaces.
- .10 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .11 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
- .12 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .13 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .14 Remove dirt and other disfiguration from exterior surfaces.
- .15 Sweep and wash clean paved areas.
- .16 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .17 Remove snow and ice from access to building.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                DEFINITIONS**

- .1      Clean Waste: Untreated and unpainted; not contaminated with oils, solvents, sealants or similar materials.
- .2      Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, repair and demolition operations.
- .3      Hazardous: Exhibiting the characteristics of hazardous substances including properties such as ignitability, corrosiveness, toxicity or reactivity.
- .4      Non hazardous: Exhibiting none of the characteristics of hazardous substances, including properties such as ignitability, corrosiveness, toxicity, or reactivity.
- .5      Non toxic: Not poisonous to humans either immediately or after a long period of exposure.
- .6      Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- .7      Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.
- .8      Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form; recycling does not include burning, incinerating, or thermally destroying waste.
- .9      Return: To give back reusable items or unused products to vendors for credit.
- .10     Reuse: To reuse a construction waste material in some manner on the project site.
- .11     Salvage: To remove a waste material from the project site to another site for resale or reuse by others.
- .12     Sediment: Soil and other debris that has been eroded and transported by storm or well production run off water.
- .13     Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
- .14     Toxic: Poisonous to humans either immediately or after a long period of exposure.
- .15     Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- .16     Volatile Organic Compounds (VOC's): Chemical compounds common in and emitted by many building products over time through outgassing:
  - .1      Solvents in paints and other coatings;
  - .2      Wood preservatives; strippers and household cleaners;
  - .3      Adhesives in particleboard, fiberboard, and some plywood; and foam insulation.
  - .4      When released, VOC's can contribute to the formation of smog and can cause respiratory tract problems, headaches, eye irritations, nausea, damage to the liver, kidneys, and central nervous system, and possibly cancer.

- .17 Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.
- .18 Construction Waste Management Plan: A project related plan for the collection, transportation, and disposal of the waste generated at the construction site; the purpose of the plan is to ultimately reduce the amount of material being landfilled.

## **1.2 ADMINISTRATIVE REQUIREMENTS**

- .1 Coordination: Coordinate waste management requirements with all Divisions of the Work for the project, and ensure that requirements of the Construction Waste Management Plan are followed.

## **1.3 DELIVERY, STORAGE AND HANDLING**

- .1 Storage Requirements: Implement a recycling/reuse program that includes separate collection of waste materials as appropriate to the project waste and the available recycling and reuse programs in the project area.
- .2 Handling Requirements: Clean materials that are contaminated before placing in collection containers and ensure that waste destined for landfill does not get mixed in with recycled materials:
  - .1 Deliver materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling process.
  - .2 Arrange for collection by or delivery to the appropriate recycling or reuse facility.
- .3 Hazardous Waste and Hazardous Materials: Handle in accordance with applicable regulations.

## **Part 2 Products**

### **2.1 NOT USED**

- .1 Not Used.

## **Part 3 Execution**

### **3.1 CWM PLAN IMPLEMENTATION**

- .1 Manager: Contractor is responsible for designating an on-site party or parties responsible for instructing workers and overseeing and documenting results of the CWM Plan for the project.
- .2 Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, composting and return methods being used for the project to Subcontractors at appropriate stages of the project.
- .3 Separation Facilities: Lay out and label a specific area to facilitate separation of materials for potential recycling, salvage, reuse, composting and return:
  - .1 Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials.

- .2 Hazardous wastes shall be separated, stored, and disposed of in accordance with local regulations.

**3.2 SUBCONTRACTOR'S RESPONSIBILITY**

- .1 Subcontractors shall cooperate fully with the Contractor to implement the CWM Plan.

**END OF SECTION**

**Part 1            General**

**1.1                ADMINISTRATIVE REQUIREMENTS**

- .1    Acceptance of Work Procedures:
  - .1    Contractor's Inspection: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
    - .1    Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
    - .2    Request Departmental Representative inspection.
  - .2    Departmental Representative Inspection:
    - .1    Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.
    - .2    Contractor to correct Work as directed.
  - .3    Completion Tasks: submit written certificates in that tasks have been performed as follows:
    - .1    Work: completed and inspected for compliance with Contract Documents.
    - .2    Defects: corrected and deficiencies completed.
    - .3    Equipment and systems: tested, balanced, adjusted and fully operational.
    - .4    Operation of systems: demonstrated to Owner's personnel.
    - .5    Work: complete and ready for final inspection.
  - .4    Final Inspection:
    - .1    When completion tasks are done, request final inspection of Work by Departmental Representative, and Contractor.
    - .2    When Work incomplete according to Departmental Representative, complete outstanding items and request re-inspection.

**1.2                FINAL CLEANING**

- .1    Clean in accordance with Section 01 74 00 - Cleaning.
  - .1    Remove surplus materials, excess materials, rubbish, tools and equipment.

**Part 2            Products**

**2.1                NOT USED**

- .1    Not Used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, final copies of operating and maintenance manuals.
- .3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
- .4 Provide evidence, if requested, for type, source and quality of products supplied.

**1.2                FORMAT**

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings.
  - .1 Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab.
  - .1 Bind in with text; fold larger drawings to size of text pages.
- .9 Provide scaled CAD files in .dwg format.

**1.3                CONTENTS - PROJECT RECORD DOCUMENTS**

- .1 Table of Contents for Each Volume: provide title of project;
  - .1 Date of submission; names.
  - .2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.
  - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
  - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.

- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data.
  - .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

#### **1.4 AS -BUILT DOCUMENTS AND SAMPLES**

- .1 Maintain, one record copy of:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Change Orders and other modifications to Contract.
  - .5 Reviewed shop drawings, product data, and samples.
  - .6 Field test records.
  - .7 Inspection certificates.
  - .8 Manufacturer's certificates.
- .2 Maintain record documents in clean, dry and legible condition.
  - .1 Do not use record documents for construction purposes.

#### **1.5 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS**

- .1 Record information on set of opaque drawings.
- .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress.
  - .1 Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
  - .1 Measured depths of elements of foundation in relation to finish first floor datum.
  - .2 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
  - .3 Field changes of dimension and detail.
  - .4 Changes made by change orders.
  - .5 Details not on original Contract Drawings.
  - .6 Referenced Standards to related shop drawings and modifications.
- .5 Specifications: mark each item to record actual construction, including:
  - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
  - .2 Changes made by Addenda and change orders.



- .6 Other Documents: maintain field test records, inspection certifications, manufacturer's certifications, required by individual specifications sections.
- .7 Provide digital photos, if requested, for site records.

## **1.6 EQUIPMENT AND SYSTEMS**

- .1 For each item of equipment and each system include description of unit or system, and component parts.
  - .1 Give function, normal operation characteristics and limiting conditions.
  - .2 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
  - .1 Include regulation, control, stopping, shut-down, and emergency instructions.
  - .2 Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports as specified in Section 01 45 00 - Quality Control.
- .15 Additional requirements: as specified in individual specification sections.

## **1.7 MATERIALS AND FINISHES**

- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

- .3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional requirements: as specified in individual specifications sections.

## **1.8 MAINTENANCE MATERIALS**

- .1 Spare Parts:
  - .1 Provide spare parts, in quantities specified in individual specification sections.
  - .2 Provide items of same manufacture and quality as items in Work.
  - .3 Deliver to site; place and store.
  - .4 Receive and catalogue items.
    - .1 Submit inventory listing to Departmental Representative.
    - .2 Include approved listings in Maintenance Manual.
  - .5 Obtain receipt for delivered products and submit prior to final payment.
- .2 Extra Stock Materials:
  - .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
  - .2 Provide items of same manufacture and quality as items in Work.
  - .3 Deliver to site; place and store.
  - .4 Receive and catalogue items.
    - .1 Submit inventory listing to Departmental Representative.
    - .2 Include approved listings in Maintenance Manual.
  - .5 Obtain receipt for delivered products and submit prior to final payment.
- .3 Special Tools:
  - .1 Provide special tools, in quantities specified in individual specification section.
  - .2 Provide items with tags identifying their associated function and equipment.
  - .3 Deliver to site; place and store.
  - .4 Receive and catalogue items.
    - .1 Submit inventory listing to Departmental Representative.
    - .2 Include approved listings in Maintenance Manual.

## **1.9 DELIVERY, STORAGE AND HANDLING**

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and for review by Departmental Representative.

**1.10 WARRANTIES AND BONDS**

- .1 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
  - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
  - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
  - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
  - .4 Verify that documents are in proper form, contain full information, and are notarized.
  - .5 Co-execute submittals when required.
  - .6 Retain warranties and bonds until time specified for submittal.
- .2 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .3 Include information contained in warranty management plan as follows:
  - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
  - .2 Listing and status of delivery of Certificates of Warranty for extended warranty items.
- .4 Respond in timely manner to oral or written notification of required construction warranty repair work.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCE STANDARDS**

- .1 CSA Group (CSA)
  - .1 CSA S350, Code of Practice for Safety in Demolition of Structures.
- .2 National Fire Protection Association (NFPA)
  - .1 NFPA 241 - 96, Standard for Safeguarding Construction, Alteration, and Demolition Operations
- .3 National Research Council Canada (NRC)
  - .1 National Building Code of Canada [2015] (NBC).
  - .2 National Fire Code of Canada [2015] (NFC).

**1.2 DEFINITIONS**

- .1 Demolition: rapid destruction of building following removal of hazardous materials.
- .2 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: asbestos PCB's, CFC's, HCFC's poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or other material that can endanger human health or wellbeing or environment if handled improperly.
- .3 Construction Waste Management Plan (CWM Plan): Written plan addressing opportunities for reduction, reuse, or recycling of materials prepared in accordance with Section 01 74 19- Waste Management and Disposal.

**1.3 ADMINISTRATIVE REQUIREMENTS**

- .1 Coordination: Coordinate with Departmental Representative for the material ownership including but not limited to:
  - .1 Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Departmental Representative's property, demolished materials shall become Contractor's property and shall be removed from Project site.
  - .2 Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Departmental Representative that may be encountered during demolition remain Departmental Representative's property.

**1.4 QUALITY ASSURANCE**

- .1 Regulatory Requirements: Ensure Work is performed in compliance with Provincial/Territorial and Municipal regulations.
- .2 Comply with hauling and disposal regulations of Authority Having Jurisdiction.
- .3 Standards: Comply with ANSI A10.6 and NFPA 241.

## **1.5 SITE CONDITIONS**

- .1 If material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify Departmental Representative immediately.
  - .1 Proceed only after receipt of written instructions have been received from Departmental Representative.
- .2 Notify Departmental Representative before disrupting building access or services.

## **1.6 EXISTING CONDITIONS**

- .1 Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  - .1 Hazardous materials will be as defined in the Hazardous Materials Act.
  - .2 Hazardous materials will be removed by Departmental Representative start of the Work.

## **Part 2 Products**

### **2.1 EQUIPMENT**

- .1 Machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Survey existing conditions and correlate with requirements indicated to determine extent of demolition required.
- .2 Review Project Record Documents of existing construction provided by Departmental Representative.
- .3 Departmental Representative does not guaranty that existing conditions are the same as those indicated in Project Record Documents.
- .4 Inventory and record the condition of items being removed and salvaged.
- .5 When unanticipated mechanical, electrical, or structural elements are encountered, investigate and measure the nature and extent of the element.
- .6 Promptly submit a written report to Departmental Representative.
- .7 Engage a professional engineer to perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during demolition operations.
- .8 Verify that hazardous materials have been remediated before proceeding with demolition operations.

### 3.2 PREPARATION

- .1 Protection of In-Place Conditions:
  - .1 Prevent movement, settlement, or damage to adjacent utilities, structures, parts of building and landscaping features to remain in place. Provide bracing and shoring required.
  - .2 Keep noise, dust, and inconvenience to occupants to minimum.
  - .3 Protect building systems, services and equipment.
  - .4 Provide temporary dust screens, covers, railings, supports and other protection as required.
  - .5 Do Work in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .2 Demolition/Removal:
  - .1 Demolish parts of structures as indicated.
  - .2 Removal of Pavements, Curbs and Gutters:
    - .1 Square up adjacent surfaces to remain in place by saw cutting or other method approved by Departmental Representative.
    - .2 Protect adjacent joints and load transfer devices.
    - .3 Protect underlying and adjacent granular materials.
  - .3 Remove parts of existing building to permit new construction.
  - .4 Trim edges of partially demolished building elements to tolerances as defined by Departmental Representative to suit future use.
  - .5 At end of each day's work, leave Work in safe and stable condition.
  - .6 Protect interiors of parts not to be demolished from exterior elements at all times.
  - .7 Demolish to minimize dusting. Keep materials wetted as directed by Departmental Representative.
- .3 Remove following materials and equipment, store, protect, and reinstall, using qualified tradesmen :
  - .1 Existing wood baseboards as noted.
  - .2 Washroom accessories and fixtures as noted.

### 3.3 SITE RESTORATION & REPAIRS

- .1 Below Grade Areas: Rough grade below grade areas ready for further excavation or new construction.
- .2 Below Grade Areas: Completely fill below grade areas and voids resulting from structure demolition operations with satisfactory soil materials according to Structural General Notes.
- .3 Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes.
- .4 Provide a smooth transition between adjacent existing grades and new grades.
- .5 General: Promptly repair damage to adjacent construction caused by demolition operations.

- .6 Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
- .7 Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

**3.4 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .3 Refer to demolition drawings and specifications for items to be salvaged for reuse.

**END OF SECTION**

**Part 1 General**

**1.1 SUMMARY**

- .1 This Section includes the following:
  - .1 Demolition and removal of selected portions of interior building components and finishes.
  - .2 Repair procedures for selective demolition operations.
- .2 This section does not include the following:
  - .1 Removal of hazardous materials or asbestos abatement.
  - .2 Demolition of exterior building components or structural elements.
  - .3 Mechanical or electrical equipment, except as required to make minor modifications to allow the work to be completed.

**1.2 REFERENCE STANDARDS**

- .1 American National Standards Institute (ANSI)
  - .1 ANSI A10.8 2011, Safety Requirements for Scaffolding
- .2 ASTM International (ASTM)
  - .1 ASTM C475/C475M-15, Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board
- .3 CSA Group (CSA)
  - .1 CSA S350 M1980 (R2003), Code of Practice for Safety in Demolition of Structures
- .4 Department of Justice Canada (Jus)
  - .1 Canadian Environmental Assessment Act (CEAA), 2012
  - .2 Canadian Environmental Protection Act (CEPA), 2012
    - .1 SOR/2003-2, On-Road Vehicle and Engine Emission Regulations
    - .2 SOR/2006-268, Regulations Amending the On-Road Vehicle and Engine Emission Regulations
    - .3 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34
    - .4 Motor Vehicle Safety Act (MVSA), 1995
    - .5 Hazardous Materials Information Review Act, 1985
- .5 National Fire Protection Association (NFPA)
  - .1 NFPA 241 (13), Standard for Safeguarding Construction, Alteration, and Demolition Operations

**1.3 DEFINITIONS**

- .1 Demolish: Detach items from existing construction and legally dispose of them off site, unless indicated to be removed and salvaged or removed and reinstalled.



- .2 Remove and Salvage: Detach items from existing construction and deliver them to Departmental Representative.
- .3 Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- .4 Existing to Remain: Existing items of construction that are not removed and that are not otherwise indicated as being removed, removed and salvaged, or removed and reinstalled.
- .5 Construction Waste Management Plan (CWM Plan): Written plan addressing opportunities for reduction, reuse, or recycling of materials prepared in accordance with Section 01 74 19- Waste Management and Disposal.
- .6 Hazardous Substances: Dangerous substances, dangerous goods, hazardous commodities and hazardous products may include asbestos, mercury and lead, PCB's, poisons, corrosive agents, flammable substances, radioactive substances, or other material that can endanger human health or wellbeing or environment if handled improperly as defined by the Federal Hazardous Products Act (RSC 1985) including latest amendments.

#### **1.4 ADMINISTRATIVE REQUIREMENTS**

- .1 Coordination: Coordinate with Departmental Representative for the material ownership as follows:
  - .1 Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Departmental Representative's property, demolished materials shall become Contractor's property and shall be removed from Project site.
  - .2 Coordinate selective demolition work so that work of this Section adheres to aesthetic criteria established by the Drawings and specified dimensions with all elements in planes as drawn, maintaining their relationships with all other building elements.

#### **1.5 QUALITY ASSURANCE**

- .1 Regulatory Requirements: Perform work as follows; use most restrictive requirements where differences occur between the municipal, provincial and federal jurisdictions:
  - .1 Provincial and Federal Requirements: Perform work in accordance with governing environmental notification requirements and regulations of the Authority Having Jurisdiction.
  - .2 Municipal Requirements: Perform hauling and disposal operations in accordance with regulations of Authority Having Jurisdiction.

#### **1.6 SITE CONDITIONS**

- .1 Maintain access to existing means of egress, walkways, corridors, exits, and other adjacent occupied or used facilities:
  - .1 Do not close or obstruct means of egress, walkways, corridors, exits, or other occupied or used facilities without written acceptance from authorities having jurisdiction.
- .2 Departmental Representative assumes no responsibility for condition of areas to be selectively demolished:

- .1 Conditions existing at time of Pre-Bid Site Review will be maintained by Departmental Representative as far as practical.
- .3 Discovery of Hazardous Substances: It is not expected that Hazardous Substances will be encountered in the Work; immediately notify Departmental Representative if materials suspected of containing hazardous substances are encountered and perform the following activities:
  - .1 Refer to Section 01 41 00- Regulatory Requirements for directives associated with specific material types.
  - .2 Hazardous materials will be as defined in the Hazardous Materials Act.
  - .3 If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Departmental Representative. Hazardous materials will be removed by Departmental Representative under a separate contract or as a change to the Work.

## **Part 2 Products**

### **2.1 TEMPORARY SUPPORT STRUCTURES**

- .1 Design temporary support structures required for demolition work and underpinning and other foundation supports necessary for the project using a qualified professional engineer registered or licensed in province of the Work.

### **2.2 DESCRIPTION**

- .1 This section of the Work includes, but is not necessarily limited to, the following:
  - .1 Demolition, removal completely from site, and disposal of all identified components, materials, equipment and debris
  - .2 Selective demolition to allow new walls, bulkheads, ceilings and other materials to meet existing construction as indicated
  - .3 All material from demolition shall be removed from site immediately with no salvage, selling, sorting or burning permitted on site
  - .4 Retain items indicated on drawings for re use in new construction

### **2.3 DEBRIS**

- .1 Make all arrangements for transport and disposal of all demolished materials from the site.

### **2.4 EQUIPMENT**

- .1 Provide all equipment required for safe and proper demolition of the building interiors indicated.

### **2.5 REPAIR MATERIALS**

- .1 Use repair materials identical to existing materials:

- .1 If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
- .2 Use a material whose installed performance equals or surpasses that of existing material.
- .3 Comply with material and installation requirements specified in individual Specification Sections.
- .2 Floor Patching and Levelling Compounds: Cement based, trowelable, self levelling compounds compatible with specified floor finishes; gypsum based products are not acceptable for work of this Section.
- .3 Concrete Unit Masonry: Lightweight concrete masonry units, and mortar, cut and trimmed to fit existing opening to be filled. Provide standard hollow core units, square end units and bond beam units as indicated on drawings.
- .4 Prefinished Sheet Steel: Prefinished sheet steel, colour to match existing radiation cabinets, bent and profiled to match existing radiation cabinets.
- .5 Gypsum Board Patching Compounds: Joint compound to ASTM C475/C475M, bedding and finishing types thinned to provide skim coat consistency to patch and prepare existing gypsum board walls ready for new finishes in accordance with Section 09 21 16 08 Gypsum Board Assemblies For Minor Works.
- .6 Hoarding and Dust Screens: Refer to Section 01 56 00- Temporary Barriers and Enclosures for stud framing and gypsum board sheathing materials.

## **2.6 EXISTING MATERIALS**

- .1 Items to be retained for re use in new construction include, but are not limited to the following:
  - .1 Existing wood wall base as indicated.
  - .2 Washroom accessories and fixtures as indicated.
  - .3 Confirm with Departmental Representative any materials that appear to be in re usable condition prior to disposal.
  - .4 Confirm with Departmental Representative any materials scheduled for re use that are not in re usable condition prior to installation.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Verify that utilities have been disconnected and capped.
- .2 Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- .3 Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- .4 Notify the Departmental Representative where existing mechanical, electrical, or structural elements conflict with intended function or design:

- .1 Investigate and measure the nature and extent of conflict and submit a written report to Departmental Representative.
- .2 Departmental Representative will issue additional instructions or revise drawings as required to correct conflict.
- .5 Perform surveys as the work progresses to detect hazards resulting from selective demolition activities.

### **3.2 UTILITY SERVICES**

- .1 Coordinate existing services indicated to remain and protect them against damage during selective demolition operations.
- .2 Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.
  - .1 Arrange to shut off affected utilities with utility companies.
  - .2 If utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of building.
  - .3 Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
  - .4 Cut off pipe or conduit to a minimum of 25 mm below slab, and remove concrete mound. Patch concrete using cementitious grout.
- .3 Coordinate with Mechanical and Electrical Divisions for shutting off, disconnecting, removing, and sealing or capping utilities.
- .4 Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

### **3.3 PREPARATION**

- .1 Identify and mark all equipment and materials identified to be retained by Departmental Representative or to be re used in subsequent construction. Separate and store items to be retained in an area away from area of demolition and protect from accidental disposal.
- .2 Post warning signs on electrical lines and equipment that must remain energized to serve other areas during period of demolition.
- .3 Confirm that all electrical and telephone service lines entering buildings are not disconnected.
- .4 Do not disrupt active or energized utilities crossing the demolition site.
- .5 Provide and maintain barricades, warning signs, protection for workmen and the public during the full extent of the Work. Read drawings carefully to ascertain extent of protection required.
- .6 Mark all materials required to be re used, store in a safe place until ready for re installation.
- .7 Adjust all junction boxes, receptacles and switch boxes flush with new wall construction where additional layers to existing construction are indicated.

- .8 Remove permanent marker lines used or found on exposed surfaces and at surfaces indicated for subsequent finish materials. Mechanically remove permanent marker lines and associated substrates where permanent marker lines occur and patch surface. Sealing or priming over permanent marker lines is not acceptable.

### **3.4 CONCRETE SLAB REINFORCING**

- .1 Locate location of reinforcing steel in concrete slabs prior to cutting or coring using non destructive, non ionizing radio frequency locators.
- .2 Core concrete slabs to avoid reinforcing steel, electrical conduit or water pipes; adjust core location and coordinate with Engineer where slab features interfere with core drilling.
- .3 Notify the Engineer immediately for further instructions where coring or cutting will damage existing slab features.

### **3.5 SELECTIVE DEMOLITION**

- .1 Demolish and dismantle work in a neat and orderly manner and in strict accordance with all regulations.
- .2 At end of each day's work, leave Work in safe condition so that no part is in danger of toppling or falling.
- .3 Demolish in a manner to minimize dusting and to prevent migration of dust.
- .4 Selling or burning of materials on the site is not permitted.
- .5 Remove concrete bases by cutting and chipping, take precautions against slab cracking and degradation. Grind edges smooth, fill and make level with self levelling grout.
- .6 Fill all openings in concrete block walls with concrete masonry units, coursing to match existing, prepare ready to receive new finishes to match existing.
  - .1 Provide bond beams in new openings cut into existing concrete masonry unit walls.
  - .2 Provide finished end masonry units to patch and repair for new jamb sections in existing concrete masonry unit walls.
- .7 Fill all openings in gypsum board walls with gypsum board and steel framing to match existing, skim coat to make wall smooth and even.
- .8 Demolish existing carpet, resilient flooring and adhesive remnants as follows:
  - .1 Vacuum existing carpet thoroughly, prior to removal, using vacuum equipped with power head/sweeper.
  - .2 Apply fine mist water spray to carpet as required to minimize dust generation during removal. Avoid spraying near electrical outlets.
  - .3 Demolish existing carpet and resilient floor finishes, remove and dispose of off site.
  - .4 Remove adhesive to the greatest extent possible using scrapping tools and as follows:
    - .1 Do not use solvent based cleaners to remove adhesive remnants.

- .2 Lightly shot blast or grind floor using machine designed for purpose to remove adhesive remnants.
- .3 Vacuum floor ready for application of skim coating.
- .4 Repair all slab depressions and damage with cementitious patching compound.
- .5 Skim coat floor with minimum 1 mm thick cementitious floor underlayment compatible with new flooring materials.
- .5 Floor substrate shall be smooth, free from ridges and depressions, and adhesive remnants that could telegraph through resilient flooring materials and carpets.
- .6 Recycle materials in accordance with Section 01 74 19- Waste Management and Disposal.
- .9 Demolish existing ceramic tile finishes. Remove setting bed or adhesive to the greatest extent possible using mechanical scrapping tools and as follows:
  - .1 Saw cut edge of tile for clean and even transition joint between existing tile to remain and new flooring materials
  - .2 Lightly shot blast or grind floor to remove remnants of setting materials
  - .3 Vacuum floor ready for application of skim coating
  - .4 Repair all slab depressions and damage with cementitious patching compound. Skim coat floor with minimum 1 mm thick cementitious floor underlayment compatible with new flooring materials
- .10 Remove all wall coverings scheduled for demolition. Patch and repair wall surfaces with skim coat of gypsum board joint compound leaving wall surfaces smooth and even ready for new wall finishes.
- .11 Patch and repair all walls, floor and ceilings damaged during demolition with material matching adjacent walls, prepare ready for new finishes.
- .12 Patch and repair all radiation cabinets, mechanical equipment and electrical fixtures damaged or exposed during demolition to match adjacent finished surfaces.

### **3.6 PATCHING AND REPAIRING**

- .1 Floors and Walls:
  - .1 Where walls or partitions that are demolished extend from one finished area into another, patch and repair floor and wall surfaces in the new space.
  - .2 Provide a level and smooth surface having uniform finish colour, texture, and appearance.
  - .3 Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform colour and appearance.
  - .4 Patch with durable seams that are as invisible as possible.
  - .5 Provide materials and comply with installation requirements specified in other Sections of these Specifications.
  - .6 Where patching occurs in a painted surface, apply primer and intermediate paint coats over patch and apply final paint coat over entire unbroken surface containing patch. Provide additional coats until patch blends with adjacent surfaces.

- .7 Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
- .2 Ceilings: patch, repair, or re hang existing ceilings as necessary to provide an even plane surface of uniform appearance.

### **3.7 PROTECTION**

- .1 Prevent debris from blocking drainage inlets and systems and ground draining, and protect material and electrical systems and services that must remain in operation.
- .2 Arrange demolition and shoring work so that interference with the use of adjoining areas by the Departmental Representative and users is minimized.
- .3 Maintain safe access to and egress from occupied areas adjoining.
- .4 Provide and maintain fire prevention equipment and alarms accessible during demolition.

### **3.8 CLEANING**

- .1 Develop Construction Waste Management Plan related to Work of this Section and in accordance with Section 01 74 19 - Waste Management and Disposal.
- .2 Waste Management: Separate waste materials for recycling and reuse in accordance with Section 01 74 19 - Waste Management and Disposal, and as follows:
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
- .3 Divert excess materials from landfill.
- .4 Promptly as the Work progresses, and on completion, clean up and remove from the site all rubbish and surplus material. Remove rubbish resulting from demolition work daily.
- .5 Maintain access to exits clean and free of obstruction during removal of debris.
- .6 Keep surrounding and adjoining roads, lanes, sidewalks, municipal rights of way clean and free of dirt, soil or debris that may be a hazard to vehicles or persons.
- .7 Dispose of materials not designated for alternate disposal in accordance with applicable regulations.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCE STANDARDS**

- .1 ASTM International (ASTM)
  - .1 ASTM A1064/A1064M Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
  - .2 ASTM C920 Standard Specification for Elastomeric Joint Sealants.
  - .3 ASTM D1751, Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non extruding and Resilient Bituminous Types).
- .2 CSA Group (CSA)
  - .1 CSA A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
  - .2 CAN/CSA G30.18, Billet-Steel Bars for Concrete Reinforcement.

**1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for proprietary materials used in Cast-In-Place Concrete and additives and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
    - .1 Submit placing drawings prepared in accordance with plans to clearly show size, shape, location and necessary details of reinforcing.
    - .2 Submit drawings showing formwork and falsework design to: CSA A23.1/A23.2.
  - .2 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
- .4 Provide testing results for review by Departmental Representative and do not proceed without written approval when deviations from mix design or parameters found.
- .5 Concrete hauling time: provide for review by Departmental Representative deviations exceeding maximum allowable time of 120 for concrete delivered to site of Work and discharged after batching.
- .6 Quality Assurance Submittals:
  - .1 Submit in accordance with Section 01 45 00 - Quality Control
  - .2 Mill Test Report: Upon request, submit to Departmental Representative certified copy of mill test report of reinforcing steel.



- .3 Upon request submit in writing to Departmental Representative proposed source of reinforcement material
- .4 Upon request submit to Departmental Representative epoxy coating applicator certificates identified in Quality Assurance

### **1.3 QUALITY ASSURANCE**

- .1 Provide to Departmental Representative, 4 weeks minimum prior to starting concrete work, valid and recognized certificate from plant delivering concrete.
- .2 Quality Control Plan: provide written report to Departmental Representative verifying compliance concrete in place meets performance requirements.

### **1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Delivery and Acceptance Requirements:
  - .1 Concrete hauling time: deliver to site of Work and discharged within 120 minutes maximum after batching.
    - .1 Modifying maximum time limit without receipt of prior written agreement from Departmental Representative and concrete producer as described in CSA A23.1/A23.2 is prohibited.
    - .2 Deviations submitted for review by Departmental Representative.
- .2 Concrete delivery: ensure continuous concrete delivery from plant meets CSA A23.1/A23.2.

### **1.5 AMBIENT CONDITIONS**

- .1 Placing concrete during rain or weather events damaging to concrete is prohibited.
- .2 Protect newly placed concrete from rain or weather events in accordance with CSA A23.1/A23.2.
- .3 Cold weather protection:
  - .1 Maintain protection equipment, in readiness on Site.
  - .2 Use such equipment when ambient temperature below 5°C, or when temperature may fall below 5°C before concrete cured.
  - .3 Placing concrete upon or against surface at temperature below 5°C is prohibited.
- .4 Hot weather protection:
  - .1 Protect concrete from direct sunlight when ambient temperature above 27°C.
  - .2 Prevent forms of getting too hot before concrete placed. Apply accepted methods of cooling not to affect concrete adversely.
- .5 Protect from drying.

**Part 2 Products**

**2.1 DESIGN CRITERIA**

- .1 Alternative 1 - Performance: to CSA A23.1/A23.2, and as described in MIXES of PART 2 - PRODUCTS.

**2.2 PERFORMANCE CRITERIA**

- .1 Quality Control Plan: ensure concrete supplier meets performance criteria of concrete as established by Departmental Representative and provide verification of compliance as described in PART 1 - QUALITY ASSURANCE.

**2.3 MATERIALS**

- .1 Portland Cement: Normal.
- .2 Water: to CSA A23.1/A23.2.
- .3 Reinforcing bars:
  - .1 Billet steel, grade 400, deformed bars to CSA G30.18, unless indicated otherwise.
- .4 Welded steel wire fabric:
  - .1 In accordance ASTM A1064/A1064M, fabricated from as drawn steel wire into flat sheets; sizes as indicated on Drawings.
  - .2 Finish:
    - .1 Galvanized: Hot dip galvanized after welding having Class A coating in accordance with ASTM A1064/A1064M.
- .5 Premoulded joint filler:
  - .1 Bituminous impregnated fibreboard: to ASTM D1751.
- .6 Joint sealer/filler: grey to ASTM C920, Type M, Grade NS.
- .7 Sealer: proprietary poly-siloxane resin blend.
- .8 Other concrete materials: to CSA A23.1/A23.2.

**2.4 MIXES**

- .1 Alternative 1 - Performance Method for specifying concrete: to meet Departmental Representative performance criteria to CSA A23.1/A23.2.
  - .1 Ensure concrete supplier meets performance criteria as established below and provide verification of compliance as described in PART 3 - VERIFICATION.
  - .2 Provide concrete mix to meet following plastic state requirements:
    - .1 Workability: free of surface blemishes.
  - .3 Provide concrete mix to meet following hard state requirements:
    - .1 Durability and class of exposure: C-1.
    - .2 Compressive strength at 28 days: 35 MPa minimum.
  - .4 Concrete supplier's certification.

- .5 Provide quality management plan to ensure verification of concrete quality to specified performance.

### **Part 3 Execution**

#### **3.1 PREPARATION**

- .1 Provide Departmental Representative 24 hours notice before each concrete pour.
- .2 Place concrete reinforcing in accordance with Structural General Notes.
- .3 During concreting operations:
  - .1 Development of cold joints not allowed.
  - .2 Concrete delivery and handling to facilitate placing with minimum of rehandling, and without damage to existing structure or Work.
- .4 Protect previous Work from staining.
- .5 Clean and remove stains prior to application of concrete finishes.

#### **3.2 INSTALLATION/APPLICATION**

- .1 Do cast-in-place concrete work in accordance with CSA A23.1/A23.2.
- .2 Sleeves and inserts:
  - .1 Cast in sleeves, ties, slots, anchors, reinforcement, frames, conduit, bolts, waterstops, joint fillers and other inserts required built-in.
  - .2 Sleeves and openings minimum 100 mm x 100 mm not indicated, reviewed by Departmental Representative.

#### **3.3 FINISHES**

- .1 Formed surfaces exposed to view: sack rubbed finish in accordance with CSA A23.1/A23.2.
- .2 Equipment pads: provide smooth trowelled surface.
- .3 Pavements, walks, curbs and exposed site concrete:
  - .1 Screed to plane surfaces and use floats.
  - .2 Provide round edges and joint spacings using standard tools.
  - .3 Trowel smooth and provide lightly brushed non-slip finish.

#### **3.4 CONTROL JOINTS**

- .1 Form control joints in slabs on grade at locations indicated, to CSA A23.1/A23.2 and install specified joint sealer/filler.

#### **3.5 EXPANSION AND ISOLATION JOINTS**

- .1 Install pre-moulded joint filler in expansion and isolation joints full depth of slab flush with finished surface to CSA A23.1/A23.2.

**3.6 CURING**

- .1 Use curing compounds compatible with applied finish on concrete surfaces free of bonding agents and to CSA A23.1/A23.2.

**3.7 SEALING APPLICATION**

- .1 After curing complete, apply poly-siloxane resin blend sealer at 4 m<sup>2</sup>/L.
- .2 Cure concrete surfaces in accordance with CSA A23.1/A23.2, Clause 7.7 Table 19, type 1-Basic, and Appendix D.

**3.8 SITE TOLERANCES**

- .1 Concrete floor slab finishing tolerance to CSA A23.1/A23.2.

**3.9 FIELD QUALITY CONTROL**

- .1 Concrete testing: to CSA A23.1/A23.2 by testing laboratory designated and paid for by Departmental Representative.

**3.10 CLEANING**

- .1 Clean in accordance with Section 01 74 00 - Cleaning.
- .2 Use trigger operated spray nozzles for water hoses.
- .3 Designate cleaning area for tools to limit water use and runoff.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCE STANDARDS**

- .1 ASTM International (ASTM)
  - .1 ASTM A 53/A 53M, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
  - .2 ASTM A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
  - .3 ASTM D6386, Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting.
- .2 CSA Group (CSA)
  - .1 CSA G40.20 /G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .2 CAN/CSA G164, Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .3 CSA S16, Design of Steel Structures.
  - .4 CSA W48, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
  - .5 CSA W59, Welded Steel Construction (Metal Arc Welding) [Metric]
- .3 The Master Painters Institute (MPI)
  - .1 Architectural Painting Specification Manual - current edition
- .4 Underwriters Laboratories (UL)
  - .1 UL 2768, Architectural Surface Coatings

**1.2 DEFINITIONS**

- .1 Application Specialist: An individual who performs surface preparation and application of protective coatings and linings to steel and concrete surfaces of complex industrial structures.

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop Drawings:
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
  - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

**1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Replace defective or damaged materials with new.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Steel sections and plates: to CSA G40.20/G40.21, Grade 350W.
- .2 Steel pipe: to ASTM A53/A53M standard weight, galvanized finish.
- .3 Welding materials: to CSA W59.
- .4 Welding electrodes: to CSA W48 Series.
- .5 Bolts and anchor bolts: to ASTM A307.
- .6 Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours.

### **2.2 FABRICATION**

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Use self-tapping shake-proof flat headed screws on items requiring assembly by screws or as indicated.
- .3 Where possible, fit and shop assemble work, ready for erection.
- .4 Exposed welds continuous for length of each joint. File or grind exposed welds smooth and flush.

### **2.3 FINISHES**

- .1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m<sup>2</sup> to CAN/CSA-G164.
- .2 Galvanizing: to ASTM D6386
- .3 Primer: in accordance with MPI- EXT 5.3C.
- .4 Paint: in accordance with MPI- EXT 5.3C, gloss level 5.

### **2.4 ISOLATION COATING**

- .1 Isolate aluminum from following components, by means of bituminous paint:
  - .1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.
  - .2 Concrete, mortar and masonry.
  - .3 Wood.

**2.5 RAILINGS**

- .1 Steel sections, plates, rods: Welded, formed to shapes and sizes as indicated.
- .2 Galvanize exterior pipe railings after fabrication. Prime and Paint.

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts acceptable for metal fabrications installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions remedied.

**3.2 ERECTION - GENERAL**

- .1 Do welding work in accordance with CSA W59 unless specified otherwise.
- .2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .3 Provide suitable means of anchorage acceptable to Departmental Representative such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
- .4 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .5 Supply components for work by other trades in accordance with shop drawings and schedule.
- .6 Weld field connection.
- .7 Deliver items over for casting into concrete and building into masonry together with setting templates to appropriate location and construction personnel.
- .8 Touch-up rivets, field welds, bolts and burnt or scratched surfaces with primer after completion of:
  - .1 Primer: maximum VOC limit 250 g/L.
- .9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.
  - .1 Primer: maximum VOC limit 250 g/L.

**3.3 RAILINGS**

- .1 Install railings as indicated.
- .2 Set railing standards in concrete. Weld to embedded plates.

**3.4 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.

- .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.

**3.5 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by metal fabrications installation.

**END OF SECTION**



**Part 1            General**

**1.1                REFERENCE STANDARDS**

- .1    CSA Group (CSA)
  - .1    CSA B111, Wire Nails, Spikes and Staples.
  - .2    CSA O121, Douglas Fir Plywood.
  - .3    CSA O141, Softwood Lumber.
  - .4    CSA O151, Canadian Softwood Plywood.
  - .5    CAN/CSA-O325.0, Construction Sheathing.
- .2    National Research Council Canada (NRC)
  - .1    National Building Code of Canada [2015] (NBC).
- .3    National Lumber Grades Authority (NLGA)
  - .1    Standard Grading Rules for Canadian Lumber.

**1.2                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    Plywood, OSB and wood based composite panel construction sheathing identification: by grademark in accordance with applicable CSA standards.

**Part 2            Products**

**2.1                MATERIALS**

- .1    Lumber: unless specified otherwise, softwood, S4S, moisture content 19% or less in accordance with following standards:
  - .1    CAN/CSA-O141.
  - .2    NLGA Standard Grading Rules for Canadian Lumber.
- .2    Furring, blocking, nailing strips, grounds, rough bucks, curbs, fascia backing and sleepers:
  - .1    Board sizes: "Standard" or better grade.
  - .2    Dimension sizes: "Standard" light framing or better grade.
  - .3    Post and timbers sizes: "Standard" or better grade.
- .3    Panel Materials:
  - .1    Douglas fir plywood (DFP): to CSA O121, standard construction.
  - .2    Canadian softwood plywood (CSP): to CSA O151, standard construction.
  - .3    Plywood, OSB and wood based composite panels: to CAN/CSA-O325.

- .4 Wood Preservative:
  - .1 Surface-applied wood preservative: clear, copper naphthenate or 5% pentachlorophenol solution, water repellent preservative.
  - .2 Pentachlorophenol use is restricted to building components that are in ground contact and subject to decay or insect attack only. Where used, pentachlorophenol-treated wood must be covered with two coats of an appropriate sealer.
  - .3 Structures built with wood treated with pentachlorophenol and inorganic arsenicals must not be used for storing food nor should the wood come in contact with drinking water.

## **2.2 ACCESSORIES**

- .1 Fasteners: to CAN/CSA-G164, for exterior work and pressure- preservative treated lumber.
- .2 Nails, spikes and staples: to CSA B111.
- .3 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
- .4 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, recommended for purpose by manufacturer.

## **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 1 minute soak on plywood.
- .3 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.

### **3.2 INSTALLATION**

- .1 Comply with requirements of National Building Code of Canada (NBC), supplemented by the following paragraphs.
- .2 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.
- .3 Align and plumb faces of furring and blocking to tolerance of 1:600.
- .4 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
- .5 Install wood cants, fascia backing, nailers, curbs and other wood supports as required and secure using fasteners.
- .6 Use caution when working with particle board. Use dust collectors and high quality respirator masks.
- .7 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

- .8 Countersink bolts where necessary to provide clearance for other work.

**3.3 Schedules**

- .1 Provide electrical equipment backboards for mounting electrical equipment. Use 19mm thick plywood on 19 x 38mm furring around spacing, perimeter and at maximum 300mm intermediate.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCE STANDARDS**

- .1 American National Standards Institute (ANSI)
  - .1 ANSI A208.1, Particleboard.
  - .2 ANSI A208.2, Medium Density Fibreboard (MDF) for Interior Applications.
  - .3 ANSI/HPVA HP-1-, American National Standard for Hardwood and Decorative Plywood.
  - .4 ANSI/BHMA A156.16 Auxiliary Hardware.
  - .5 ANSI/ASME 18.6.1 Wood Screws (Inch Series).
- .2 Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)
  - .1 Architectural Woodwork Quality Standards, 2nd edition, 2014.
- .3 ASTM International
  - .1 ASTM A 153/A 153M, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
  - .2 ASTM E1333 Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber.
  - .3 ASTM F1667- Standard Specification for Driven Fasteners: Nails, Spikes and Staples.
- .4 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-11.3, Hardboard.
- .5 CSA Group (CSA)
  - .1 CSA O121, Douglas Fir Plywood.
  - .2 CSA O151, Canadian Softwood Plywood.
  - .3 CSA O153, Poplar Plywood.
  - .4 CAN/CSA-Z809, Sustainable Forest Management.
- .6 Forest Stewardship Council (FSC)
  - .1 FSC-STD-01-001, FSC Principle and Criteria for Forest Stewardship.
- .7 Underwriters Laboratories of Canada (ULC)
  - .1 CAN/ULC-S104, Standard Method for Fire Tests of Door Assemblies.
  - .2 CAN/ULC-S105, Standard Specification for Fire Door Frames.

**1.2                ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop Drawings:

- .1 Prepare and submit shop drawings in general accordance with AWMAC AWS manual.
  - .2 Indicate profiles and dimensions, assembly techniques, jointing, methods of fastening, terminations and other related details.
  - .3 Indicate materials, thicknesses, finishes and hardware.
  - .4 Include schedule or key plan.
  - .5 Show profiles, elevations and details at scales recommended by AWMAC AWS.
  - .6 Where necessary, show location and type of blocking and backing required within supporting assemblies.
- .3 Samples:
- .1 Submit triplicate 300 mm long representative samples of each typical item of finish carpentry.
    - .1 Standing and running trim: 300 mm long.
    - .2 Panel materials: 300 mm x 300 mm.
  - .2 Shop applied coating samples:
    - .1 For transparent finish, submit samples of each species and cut of wood veneer to be used, finished as specified.
    - .2 For opaque finish, submit samples for each colour selection, finished as specified.
  - .3 Decorative overlaid composite panels, complete with applied edge treatment and corner treatment, minimum 300 mm x 300 mm.
  - .4 Samples for site applied finish:
    - .1 Furnish samples of each finish carpentry item and composite panel material to Contractor for preparation of field applied finish samples.
  - .5 Submit samples of each hardware item to be left exposed in final construction. Samples will not be returned for incorporation into the work.

### **1.3 QUALITY ASSURANCE**

- .1 Perform Work of this Section by finish carpentry contractor with minimum 5 years of current experience and having completed minimum one project in the past 5 years with value within 20% of the cost of the work of this Section.

## **Part 2 Products**

### **2.1 QUALITY GRADE**

- .1 Provide all materials and perform all work of this Section in accordance with AWMAC AWS Custom Grade.
- .2 In case of conflict between Contract Documents and AWMAC AWS grade requirements, Contract Documents govern.

### **2.2 MATERIALS**

- .1 Softwood and hardwood lumber: Sound lumber to specified AWS grade requirements, kiln-dried to moisture content recommended for location of the Work.

- .1 Machine stress-rated lumber is acceptable for all purposes.
- .2 MDF (medium density fibreboard) core: to ANSI A208.2, density 769 kg/m<sup>3</sup>, 19 mm thick unless indicated otherwise.
  - .1 Use moisture resistant MR grade for countertops and splash-backs to receive plumbing fixtures.
- .3 Interior mat-formed wood particleboard: to ANSI/NPA A208.1, industrial grade M-2 or M-3, medium density (640-800 kg/m<sup>3</sup>), thickness 19 mm unless indicated otherwise.
  - .1 Use moisture resistant grade 2-M-2 or 2-M-3 for countertops and splash-backs to receive plumbing fixtures.
- .4 Douglas fir plywood (DFP): to CSA O121, standard construction.
- .5 Canadian softwood plywood (CSP): to CSA O151, standard construction.
- .6 Hardwood plywood: to ANSI/HPVA HP-1.
- .7 Poplar plywood (PP): to CSA O153, standard construction.
- .8 Hardboard: to CAN/CGSB-11.3.

### **2.3 MANUFACTURED TRIM**

- .1 Interior Standing and running trim:
  - .1 Material:
    - .1 Paint grade stock for opaque finish.
  - .2 Door and window casings: Profile: match existing.
  - .3 Window stool: Profile: match existing.
  - .4 Combination baseboard:
    - .1 Board: profile match existing step base.
    - .2 Shoe: profile match existing base shoe, quarter round.

### **2.4 MANUFACTURED FRAMES**

- .1 Interior frames:
  - .1 Grade: Custom.
  - .2 Frames to be solid wood of Birch species.
  - .3 Construction: Double Rabbet.
    - .1 Jamb and header profile: as detailed.
    - .2 Joinery: rabbet.

### **2.5 FASTENINGS**

- .1 Provide screws, bolts, expansion shields and other fastening devices required for satisfactory installation.
- .2 Exposed fasteners to match finish of hardware.
- .3 Nails and staples: to ASTM F1677, galvanized to ASTM A 153/A 153M for exterior work, interior humid areas; plain finish elsewhere.

- .4 Wood screws: to ANSI/ASME 18.6.1, countersunk flush type unless indicated otherwise, in sizes to suit application, galvanized to ASTM A 153/A 153M for exterior work, interior humid areas, plain for other locations.
- .5 Splines: wood or metal.
- .6 Panel adhesive: Type to suit application.

## **2.6 HARDWARE**

- .1 Use one manufacturer's product for all similar items.
- .2 Hardware fastenings:
  - .1 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation of hardware.
  - .2 Exposed fastening devices to match finish of hardware.
  - .3 Use fasteners compatible with material through which they pass.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for wood products installation in accordance with AWS tolerances and requirements of Contract Documents.

### **3.2 PREPARATION**

- .1 Back prime woodwork before installation, to AWS.

### **3.3 INSTALLATION**

- .1 Install items of finish carpentry in accordance with AWMAC AWS grade specified for respective items.
- .2 In case of conflict between Contract Documents and AWS grade requirements, Contract Documents govern.
- .3 Install items of finish carpentry at locations shown on drawings.
  - .1 Position accurately, level, plumb straight.
  - .2 Fasten and anchor securely.
- .4 Scribe and cut as required, fit to abutting walls, and surfaces, fit properly into recesses and to accommodate piping, columns, fixtures, outlets, or other projecting, intersecting or penetrating objects.
- .5 Form joints to conceal shrinkage.

### **3.4 CONSTRUCTION**

- .1 Fastening:
  - .1 Position items of finished carpentry work accurately, level, plumb, true and fasten or anchor securely.

- .2 Design and select fasteners to suit size and nature of components being joined. Use proprietary devices as recommended by manufacturer.
  - .3 Set finishing nails to receive filler. Where screws are used to secure members, countersink screw in round smooth cut hole and plug with wood plug to match material being secured.
  - .4 Replace items of finish carpentry with damage to wood surfaces including hammer and other bruises.
- .2 Standing and running trim:
- .1 Butt and cope internal joints of baseboards to make snug, tight, joint. Cut right angle joints of casing and base with mitred joints.
  - .2 Fit backs of baseboards and casing snugly to wall surfaces to eliminate cracks at junction of base and casing with walls.
  - .3 Make joints in baseboard, where necessary using a 45 degrees scarf type joint.
  - .4 Install door and window trim in single lengths without splicing.
- .3 Interior and exterior frames:
- .1 Set frames with plumb sides, level heads and sills and secure.

### **3.5 TOUCHUP AND PROTECTION**

- .1 Fill and retouch all nicks, chips and scratches in factory finishes and substrate materials to AWS standards. Replace damaged items that cannot be repaired to AWS standards.
- .2 Protect installed products and components from damage during construction.
- .3 Repair damage to adjacent materials caused by finish carpentry installation.
- .4 Leave work to be site finished ready for finishing by Section 09 91 00.08 – Painting for Minor Works.

**END OF SECTION**



**Part 1            General**

**1.1                REFERENCE STANDARDS**

- .1 American National Standards Institute (ANSI)
  - .1 ANSI/BHMA A156.9, Cabinet Hardware.
  - .2 ANSI A208.1, Particleboard.
  - .3 ANSI A208.2, Medium Density Fiberboard (MDF) for Interior Applications.
  - .4 ANSI/HPVA HP-1, Standard for Hardwood and Decorative Plywood.
- .2 Architectural Woodwork Manufacturers Association of Canada (AWMAC)
  - .1 Architectural Woodwork Standards (AWMAC AWS).
- .3 ASTM International
  - .1 ASTM F1667 Standard Specification for Driven Fasteners: Nails, Spikes and Staples.
- .4 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-11.3, Hardboard.
  - .2 CAN/CGSB-71.20, Adhesive, Contact, Brushable.
- .5 CSA Group (CSA)
  - .1 CSA B111, Wire Nails, Spikes and Staples.
  - .2 CSA O112-M Series Standards for Wood Adhesives.
  - .3 CSA O121, Douglas Fir Plywood.
  - .4 CSA O151, Canadian Softwood Plywood.
  - .5 CSA O153, Poplar Plywood.
- .6 National Electrical Manufacturers Association (NEMA)
  - .1 ANSI/NEMA LD-3, High-Pressure Decorative Laminates (HPDL).

**1.2                ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Hardware List:
  - .1 Submit hardware list cross-referenced to specifications.
  - .2 Include manufacturer's specification sheets indicating name, model, material, function, finish, BHMA designations and other pertinent information.
- .3 Shop Drawings:
  - .1 Prepare and submit shop drawings in accordance with AWMAC AWS and as follows.
  - .2 Submit one set of shop drawings for initial review in accordance with requirements of Division 01. Revise as directed, submit copies for final acceptance and distribution.

- .3 Indicate details of construction, profiles, jointing, fastening and other related details.
  - .1 Scales: profiles full size, details half full size.
- .4 Indicate materials, thicknesses, finishes and hardware.
- .5 Indicate locations of service outlets in casework, typical and special installation conditions, and connections, attachments, anchorage and location of exposed fastenings.
- .6 Show location on casework elevations of backing required in supporting structure for attachment of casework.
- .7 Indicate AWMAC AWS quality grade where different from predominant grade specified.
- .8 Include color schedule of all casework items, including all countertop, exposed, and semi-exposed cabinet finishes, finish material manufacturer, pattern, and color.
- .4 Samples:
  - .1 Prepare and submit samples in accordance with AWMAC AWS and as follows.
  - .2 Apply sample finishes to specified substrate or core material minimum 300 x 300 mm. For veneers with transparent finish submit three samples to illustrate range and colour of grain expected.
  - .3 Shop applied coatings:
    - .1 For transparent finish, submit samples of each species and cut of wood to be used, finished as specified.
    - .2 For opaque finish, submit samples for each colour selection, finished as specified.
  - .4 Submit duplicate samples of laminated plastic for each specified colour selection.

## **Part 2 Products**

### **2.1 QUALITY GRADE**

- .1 Provide all materials and perform all fabrication in accordance with AWMAC AWS Custom Grade.
- .2 In case of conflict between Contract Documents and AWMAC AWS grade requirements, Contract Documents govern.

### **2.2 LUMBER**

- .1 Softwood and Hardwood Lumber: Sound lumber to specified AWMAC AWS quality grade requirements, kiln-dried to moisture content recommended by AWMAC AWS for location of the Work.
- .2 Machine stress-rated lumber is acceptable for all purposes.

### **2.3 PANEL MATERIALS**

- .1 Interior mat-formed wood particleboard: to ANSI/NPA A208.1, industrial grade M-2 or M-3, medium density (640-800 kg/m<sup>3</sup>), thickness 19 mm unless indicated otherwise.

- .1 Use moisture resistant grade 2-M-2 or 2-M-3 for countertops and splash-backs to receive plumbing fixtures.
- .2 MDF (medium density fibreboard) core: to ANSI A208.2, density 769 kg/m<sup>3</sup>, Grade , 19 mm thick unless indicated otherwise
  - .1 Use moisture resistant MR grade for countertops and splash-backs to receive plumbing fixtures.
- .3 Douglas fir plywood (DFP): to CSA O121, standard construction.
- .4 Hardwood plywood: to ANSI/HPVA HP-1.
- .5 Canadian softwood plywood (CSP): to CSA O151, standard construction.
- .6 Poplar plywood (PP): to CSA O153, standard construction.
- .7 Hardboard: To CAN/CGSB-11.3.

#### **2.4 DECORATIVE VENEER FACED PLYWOOD**

- .1 Decorative hardwood plywood: to specified AWMAC AWS requirements for grade specified for exposed and semi-exposed surfaces:
  - .1 Veneer species: birch.
  - .2 Matching: book.
  - .3 Core: European Mult-ply.
  - .4 Thickness: 19 mm.
  - .5 Bond: Type II.
  - .6 Sanding: regular sanding.
  - .7 Grain direction: vertical.

#### **2.5 LAMINATED PLASTIC MATERIALS**

- .1 Laminated plastic for postforming work: to NEMA LD3.
  - .1 Type: postforming.
  - .2 Grade: HGP.
  - .3 Size: 1.0 mm thick.
  - .4 Colour: integral colour throughout.
  - .5 Pattern: solid.
  - .6 Finish: matte.
- .2 Laminated plastic for backing sheet:
  - .1 Type: backer.
  - .2 Grade: BKL.
  - .3 Thickness: not less than 0.5 mm thick or same thickness as face laminate.
  - .4 Colour: same colour as face laminate.
- .3 Thermofused Melamine: to NEMA LD3 Grade LPDL.
  - .1 High wear resistant thermofused melamine: equal or exceed 400 cycles (Minimum standard for HPL abrasion test).
- .4 Edge finishing for shelves:

- .1 Matching melamine and polyester overlay edge strip with thermoplastic adhesive.
- .5 Laminated plastic adhesive:
  - .1 Adhesive: resorcinol resin adhesive to CSA O112.10, contact adhesive to CAN/CGSB-71.20, urea resin adhesive to CSA O112.

## **2.6 CASEWORK FABRICATION - GENERAL**

- .1 Fabricate casework of specified core and surface finish materials to specified AWMAC AWS quality grade.
  - .1 Construction type: frameless.
  - .2 Door-cabinet interface: flush overlay.
- .2 Set nails and countersink screws apply wood filler to indentations, sand smooth and leave ready to receive finish.
- .3 Shop install cabinet hardware for doors, shelves and drawers. Recess shelf standards unless noted otherwise.
- .4 Shelving to cabinetwork to be adjustable unless otherwise noted.
- .5 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.
- .6 Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings.
- .7 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.

## **2.7 LAMINATED PLASTIC CASEWORK FABRICATION**

- .1 Do laminated plastic fabrication in compliance with NEMA LD3, Annex A and specified AWMAC AWS quality grade.
- .2 Ensure adjacent parts of continuous laminate work match in colour and pattern.
- .3 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 3000 mm. Keep joints 600 mm from sink cutouts.
- .4 Form shaped profiles and bends as indicated, using post-forming grade laminate to laminate manufacturer's instructions.
- .5 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not mitre laminate edges.
- .6 Apply laminate backing sheet to reverse side of core of plastic laminate work.
- .7 Drawer Construction:
  - .1 Sides:
    - .1 Custom grade: LPDL (melamine), thickness 12 mm.
    - .2 Premium grade: 7-ply veneer core with HPDL faces.
  - .2 Bottoms: MDF with melamine surfaces, thickness 6 mm.

- .3 Joinery: Meeting requirements of AWMAC for Grade specified.
  - .1 Sides, front and back: Nailed lock joints.
- .4 Drawer bottoms fully housed into sides and sub front and mechanically fastened to back or plowed into back.

## **2.8 WOOD VENEER SURFACING**

- .1 Apply wood veneer to specified core material in accordance with AWMAC AWS requirements for grade specified and as follows.
- .2 Exposed exterior surfaces:
  - .1 Species: Birch.
  - .2 Veneer slicing: plain cut.
  - .3 Veneer leaf matching: book.
  - .4 Door, drawer and panel matching: blueprint matching.
  - .5 End matching: continuous end match.
  - .6 Grain direction: vertical.
- .3 Edge finishing:
  - .1 Veneer of same species and cut as exposed surfaces.

## **2.9 WOOD CASEWORK FABRICATION**

- .1 Fabricate casework bodies of specified veneered plywood panel materials in accordance with AWMAC AWS requirements for grade specified and as follows.
  - .1 Exposed interior surfaces: Veneer of same species and cut and grade as exposed exterior surfaces.
  - .2 Semi-exposed surfaces: Veneer of same species as exposed exterior surfaces.
- .2 Fabricate door, drawer and panel surfaces of specified veneered plywood panel materials of specified veneers laid up as specified.
- .3 Drawer construction:
  - .1 Sides:
    - .1 AWMAC AWS Custom grade: LPDL melamine surface.
  - .2 Bottoms: MDF with melamine surfaces, 6 mm thick.
  - .3 Joinery: Meeting requirements of AWMAC AWS for Grade specified.
    - .1 Sides, front and back: Nailed lock joints
    - .2 Drawer bottoms fully housed into sides and sub front and mechanically fastened to back or plowed into back.

## **2.10 SHOP APPLIED FINISH COATINGS**

- .1 Finish system: AWMAC AWS system 12.
  - .1 Include wash coat.
- .2 Apply finish system component materials in accordance with manufacturer's instructions.

**2.11 CABINET HARDWARE**

- .1 Cabinet hardware: to AWMAC AWS quality grade specified and to ANSI/BHMA A156.9, designated by letter B and numeral identifiers as listed below.
- .2 Finish:
  - .1 Exposed hardware: Brushed nickel.
  - .2 Semi-exposed hardware: Manufacturer's standard finish.
- .3 Casework door hinges: concealed European style Grade II hinges minimum 120° opening type.
- .4 Pulls: D-pulls, 128mm c/c, brushed nickel.
- .5 Shelf rests and standards: shelf rest installed in holes drilled, type B54013
- .6 Drawer slides:
  - .1 Slide type: bottom edge mounted.
  - .2 Extension and capacity: full extension meeting requirements of AWMAC AWS for type and size of drawer.

**2.12 ACCESSORIES**

- .1 Wood screws: stainless steel, type and size to suit application.
- .2 Nails and staples: to CSA B111 and ASTM F1667.
- .3 Splines: wood or metal.
- .4 Trash Grommet: polished stainless steel
  - .1 Basis of Design: Richelieu model # 61482171
- .5 Sealant: in accordance with Section 07 92 00 - Joint Sealants.

**2.13 LAMINATED PLASTIC COUNTERTOPS**

- .1 Laminated plastic for post-forming work: to NEMA LD3.
  - .1 Type: post-forming.
  - .2 Grade: HGP
  - .3 Size: 1.0 mm thick.
  - .4 Colour: integral colour throughout.
  - .5 Pattern: solid.
  - .6 Finish: matte.
- .2 Core material: particleboard or MDF.
  - .1 Countertops to receive plumbing fixtures: Water resistant MDF or Water resistant particle board.
- .3 Back splashes: non-applicable.
- .4 Front edges: waterfall edge.

**Part 3 Execution**

**3.1 INSTALLATION**

- .1 Install architectural wood casework in accordance with AWMAC AWS grade for respective items.
- .2 In case of conflict between Contract Documents and AWMAC AWS grade requirements, Contract Documents govern.
- .3 Install prefinished millwork at locations shown on drawings.
  - .1 Position accurately, level, plumb straight.
- .4 Fasten and anchor millwork securely.
  - .1 Supply and install heavy duty fixture attachments for wall mounted cabinets.
- .5 Countersink mechanical fasteners at exposed and semi-exposed surfaces, excluding installation attachment screws and screws securing cabinets end to end.
- .6 Use draw bolts in countertop joints.
- .7 Scribe and cut as required to fit abutting walls and to fit properly into recesses and to accommodate piping, columns, fixtures, outlets or other projecting, intersecting or penetrating objects.
- .8 At junction of plastic laminate counter and adjacent wall finish, apply small bead of sealant in accordance with Section 07 92 00 - Joint Sealants.
- .9 Fit hardware accurately and securely in accordance with manufacturer's written instructions.
- .10 Make cutouts for inset equipment and fixtures using templates provided.

**3.2 PROTECTION**

- .1 Protect from damage until final inspection.
- .2 Protect installed products and components from damage during construction.
- .3 Repair damage to adjacent materials caused by architectural woodwork installation.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCE STANDARDS**

- .1    CSA Group (CSA)
  - .1    CSA B111, Wire Nails, Spikes and Staples.
  - .2    CSA B149 PACKAGE, Consists of B149.1, Natural Gas and Propane Installation Code and B149.2, Propane Storage and Handling Code.
- .2    Underwriters Laboratories of Canada (ULC)
  - .1    CAN/ULC-S604, Standard for Factory-Built Type A Chimneys.
  - .2    CAN/ULC-S702, Standard for Mineral Fibre Insulation for Buildings.

**1.2                ACTION AND INFORMATIONAL SUBMITTALS**

- .1    Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2    Product Data:
  - .1    Submit manufacturer's instructions, printed product literature and data sheets for blanket insulation and include product characteristics, performance criteria, physical size, finish and limitations.

**1.3                DELIVERY, STORAGE AND HANDLING**

- .1    Deliver, store and handle materials in accordance with Section with manufacturer's written instructions.
- .2    Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3    Storage and Handling Requirements:
  - .1    Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2    Store and protect from nicks, scratches, and blemishes.
  - .3    Replace defective or damaged materials with new.

**Part 2            Products**

**2.1                INSULATION**

- .1    Acoustic batt insulation: Non-combustible, lightweight, semi-rigid stone wool batt insulation to CAN/ULC-S702.
  - .1    Type: 1.
  - .2    Thickness: to match depth of wall cavity.

**2.2                ACCESSORIES**

- .1    Insulation clips:



- .1 Impale type, perforated 50 x 50 mm cold rolled carbon steel 0.8 mm thick, adhesive back, spindle of 2.5 mm diameter annealed steel, length to suit insulation, 25 mm diameter washers of self locking type.
- .2 Nails: galvanized steel, length to suit insulation plus 25 mm, to CSA B111.
- .3 Staples: 12 mm minimum leg.
- .4 Tape: as recommended by manufacturer.

### **Part 3 Execution**

#### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for blanket insulation application in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied.

#### **3.2 INSULATION INSTALLATION**

- .1 Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.
- .2 Do not compress insulation to fit into spaces.
- .3 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures, and minimum 50 mm from sidewalls of CAN/ULC-S604 Type A chimneys and CSA B149.1 and CSA B149.2 vents.
- .4 Do not enclose insulation until it has been inspected and approved by Departmental Representative.

#### **3.3 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCE STANDARDS**

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-19.13, Sealing Compound, One-component, Elastomeric, Chemical Curing.
  - .2 CAN/CGSB-19.17, One-Component Acrylic Emulsion Base Sealing Compound.

**1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for joint sealants and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Manufacturer's product to describe:
    - .1 Caulking compound.
    - .2 Primers.
    - .3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.
  - .3 Manufacturer's Instructions:
    - .1 Submit instructions to include installation instructions for each product used.

**1.3 CLOSEOUT SUBMITTALS**

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for incorporation into manual.

**1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

**1.5 SITE CONDITIONS**

- .1 Ambient Conditions:

- .1 Proceed with installation of joint sealants only when:
  - .1 Ambient and substrate temperature conditions are within limits permitted by joint sealant manufacturer or are above 4.4 degrees C.
  - .2 Joint substrates are dry.
  - .3 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.
- .2 Joint-Width Conditions:
  - .1 Proceed with installation of joint sealants only where joint widths are more than those allowed by joint sealant manufacturer for applications indicated.
- .3 Joint-Substrate Conditions:
  - .1 Proceed with installation of joint sealants only after contaminants capable of interfering with adhesion are removed from joint substrates.

## **1.6 ENVIRONMENTAL 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 Safety Data Sheets (SDS) acceptable to Health Canada.
- .2 Departmental Representative will arrange for ventilation system to be operated on maximum outdoor air and exhaust during installation of caulking and sealants.

## **Part 2 Products**

### **2.1 SEALANT MATERIALS**

- .1 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.
- .2 When low toxicity caulks are not possible, confine usage to areas which off gas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off gas time.
- .3 Where sealants are qualified with primers use only these primers.

### **2.2 SEALANT MATERIAL DESIGNATIONS**

- .1 (Type 1) Urethanes one part:
  - .1 Self-levelling: to CAN/CGSB-19.13, Type 1, colour selected by Departmental Representative from full colour range
- .2 (Type 2) Silicones one part: to CAN/CGSB-19.13.
- .3 (Type 3) Acrylic latex one part: to CAN/CGSB-19.17.
- .4 Preformed compressible and non-compressible back-up materials:
  - .1 Polyethylene, urethane, neoprene or vinyl foam:
    - .1 Extruded closed cell foam backer rod.

- .2 Size: oversize 30 to 50 %.
- .2 Neoprene or butyl rubber:
  - .1 Round solid rod, Shore A hardness 70.
- .3 High density foam:
  - .1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m<sup>3</sup> density, or neoprene foam backer, size as recommended by manufacturer.
- .4 Bond breaker tape:
  - .1 Polyethylene bond breaker tape which will not bond to sealant.

### **2.3 SEALANT SELECTION**

- .1 Perimeters of exterior openings where frames meet exterior facade of building (i.e. brick, block, precast masonry): sealant type: Type 1.
- .2 Seal interior perimeters of exterior openings as detailed on drawings: sealant type: Type 2.
- .3 Perimeters of interior frames, as detailed and itemized: sealant type: Type 3.
- .4 Perimeter of bath fixtures (e.g. sinks, tubs, urinals, stools, water closets, basins, vanities): sealant type: Type 2.

### **2.4 JOINT CLEANER**

- .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant in accordance with sealant manufacturer's written recommendations.
- .2 Primer: in accordance with sealant manufacturer's written recommendations.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for joint sealants installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied.

### **3.2 SURFACE PREPARATION**

- .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.

### **3.3 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.

### **3.4 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 approximately 30% compression.

### **3.5 MIXING**

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

### **3.6 APPLICATION**

- .1 Sealant:
  - .1 Apply sealant in accordance with manufacturer's written instructions.
  - .2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
  - .3 Apply sealant in continuous beads.
  - .4 Apply sealant using gun with proper size nozzle.
  - .5 Use sufficient pressure to fill voids and joints solid.
  - .6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
  - .7 Tool exposed surfaces before skinning begins to give slightly concave shape.
  - .8 Remove excess compound promptly as work progresses and upon completion.
- .2 Curing:
  - .1 Cure sealants in accordance with sealant manufacturer's instructions.
  - .2 Do not cover up sealants until proper curing has taken place.

### **3.7 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .2 Clean adjacent surfaces immediately.
  - .3 Remove excess and droppings, using recommended cleaners as work progresses.

- .4 Remove masking tape after initial set of sealant.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.

**3.8 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by joint sealants installation.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCE STANDARDS**

- .1 ASTM International (ASTM)
  - .1 ASTM A653/A653M, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-1.181, Ready-Mixed Organic Zinc-Rich Coating.
  - .2 CGSB 41-GP-19Ma, Rigid Vinyl Extrusions for Windows and Doors.
- .3 CSA Group (CSA)
  - .1 CSA-G40.20 /G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .2 CSA W59, Welded Steel Construction (Metal Arc Welding).
- .4 Canadian Steel Door Manufacturers' Association (CSDMA)
  - .1 CSDMA, Recommended Specifications for Commercial Steel Doors and Frames.
  - .2 CSDMA, Selection and Usage Guide for Commercial Steel Doors.
- .5 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN/ULC-S704, Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.

**1.2 SYSTEM DESCRIPTION**

- .1 Design Requirements:
  - .1 Design exterior frame assembly to accommodate to expansion and contraction when subjected to minimum and maximum surface temperature of -35 degrees C to 35 degrees C.
  - .2 Maximum deflection for exterior steel entrance screens under wind load of 1.2 kPa not to exceed 1/175th of span.

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide product data: in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Provide shop drawings: in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
  - .2 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed, arrangement of hardware and finishes.
  - .3 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings, reinforcing, finishes.

- .4 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.
- .4 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.

#### **1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

### **Part 2 Products**

#### **2.1 MATERIALS**

- .1 Hot dipped galvanized steel sheet: to ASTM A653M, minimum base steel thickness in accordance with CSDMA Table 1 - Thickness for Component Parts.
- .2 Reinforcement: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653M.
- .3 Composites: balance of core materials in accordance with manufacturers' proprietary design.

#### **2.2 DOOR CORE MATERIALS**

- .1 Stiffened: face sheets laminated insulated core.
  - .1 Polyurethane: to CAN/ULC-S704 rigid, modified poly/isocyanurate, closed cell board. Density 32 kg/m<sup>3</sup>.

#### **2.3 ADHESIVES**

- .1 Polyurethane cores: heat resistant, epoxy resin based, low viscosity, contact cement.
- .2 Lock-seam doors: fire resistant, resin reinforced polychloroprene, high viscosity, sealant/adhesive.

#### **2.4 PRIMER**

- .1 Touch-up prime CAN/CGSB-1.181.

#### **2.5 PAINT**

- .1 Field paint steel doors and frames in accordance with Section 09 91 00.08 – Painting for Minor Works. Protect weatherstrips from paint. Provide final finish free of scratches or other blemishes.

#### **2.6 ACCESSORIES**

- .1 Door silencers: single stud rubber/neoprene type.
- .2 Exterior top and bottom caps: steel.
- .3 Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.



- .4 Door bottom seal: per Section 08 71 00 Door Hardware.
- .5 Metallic paste filler: to manufacturer's standard.
- .6 Sealant: per Section 07 92 00 Joint Sealants
- .7 Glazing: per Section 08 80 00 Glazing
- .8 Make provisions for glazing as indicated and provide necessary glazing stops.
  - .1 Design exterior glazing stops to be tamperproof.

## **2.7 FRAMES FABRICATION GENERAL**

- .1 Fabricate frames in accordance with CSDMA specifications.
- .2 Fabricate frames to profiles and maximum face sizes as indicated.
- .3 Exterior frames: 1.6 mm thermally broken type construction.
- .4 Blank, reinforce, drill and tap frames for mortised, templated hardware, using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.
- .5 Protect mortised cutouts with steel guard boxes.
- .6 Prepare frame for door silencers, 3 for single door, 2 at head for double door.
- .7 Manufacturer's nameplates on frames and screens are not permitted.
- .8 Conceal fastenings except where exposed fastenings are indicated.
- .9 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.
- .10 Insulate exterior frame components with polyurethane insulation.

## **2.8 FRAME ANCHORAGE**

- .1 Provide appropriate anchorage to floor and wall construction.
- .2 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.
- .3 Provide 2 anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.
- .4 Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm on centre maximum.

## **2.9 FRAMES: WELDED TYPE**

- .1 Welding in accordance with CSA W59.
- .2 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.
- .3 Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.
- .4 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.

- .5 Securely attach floor anchors to inside of each jamb profile.
- .6 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.

## **2.10 DOOR FABRICATION GENERAL**

- .1 Doors: swing type, flush, with provision for glass and/or louvre openings as indicated.
- .2 Exterior doors: hollow steel construction.
- .3 Fabricate doors with longitudinal edges locked seam. Seams: visible.
- .4 Doors: manufacturers' proprietary construction, tested and/or engineered as part of a fully operable assembly, including door, frame, gasketing and hardware in accordance with ASTM E330.
- .5 Blank, reinforce, drill doors and tap for mortised, templated hardware.
- .6 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.
- .7 Reinforce doors where required, for surface mounted hardware. Provide flush top caps to exterior doors. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.
- .8 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.

## **2.11 HOLLOW STEEL CONSTRUCTION**

- .1 Form face sheets for exterior doors from 1.2 mm sheet steel.
- .2 Reinforce doors with vertical stiffeners, securely laminated to face sheets at 150 mm on centre maximum.
- .3 Fill voids between stiffeners of exterior doors with polyurethane core.

## **2.12 THERMALLY BROKEN DOORS AND FRAMES**

- .1 Fabricate thermally broken doors by using insulated core and separating exterior parts from interior parts with continuous interlocking thermal break.
- .2 Thermal break: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma.
- .3 Fabricate thermally broken frames separating exterior parts from interior parts with continuous interlocking thermal break.
- .4 Apply insulation.

## **Part 3 Execution**

### **3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

**3.2 INSTALLATION GENERAL**

- .1 Install doors and frames to CSDMA Installation Guide.

**3.3 FRAME INSTALLATION**

- .1 Set frames plumb, square, level and at correct elevation.
- .2 Secure anchorages and connections to adjacent construction.
- .3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built-in.
- .4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.
- .5 Caulk perimeter of frames between frame and adjacent material.
- .6 Maintain continuity of air barrier.

**3.4 DOOR INSTALLATION**

- .1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08 71 00 - Doors Hardware.
- .2 Provide even margins between doors and jambs and doors and finished floor and thresholds as follows.
  - .1 Hinge side: 1.0 mm.
  - .2 Latchside and head: 1.5 mm.
  - .3 Finished floor, and thresholds: 13 mm.
- .3 Adjust operable parts for correct function.

**3.5 FINISH REPAIRS**

- .1 Touch up with primer finishes damaged during installation.
- .2 Fill exposed frame anchors surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

**3.6 GLAZING**

- .1 Install glazing for doors in accordance with Section 08 80 00 - Glazing.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCE STANDARDS**

- .1 Architectural Woodwork Manufacturers Association of Canada (AWMAC).
  - .1 Quality Standards for Architectural Woodwork.
- .2 Canadian General Standards Board (CGSB).
  - .1 CAN/CGSB-71.19, Adhesive, Contact, Sprayable.
  - .2 CAN/CGSB-71.20, Adhesive, Contact, Brushable.
- .3 CSA Group (CSA)
  - .1 CSA A440.2, Energy Performance of Windows and Other Fenestration Systems.
  - .2 CSA O115, Hardwood and Decorative Plywood.
  - .3 CAN/CSA O132.2 Series, Wood Flush Doors.
  - .4 CAN/CSA-O132.5, Stile and Rail Wood Doors.
  - .5 CAN/CSA-Z808, A Sustainable Forest Management System: Guidance Document.
  - .6 CSA Certification Program for Windows and Doors.

**1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Shop Drawings:
  - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Indicate door types and cutouts for lights, sizes, core construction, transom panel construction and cutouts.

**Part 2 Products**

**2.1 WOOD FLUSH DOORS**

- .1 Solid core: to CAN/CSA-O132.2.1.
  - .1 Construction:
    - .1 Door D-08: Solid particleboard core: stile and rail frame bonded to particleboard core with wood lock blocks, 5-ply construction.
  - .2 Face Panels:
    - .1 Door D-08 Hardwood; veneer grades: Grade I (Premium), Birch species.
  - .1 Adhesive:
    - .1 Door D-08: Type I (waterproof) for interior doors.

**2.2 GLAZING**

- .1 Glass:
  - .1 Door D-08: 6mm tempered glass – Refer to Section 08 80 00 Glazing.

**2.3 FABRICATION**

- .1 Vertical edge strips to match face veneer.
- .2 Prepare doors for glazing. Provide glazing stops to match face veneer with mitred corners.
- .3 Bevel vertical edges of single acting doors 3 mm in 50 mm on lock side and 1.5 mm in 50 mm on hinge side.

**Part 3 Execution**

**3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

**3.2 INSTALLATION**

- .1 Unwrap and protect doors in accordance with CAN/CSA-O132.2 Series, Appendix A.
- .2 Install doors and hardware in accordance with manufacturer's printed instructions and CAN/CSA-O132.2 Series, Appendix A.
- .3 Adjust hardware for correct function.
- .4 Install glazing in accordance with Section 08 80 00 - Glazing.
- .5 Install stops.

**3.3 ADJUSTMENT**

- .1 Re-adjust doors and hardware just prior to completion of building to function freely and properly.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCE STANDARDS**

- .1 American National Standards Institute (ANSI)/Builders Hardware Manufacturers Association (BHMA)
  - .1 ANSI/BHMA A156.1, American National Standard for Butts and Hinges.
  - .2 ANSI/BHMA A156.2, Bored and Preassembled Locks and Latches.
  - .3 ANSI/BHMA A156.6, Architectural Door Trim.
  - .4 ANSI/BHMA A156.16, Auxiliary Hardware.
  - .5 ANSI/BHMA A156.18, Materials and Finishes.
  - .6 ANSI/BHMA A156.19, Power Assist and Low Energy Power - Operated Doors.
- .2 Canadian Steel Door and Frame Manufacturers' Association (CSDMA)
  - .1 CSDMA Recommended Dimensional Standards for Commercial Steel Doors and Frames - 2009.

**1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for door hardware and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Hardware List:
  - .1 Submit contract hardware list.
  - .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.

**1.3 CLOSEOUT SUBMITTALS**

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for incorporation into manual.

**Part 2 Products**

**2.1 HARDWARE ITEMS**

- .1 Use one manufacturer's products only for similar items.

**2.2 DOOR HARDWARE**

- .1 Locks and latches:

- .1 Bored and preassembled locks and latches: to ANSI/BHMA A156.2, series 4000 bored lock, grade 1, designed for function and keyed as stated in Hardware Schedule.
- .2 Lever handles: plain design.
- .3 Roses: round.
- .4 Normal strikes: box type, lip projection not beyond jamb.
- .5 Cylinders: key into keying system as directed.
- .6 Finished to 626, satin chrome.
- .2 Butts and hinges:
  - .1 Butts and hinges: to ANSI/BHMA A156.1, designated by letter A and numeral identifiers, followed by size and finish, listed in Hardware Schedule.
  - .2 Swing Clear (Offset) hinges: to ANSI A156.7 and ANSI A117.1, designated by letter A and numeral identifiers, followed by size and finish, listed in Hardware Schedule.
- .3 Door Operators:
  - .1 Power assist and low energy power operated doors: to ANSI/BHMA A156.19.
- .4 Door Operator push plates:
  - .1 150mm x 914mm, stainless steel
  - .2 Basis of Design: Camden CM-75 series
- .5 Architectural door trim: to ANSI/BHMA A156.6, as listed below.
  - .1 Door protection plates: kick plate stainless steel, 150 x 860mm, finished to 304.
- .6 Auxiliary hardware: to ANSI/BHMA A156.16, as listed below, designated by letter L and numeral identifiers
  - .1 Stop: floor mounted: type L02141, finished to 626.
- .7 Door bottom seal: door seal of extruded aluminum frame and closed cell neoprene weather seal, recessed in door bottom, closed ends, clear anodized finish.
- .8 Thresholds: 102mm wide x full width of door opening, extruded aluminum mill finish, serrated surface, with thermal break of rigid PVC, vinyl door seal insert.
- .9 Weatherstripping:
  - .1 Head and jamb seal:
    - .1 Extruded aluminum frame and vinyl or closed cell neoprene insert, clear anodized finish.
    - .2 Adhesive backed vinyl covered foam or neoprene material.
  - .2 Door bottom seal:
    - .1 Extruded aluminum frame and nylon brush sweep, clear anodized finish.

## 2.3 FASTENINGS

- .1 Use only fasteners provided by manufacturer. Failure to comply may void warranties and applicable licensed labels.

- .2 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.
- .3 Exposed fastening devices to match finish of hardware.
- .4 Where pull is scheduled on one side of door and push plate on other side, supply fastening devices, and install so pull can be secured through door from reverse side. Install push plate to cover fasteners.
- .5 Use fasteners compatible with material through which they pass.

#### **2.4 KEYING**

- .1 Doors to be master keyed. Prepare detailed keying schedule in conjunction with Departmental Representative.
- .2 Supply keys in duplicate for every lock in this Contract.
- .3 Supply 3 master keys for each master key or grand master key group.
- .4 Stamp keying code numbers on keys and cylinders.
- .5 Supply construction cores.
- .6 Hand over permanent cores and keys to Departmental Representative.

### **Part 3 Execution**

#### **3.1 INSTALLATION**

- .1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .2 Supply metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
- .3 Supply manufacturers' instructions for proper installation of each hardware component.
- .4 Install hardware to standard hardware location dimensions in accordance with CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction).
- .5 Where door stop contacts door pulls, mount stop to strike bottom of pull.
- .6 Install key control cabinet.
- .7 Use only manufacturer's supplied fasteners.
  - .1 Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.
- .8 Remove construction cores when directed by Departmental Representative.
  - .1 Install permanent cores and ensure locks operate correctly.

#### **3.2 ADJUSTING**

- .1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.



- .2 Lubricate hardware, operating equipment and other moving parts.
- .3 Adjust door hardware to ensure tight fit at contact points with frames.

### **3.3 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by door hardware installation.

### **3.4 SCHEDULE**

- .1 Door D-01
  - .1 1.5 pair hinges A5111, Non-Removable Pin (NRP), Ball bearing hinges, 114 x 101 mm 630.
  - .2 1 storeroom lock F86
  - .3 1 low energy power door operator
  - .4 1 kick plate (interior side)
  - .5 1 door bottom seal
  - .6 1 threshold.
  - .7 Weatherstripping
  - .8 2 Door operator push plates
  - .9 1 Electric strike to ANSI/BHMA A156.31
  - .10 1 Electric strike latch protector plate
- .2 Doors D-02, D-03, D-04, D-06:
  - .1 1-1/2 pair Swing Clear (offset) hinges, A5121, 114.3mm, 630 or 619 finish, ball bearing hinges
- .3 Door D-07
  - .1 Deadbolt cover plate, 67mm dia, stainless steel.
- .4 Door D-08
  - .1 1.5 pair hinges A5111, Ball bearing hinges, 114 x 101 mm 630.
  - .2 1 office lock F82

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCE STANDARDS**

- .1 ASTM International
  - .1 ASTM C542, Standard Specification for Lock-Strip Gaskets.
  - .2 ASTM D2240, Standard Test Method for Rubber Property - Durometer Hardness.
  - .3 ASTM E330, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-12.1, Tempered or Laminated Safety Glass.
  - .2 CAN/CGSB-12.4, Heat Absorbing Glass.
  - .3 CAN/CGSB-12.8, Insulating Glass Units.
  - .4 CAN/CGSB-12.8 (Amendment), Insulating Glass Units.
  - .5 CAN/CGSB-12.10, Glass, Light and Heat Reflecting.
- .3 Glass Association of North American (GANA)
  - .1 GANA Glazing Manual.

**1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for glass, sealants, and glazing accessories and include product characteristics, performance criteria, physical size, finish and limitations.

**1.3 CLOSEOUT SUBMITTALS**

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

**1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect glazing and frames from nicks, scratches, and blemishes.
  - .3 Protect prefinished aluminum surfaces with strippable coating.

- .4 Replace defective or damaged materials with new.

## 1.5 AMBIENT CONDITIONS

- .1 Ambient Requirements:
  - .1 Install glazing when ambient temperature is 10 degrees C minimum. Maintain ventilated environment for 24 hours after application.
  - .2 Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

## Part 2 Products

### 2.1 MATERIALS

- .1 Design Criteria:
  - .1 Ensure continuity of building enclosure vapour and air barrier using glass and glazing materials as follow:
    - .1 Utilize inner light of multiple light sealed units for continuity of air and vapour seal.
    - .2 Size glass to withstand wind loads, dead loads and positive and negative live loads to ASTM E330.
    - .3 Limit glass deflection to flexural limit of glass with full recovery of glazing materials.
  - .2 Flat Glass:
    - .1 Safety glass: to CAN/CGSB-12.1, transparent, 6 mm thick.
      - .1 Type 2-tempered.
      - .2 Class B-float.
      - .3 Category II
  - .3 Insulating Glass Units:
    - .1 Insulating glass units: to CAN/CGSB-12.8, double unit, 25 mm overall thickness.
      - .1 Glass: to CAN/CGSB-12.10 (inner light) and CAN/CGSB-12.4 (outer light).
      - .2 Glass thickness: 6 mm each light.
      - .3 Inter-cavity space thickness: with low conductivity spacers 13mm.
      - .4 Glass coating: surface number 3, low "E".
      - .5 Inert gas fill: argon.
  - .4 Plastic Film: in accordance with Section 08 87 23.16 - Security Films.
  - .5 Sealant: in accordance with Section 07 92 00 - Joint Sealants.

### 2.2 ACCESSORIES

- .1 Setting blocks: neoprene, 80-90 Shore A durometer hardness to ASTM D2240, to suit glazing method, glass light weight and area, minimum 100 mm x width of glazing rabbet space minus 1.5 mm x height.

- .2 Spacer shims: neoprene, 50-60 Shore A durometer hardness to ASTM D2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.
- .3 Glazing tape:
  - .1 Preformed butyl compound with integral resilient tube spacing device, 10-15 Shore A durometer hardness to ASTM D2240; coiled on release paper; sized to suit; black colour.
- .4 Glazing clips: manufacturer's standard type.
- .5 Lock-strip gaskets: to ASTM C542.

### **Part 3 Execution**

#### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for glazing installation in accordance with manufacturer's written instructions.
  - .1 Verify that openings for glazing are correctly sized and within tolerance.
  - .2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.
  - .3 Visually inspect substrate.
  - .4 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .5 Proceed with installation only after unacceptable conditions have been remedied.

#### **3.2 PREPARATION**

- .1 Clean contact surfaces with solvent and wipe dry.
- .2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- .3 Prime surfaces scheduled to receive sealant.

#### **3.3 INSTALLATION: EXTERIOR WET/DRY METHOD (PREFORMED TAPE AND SEALANT)**

- .1 Perform work in accordance with GANA Glazing Manual for glazing installation methods.
- .2 Cut glazing tape to length and set against permanent stops, 6 mm below sight line. Seal corners by butting tape and dabbing with sealant.
- .3 Apply heel bead of sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete continuity of air and vapour seal.
- .4 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.
- .5 Rest glazing on setting blocks and push against tape and heel head of sealant with sufficient pressure to attain full contact at perimeter of light or glass unit.

- .6 Install removable stops with spacer strips inserted between glazing and applied stops 6 mm below sight line. Place glazing tape on glazing light or unit with tape 6mm below sight line.
- .7 Fill gap between glazing and stop with sealant to depth equal to bite of frame on glazing, maximum 9 mm below sight line.
- .8 Apply cap head of sealant along void between stop and glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

### **3.4 INSTALLATION: INTERIOR - DRY METHOD (TAPE AND TAPE)**

- .1 Perform work in accordance with GANA Glazing Manual for glazing installation methods.
- .2 Cut glazing tape to length and set against permanent stops, projecting 1.6 mm above sight line.
- .3 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.
- .4 Rest glazing on setting blocks and push against tape for full contact at perimeter of light or unit.
- .5 Place glazing tape on free perimeter of glazing in same manner described.
- .6 Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
- .7 Knife trim protruding tape.

### **3.5 INSTALLATION: MIRRORS**

- .1 Set mirrors with adhesive, applied in accordance with adhesive manufacturer's instructions.
- .2 Set mirrors with clips. Anchor rigidly to wall construction.
- .3 Set in frame.
- .4 Place plumb and level.

### **3.6 INSTALLATION: PLASTIC FILM**

- .1 Install plastic film with adhesive, applied in accordance with film manufacturer's instructions.
- .2 Place without air bubbles, creases or visible distortion.
- .3 Fit tight to glass perimeter with razor cut edge.

### **3.7 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
  - .1 Leave Work area clean at end of each day.
    - .1 Remove traces of primer, caulking.
    - .2 Remove glazing materials from finish surfaces.
    - .3 Remove labels.

- .4 Clean glass and mirrors using approved non-abrasive cleaner in accordance with manufacturer's instructions.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.

**3.8 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 After installation, mark each light with an "X" by using removable plastic tape or paste.
  - .1 Do not mark heat absorbing or reflective glass units.
- .3 Repair damage to adjacent materials caused by glazing installation.

**END OF SECTION**

**Part 1        General**

**1.1            SUMMARY**

- .1 Section Includes:
  - .1 Security and safety film placed on glass surfaces for increased security protection.

**1.2            REFERENCE STANDARDS**

- .1 American National Standards Institute (ANSI)
  - .1 ANSI Z97.1, Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test.
- .2 International Window Film Association (IWFA)
  - .1 IWFA Visual Quality Standard for Applied Window Film.
- .3 Consumer Product Safety Commission Publications (CPSC)/Code of Federal Regulations (CFR)
  - .1 CPSC, 16 CFR 1201 CAT II.
- .4 Government of Canada
  - .1 Canada Labour Code, WHMIS datasheets.
- .5 Underwriters laboratories of Canada (ULC)
  - .1 ULC-S332, Standard for Burglary Resisting Material.

**1.3            DEFINITIONS**

- .1 Safety: reduction of risk of injury, loss or death of persons due to accidental, natural or unintentional causes.
- .2 Security: reduction of risk of injury, loss or death of persons due to intentional actions of others.
- .3 Security and Safety Film Types:
  - .1 Type 1 Safety: areas of concern related to common residential or light commercial accidents.
  - .2 Type 2 Safety/Security/Seismic: areas of concern related to seismographic upgrade, low end smash and grab break and entry and over pressure due to violent weather.
  - .3 Type 3 Security/Blast: areas of concern related to bomb blasts.

**1.4            ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit shop drawings and product data in accordance with Section 01 33 00 - Submittal Procedures.

- .3 Submit Closeout Submittals in accordance with Section 01 78 00 - Closeout Submittals.
  - .1 Provide operation and maintenance data for window film for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
  - .2 Follow manufacturers written instructions for care and maintenance of security and safety film.
  - .3 Use only cleaning solution recommended by manufacturer for regularly scheduled cleaning of security film.

## **1.5 QUALITY ASSURANCE**

- .1 Health and Safety:
  - .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.
  - .2 Comply with requirements of WHMIS regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Safety Data Sheets acceptable to Canada Labour Code.

## **1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with section 01 61 00 - Common Product Requirements.
- .2 Provide and maintain dry, off-ground weatherproof storage.
- .3 Store rolls of film flat on cross supports. Do not stand rolls of film on end.
- .4 Remove from storage, in quantities required for same day use.
- .5 Store materials in accordance with manufacturers written instructions.

## **1.7 WARRANTY**

- .1 Work of this Section 08 87 23.16 - Security Films 12 months warranty period prescribed in subsection GC 32.1 of General Conditions "C" is extended to 10 years.
- .2 Ensure warranty includes items as follows:
  - .1 Maintaining adhesion properties without blistering, bubbling or delaminating from glass surface.
  - .2 Maintaining appearance without discolouration.
  - .3 Removing, replace and reapply defective materials.
  - .4 In event of product failure under warranty terms, remove and re-apply film without glass replacement at no cost to Departmental Representative.

## **1.8 MAINTENANCE DATA**

- .1 Provide operation and maintenance data for window film for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.



**Part 2 Products**

**2.1 MATERIALS**

- .1 Security Film - General: optically clear polyester film, abrasion resistant coating and release liner.
  - .1 Type 2 Safety/Security/Seismic Film:
    - .1 Testing in accordance with ANSI Z97.1, CPSC 16 CFR 1201 CAT II, and ULC - S332.

**2.2 FABRICATION**

- .1 Shop installation of security film to glass panels:
  - .1 Ensure dust, grease, and chemical residue are removed from surface of glass before installation of film.
  - .2 Examine glass under natural daylight and identify cracks, blisters, bubbles, discolouration, edge defects or other anomalies that may cause film to delaminate, or cause vision transparency or distortion problems.
  - .3 View glass from 2.0 m minimum. Report findings to Departmental Representative.
  - .4 Proceed with Work only after receipt of written approval from Departmental Representative.
    - .1 Install security film to glass panels ensuring no blisters, bubbles, scratches, edge defects or distortions.
    - .2 Cut film edges straight and square to within 3 mm of edge of panel.
    - .3 Deliver glass panels complete with security film installed and labels intact and legible to site in accordance with section 01 61 00 - Basic Product Requirements.

**Part 3 Execution**

**3.1 PREPARATION**

- .1 Clean glass before beginning installation using neutral cleaning solution.
- .2 Ensure no deleterious material adheres to glass by scraping surface of glass using industrial razors.
- .3 Ensure dust, grease, and chemical residue are removed from surface of glass before installation of film.
- .4 Examine glass under natural daylight and identify cracks, blisters, bubbles, discolouration, edge defects or other anomalies that may cause film to delaminate or cause vision transparency or distortion problems. Report findings to Departmental Representative.
- .5 Proceed with Work only after receipt of written approval from Departmental Representative.

- .6 Before beginning Work, place absorbent material at sash frame to absorb moisture accumulation generated by film application.

### **3.2 INSTALLATION**

- .1 Field Installation of Security Film to Glass Windows:
  - .1 Install film in the same manner as tested.
  - .2 Remove any window stops and window sealing device.
  - .3 Ensure no deleterious material adheres to glass by scraping surface of glass using industrial razors.
  - .4 Ensure dust, grease, and chemical residue are removed from surface of glass before installation of film.
  - .5 Examine glass under natural daylight and identify cracks, blisters, bubbles, discolouration, edge defects or other anomalies that may cause film to delaminate, or cause vision transparency or distortion problems. Report findings to Departmental Representative before starting Work.
  - .6 Proceed with Work only after receipt of written approval from Departmental Representative.
  - .7 Install security film to glass windows ensuring no blisters, bubbles, scratches or distortions.
- .2 Cut film edges straight and square.
- .3 Ensure film is installed behind window stops.
- .4 Cut edges in accordance with manufacturers written instructions.
- .5 Apply and attach film to glass in accordance with manufacturer's written instructions.
- .6 Splicing:
  - .1 Splice film only when glass is greater in width than film.
  - .2 Splice film only after receipt of written approval from Departmental Representative.
  - .3 Use overlapped factory edges only.
  - .4 Ensure maximum overlap of 3 mm.
- .7 Use only water and film slip solution on glass to facilitate positioning of film.
- .8 Ensure removal of excess water from between film and glass.
- .9 Remove left over material from work area and return work area to original condition.

### **3.3 INSTALLER'S INSPECTION**

- .1 Visual Inspection: in accordance with IWFA - Visual Quality Standard for Applied Window Film.
- .2 Remove and replace film that continues to show blisters, bubbles, tears, scratches, edge defects or vision distortion in film when viewed under natural daylight from 2.0m minimum after 30 day period.

- .3 Remove and replace without glass replacement, film that continues to show blisters, bubbles, tears, scratches, edge defects or vision distortion in film when viewed under natural daylight from 2.0 m minimum after 30 day period.

**3.4 FINAL CLEANING**

- .1 Wash interior and exterior of each window and film using cleaning solution recommended by film manufacturer.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCE STANDARDS**

- .1    ASTM International (ASTM)
  - .1    ASTM C1396/C1396M, Standard Specification for Gypsum Wallboard.
  - .2    ASTM C475/C475M, Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
  - .3    ASTM C645, Standard Specification for Nonstructural Steel Framing Members.
  - .4    ASTM C754, Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
  - .5    ASTM C840, Standard Specification for Application and Finishing of Gypsum Board.
  - .6    ASTM C954, Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.122 in. (2.84 mm) in Thickness.
  - .7    ASTM C1047, Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.

**1.2                ACTION AND INFORMATIONAL SUBMITTALS**

- .1    Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2    Product Data:
  - .1    Submit manufacturer's instructions, printed product literature and data sheets for gypsum, framing, sealants and include product characteristics, performance criteria, physical size, finish and limitations.

**Part 2            Products**

**2.1                MATERIALS**

- .1    Non-structural Metal Framing:
  - .1    Non-load bearing channel stud framing: to ASTM C645, stud size as indicated, roll formed from 0.53 mm thickness hot dipped galvanized steel sheet, for screw attachment of gypsum board. Knock-out service holes at 460 mm centres.
  - .2    Floor and ceiling tracks: to ASTM C645, in widths to suit stud sizes, 32 mm flange height.
- .2    Gypsum Board:
  - .1    Standard board: to ASTM C1396/C1396M regular, 13mm thick, 1200 mm wide x maximum practical length, ends square cut, edges tapered.
  - .2    Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
  - .3    Steel drill screws: to ASTM C954.

- .4 Casing beads, corner beads, control joints and edge trim: to ASTM C1047, metal, 0.5 mm base thickness, perforated flanges, one piece length per location.

## **2.2 ACCESSORIES**

- .1 Acoustical insulation: type recommended by manufacturer to achieve STC rating specified.
- .2 Sealants: to ASTM C475
- .3 Insulating strip: rubberized, moisture resistant, 3 mm thick closed cell neoprene strip, 12 mm wide, with self sticking permanent adhesive on one face, lengths as required.
- .4 Z- shape Shadow Bead: 13mm x 13mm x 29mm, aluminum, clear anodized finish.

## **Part 3 Execution**

### **3.1 ERECTION OF FRAMING**

- .1 Install steel framing members to receive screw-attached gypsum board in accordance with ASTM C754 except where specified otherwise.
- .2 Align partition tracks at floor and ceiling and secure at 610 mm on centre maximum.
- .3 Place studs vertically at 400 mm on centre and maximum of 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 as required to provide rigid installation to manufacturer's instructions.
- .4 Erect metal studding to tolerance of 1:1000.
- .5 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
- .6 Include two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together, 50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.
- .7 Install heavy gauge single jamb studs at openings.
- .8 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.
- .9 Include 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.
- .10 Install steel studs or furring channel between studs for attaching electrical and other boxes.
- .11 Extend partitions to ceiling height except where indicated.
- .12 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use double track slip joint.
- .13 Install continuous insulating strips to isolate studs from uninsulated surfaces.

- .14 Install insulating strip under studs and tracks around perimeter of sound control partitions.

### **3.2 ERECTION OF GYPSUM BOARD AND ACCESSORIES**

- .1 Do application and finishing of gypsum board in accordance with ASTM C840 except where specified otherwise.
- .2 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840 except where specified otherwise.
- .3 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 610 mm around perimeter of fixture.
- .4 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles.
- .5 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.
- .6 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
- .7 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.
- .8 Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.
- .9 Install acoustical insulation.
- .10 Install gypsum boards in direction that will minimize number of end-butt joints. Stagger end joints 250 mm minimum.

### **3.3 APPLICATION**

- .1 Apply gypsum board after bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.
- .2 Apply single layer gypsum board to metal furring or framing using screw fasteners. Maximum spacing of screws 300 mm on centre.

### **3.4 INSTALLATION**

- .1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure using contact adhesive for full length.
- .2 Install casing beads around perimeter of suspended ceilings.
- .3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.
- .4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.
- .5 Install access doors to electrical and mechanical fixtures specified in respective sections.
  - .1 Rigidly secure frames to furring or framing systems.

- .6 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.
- .7 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.
- .8 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.
- .9 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCE STANDARDS**

- .1    ASTM International
  - .1    ASTM F1303, Standard Specification for Sheet Vinyl Floor Covering with Backing.

**1.2                ACTION AND INFORMATIONAL SUBMITTALS**

- .1    Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2    Product Data:
  - .1    Submit manufacturer's instructions, printed product literature and data sheets for resilient sheet flooring and include product characteristics, performance criteria, physical size, finish and limitations.
- .3    Samples:
  - .1    Submit duplicate 300 x 300 mm sample pieces of sheet material, 300 mm long edge strips, base.

**1.3                SITE CONDITIONS**

- .1    Ambient Conditions:
  - .1    Maintain air temperature and structural base temperature at flooring installation area above 20 degrees for 48 hours before, during and 48 hours after installation.

**Part 2            Products**

**2.1                MATERIALS**

- .1    Linoleum sheet flooring: composed of natural ingredients which are mixed and calendered onto a jute backing:
  - .1    Pattern: marbleized.
  - .2    Thickness: 2.5 mm.
  - .3    Colour: selected by Departmental Representative.
- .2    Resilient base: continuous, top set, complete with pre-moulded end stops and external corners:
  - .1    Type: rubber.
  - .2    Style: cove.
  - .3    Thickness: 3.2 mm.
  - .4    Height: 101.6 mm.
  - .5    Lengths: cut lengths minimum 2400 mm.
  - .6    Colour: selected by Departmental Representative.



- .3 Primers and adhesives: of types recommended by resilient flooring manufacturer for specific material on applicable substrate, above, on or below grade.
- .4 Sub-floor filler and leveller: 2 part latex-type filler requiring no water as recommended by flooring manufacturer for use with their product.
- .5 Metal edge strips:
  - .1 Aluminum extruded, smooth, stainless steel with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.
- .6 External corner protectors: stainless steel, type recommended by flooring manufacturer.
- .7 Edging to floor penetrations: stainless steel type recommended by flooring manufacturer.
- .8 Sealer and wax: type recommended by resilient flooring material manufacturer for material type and location.

### **Part 3 Execution**

#### **3.1 SITE VERIFICATION OF CONDITIONS**

- .1 Ensure floors are clean and dry by using test methods recommended by flooring manufacturer.

#### **3.2 PREPARATION**

- .1 Remove existing resilient flooring.
- .2 Remove or treat old adhesives to prevent residual, old flooring adhesives from bleeding through to new flooring and/or interfering with the bonding of new adhesives.
- .3 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.
- .4 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.
- .5 Prime, seal plywood sub-floor to resilient flooring manufacturer's printed instructions.

#### **3.3 APPLICATION: FLOORING**

- .1 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. Maintain extra ventilation for at least 1 month following building occupation.
- .2 Apply adhesive uniformly using recommended trowel. Do not spread more adhesive than can be covered by flooring before initial set takes place.
- .3 Lay flooring with seams parallel to building lines to produce a minimum number of seams. Border widths minimum 1/3 width of full material.
- .4 Run sheets in direction of traffic. Double cut sheet joints and heat weld according to manufacturer's printed instructions.
- .5 Heat weld seams of linoleum sheet flooring in accordance with manufacturer's printed instructions.

- .6 As installation progresses, and after installation roll flooring with 45 kg minimum roller to ensure full adhesion.
- .7 Cut flooring around fixed objects.
- .8 Install feature strips and floor markings where indicated. Fit joints tightly.
- .9 Install flooring in pan type floor access covers. Maintain floor pattern.
- .10 Continue flooring over areas which will be under built-in furniture.
- .11 Continue flooring through areas to receive movable type partitions without interrupting floor pattern.
- .12 Terminate flooring at centreline of door in openings where adjacent floor finish or colour is dissimilar.
- .13 Install metal edge strips at unprotected or exposed edges where flooring terminates.

### **3.4 APPLICATION: 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.

### **3.5 PROTECTION**

- .1 Protect new floors from time of final set of adhesive until final waxing.
- .2 Prohibit traffic on floor for 48 hours after installation.
- .3 Use only water-based coating for linoleum.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCE STANDARDS**

- .1    Green Seal Environmental Standards (GS)
  - .1        GS-11, Paints and Coatings.
- .2    Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1        Safety Data Sheets (SDS).
- .3    The Master Painters Institute (MPI)
  - .1        Architectural Painting Specification Manual - current edition.
  - .2        Maintenance Repainting Manual - current edition.
- .4    National Research Council Canada (NRC)
  - .1        National Building Code of Canada [2015] (NBC).
- .5    NACE International
  - .1        NACE International
  - .2        ANSI/NACE No. 13/SSPC-ACS-1 -SG, Industrial Coating and Lining Application Specialist Qualification and Certification.

**1.2                DEFINITIONS**

- .1    Application Specialist: An individual who performs surface preparation and application of protective coatings and linings to steel and concrete surfaces of complex industrial structures.

**1.3                ACTION AND INFORMATIONAL SUBMITTALS**

- .1    Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2    Product Data:
  - .1        Submit manufacturer's instructions, printed product literature and data sheets for paint and coating products and include product characteristics, performance criteria, physical size, finish and limitations.
- .3    Samples:
  - .1        Submit for review and acceptance of each unit.
  - .2        Samples will be returned for inclusion into work.
  - .3        Submit two 200 x 305 mm sample panels of each clear coating, and stain with specified paint or coating in colours, gloss/sheen and textures required to MPI Painting Specification Manual standards.
- .4    Certificates:
  - .1        Submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

- .2 Submit certifications for Application Specialists to demonstrate compliance to the requirements of ANSI/NACE No.13.

#### **1.4 QUALIFICATIONS**

- .1 Ensure that specialists, who perform concrete and steel surfaces preparation and coating applications, are certified by a recognized Applicator Certification Agency, in accordance with NACE 13/SSPC ACS-I, Applicator Certification Standard (ACS).
- .2 Maintain a current and valid ACS certification during project period.
  - .1 Application specialists who perform surface preparation and coating application work on this project must have a current ACS.
- .3 Notify Departmental Representative of any change in application specialist certification status.
  - .1 Any delays to the completion of the Project due to invalid certifications will not be considered, and liquidated damages shall not be waived for any non-performance by Contractor.

#### **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Provide and maintain dry, temperature controlled, secure storage.
  - .2 Store painting materials and supplies away from heat generating devices.
  - .3 Store materials and equipment in well ventilated area within temperature as recommended by manufacturer.
- .4 Fire Safety Requirements:
  - .1 Supply one (1) fire extinguisher adjacent to storage area.
  - .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.
  - .3 Handle, store, use and dispose of flammable and combustible materials in accordance with National Fire Code of Canada (NFC) requirements.

#### **1.6 SITE CONDITIONS**

- .1 Heating, Ventilation and Lighting:
  - .1 Ventilate enclosed spaces.
  - .2 Coordinate use of existing ventilation system with Departmental Representative and ensure its operation during and after application of paint as required.
  - .3 Provide minimum lighting level of 323 Lux on surfaces to be painted.
- .2 Temperature, Humidity and Substrate Moisture Content Levels:

- .1 Apply paint finishes when ambient air and substrate temperatures at location of installation can be satisfactorily maintained during application and drying process, within MPI and paint manufacturer's prescribed limits.
  - .2 Test concrete, masonry and plaster surfaces for alkalinity as required.
  - .3 Apply paint to adequately prepared surfaces, when moisture content is below paint manufacturer's prescribed limits.
- .3 Additional application requirements:
- .1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.

**Part 2 Products**

**2.1 MATERIALS**

- .1 Supply paint materials for paint systems from single manufacturer.
- .2 Conform to latest MPI requirements for painting work including preparation and priming.
- .3 Materials in accordance with MPI - Maintenance Repainting Manual and MPI - Architectural Painting Specification Manual "Approved Product" listing.
- .4 Colours:
  - .1 Submit proposed Colour Schedule to Departmental Representative for review.
  - .2 Base colour schedule on selection of 5 base colours and 3 accent colours.
- .5 Mixing and tinting:
  - .1 Perform colour tinting operations prior to delivery of paint to site, in accordance with manufacturer's written recommendations. Obtain written approval from Departmental Representative for tinting of painting materials.
  - .2 Use and add thinner in accordance with paint manufacturer's recommendations.
    - .1 Do not use kerosene or similar organic solvents to thin water-based paints.
  - .3 Thin paint for spraying in accordance with paint manufacturer's written recommendations.
  - .4 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.
- .6 Gloss/sheen ratings:
  - .1 Paint gloss is defined as sheen rating of applied paint, in accordance with following values:

Gloss Level-Category	Gloss @ 60 degrees	Sheen @ 85 degrees
Gloss Level 1 - Matte Finish	Max. 5	Max. 10
Gloss Level 2 - Velvet	Max.10	10 to 35
Gloss Level 3 - Eggshell	10 to 25	10 to 35
Gloss Level 4 - Satin	20 to 35	min. 35
Gloss Level 5 - Semi-Gloss	35 to 70	
Gloss Level 6 - Gloss	70 to 85	

Gloss Level 7 - High Gloss	More than 85	
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- .2 Gloss level ratings of painted surfaces as indicated.
- .7 Exterior painting:
  - .1 Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).
    - .1 EXT 5.3C – Epoxy, gloss level 5 finish.
- .8 Interior painting:
  - .1 Dressed Lumber: doors, door and window frames, casings, mouldings, etc.:
    - .1 INT 6.3B - Alkyd gloss level 5 finish.
  - .2 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock" type material, etc.
    - .1 INT 9.2A – Latex gloss level 3 finish (over latex sealer).
- .9 Interior re-painting:
  - .1 Plaster and Gypsum Board: gypsum wallboard, drywall, "sheet rock" type material, etc.
    - .1 RIN 9.2A - Latex gloss level 3.
- .10 Wood paneling and casework: partitions, panels, shelving, millwork:
  - .1 INT 6.4D - Alkyd varnish insert gloss level 5 finish (over S.B. stain and shellac).

**Part 3 Execution**

**3.1 GENERAL**

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheets.
- .2 Perform preparation and operations for interior painting in accordance with MPI - Maintenance Repainting Manual and MPI - Architectural Painting Specifications Manual except where specified otherwise.

**3.2 EXAMINATION**

- .1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Departmental Representative damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.
- .2 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test". Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

**3.3 PREPARATION**

- .1 Protection of in-place conditions:

- .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Departmental Representative.
- .2 Protect items that are permanently attached such as Fire Labels on doors and frames.
- .3 Protect factory finished products and equipment.
- .2 Surface Preparation:
  - .1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.
  - .2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.
  - .3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of Departmental Representative.
  - .4 Clean and prepare surfaces in accordance with MPI - Maintenance Repainting Manual and MPI - Architectural Painting Specification Manual specific requirements and coating manufacturer's recommendations.
  - .5 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.
  - .6 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
    - .1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
    - .2 Apply wood filler to nail holes and cracks.
    - .3 Tint filler to match stains for stained woodwork.
  - .7 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.
  - .8 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements.
  - .9 Touch up of shop primers with primer as specified.

### 3.4 APPLICATION

- .1 Paint only after prepared surfaces have been accepted by Departmental Representative.
- .2 Use method of application approved by Departmental Representative.
  - .1 Conform to manufacturer's application recommendations.
- .3 Apply coats of paint in continuous film of uniform thickness.
  - .1 Repaint thin spots or bare areas before next coat of paint is applied.
- .4 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

- .5 Sand and dust between coats to remove visible defects.
- .6 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.
- .7 Finish inside of cupboards and cabinets as specified for outside surfaces.
- .8 Finish closets and alcoves as specified for adjoining rooms.
- .9 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.
- .10 Mechanical/Electrical Equipment:
  - .1 Paint conduits, piping, hangers, ductwork and other mechanical and electrical equipment exposed in finished areas, to match adjacent surfaces, except as indicated.
  - .2 Do not paint over nameplates.
  - .3 Keep sprinkler heads free of paint.
  - .4 Paint fire protection piping red.
  - .5 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
  - .6 Paint natural gas piping yellow.
  - .7 Paint both sides and edges of backboards for telephone and electrical equipment before installation.
    - .1 Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

### **3.5 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .3 Waste Management: separate waste materials for reuse or recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
- .4 Place paint, stains, primer defined as hazardous or toxic waste, including tubes and containers, in containers or areas designated for hazardous waste.

**END OF SECTION**



**Part 1            General**

**1.1                ACTION AND INFORMATIONAL SUBMITTALS**

- .1        Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2        Shop Drawings:
  - .1        Submit catalogue sheets.
  - .2        Indicate materials, thicknesses, sizes, finishes, colours, construction details, removable and interchangeable components, mounting methods, schedule of signs.

**1.2                CLOSEOUT SUBMITTALS**

- .1        Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2        Operation and Maintenance Data: submit operation and maintenance data for illuminated signs for incorporation into manual.

**Part 2            Products**

**2.1                MATERIALS**

- .1        Acrylic sheet: polymethylmethacrylate (PMMA) cast sheet suitable for intended use in sign fabrication, colours as indicated.
- .2        Self-stick foam tape: 2.4 mm thick, 352.4 kg/m<sup>3</sup> density polyurethane open-cell foam tape for sign purposes, with synthetic self-stick adhesive on both sides.
  - .1        Width: to suit sign sizes.
- .3        Adhesives, paints, sealants and solvents for acrylic sheet: type recommended by sheet manufacturer for applicable condition.
- .4        Acrylic top-coat: clear, non-yellowing, exterior grade, satin finish, acrylic polyester resin protective coating, compatible with surface of type recommended by sheet manufacturer.

**2.2                SIGN GRAPHICS**

- .1        Sign graphics: well defined, arranged for balanced appearance, and properly word and letter spaced.
- .2        Decals: silk screened or printed images on 0.025mm, clear finish, with self-stick adhesive backing.
  - .1        Protect image with laminated film overlay of same material as decal base.

**2.3                WALL PLATES**

- .1        Plastic wall plates:
  - .1        Fabricate from acrylic sheet 4.8 mm thick. Sizes as indicated.

- .2 Fixed mounting:
  - .1 Prepare wall plates for fixing by self-stick foam tape or surface fasteners with rosette covers to Departmental Representative's approval.
  - .2 Include back-up plates for fixing to uneven surfaces where required.

## **2.4 FABRICATION**

- .1 Fabricate signs in accordance with details, specifications and shop drawings.
- .2 Build units square, true, accurate to size, free from visual or performance defects.
- .3 Fit and securely join sections to obtain tight, closed joints.
- .4 Allow for thermal movement without distortion of components.
- .5 Exposed fasteners permitted where approved by Departmental Representative.

## **Part 3 Execution**

### **3.1 INSTALLATION**

- .1 Manufacturer's Instructions: compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheets.
- .2 Erect and secure signs plumb and level at elevations indicated.
- .3 Comply with sign manufacturer's installation instructions and approved shop drawings.
- .4 Mechanical attachment:
  - .1 To wood: use screws.
  - .2 Secure into framing members behind stud walls or above ceilings.
  - .3 Mechanical fasteners on exterior: non-staining, non-ferrous type.
  - .4 Fabricate special fasteners as required for installation conditions.
  - .5 Mechanical fasteners and methods of attachment subject to Departmental Representative's approval.
- .5 Adhesive attachment:
  - .1 Use self-stick adhesive foam tape to manufacturer's instructions to fix sign and prevent "rocking".
  - .2 Keep tape maximum 1.6 mm from edges.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCE STANDARDS**

- .1    CSA Group (CSA)
  - .1    CAN/CSA-B651, Accessible Design for the Built Environment.
  - .2    CAN/CSA-G164, Hot Dip Galvanizing of Irregularly Shaped Articles.

**1.2                ACTION AND INFORMATIONAL SUBMITTALS**

- .1    Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2    Product Data:
  - .1    Provide manufacturer's printed product literature and data sheets and include product characteristics, performance criteria, physical size, finish and limitations.

**1.3                CLOSEOUT SUBMITTALS**

- .1    Provide maintenance data for toilet and bath accessories for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

**1.4                MAINTENANCE MATERIAL SUBMITTALS**

- .1    Tools:
  - .1    Provide special tools required for assembly, disassembly or removal for toilet and bath accessories in accordance with requirements specified in Section 01 78 00 - Closeout Submittals.
  - .2    Deliver special tools to Departmental Representative.

**Part 2            Products**

**2.1                MATERIALS**

- .1    Stainless steel tubing: Type 304, commercial grade, seamless welded, 1.2 mm wall thickness.
- .2    Fasteners: concealed screws and bolts hot dip galvanized, exposed fasteners to match face of unit. Expansion shields fibre, lead or rubber as recommended by accessory manufacturer for component and its intended use.

**2.2                COMPONENTS**

- .1    Grab bars: 1.2 mm wall, 38 mm diameter tubing of stainless steel, 76 mm diameter wall flanges, concealed screw attachment, flanges welded to tubular bar, provided with steel back plates and all accessories. Peened finish at area of hand grips. Grab bar material and anchorage to withstand downward pull of 2.2 kN.

## **2.3 FABRICATION**

- .1 Weld and grind joints of fabricated components flush and smooth. Use mechanical fasteners only where approved.
- .2 Wherever possible form exposed surfaces from one sheet of stock, free of joints.
- .3 Brake form sheet metal work with 1.5 mm radius bends.
- .4 Form surfaces flat without distortion. Maintain flat surfaces without scratches or dents.
- .5 Back paint components where contact is made with building finishes to prevent electrolysis.
- .6 Hot dip galvanize concealed ferrous metal anchors and fastening devices to CAN/CSA-G164.
- .7 Shop assemble components and package complete with anchors and fittings.
- .8 Deliver inserts and rough-in frames to job site at appropriate time for building-in. Provide templates, details and instructions for building in anchors and inserts.
- .9 Provide steel anchor plates and components for installation on studding and building framing.

## **Part 3 Execution**

### **3.1 INSTALLATION**

- .1 Install and secure accessories rigidly in place as follows:
  - .1 Stud walls: install steel back-plate to stud prior to plaster or drywall finish. Provide plate with threaded studs or plugs.
  - .2 Hollow masonry units, existing plaster or drywall: use toggle bolts drilled into cell or wall cavity.
  - .3 Solid masonry, marble, stone or concrete: use bolt with lead expansion sleeve set into drilled hole.
  - .4 Toilet and shower compartments: use male to female through bolts.
- .2 Install grab bars on built-in anchors provided by bar manufacturer.
- .3 Use tamper proof screws/bolts for fasteners.
- .4 Fill units with necessary supplies shortly before final acceptance of building.
- .5 Install mirrors in accordance with Section 08 80 00 - Glazing.

### **3.2 ADJUSTING**

- .1 Adjust toilet and bathroom accessories components and systems for correct function and operation in accordance with manufacturer's written instructions.
- .2 Lubricate moving parts to operate smoothly and fit accurately.

### **3.3 SCHEDULE**

- .1 Locate accessories where indicated.

- .2 Toilet tissue dispenser: relocate existing.
- .3 Combination towel dispenser/waste receptacles: relocate existing. Maximum height of dispenser and operable part from floor 1200 mm.
- .4 Soap dispenser: Relocate existing.
- .5 Feminine napkin disposal bin: Relocate existing.
- .6 Grab bar (GB1): L-shaped, one in handicapped toilet compartment. Height of grab bar from floor 850 mm. Minimum distance past front edge of toilet 150 mm.
- .7 Grab bar (GB2): relocate existing. Height of grab bar from floor 850 mm.
- .8 Mirror: Relocate existing, height of bottom edge of mirror from floor 1000 mm.
- .9 Shelf: Relocate existing.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCE STANDARDS**

- .1    ASTM International
  - .1    ASTM C136/C136M, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
  - .2    ASTM C 309, Liquid Membrane Forming Compounds for Curing Concrete.
  - .3    ASTM D1751, Standard Specification For Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
  - .4    ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft<sup>3</sup>) (600 kN-m/m<sup>3</sup>).
- .2    CSA Group
  - .1    CSA-A23.1 /A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete, Including Update No. 1.

**Part 2            Products**

**2.1                MATERIALS**

- .1    Concrete mixes and materials: in accordance with Section 03 30 00 - Cast-in-Place Concrete.
- .2    Reinforcing steel: in accordance with Structural General Notes and Section 03 30 00- Cast-in-Place Concrete.
- .3    Curing Compound and Joint filler: in accordance with Section 03 30 00 - Cast-in-Place Concrete.
- .4    Granular base:
  - .1    Refer to Structural General Notes
  - .2    Gradations: within limits specified when tested to ASTM C136.
- .5    Non-staining mineral type form release agent: chemically active release agents containing compounds reacting with free lime to provide water-soluble soap.
- .6    Fill material:
  - .1    Refer to Structural General Notes
  - .2    Gradations: within limits specified when tested to ASTM C136. Sieve sizes to CAN/CGSB-8.1.
- .7    Curing Agent: to ASTM C309, Type 1.
- .8    Expansion Joint Filler: Premoulded bituminuous fibre board, conforming to ASTM D1751.

**Part 3 Execution**

**3.1 GRADE PREPARATION**

- .1 Construct embankments using excavated material free from organic matter or other objectionable materials.
  - .1 Dispose of surplus and unsuitable excavated material off site.
- .2 Place fill per Structural General Notes.

**3.2 GRANULAR BASE**

- .1 Obtain Departmental Representative's approval of subgrade before placing granular base.
- .2 Place granular base material to lines, widths, and depths as indicated.
- .3 Compact granular base per Structural General Notes.

**3.3 CONCRETE**

- .1 Obtain Departmental Representative approval of granular base and reinforcing steel prior to placing concrete.
- .2 Do concrete work in accordance with Section 03 30 00 - Cast-in-Place Concrete.
- .3 Immediately after floating, give sidewalk surface uniform broom finish to produce regular corrugations not exceeding 2 mm deep, by drawing broom side to side across sidewalk.
- .4 Provide edging as indicated with 10 mm radius edging tool.
- .5 Slip-form pavers equipped with string line system for line and grade control may be used if quality of work acceptable to Departmental Representative can be demonstrated. Hand finish surfaces when directed by Departmental Representative.

**3.4 TOLERANCES**

- .1 Finish surfaces to within 3 mm in 3 m as measured with 3 m straightedge placed on surface.

**3.5 EXPANSION AND CONTRACTION JOINTS**

- .1 Install tooled transverse contraction joints after floating, when concrete stiff, but still plastic, at intervals of 1.2 to 2 m.
- .2 Install expansion joints at intervals of 6 m.
- .3 When sidewalk adjacent to curb, make joints of curb, gutters and sidewalk coincide.

**3.6 ISOLATION JOINTS**

- .1 Install isolation joints around manholes and catch basins and along length adjacent to concrete curbs, catch basins, buildings, or permanent structure.
- .2 Install joint filler in isolation joints in accordance with Section 03 30 00 - Cast-in-Place Concrete.
- .3 Seal isolation joints with sealant approved by Departmental Representative.

**3.7 TACTILE WALKING SURFACE INDICATORS**

- .1 Install tactile walking surface indicators at curb ramp edges, where indicated on drawings and in accordance with local municipal bi-laws.

**3.8 CURING**

- .1 Cure concrete by adding moisture continuously in accordance with CSA-A23.1/A23.2 to exposed finished surfaces for minimum 1 day after placing, or sealing moisture in by curing compound as directed by Departmental Representative.
- .2 Where burlap used for moist curing, place two prewetted layers on concrete surface and keep continuously wet during curing period.
- .3 Apply curing compound evenly to form continuous film, in accordance with manufacturer's requirements.

**3.9 BACKFILL**

- .1 Allow concrete to cure for 7 days prior to backfilling.
- .2 Backfill to designated elevations with material as directed by Departmental Representative.
  - .1 Compact and shape to required contours as directed by Departmental Representative.

**3.10 LINSEED OIL TREATMENT**

- .1 Apply two coats of linseed oil mixture uniformly to surfaces of curbs, walks and gutters, after concrete has cured for specified curing time and when surface of concrete clean and dry.
- .2 Linseed oil mixture to consist of 50% boiled linseed oil and 50% mineral spirits by volume.
- .3 Apply treatment when air temperature above 10 degrees C.
- .4 Apply first coat at 135 mL/m<sup>2</sup>.
- .5 Apply second coat at 90 mL/m<sup>2</sup> when first coat has dried.

**3.11 CLEANING**

- .1 Proceed in accordance with Section 01 74 00 - Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

**END OF SECTION**



**Part 1 General**

**1.1 REFERENCE STANDARDS**

- .1 Canadian Society of Landscape Architects (CSLA)/Canadian Nursery Landscape Association (CNLA)
  - .1 Canadian Landscape Standard 2016, First Edition
  - .2 Canadian Nursery Stock Standard 2017, Ninth Edition

**1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for sod, geotextile and fertilizer and include product characteristics, performance criteria, physical size, finish and limitations.

**1.3 QUALITY ASSURANCE**

- .1 Contractor Qualifications:
  - .1 Landscape Contractor: to be a Member in Good Standing of Landscape Ontario Green for Life (LO).

**1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials in accordance with supplier's recommendations.
  - .2 Replace defective or damaged materials with new.
- .4 For palletized sod products:
  - .1 Sod shall not be dumped or dropped from vehicle.
  - .2 Provide wind protection measures to protect sod during transportation against wind exposure and to prevent drying.
  - .3 Ensure sod freshness and healthy conditions when they arrive on site.
  - .4 Provide weather protection measures as required to keep sod fresh and moist, if installation is to be delayed.
  - .5 During the growing season, and where feasible, sod should be delivered to the site within 36 hours of harvest, and be installed within 24 hours of delivery.
  - .6 Allow sod to dry sufficiently after becoming water logged to prevent tearing or damage during handling.

**Part 2 Products**

**2.1 MATERIALS**

- .1 Number One Turf Grass Nursery Sod: sod that has been especially sown and cultivated in nursery fields as turf grass crop.
  - .1 Turf Grass Nursery Sod types:
    - .1 Number One Kentucky Bluegrass Sod: Nursery Sod grown solely from seed of cultivars of Kentucky Bluegrass, containing not less than 50% Kentucky Bluegrass cultivars.
    - .2 Number One Kentucky Bluegrass Sod - Fescue Sod: Nursery Sod grown solely from seed mixture of cultivars of Kentucky Bluegrass and Chewing Fescue or Creeping Red Fescue, containing not less than 40% Kentucky Bluegrass cultivars and 30% Chewing Fescue or Creeping Red Fescue cultivars.
    - .3 Number One Named Cultivars: Nursery Sod grown from certified seed.
  - .2 Turf Grass Nursery Sod quality:
    - .1 Not more than 1 broadleaf weed and up to 1% native grasses per 40 m<sup>2</sup>.
    - .2 Density of sod sufficient so that no soil is visible from height of 1500 mm when mown to height of 50 mm.
    - .3 Mowing height limit: 35 to 65 mm.
    - .4 Soil portion of sod: 6 to 15 mm in thickness.
- .2 Commercial Grade Turf Grass Nursery:
  - .1 Mow sod at height directed by Departmental Representative within 36 hours before lifting, and remove clippings.
  - .2 Not more than 5 broadleaf weeds and up to 20% native grasses per 40 m<sup>2</sup>.
- .3 Sod establishment support:
  - .1 Geotextile fabric: biodegradable, square mesh.
  - .2 Wooden pegs: 17 x 8 x 200 mm.
  - .3 Biodegradable starch pegs: 17 x 8 x 200 mm.
- .4 Water:
  - .1 Supplied by Departmental Representative at designated source.
  - .2 Free of impurities that would inhibit plant growth.
- .5 Fertilizer:
  - .1 To Canada "Fertilizers Act" and Fertilizers Regulations.
  - .2 Complete, synthetic, slow release with 65 % of nitrogen content in water-insoluble form.

**2.2 SOURCE QUALITY CONTROL**

- .1 Obtain written approval from Departmental Representative of sod at source.
- .2 When proposed source of sod is approved, use no other source without written authorization from Departmental Representative.

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for sod installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

**3.2 PREPARATION**

- .1 Verify that grades are correct and prepared. If discrepancies occur, notify Departmental Representative and commence work when instructed by Departmental Representative.
- .2 Do not perform work under adverse field conditions such as frozen soil, excessively wet soil or soil covered with snow, ice, or standing water.
- .3 Fine grade surface free of humps and hollows to smooth, even grade, to tolerance of plus or minus 8 mm, for Turf Grass Nursery Sod surface to drain naturally.
- .4 Remove and dispose of weeds; debris; stones 50 mm in diameter and larger; soil contaminated by oil, gasoline and other deleterious materials; off site in accordance with Section 01 74 19 - Waste Management and Disposal.

**3.3 SOD PLACEMENT**

- .1 Lay sod during active growing season for type of sod. Laying sod during dry, freezing, or over frozen soil is unacceptable.
- .2 If growing medium surface is dry, it shall be lightly moistened immediately before laying sod.
- .3 Lay sod flush with adjoining grass areas, paving and top surface of curbs, unless shown otherwise on the drawings.
- .4 Lay sod within 24 hours of being lifted if air temperature exceeds 20 degrees C.
- .5 Lay sod sections in rows, joints staggered (a minimum of 25 cm). Butt sections closely without overlapping or leaving gaps between sections. Cut out irregular or thin sections with sharp implements.

**3.4 SOD PLACEMENT ON SLOPES AND PEGGING**

- .1 Install and secure geotextile fabric in areas indicated, in accordance with manufacturer's instructions.
- .2 Erosion control mesh/netting shall be installed in sodded areas where required, and secured with stakes or staples set to a minimum depth of 15 cm.
- .3 Start laying sod at bottom of slopes.

- .4 Peg sod on slopes steeper than three (3) horizontal to one (1) vertical, within one (1) m of catch basins and within one (1) m of drainage channels and ditches to following pattern:
  - .1 100 mm below top edge at 200 mm on centre for first sod sections along contours of slopes.
  - .2 Not less than 3-6 pegs per square metre.
  - .3 Not less than 6-9 pegs per square metre in drainage structures. Adjust pattern as directed by Departmental Representative.
  - .4 Drive pegs to 20 mm above soil surface of sod sections.

### **3.5 FERTILIZING PROGRAM**

- .1 Fertilize during establishment and warranty periods in accordance with the manufacturer's instructions.

### **3.6 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .2 Keep pavement and area adjacent to site clean and free from mud, dirt, and debris at all times.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
  - .1 Clean and reinstate areas affected by Work.

### **3.7 PROTECTION BARRIERS**

- .1 Protect newly sodded areas from deterioration with snow fence on rigid frame as directed by Departmental Representative.
- .2 Remove protection two (2) weeks after installation as directed by Departmental Representative.

### **3.8 MAINTENANCE DURING ESTABLISHMENT PERIOD**

- .1 Perform following operations from time of installation until acceptance.
  - .1 Water sodded areas in sufficient quantities and at frequency required to maintain optimum soil moisture condition to depth of 75 to 100 mm.
  - .2 Cut grass to 50 mm when or before it reaching height of 75 mm.
  - .3 Maintain sodded areas weed free 95%.
  - .4 Fertilize areas in accordance with fertilizing program. Spread half of required amount of fertilizer in one direction and remainder at right angles and water it well.
  - .5 Temporary barriers or signage to be maintained where required to protect newly established sod.

### **3.9 ACCEPTANCE**

- .1 Turf Grass Nursery Sod areas will be accepted by Representative provided that:

- .1 Sodded areas are properly established.
  - .2 Sod is free of bare and dead spots.
  - .3 No surface soil is visible from height of 1500 mm when grass has been cut to height of 50 mm.
  - .4 Sodded areas have been cut minimum 2 times before acceptance.
- .2 Sodded Commercial Grade Turf Grass Nursery Sod areas will be accepted by Departmental Representative provided that:
- .1 Sodded areas are properly established.
  - .2 Extent of surface soil visible when grass has been cut to height of 60 mm is acceptable.
  - .3 Sod is free of bare or dead spots and extent of weeds apparent in grass is acceptable.
  - .4 Sodded areas have been cut minimum 2 times before acceptance.
  - .5 Fertilizing in accordance with fertilizer program has been carried out at least once.
- .3 Areas sodded in fall will be accepted in following spring one month after start of growing season provided acceptance conditions are fulfilled.
- .4 When environmental conditions allow, all sodded areas showing shrinkage cracks shall be top-dressed and seeded with a seed mix matching the original.

**END OF SECTION**

**PROJECT** CENTRAL EXPERIMENTAL FARM

**ACCOMMODATION FIT-UP**

**Building 26**  
OTTAWA, ON

**CONTACT LIST**

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**ABBREVIATIONS**

A.F.F.	ABOVE FINISHED FLOOR	EQ	EQUAL	T.B.D.	TO BE DETERMINED
ALUM	ALUMINUM	EXIST	EXISTING	T.O.	TOP OF
CJ	CONTRACTION JOINT	FIN	FINISH	TYP	TYPICAL
CLR	CLEAR	GL	GLAZING	T&G	TONGUE AND GROOVE
CL	CENTRELINE	HSS	HOLLOW STEEL SECTION	US	UNDERSIDE
CONT.	CONTINUOUS	MTL	MATERIAL	UNO	UNLESS NOTED OTHERWISE
C/W	COMES WITH	N/A	NOT APPLICABLE	VB	VAPOUR BARRIER
DIA	DIAMETER	NIC	NOT IN CONTRACT	V.I.F.	VERIFY IN FIELD
DIM	DIMENSION	O.C.	ON CENTRE	WD	WOOD
		SIM	SIMILAR		

**SYMBOLS**

	KEYNOTE		ELEVATIONAL HEIGHT MARKER
	SECTION MARKER		DIMENSION TO FACE OF STUD OR MASONRY WALL UNLESS NOTED OTHERWISE
	ELEVATION MARKER		REVISION MARKER
	DETAIL MARKER		SWITCH
	WALL/PARTITION, FLOOR OR ROOF TYPE		DOOR OPERATOR ACTUATOR
	DOOR MARKER		CARD READER
	WINDOW MARKER		FLOOR DRAIN
			RECESSED LIGHT FIXTURE
			LIGHT FIXTURE
			ELECTRICAL PANEL
			TRANSFORMER

**GENERAL CONSTRUCTION NOTES**

- THE CONTRACTOR AND ALL EMPLOYEES AND SUBCONTRACTORS SHALL HAVE PROOF OF **RELIABILITY STATUS SECURITY LEVEL** IN PLACE PRIOR TO THE AWARD OF CONTRACT, TO THE SATISFACTION OF THE OWNER'S REQUIREMENTS.
- THESE DRAWINGS FORM THE CONTRACT DOCUMENTS. ALL WORK SHALL CONFORM TO THE CONTRACT DOCUMENTS, WHICH INCLUDE THE SPECIFICATIONS, ADDENDA AND MODIFICATIONS ISSUED BY THE DEPARTMENTAL REPRESENTATIVE. ALL WORK, TO BE ACCEPTABLE, MUST BE IN COMPLIANCE WITH THESE DOCUMENTS, AND MUST BE OF A QUALITY EQUAL OR BETTER THAN THE STANDARD OF THE TRADE. ANY CONFLICTS OR DISCREPANCIES IN THE CONTRACT DOCUMENTS SHALL BE REFERRED TO THE DEPARTMENTAL REPRESENTATIVE IN WRITING PRIOR TO PROCEEDING.
- ALL CODES HAVING JURISDICTION ARE HEREBY MADE A PART OF THIS DOCUMENT AND ARE TO BE STRICTLY OBSERVED BY THE CONTRACTOR IN THE CONSTRUCTION OF THE PROJECT. THIS INCLUDES THE CURRENT EDITION OF THE NATIONAL BUILDING CODE INCLUDING AMENDMENTS. IN CASE OF CONFLICT BETWEEN THESE DOCUMENTS AND THE CODE, THE CODE SHALL PREVAIL. IN CASE OF CONFLICT OR DISCREPANCY IMMEDIATELY NOTIFY THE DEPARTMENTAL REPRESENTATIVE.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES AND FOR ALL SAFETY PROGRAMS AND PRECAUTIONS IN CONNECTION WITH THE PROJECT. NEITHER THE OWNER NOR THE ARCHITECT IS RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO FOLLOW PROPER SAFETY PROCEDURES.
- ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN WITH THE BEST PRESENT KNOWLEDGE. ANY DISCREPANCIES BETWEEN THE DOCUMENTS AND THE EXISTING CONDITIONS SHALL BE REFERRED TO THE DEPARTMENTAL REPRESENTATIVE IN WRITING PRIOR TO PROCEEDING.
- PRIOR TO BEGINNING WORK, CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ENSURE THAT ALL WORK IS BUILDABLE AS SHOWN. CONDITIONS THAT ARE NOT REFLECTIVE OF THAT WHICH IS SHOWN SHALL BE REFERRED TO THE DEPARTMENTAL REPRESENTATIVE IN WRITING PRIOR TO COMMENCING CONSTRUCTION.
- CONTRACTOR SHALL AT ALL TIMES PROVIDE PROTECTION TO MAINTAIN ALL WORK, MATERIALS, AND EQUIPMENT FREE FROM DAMAGE.
- CONTRACTOR SHALL DEMOLISH/REMOVE FROM SITE ALL EXISTING CONSTRUCTION AND IMPROVEMENTS AS NECESSARY FOR COMPLETION OF WORK; CONTRACTOR SHALL SUPPLY SHORING C/W ENGINEERING WHERE NECESSARY AND AS REQUIRED.
- PROVIDE CONSTRUCTION WASTE BIN AND RECYCLING BINS AS REQUIRED IN LOCATION APPROVED BY DEPARTMENTAL REPRESENTATIVE. RECYCLE ALL MATERIALS WHERE FACILITIES EXIST. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR THE COST OF WASTE DISPOSAL.
- MATERIALS, PRODUCTS AND EQUIPMENT SHALL ALL BE NEW, EXCEPT AS SPECIFICALLY NOTED OTHERWISE. SUPPLY SHOP DRAWINGS FOR REVIEW; PROVIDE A LETTER OF CONFIRMATION THAT SUPPLIES ARE IN INVENTORY IN ADVANCE OF MOBILIZATION.
- CONTRACTOR TO PRECISELY LOCATE ALL UTILITIES PRIOR TO ANY CONSTRUCTION AND/OR EXCAVATION.
- PATCH/REPAIR AND MAKE GOOD ALL SURFACES AFFECTED BY CONSTRUCTION. PROVIDE ADEQUATE BLOCKING AND/OR BRACING AT WALL, HUNG OR WALL BRACED ITEMS. CUT AND PATCH FLOORS AS REQUIRED; SUPPLY AND INSTALL HIGH EARLY STRENGTH CONCRETE (24 HOURS MAX TO MEET REQUIRED STRENGTH) FOR ALL PATCHES/REPAIRS.
- DO NOT SCALE DRAWINGS. ALL DIMENSIONS MARKED "CLEAR" SHALL BE MAINTAINED AND SHALL ALLOW FOR THICKNESS OF ALL FINISHES.
- "TYPICAL" OR "TYP" SHALL MEAN THAT THE CONDITION IS REPRESENTATIVE FOR SIMILAR CONDITIONS THROUGHOUT, UNLESS OTHERWISE NOTED (U.O.N.). "ALIGN" SHALL MEAN TO ACCURATELY LOCATE FINISH FACES IN THE SAME PLANE. "SIMILAR OR "SIM." MEANS COMPARABLE CHARACTERISTICS FOR THE CONDITIONS NOTED. VERIFY DIMENSIONS AND ORIENTATION ON PLANS AND ELEVATIONS.
- SUBMIT SHOP DRAWINGS AND PRODUCT INFORMATION FOR REVIEW. PROVIDE WRITTEN CONFIRMATION THAT PRODUCT AND MATERIALS REQUIRED TO COMPLETE THE WORK ARE AVAILABLE PRIOR TO COMMENCING WORK.

**S01) STRUCTURAL GENERAL NOTES**

**S01-1 GENERAL INFORMATION**

- THE INFORMATION PRESENTED ON THESE DRAWINGS HAS BEEN DESIGNED IN ACCORDANCE WITH THE 2012 ONTARIO BUILDING CODE AS AMENDED JAN 01, 2020. CONSTRUCTION IS TO BE PERFORMED IN ACCORDANCE WITH THIS AND ALL OTHER APPLICABLE CODES.
  - CONCRETE STRUCTURE DESIGNED IN ACCORDANCE WITH CSA A23.3-19
- NO FOUNDATION ELEMENTS ARE TO BE CONSTRUCTED UNTIL WRITTEN APPROVAL OF THE BEARING SURFACES AND PRESSURES IS PROVIDED BY A GEOTECHNICAL ENGINEER THROUGH ON-SITE INVESTIGATION. FAILURE TO COMPLETE THIS WORK COULD RESULT IN THE REMOVAL/REINSTATEMENT OF ANY /ALL FOUNDATION ELEMENTS AT CONTRACTOR'S OWN COST.
- DRAWINGS SHOW COMPLETED STRUCTURE ONLY. CONTRACTOR TO PROVIDE PRE-ENGINEERED SHORING AS REQUIRED TO ACCOMMODATE THE CONTRACTOR'S CONSTRUCTION ACTIVITIES AND TO PREVENT DAMAGE TO ANY ADJACENT PROPERTY. ALL CONSTRUCTION ACTIVITIES TO BE LIMITED TO THE LIMITS OF THE CONSTRUCTION SITE AND ALL DAMAGE TO EXISTING PROPERTIES MUST BE REINSTATE.
- CONTRACTOR IS RESPONSIBLE FOR CO-ORDINATING & TIMING OF THE CONSTRUCTION WITH RESPECT TO THE VARIOUS TRADES.
- PROPRIETARY SYSTEMS ARE TO BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- DO NOT SCALE THESE DRAWINGS.
- DETAILS OF CONSTRUCTION ARE SHOWN BASED ON INFORMATION AVAILABLE AT THE TIME OF PREPARING DESIGN DRAWINGS. IF, DURING CONSTRUCTION, CONDITIONS ARE REVEALED THAT DIFFER FROM THE ASSUMED CONDITIONS, ADVISE THE CONSULTANT BEFORE PROCEEDING.
- VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS ON SITE PRIOR TO FABRICATION.

**S01-2 DEMOLITION**

- CONTRACTOR TO SCAN FOR ALL SERVICES AND CALL FOR LOCATES PRIOR TO DEMOLITION.
- CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHILE DEMOLISHING EXISTING STRUCTURE AS TO NOT DAMAGE THOSE PORTIONS OF THE STRUCTURE THAT ARE TO REMAIN.
- CONTRACTOR SHALL MAKE GOOD, TO THE SATISFACTION OF THE CONSULTANT, ANY DAMAGE THAT OCCURS DUE TO THE DEMOLITION PHASE.
- ALL DEMOLISHED MATERIALS MUST BE DISPOSED OF OFF-SITE AT THE END OF EACH WORKING DAY.

**S02-0) EXCAVATION, FOUNDATIONS AND BACKFILL**

**S02-1 FOOTINGS**

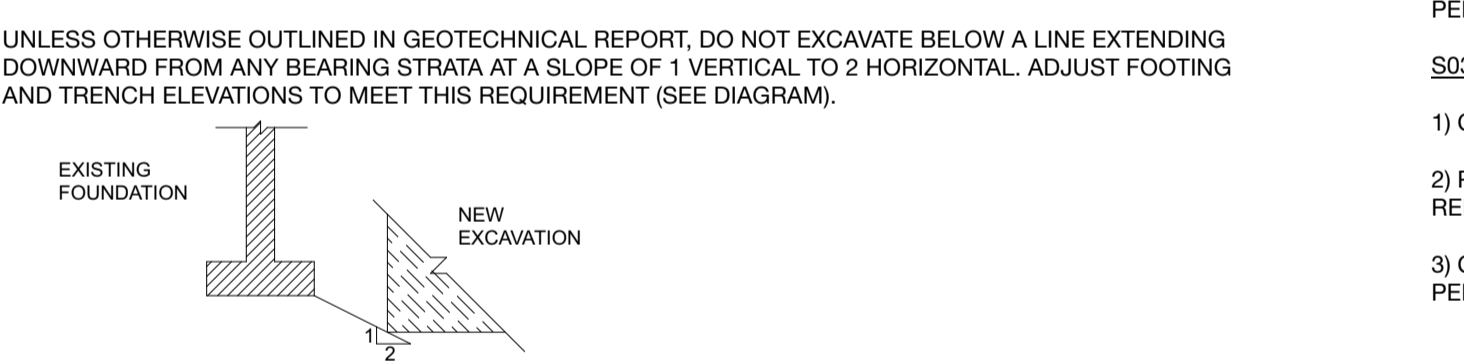
- ALL FOOTINGS TO BEAR ON UNDISTURBED NATIVE MATERIAL WITH MINIMUM ALLOWABLE BEARING STRENGTH OF 100 KPa. CONTRACTOR TO RETAIN THE SERVICES OF A GEOTECHNICAL ENGINEER TO PROVIDE WRITTEN CONFIRMATION OF BEARING CAPACITY FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT OF CONCRETE.

**S02-2 EXCAVATION AND BACKFILL**

- PRIOR TO ANY EXCAVATION, VERIFY LOCATION OF EXISTING SERVICES AND TAKE ALL NECESSARY MEASURES TO MAINTAIN SERVICES WHERE REQUIRED. NOTIFY DEPARTMENTAL REPRESENTATIVE AND CONSULTANT IF ANY SERVICES NOT SHOWN ON PLAN OR OTHERWISE EXPECTED ARE ENCOUNTERED. DO NOT PROCEED FURTHER UNTIL DIRECTED.
- CARE MUST BE TAKEN TO AVOID UNDERMINING EXISTING BUILDING FOUNDATIONS OR UNDERGROUND SERVICES.
- PROTECT SUB-GRADE FROM FREEZING AND FROST ACTION AT ALL TIMES DURING CONSTRUCTION.
- FOOTINGS MUST BEAR ON APPROVED BEARING SURFACES.
- BACKFILL TO WITHIN 200mm OF UNDERSIDE OF SLAB WITH GRANULAR "B" TYPE II IN LAYERS UP TO 300mm THICK, COMPACTED TO MINIMUM 100% SPMD.
- FINAL 200mm UNDER SLAB TO BE GRANULAR "A" COMPACTED TO MINIMUM 100% SPMD.
- RE-USE OF EXCAVATED GRANULAR MATERIAL IS SUBJECT TO APPROVAL OF A GEOTECHNICAL CONSULTANT RETAINED BY CONTRACTOR.
- CONTRACTOR TO RETAIN THE SERVICES OF A GEOTECHNICAL ENGINEER TO PROVIDE WRITTEN CONFIRMATION THAT THE COMPACTED GRANULAR MATERIAL WAS INSTALLED AS SPECIFIED FOR REVIEW AND APPROVAL.

**S02-3 PROTECT LATERAL STABILITY OF BEARING STRATA UNLESS NOTED**

UNLESS OTHERWISE OUTLINED IN GEOTECHNICAL REPORT, DO NOT EXCAVATE BELOW A LINE EXTENDING DOWNWARD FROM ANY BEARING STRATA AT A SLOPE OF 1 VERTICAL TO 2 HORIZONTAL. ADJUST FOOTING AND TRENCH ELEVATIONS TO MEET THIS REQUIREMENT (SEE DIAGRAM).



**DOOR SCHEDULE**

DOOR #	NEW/EXIST	DOOR SIZE W X H (mm)	RATING (hrs)	DOOR MTL.	THICKNESS (mm)	FRAME MTL.	GLAZING	CLOSER	LOCKSET FUNCTION	HINGES	DOOR STOP	DROP SEAL	FRAME TYPE	STRIKE	COMMENTS
D-01	NEW	MATCH EXIST.	N/A	HOLLOW STEEL WITH INSULATED CORE	44	METAL-WELDED	SEE ELEV.	NEW OPERATOR	NEW STOREROOM LOCKSET	NEW 1.5 pr		NEW	1	NEW	PROVIDE AUTO DOOR OPERATOR AND DOOR ACTUATOR PUSH BUTTONS FOR BARRIER-FREE ACCESS (ONE INTERIOR, ONE EXTERIOR), PER SPECIFICATIONS. NEW SIGNAGE PER 12/A300- SEE DOOR ELEVATION. PROVIDE SECURITY FILM ON GLAZING. INSTALL KICK PLATE ON INTERIOR SIDE. INTEGRATE EXISTING CARD READER WITH ELEC. STRIKE & DOOR OPERATOR
D-02	EXIST.	EXIST.	N/A	SOLID CORE WOOD	44	WOOD	N/A	EXIST.	EXIST.	NEW SWING CLEAR			EXIST.		NEW SIGNAGE (SEE 11/A300).
D-03	EXIST.	EXIST.	N/A	SOLID CORE WOOD	44	P.M.	EXIST.	EXIST.	EXIST.	NEW SWING CLEAR			EXIST.		
D-04	EXIST.	EXIST.	N/A	SOLID CORE WOOD	44	WOOD	N/A	EXIST.	EXIST.	NEW SWING CLEAR			EXIST.		
D-05						EXIST.							EXIST.		REMOVE EXISTING DOOR, HINGES AND HARDWARE. EXISTING DOOR FRAME TO REMAIN.
D-06	EXIST.	EXIST.	N/A	SOLID CORE WOOD	44	WOOD	N/A	EXIST.	EXIST.	NEW SWING CLEAR			EXIST.		
D-07	EXIST.	EXIST.	N/A	SOLID CORE WOOD	44	WOOD	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.		EXIST.		REMOVE EXISTING DEADBOLT HARDWARE. PLUG REMAINING HOLE. INSTALL NEW DEADBOLT COVER PLATE BOTH SIDES.
D-08	NEW	914 X 2082	N/A	SOLID CORE WOOD	44	WOOD	SEE ELEV.	N/A	NEW OFFICE LOCKSET	NEW 1.5 pr			2		
D-09						EXIST.							EXIST.		REMOVE EXISTING DOOR, HINGES AND HARDWARE. EXISTING DOOR FRAME TO REMAIN.

**NOTES:**  
1) REFER TO SPECIFICATIONS FOR HARDWARE REQUIREMENTS.

**S03) CONCRETE**

**S03-1 CONCRETE COVER (CLEAR TO REINFORCING)**

U/S FOOTINGS AND SLAB ON GRADE (AGAINST SOIL)	75mm
FOOTINGS AND SLAB ON GRADE (SIDES & TOP)	50mm
FOUNDATION WALLS	50mm

**S03-2 CONCRETE COVER REINFORCING STEEL**

- REINFORCING TO BE GRADE 400R DEFORMED BARS TO CSA-G30.18 AND GRADE 400W WHERE BARS ARE TO BE WELDED.
- SPACING OF BARS SHALL BE APPROXIMATELY UNIFORM WITHIN THE CONCRETE ELEMENTS. DO NOT ELIMINATE OR DISPLACE REINFORCEMENT TO ACCOMMODATE HARDWARE. OBTAIN APPROVAL OF ALL MODIFICATIONS FROM CONSULTANT BEFORE THE PLACING OF CONCRETE.
- ALL LAPS AND EMBEDMENT OF DOWELS SHALL BE 40 BAR DIAMETERS, BUT NOT LESS THAN 600mm IF NOT SPECIFIED OTHERWISE. WIRE MESH LAPS SHALL BE 150mm MINIMUM.
- TYPICAL REBAR REQUIREMENTS:

BAR DESIGNATION:  
METRIC: 10-15M MEANS 10 BARS, SIZE 15M.

- PROVIDE STANDARD HOOKS WHERE TOP AND BOTTOM BARS TERMINATE AT EDGES.
- ALL DOWELS TO BE IN LINE WITH THE VERTICAL OF HORIZONTAL STEEL WITHIN THE STRUCTURAL ELEMENT UNLESS OTHERWISE NOTED.
- DETAIL, FABRICATE AND PLACE ALL REINFORCEMENT IN CONFORMITY TO CURRENT MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES ACI 315, CSA CAN3-A23.3- LATEST EDITION AND REINFORCING STEEL MANUAL OF STANDARD PRACTICE BY RSIO.
- ALL REINFORCING STEEL TO BE CHAIRED AND SECURELY TIED IN PLACE USING STANDARD TIES AND CHAIRS TO THE REQUIRED COVER FOR EXPOSED CONCRETE. CHAIRS AND BOLTERS TO BE PLASTIC TIPPED OR STAINLESS STEEL.
- SUBMIT REINFORCING SHOP DRAWINGS DETAILING STRUCTUAL ENGINEERING REVIEW PRIOR TO FABRICATION.

**S03-3 CONCRETE MIXES**

PROPORTION NORMAL DENSITY CONCRETE IN ACCORDANCE WITH CAN/CSA-A23.1, TO GIVE THE FOLLOWING FOR ALL CONCRETE AS INDICATED:

LOCATION	28 DAY STRENGTH	SLUMP	CLASS OF EXPOSURE
SLAB ON GRADE (WALKWAYS/STAIRS)	35MPa	75mm	C-1
FOUNDATION WALLS	35MPa	75mm	C-1
FOOTINGS	35MPa	75mm	C-1

\*REFER TO CAN/CSA A23.1 FOR THE MAXIMUM WATER /CEMENT RATIO, MINIMUM COMPRESSIVE STRENGTH, AIR CONTENT, CURING REQUIREMENTS, CHLORIDE ION PERMEABILITY AND ALTERNATE CEMENT TYPE TO MEET THE REQUIREMENTS FOR THE NOTED EXPOSURE CLASS.

READY-MIS CONCRETE AND CONCRETE PROPORTIONS SHALL BE IN ACCORDANCE WITH CSA- A23.1. CLAUSE 12 AND AS FOLLOWS:

- PROVIDE CERTIFICATION THAT MIX PROPORTIONS SELECTED WILL PRODUCE CONCRETE OF SPECIFIED QUALITY AND YIELD STRENGTH WILL COMPLY WITH CAN/CSA A-23.1-M06.
- USED OF CALCIUM CHLORIDE NOT PERMITTED.
- DO NOT CHANGE CONCRETE MIX WITHOUT PRIOR APPROVAL OF CONSULTANT. SHOULD CHANGE IN MATERIAL SOURCE BE PROPOSED, NEW MIX DESIGN TO BE APPROVED BY CONSULTANT.
- ALL CONCRETE EXPOSED TO EXTERIOR CONDITIONS TO BE AIR ENTRAINED AS PER CSA A23.1.

**S03-4 CONCRETE COLD WEATHER PROTECTION**

- CONTRACTOR IS RESPONSIBLE TO PROVIDE TEMPORARY HEAT, INSULATION MATERIALS OR OTHER MEANS AS REQUIRED TO PROTECT THE MASONRY BLOCKS, GROUT, CONCRETE AND GRANULAR MATERIALS FROM FREEZING DURING THEIR WORK. IN ACCORDANCE WITH CSA-A23.1.
- PROTECT SUB-GRADE FROM FREEZING AND FROST ACTION AT ALL TIMES DURING CONSTRUCTION. DO NOT PLACE CONCRETE ON FROZEN GROUND.
- CONTRACTOR TO PROVIDE PROPOSED METHOD OF PROTECTION FOR CONSULTANT REVIEW PRIOR COMMENCING THE WORK.
- CURE CONCRETE TO CSA A23.1 / A23.2. TAKE APPROPRIATE PRECAUTIONS FOR COLD WEATHER WORK AS PER CSA A23.1/A23.2.

**S03-5 CONCRETE WARM WEATHER PROTECTION**

- CARRY OUT HOT WEATHER CONCRETING IN ACCORDANCE WITH CSA A23.1.
- PROTECT CONCRETE FROM EFFECT OF HOT OR DRYING WEATHER CONDITIONS. PROTECT FORMS AND REINFORCING FROM THE DIRECT RAYS OF THE SUN, OR COOL BY FOGGING AND EVAPORATION.
- CURE CONCRETE TO CSA A23.1/A23.2. TAKE APPROPRIATE PRECAUTIONS FOR WARM WEATHER WORK AS PER CSA A23.1/A23.2.

**S03-6 FIELD QUALITY CONTROL**

- INSPECTION AND TESTING OF CONCRETE AND CONCRETE MATERIALS WILL BE CARRIED OUT BY A TESTING LABORATORY DESIGNATED BY THE DEPARTMENTAL REPRESENTATIVE IN ACCORDANCE WITH CAN/CSA A23.1 AND DIVISION 1.
- AIR ENTRAINMENT TEST AND SLUMP TEST MADE FROM SAME BATCH OF CONCRETE FROM WHICH TEST CYLINDERS ARE MADE.
- TESTS WILL BE MADE IN ACCORDANCE WITH CSA A23.2.
- INSPECTION COMPANY'S REPORTS OF TESTS WILL BE FORWARDED TO THE CONSULTANT AND CONTRACTOR WITH AN OPINION OR REASON FOR ANY ABNORMAL NOTES THEREON.
- COOPERATE WITH AND ASSIST INSPECTION COMPANY'S PERSONNEL DURING INSPECTION AND TESTS.
- REMOVE DEFECTIVE MATERIALS AND COMPLETED WORK WHICH FAILS TESTS AND REPLACE AS DIRECTED BY THE CONSULTANT.
- WHERE WORK OR MATERIALS FAIL TO MEET STRENGTH REQUIREMENTS AS INDICATED BY TEST RESULTS, PAY COSTS OF ADDITIONAL INSPECTION AND TESTING REQUIRED FOR NEW REPLACEMENT WORK OR MATERIALS.
- NON-DESTRUCTIVE METHODS FOR TESTING CONCRETE SHALL BE IN ACCORDANCE WITH CAN/CSA-A23.2.
- INSPECTION OR TESTING BY THE CONSULTANT WILL NOT AUGMENT OR REPLACE CONTRACTOR QUALITY CONTROL NOR RELIEVE CONTRACTOR OF IT'S CONTRACTUAL RESPONSIBILITY.

**FLOOR TYPE**

**F1** RESILIENT SHEET FLOORING  
NEW 16mm PLYWOOD SUBFLOOR  
EXISTING WOOD DECKING  
EXISTING WOOD FLOOR JOISTS  
EXISTING GYPSUM CEILING BOARD

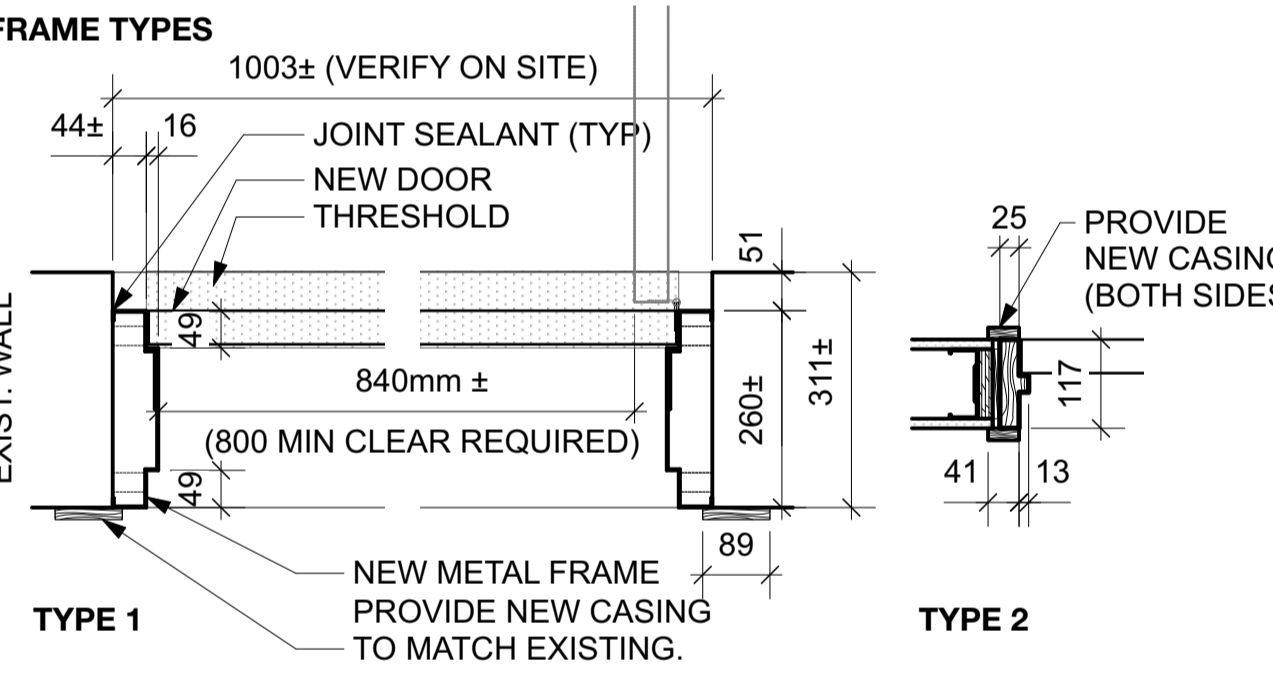
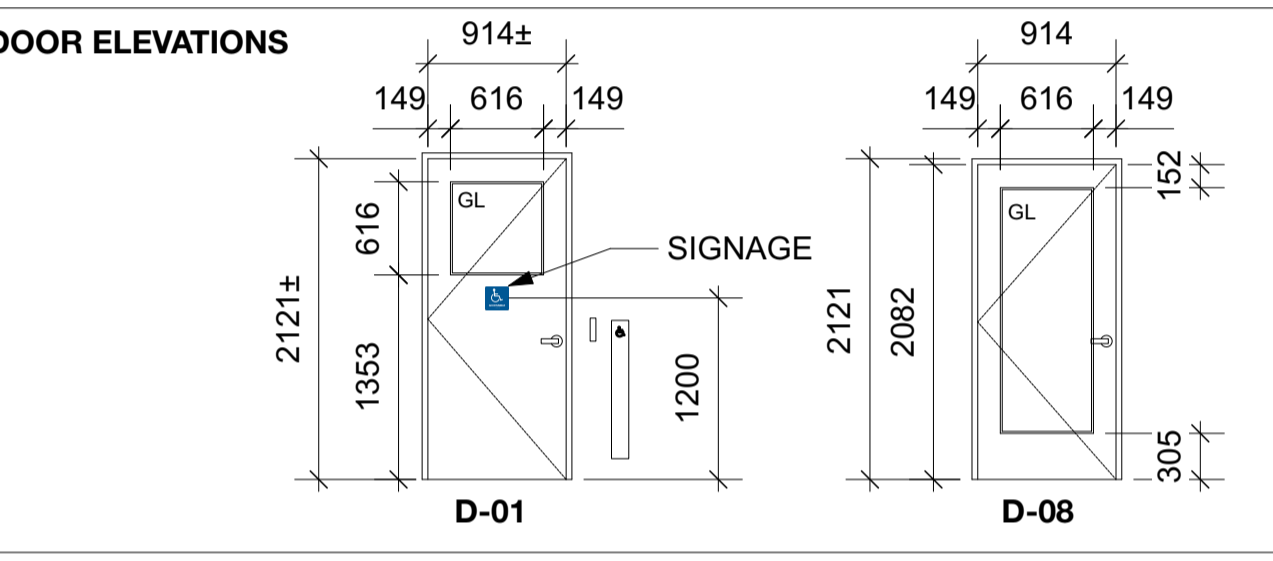
**PARTITION TYPES (FLOOR TO CEILING U.N.O.)**

**P1** 13mm GYPSUM WALL BOARD  
92mm METAL STUD FRAMING @ 400mm o.c.  
90mm SOUND ATTENUATING BATT INSULATION  
13mm GYPSUM WALL BOARD

**P2** 13mm GYPSUM WALL BOARD  
25mm METAL FURRING CHANNELS  
EXISTING MASONRY WALL

**P3** 13mm GYPSUM WALL BOARD  
92mm METAL STUD @ 400mm O.C.  
13mm AIR SPACE  
EXISTING WALL

**P4** 13mm GYPSUM WALL BOARD  
92mm METAL STUD @ 400mm O.C.  
25mm METAL FURRING CHANNELS  
13mm GYPSUM WALL BOARD



**Agriculture and Agri-food Canada**  
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**CONSULTANTS**

**KEY PLAN**

**LOCATION PLAN (AERIAL VIEW)**

#	ISSUE	DATE
01	PRELIMINARY REVIEW	10/22/2021
02	75% REVIEW	11/05/2021
03	80% REVIEW	11/18/2021
04	TENDER	12/15/2021

**PROJECT NAME**

**CENTRAL EXPERIMENTAL FARM**  
**Building 26**  
OTTAWA, ON

**ACCOMMODATION FIT-UP**

**SHEET TITLE**

**COVER SHEET**

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**PROJECT #:** 21-007-1  
**DRAWN BY:** KT  
**CHECKED BY:** KT

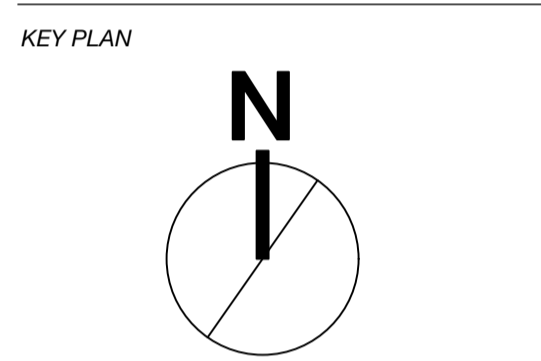
**SHEET**

**A-000**



CONSULTANTS

- KEYNOTES**
- EXISTING IT EQUIPMENT (N.I.C.)
  - FUTURE IT EQUIPMENT (N.I.C.)
  - PATCH EXISTING EXPLORATORY CEILING OPENING AND CEILING AREA AT REMOVED BRICK WITH 13mm NEW GYPSUM BOARD. PAINT.
  - PROVIDE NEW CONCRETE STEP (LANDING) ABOVE
  - REMOVE EXISTING 102mm THICK BRICK WALL
  - REMOVE EXISTING DOOR AND FRAME.
  - REMOVE EXISTING DOOR AND HINGES. EXISTING DOOR FRAME TO REMAIN.
  - REMOVE EXISTING LIGHTING
  - REMOVE EXISTING VINYL WALL BASE
  - SUPPLY AND INSTALL NEW FOUNDATION AND FOOTINGS FOR NEW CONCRETE LANDING, RAMP AND STEP.
  - SUPPLY AND INSTALL NEW LIGHTING.



#	ISSUE	DATE
01	PRELIMINARY REVIEW	10/22/2021
02	75% REVIEW	11/05/2021
03	90% REVIEW	11/19/2021
04	TENDER	12/15/2021

PROJECT NAME  
**CENTRAL EXPERIMENTAL FARM  
Building 26**  
OTTAWA, ON

ACCOMMODATION FIT-UP

SHEET TITLE  
**BASEMENT:  
DEMOLITION FLOOR PLAN,  
PROPOSED FLOOR PLAN**

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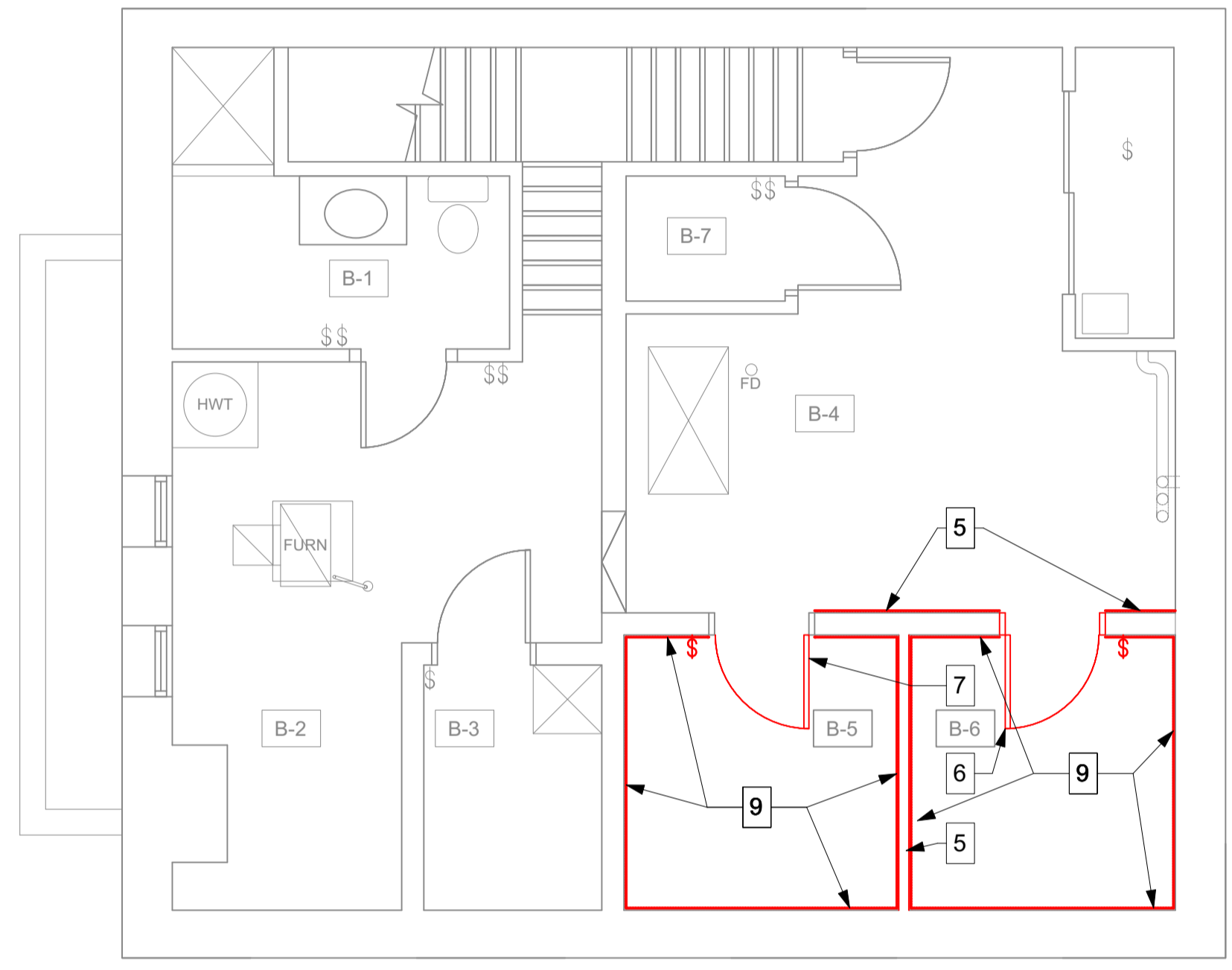
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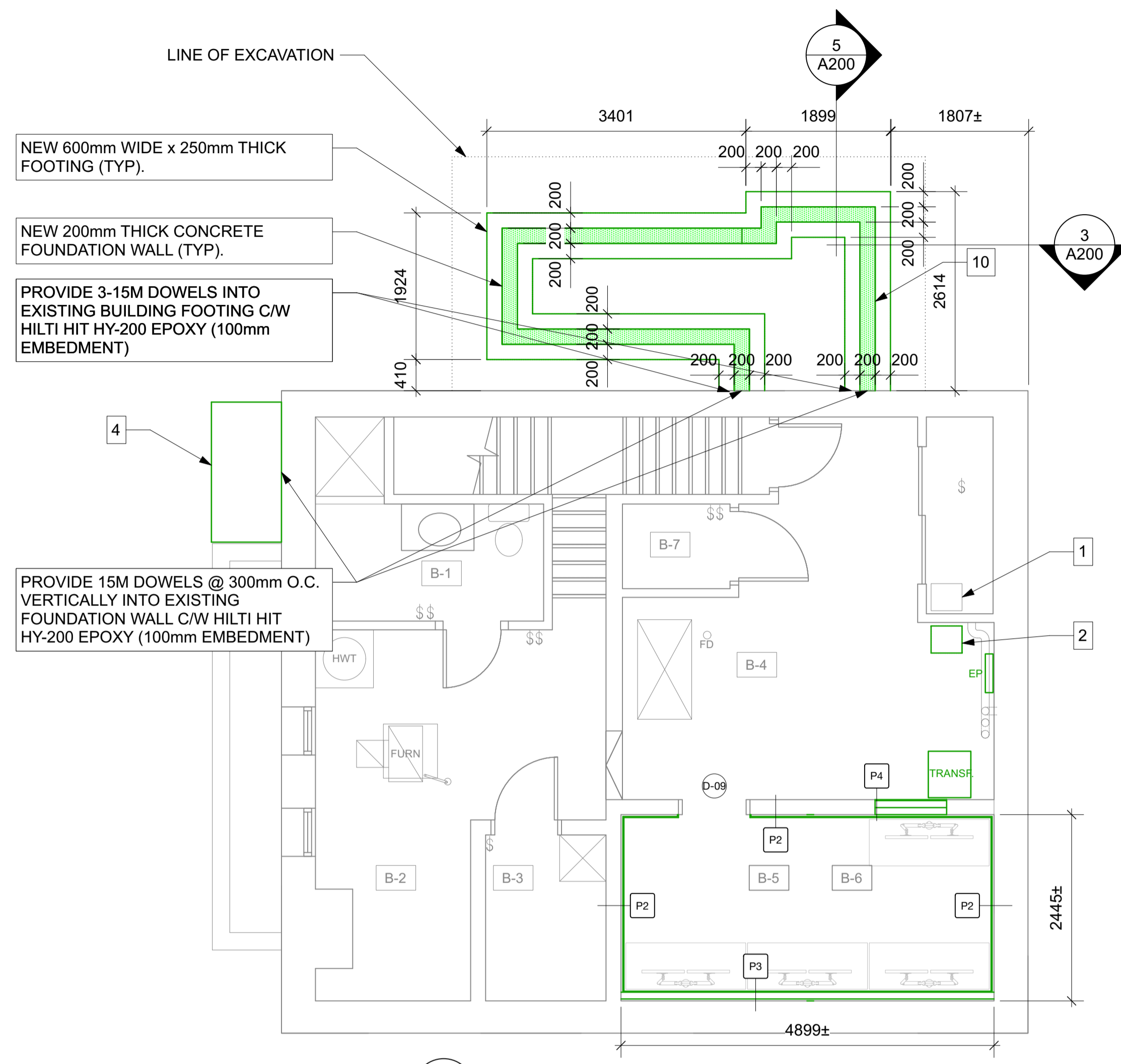
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GENERAL NOTES

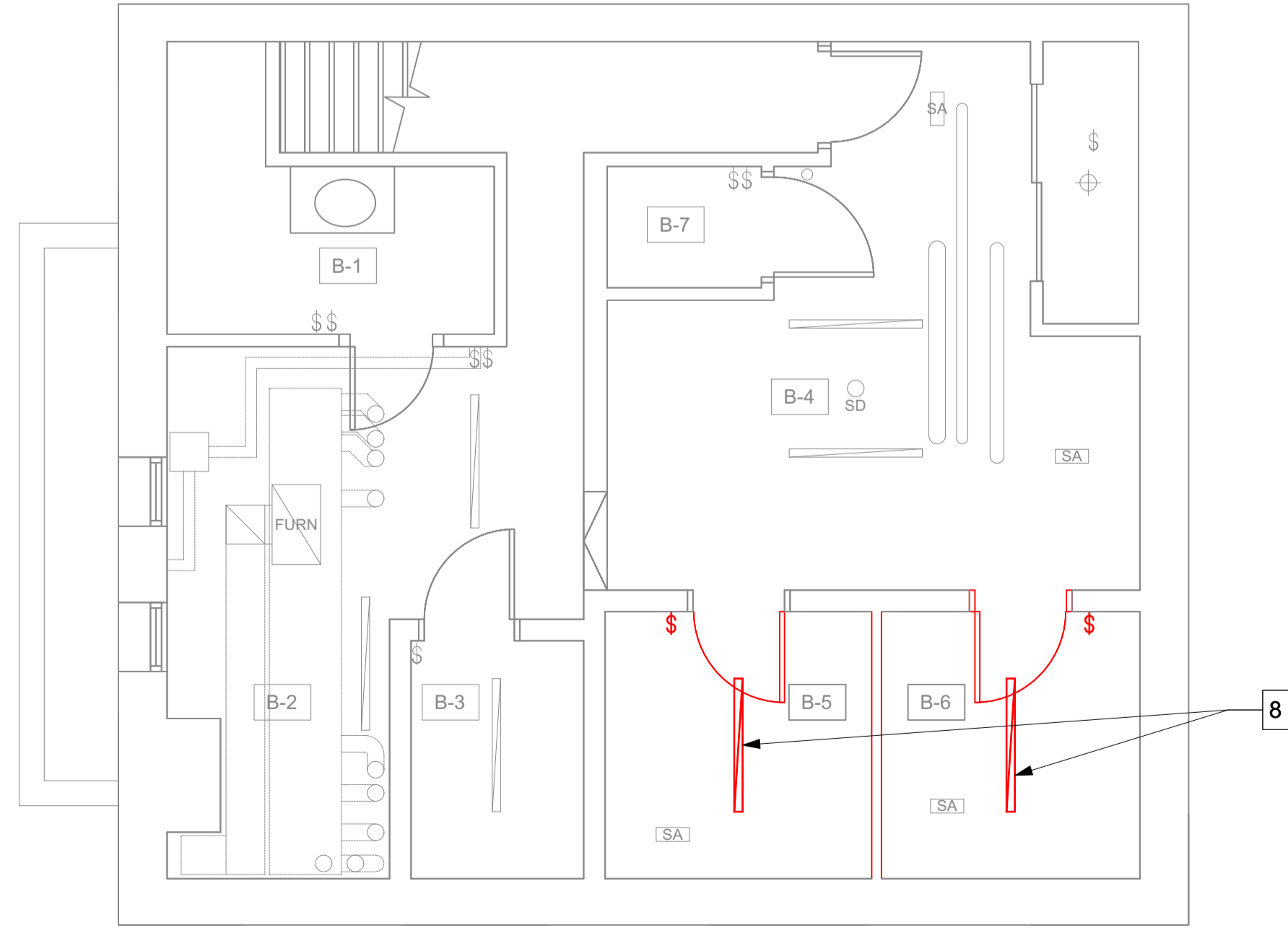
- CONTRACTOR TO ALLOW AND INCLUDE FOR REMOVAL AND RE-INSTALLMENT OF MATERIALS AND EQUIPMENT ADEQUATELY REQUIRED FOR THE INSTALLATION OF ALL NEW CONSTRUCTION, CONDUIT, SERVICES AND EQUIPMENT. MAKE GOOD ALL SURFACES AND RE-FINISH TO MATCH EXISTING STATE.
- REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.
- NEW POWER, DATA, SWITCHES AND CONTROLS SHOWN FOR COORDINATION PURPOSES ONLY. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS.



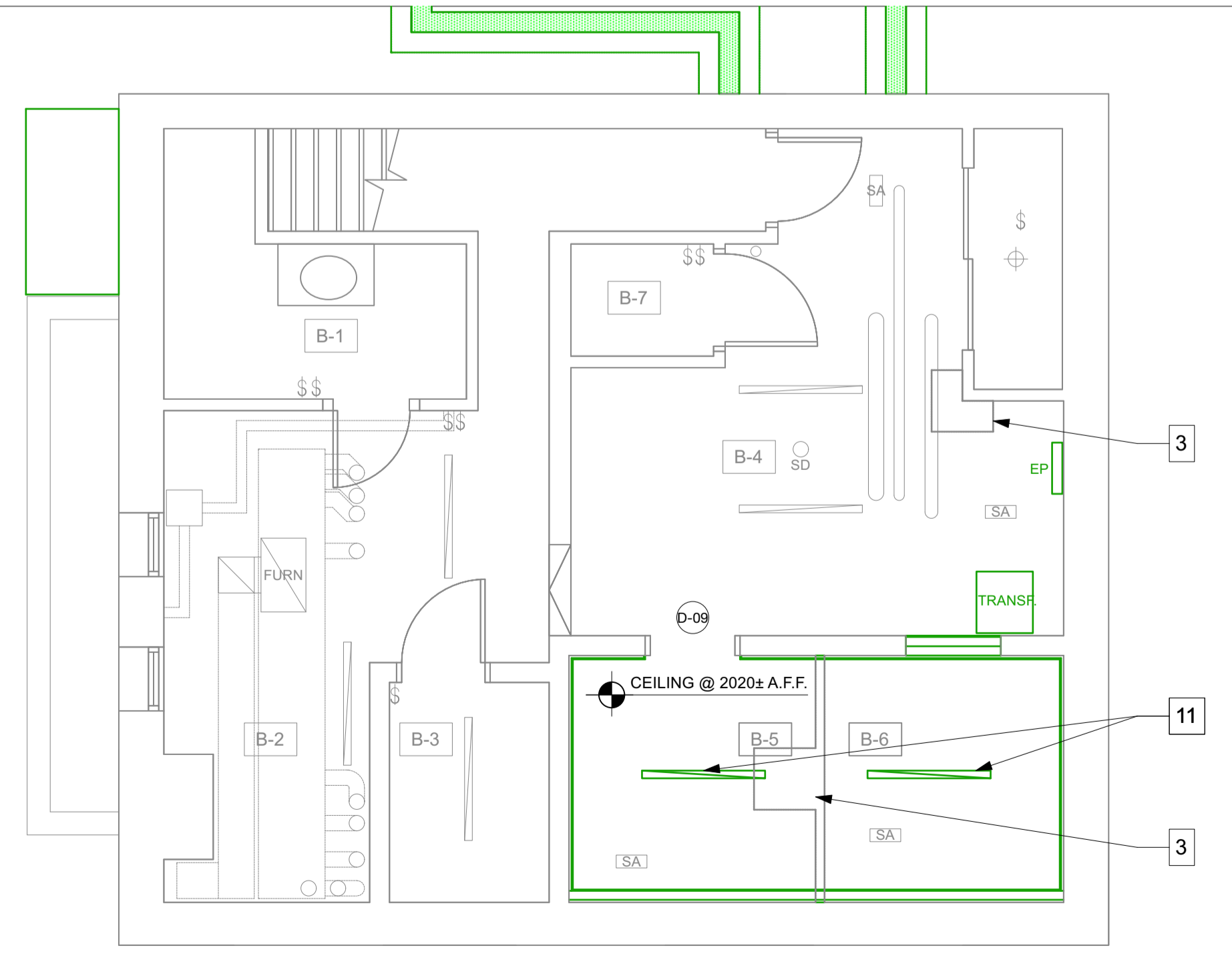
1 EXISTING BASEMENT PLAN  
Scale: 1:50



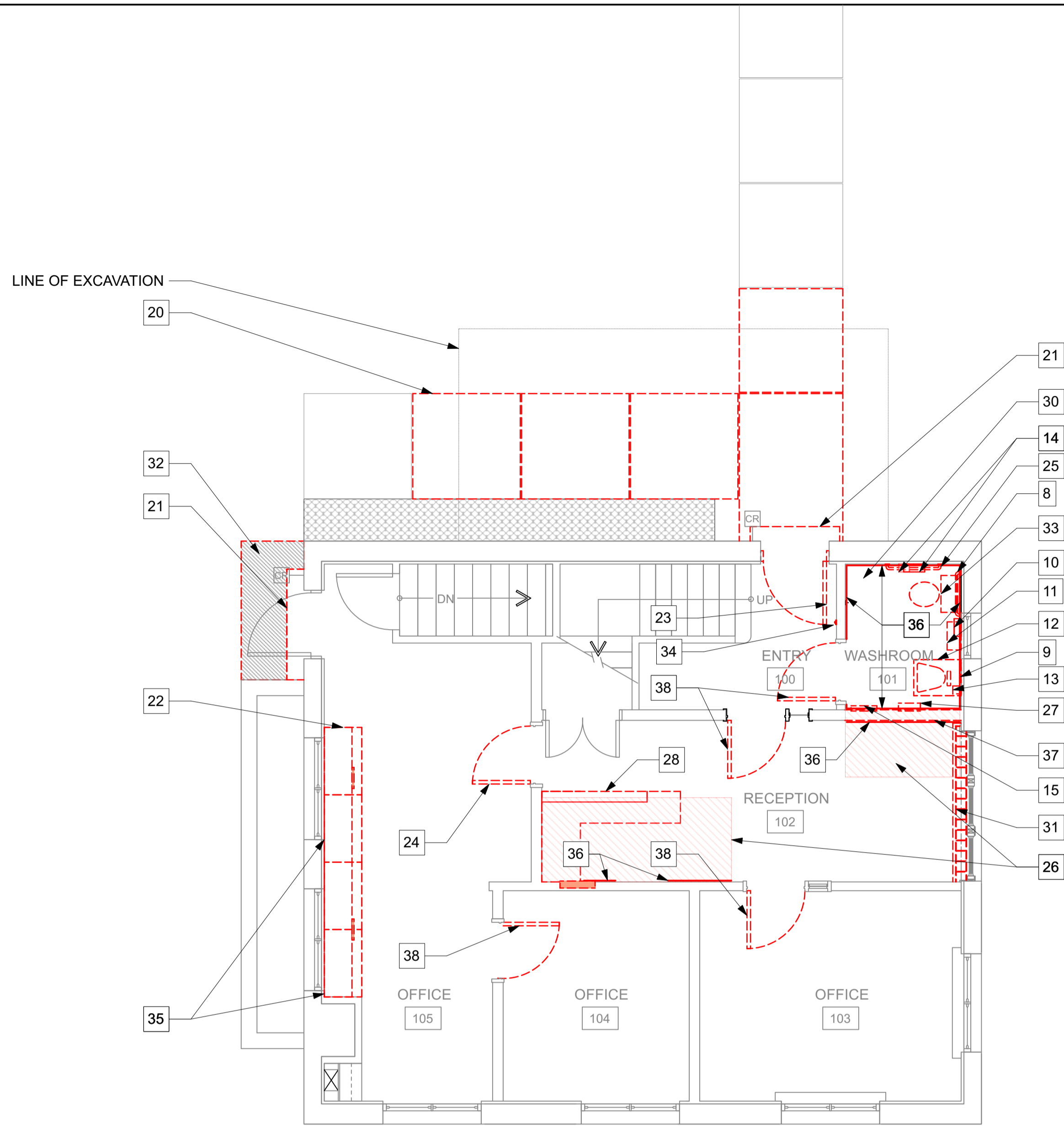
2 PROPOSED BASEMENT PLAN  
Scale: 1:50



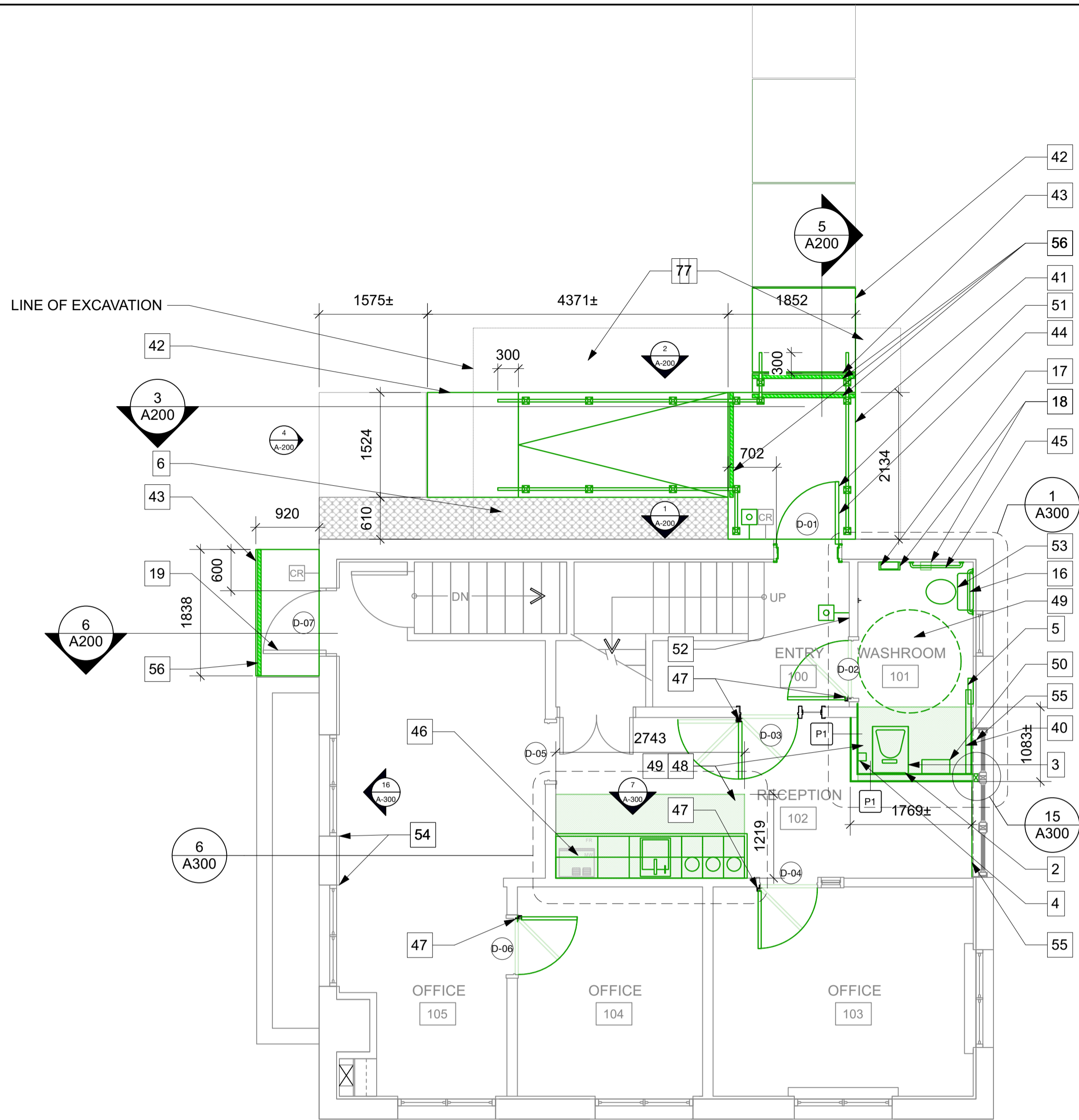
3 BASEMENT REFLECTED CEILING DEMOLITION PLAN  
Scale: 1:50



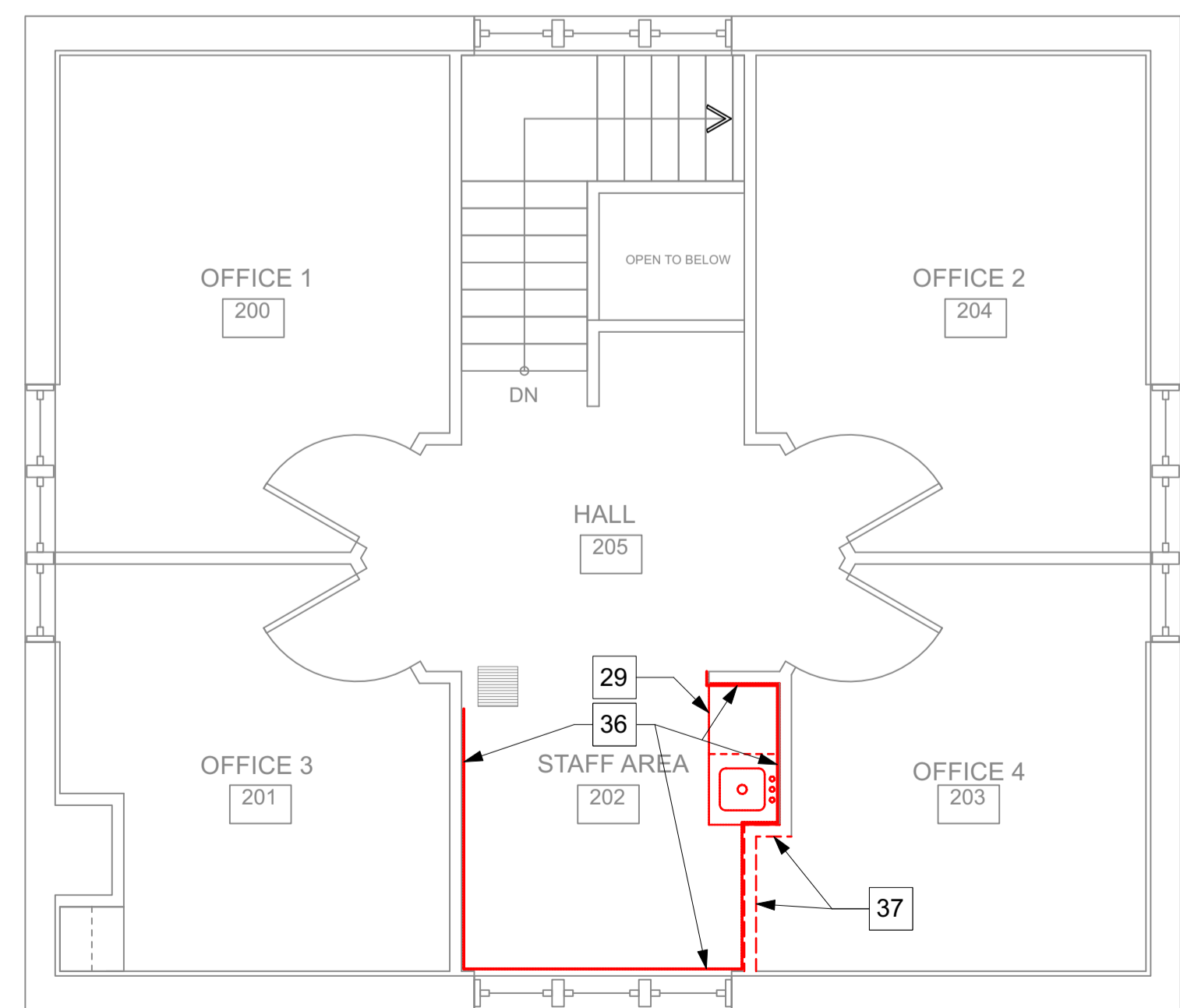
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Scale: 1:50



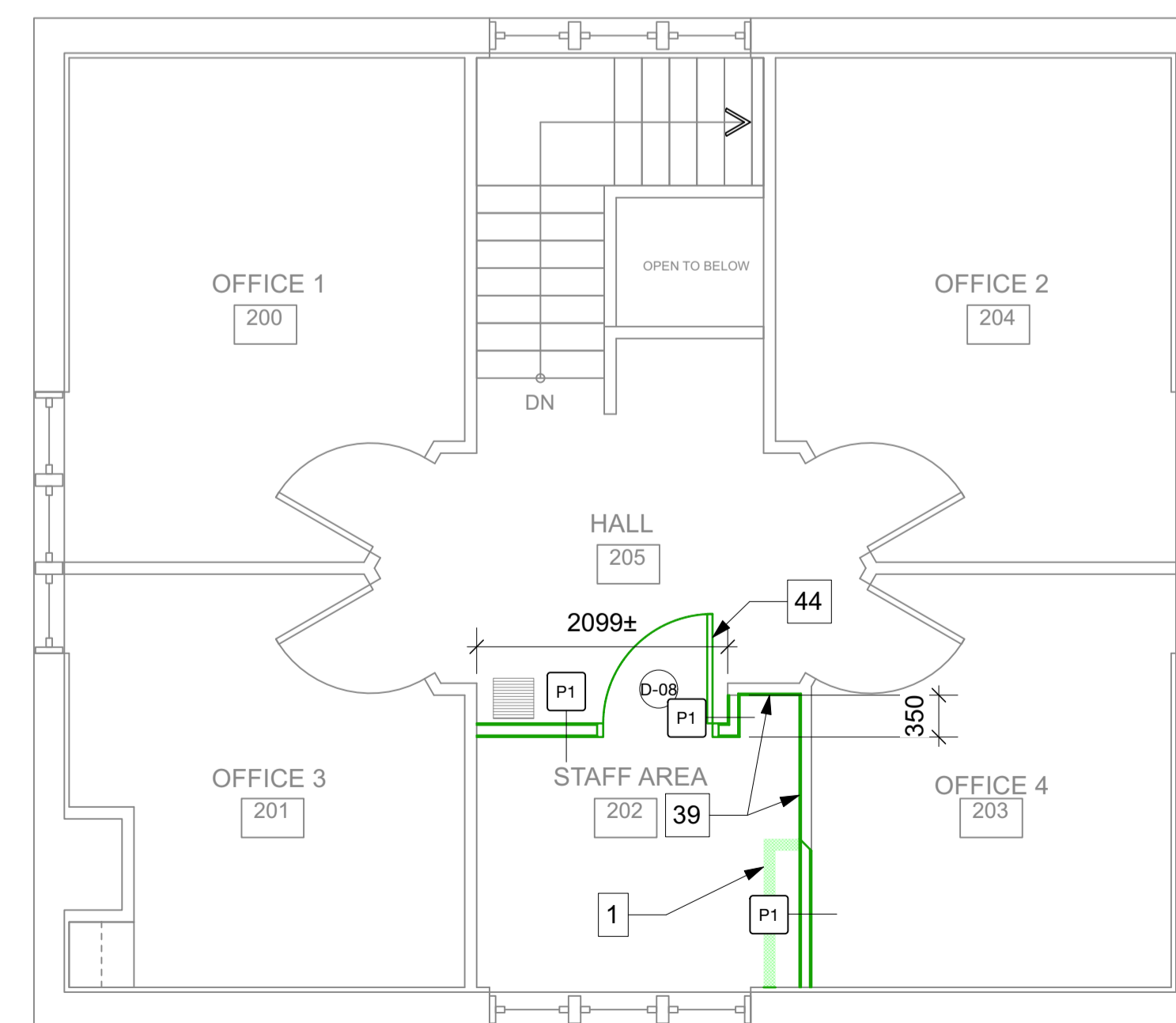
**1 GROUND FLOOR DEMOLITION PLAN**  
Scale: 1:50



**3 PROPOSED GROUND FLOOR PLAN**  
Scale: 1:50



**2 SECOND FLOOR DEMOLITION PLAN**  
Scale: 1:50



**4 PROPOSED SECOND FLOOR PLAN**  
Scale: 1:50

**GENERAL NOTES**

- 01) CONTRACTOR TO ALLOW AND INCLUDE FOR REMOVAL AND RE-INSTALLMENT OF MATERIALS AND EQUIPMENT ADEQUATELY REQUIRED FOR THE INSTALLATION OF ALL NEW CONSTRUCTION, CONDUIT, SERVICES AND EQUIPMENT. MAKE GOOD ALL SURFACES AND RE-FINISH TO MATCH EXISTING STATE.
- 02) REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.
- 03) NEW POWER, DATA, SWITCHES AND CONTROLS SHOWN FOR COORDINATION PURPOSES ONLY. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS.

**KEYNOTES**

- 1. PATCH FLOORING WHERE PARTITION HAS BEEN REMOVED (SHOWN SHADED) WITH HARDWOOD TO MATCH EXISTING.
- 2. RE-INSTALL MIRROR
- 3. RE-INSTALL SINK. SUPPLY AND INSTALL NEW FAUCET.
- 4. RE-INSTALL SOAP DISPENSER
- 5. RE-INSTALL WASTE RECEPTACLE
- 6. RE-INSTATE RIVER ROCK (TYP)
- 7. RE-SOD AREA AFFECTED BY EXCAVATION (TYP)
- 8. RELOCATE EXISTING GRAB BAR
- 9. RELOCATE EXISTING MIRROR
- 10. RELOCATE EXISTING SANITARY NAPKIN DISPOSAL
- 11. RELOCATE EXISTING SHELF
- 12. RELOCATE EXISTING SINK. REMOVE EXISTING FAUCET.
- 13. RELOCATE EXISTING SOAP DISPENSER
- 14. RELOCATE EXISTING TOILET PAPER HOLDER
- 15. RELOCATE EXISTING WASTE RECEPTACLE
- 16. RELOCATED GRAB BAR (GB2)
- 17. RELOCATED SANITARY NAPKIN DISPOSAL
- 18. RELOCATED TOILET PAPER HOLDER
- 19. REMOVE DEADBOLT FROM EXISTING DOOR
- 20. REMOVE EXISTING CONCRETE SIDEWALK (SHOWN DASHED)
- 21. REMOVE EXISTING CONCRETE STEP
- 22. REMOVE EXISTING COUNTER MILLWORK
- 23. REMOVE EXISTING DOOR AND FRAME.
- 24. REMOVE EXISTING DOOR AND HINGES. EXISTING DOOR FRAME TO REMAIN.
- 25. REMOVE EXISTING GRAB BAR
- 26. REMOVE EXISTING HARDWOOD FLOORING (AREA SHOWN HATCHED)
- 27. REMOVE EXISTING HEATER
- 28. REMOVE EXISTING MILLWORK
- 29. REMOVE EXISTING MILLWORK (UPPER AND LOWER CABINETS), SINK, FAUCET, TILE AND TILE BACKER BOARD.
- 30. REMOVE EXISTING RESILIENT SHEET FLOORING.
- 31. REMOVE EXISTING WINDOW STOOL (INCLUDING TILE) AND APRON.
- 32. REMOVE EXISTING SLOPED ASPHALT (SHOWN HATCHED)
- 33. REMOVE EXISTING TOILET
- 34. REMOVE EXISTING WALL-MOUNTED DOOR STOP
- 35. REMOVE EXISTING WINDOW CASING (ALL SIDES)
- 36. REMOVE EXISTING WOOD WALL BASE. SALVAGE FOR RE-USE WHERE INDICATED (TYP).
- 37. REMOVE PORTION OF EXISTING PARTITION (SHOWN DASHED)
- 38. REPLACE HINGES ON EXISTING DOOR.
- 39. SUPPLY AND INSTALL NEW 13mm GYPSUM WALL BOARD
- 40. SUPPLY AND INSTALL NEW BASEBOARD HEATER
- 41. SUPPLY AND INSTALL NEW CONCRETE RAMP AND LANDING
- 42. SUPPLY AND INSTALL NEW CONCRETE SIDEWALK SLAB
- 43. SUPPLY AND INSTALL NEW CONCRETE STEP
- 44. SUPPLY AND INSTALL NEW DOOR
- 45. SUPPLY AND INSTALL NEW GRAB BAR (GB1)
- 46. SUPPLY AND INSTALL NEW MILLWORK
- 47. SUPPLY AND INSTALL NEW SWING CLEAR (OFF-SET) HINGE
- 48. SUPPLY AND INSTALL NEW PLYWOOD SUBFLOOR SHEATHING (AREA SHOWN SHADED)
- 49. SUPPLY AND INSTALL NEW RESILIENT SHEET FLOORING
- 50. RE-INSTALL SHELF
- 51. SUPPLY AND INSTALL NEW SIGNAGE (ACCESSIBLE ENTRY) PER 12/A300
- 52. SUPPLY AND INSTALL NEW SIGNAGE (ACCESSIBLE WASHROOM) PER 11/A300
- 53. SUPPLY AND INSTALL NEW TOILET
- 54. SUPPLY AND INSTALL NEW WINDOW CASING (FOUR SIDES), PAINT.
- 55. SUPPLY AND INSTALL NEW WINDOW STOOL AND NEW CASING.
- 56. SUPPLY AND INSTALL SLIP RESISTANT STRIP AT LEADING EDGE OF TREAD AND LANDING (TYP)

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**CONSULTANTS**

**KEY PLAN**

#	ISSUE	DATE
01	PRELIMINARY REVIEW	10/22/2021
02	75% REVIEW	11/05/2021
03	90% REVIEW	11/19/2021
04	TENDER	12/15/2021

**PROJECT NAME**  
**CENTRAL EXPERIMENTAL FARM**  
**Building 26**  
OTTAWA, ON

**ACCOMMODATION FIT-UP**

**SHEET TITLE**  
GROUND AND SECOND:  
DEMOLITION FLOOR PLANS,  
PROPOSED FLOOR PLANS

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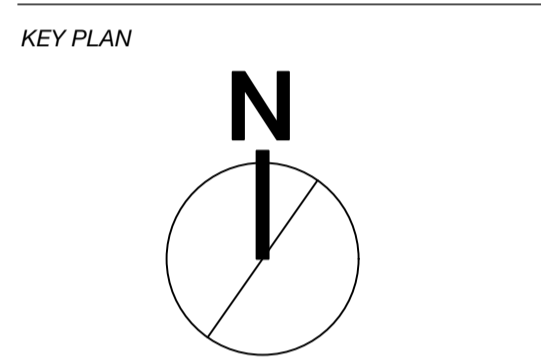
**PROJECT #:** 21-007-1  
**DRAWN BY:** KT  
**CHECKED BY:** KT

**SHEET**





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#	ISSUE	DATE
01	PRELIMINARY REVIEW	10/22/2021
02	75% REVIEW	11/05/2021
03	99% REVIEW	11/19/2021
04	TENDER	12/15/2021

PROJECT NAME  
**CENTRAL EXPERIMENTAL FARM  
Building 26**  
OTTAWA, ON

ACCOMMODATION FIT-UP

SHEET TITLE  
GROUND AND SECOND:  
DEMOLITION REFLECTED CEILING  
PLANS, PROPOSED REFLECTED  
CEILING PLANS

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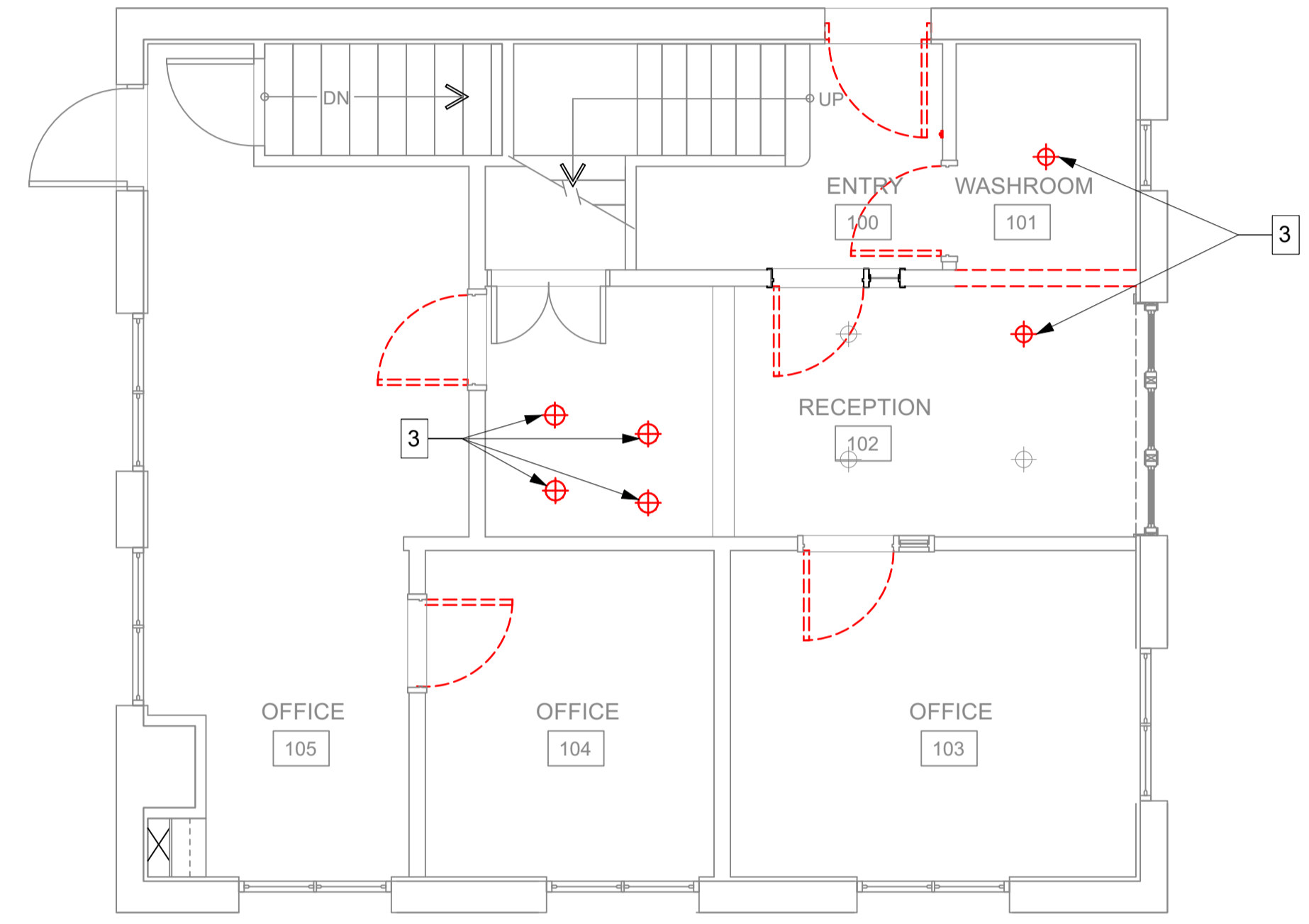
**A-102**

GENERAL NOTES

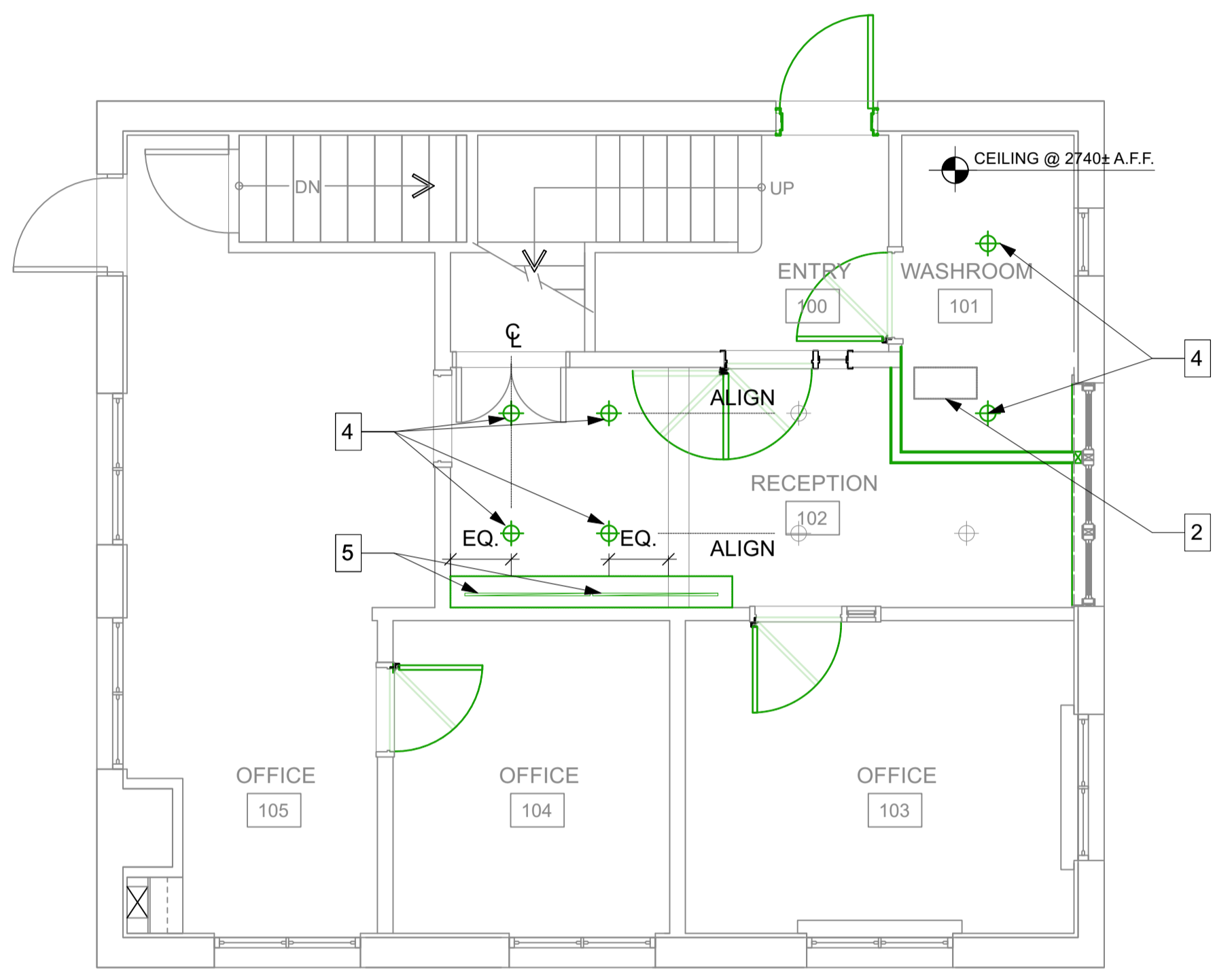
- 01) CONTRACTOR TO ALLOW AND INCLUDE FOR REMOVAL AND RE-INSTALLMENT OF MATERIALS AND EQUIPMENT ADEQUATELY REQUIRED FOR THE INSTALLATION OF ALL NEW CONSTRUCTION, CONDUIT, SERVICES AND EQUIPMENT. MAKE GOOD ALL SURFACES AND RE-FINISH TO MATCH EXISTING STATE.
- 02) REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.
- 03) NEW POWER, DATA, SWITCHES AND CONTROLS SHOWN FOR COORDINATION PURPOSES ONLY. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS.

KEYNOTES

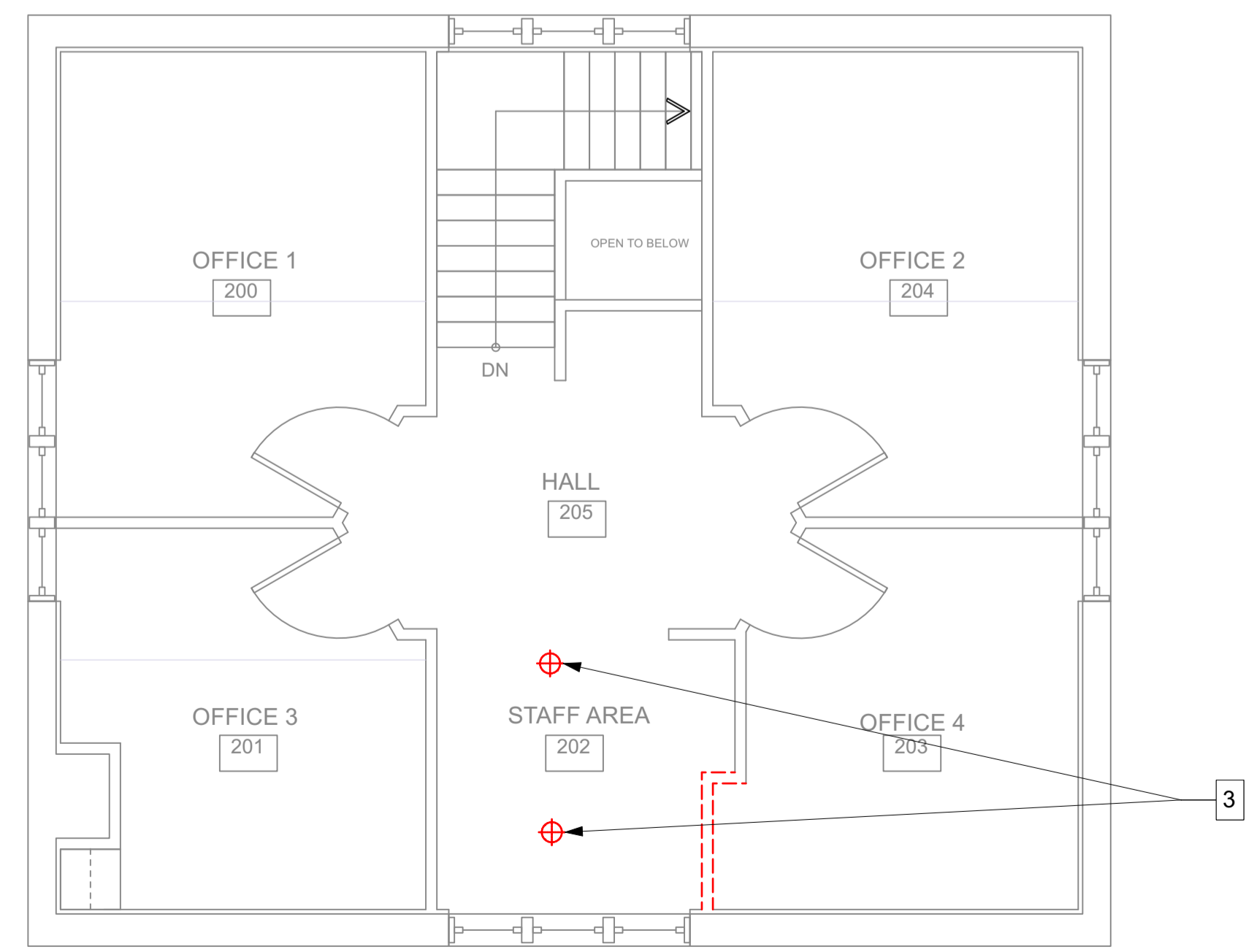
- 1. PATCH CEILING (WHERE PARTITION REMOVED) WITH NEW 13mm GYPSUM BOARD, PAINT.
- 2. PATCH EXISTING EXPLORATORY CEILING OPENING WITH 13mm NEW GYPSUM BOARD, PAINT.
- 3. REMOVE EXISTING RECESSED LIGHT
- 4. SUPPLY AND INSTALL NEW LED LIGHTING
- 5. SUPPLY AND INSTALL NEW VALENCE LIGHTING



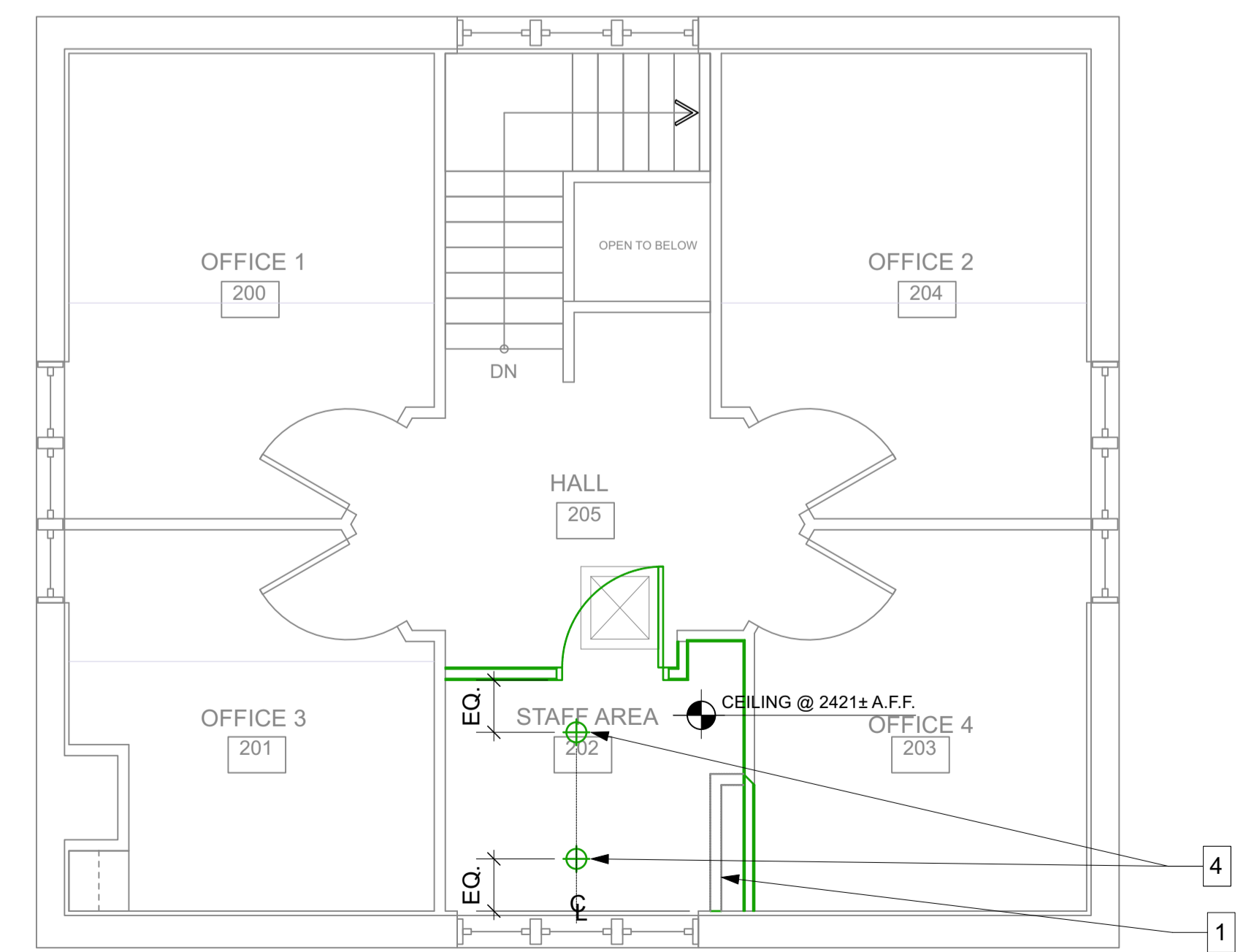
**1 GROUND FLOOR REFLECTED CEILING DEMOLITION PLAN**  
Scale: 1:50



**3 PROPOSED GROUND REFLECTED CEILING PLAN**  
Scale: 1:50



**2 SECOND FLOOR REFLECTED CEILING DEMOLITION PLAN**  
Scale: 1:50



**4 PROPOSED SECOND FLOOR PLAN**  
Scale: 1:50

**PAINT SCHEDULE**

ROOM	CEILING	WALLS	OTHER
B-04	NEW GYPSUM: COLOUR 1	NEW GYPSUM: COLOUR 6	NEW DOORS: COLOUR 4
B-05 / B-06	ALL GYPSUM: COLOUR 1	ALL GYPSUM: COLOUR 2	
100	N/A	N/A	NEW DOOR & FRAME: COLOUR 6
101	ALL GYPSUM: COLOUR 1	ALL GYPSUM: COLOUR 2	NEW WINDOW STOLL/APRON/CASING: COLOUR 5
102	ALL GYPSUM: COLOUR 1	GYPSUM: COLOUR 2 (U.N.O.) TO EXTENT INDICATED & COLOUR 3 WHERE INDICATED	NEW WINDOW STOOL/APRON/CASING: COLOUR 5 WOOD BASEBOARDS: COLOUR 5
105	N/A	GYPSUM: COLOUR 2 TO EXTENT INDICATED	NEW WINDOW CASING: COLOUR 5
202	ALL GYPSUM: COLOUR 1	ALL GYPSUM: COLOUR 2 (U.N.O.) & COLOUR 3 WHERE INDICATED	NEW DOOR & FRAME: COLOUR 4 NEW WOOD BASEBOARDS: COLOUR 5
203	N/A	GYPSUM: COLOUR 2 TO EXTENT INDICATED	WOOD BASEBOARDS: COLOUR 5
205	N/A	GYPSUM: COLOUR 2 TO EXTENT INDICATED	NEW DOOR & FRAME: COLOUR 4 WOOD BASEBOARDS: COLOUR 5

NOTES:  
 1) COLOURS TO BE DETERMINED.  
 2) PATCHED GYPSUM BOARD SURFACES TO BE RE-PAINTED: REPAINT ENTIRE SURFACE PLANE TO NEAREST CORNER.  
 3) SALVAGED WOOD BASEBOARDS: REPAINT ENTIRE SURFACE TO NEAREST CORNER.  
 4) PAINT EXTERIOR HANDRAIL (SEE SECTION 05 50 00 METAL FABRICATIONS) TO BE PAINTED COLOUR 7 .

**GENERAL NOTES**

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 02) REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.  
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SEAL

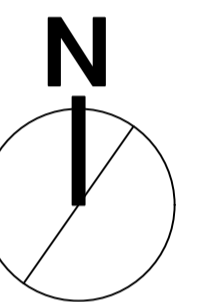


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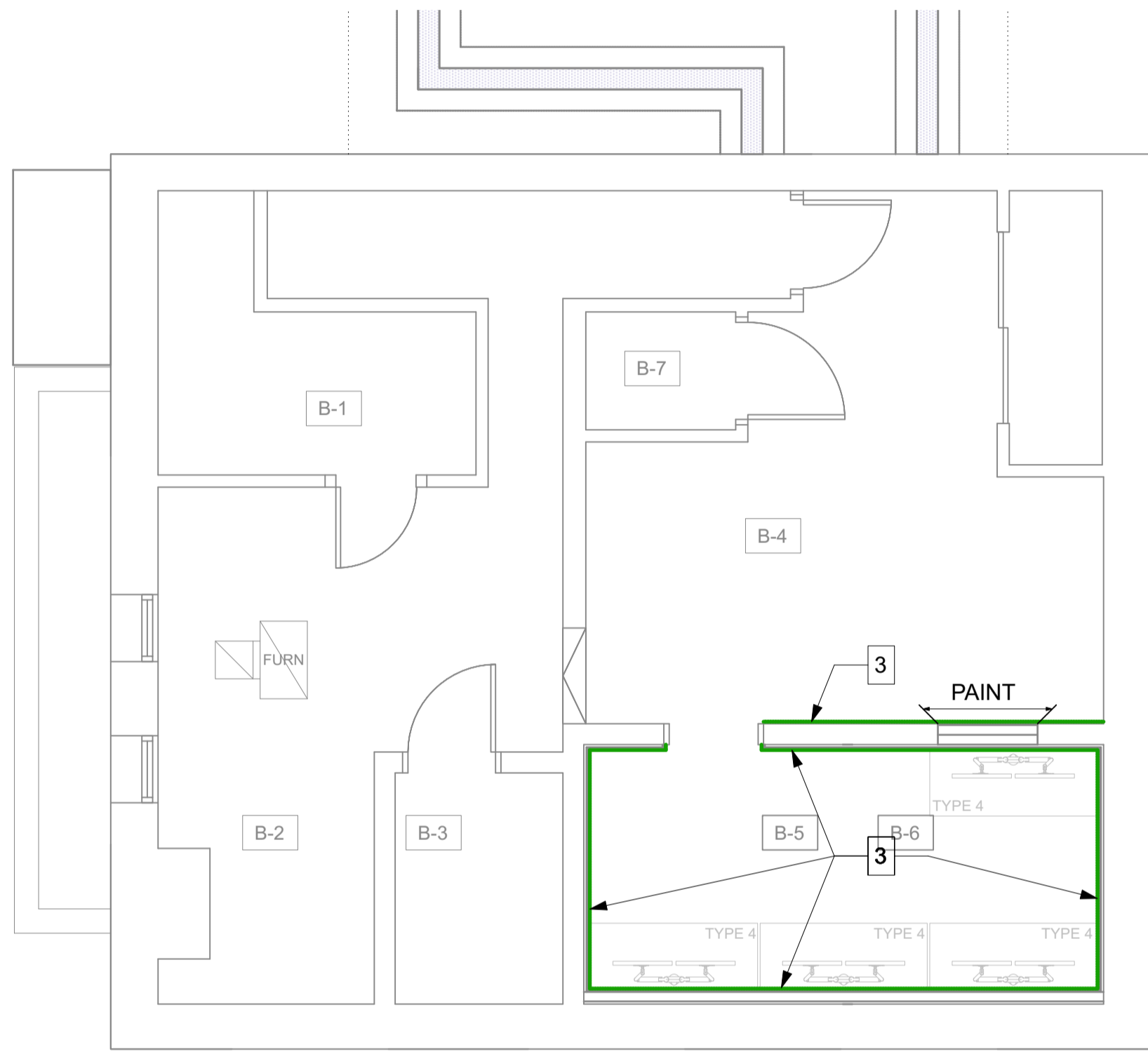
**KEYNOTES**

1. INSTALL SALVAGED WOOD WALL BASE. SUPPLY NEW QUARTER ROUND TO MATCH EXISTING ADJACENT. PAINT.
2. SUPPLY AND INSTALL NEW RESILIENT SHEET FLOORING (AREA SHOWN SHADED)
3. SUPPLY AND INSTALL NEW RUBBER WALL BASE
4. SUPPLY AND INSTALL NEW WOOD WALL BASE. SUPPLY AND INSTALL NEW QUARTER ROUND TO MATCH EXISTING ADJACENT. PAINT. TYPICAL FOR ALL WALLS INSIDE THIS ROOM.

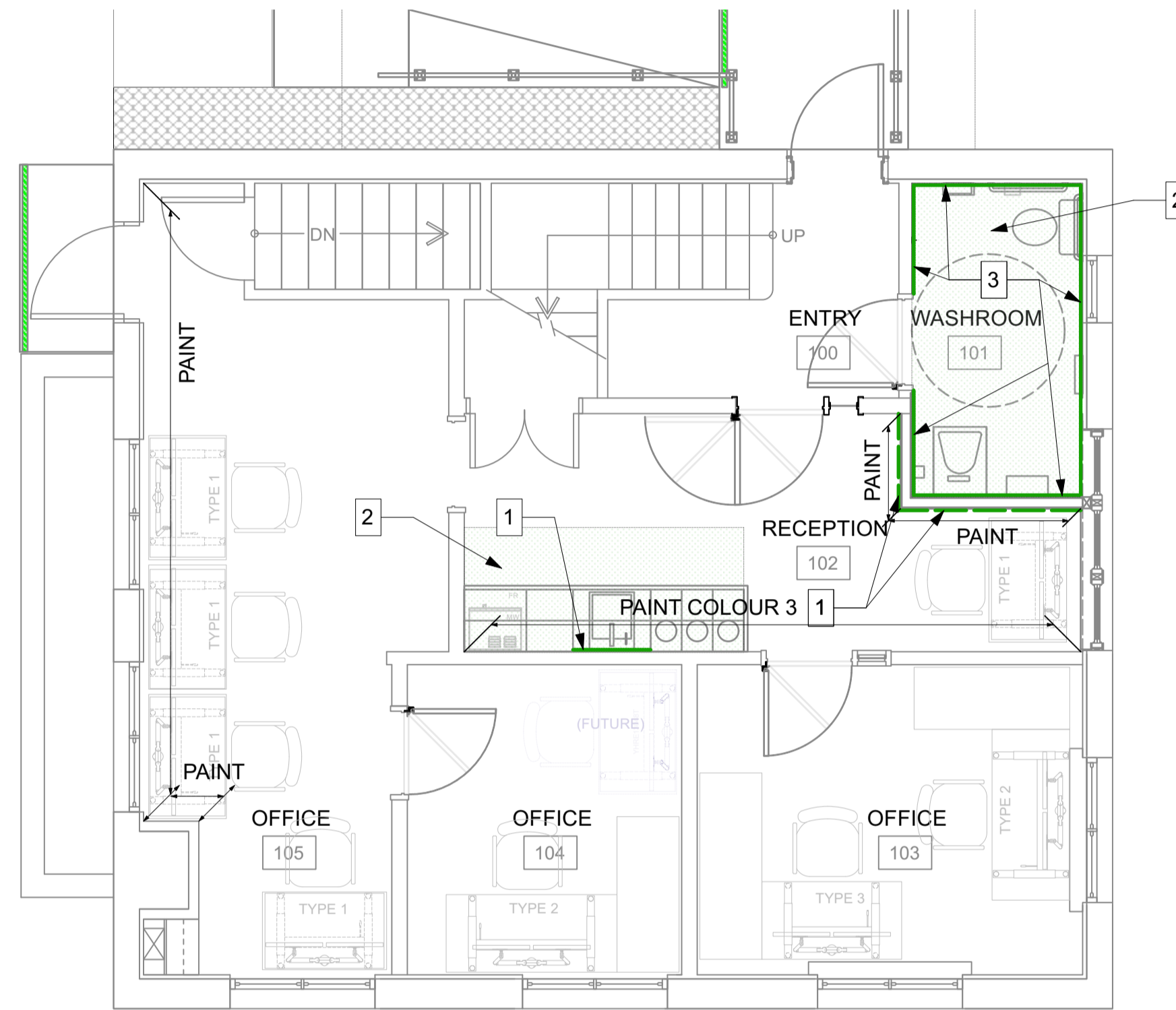
KEY PLAN



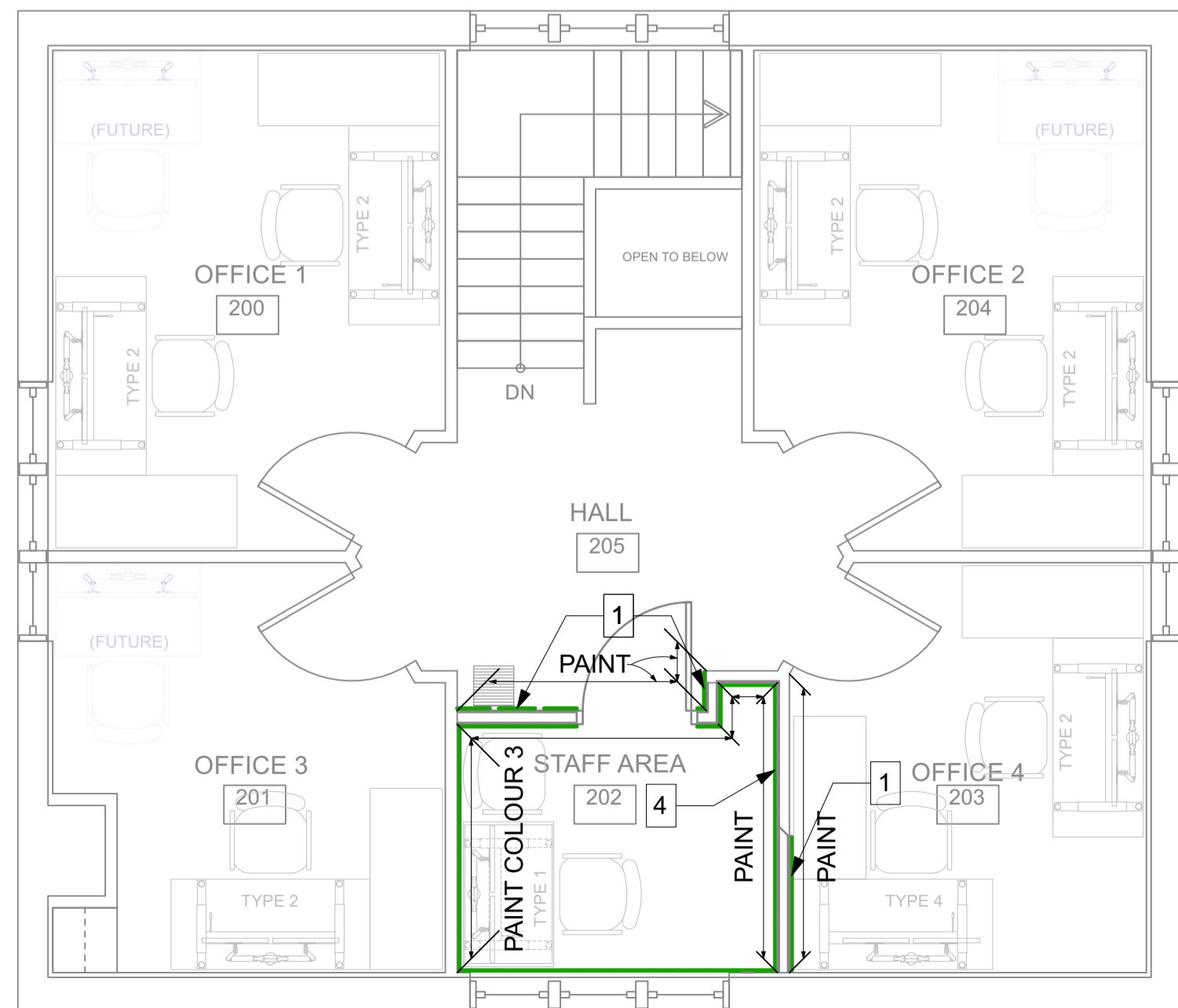
#	ISSUE	DATE
01	PRELIMINARY REVIEW	10/22/2021
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04	TENDER	12/15/2021



**1 BASEMENT FINISH PLAN**  
 Scale: 1:50

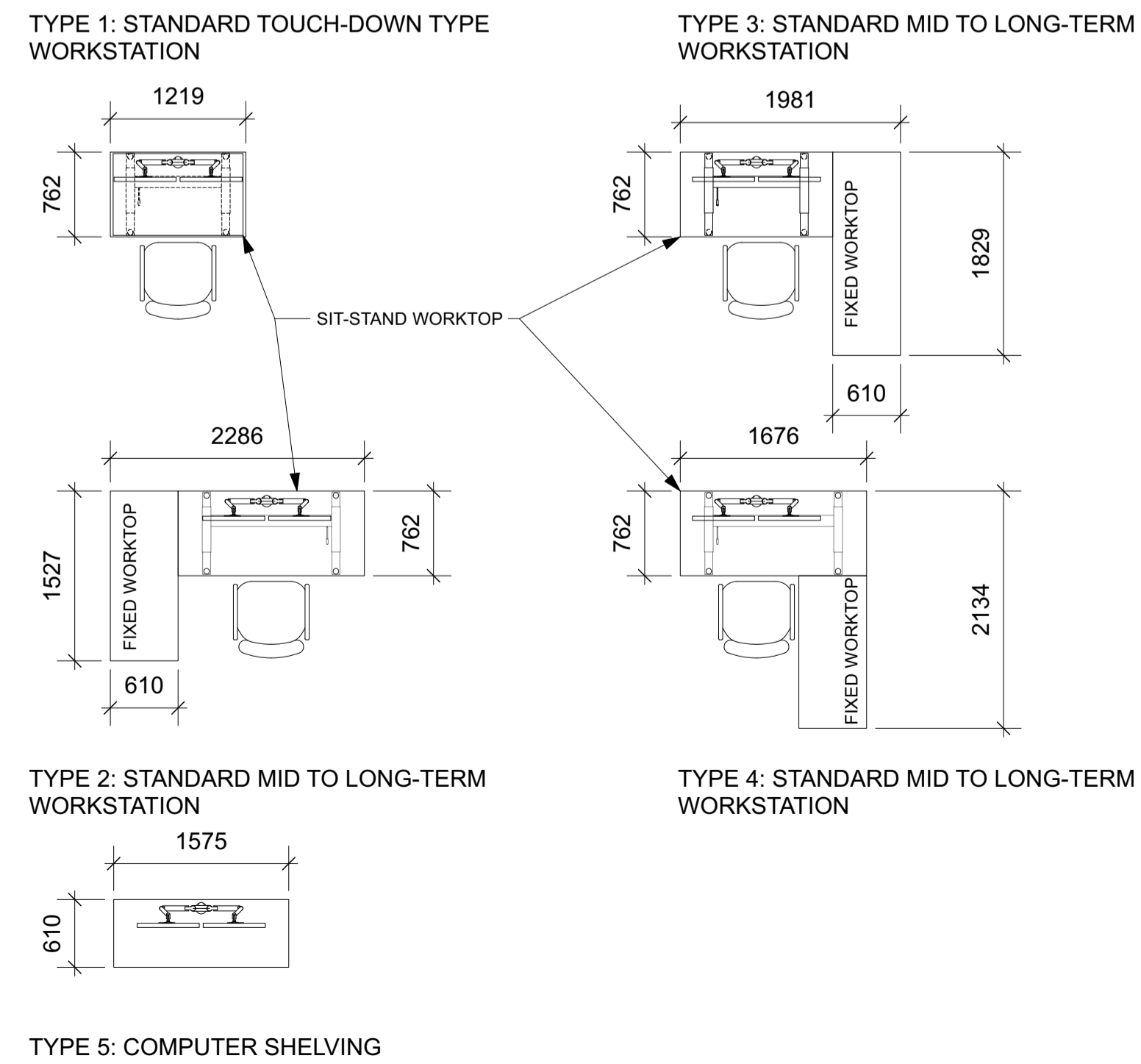


**2 GROUND FLOOR FINISH PLAN**  
 Scale: 1:50



**3 SECOND FLOOR FINISH PLAN**  
 Scale: 1:50

**FURNITURE CONFIGURATIONS (N.I.C. SHOWN FOR PLANNING PURPOSES ONLY)**



PROJECT NAME

**CENTRAL EXPERIMENTAL FARM**  
**Building 26**  
 OTTAWA, ON

ACCOMMODATION FIT-UP

SHEET TITLE

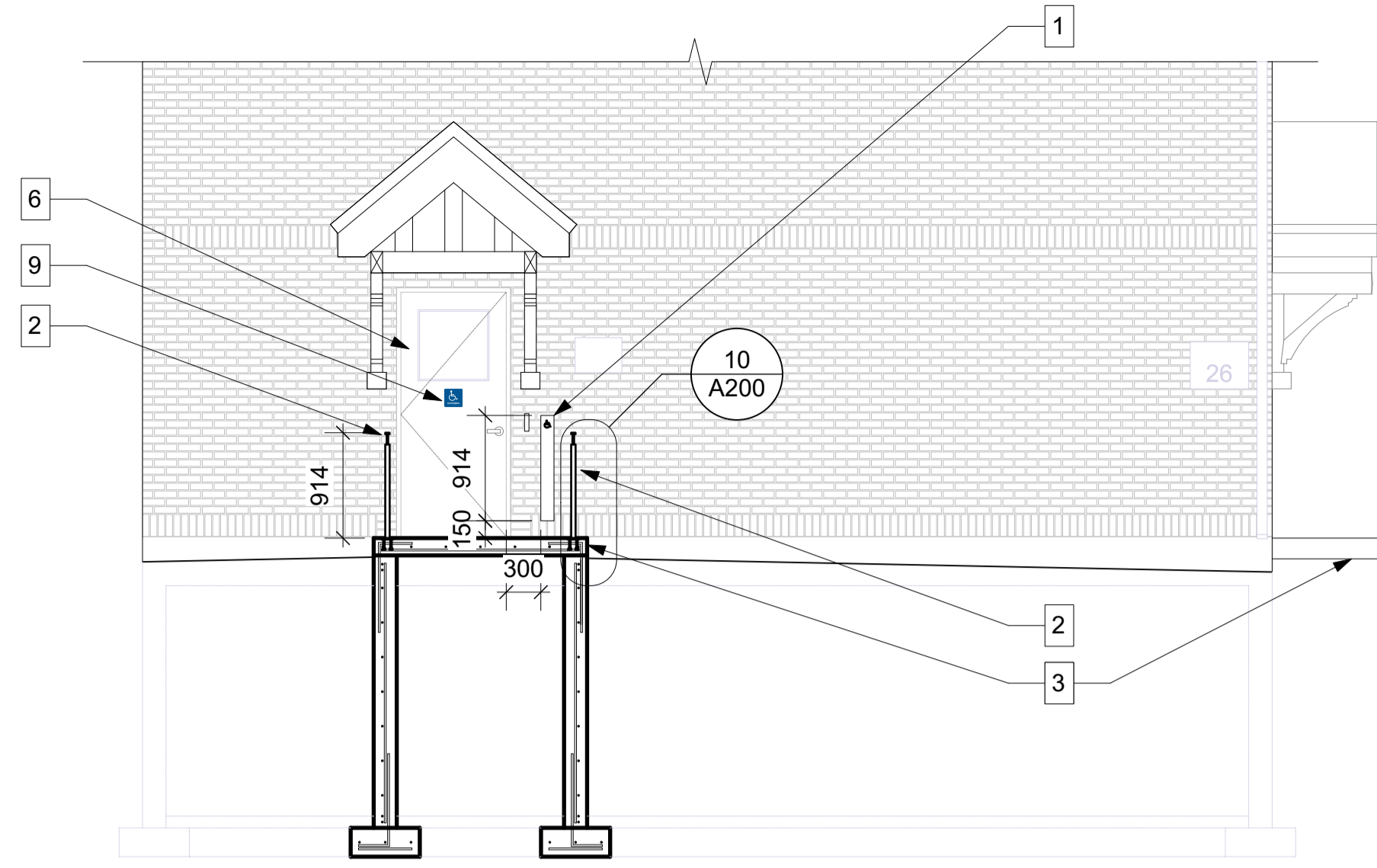
BASEMENT  
 GROUND AND SECOND:  
 FINISH FLOOR PLANS

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PROJECT #: 21-007-1  
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SHEET

**A-103**



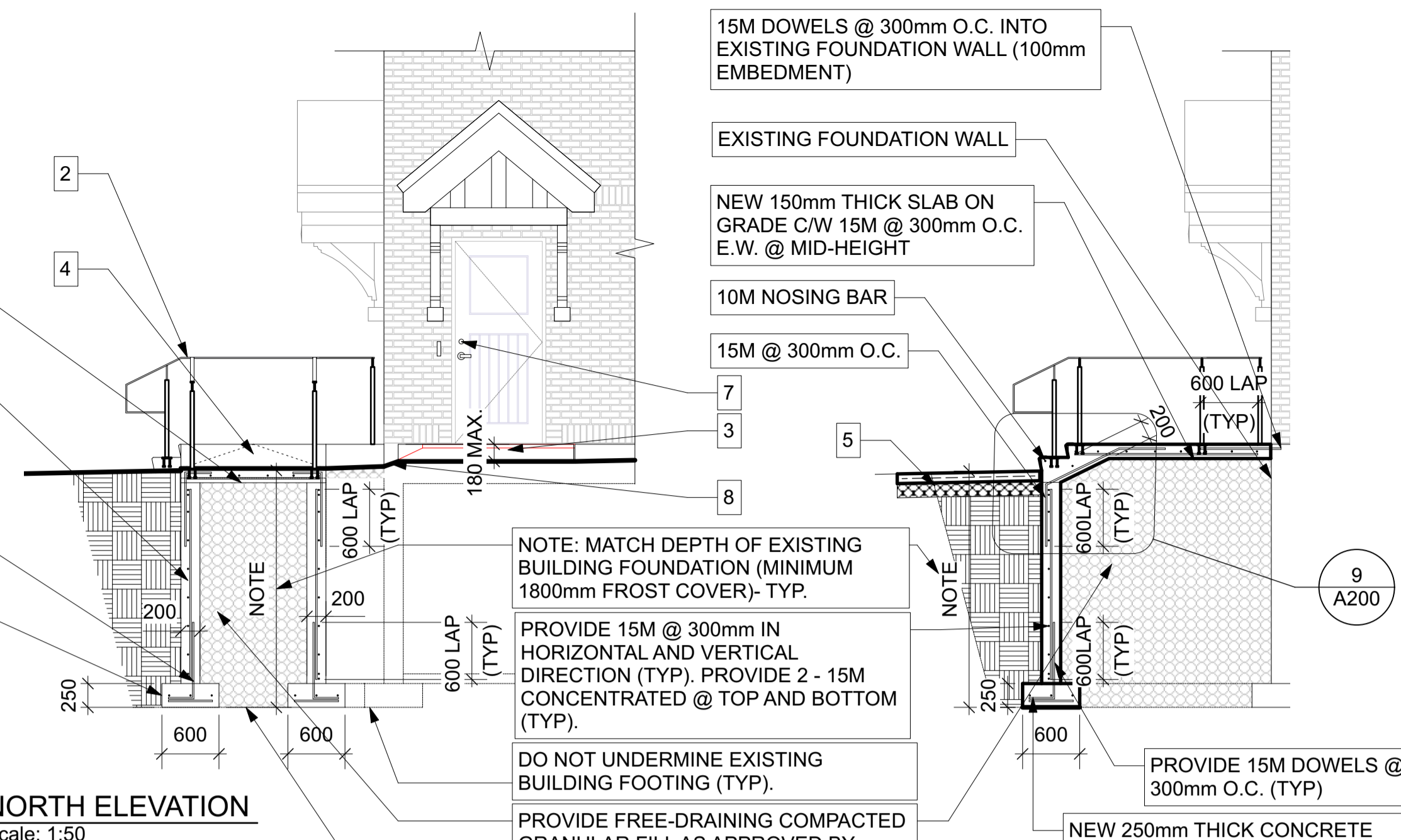
1 WEST ELEVATION  
Scale: 1:50

NEW 150mm THICK SLAB ON GRADE C/W 15M @ 300mm O.C. E.W. @ MID-HEIGHT

PROVIDE 15M @ 300mm IN HORIZONTAL AND VERTICAL DIRECTION (TYP). PROVIDE 2 - 15M CONCENTRATED @ TOP AND BOTTOM (TYP).

PROVIDE 15M DOWELS @ 300mm O.C. (TYP)

NEW 250mm THICK CONCRETE STRIP FOOTING C/W 3-15M CONTINUOUS LONGITUDINAL AND 15M @ 300mm TRANSVERSE (TYP).



4 NORTH ELEVATION  
Scale: 1:50

NOTE: MATCH DEPTH OF EXISTING BUILDING FOUNDATION (MINIMUM 1800mm FROST COVER)- TYP.

PROVIDE 15M @ 300mm IN HORIZONTAL AND VERTICAL DIRECTION (TYP). PROVIDE 2 - 15M CONCENTRATED @ TOP AND BOTTOM (TYP).

DO NOT UNDERMINE EXISTING BUILDING FOOTING (TYP).

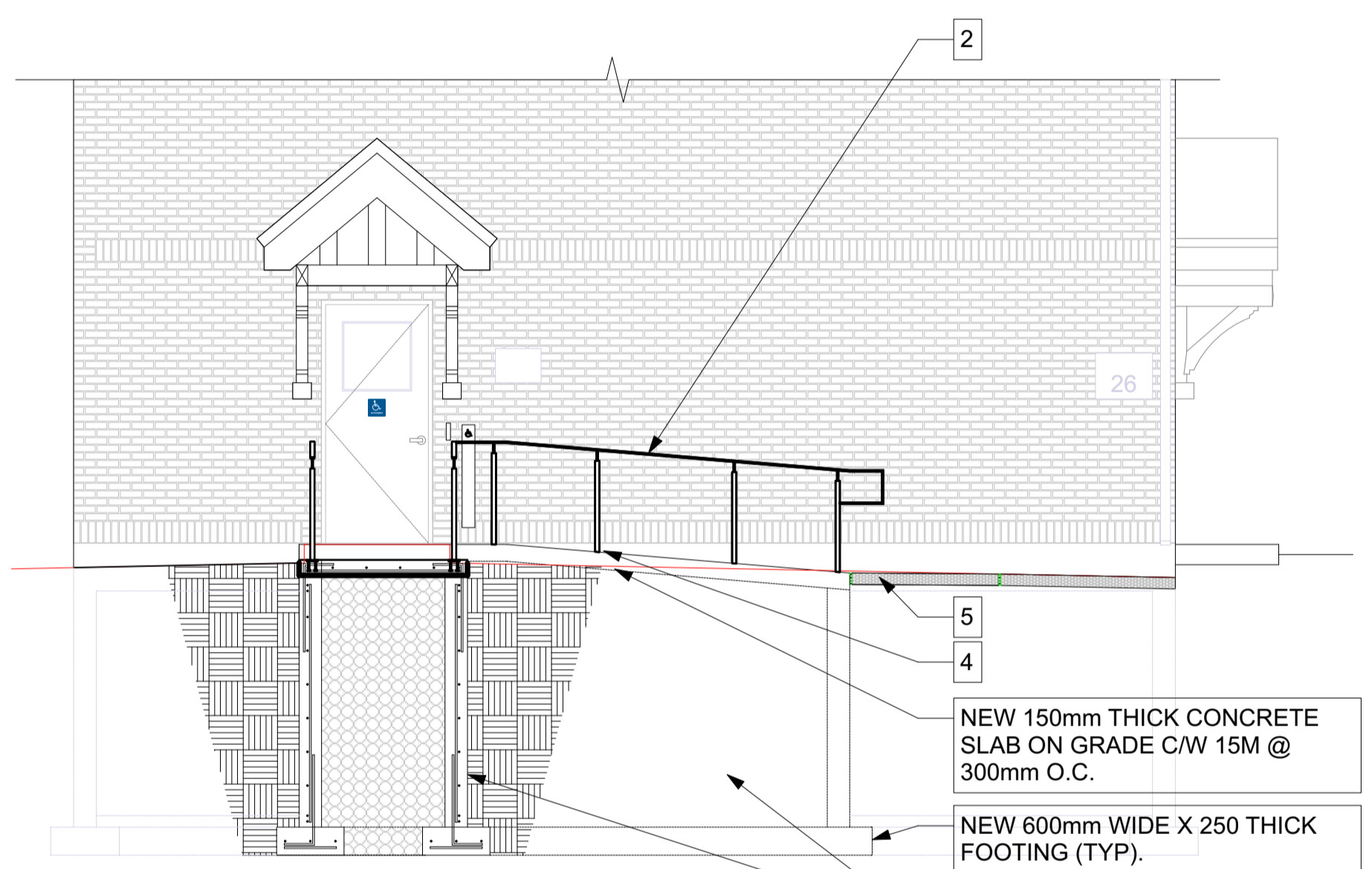
PROVIDE FREE-DRAINING COMPACTED GRANULAR FILL AS APPROVED BY CONTRACTOR'S GEOTECHNICAL ENGINEER (TYP).

LINE OF UNDISTURBED SOIL. CONTRACTOR'S GEOTECHNICAL ENGINEER TO VERIFY PRIOR TO CONCRETE PLACEMENT (TYP).

15M DOWELS @ 300mm O.C. INTO EXISTING FOUNDATION WALL (100mm EMBEDMENT)

NEW 200mm THICK SLAB ON GRADE C/W 15M @ 300mm O.C. E.W. @ MID-HEIGHT

5 SECTION  
Scale: 1:50

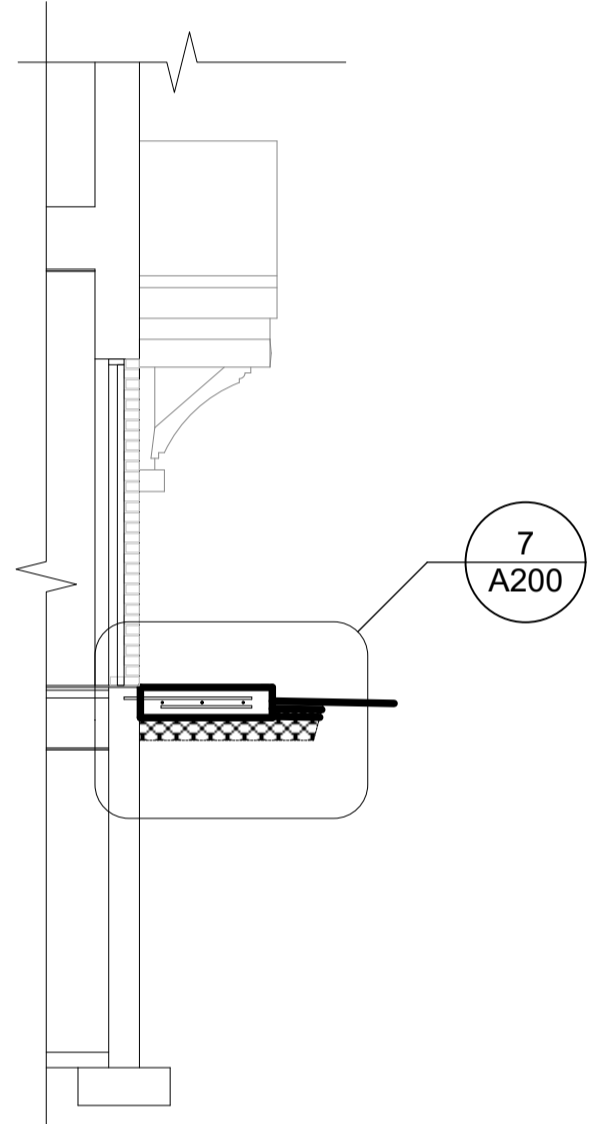


2 WEST ELEVATION  
Scale: 1:50

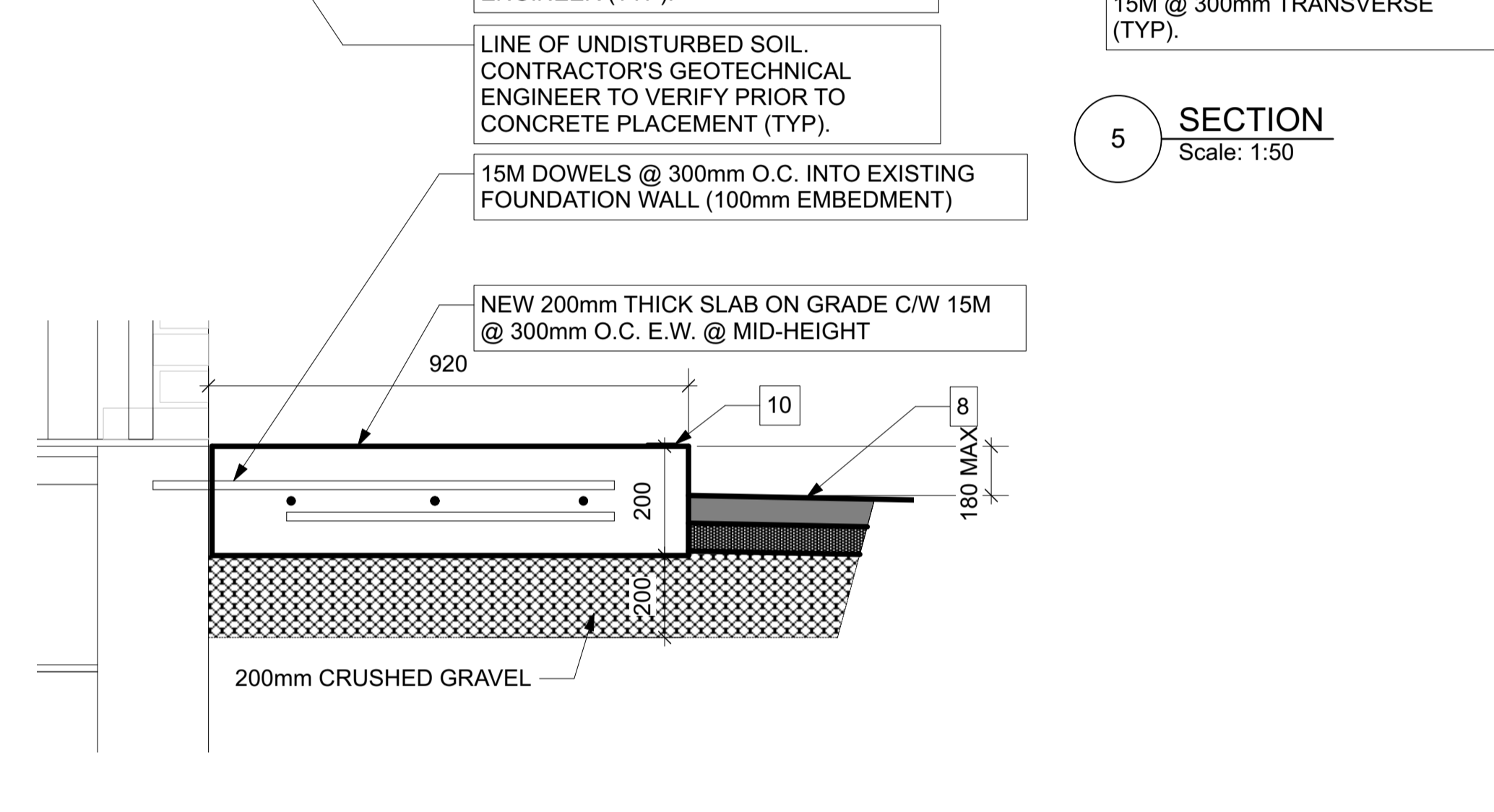
NEW 150mm THICK CONCRETE SLAB ON GRADE C/W 15M @ 300mm O.C.

NEW 600mm WIDE X 250 THICK FOOTING (TYP).

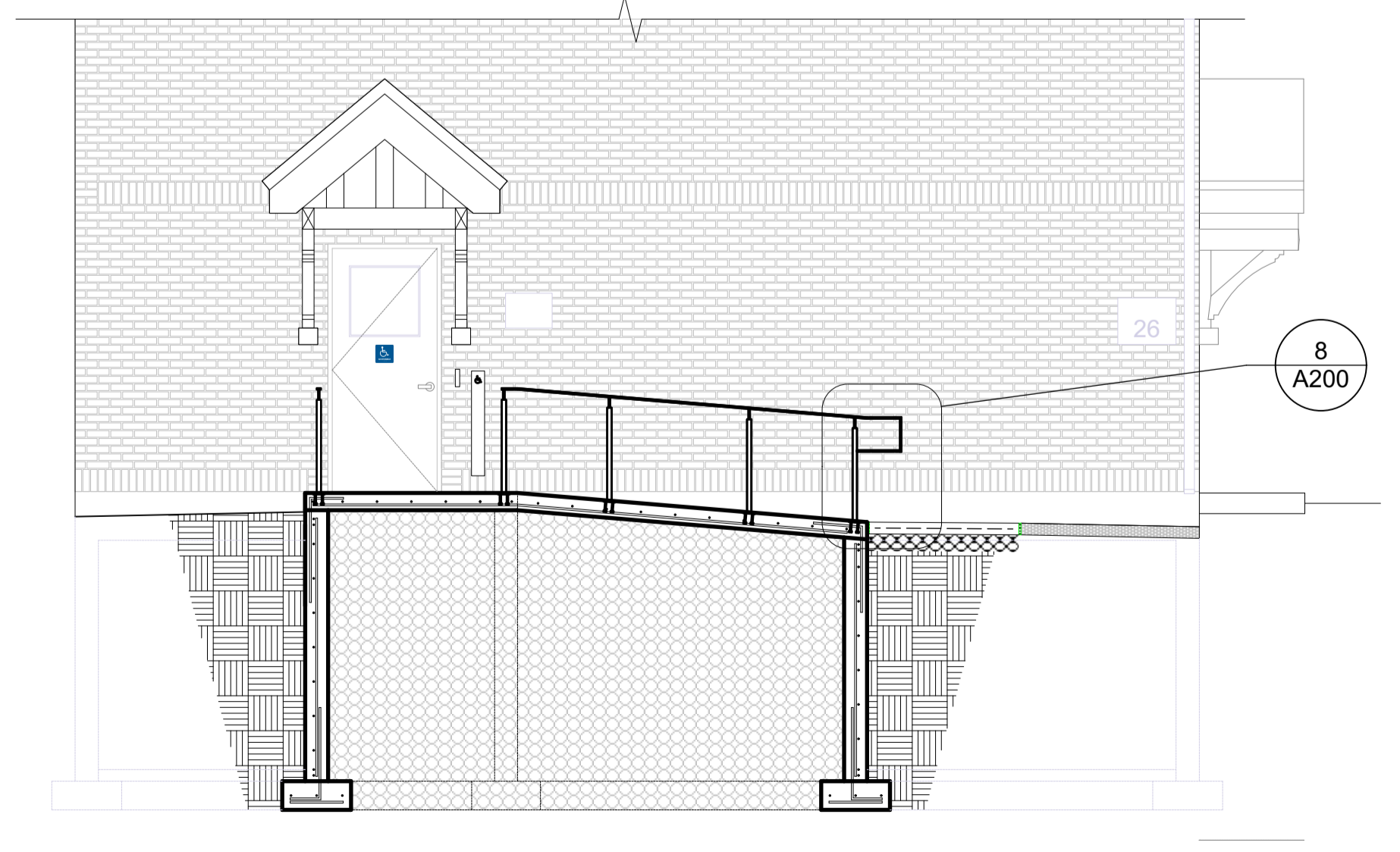
NEW 200mm THICK CONCRETE FOUNDATION WALL (TYP).



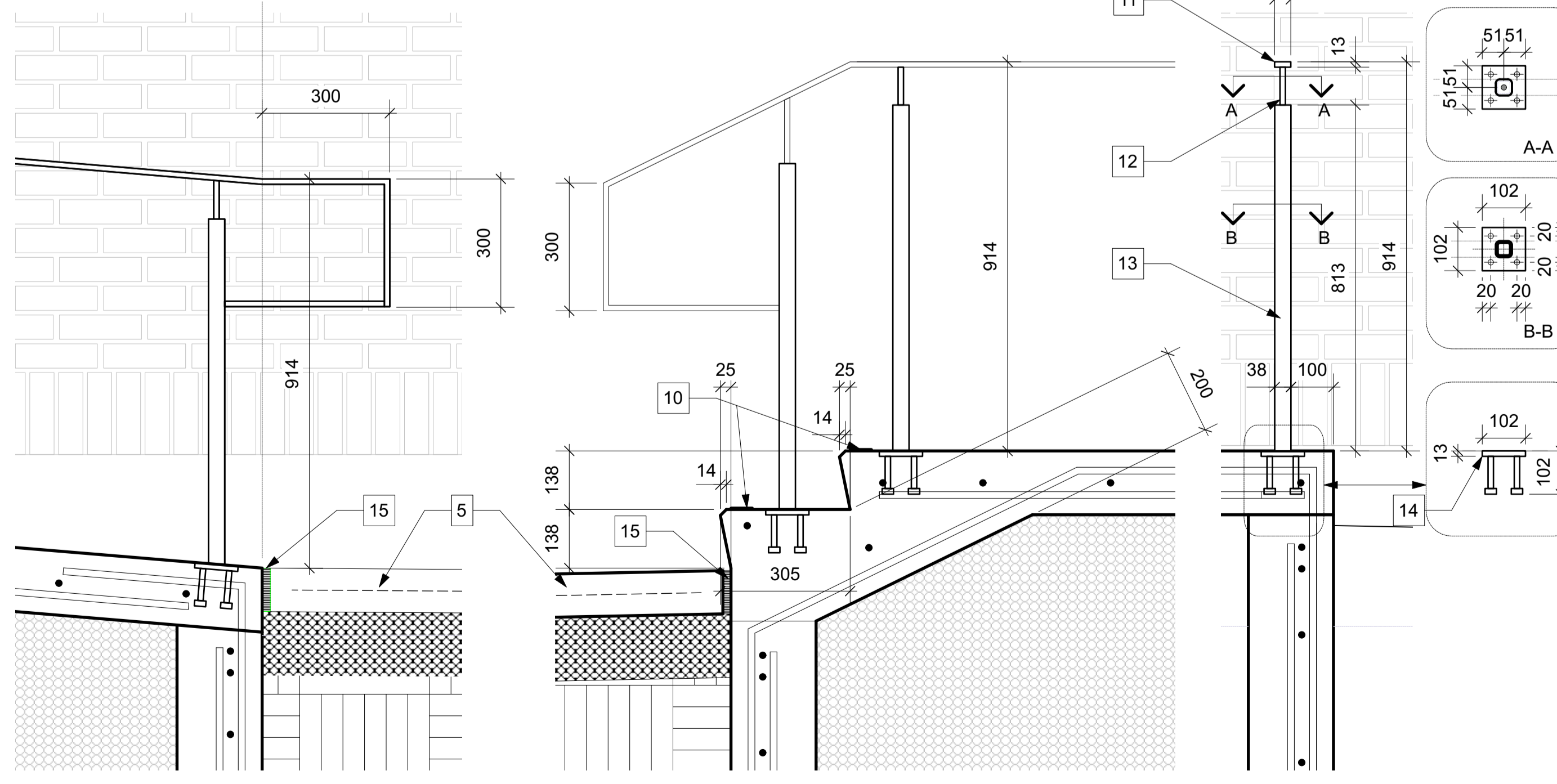
6 SECTION  
Scale: 1:50



7 DETAIL  
Scale: 1:10



3 SECTION  
Scale: 1:50



8 DETAIL  
Scale: 1:10

9 DETAIL  
Scale: 1:10

10 DETAIL- TYP. HANDRAIL  
Scale: 1:10

GENERAL NOTES

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- 03) NEW POWER, DATA, SWITCHES AND CONTROLS SHOWN FOR COORDINATION PURPOSES ONLY. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS.

KEYNOTES

1. SUPPLY AND INSTALL NEW DOOR OPERATOR ACTUATOR SWITCH
2. SUPPLY AND INSTALL NEW HANDRAIL. PAINT.
3. SUPPLY AND INSTALL NEW CONCRETE LANDING
4. SUPPLY AND INSTALL NEW CONCRETE RAMP WITH 1:12 SLOPE (MAX).
5. SUPPLY AND INSTALL NEW 102mm THICK CAST-IN-PLACE CONCRETE SIDEWALK SLAB (C/W 152 X 152 MW18.7/MW18.7 GALVANIZED WELDED WIRE MESH IN SHEETS), ON 200mm CRUSHED GRAVEL ON COMPACTED BACKFILL (OR UNDISTURBED SOIL).
6. SUPPLY AND INSTALL NEW DOOR AND FRAME. SEE DOOR SCHEDULE.
7. REMOVE EXISTING DEADBOLT HARDWARE. PLUG REMAINING HOLE. SUPPLY AND INSTALL NEW COVER PLATE ON BOTH SIDES OF DOOR.
8. PATCH ASPHALT AT PERIMETER OF NEW CONCRETE LANDING. PROVIDE MAXIMUM RISE AT LANDING OF 180mm.
9. SUPPLY AND INSTALL NEW SIGNAGE (ACCESSIBLE ENTRY) PER 12/A300.
10. SUPPLY AND INSTALL 50mm x FULL WIDTH NON-SLIP STRIP.
11. 38 X 13mm WELDED STEEL BAR (HANDRAIL)- TYP. HOT-DIP GALVANIZE AND PAINT.
12. 16mm DIA. WELDED STEEL ROD- TYP. HOT-DIP GALVANIZE AND PAINT.
13. 38 X 38 WELDED SQUARE STEEL TUBE- TYP. HOT-DIP GALVANIZE AND PAINT.
14. 102 X 102 X 13mm WELDED METAL PLATE, C/W 4-13mm DIA HEADED STUDS- TYP. HOT-DIP GALVANIZE AND PAINT.
15. SUPPLY AND INSTALL ISOLATION JOINT (TYP)

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KEY PLAN

PROJECT NAME  
**CENTRAL EXPERIMENTAL FARM  
Building 26**  
OTTAWA, ON

ACCOMMODATION FIT-UP

SHEET TITLE  
**ELEVATIONS &  
EXTERIOR DETAILS**

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SHEET

**A-200**



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KEY PLAN

#	ISSUE	DATE
01	PRELIMINARY REVIEW	10/22/2021
02	75% REVIEW	11/05/2021
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04	TENDER	12/15/2021

PROJECT NAME

**CENTRAL EXPERIMENTAL FARM**  
**Building 26**  
 OTTAWA, ON

ACCOMMODATION FIT-UP

SHEET TITLE

DETAILS

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PROJECT #: 21-007-1

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SHEET

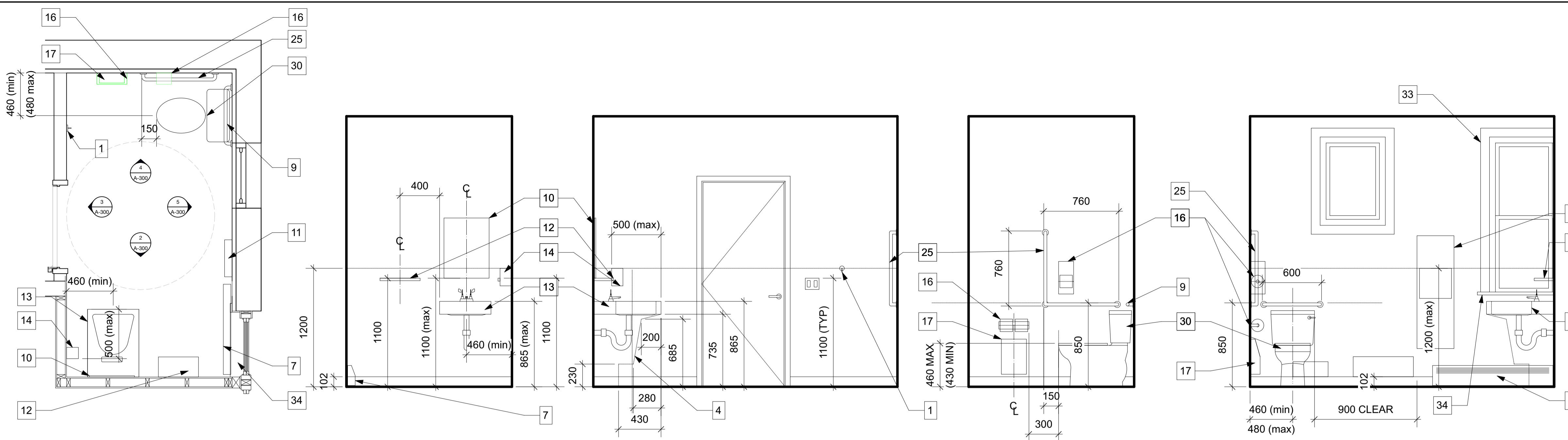
**A-300**

GENERAL NOTES

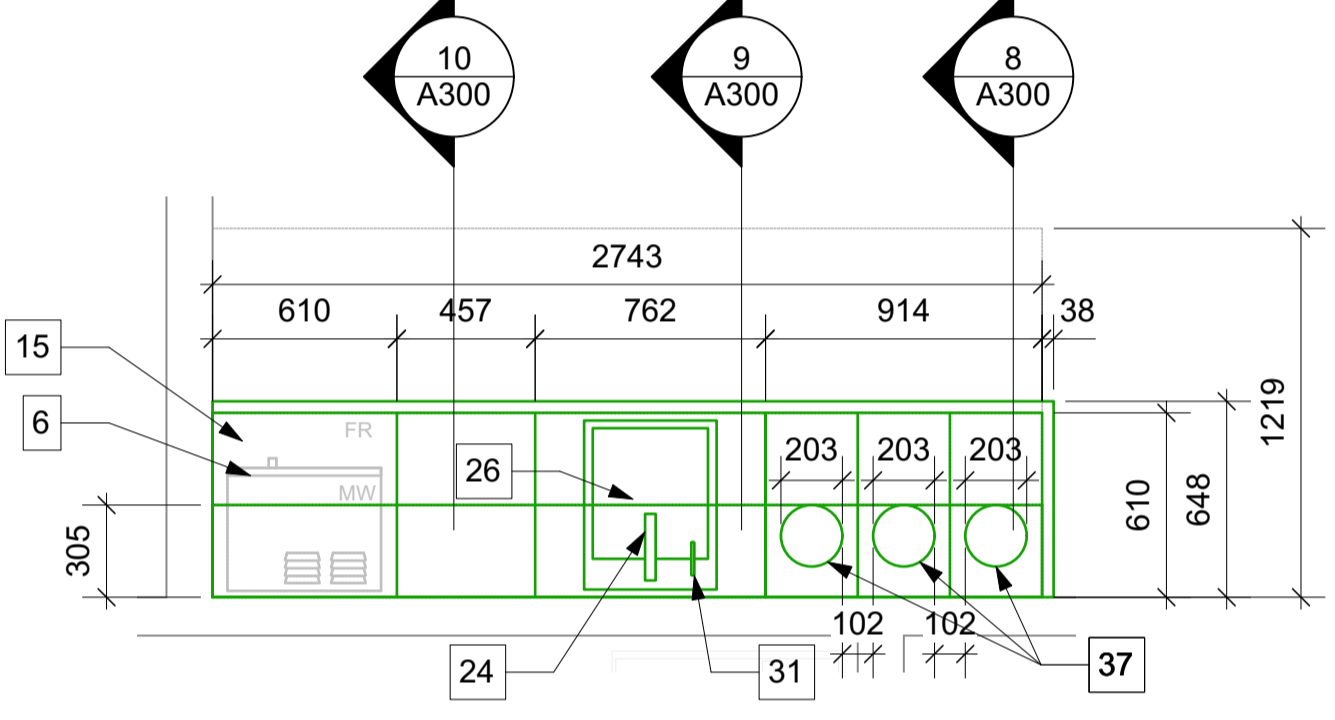
- 01) CONTRACTOR TO ALLOW AND INCLUDE FOR REMOVAL AND RE-INSTALLMENT OF MATERIALS AND EQUIPMENT ADEQUATELY REQUIRED FOR THE INSTALLATION OF ALL NEW CONSTRUCTION, CONDUIT, SERVICES AND EQUIPMENT. MAKE GOOD ALL SURFACES AND RE-FINISH TO MATCH EXISTING STATE.
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KEYNOTES

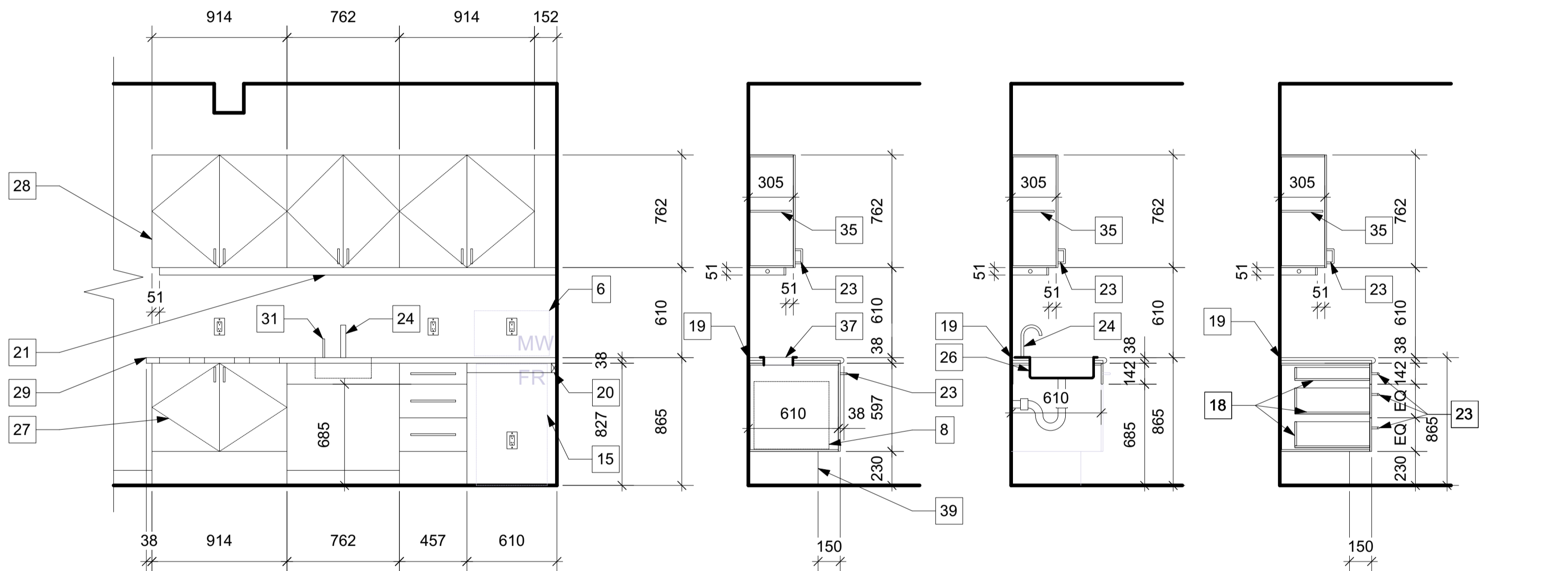
- 1. EXISTING COAT HOOK TO REMAIN.
- 2. LINE OF EXISTING GYPSUM WALLBOARD BEYOND
- 3. LINE OF EXISTING MILLWORK TO BE REMOVED
- 4. LINE OF MINIMUM CLEAR KNEE-SPACE
- 5. LINE OF NEW WINDOW STOOL
- 6. MICROWAVE ("MW") LOCATION- N.I.C.
- 7. NEW BASEBOARD HEATER
- 8. RE-CYCLING BINS (N.I.C.)
- 9. RE-INSTALL GRAB BAR (GB2)
- 10. RE-INSTALL MIRROR
- 11. RE-INSTALL PAPER TOWEL DISPENSER / DISPOSAL
- 12. RE-INSTALL SHELF
- 13. RE-INSTALL SINK. SUPPLY AND INSTALL NEW FAUCET.
- 14. RE-INSTALL SOAP DISPENSER
- 15. REFRIGERATOR ("FR") LOCATION- N.I.C.
- 16. REINSTALL TOILET PAPER HOLDER
- 17. RELOCATED SANITARY NAPKIN DISPOSAL
- 18. SUPPLY AND INSTALL DRAWER BOX AND DRAWER HARDWARE
- 19. SUPPLY AND INSTALL JOINT SEALANT
- 20. SUPPLY AND INSTALL LEDGER BOARD (SET BACK 50mm FROM COUNTER FRONT EDGE)
- 21. SUPPLY AND INSTALL LIGHTING VALENCE
- 22. SUPPLY AND INSTALL NEW ACCESSIBILITY SIGNAGE (C/W WHITE LETTERS AND SYMBOLS ON BLUE BACKGROUND AND RAISED BRILLE LETTERING)
- 23. SUPPLY AND INSTALL NEW D-PULL (TYP)
- 24. SUPPLY AND INSTALL NEW FAUCET
- 25. SUPPLY AND INSTALL NEW GRAB-BAR (GB1)
- 26. SUPPLY AND INSTALL NEW KITCHEN SINK. APPLY JOINT SEALANT.
- 27. SUPPLY AND INSTALL NEW MILLWORK (LOWER CABINETS)
- 28. SUPPLY AND INSTALL NEW MILLWORK (UPPER CABINETS)
- 29. SUPPLY AND INSTALL NEW PLASTIC LAMINATE COUNTER
- 30. SUPPLY AND INSTALL NEW TOILET
- 31. SUPPLY AND INSTALL NEW WATER BOTTLE SPIGOT
- 32. SUPPLY AND INSTALL NEW WINDOW CASING (FOUR SIDES) AND PAINT.
- 33. SUPPLY AND INSTALL NEW WINDOW CASING AND WINDOW STOOL. PAINT.
- 34. SUPPLY AND INSTALL NEW WINDOW STOOL.
- 35. SUPPLY AND INSTALL ONE (1) ADJUSTABLE SHELF PER CABINET
- 36. SUPPLY AND INSTALL PAINTED WOOD BLOCKING
- 37. SUPPLY AND INSTALL THREE (3) 200mm DIA TRASH GROMMETS
- 38. SUPPLY AND INSTALL Z-SHAPE SHADOW REVEAL BEAD
- 39. TOE-KICK SPACE



1 PLAN DETAIL Scale: 1:25  
 2 INTERIOR ELEVATION Scale: 1:25  
 3 INTERIOR ELEVATION Scale: 1:25  
 4 INTERIOR ELEVATION Scale: 1:25  
 5 INTERIOR ELEVATION Scale: 1:25



6 KITCHENETTE MILLWORK PLAN Scale: 1:25



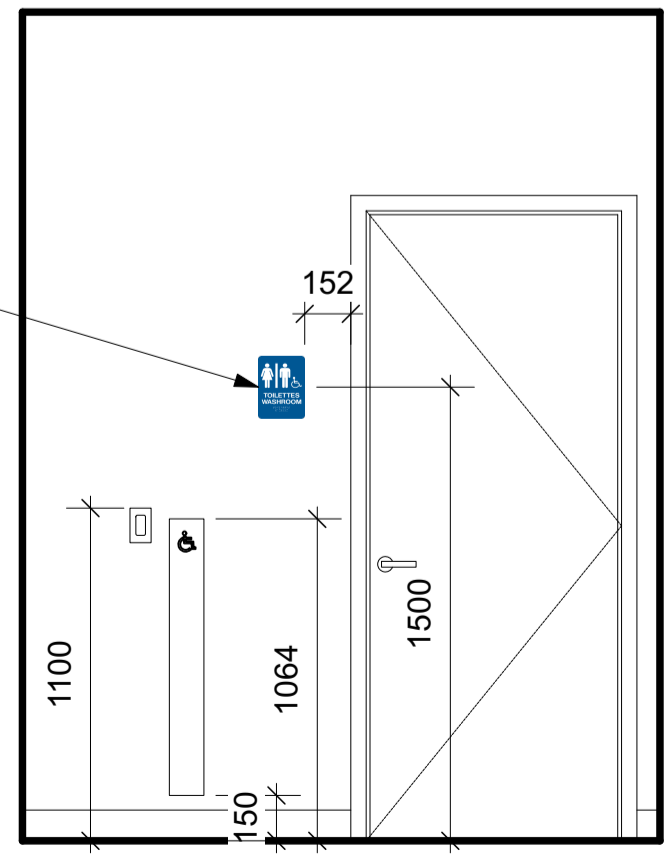
7 KITCHENETTE MILLWORK ELEVATION Scale: 1:25  
 8 SECTION Scale: 1:25  
 9 SECTION Scale: 1:25  
 10 SECTION Scale: 1:25



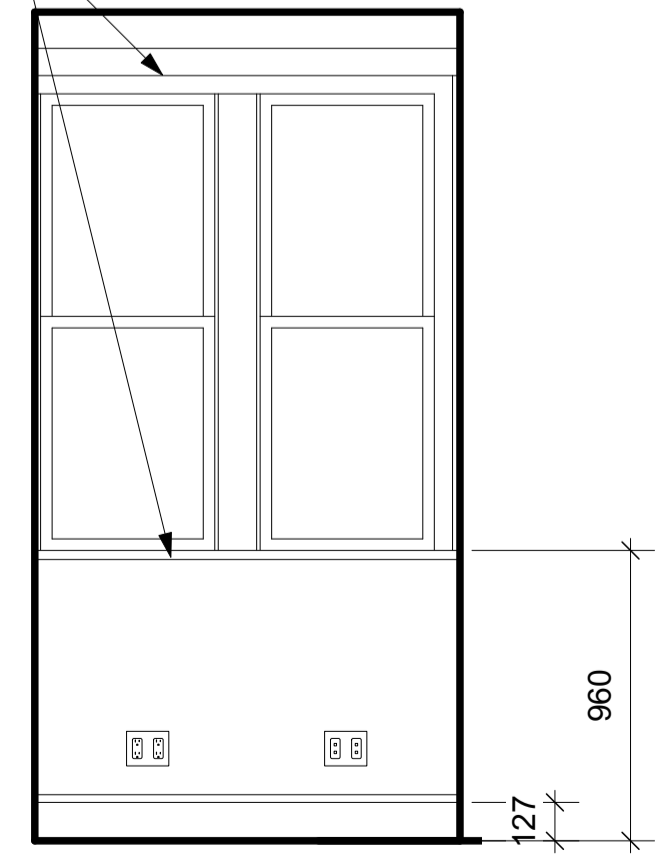
11 ACCESSIBLE WASHROOM SIGNAGE Scale: 1:2



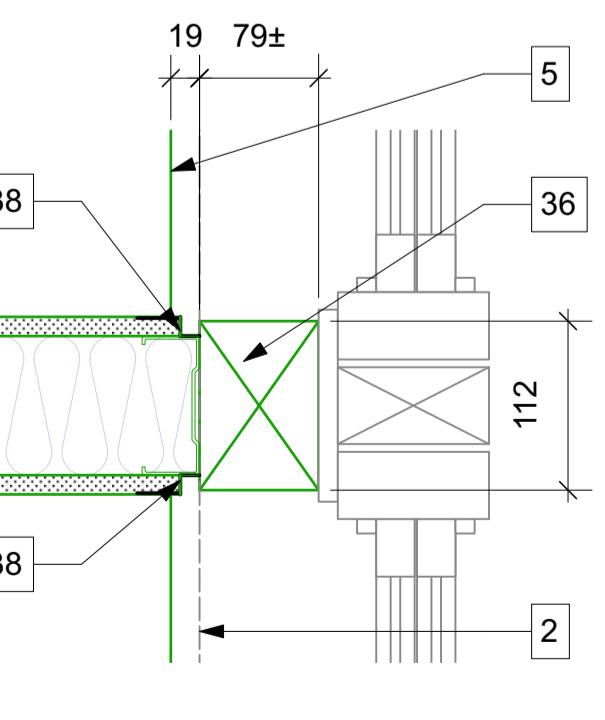
12 ACCESSIBLE ENTRY SIGNAGE Scale: 1:2



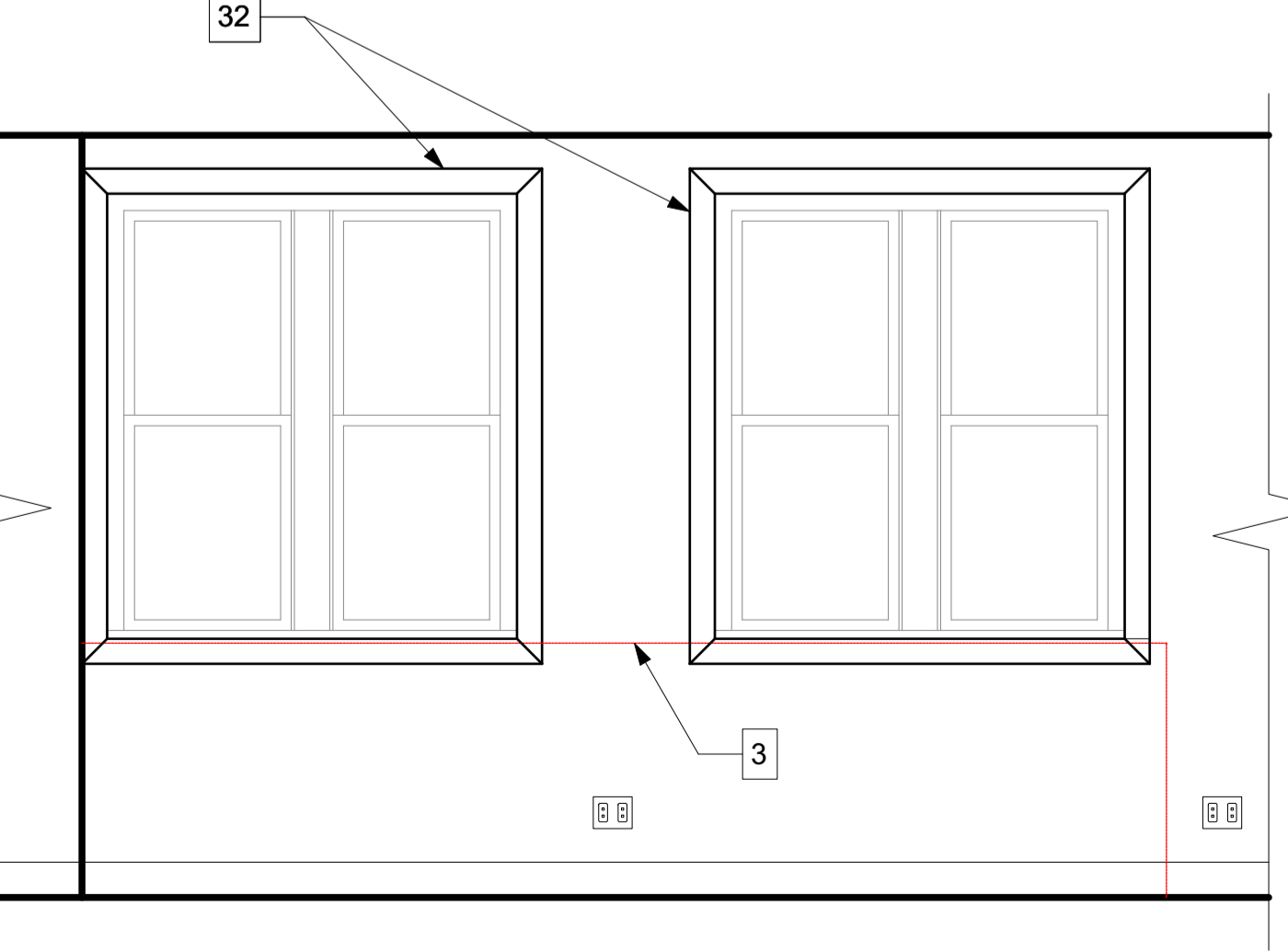
13 INTERIOR ELEVATION Scale: 1:25



14 INTERIOR ELEVATION Scale: 1:25



15 PLAN DETAIL Scale: 1:5



16 INTERIOR ELEVATION Scale: 1:25

DUCTLESS AIR CONDITIONING UNIT SCHEDULE								
SYMBOL	AREA SERVED	AIR TEMP (F)		TOTAL COOLING CAPACITY (BTUH)	ELECTRICAL		CONDENSING UNIT REFER TO SCHEDULE	REMARKS
		DB	WB		VOLTAGE	AMPS		
AC-1	SERVER ROOM	80	67	36,000	208/1/60	1.0	CU-1	REFER TO SPECIFICATIONS
AC-2	SERVER ROOM	80	67	36,000	208/1/60	1.0	CU-2	REFER TO SPECIFICATIONS

AIR COOLED CONDENSING UNIT SCHEDULE								
SYMBOL	AREA SERVED (UNITS SERVED)	AMBIENT AIR TEMP (F)	TOTAL COOLING (BTUH)	REFRIGERANT	ELECTRICAL			REMARKS
					KW	VOLTAGE	MCA	
CU-1	SERVER ROOM (AC-1)	95DB/77WB	36,000	R410A	--	208/1/60	25	BASIS OF DESIGN: MITSUBISHI PUY-P36NKA7 REFER TO SPECIFICATIONS
CU-2	SERVER ROOM (AC-2)	95DB/77WB	36,000	R410A	--	208/1/60	25	BASIS OF DESIGN: MITSUBISHI PUY-P36NKA7 REFER TO SPECIFICATIONS
CU-3	EXISTING FURNACE	95DB/77WB	36,000	R410A	--	208/1/60	20	BASIS OF DESIGN: LENNOX, CARRIER, YORK

PLUMBING FIXTURE SCHEDULE			
REFER	DESCRIPTION	MANUFACTURER	ACCESSORIES AND TRIM
(S-1)	KITCHENETTE SINK, BARRIER FREE	BASIS OF DESIGN: FRANKE COMMERCIAL MODEL ABS6805-1/3	FAUCET: BASIS OF DESIGN: DELTA 27C2934 GOOSENECK SPOUT AND BLADE HANDLES ACCESSORIES: FILTERED WATER FAUCET, BASIS OF DESIGN: WATERGROUP DURA 87580 (FILTRATION SYSTEM PROVIDED BY DEPARTMENTAL REPRESENTATIVE)
(L-1)	WALL HUNG LAVATORY, BARRIER FREE	EXISTING SINK TO BE RELOCATED	FAUCET: BASIS OF DESIGN: SLOAN ETF-600, HARDWIRED
(WC1)	FLOOR MOUNTED WATER CLOSET, TANK TYPE, BARRIER FREE	BASIS OF DESIGN: AMERICAN STANDARD CADET PRO RIGHT HEIGHT 4188A065 C/W TANK COVER LOCKING DEVICE AND LEVER ON TRANSFER SIDE (RIGHT SIDE) OF TANK	SEAT: BASIS OF DESIGN: CENTOCO MODEL #AM500STSCSS

NOTES:  
1. SPECIFIED FIXTURES SHALL BE AVAILABLE AS QUICK SHIP TO SUIT THE CONSTRUCTION SCHEDULE AT NO EXTRA COST.  
2. THE CONTRACTOR SHALL SUPPLY AND INSTALL THE ACCESSORIES AND TRIMS ONLY FOR FIXTURES SUPPLIED AND INSTALLED BY GENERAL TRADES (I.E. SOLID SURFACE, STAINLESS STEEL, ETC.)  
3. ACCEPTABLE ALTERNATES SUBJECT TO REVIEW DURING TENDER.  
4. PROVIDE THERMOSTATIC MIXING VALVE AND ADJUST TO MAXIMUM OF 49 DEGREE C (AT EACH WASHROOM GROUP OR BANK OF FIXTURES). FOR BARRIER-FREE WASHROOMS, ADJUST TO MAXIMUM OF 43 DEGREE C.

PLUMBING FIXTURE CONNECTION SCHEDULE					
REFER	DESCRIPTION	SANITARY	SANITARY VENT	DHW	DCW
(S-1)	KITCHENETTE SINK, BARRIER FREE	38MM Ø	32MM Ø	13MM Ø	13MM Ø
(L-1)	EXISTING WALL HUNG LAVATORY, BARRIER FREE	32MM Ø	32MM Ø	13MM Ø	13MM Ø
(WC1)	FLOOR MOUNT WATER CLOSET, FLUSH TANK	76MM Ø	38MM Ø	--	13MM Ø

- ### PLUMBING NOTES
- FOR MOUNTING HEIGHT OF ALL PLUMBING FIXTURES REFER TO ARCHITECTURAL ELEVATION DRAWINGS.
  - CONTRACTOR IS TO CO-ORDINATE LOCATION OF NEW PIPING WITH EXISTING OR NEW SERVICES (PIPING, DUCTWORK, ELECTRICAL CONDUITS, LIGHTS AND BUILDING STRUCTURE) IF REQUIRED REMOVE EXISTING SERVICES AND REINSTALL. TEST SERVICES AFTER WORK IS COMPLETED.
  - CONTRACTOR IS TO CLEAR EXISTING DUCTWORK WHEN INSTALLING NEW PIPING. CLEARANCES TO BE VERIFIED ON SITE.
  - ALL PLUMBING PIPING SYSTEMS AND FIXTURES SHALL BE INSTALLED AS PER NATIONAL BUILDING CODE (LATEST EDITION).
  - PROVIDE A CLEANOUT FROM EACH PLUMBING FIXTURE WHERE REQUIRED BY NATIONAL BUILDING CODE, PART 7 - PLUMBING.
  - ALL PLUMBING FIXTURES INCLUDING FLOOR DRAINS (HUB, FUNNEL FLOOR DRAINS) TO BE TRAPPED AND VENTED AS REQUIRED BY NATIONAL BUILDING CODE, PART 7 - PLUMBING.
  - CONTRACTOR IS TO REMOVE ALL OBSOLETE PIPING WHEREVER POSSIBLE.
  - PROVIDE SIGN IDENTIFYING LOCATION OF ALL VALVES INSTALLED IN CEILING SPACE.
  - WHENEVER COLD AND HOT WATER DISTRIBUTION TO LAVATORIES IS TO RUN UNDER COUNTER, PIPING DISTRIBUTION IS TO BE INSTALLED AS TIGHT TO UNDER SIDE OF THE COUNTER AS POSSIBLE.
  - ALL WATER, SANITARY, SEWER AND VENT COPPER PIPING WITH SOLDER JOINTS SHALL BE LEAD FREE.
  - EACH GROUP OF PLUMBING FIXTURES SHALL BE EQUIPPED WITH WATER SHUT-OFF VALVES IN THE CEILING SPACE.
  - INSTALL SHUT-OFF VALVES AT EACH PLUMBING FIXTURE.
  - PROVIDE ALL BACKFLOW PREVENTERS AND VACUUM BREAKERS REQUIRED BY NATIONAL BUILDING CODE AND AUTHORITIES HAVING JURISDICTION.
  - CO-ORDINATE THE INSTALLATION OF CLEANOUTS AND ACCESS TO DOORS WITH ARCHITECTURAL FINISHES TO AVOID INTERFERENCE WITH BASE DETAILS.
  - WHERE PIPING IS INDICATED TO BE DEMOLISHED, REMOVE AND CAP BACK AT MAIN PIPE.

- ### GENERAL NOTES
- CONTRACTOR IS TO VERIFY ALL CONNECTION POINTS TO EXISTING MECHANICAL SERVICES ON SITE.
  - CONTRACTOR IS TO ENSURE THAT ALL EXISTING SERVICES (PIPING, DUCTWORK, ETC.) SERVING EXISTING AREAS REMAIN IN SERVICE UNTIL THESE AREAS ARE RECONNECTED TO NEW SERVICES. ONLY THEN OBSOLETE SERVICES ARE TO BE REMOVED AS SHOWN.
  - ALL DISTURBED SURFACES AFTER SERVICE REMOVAL OR REROUTING TO BE FILLED-IN WITH APPROPRIATE MATERIAL TO MAINTAIN FIRE SEPARATION AND PATCHED TO MATCH EXISTING OR NEW.
  - CONTRACTOR IS TO ENSURE THAT ALL EXISTING ITEMS TO BE REMOVED REMAIN THE PROPERTY OF THE DEPARTMENTAL REPRESENTATIVE AND SHALL BE DELIVERED TO A LOCATION ON SITE DESIGNATED BY THE DEPARTMENTAL REPRESENTATIVE. IF THE DEPARTMENTAL REPRESENTATIVE DECLARES NO INTEREST IN THE REMOVED ITEMS, ASSUME OWNERSHIP AND REMOVE FROM SITE. ALL EFFORTS SHOULD BE MADE FOR REUSE IN THE TEMPORARY RELOCATION PROJECT AND ALL REMAINING SHOULD BE REMOVED FROM THE SITE.
  - SHOULD EXISTING SERVICES BE LOCATED IN WALL BEING DEMOLISHED, CONTRACTOR IS TO RELOCATE TO NEW SUITABLE LOCATION AND RECONNECT. CONFIRM PRIOR TO COMMENCEMENT OF ANY WORK.
  - ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH CODES, BULLETINS ETC. AND REQUIREMENTS OF ALL INSPECTION AUTHORITIES FOR THE CITY OF OTTAWA.
  - ALL DRAWINGS ARE INTEGRATED WITH THE SPECIFICATIONS WHICH ACCOMPANY THEM. NEITHER IS TO BE USED ALONE. ANY ITEM OR SUBJECT OMITTED FROM ONE BUT IMPLIED IN THE OTHER IS FULLY AND PROPERLY REQUIRED. WHEREVER DIFFERENCE OCCURS, THE MOST ONEROUS CONDITION GOVERNS.
  - PENETRATIONS OF EITHER FIRE OR SMOKE BARRIER RESISTANT WALLS SHALL BE SLEEVED & SEALED AGAINST THE PASSAGE OF FLAME OR SMOKE W/SUITABLE NON-COMBUSTIBLE MATERIALS EQUAL TO THE CONSTRUCTION TO BE PENETRATED.
  - DO NOT SCALE DRAWINGS FOR INSTALLATION PURPOSES. OBTAIN ALL DIMENSIONS FROM ARCHITECTURAL PLANS, MANUFACTURER'S SHOP DRAWINGS, AND ON SITE INSPECTIONS.
  - MECHANICAL, DIV. 2-14 AND ELECTRICAL TRADES SHALL WORK IN CONJUNCTION WITH ONE ANOTHER SO AS TO AVOID INTERFERENCE'S BETWEEN PIPING, DUCTWORK, CONDUIT, LIGHTING FIXTURES, ETC.
  - WORK SHALL BE CO-ORDINATED THROUGH THE GENERAL CONTRACTOR PRIOR TO INSTALLATION OF ANY EQUIPMENT, DUCTWORK AND CONTROLS. CO-ORDINATE WITH ARCHITECTURAL ELEVATIONS FOR ARCHITECTURAL, MECHANICAL, AND ELECTRICAL SPACE ALLOCATIONS.
  - REFER TO ARCHITECTURAL FOR DEPARTMENTAL REPRESENTATIVE SUPPLIED EQUIPMENT. CONFIRM ALL MECHANICAL REQUIREMENTS AND PROVIDE TO SUIT.
  - REVIEW ARCHITECTURAL AND ELECTRICAL DRAWINGS AND PROVIDE ON SITE INSPECTIONS TO DETERMINE FULL EXTENT OF PROJECT PRIOR TO SUBMITTING BID.
  - PENETRATIONS OF CONCRETE SHALL BE SAW-CUT OR CORE BORED - IMPACT HAMMERS ARE NOT ALLOWED, SEAL ALL DUCTWORK & SLEEVES TO PREVENT LEAKAGE THRU FLOOR.
  - AVOID ANY DIRECT CONTACT BETWEEN ANY PIPING, DUCTING AND ELECTRICAL CONDUIT SYSTEMS TO PREVENT SOUND TRANSMISSION.
  - CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL MECHANICAL SERVICES TO THE OCCUPIED AREA THROUGHOUT CONSTRUCTION. PROVIDE CONSTRUCTION VALVES, TEMPORARY DUCTWORK AND PIPING AS REQUIRED TO LIMIT THE SHUT DOWN OF SERVICES.
  - IF ANY AREAS ARE AFFECTED BY THE NEW SCOPE OF WORK, CONTRACTOR TO CARRY COSTS FOR THE REMOVAL AND INSTALLATION OF THE EXISTING CEILING TILES. REFER TO ARCHITECTURAL NEW REFLECTED CEILING PLAN FOR SCOPE OF NEW CEILING.
  - INSTALLATION SHALL BE COMPLETE AND FULLY FUNCTIONAL. PROVIDE ALL LABOR, MATERIALS, TOOLS, SERVICES, EQUIPMENT, ETC. AS REQUIRED.
  - PROVIDE ACCESS DOORS AS NECESSARY FOR ACCESS TO VALVES, DAMPERS, AND OTHER COMPONENTS REQUIRING MONITORING, INSPECTION, AND MAINTENANCE.
  - INSTALL EQUIPMENT, DUCTS, AND PIPES PARALLEL TO OR PERPENDICULAR TO BUILDING LINES. PROVIDE SPACE, UNIONS AND FLANGES FOR DISASSEMBLY, SERVICING AND REMOVAL OF EQUIPMENT.
  - WHEN A CONFLICT OCCURS BETWEEN INSTALLATION DETAILS, DIAGRAMS, ETC. INDICATED IN THE CONTRACT DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS, THE MANUFACTURER'S INSTRUCTIONS SHALL GOVERN AND SHALL BE FOLLOWED.

### MECHANICAL DRAWING LIST

M-000	MECHANICAL DRAWING LIST, LEGEND, NOTES AND SCHEDULES
M-001	MECHANICAL SPECIFICATIONS
M-002	MECHANICAL DETAILS
M-100	BASEMENT DEMOLITION AND NEW PLUMBING PLANS
M-101	GROUND AND SECOND FLOOR DEMOLITION AND NEW PLUMBING PLANS
M-200	BASEMENT DEMOLITION AND NEW HVAC PLANS
M-201	GROUND AND SECOND FLOOR DEMOLITION AND NEW HVAC PLANS

### MECHANICAL LEGEND

SYMBOL	DESCRIPTION
	POSITIVE PRESSURE (SUPPLY) DUCT UP
	POSITIVE PRESSURE (SUPPLY) DUCT DOWN
	NEGATIVE PRESSURE (RETURN) DUCT UP
	NEGATIVE PRESSURE (RETURN) DUCT DOWN
	EXISTING DUCTWORK TO BE REMOVED
	EXISTING DUCTWORK TO REMAIN
	NEW DUCTWORK
	CROSSHATCHING ON DUCTWORK INDICATES ACOUSTIC LINING
	TAP-IN DUCT CONNECTION
	ROUND DUCT CONNECTION
	SUPPLY AIR DIFFUSER
	RETURN/EXHAUST GRILLE
	THERMOSTAT
	BALANCING DAMPER
	CONNECT TO EXISTING
	FIRE DAMPER
	INDICATES NEW SUPPLY AIR OUTLET TO BE BALANCED TO AIR QUANTITY INDICATED.
	INDICATES NEW RETURN GRILLE TO BE BALANCED TO AIR QUANTITY INDICATED.
	INDICATES NEW EXHAUST GRILLE TO BE BALANCED TO AIR QUANTITY INDICATED.

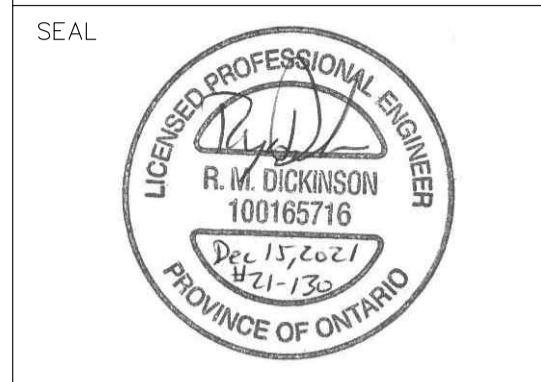
NOTE: ALL NEW DEVICES SHOWN IN BOLD

### PLUMBING LEGEND

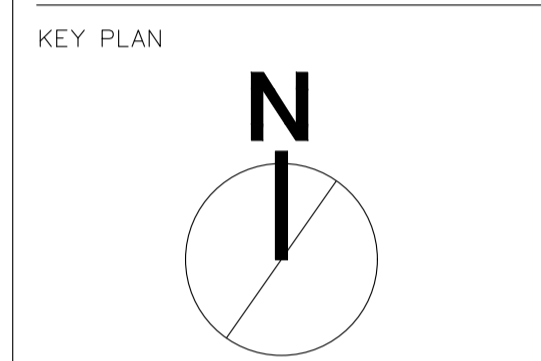
REFER	DESCRIPTION
	EXISTING PIPING
	DOMESTIC COLD WATER PIPING
	DOMESTIC HOT WATER PIPING
	VENT PIPING
	SANITARY PIPING ABOVE FLOOR
	SANITARY PIPING BELOW GRADE OR FLOOR
	PIPING TO BE REMOVED
	REFRIGERANT LIQUID
	REFRIGERANT SUCTION
	CONDENSATE
	MINI CONDENSATE PUMP
	CONNECTION OF NEW AND EXISTING PIPING
	CAPPED PIPE
	FLOOR DRAIN
	FUNNEL FLOOR DRAIN
	CLEANOUT IN FLOOR
	CLEANOUT IN LINE OR STACK
	WATER METER
	ISOLATION VALVE
	CHECK VALVE
	STRAINER
	DOUBLE CHECK VALVE ASSEMBLY BACKFLOW PREVENTER
	VENT THROUGH ROOF
	FIRE EXTINGUISHER - SURFACE MOUNTED
	PIPE DOWN
	PIPE UP

NOTE: ALL NEW DEVICES SHOWN IN BOLD

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21-130



#	ISSUE	DATE
01	PRELIMINARY REVIEW	10/22/2021
02	75% REVIEW	11/04/2021
03	99% REVIEW	11/19/2021
04	TRANSLATION	12/02/2021
05	ISSUE FOR TENDER	12/15/2021

PROJECT NAME  
CENTRAL EXPERIMENTAL FARM  
Building 26  
OTTAWA, ON  
ACCOMMODATION FIT-UP

SHEET TITLE  
MECHANICAL DRAWING LIST,  
LEGEND AND NOTES

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PROJECT #: 21-OXX  
DRAWN BY: RD  
CHECKED BY: SB

SHEET  
M-000

## MECHANICAL SPECIFICATIONS

- GENERAL CONDITIONS**
  - CONFORM TO NATIONAL BUILDING CODE INCLUDING PART 7 – PLUMBING AND AMENDING REGULATIONS.
  - CONFORM TO NATIONAL FIRE CODE.
  - CONFORM TO LOCAL AND DISTRICT BYLAWS, REGULATIONS AND PUBLISHED ENGINEERING STANDARDS.
  - CONFORM TO CSA STANDARDS.
- SCOPE OF WORK**
  - COMPLY WITH ALL CONDITIONS OF TENDER DOCUMENTS ISSUED FOR THIS PROJECT.
  - THE SUPPLY AND INSTALLATION OF NEW EQUIPMENT, DUCTWORK AND PIPING AS SHOWN ON THE DRAWINGS AND AS NOTED.
  - GENERAL**
    - COMPLY WITH GENERAL CONDITIONS.
    - PROVIDE ONE (1) COPY OF SHOP DRAWINGS FOR ALL MAJOR EQUIPMENT FOR APPROVAL.
    - SUBMIT MAINTENANCE AND INSTRUCTION MANUALS. THIS PROJECT ALLOWS FOR TWO (2) REVISIONS. PRELIMINARY SET AND THEN A FINAL SET.
    - ON COMPLETION OF PROJECT AND BEFORE FINAL PAYMENT, SUBMIT TWO (2) SETS OF AUTOCAD, PDF AND HARD COPY AS-BUILT DRAWINGS SHOWING ALL CHANGES AND CONCEALED SERVICES DIMENSIONED WITH EXACT LOCATIONS NOTED THEREON.
    - THOROUGHLY CLEAN ALL MECHANICAL EQUIPMENT DURING CONSTRUCTION AND ON COMPLETION OF CONTRACT.
    - PROVIDE WRITTEN GUARANTEE FOR ALL NEW EQUIPMENT AND WORKMANSHIP FOR ONE YEAR FROM DATE OF ACCEPTANCE. DEFECTIVE PARTS REPAIRED OR REPLACED WITHOUT CHARGE.
    - CONFER WITH ALL TRADES AND ARRANGE EQUIPMENT IN PROPER RELATION WITH OTHERS AND WITH BUILDING CONSTRUCTION AND ARCHITECTURAL FINISHES.
    - REFER TO ARCHITECTURAL SPECIFICATIONS AND DRAWINGS WHICH ARE PART OF THIS WORK.
    - DEPARTMENTAL REPRESENTATIVE RESERVES RIGHT TO TRIAL AND/OR TEMPORARY USAGE PRIOR TO ACCEPTING INSTALLATION.
    - PROVIDE ALL MATERIALS, EQUIPMENT, ACCESSORIES, CONSUMABLES, LABOR, SUPERVISION, TOOLS SERVICES, ETC. AS REQUIRED FOR COMPLETE AND FULLY FUNCTIONAL SYSTEMS AS DESCRIBED IN THE CONTRACT DOCUMENTS.
    - PRIOR TO TENDERING, EXAMINE THE SITE, ALL DRAWINGS AND SPECIFICATIONS AND REPORT ALL ANY CONFLICTS, DISCREPANCIES TO THE CONSULTANT FOR CLARIFICATION AND/OR CORRECTION.
    - COORDINATE AND SCHEDULE WORK WITH DEPARTMENTAL REPRESENTATIVE AND OTHER TRADES TO MINIMIZE CONFLICTS, DELAYS, AND DISRUPTION OF EXISTING SERVICES AND OPERATIONS.
  - DEFINITIONS: FOLLOWING ARE DEFINITIONS OF WORDS FOUND IN THIS SPECIFICATION AND ON ASSOCIATED DRAWINGS.
    - "CONCEALED" – HIDDEN FROM NORMAL SIGHT IN FURRED – SPACES, SHAFTS, CEILING SPACES, WALLS, UNDERFLOOR, AND PARTITIONS.
    - "EXPOSED" – ALL MECHANICAL WORK VISIBLE TO BUILDING OCCUPANTS.
    - "PROVIDE" – (AND ALL TENSES OF "PROVIDE") SUPPLY AND INSTALL.
    - "INSTALL" – (AND ALL TENSES OF "INSTALL")—INSTALL, WIRE AND CONNECT COMPLETE, PRODUCTS AND SERVICES SPECIFIED.
    - "SUPPLY" – SUPPLY ONLY.
    - "OR APPROVED EQUAL" – MATERIAL OR EQUIPMENT PROPOSED BY CONTRACTOR, IN LIEU OF THAT SPECIFIED, AS APPROVED BY CONSULTANT.
    - "AS INDICATED" – AS SHOWN ON DRAWINGS AND/OR NOTED IN SPECIFICATIONS.
    - "SOFT COPY" – PDF FORMAT
    - "AUTOCAD" – DWG FORMAT
- LIABILITY**
  - THIS CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR LAYING OUT HIS WORK AND ANY DAMAGE OR EXTRA COSTS CAUSED TO THE DEPARTMENTAL REPRESENTATIVE OR OTHER CONTRACTORS BY IMPROPER LOCATION OR CARRYING OUT HIS WORK. CARRY ALL NECESSARY INSURANCE COVERAGE.
- CERTIFICATES, FEES, ETC.**
  - GIVE ALL NOTICES, OBTAIN ALL PERMITS AND PAY ALL FEES SO THAT THE WORK SPECIFIED HEREIN MAY BE CARRIED OUT. AT THE ENGINEER'S REQUEST, FURNISH ANY CERTIFICATES AS EVIDENCE THAT THE WORK INSTALLED CONFORMS TO THE LAWS AND REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION
- HOURS OF WORK**
  - ANY AUDIBLE TESTING, CORE DRILLING OR ANY OTHER NOISY WORK MUST BE PERFORMED "AFTER HOURS" MAKE ARRANGEMENTS WITH BUILDING PERSONNEL TO CONFIRM TIMES FOR SUCH WORK.
  - PHASING AND SCHEDULING
    - REFER TO GENERAL CONDITIONS, ARCHITECTURAL SPECIFICATIONS, AND MECHANICAL PHASING PLANS FOR PHASING AND SCHEDULING OF WORK.
    - COORDINATE ALL WORK WITH OTHER TRADES AND ASSIST IN THE IMPLEMENTATION OF THE PHASING STRATEGY.
- SERVICE PENETRATIONS**
  - FIRE STOP AND SMOKE SEALS: MATERIALS SHALL BE ULC LISTED COMPONENTS SUITABLE FOR FIRE RESISTANCE RATINGS.
  - ALL OPENINGS IN FIRE SEPARATIONS FOR SERVICE PENETRATIONS SHALL BE PROTECTED WITH ULC LISTED "SERVICE PENETRATIONS FIRESTOP SYSTEMS"
- TESTING AND BALANCING**
  - BALANCE ALL SYSTEMS WHERE AIRFLOW IS GIVEN FOR RATED AIR FLOW, ROOM TEMPERATURE CONTROL AND CHECK CURRENT DRAW AFTER INSTALLATION IS COMPLETE AND IN FULL WORKING ORDER. ADJUST CONTROLS, DAMPERS AND DIFFUSERS FOR PROPER AIR CIRCULATION AND MINIMUM ENERGY CONSUMPTION. ADJUST FAN SPEEDS AS REQUIRED TO OBTAIN SPECIFIC PERFORMANCE. BALANCE VAV BOXES TO THEIR MAXIMUM AND MINIMUM POSITIONS.
  - MECHANICAL SYSTEMS SHALL NOT BE CONSIDERED READY FOR FINAL INSPECTION UNTIL BALANCING RESULTS ACCEPTABLE TO THE ENGINEER ARE OBTAINED. IF IT IS FOUND THAT THE SPECIFIED AIR FLOWS CANNOT BE ACHIEVED ON PORTIONS OF THE SYSTEM, THE ACTUAL CONDITIONS SHALL BE REPORTED TO THE ENGINEER FOR CONSIDERATION OF CORRECTIVE ACTION BEFORE CONTINUING THE BALANCING PROCEDURE. PROVIDE INSTRUMENTS AND MANPOWER TO VERIFY RESULTS OF UP TO 30% OF ALL REPORTED MEASUREMENTS. IF MEASURED FLOW AT FINAL INSPECTION SHOWS A DEVIATION OF 10% OR MORE OF SELECTED AREAS, THE REPORT SHALL BE REJECTED. IF REPORT IS REJECTED, SYSTEMS SHALL BE RE-BALANCED AND NEW CERTIFIED REPORT SUBMITTED AT NO EXTRA COST. FOLLOWING WHICH THE ENGINEER RESERVES THE RIGHT TO REQUEST ADDITIONAL VERIFICATION.
  - SUBMIT WRITTEN BALANCING REPORT CONFIRMING TO AABC AND ASHRAE STANDARDS FOR ENGINEER'S APPROVAL ONCE REVIEWED AND DEEMED SATISFACTORY BY THE ENGINEER. THE BALANCING CONTRACTOR SHALL SUBMIT 3 COPIES OF THE BALANCING REPORT FOR SUBMISSION TO THE DEPARTMENTAL REPRESENTATIVE.
- CONTROLS**
  - ALL CONTROLS SHALL BE BY ONE MANUFACTURER. LOCATE THERMOSTATS AS SHOWN ON THE DRAWINGS, AND VERIFY CONNECTION TO CORRECT TERMINAL UNITS AS SHOWN ON THE DRAWINGS. VERIFY PROPER CALIBRATION AND OPERATION OF ALL NEW AND EXISTING CONTROLS IS FAULTY, ADVISE ENGINEER OF

## MECHANICAL SPECIFICATIONS (CONT'D)

- PROBLEM AND OBTAIN DIRECTIONS FOR REMEDIAL WORK.
- PROVIDE ALL REQUIRED CONTROL HARDWARE LOW VOLTAGE WIRING, AND OTHER DEVICES FOR PROPER CONTROL. INCLUDE ALL ASSOCIATED COSTS.
- DUCTWORK**
    - ALL DUCTWORK TO BE FABRICATED FROM GALVANIZED STEEL TO CLEAR INSIDE DIMENSIONS AS NOTED ON THE DRAWINGS WITH ALL FLAT SURFACES GROSS BROKEN. ALL DUCTWORK TO BE FREE FROM LEAKS, IN ACCORDANCE WITH RECOMMENDATIONS OF ASHRAE AND SMACNA. ALL DUCTWORK IS TO BE FABRICATED COMPLETE WITH FLEXIBLE CONNECTIONS, TURNING VANES, VOLUME EXTRACTORS, APPROPRIATE MANUAL DAMPERS, TEST PORTS AND ACCESS PANELS AS REQUIRED AND AS INDICATED ON DRAWINGS.
    - GRILLES AND DIFFUSERS REFER TO SCHEDULE
    - PRICE MODELS INDICATED. OUTLETS BY TITUS AND KRUEGER ARE SUBJECT TO SHOP DRAWING REVIEW.
    - DUCT INSULATION**
      - RIGID DUCT INSULATION SHALL BE FIBROUS GLASS WOOL. BASIS OF DESIGN: FIBERGLAS CANADA INC. VAPOUR-SEAL DUCT INSULATION AF330 WITH RFRFK FACING OR MANSON INSULATION INC. AK BOARD WITH FSK FACING.
      - FLEXIBLE DUCT INSULATION SHALL BE FIBROUS GLASS WOOL. BASIS OF DESIGN: FIBERGLAS CANADA INC. TYPE 2/RFRFK FACING OR MANSON INSULATION INC. ALLEY WRAP/FSK FACING.
      - APPLY INSULATION, WRAPPING, VAPOUR BARRIER, ADHESIVE AND COATINGS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS ONLY AFTER ALL REQUIRED TESTING IS COMPLETED AND APPROVALS ARE RECEIVED.
      - WORK SHALL BE PERFORMED BY INSULATION JOURNEYMEN IN A WORKMAN LIKE MANNER TO PRESENT A NEAT APPEARANCE.
      - DO NOT APPLY INSULATION OR FINISHING WHEN THE AMBIENT TEMPERATURE IN THE SPACE IS BELOW 50°F.
TYPE THICKNESS
- PIPE AND PIPE FITTINGS**
  - SANITARY DRAINAGE**
    - UNBURIED SECTIONS: 2" (50 MM) AND SMALLER DIA., HARD TEMPER COPPER TUBING TYPE DWV, SOLDERED WITH WROUGHT COPPER OR CAST BRASS DRAINAGE FITTINGS. 3" (75 MM) AND LARGER DIA., CAST IRON SOIL PIPE, 4000# (18 KN) CRUSH STRENGTH, NO HUB MECHANICAL JOINT WITH CAST IRON DRAINAGE FITTINGS OR PVC-DWV PLASTIC PIPE AND FITTINGS, CSA APPROVED.
    - BURIED SECTIONS: 2" (50 MM) AND SMALLER DIAMETER, HARD TEMPER COPPER PIPE, TYPE L, WITH WROUGHT COPPER OR COPPER ALLOY SOLDER JOINT CAST BRASS SOLDER JOINT, CSA APPROVED. 3" (75 MM) AND LARGER DIAMETER, CAST IRON SOIL PIPE, 4000# (18 KN) CRUSH STRENGTH, NO-HUB MECHANICAL JOINT WITH NEOPRENE GASKETS AND STAINLESS STEEL PIPE CLAMPS WITH CAST IRON DRAINAGE FITTINGS OR PVC GRAVITY SEWER PIPE CAN/CSA APPROVED WITH DR OF 35 MAXIMUM. INCLUDE RUBBER RING GASKETS, SOLVENT CEMENT.
  - VENT**
    - UNBURIED SECTIONS: 2" (50 MM) AND SMALLER DIA., TEMPER COPPER TUBE TYPE DWV, SOLDERED WITH WROUGHT COPPER OR CAST BRASS DRAINAGE FITTINGS. 3" (75 MM) AND LARGER DIA., CAST IRON SOIL PIPE, 4000# (18 KN) CRUSH STRENGTH, NO HUB – MECHANICAL JOINT WITH CAST IRON DRAINAGE FITTINGS OR PVC-DWV PLASTIC PIPE AND FITTINGS, CSA APPROVED.
    - BURIED SECTIONS: 2" (50 MM) AND SMALLER DIA., HARD TEMPER COPPER TUBE TYPE L, SOLDERED WITH WROUGHT COPPER OR CAST BRASS DRAINAGE FITTINGS. 3" (75 MM) AND LARGER DIA., CAST IRON SOIL PIPE, 4000# (18 KN) CRUSH STRENGTH, NO HUB MECHANICAL JOINT WITH CAST IRON DRAINAGE FITTINGS OR PVC-DWV PLASTIC PIPE AND FITTINGS, CSA APPROVED.
  - CONDENSATE DRAIN LINES: 3/4" (20 MM) AND 1" (25 MM) TYPE M COPPER, 1 1/4" (40 MM) AND LARGER HARD TEMPER COPPER TUBING, TYPE DWV, SOLDERED, WITH WROUGHT COPPER OR COPPER ALLOY DRAINAGE FITTINGS OR CAST BRASS DRAINAGE FITTINGS, CSA APPROVED**
  - DOMESTIC WATER DISTRIBUTION: HARD TEMPER COPPER TUBING, TYPE L, SOLDERED, WITH WROUGHT COPPER OR CAST BRASS PRESSURE FITTINGS.**
- PLUMBING FIXTURES**
  - BARRIER FREE WATER CLOSET (WC): FLOOR MOUNTED, WHITE, VITREOUS CHINA, WITH ELONGATED RIM BOWL, LOW CONSUMPTION (6.0L/FP/1.6GPF), 3" FLUSH VALVE, FULLY-GLAZED 2-1/8" TRAPWAY, 16-1/12" RIM HEIGHT, TANK COVER LOCKING DEVICE, TRANSFER LEVER LOCATED ON TRANSFER SIDE (RIGHT SIDE) OF TANK. BASIS OF DESIGN: AMERICAN STANDARD 41848065. SEALED, ANTIMICROBIAL, HEAVY DUTY, OPEN FRONT LESS COVER FOR ELONGATED BOWLS, BASIS OF DESIGN: CENTOCO MODEL #AM500STSCCS.
  - BARRIER FREE KITCHENETTE SINK (S-1): SINGLE COMPARTMENT SELF-RIMMING DROP-IN SINK WITH FAUCET LEDGE. 20 GAUGE (0.9 MM) TYPE 302 (UNS 18/8) STAINLESS STEEL EXPOSED SURFACES ARE #4 SATIN FINISHED, UNDERCOATED TO REDUCE CONDENSATION AND RESONANCE. INCLUDES WASTE FITTING, FACTORY APPLIED RIM SEAL. CERTIFIED TO ASME A112.19.3-2008 (CSA B45.4-08). WHEELCHAIR ACCESSIBLE. MEETS ADA (AMERICANS WITH DISABILITIES ACT GUIDELINES), ANSI A117.1 (ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES), AND CSA B651-04 (ACCESSIBLE DESIGN FOR THE BUILT ENVIRONMENT). LEFT REAR WASTE LOCATION. INCLUDES 3 1/2" (89 MM) CRUMB CUP STRAINER WITH 1/2" (DN38) BRASS TAILPIECE, 511 MM (20-1/8") WIDE X 522 MM (20-5/16") LONG X 127 MM (5") DEEP. BASIS OF DESIGN: FRANKE #ALBS6805-1/3. FAUCET: BELOW DECK MOUNT, 8" CENTRES, GOOSENECK, VANDAL RESISTANT LAMINAR FLOW CONTROL AERATOR, LEVER HANDLES WITH COLOURED INDICES, RENEWABLE SEATS, 1.5 GPM. BASIS OF DESIGN: DELTA 27C2934. PROVIDE "P" TRAP, CAST BRASS 1-1/2" WITH CLEANOUT OPEN GRID STRAINER, UNION AND ESCUTOHEON FOR BARRIER FREE INSTALLATION. PROVIDE CHROME PLATED, ANGLE COSET SUPPLY, LOCKSHIELD SCREWDRIVER SLOT, STUFFING BOX CARTRIDGE, BRASS SUPPLY NIPPLE 1/2" OD X 12" LONG FLEXIBLE RISER, STAINLESS STEEL WALL FLANGE, POINT OF USE THERMOSTATIC MIXING VALVE, NICKEL PLATED BRONZE BODY, TEMPERATURE ADJUSTING SPINDLE, 10 MM (3/8") INLETS AND OUTLET FNPT CONNECTIONS, INTEGRAL CHECKS, OFFER TEMPERATURE RANGE BETWEEN 35C (95F) AND 46C (114.8F). SET VALVE TEMPERATURE AT 46C (114.8 F). NOTE: PROVIDE TEE, ADAPTORS AND FLEX. COPPER TUBING TO SUIT INSTALLATION. PROVIDE TEMPERED WATER TO HOT SIDE OF FAUCET. BASIS OF DESIGN: LAWLOR #570-86820.
- PIPE INSULATION**
  - MINIMUM PIPE INSULATION SHALL CONFORM TO CURRENT ASHRAE 90.1 AND SHALL BE MOUNTED GLASS FIBRE INSULATION WITH VAPOUR BARRIER JACKET, EQUAL TO BASIS OF DESIGN: FIBERGLASS OF CANADA INC.; STANDARD TEMP PIPE INSULATION BRH AS4; MANSON INSULATION INC. ALLEY-K WITH APT; KNAUF FIBREGLASS OR ROXUL-SEITZ.

## MECHANICAL SPECIFICATIONS (CONT'D)

- INSULATE NEW PIPING WITH RIGID PIPE INSULATION AS FOLLOWS, OR DOUBLE IF RUN IN AN UNCONDITIONED SPACE:

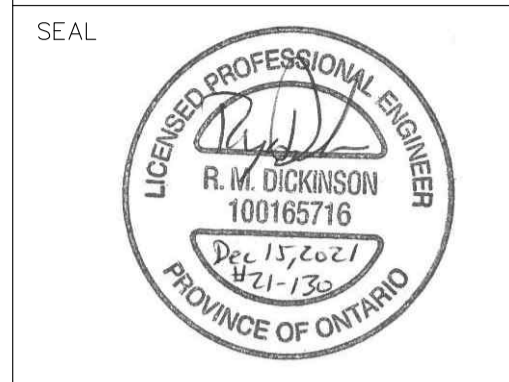
SERVICE	THICKNESS
DOMESTIC COLD WATER	1" (25 MM)
DOMESTIC HOT WATER	1" (25 MM)
CONDENSATE	1/2" (13 MM)
  - PROVIDE PVC JACKETING FOR ALL EXPOSED PIPE INSULATION.
- PIPING SPECIALTIES**
    - VALVES, COCKS AND FAUCETS
      - ISOLATION VALVES – DOMESTIC WATER: 2" (50 MM) AND SMALLER: FORGED BRONZE, 600 PSI (4 MPA) WOG BALL VALVE, SOLDER ENDS, AND TEFLON SEATS. BASIS OF DESIGN: CRANE NO. 9322, JENKINS, RED & WHITE, KITZ, M.A. STEWART.
    - CLEANOUTS: CLEANOUTS IN EXPOSED AREAS AND ACCESSIBLE PIPE CHASES SHALL BE LACQUERED CAST IRON CLEANOUT WITH NEOPRENE GASKET AND PLUG. BASIS OF DESIGN: WATTS CO-200.
  - ACCESS DOORS**
    - MINIMUM 12 GA. PRIME COAT PAINTED, HEAVY DUTY FULLY CONCEALED FRAME AND HINGES, POSITIVE LOCKING DEVICE.
    - ACCESS DOORS SHALL BE AS RECOMMENDED BY MANUFACTURER FOR PARTICULAR INSTALLATION.
    - SUPPLY ACCESS DOORS FOR ACCESS TO EQUIPMENT REQUIRING SERVICE, LUBRICATION OR ADJUSTMENT AND ALL CONCEALED VALVES, CLEANOUTS, TRAP PRIMERS, FIRE DAMPERS, CONTROL AND VOLUME DAMPERS, AND OTHER SUCH EQUIPMENT.
    - TURN OVER ACCESS DOORS TO THE APPROPRIATE GENERAL TRADE FOR INSTALLATION.
    - INCLUDE COST FOR GENERAL TRADES TO SUPPLY AND INSTALL ACCESS PANELS IN GYPSUM CEILINGS OR WALLS.
  - CONDENSING UNITS**
    - SINGLE PHASE OUTDOOR UNIT WITH VARIABLE REFRIGERANT FLOW (VRF) TECHNOLOGY
    - INVERTER-DRIVEN (VARIABLE SPEED) COMPRESSOR
    - TOTAL REFRIGERANT PIPING LENGTH OF 394' (120M)
    - FACTORY INSTALLED OPTION FOR ULTRA-LOW AMBIENT COOLING OPERATION (-40F) AND WINDSCREEN KIT
    - WALL MOUNTING BRACKET
  - AIR CONDITIONING UNITS**
    - R410A REFRIGERANT
    - COMPACT, LIGHTWEIGHT, SHINY-WHITE, FLAT PANEL DESIGN
    - QUIET OPERATION
    - MULTIPLE FAN-SPEED SETTINGS
    - INTAKE GRILLE FILTER IS EASILY REMOVED FOR CLEANING
    - BUILT-IN RECEIVER IS STANDARD
    - BRANCH PIPE (2 BRANCH HEADER)
    - CONDENSATE PUMP
    - WIRED WALL CONTROLLER WITH BACKLIT LCD SCREEN
  - REFRIGERANT PIPING**
    - GENERAL PRODUCT**
      - TUBING: SHALL BE PROCESSED FOR REFRIGERATION INSTALLATIONS, DEOXYDIZED, DEHYDRATED AND SEALED SUCH AS HARD COPPER TO ASTM B280, TYPE ACR OR ANNEALED COPPER TO ASTM B280, WITH MINIMUM WALL THICKNESS AS PER CSA B52 AND ANS/ ASME B31.5.
    - FITTINGS**
      - SERVICE: SHALL HAVE A SERVICE DESIGN PRESSURE OF 2.1MPA (300PSI) AND TEMPERATURE OF 121°C (250°F)
      - BRAZED FITTINGS: FITTINGS SHALL BE WROUGHT COPPER TO ANS/ ASME B16.22, WITH SILVER JOINTS AND NON CORROSIVE FLEX, OR SILFOS.
      - FLANGED:
        - BRONZE OR BRASS, TO ANS/ ASME B16.24, CLASS 150 AND 300
        - GASKETS: SUITABLE FOR SERVICE
        - BOLTS, UNITS AND WASHERS: TO ASTM A307, HEAVY SERIES
      - FLARED: BRONZE OR BRASS, FOR REFRIGERATION, TO ANS/ASME 16.26
    - PIPE SLEEVES**
      - HARD COPPER OR STEEL, SIZED TO PROVIDE 6MM (1/4") CLEARANCE ALL AROUND BETWEEN SLEEVE AND UNINSULATED PIPE OR BETWEEN SLEEVE AND INSULATION.
    - VALVES**
      - 22MM (13/16") AND UNDER – CLASS 500, 3.5MPA (508PSI) GLOBE OR ANGLE NON-DIRECTIONAL TYPE, DIAPHRAGM, PACKLESS TYPE, WITH FORGED BRASS BODY AND BONNET, MOISTURE PROOF SEAL FOR BELOW FREEZING APPLICATIONS, BRAZED CONNECTIONS. BALL VALVES MEETING THIS SAME PERFORMANCE CRITERIA AND SUITABLE FOR REFRIGERATION SYSTEMS ARE ACCEPTABLE.
      - OVER 22MM (13/16"): CLASS 375, 2.5MPA (363PSI) GLOBE OR ANGLE TYPE, DIAPHRAGM, PACKLESS TYPE, BACK – SEATING, CAP SEAL, WITH CAST BRONZE BODY BONNET, MOISTURE PROOF SEAL FOR BELOW FREEZING APPLICATIONS, BRAZED CONNECTIONS. BALL VALVES MEETING THIS SAME PERFORMANCE CRITERIA AND SUITABLE FOR REFRIGERATION SYSTEMS ARE ACCEPTABLE.
      - ISOLATION BALL VALVES COMPLETE WITH INTEGRAL SCHRADER ACCESS PORTS TO BE INSTALLED AT THE BC CONTROLLER ON EACH (SUPPLY AND RETURN) BRANCH PIPE RUN TO EACH INDOOR UNIT –EMERSON TYPE BVS REFRIGERATION BALL VALVE (WITH ACCESS PORT) OR EQUIVALENT BY OTHER MANUFACTURER. ISOLATION BALL VALVES SHALL ALSO BE INSTALLED AT THE (SUPPLY AND RETURN) CONNECTIONS TO EACH BC CONTROLLER FROM THE OUTDOOR UNIT.
    - EXECUTION GENERAL**
      - INSTALL IN ACCORDANCE WITH CSA B52, EPS 1/RA/1 AND ANS/ ASME B31.5. CONNECT TO EQUIPMENT WITH ISOLATING VALVES. PROVIDE SPACE FOR SERVICING, DISASSEMBLY AND REMOVAL OF EQUIPMENT AND COMPONENTS ALL AS RECOMMENDED BY MANUFACTURER. PROTECT ALL OPENINGS IN PIPING AGAINST ENTRY OF FOREIGN MATERIAL, CONTAMINANTS, AND MOISTURE.
      - ISOLATION VALVES (BALL VALVES) SHALL BE INSTALLED AT THE CONDENSER INLET (DISCHARGE LINE), CONDENSER OUTLET (CONDENSATE OR LIQUID LINE), RECEIVER INLET AND RECEIVER OUTLET.
      - REFRIGERATION SYSTEMS LARGER THAN 11KW (3 TONS) OR REFRIGERATION SYSTEMS LARGER THAN 18KW (5 TONS) SHALL BE INSTALLED IN ACCORDANCE WITH THE TECHNICAL STANDARDS AND SAFETY ACT.
    - BRAZING PROCEDURES**

## MECHANICAL SPECIFICATIONS (CONT'D)

- BLEED INERT GAS INTO PIPE DURING BRAZING. REMOVE VALVE INTERNAL PARTS, SOLENOID VALVE COILS AND SIGHT GLASSES. DO NOT APPLY HEAT NEAR EXPANSION VALVE AND BULB AND OTHER TEMPERATURE SENSITIVE COMPONENTS.
- PIPING INSTALLATION
  - SOFT ANNEALED COPPER TUBING – BEND WITHOUT CRIMPING OR CONSTRUCTION. (HARD DRAWN COPPER TUBING- DO NOT BEND, MINIMIZE USE OF FITTINGS – OFFSETS CAN BE FABRICATED BY HEATING THE PIPE).
- HOT GAS LINES AND SUCTON LINES
  - PITCH AT LEAST 12MM PER 3M (3/4" PER 10') DOWN IN DIRECTION OF FLOW TO PROMOTE OIL RETURN TO COMPRESSOR DURING OPERATION
  - PROVIDE TRAP AT BASE OF RISERS GREATER THAN 2.4M (8') HIGH AND AT EACH 7.6M (25') THEREAFTER.
  - PROVIDE INVERTED DEEP TRAP AT TOP OF EACH RISER.
  - PROVIDE DOUBLE RISERS FOR COMPRESSORS HAVING CAPACITY MODULATION.
    - LARGE RISER: INSTALL TRAPS AS SPECIFIED ABOVE.
    - SMALL RISER: SIZE FOR 50M/S (1000FT/MIN) AT MINIMUM LOAD. CONNECT UPSTREAM OF TRAPS ON LARGE RISER.
- PRESSURE AND LEAK TESTING
  - CLOSE VALVES ON ALL FACTORY CHARGED EQUIPMENT AND OTHER EQUIPMENT NOT DESIGNED FOR TEST PRESSURES. LEAK TEST TO CSA B52 BEFORE EVACUATION TO 1.5 TIMES WORKING PRESSURE ON BOTH HIGH AND LOW SIDES. TEST WITH NITROGEN TO REQUIRED PRESSURE. TEST FOR LEAKS WITH DETECTOR. REPAIR LEAKS AND REPEAT TESTS. SOLENOID VALVES MAY HAVE TO BE ENERGIZED TO CARRY OUT PRESSURE TESTING AND EVACUATION TO ELIMINATE ISOLATED SECTION OF THE SYSTEM.
  - DEHYDRATION AND CHARGING
    - CLOSE SERVICE VALVES ON FACTORY CHARGED EQUIPMENT AMBIENT TEMPERATURE TO BE AT LEAST +13°C (55°F) FOR AT LEAST 12 HOURS BEFORE AND DURING DEHYDRATION. USE COPPER LINES OF LARGEST PRACTICAL SIZE TO REDUCE EVACUATION TIME. USE 2-STAGE VACUUM PUMP WITH GAS BALLAST ON 2ND STAGE CAPABLE OF PULLING AT LEAST 100 MICRONS (0.053"V.C.) AND FILLED WITH DEHYDRATED OIL. MEASURE SYSTEM PRESSURE WITH VACUUM GAUGE. TAKE READINGS WITH VALVE BETWEEN VACUUM PUMP AND SYSTEM CLOSED. TRIPLE EVACUATE ALL SYSTEM COMPONENTS CONTAINING REFRIGERANT GASES OTHER THAN CORRECT REFRIGERANT CHARGE OR HOLDING CHARGE AS FOLLOWS:
      - A STANDING VACUUM OF 250 MICRONS (0.134"V.C.) OR LESS FOR A PERIOD OF NOT LESS THAN 2 HOURS.
      - A STANDING VACUUM OF 250 MICRONS (0.134"V.C.) OR LESS FOR A PERIOD OF NOT LESS THAN 12 HOURS.
      - SUBMIT ALL TEST RESULTS TO ENGINEER.
    - CHARGING: CHARGE SYSTEM THOUGH FILTER-DRYER AND CHARGING VALVE ON HIGH SIDE. LOW SIDE VAPOUR CHARGING ONLY IS PERMITTED WITH COMPRESSOR OFF. CHARGE ONLY AMOUNT NECESSARY FOR PROPER OPERATION OF SYSTEM. IF SYSTEM PRESSURE EQUALIZE BEFORE SYSTEM IS FULLY CHARGED, CLOSE CHARGING VALVE AND START UP WITH UNIT OPERATING, ADD REMAINDER OF CHARGE TO SYSTEM. RE-PURGE CHARGING LINE IF REFRIGERANT CONTAINER IS CHANGED DURING CHARGING PROCESS.
    - CHECKS: MAKE ALL CHECKS AND MEASUREMENTS AS PER MANUFACTURERS OPERATION AND MAINTENANCE INSTRUCTIONS. RECORD AND REPORT ALL MEASUREMENTS IN WRITING TO ENGINEER. NO REFRIGERANT SHALL BE PURGED.
  - INSULATION
    - APPLY INSULATION AFTER REQUIRED TESTS HAVE BEEN COMPLETED AND REVIEWED BY CONSULTANT.
    - INSULATION AND SURFACES SHALL BE CLEAN AND DRY WHEN INSTALLED AND DURING APPLICATION OF ANY FINISH ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
    - INSULATE ALL REFRIGERANT SUCTION AND HOT GAS PIPING AND FITTINGS WITH FLEXIBLE FOAMED PLASTIC PIPE INSULATION. INSULATION SHALL FIT PIPE. THICKNESS SHALL BE AS FOLLOWS: 1/2" (13 MM) THICK FOR PIPE 1" (25 MM) O.D. AND SMALLER; 3/4" (20 MM) THICK FOR PIPE 1-1/8" (28 MM) TO 2" (50 MM) O.D.; 1" (25 MM) THICK FOR PIPES 2-1/8" (54MM) O.D. AND LARGER.
    - SLIP INSULATION ON TO TUBING BEFORE TUBING SECTIONS AND FITTINGS ARE ASSEMBLED. KEEP SLITTING OF INSULATION TO A VERY MINIMUM. SEAL ALL JOINTS IN THE INSULATION WITH ARMAFLEX 520 BLV. INSULATE FLEXIBLE PIPE CONNECTORS.
    - ON INSULATION EXPOSED OUTSIDE THE BUILDING, PLACE "SLIT" JOINT SEAMS ON BOTTOM OF PIPE AND PROVIDE TWO COATS OF GREY ARMAFLEX FINISH. EXTEND INSULATION THROUGH PIPE SUPPORT CLAMPS. PROVIDE A 6" (150 MM) LONG, 20 GAUGE (1.1 MM) GALVANIZED STEEL SLEEVE AROUND PIPE INSULATION AT EACH SUPPORT.
- SEISMIC RESTRAINTS**
  - SUBMITTALS**
    - ALL VIBRATION ISOLATION AND SEISMIC RESTRAINT SYSTEMS SHALL BE BY ONE MANUFACTURER.
    - BRITISH SHOP DRAWINGS FOR ALL DEVICES SPECIFIED HEREIN AND AS INDICATED ON THE DRAWINGS. SUBMITTALS SHALL INCLUDE DIMENSIONS, MATERIALS, ATTACHMENT AND ANCHORAGE REQUIREMENTS. INDICATE COMPLIANCE WITH EACH SPECIFICATION ITEM HEREIN.
  - SHOP DRAWINGS:
    - PROVIDE DETAILED DRAWINGS OF ALL SEISMIC CONTROL MEASURES FOR EQUIPMENT, DUCT, AND PIPING.
    - PROVIDE SEPARATE SHOP DRAWINGS FOR EACH ISOLATED SYSTEM COMPLETE WITH PERFORMANCE AND PRODUCT DATA, INDICATING ALL CALCULATIONS FOR LOADS AND DEFLECTIONS.
    - INDICATE INERTIA BASES AND LOCATE VIBRATION ISOLATORS, WITH STATIC AND DYNAMIC LOADS ON EACH.
    - SHOP DRAWINGS SHALL INCLUDE ENGINEERING CALCULATIONS FOR ALL SEISMIC RESTRAINTS AND ATTACHMENT. A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF THE PROJECT SHALL SIGN, SEAL AND DATE THE CALCULATIONS.
  - PRODUCT DATA: PROVIDE SCHEDULE OF VIBRATION ISOLATOR TYPE WITH LOCATION AND LOAD ON EACH.
  - MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE SPECIAL PROCEDURES AND SETTING DIMENSIONS.
  - MANUFACTURER'S CERTIFICATE: CERTIFY THAT ISOLATORS ARE PROPERLY INSTALLED AND ADJUSTED TO MEET OR EXCEED DESIGN REQUIREMENTS.
- SEISMIC ENGINEER**
  - PROFESSIONAL ENGINEER HOLDING A CERTIFICATE OF AUTHORIZATION IN THE PROVINCE OF ONTARIO WITH A MINIMUM OF 5 YEARS EXPERIENCE IN SEISMIC DESIGN, AND A MINIMUM OF \$1 MILLION PROFESSIONAL LIABILITY INSURANCE INCLUDING ERRORS AND OMISSIONS INSURANCE.
  - AT THE COMPLETION OF THE PROJECT, THE SEISMIC ENGINEER SHALL REVIEW THE INSTALLATIONS ON SITE, AND SHALL PREPARE A WRITTEN REPORT, WITH A LETTER SIGNED, SEALED

## MECHANICAL SPECIFICATIONS (CONT'D)

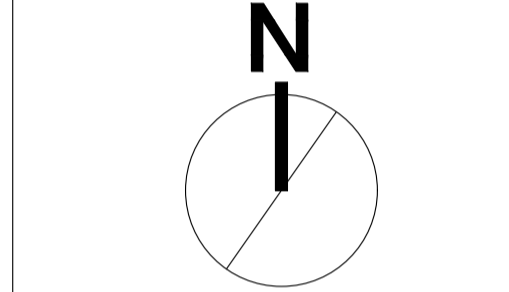
- AND DATED BY THE SEISMIC ENGINEER, CERTIFYING THAT THE INSTALLATIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THEIR DESIGN AND SHOP DRAWINGS.
- SEISMIC CONTROL MEASURES**
  - A SINGLE SUPPLIER SHALL PROVIDE SEISMIC DESIGN, VIBRATION ISOLATION, AND SEISMIC RESTRAINT.
  - SEISMIC RESTRAINTS ARE TO BE PROVIDED FOR ALL OPERATIONAL AND FUNCTIONAL COMPONENTS OF BUILDING SERVICES IN ACCORDANCE WITH CURRENT REQUIREMENTS OF THE ONTARIO BUILDING CODE.
  - CABLE RESTRAINT SYSTEMS, ROD STIFFENER CLAMPS AND SEISMIC ISOLATOR CAPACITIES SHALL BE VERIFIED BY AN INDEPENDENT TEST LABORATORY.
  - CONNECTION MATERIALS SHALL BE SELECTED BY AND SITE SPECIFIC DESIGNS TO BE PREPARED BY THE SEISMIC ENGINEER. THE SEISMIC ENGINEER MAY SELECT AND SPECIFY MATERIALS AND ANCHORS TO BE PROVIDED BY THE CONTRACTOR WHERE THIS IS APPROPRIATE.
  - CONTRACTOR SHALL ENSURE THAT THE SEISMIC ENGINEERS' REQUIREMENTS AND SPECIFICATION ARE MET.
  - SEISMIC FORCE: THE IMPORTANCE FACTOR FOR THIS PROJECT IS [1.5]
- INSTALLATION – GENERAL**
  - INSTALL TO MANUFACTURER'S INSTRUCTIONS AND ADJUST MOUNTINGS TO LEVEL EQUIPMENT.
  - ENSURE PIPE AND ELECTRICAL CONNECTIONS TO ISOLATED EQUIPMENT DO NOT REDUCE SYSTEM FLEXIBILITY. ENSURE THAT PIPE AND CONDUIT PASSING THROUGH WALLS AND FLOORS DO NOT TRANSMIT VIBRATIONS.
  - INSTALL ISOLATION FOR MOTOR DRIVEN EQUIPMENT.
  - INSTALL SPRING HANGERS WITHOUT BINDING.
  - ON CLOSED SPRING ISOLATORS, ADJUST SO SIDE STABILIZERS ARE CLEAR UNDER NORMAL OPERATING CONDITIONS.
  - PRIOR TO MAKING PIPING CONNECTIONS TO EQUIPMENT WITH OPERATING WEIGHTS SUBSTANTIALLY DIFFERENT FROM INSTALLED WEIGHTS, BLOCK UP EQUIPMENT WITH TEMPORARY SHIMS TO FINAL HEIGHT. WHEN FULL LOAD IS APPLIED, ADJUST ISOLATORS TO LOAD TO ALLOW SHIM REMOVAL.
  - PROVIDE RESILIENTLY MOUNTED EQUIPMENT AND PIPING WITH SEISMIC SNUBBERS. PROVIDE EACH INERTIA BASE WITH MINIMUM OF FOUR SEISMIC SNUBBERS LOCATED CLOSE TO ISOLATORS. SNUB EQUIPMENT DESIGNATED FOR POST DISASTER USE TO 1.5MM (1/16") MAXIMUM CLEARANCE. PROVIDE OTHER SNUBBERS WITH CLEARANCE BETWEEN 4MM AND 7MM (1/8" AND 1/4")
  - BLOCK AND SHIM LEVEL BASES SO THAT PIPING CONNECTIONS CAN BE MADE TO A RIGID SYSTEM AT THE OPERATING LEVEL. BEFORE ISOLATOR ADJUSTMENT IS MADE, ENSURE THAT THERE IS NO PHYSICAL CONTACT BETWEEN ISOLATED EQUIPMENT AND BUILDING STRUCTURE.
  - CONNECT WIRING TO ISOLATED EQUIPMENT WITH FLEXIBLE HANGING LOOP.
- INSTALLATION – EQUIPMENT**
  - RIGID MOUNTED EQUIPMENT:
    - ANCHOR FLOOR AND WALL MOUNTED EQUIPMENT TO STRUCTURE AS PER THE SEISMIC SHOP DRAWINGS.
    - SUSPENDED EQUIPMENT SHALL BE RESTRAINED USING SWAY BRACING, OR STRUTS, AND HANGER RODS AS PER THE SEISMIC SHOP DRAWINGS.
  - VIBRATION ISOLATED EQUIPMENT:
    - SEISMIC CONTROL MEASURES SHALL NOT COMPROMISE THE PERFORMANCE OF NOISE CONTROL, VIBRATION ISOLATION OR FIRE STOPPING SYSTEMS.
    - EQUIPMENT SUPPORTED BY VIBRATION-ISOLATION HANGERS SHALL BE DETAILED AND INSTALLED WITH ISOLATION HANGERS TIGHT TO THE STRUCTURE AND UPWARD LIMIT STOPS LOCATED DIRECTLY BELOW THE HANGERS.



CONSULTANTS



KEY PLAN



#	ISSUE	DATE
01	PRELIMINARY REVIEW	10/22/2021
02	75% REVIEW	11/04/2021
03	95% REVIEW	11/19/2021
04	TRANSLATION	12/02/2021
05	ISSUE FOR TENDER	12/15/2021

PROJECT NAME  
CENTRAL EXPERIMENTAL FARM  
Building 26  
OTTAWA, ON

ACCOMMODATION FIT-UP

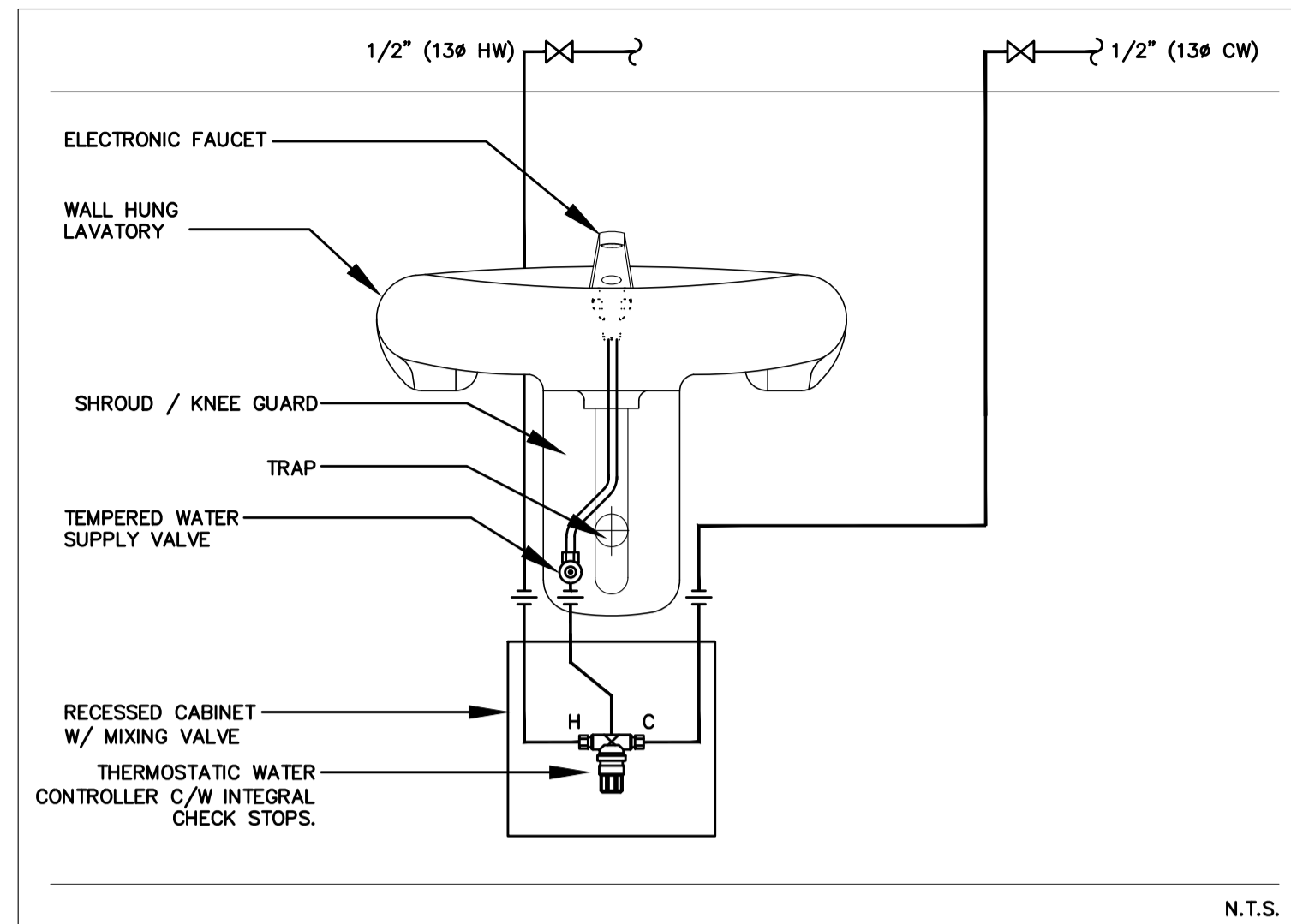
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MECHANICAL SPECIFICATIONS

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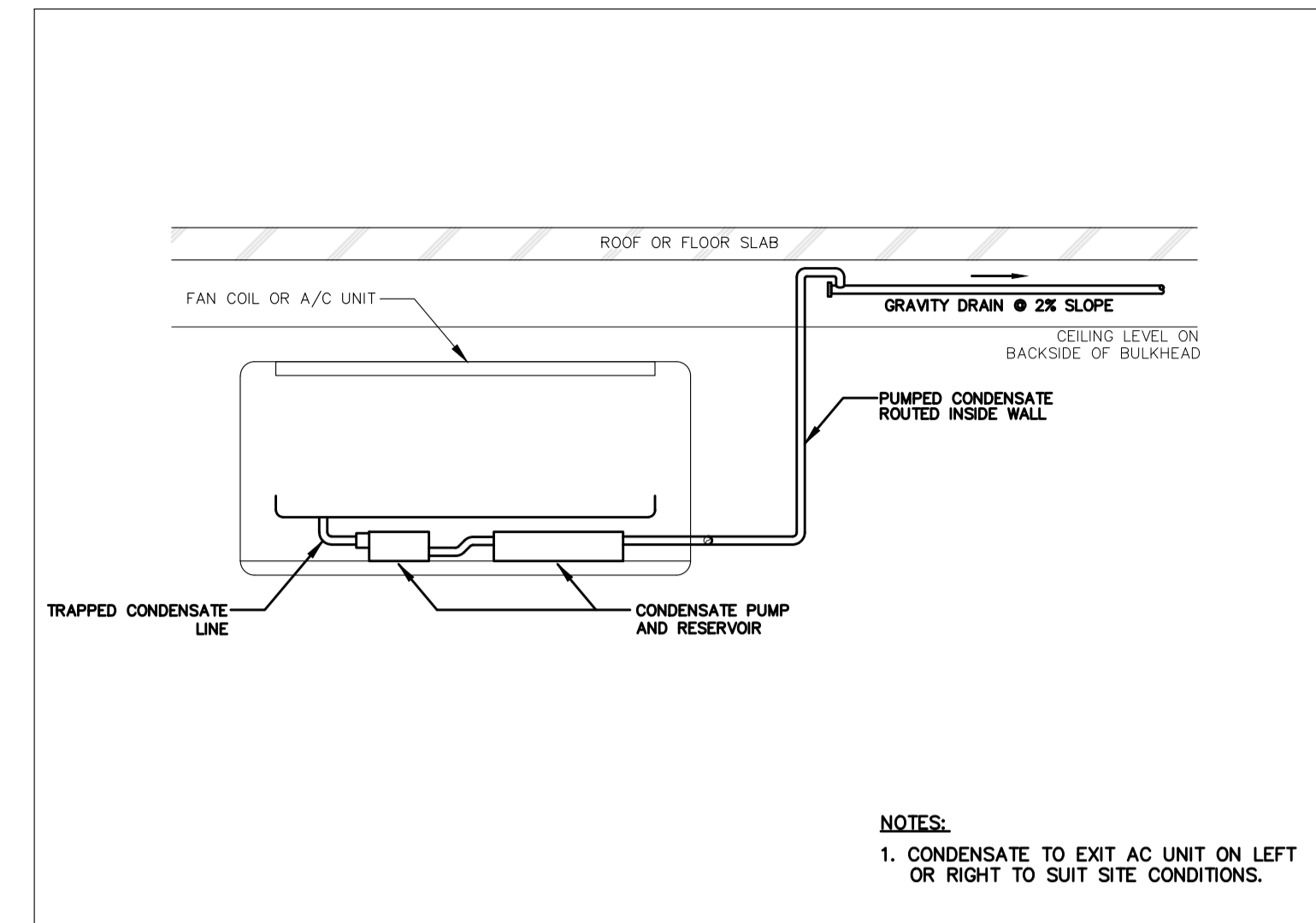
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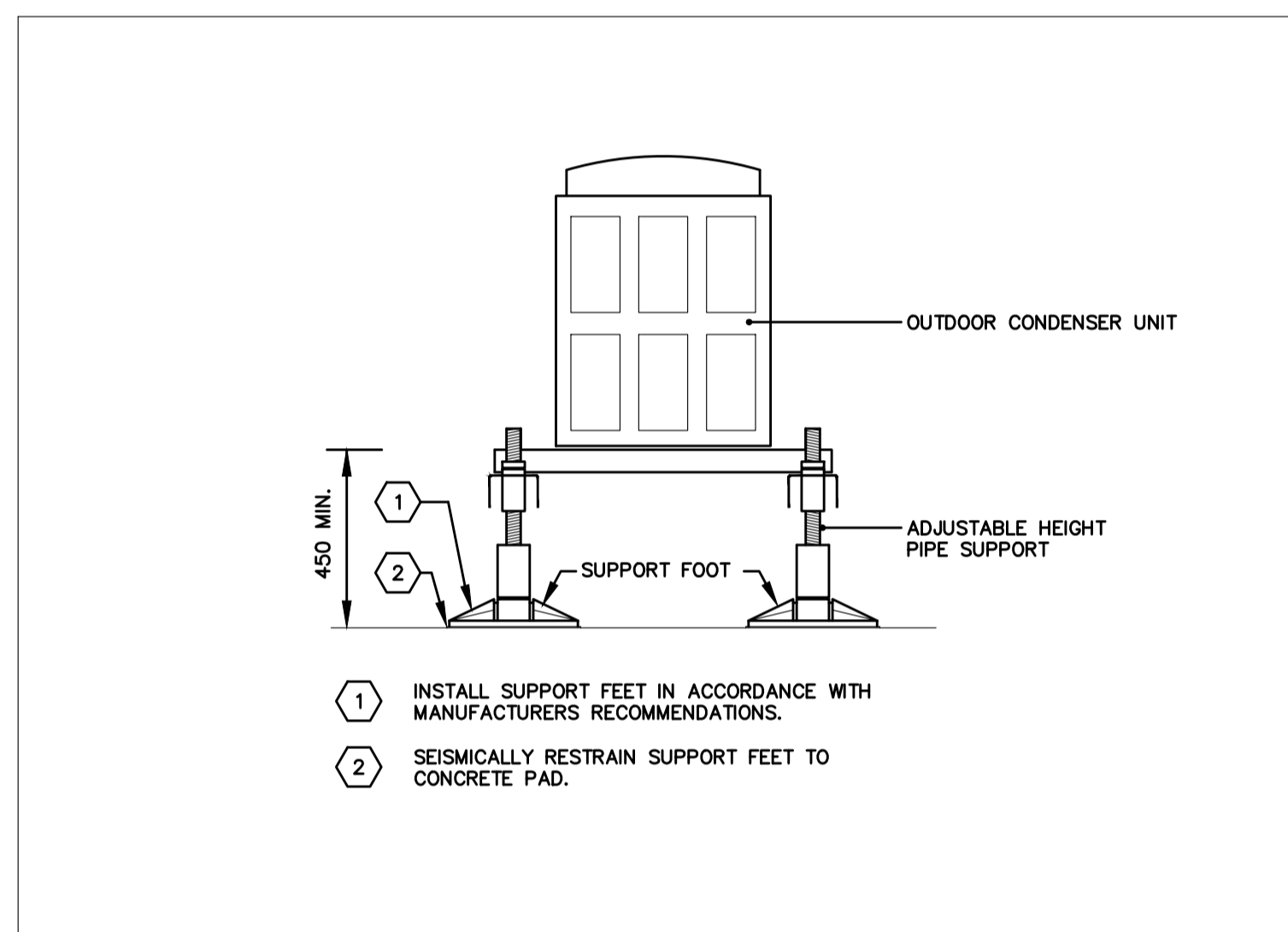
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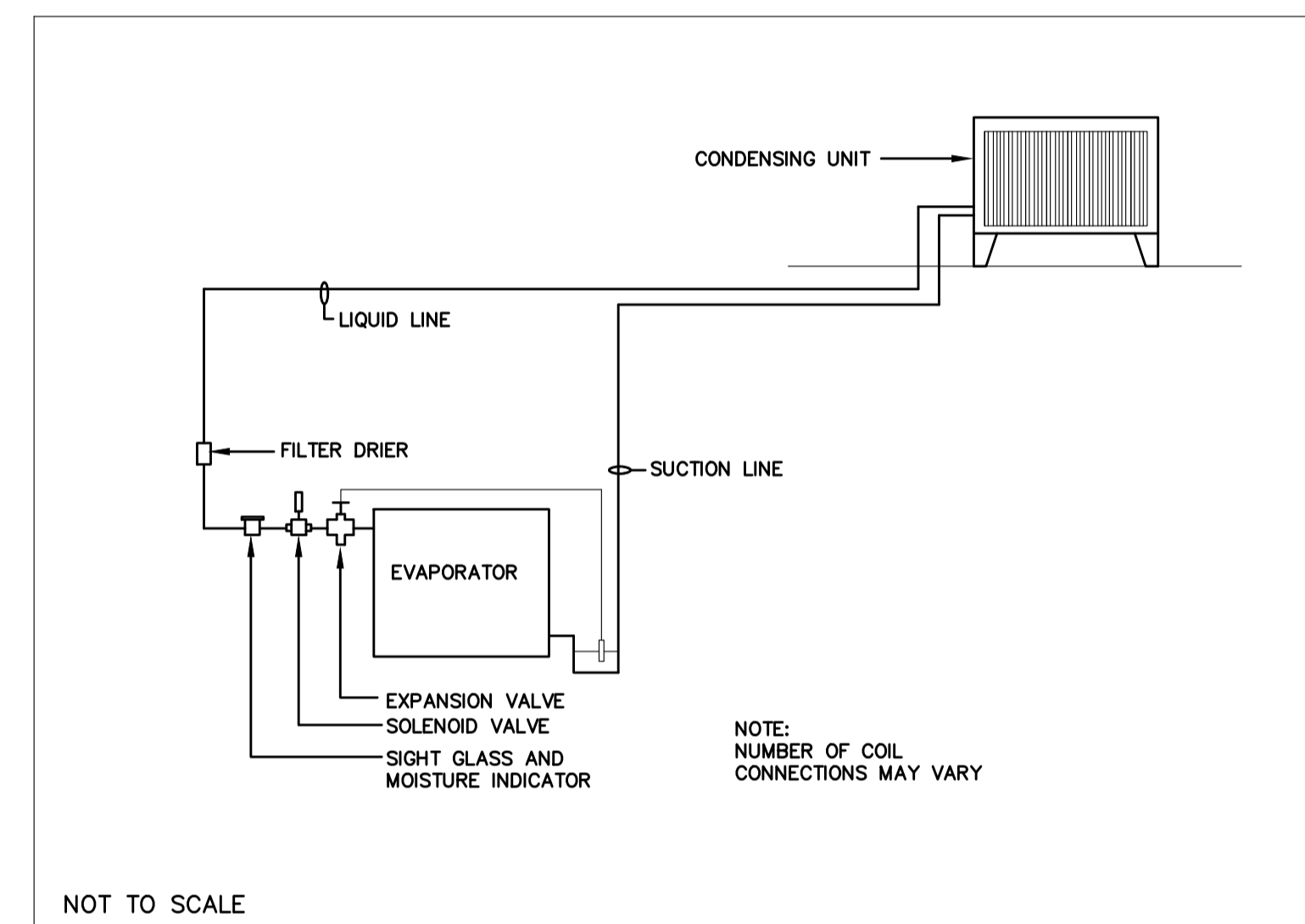
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M002 UNDER LAVATORY THERMOSTATIC MIXING VALVE AND CABINET FOR ELECTRONIC FAUCETS DETAIL



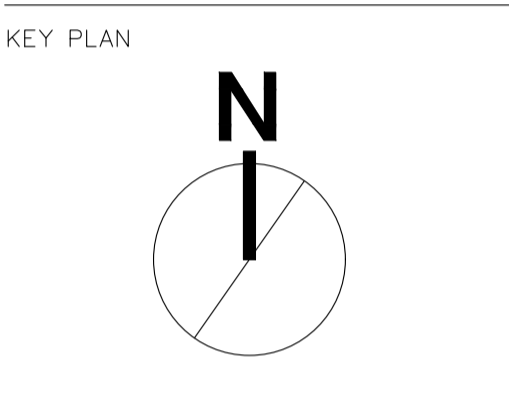
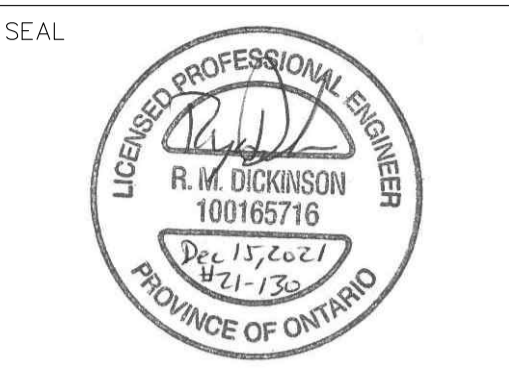
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M002 DETAIL OF PUMPED CONDENSATE ARRANGEMENT FOR WALL MOUNTED AC UNITS



3  
M002 DETAIL OF CONDENSING UNIT SUPPORT



4  
M002 REFRIGERANT PIPING SCHEMATIC



#	ISSUE	DATE
01	PRELIMINARY REVIEW	10/22/2021
02	75% REVIEW	11/04/2021
03	99% REVIEW	11/19/2021
04	TRANSLATION	12/02/2021
05	ISSUE FOR TENDER	12/15/2021

PROJECT NAME  
CENTRAL EXPERIMENTAL FARM  
Building 26  
OTTAWA, ON

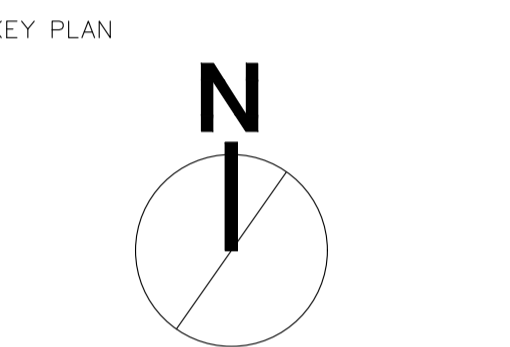
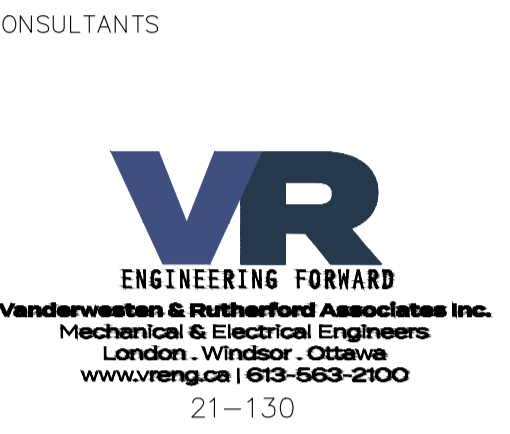
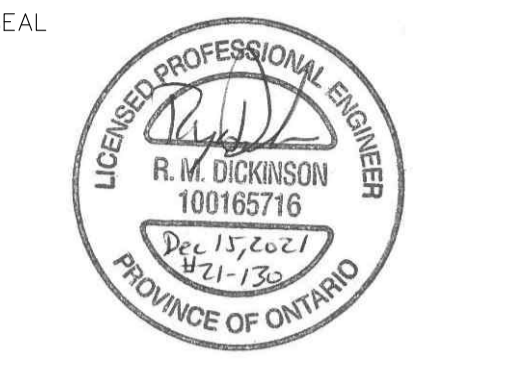
ACCOMMODATION FIT-UP

SHEET TITLE  
MECHANICAL  
DETAILS

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PROJECT #: 21-OXX  
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SHEET  
M-002



#	ISSUE	DATE
01	PRELIMINARY REVIEW	10/22/2021
02	75% REVIEW	11/04/2021
03	95% REVIEW	11/19/2021
04	TRANSLATION	12/02/2021
05	ISSUE FOR TENDER	12/15/2021

PROJECT NAME  
CENTRAL EXPERIMENTAL FARM  
Building 26  
OTTAWA, ON

ACCOMMODATION FIT-UP

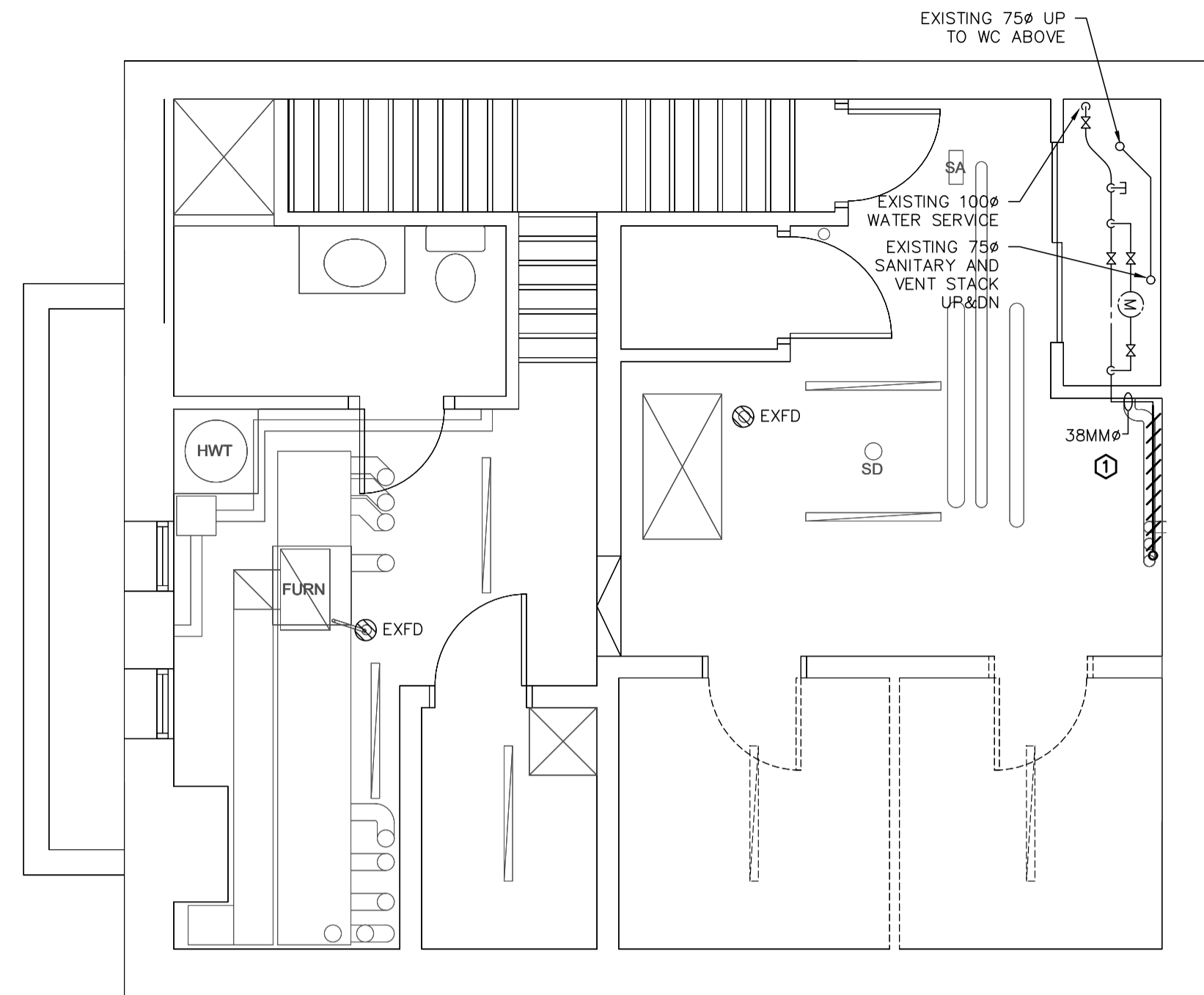
SHEET TITLE  
BASEMENT DEMOLITION  
AND NEW PLUMBING  
PLANS

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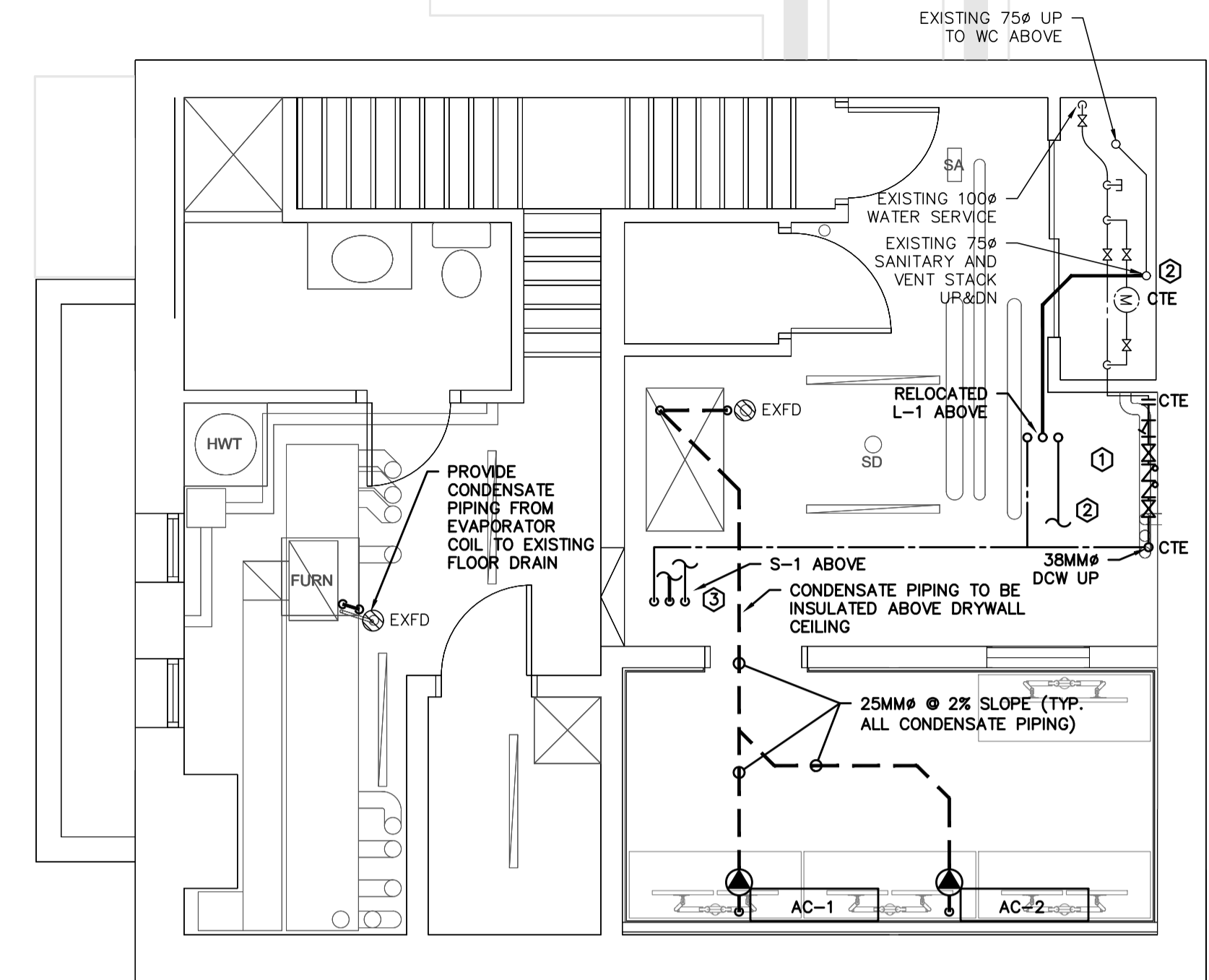
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1 BASEMENT DEMOLITION PLAN  
Scale: 1:50

**DEMOLITION NOTES**

1 CUT BACK EXISTING DOMESTIC COLD WATER PIPING AND RISER UP TO CEILING AS SHOWN IN HATCHED LINES TO ALLOW FOR INSTALLATION OF NEW STRAINER AND DOUBLE CHECK VALVE ASSEMBLY (DCVA) BACKFLOW PREVENTER.



2 BASEMENT NEW PLAN  
Scale: 1:50

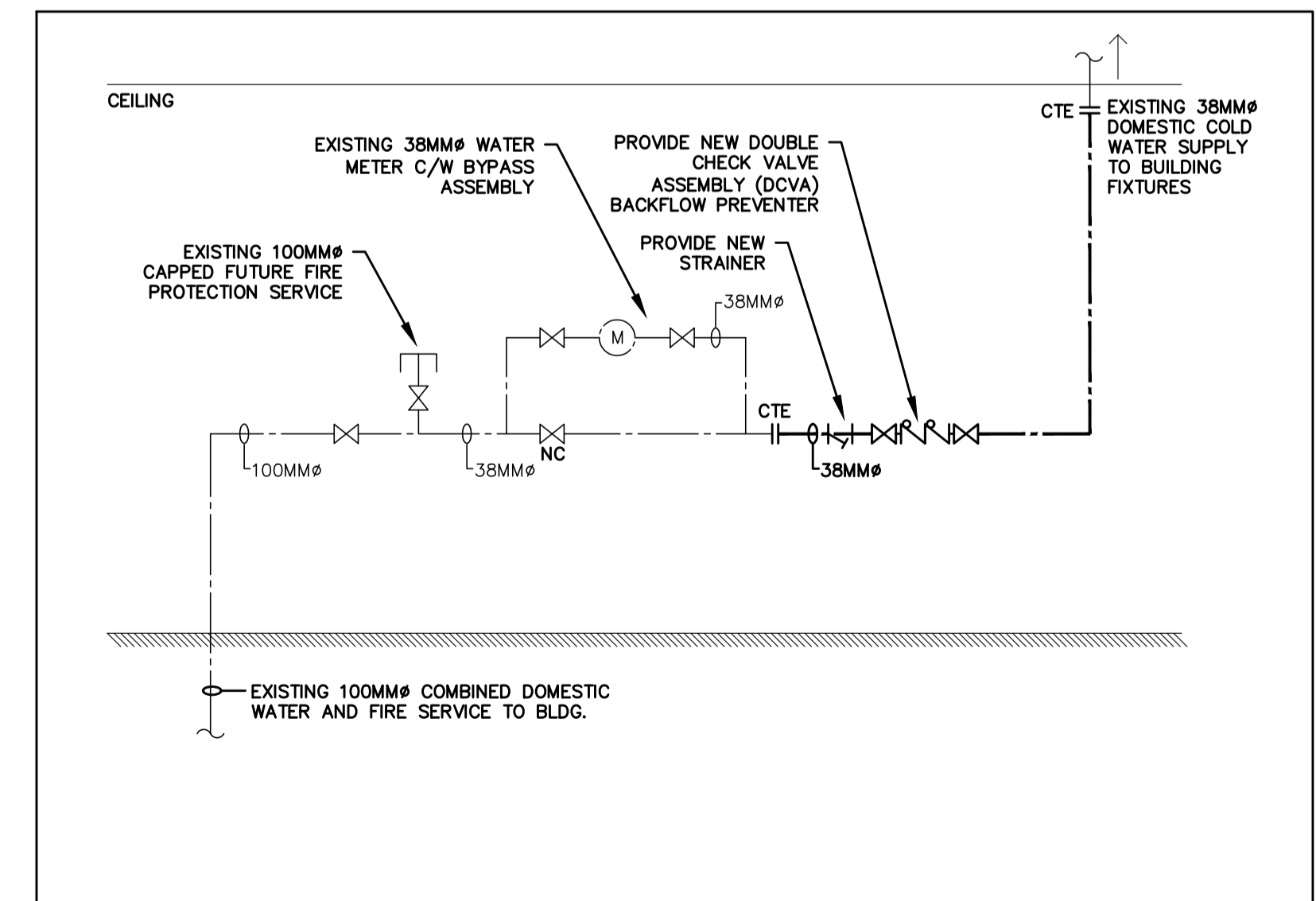
**NEW NOTES**

1 PROVIDE NEW STRAINER AND DOUBLE CHECK VALVE ASSEMBLY (DCVA) BACKFLOW PREVENTER. CONNECT TO EXISTING DOMESTIC COLD WATER PIPING. CONTRACTOR TO CONFIRM SUFFICIENT SPACE FOR INSTALLATION OF NEW STRAINER AND BACKFLOW PREVENTER, AND SHALL ALLOW FOR REWORKING OF EXISTING DOMESTIC COLD WATER PIPING RISER IN BASEMENT IN ORDER TO RECONNECT TO EXISTING BUILDING DISTRIBUTION AT CEILING.

2 PROVIDE NEW SANITARY DRAINAGE PIPING AND DOMESTIC HOT AND COLD WATER PIPING TO NEW LAVATORY LOCATION ABOVE. CONNECT TO EXISTING SERVICES ABOVE DRYWALL CEILING.

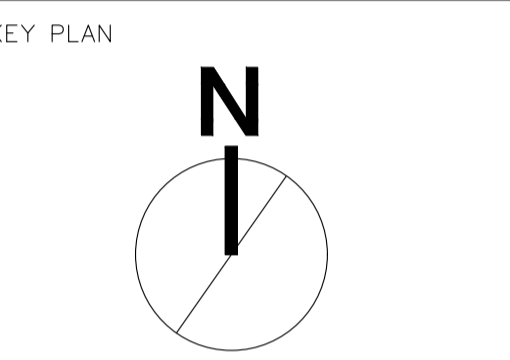
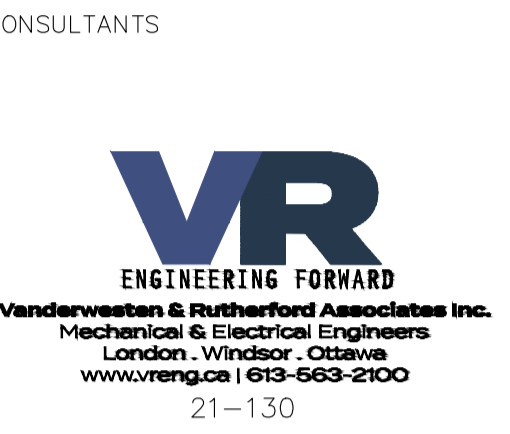
3 PROVIDE NEW SANITARY DRAINAGE PIPING AND DOMESTIC HOT AND COLD WATER PIPING TO NEW KITCHENETTE LOCATION ABOVE. CONNECT TO EXISTING SERVICES ABOVE DRYWALL CEILING. CONNECT SANITARY DRAIN TO CLOSEST MAIN.

4 PROVIDE CONDENSATE DRAIN PIPING FROM SPLIT AC UNITS AS SHOWN. CONDENSATE PIPING TO BE INSULATED AS PER SPECIFICATIONS. EXPOSED PIPING TO HAVE PVC JACKETING. PROVIDE INDIRECT CONNECTION FOR PUMPED CONDENSATE LINE TO EXISTING FLOOR DRAIN.



3 M-100 DETAIL OF EXISTING WATER SERVICE SCHEMATIC





#	ISSUE	DATE
01	PRELIMINARY REVIEW	10/22/2021
02	75% REVIEW	11/04/2021
03	95% REVIEW	11/19/2021
04	TRANSLATION	12/02/2021
05	ISSUE FOR TENDER	12/15/2021

PROJECT NAME  
CENTRAL EXPERIMENTAL FARM  
Building 26  
OTTAWA, ON

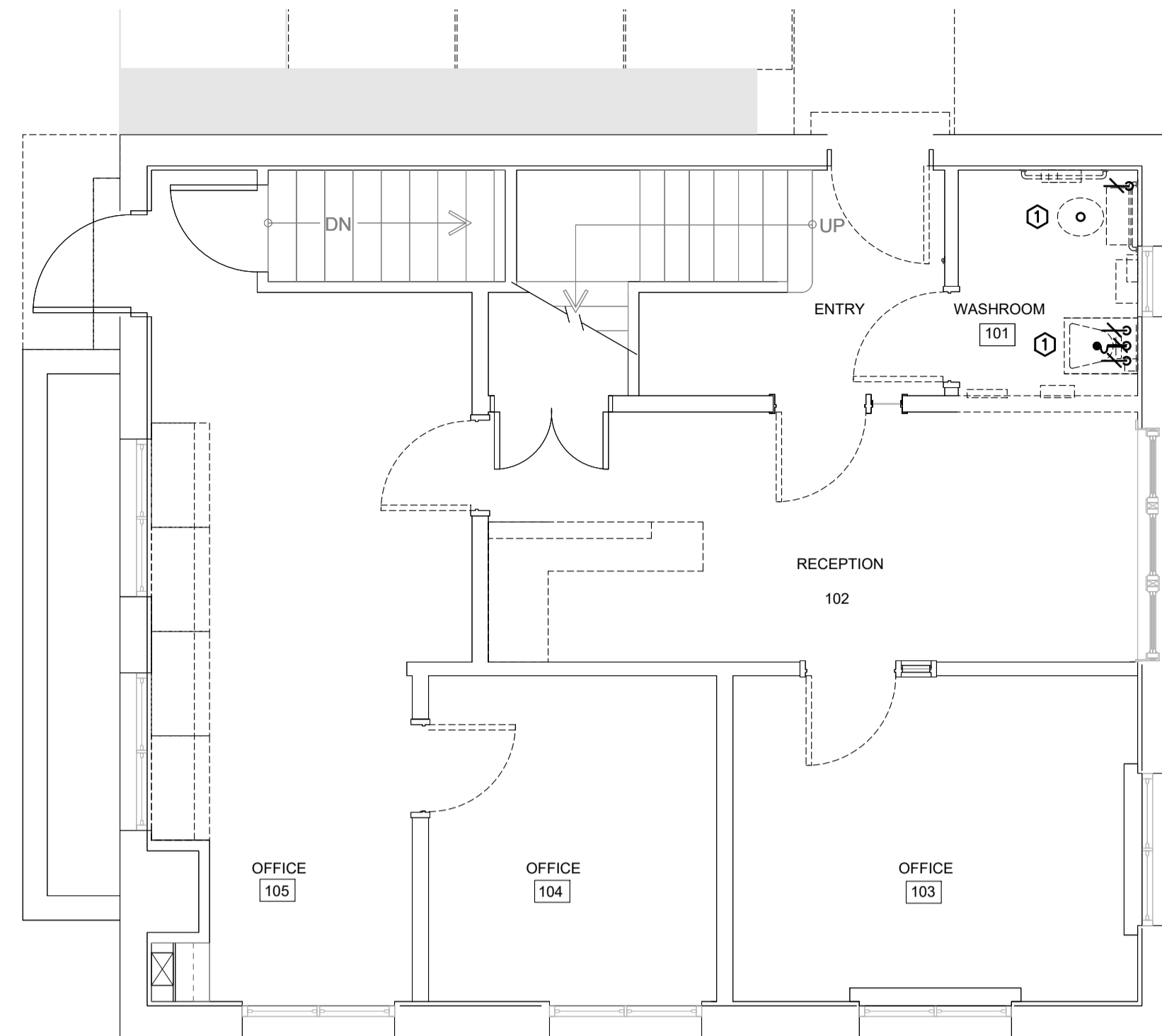
ACCOMMODATION FIT-UP

SHEET TITLE  
BASEMENT DEMOLITION  
AND NEW PLUMBING  
PLANS

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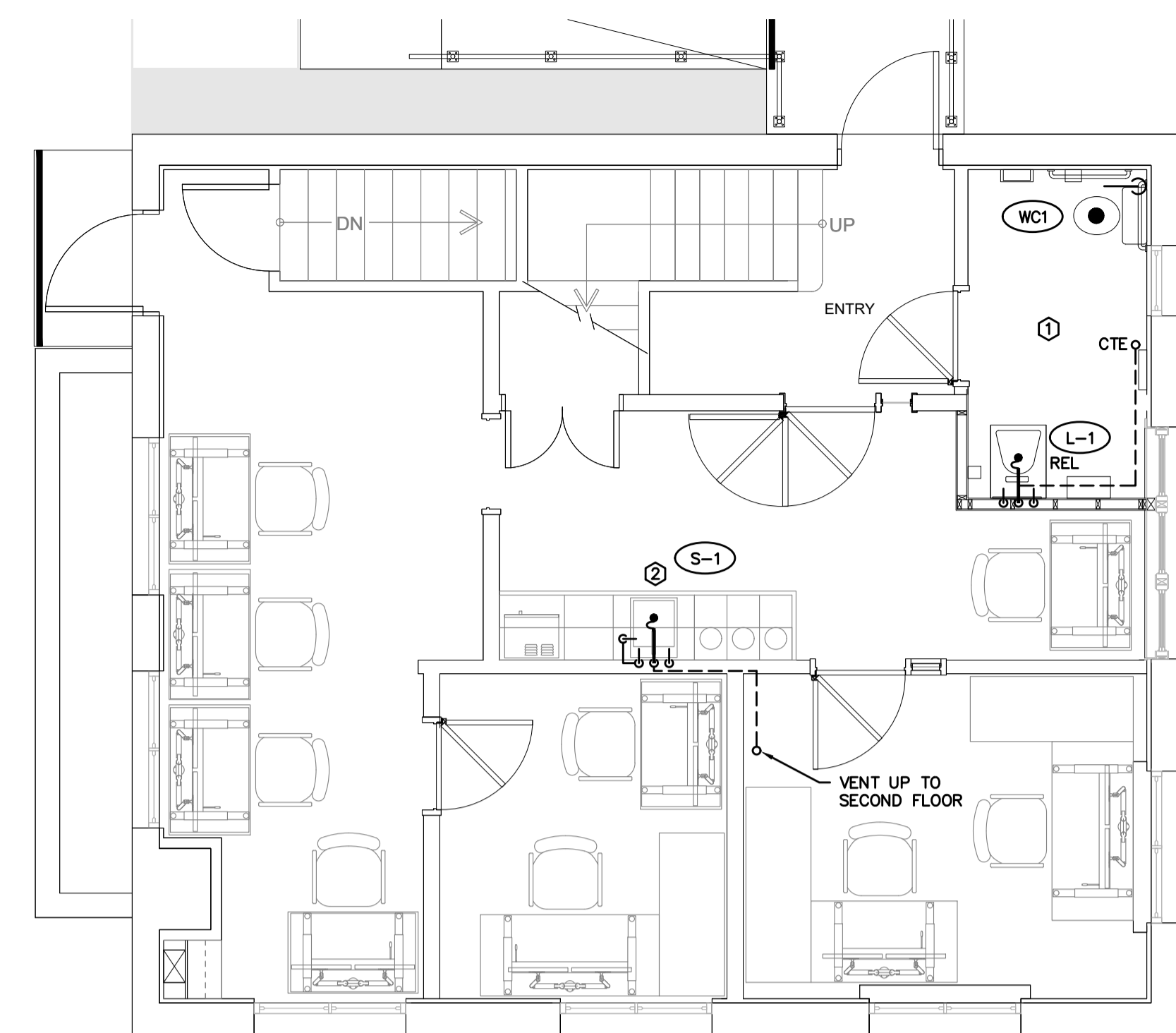
SHEET  
M-101



1 GROUND FLOOR DEMOLITION PLAN  
Scale: 1:50

**DEMOLITION NOTES**

① DISCONNECT AND REMOVE EXISTING LAVATORY AND WATER CLOSET. SALVAGE LAVATORY FOR RELOCATION. CUT BACK AND CAP DOMESTIC HOT WATER, DOMESTIC COLD WATER, AND SANITARY PIPING BACK FOR LAVATORY ABOVE DRYWALL CEILING ON FLOOR BELOW. CUT BACK AND CAP VENT PIPING ABOVE CEILING BACK TO MAIN.

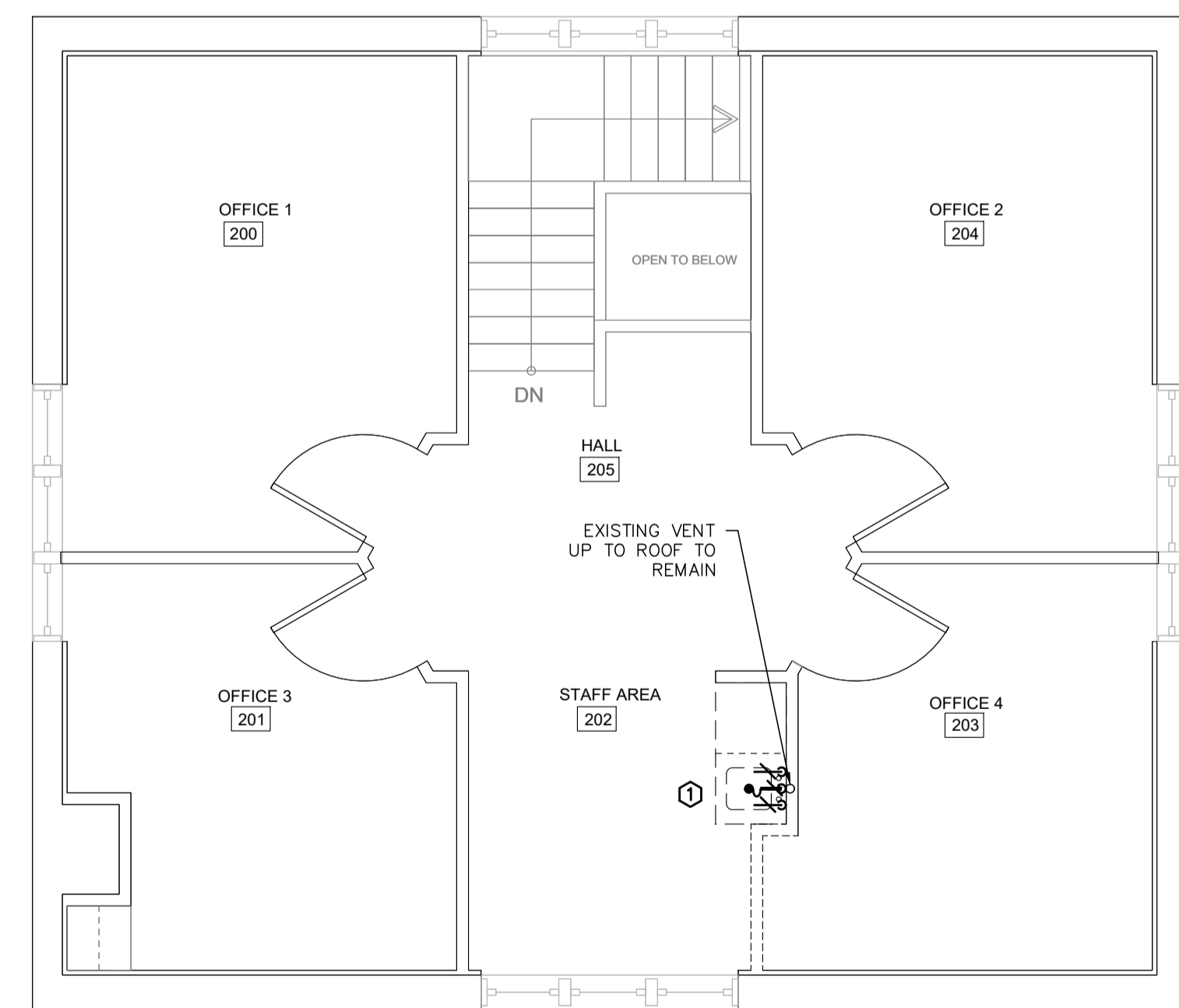


3 GROUND FLOOR NEW PLAN  
Scale: 1:50

**NEW NOTES**

① PROVIDE NEW WATER CLOSET. FLUSH LEVER TO BE LOCATED ON TRANSFER SIDE OF TANK. RELOCATE EXISTING LAVATORY TO NEW LOCATION. PROVIDE NEW HARDWIRED ELECTRONIC FAUCET, 3/2" OFFSET DRAIN, AND PIPE INSULATION BELOW LAVATORY TO MEET BARRIER FREE REQUIREMENTS (BASIS OF DESIGN: MCGUIRE PROWRAP PW2000WC P-TRAP INSULATION KIT WITH OFFSET DRAIN). PROVIDE RECESSED BOX WITH ACCESS DOOR TO CONCEAL ELECTRONIC FAUCET SOLENOID AND MIXING VALVE. PROVIDE DOMESTIC HOT WATER, DOMESTIC COLD WATER, SANITARY AND VENT PIPING AS SHOWN. CONNECT TO EXISTING SERVICES ON FLOOR BELOW, AND CONNECT NEW VENT PIPING TO EXISTING VENT STACK.

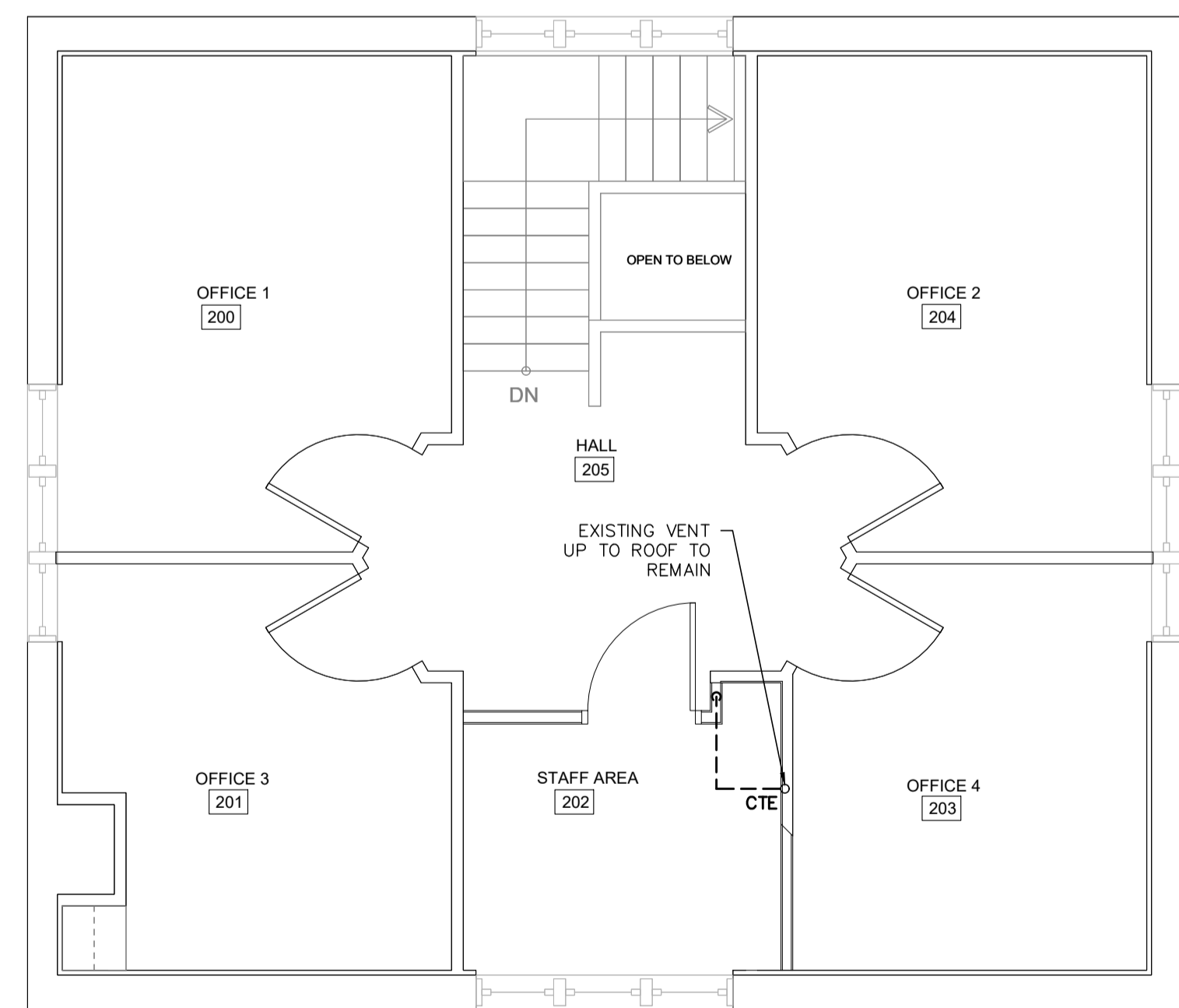
② PROVIDE NEW BARRIER FREE KITCHENETTE SINK AND FAUCET, C/W OFFSET DRAIN, PIPE INSULATION AND THERMOSTATIC MIXING VALVE. PROVIDE ADDITIONAL FILTERED WATER FAUCET AS INDICATED IN FIXTURE SCHEDULE AND COORDINATE LOCATION WITH SINK FAUCET. PROVIDE DOMESTIC HOT WATER, DOMESTIC COLD WATER, SANITARY AND VENT PIPING AS SHOWN. PROVIDE ADDITIONAL 13MMØ COLD WATER SHUT-OFF VALVE BELOW SINK FOR FUTURE CONNECTION TO WATER FILTRATION SYSTEM (SUPPLIED AND INSTALLED BY DEPARTMENTAL REPRESENTATIVE). CONNECT TO EXISTING SERVICES ON FLOOR BELOW, AND CONNECT NEW VENT PIPING TO EXISTING VENT ON SECOND FLOOR.



2 SECOND FLOOR DEMOLITION PLAN  
Scale: 1:50

**DEMOLITION NOTES**

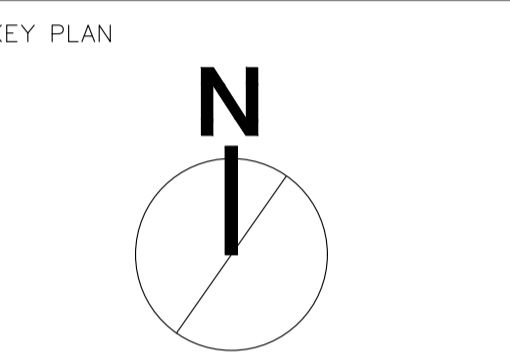
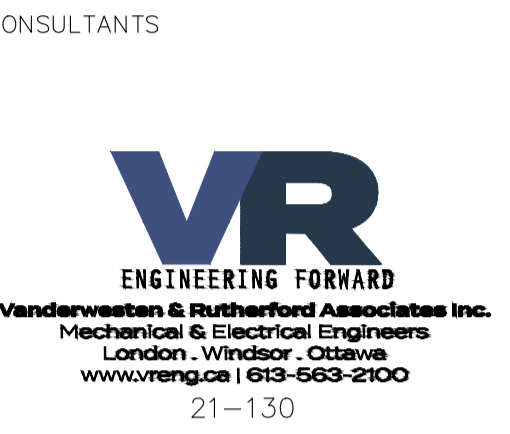
① DISCONNECT AND REMOVE EXISTING KITCHENETTE SINK. CUT BACK AND CAP DOMESTIC HOT WATER, DOMESTIC COLD WATER, AND SANITARY PIPING BACK TO MAINS ON FLOOR BELOW. EXISTING VENT UP TO ROOF TO BE REUSED FOR NEW KITCHENETTE SINK ON GROUND FLOOR.



4 SECOND FLOOR NEW PLAN  
Scale: 1:50

**NEW NOTES**

① CONNECT VENT PIPING FROM NEW KITCHENETTE ON GROUND FLOOR TO EXISTING VENT UP TO ROOF.



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PROJECT NAME  
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 Building 26  
 OTTAWA, ON

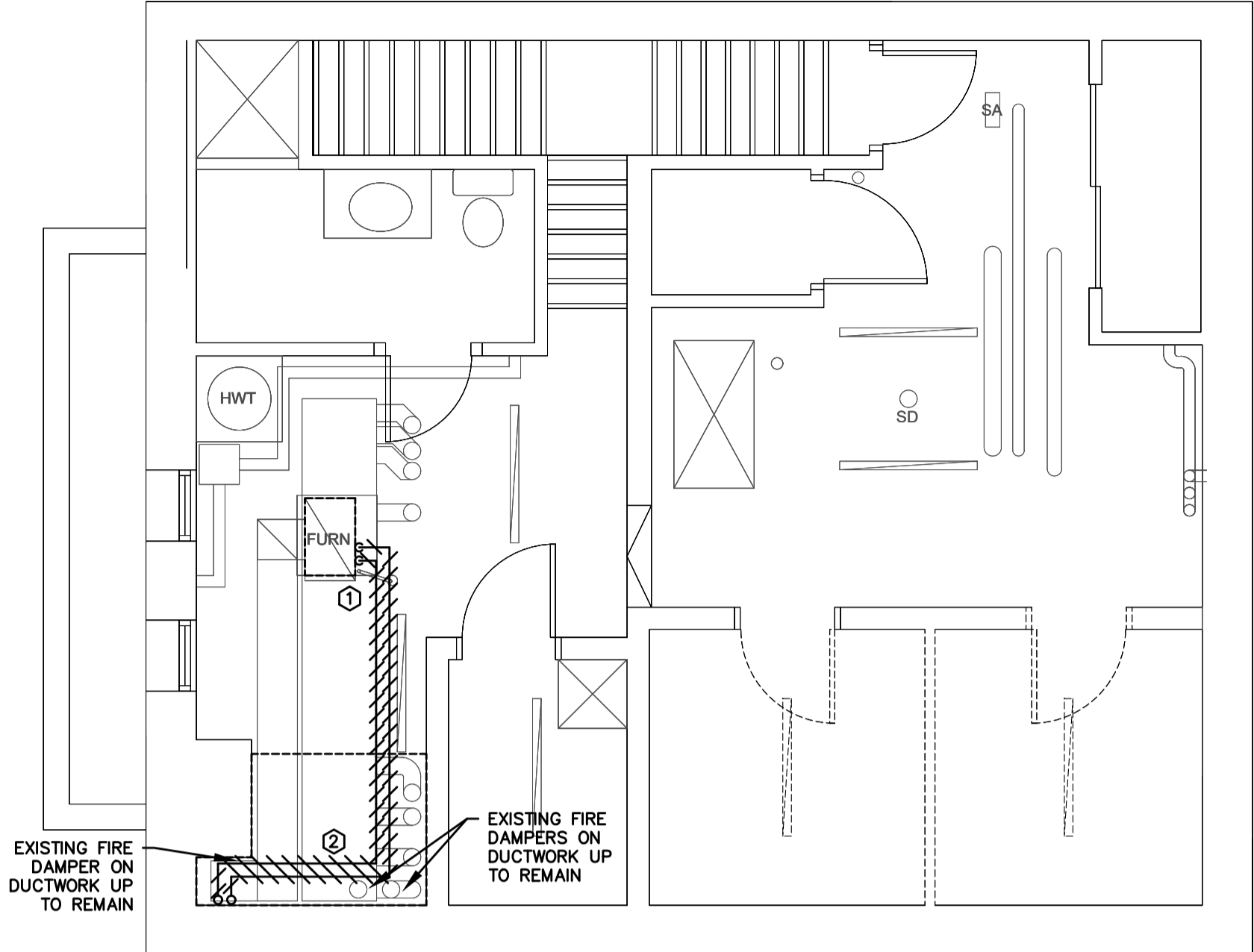
ACCOMMODATION FIT-UP

SHEET TITLE  
 BASEMENT DEMOLITION  
 AND NEW HVAC PLANS

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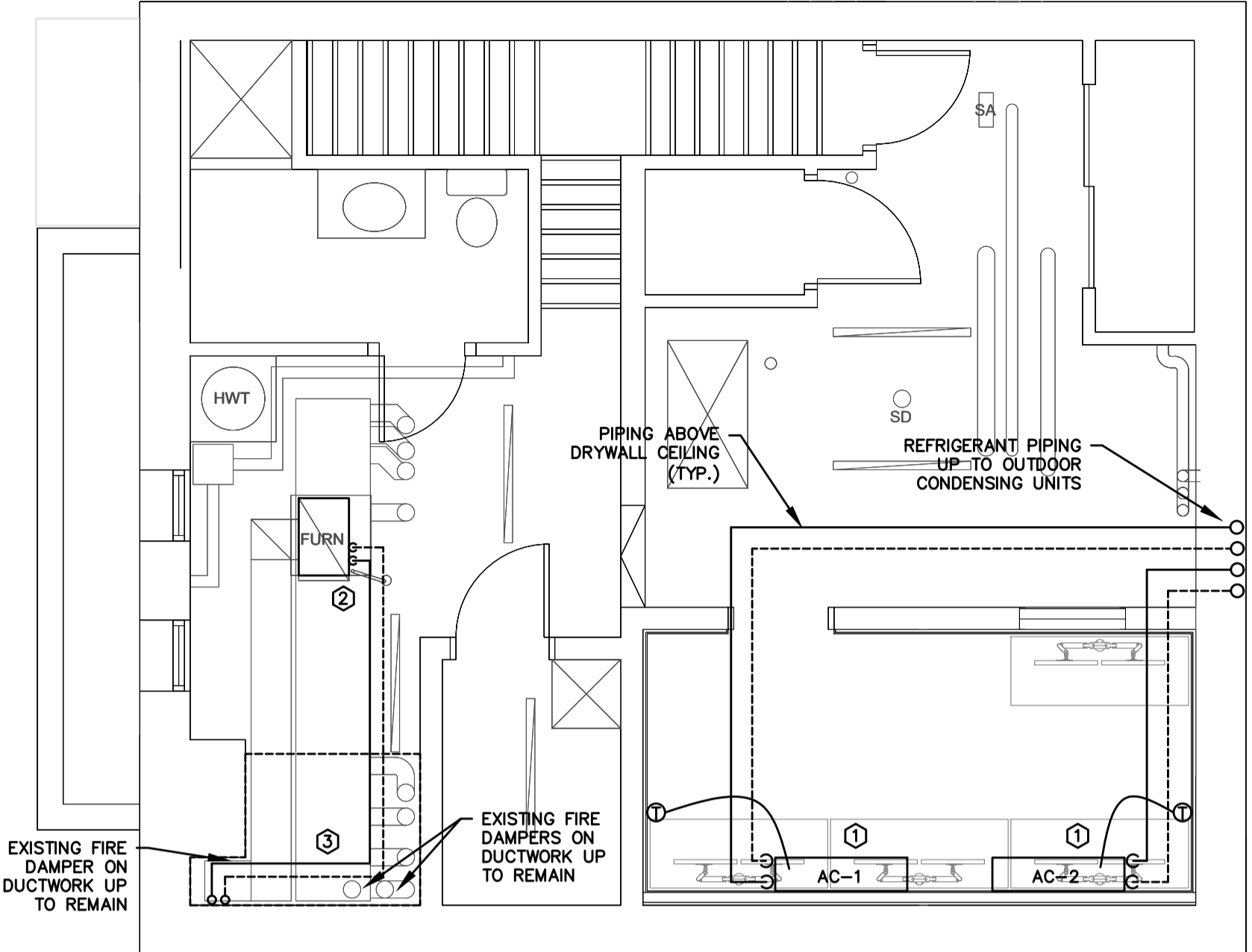
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 M-200



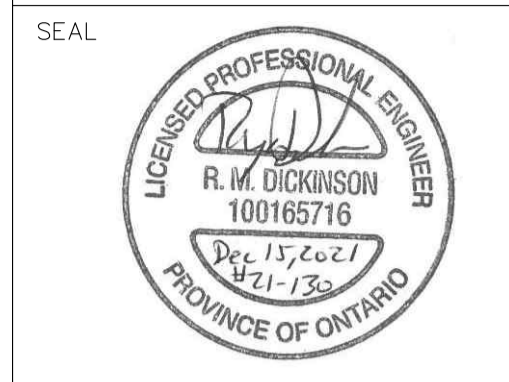
1 BASEMENT DEMOLITION PLAN  
 Scale: 1:50

- DEMOLITION NOTES**
- ① DISCONNECT AND REMOVE EXISTING DUCTWORK SECTION FROM FURNACE DISCHARGE. REMOVE ABANDONED REFRIGERANT PIPING AS SHOWN IN HATCHED LINES FROM PREVIOUSLY REMOVED FURNACE EVAPORATOR COIL.
  - ② REMOVE AND REINSTALL DUCTWORK AND INSULATION WITHIN AREA SHOWN TO FACILITATE INSTALLATION OF NEW REFRIGERANT PIPING.

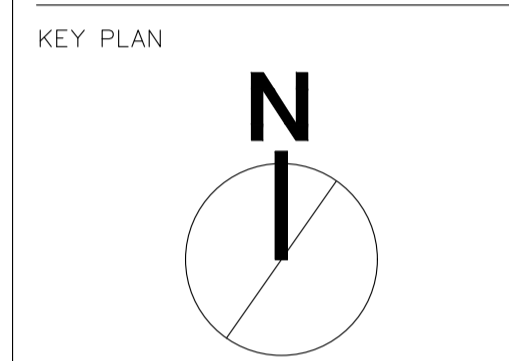


2 BASEMENT NEW PLAN  
 Scale: 1:50

- NEW NOTES**
- ① PROVIDE NEW INDOOR SPLIT AC UNITS AS SHOWN, C/W STANDALONE MANUFACTURER SUPPLIED CONTROLLERS. PROVIDE OUTDOOR CONDENSING UNITS AT GRADE WITH CONCRETE PAD AND SEISMICALLY RESTRAINED STAND. REFRIGERANT PIPE SIZING AS PER MANUFACTURER'S RECOMMENDATIONS.
  - ② PROVIDE NEW EVAPORATOR COIL C/W GALVANIZED STEEL CASE FOR EXISTING FURNACE. PROVIDE NEW REFRIGERANT PIPING; PIPE SIZING AS PER MANUFACTURER'S RECOMMENDATIONS. CONNECT TO EXISTING FURNACE CONTROLS.
  - ③ REINSTALL EXISTING DUCTWORK AND PROVIDE NEW INSULATION AND CANVAS JACKETING WITHIN AREA SHOWN TO MATCH PRE-CONSTRUCTION CONDITIONS. CONFIRM OPERATION OF EXISTING FIRE DAMPERS.



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 21-130



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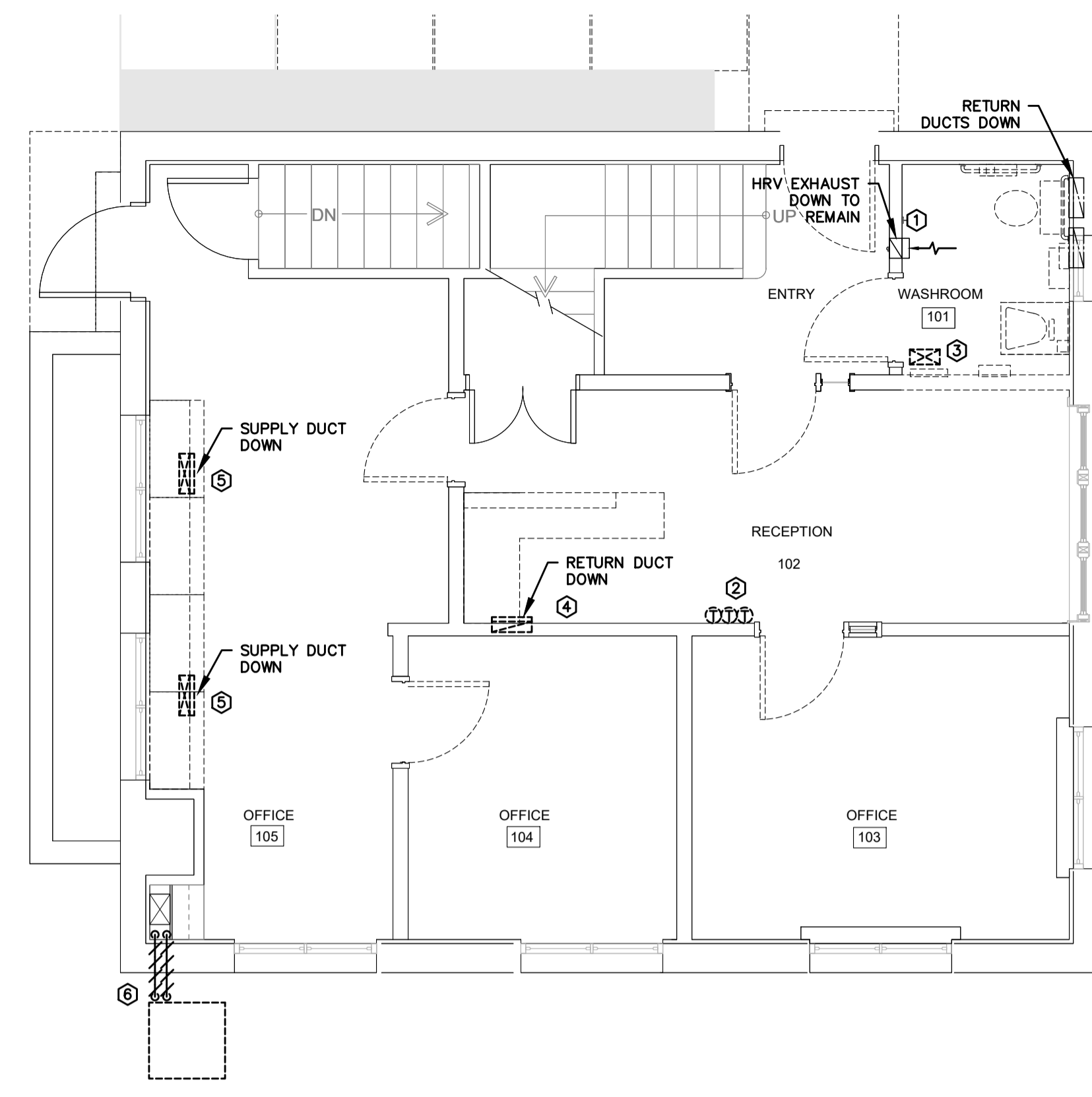
ACCOMMODATION FIT-UP

SHEET TITLE  
 BASEMENT DEMOLITION  
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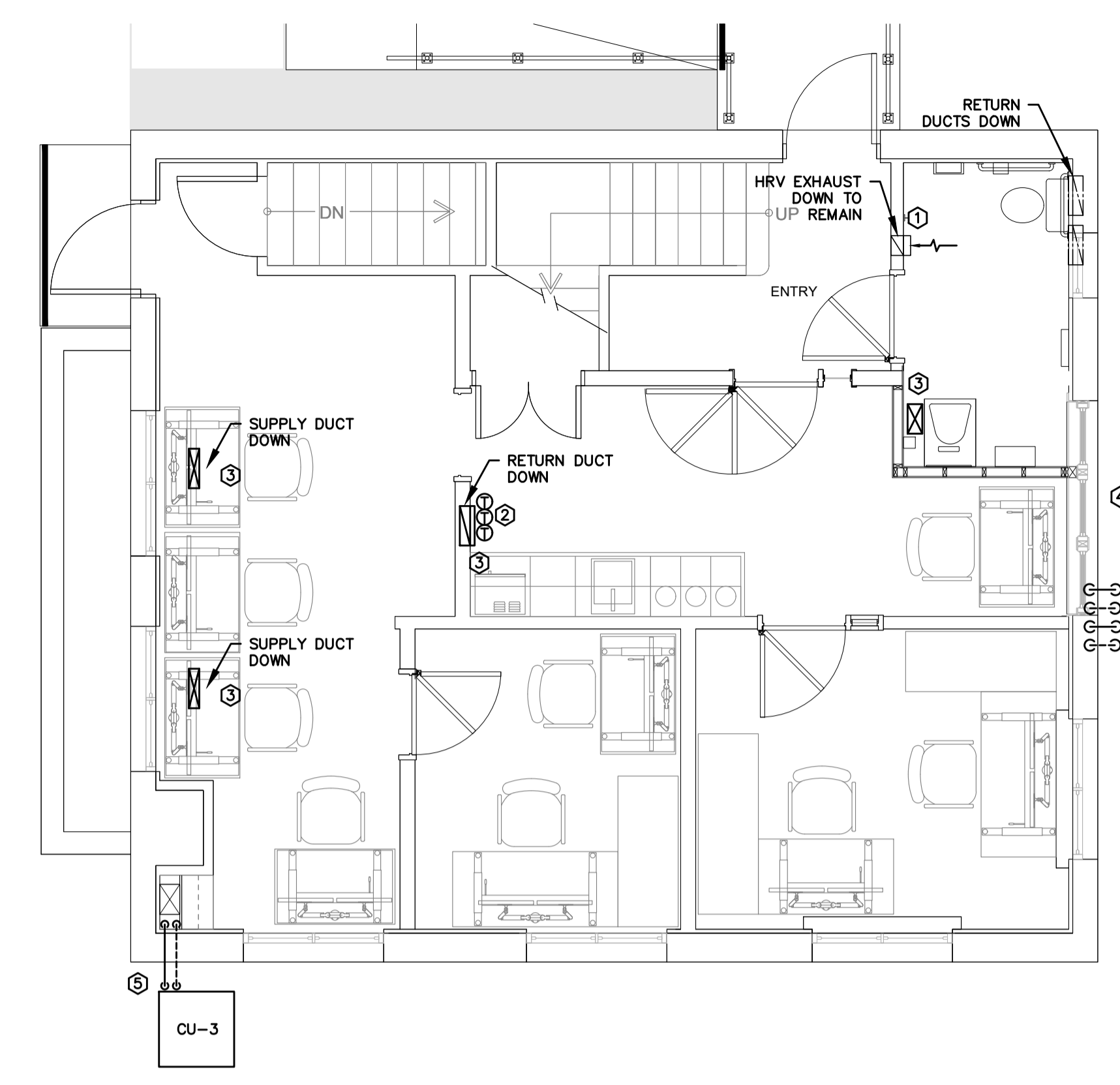
PROJECT #: 21-OXX  
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 M-201



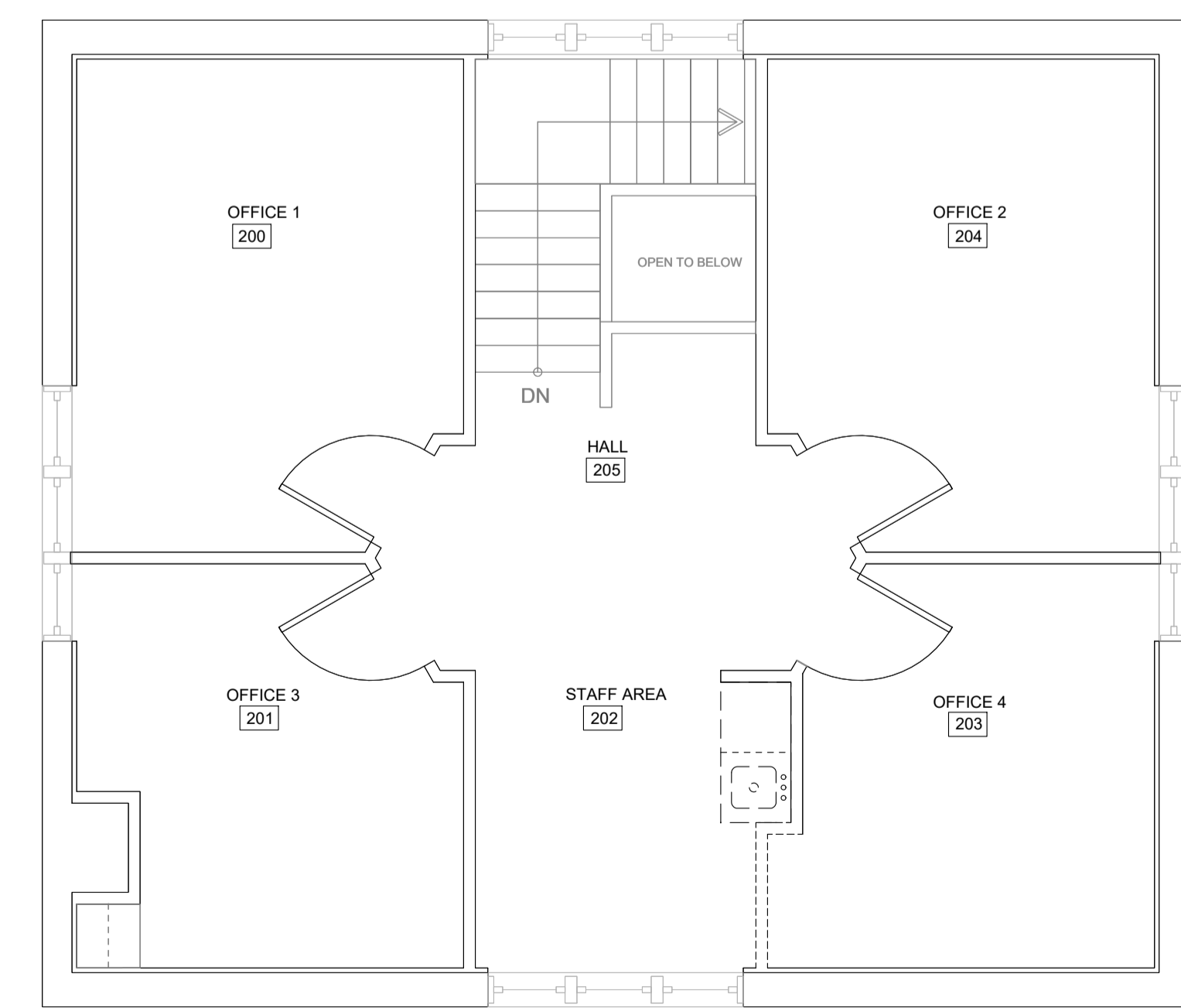
1 GROUND FLOOR DEMOLITION PLAN  
 Scale: 1:50

- DEMOLITION NOTES**
- DISCONNECT AND REMOVE EXISTING WASHROOM HRV WALL SWITCH. SALVAGE FOR RELOCATION. REFER TO ELECTRICAL DRAWINGS.
  - DISCONNECT AND REMOVE EXISTING THERMOSTATS AS SHOWN. SALVAGE FOR RELOCATION.
  - DISCONNECT AND REMOVE WASHROOM SUPPLY GRILLE. SALVAGE FOR RELOCATION.
  - DISCONNECT AND REMOVE WALL RETURN GRILLE. SALVAGE FOR RELOCATION.
  - DISCONNECT AND REMOVE VERTICAL MOUNTED SUPPLY GRILLES IN MILLWORK. SALVAGE FOR RELOCATION
  - DISCONNECT AND REMOVE EXISTING CONDENSING UNIT AND ASSOCIATED REFRIGERANT PIPING. REMOVE OVERHANG AND WALL MOUNT BRACE.

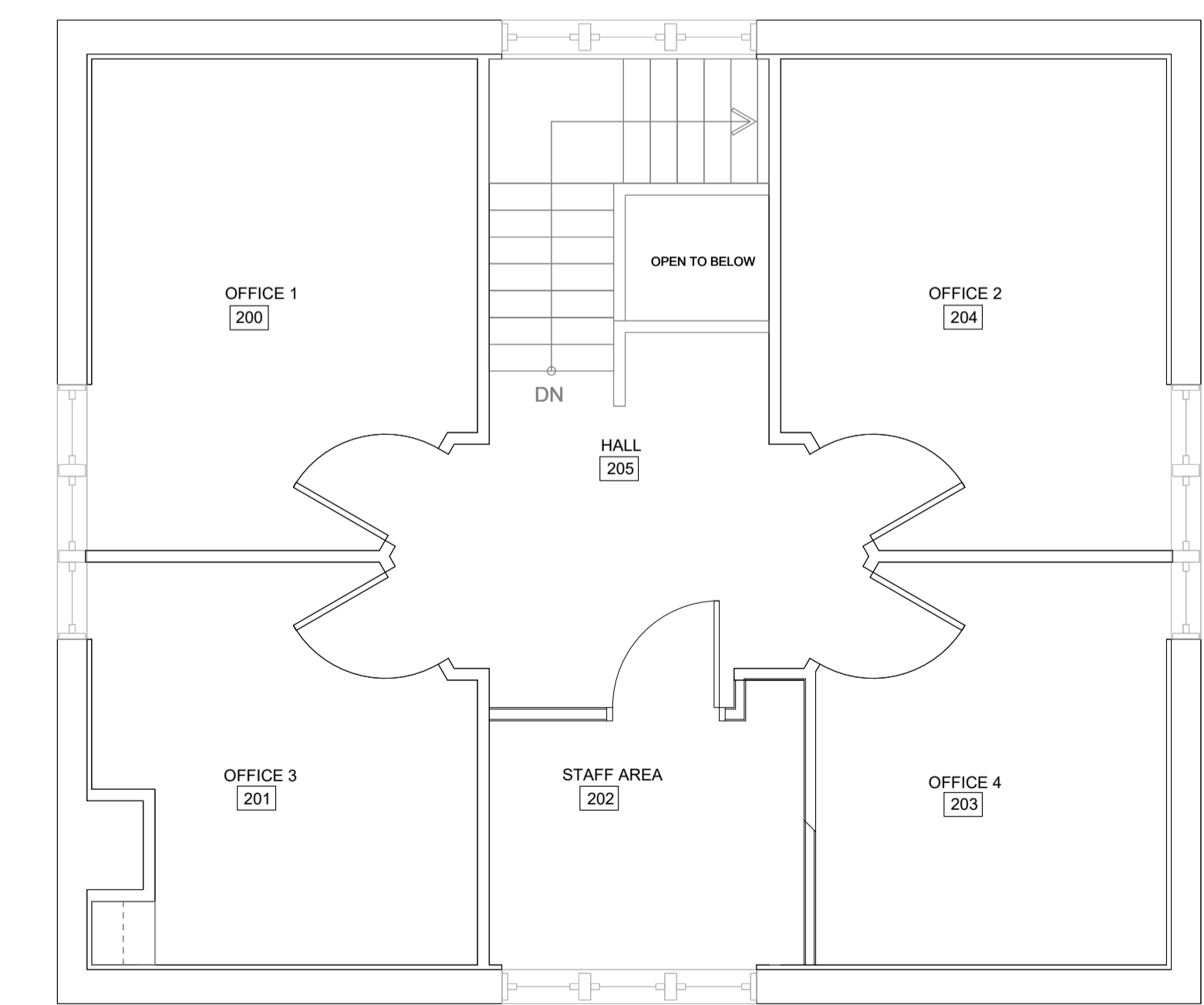


3 GROUND FLOOR NEW PLAN  
 Scale: 1:50

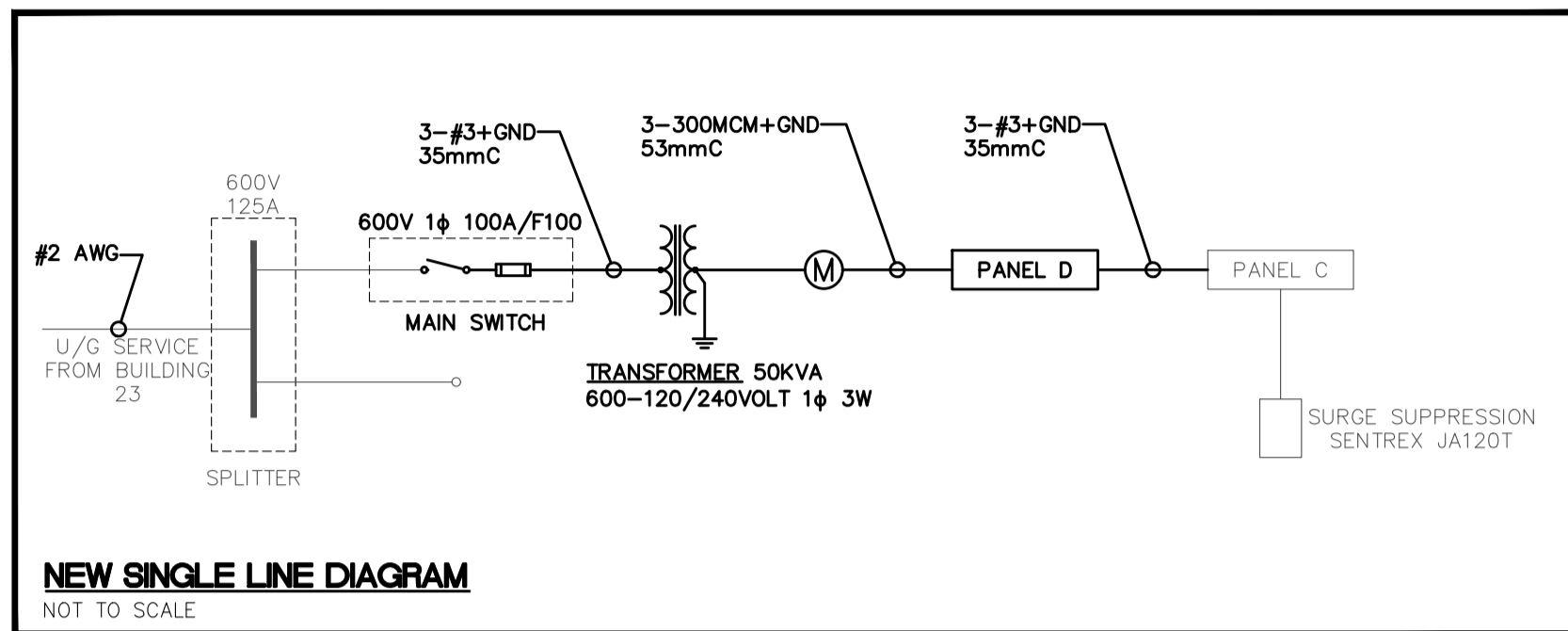
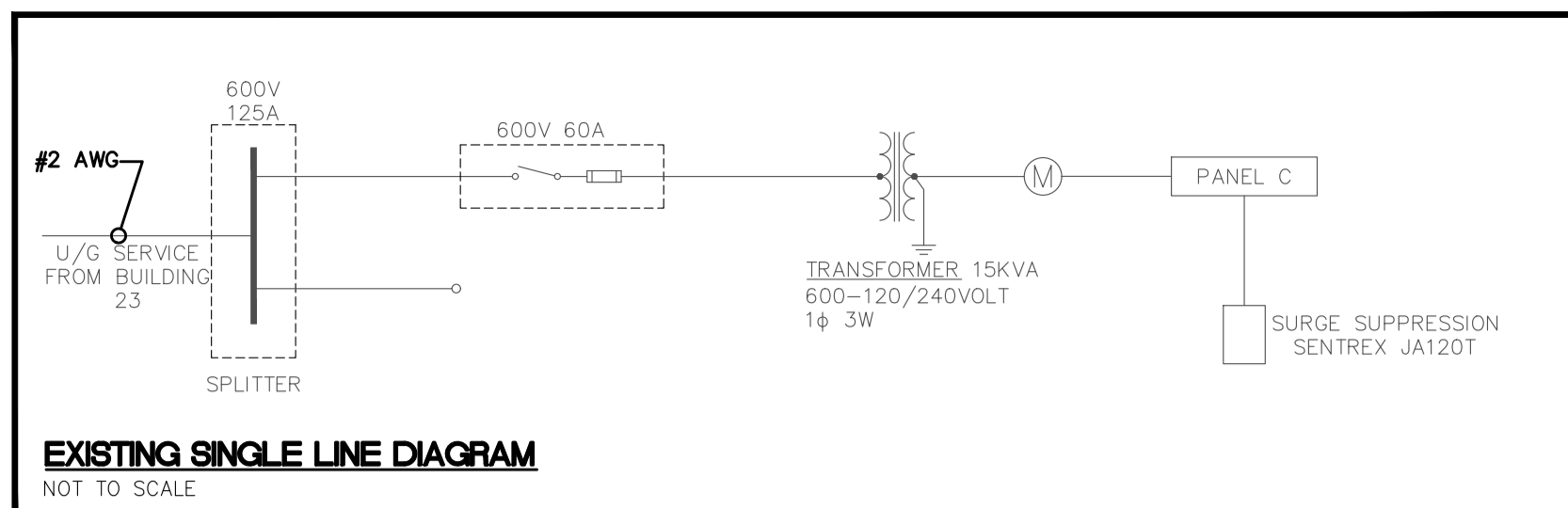
- NEW NOTES**
- RELOCATE EXISTING HRV WALL THERMOSTAT. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHT.
  - RELOCATE EXISTING THERMOSTATS AS SHOWN. EXTEND EXISTING CONTROL WIRING TO NEW LOCATION. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.
  - RELOCATE EXISTING SUPPLY AND RETURN GRILLES AS SHOWN. REWORK DUCTWORK ON FLOOR BELOW TO SUIT NEW LOCATION. ALLOW FOR REMOVAL AND REINSTATEMENT OF DRYWALL CEILING TO FACILITATE RELOCATION. REFER TO ARCHITECTURAL DRAWINGS.
  - PROVIDE OUTDOOR CONDENSING UNITS C/W LOW AMBIENT COOLING KITS (INCLUDING SNOW GUARDS AND WIND DEFLECTORS), CONCRETE PAD AND SEISMICALLY RESTRAINED SNOW STANDS. COORDINATE EXACT LOCATION OF CONDENSING UNITS ON SITE WITH DEPARTMENTAL REPRESENTATIVE.
  - PROVIDE OUTDOOR CONDENSING UNIT C/W SEISMICALLY RESTRAINED WALL MOUNT BRACE AND OVERHANG TO MATCH EXISTING CONDITIONS. OVERHANG TO BE MOUNTED A MINIMUM OF 1,220MM ABOVE TOP OF CONDENSING UNIT AS PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE EXACT LOCATION OF CONDENSING UNITS ON SITE WITH DEPARTMENTAL REPRESENTATIVE.



2 SECOND FLOOR DEMOLITION PLAN  
 Scale: 1:50



4 SECOND FLOOR NEW PLAN  
 Scale: 1:50



**FIXTURE SCHEDULE**

**NOTES:**

- CONTRACTOR AND FIXTURE SUPPLIER ARE RESPONSIBLE TO PROVIDE ALL PLASTER AND FINISHING FRAMES, MOUNTING HARDWARE, AND ACCESSORIES TO SUIT ARCHITECTURAL CEILING SCHEDULE.
- CONTRACTOR AND SUPPLIER ARE RESPONSIBLE TO VERIFY NUMBER OF DRIVERS REQUIRED FOR MULTIPLE SWITCHING OF FIXTURES. REFER TO FLOOR PLANS FOR CONFIGURATION OF SWITCHING.
- MANUFACTURER TO NOTE ON SHOP DRAWINGS THAT DRIVERS, DIMMING SWITCHES AND PHOTOCONTROLLERS ARE ALL COMPATIBLE.

TYPE	DESCRIPTION	LAMPS	MTG HT ♂
A	1x4 LED FLAT PANE ALUMINUM FRAME, SATIN LENS, DIMMING CAPABILITY, 120V DRIVER, C/W SURFACE MOUNTING KIT  BASIS OF DESIGN: LITHONIA CPX-1X4-3200-40-SWL OR EQUIVALENT	3200 LUMEN 4000K LED	SURFACE
B	4" DIA LED DOWNLIGHT, LED DOWNLIGHT, ALUMINUM REFLECTOR, SEMI SPECULAR FINISH, WHITE TRIM RING, NOT PAINTED FLANGE, DIMMING CAPABILITY, 120V DRIVER, SUITABLE FOR INSTALLATION IN DRYWALL CEILING TO MATCH EXISTING - CONFIRM PRIOR TO SUBMITTING SHOP DRAWINGS  BASIS OF DESIGN: LITHONIA MODEL L6-13LM-40K-120 OR EQUIVALENT 1300 LUMEN	1300 LUMEN 4000K LED	RECESSED
C	4' LONG LED SOLID FRONT UNDER CABINET LIGHT, GLOSS WHITE ENAMEL FINISH, FLANGED SHATTER RESISTANT DIFFUSER, 120V ELECTRONIC DRIVER, 700 LUMEN PER 2' LED INCLUDE SPlice BOXES. NOTE: COORDINATE VALANCE LIGHTING WITH ARCHITECTURAL INTERIOR ELEVATIONS PRIOR TO ORDERING  BASIS OF DESIGN: UCEL-48IN-30K-90CRI-WH OR EQUIVALENT	1600 LUMEN 3500K LED	SURFACE

**EXISTING PANEL C**

WATTS FOR	P	AMP	CCT	CCT	AMP	P	FOR	WATTS
UNKNOWN	1	15	1	2	15	1	UNKNOWN	*
UNKNOWN	1	15	3	4	15	1	UNKNOWN	*
UNKNOWN	1	15	5	6	15	1	UNKNOWN	*
UNKNOWN	1	15	7	8	15	1	UNKNOWN	*
UNKNOWN	1	15	9	10	15	1	UNKNOWN	*
UNKNOWN	1	15	11	12	15	1	UNKNOWN	*
UNKNOWN	1	15	13	14	15	1	UNKNOWN	*
UNKNOWN	1	15	15	16	15	1	UNKNOWN	*
UNKNOWN	1	15	17	18	15	1	UNKNOWN	*
UNKNOWN	1	15	19	20	15	1	UNKNOWN	*
UNKNOWN	1	15	21	22	15	1	UNKNOWN	*
REC. UNKNOWN	*	*	23	24	*	*	REC. HWR & AIR UNIT	*
UNKNOWN	*	*	25	26	*	*	SPACE	*
REC. FURNACE	*	*	27	28	*	*	SPACE	*
UNKNOWN	1	15	29	30	30	2	AIR CONDITIONER	5100
UNKNOWN	1	15	31	32	30	2	AIR CONDITIONER	5100
1ST-COMPUTER	1	15	33A	34	15	1	UNKNOWN	*
GROUND FLOOR WASHROOM	1	15	35A	36	15	1	UNKNOWN	*
UNKNOWN	1	15	35B	36	30	2	UNKNOWN	*
UNKNOWN	1	15	37A	38	15	1	UNKNOWN	*
SERVER REC	1	15	37B	38	15	1	UNKNOWN	*
UNKNOWN	1	15	39	40	15	1	UNKNOWN	*

**NEW PANEL D**

WATTS FOR	P	AMP	CCT	CCT	AMP	P	FOR	WATTS
1000 (5) REC GRND OFFICE 105 AND RECEPTION	1	15	1	2	15	1	(5) REC GRND OFFICES 103, 104 AND RECEPTION	1000
600 DOOR OPERATOR	1	15	3	4	20	1	FUDGE GROUND FLOOR	600
800 MICROWAVE GROUND FLOOR	1	20	5	6	20	1	(1) REC KITCHENETTE	600
600 (1) REC KITCHENETTE	1	20	7	8	15	1	(3) REC OFFICE 204	600
1000 HEATER WASHROOM	2	15	9	10	15	1	(3) REC OFFICE 202 AND 203	600
			11	12	15	1	(4) REC OFFICE 200 AND 201	800
4800 CU-1	2	30	13	14	30	2	CU-2	4800
1000 (1) REC BASEMENT SERVER RM	1	15	17	18	15	1	(1) REC BASEMENT SERVER RM	1000
1000 (1) REC BASEMENT SERVER RM	1	15	19	20	15	1	(1) REC BASEMENT SERVER RM	1000
1000 (1) REC BASEMENT SERVER RM	1	15	21	22	15	1	(1) REC BASEMENT SERVER RM	1000
1000 (1) REC BASEMENT SERVER RM	1	15	23	24	15	1	(1) REC BASEMENT SERVER RM	1000
1000 (1) REC BASEMENT SERVER RM	1	15	25	26	15	1	(1) REC BASEMENT SERVER RM	1000
1000 (1) REC BASEMENT SERVER RM	1	15	27	28	15	1	(1) REC BASEMENT SERVER RM	1000
1000 (1) REC BASEMENT SERVER RM	1	15	29	30	15	1	(1) REC BASEMENT SERVER RM	1000
1000 (1) REC BASEMENT SERVER RM	1	15	31	32	15	1	(1) REC BASEMENT SERVER RM	1000
* SPARE	1	15	33	34	15	1	SPARE	*
* SPARE	1	15	35	36	15	1	SPARE	*
* SPARE	1	15	37	38	100	2	PANEL C	*
* SPARE	1	15	39	40				*

- GENERAL NOTES**
- DO NOT SCALE DRAWINGS FOR INSTALLATION PURPOSES. OBTAIN ALL DIMENSIONS FROM ARCHITECTURAL PLANS, MANUFACTURER'S SHOP DRAWINGS, AND ON SITE INSPECTIONS.
  - PRIOR TO INSTALLATION OF BOXES IN WALLS, VERIFY THAT NO INTERFERENCES EXIST. CHECK ARCHITECTURAL PLANS AND ELEVATIONS.
  - MECHANICAL AND ELECTRICAL TRADES SHALL WORK IN CONJUNCTION WITH ONE ANOTHER SO AS TO AVOID INTERFERENCES BETWEEN PIPING, DUCTWORK, CONDUIT, LIGHTING FIXTURES, ETC.
  - DISCONNECT AND REMOVE ANY ELECTRICAL EQUIPMENT IN CEILING SPACE OR WALLS THAT CAUSES INTERFERENCES DURING RENOVATION WORK. ALL EQUIPMENT SHALL BE REPLACED AND RECONNECTED UPON COMPLETION OF RENOVATION WORK.
  - ELECTRICAL EQUIPMENT BEING REMOVED AND NOT BEING REUSED WILL BE STORED ON SITE AND REMAIN THE PROPERTY OF THE DEPARTMENT REPRESENTATIVE. ANY SUCH EQUIPMENT THE DEPARTMENT REPRESENTATIVE DOES NOT WISH TO RETAIN WILL BE REMOVED FROM SITE AND DISPOSED OF BY THIS TRADE.
  - REVIEW MECHANICAL AND ARCHITECTURAL DRAWINGS AND PROVIDE ON SITE INSPECTIONS TO DETERMINE FULL EXTENT OF PROJECT PRIOR TO SUBMITTING BID.
  - IN EVERY WIRING INSTALLATION, EACH CONDUCTOR SHALL BE IDENTIFIED WITH A LABEL WHEREVER IT IS TERMINATED.
  - ALL ELECTRICAL PANELS, DISCONNECT SWITCHES, AND TRANSFORMERS REQUIRE ARC FLASH LABELING.
  - ARC FLASH LABELING SHALL AT A MINIMUM STATE AVAILABLE INCIDENT ENERGY OR LEVEL OF PPE REQUIRED (AS PER CAN/ULC 2462).
  - ALL ELECTRICAL PANELS, DISCONNECT SWITCHES, TRANSFORMERS, ETC. SHALL HAVE LAMACOID LABELING.
  - LAMACOID LABELING SHALL CONTAIN THE FOLLOWING:  
i) FIRST LINE: BUILDING DESIGNATION, TYPE, FLOOR LEVEL, PANEL NUMBER  
ii) SECOND LINE: FED FROM (NAME UPSTREAM DISTRIBUTION POINT)  
iii) THIRD LINE: VOLTAGE  
iv) FOURTH LINE: AMPERAGE  
v) FIFTH LINE: NUMBER PHASES/WIRES.
  - ALL RECEPTACLES, SWITCHES, AND JUNCTION BOXES SHALL BE LABELED TO INDICATE WHAT PANEL IT IS FED FROM AND WHAT IS THE CIRCUIT NUMBER (EX. EB05 CIR 2,4,6).
  - ALL INSTALLED EQUIPMENT SHALL BE FULLY ACCESSIBLE FOR MAINTENANCE PURPOSES AND SHALL HAVE A MINIMUM OF 1 M WORKING SPACE IN FRONT OF ANY REQUIRED ACCESS DOORS OR PANELS.
  - ALL EXISTING DEAD WIRING AND CONDUIT IN RENOVATED AREAS SHALL BE REMOVED IN ITS ENTIRETY WHERE ACCESSIBLE WHERE NOT ACCESSIBLE, WIRING ONLY SHALL BE REMOVED AND CONDUIT SHALL REMAIN.
  - REWORK ALL EXISTING WIRING, CONDUIT, ETC. REMAINING IN USE AND FALLING WITHIN EXISTING WALLS WHICH ARE BEING REMOVED, TO NEAREST EXISTING WALLS REMAINING. ALL REWORKED WIRING SHALL BE CONCEALED.

- DEMOLITION NOTES**
- ELECTRICAL SYSTEMS SHOWN ON DEMOLITION PLANS ARE BASED ON INFORMATION OBTAINED FROM ORIGINAL CONSTRUCTION CONTRACT/TENDER DOCUMENTS. THESE DRAWINGS ARE NOT BASED ON 'AS-BUILT RECORDS' OR ON EXHAUSTIVE FIELD MEASUREMENT AND ARE PROVIDED TO ASSIST THE CONTRACTOR IN DETERMINING THE EXTENT OF WORK REQUIRED. THE CONTRACTOR SHALL MAKE ALLOWANCE IN THEIR TENDER PRICE FOR THE REMOVAL OF ADDITIONAL ABANDONED SERVICES AND THE PROTECTION OF EXISTING SERVICES THAT MUST REMAIN. RECORD THE LOCATION OF ALL EXISTING SERVICES THAT REMAIN ON AS-BUILT RECORD DRAWINGS.
  - ELECTRICAL DRAWINGS DO NOT IDENTIFY EVERY ELECTRICAL EQUIPMENT SUCH AS LIGHTING RECEPTACLES, SWITCHES, SYSTEMS DEVICES ETC. IN EXISTING AREAS OF DEMOLITION AND WHERE RENOVATIONS WILL TAKE PLACE. CONTRACTOR PERFORMING THE WORK SHALL VISIT SITE PRIOR TO SUBMITTING BIDS AND CONFIRM ALL ELECTRICAL EQUIPMENT IN THESE AREAS AND INCLUDE FOR DISCONNECTION AND REMOVAL OF ALL EQUIPMENT IN AREA OF RENOVATION, UNLESS NOTED OTHERWISE.
  - EXISTING ACTIVE SERVICES THAT ARE ROUTED THROUGH AREA OF CONSTRUCTION TO SERVICE OTHER AREAS ARE TO BE IDENTIFIED AND MAINTAINED OPERATIONAL.
  - TEMPORARY CONNECTION REQUIRED TO MAINTAIN EXISTING SERVICES MUST BE PROVIDED AND REMOVED AS PART OF THIS WORK.
  - ALL WIRING IN WALLS/CEILING BEING REMOVED SHALL BE PULLED BACK TO SOURCE AND REMOVED OR MADE SAFE.
  - REFER TO MECHANICAL DRAWINGS FOR DEMOLITION ASSOCIATED WITH MECHANICAL EQUIPMENT. DISCONNECT AND REMOVE ASSOCIATED POWER WIRING AND CONDUIT IN IT'S ENTIRETY.
  - CONTRACTOR SHALL DISCONNECT, REMOVE AND REINSTALL LIGHTING AND ELECTRICAL DEVICES AS REQUIRED FOR MECHANICAL RENOVATIONS. RELOCATE AND RE-ROUTE ELECTRICAL SERVICES AS REQUIRED.

**EMERGENCY LIGHTING SCHEDULE**

ALL BATTERY UNITS SHALL HAVE CAPACITY OF [120] WATTS FOR [60] MINUTES. PROVIDE WIRE SIZE AND LINKS AS TO NOT EXCEED A 5% VOLTAGE DROP.

UNIT No.	No. OF LAMPS (GW)	No. OF EXIT LIGHTS (GW)	TOTAL WATTS
EB1	6	8	94

**ELECTRICAL DRAWING LIST**

E000	ELECTRICAL DRAWING LIST, LEGEND, NOTES AND KEY PLAN
E001	ELECTRICAL SPECIFICATIONS
E100	BASEMENT: ELECTRICAL FLOOR PLANS
E101	GROUND FLOOR: ELECTRICAL DEMOLITION AND NEW FLOOR PLANS
E103	SECOND FLOOR: ELECTRICAL DEMOLITION AND NEW FLOOR PLANS

**ELECTRICAL LEGEND**

SYMBOL	DESCRIPTION	MTG HT ♂
□	LED FIXTURE	AS NOTED
□	WALL MOUNTED LED FIXTURE	AS NOTED
○	LED PENDANT OR DOWNLIGHT FIXTURE	AS NOTED
○	DIRECTIONAL/AIMED LED FIXTURE	AS NOTED
□	WALL MOUNTED LED FIXTURE	AS NOTED
□	DISCONNECT SWITCH	1270 (50")
□	MANUAL MOTOR STARTER	1270 (50")
○	MOTOR CONNECTION (SINGLE OR THREE PHASE)	—
○	MOTOR/DISCONNECT CONNECTION (SINGLE OR THREE PHASE)	—
■	ELECTRICAL PANEL	—
⚡	15A, 125V SINGLE POLE SWITCH, S <sub>3</sub> (3-WAY), S <sub>4</sub> (4-WAY), S (KEY OPERATED), S <sub>5</sub> (OCCUPANCY SENSOR SWITCH)	1100 (43")
⊖	15AMP(20AMP WHERE NOTED) 125VOLT U-GROUND DUPLEX REC.	457 (18")
⊖	U-GROUND QUAD RECEPTACLE	457 (18")
•	DIRECT CONNECTION	AS NOTED
▽	VOICE/DATA OUTLET C/W 3/4" CONDUIT TO IT CLOSET	457 (18")
▽	DATA OUTLET C/W 3/4" CONDUIT TO IT CLOSET	457 (18")
■	SINGLE PUSHBUTTON STATION	1100 (43")
GF	GROUND FAULT INTERRUPTING	—
OC	OVER COUNTER	—
FR	FRIDGE	—
CL	CEILING MOUNTED	—
⊖	THERMOSTAT	—
⊖	ELECTRICAL METER	—
⊖	JUNCTION BOX	—
CR	CARD READER	—
⊗	ELECTRICALLY SUPERVISED VALVE	—
EXT	SINGLE SIDED EXIT SIGN	—
EB...	EMERGENCY LIGHTING BATTERY UNIT	—
⊖	SINGLE HEAD REMOTE EMERGENCY LIGHT	—
⊖	DOUBLE HEAD REMOTE EMERGENCY LIGHT	—
⊖	SMOKE ALARM	CEILING
⊖	HEAT DETECTOR	CEILING
⊖	ELECTRIC HEATER	—

NOTE: ALL NEW DEVICES SHOWN IN BOLD

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21-130

KEY PLAN

#	ISSUE	DATE
01	PRELIMINARY REVIEW	10/22/2021
02	75% REVIEW	11/04/2021
03	99% REVIEW	11/19/2021
04	TRANSLATION	12/02/2021
05	ISSUE FOR TENDER	12/15/2021

PROJECT NAME  
CENTRAL EXPERIMENTAL FARM  
Building 26  
OTTAWA, ON

ACCOMMODATION FIT-UP

SHEET TITLE  
ELECTRICAL DRAWING LIST,  
LEGEND AND NOTES

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PROJECT # 21-OXX  
DRAWN BY AK  
CHECKED BY SB

SHEET  
E-000

ELECTRICAL SPECIFICATIONS
GENERAL CONDITIONS
A. OBTAIN AND PAY FOR PERMITS REQUIRED BY ELECTRICAL SAFETY AUTHORITY AND LOCAL INSPECTION AUTHORITIES FOR THIS WORK. PRESENT FINAL CERTIFICATES TO CONSULTANT AND/OR DEPARTMENT REPRESENTATIVE.
B. CARRY OUT ALL WORK IN ACCORDANCE WITH OESC (ONTARIO ELECTRICAL SAFETY CODE) REGULATIONS AND ESA REQUIREMENTS.
C. ALL EQUIPMENT SHALL BE NEW AND CSA APPROVED UNLESS OTHERWISE NOTED.
SCOPE OF WORK
A. COMPLY WITH ALL CONDITIONS OF TENDER DOCUMENTS ISSUED FOR THIS PROJECT.
B. THE REMOVAL OR RELOCATION OF EXISTING, AND THE SUPPLY AND INSTALLATION OF NEW EQUIPMENT AS SHOWN ON THE DRAWINGS AND AS NOTED. THE MATERIALS REMOVED AND NOT REUSED, SHALL BECOME DEPARTMENT REPRESENTATIVE'S PROPERTY AND SHALL BE REMOVED FROM THE SITE PRIOR TO COMPLETION OF WORK AS DIRECTED BY DEPARTMENT REPRESENTATIVE.
C. GENERAL
COMPLY WITH GENERAL CONDITIONS.
a. SUBMIT ELECTRONIC COPIES OF SHOP DRAWINGS FOR LIGHTING FIXTURES, EXIT LIGHTS, EMERGENCY LIGHTS, AND BATTERY UNITS; DISCONNECT SWITCHES, STARTERS, NEW PANELS, ETC TO CONSULTANT FOR REVIEW.
b. SUBMIT MAINTENANCE AND INSTRUCTION MANUALS. THIS PROJECT ALLOWS FOR 2 REVISIONS, PRELIMINARY SET AND THEN A FINAL SET.
c. ON COMPLETION OF PROJECT AND BEFORE FINAL PAYMENT, SUBMIT TWO (2) AUTOCAD, PDF'S AND HARD COPY OF AS-BUILT DRAWINGS WITH ALL CHANGES AND BURIED SERVICES EXACT LOCATIONS NOTED THEREON.
d. GUARANTEE ALL MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE BY DEPARTMENT REPRESENTATIVE/CONSULTANT. PROVIDE WRITTEN GUARANTEE.
e. PROVIDE LAMACOID LABELS (3-PLY) WHITE LETTERED ON BLACK BACKGROUND-- 1/4" HIGH LETTERING ON ALL ELECTRICAL EQUIPMENT SUPPLIED, MOUNTED AND/OR CONNECTED BY THIS CONTRACT.
f. THOROUGHLY CLEAN ALL ELECTRICAL EQUIPMENT DURING CONSTRUCTION AND ON COMPLETION OF CONTRACT.
g. CONFER WITH ALL TRADES AND ARRANGE EQUIPMENT IN PROPER RELATION WITH OTHERS AND WITH BUILDING CONSTRUCTION AND ARCHITECTURAL FINISHES.
h. REFER TO ARCHITECTURAL SPECIFICATIONS AND DRAWINGS WHICH ARE PART OF THIS WORK.
i. DEPARTMENT REPRESENTATIVE RESERVES RIGHT TO TRIAL AND/OR TEMPORARY USAGE PRIOR TO ACCEPTING INSTALLATION.
j. PROVIDE ALL MATERIALS, EQUIPMENT, ACCESSORIES, CONSUMABLES, LABOR, SUPERVISION, TOOLS, SERVICES, ETC. AS REQUIRED FOR COMPLETE AND FULLY FUNCTIONAL SYSTEMS AS DESCRIBED IN THE CONTRACT DOCUMENTS.
k. PRIOR TO TENDERING, EXAMINE THE SITE, ALL DRAWINGS AND SPECIFICATIONS AND REPORT ALL/ANY CONFLICTS, DISCREPANCIES TO THE CONSULTANT FOR CLARIFICATION AND/OR CORRECTION.
l. COORDINATE AND SCHEDULE WORK WITH DEPARTMENT REPRESENTATIVE AND OTHER TRADES TO MINIMIZE CONFLICTS, DELAYS, AND DISRUPTION OF EXISTING SERVICES AND OPERATIONS.
D. DEFINITIONS: FOLLOWING ARE DEFINITIONS OF WORDS FOUND IN THIS SPECIFICATION AND ON ASSOCIATED DRAWINGS.
a. "CONCEALED" – HIDDEN FROM NORMAL SIGHT IN FURRED – SPACES, SHAFTS, CEILING SPACES, WALLS, UNDERFLOOR, AND PARTITIONS.
b. "EXPOSED" – ALL ELECTRICAL WORK VISIBLE TO BUILDING OCCUPANTS.
c. "PROVIDE" – (AND ALL TENSES OF "PROVIDE") SUPPLY AND INSTALL, WIRE AND CONNECT COMPLETE.
d. "INSTALL" – (AND ALL TENSES OF "INSTALL")–INSTALL, WIRE AND CONNECT COMPLETE, PRODUCTS AND SERVICES SPECIFIED.
e. "SUPPLY" – SUPPLY ONLY.
f. "OR APPROVED EQUAL" – MATERIAL OR EQUIPMENT PROPOSED BY CONTRACTOR, IN LIEU OF THAT SPECIFIED, AS APPROVED BY CONSULTANT.
g. "AS INDICATED" – AS SHOWN ON DRAWINGS AND/OR NOTED IN SPECIFICATIONS.
h. "DEPARTMENT REPRESENTATIVE"– BUILDING OWNER AS DEFINED IN THE CONTRACT OR THE OWNER'S DESIGN REPRESENTATIVE.
i. "SOFT COPY" – PDF FORMAT
j. "AUTOCAD" – DWG FORMAT
LIABILITY
A. THIS CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR LAYING OUT HIS/HER WORK AND ANY DAMAGE OR EXTRA COSTS CAUSED TO THE DEPARTMENT REPRESENTATIVE OR OTHER CONTRACTORS BY IMPROPER LOCATION OR CARRYING OUT HIS WORK. CARRY ALL NECESSARY INSURANCE COVERAGE.
CERTIFICATES, FEES, ETC.
A. GIVE ALL NOTICES, OBTAIN ALL PERMITS AND PAY ALL FEES SO THAT THE WORK SPECIFIED HEREIN MAY BE CARRIED OUT. AT THE ENGINEER'S REQUEST, FURNISH ANY CERTIFICATES AS EVIDENCE THAT THE WORK INSTALLED CONFORMS TO THE LAWS AND REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION.
CEILING TILE REMOVAL / REPLACEMENT
A. EACH RESPECTIVE SUB-TRADE OR PRIME ELECTRICAL CONTRACTOR AS THE CASE MAY BE SHALL BE RESPONSIBLE FOR THE REMOVAL AND REINSTALLATION OF ANY CEILING TILES TO SUIT WORK WITHIN THE CEILING SPACE. ANY DAMAGED TILES SHALL BE REPLACED AT THE COST TO THE RESPECTIVE SUB-TRADE OR PRIME ELECTRICAL CONTRACTOR AND SHALL BE HELD BACK ON THE PROGRESS DRAW.
HOURS OF WORK
A. ANY AUDIBLE TESTING, CORE DRILLING OR ANY OTHER NOISY WORK MUST BE PERFORMED "AFTER HOURS". MAKE ARRANGEMENTS WITH BUILDING PERSONNEL TO CONFIRM TIMES FOR SUCH WORK.
PHASING AND SCHEDULING
A. REFER TO GENERAL CONDITIONS, ARCHITECTURAL SPECIFICATIONS, AND MECHANICAL PHASING PLANS FOR PHASING AND SCHEDULING OF WORK.

ELECTRICAL SPECIFICATIONS (CONT'D)
B. COORDINATE ALL WORK WITH OTHER TRADES AND ASSIST IN THE IMPLEMENTATION OF THE PHASING STRATEGY.
SERVICE PENETRATIONS
A. FIRE STOP AND SMOKE SEALS: MATERIALS SHALL BE ULC LISTED COMPONENTS SUITABLE FOR FIRE RESISTANCE RATINGS.
B. ALL OPENINGS IN FIRE SEPARATIONS FOR SERVICE PENETRATIONS SHALL BE PROTECTED WITH ULC LISTED "SERVICE PENETRATIONS FIRESTOP SYSTEMS"
ACCESS DOORS
A. MINIMUM 12 GA. PRIME COAT PAINTED, HEAVY DUTY FULLY CONCEALED FRAME AND HINGES, POSITIVE LOCKING DEVICE.
B. ACCESS DOORS SHALL BE AS RECOMMENDED BY MANUFACTURER FOR PARTICULAR INSTALLATION.
C. SUPPLY ACCESS DOORS FOR ACCESS TO EQUIPMENT REQUIRING SERVICE, OR INSPECTION. JUNCTION BOXES SHALL BE WITHIN VIEW AND REACH OF ACCESS DOORS.
D. TURN OVER ACCESS DOORS TO THE APPROPRIATE GENERAL TRADE FOR INSTALLATION.
E. INCLUDE COST FOR GENERAL TRADES TO SUPPLY AND INSTALL ACCESS PANELS IN GYPSUM CEILINGS OR WALLS.
GROUNDING
A. INSTALL COMPLETE PERMANENT, CONTINUOUS, BONDING SYSTEM AND CIRCUIT GROUNDING SYSTEM CONFORMING TO REQUIREMENTS OF LOCAL AUTHORITY HAVING JURISDICTION AND OESC.
WIRES AND CABLES
A. ALL WIRING SHALL BE IDENTIFIED WITH BRADY OR EQUIVALENT SELF-STICKING PERMACODE WIRE MARKERS. ALL JUNCTION BOXES IN CONCEALED CEILING SPACES SHALL BE LABELED WITH PEN MARKER AS TO CIRCUITS CONTAINED THEREIN.
B. ALL SURFACE MOUNTED OR SUSPENDED CABLES TO BE SECURELY SUPPORTED BY STAPLES, STRAPS, HANGERS OR APPROVED DEVICES ATTACHED TO BUILDING STRUCTURE AT INTERVALS NOT EXCEEDING OESC REQUIREMENTS.
C. GENERAL WIRING INSIDE BUILDING: CSA APPROVED, SOFT COPPER, 600VOLT, TWH (75°C) OR T90 (90°C) FOR #10 AWG AND SMALLER; 600VOLT R90XL (90°C) OR T90 (90°C) FOR #8 AWG AND LARGER. RACEWAY SIZE SHALL BE BASED ON USE OF TWH/RW90XL INSULATION.
D. MINIMUM GAUGE: #12 AWG, UNLESS SPECIFICALLY NOTED OTHERWISE. CONDUCTORS #10 AWG AND SMALLER TO BE SOLID AND/OR STRANDED CONDUCTORS #8 AWG AND LARGER TO BE STRANDED. WHERE DISTANCE FROM PANEL TO FIRST OUTLET ON 15AMP RATED CIRCUIT EXCEEDS 70 FEET (21 METERS) USE #10 AWG TO FEED FIRST OUTLET.
E. ALL WIRING AND CABLES TO BE COLOUR CODED FOR PHASE AND NEUTRAL IDENTIFICATION AND IN ACCORDANCE WITH OESC.
F. SUPPLY, INSTALL, WIRE AND CONNECT ALL EQUIPMENT SHOWN, SPECIFIED OR MENTIONED.
G. WIRE AND CONNECT MOTORS, SUPPLIED BY OTHERS, AS INDICATED.
H. CONTRACTOR TO CONFIRM CABLE AND CORD LENGTHS.
I. EMT SHALL BE USED FOR WIRING AND CONCEALED WHEREVER POSSIBLE. EMT COUPLINGS AND CONNECTORS SHALL BE STEEL SETSCREW CONCRETE TIGHT OR STEEL COMPRESSION RAIN TIGHT.
J. ALL CONDUCTORS: COPPER WITH TWH OR R-90 INSULATION, MINIMUM #12AWG, UNLESS OTHERWISE NOTED.
K. WIRING SHALL BE CONCEALED IN WALLS OR ABOVE CEILINGS UNLESS OTHERWISE APPROVED.
WIRING DEVICES
A. RECEPTACLES OF ONE MANUFACTURER THROUGHOUT PROJECT.
B. RECEPTACLES: PUSH-IN CONNECTIONS ARE NOT ACCEPTABLE. SCREW TERMINALS SHALL BE USED, CSA APPROVED, WHITE SPECIFICATION GRADE, 125VOLT AC, 3-WIRE, GROUNDING, STRAIGHT BLADE, DUPLEX AS FOLLOWS:
1.15 Amp, 125 Volt Duplex Receptacle: 3-wire receptacles, NEMA configuration 5-15R
2.15 Amp, 250 Volt Duplex Receptacle: 3-wire receptacles, NEMA configuration 6-15R
3.20 Amp, 125 Volt Duplex Receptacle: 3-wire receptacles, NEMA configuration 5-20R
C. RECEPTACLES FED FROM STANDBY POWER SHALL HAVE RED COLOURED FACE.
D. SWITCHES: PUSH-IN CONNECTIONS ARE NOT ACCEPTABLE, SCREW TERMINALS SHALL BE USED, CSA APPROVED, WHITE, SPECIFICATION GRAD, 120V/347V/LOW VOLTAGE TO MATCH EXISTING.
E. OCCUPANCY SENSORS AND SENSOR SWITCHES: DUAL TECHNOLOGY 120V/347V/LOW VOLTAGE TO MATCH EXISTING.
F. ALL COVERPLATES OR WIRING DEVICES AND ALL OTHER ITEMS ARE TO BE MOUNTED STRAIGHT (I.E. WITH EDGES VERTICAL AND HORIZONTAL).
G. COVERPLATES: STAINLESS STEEL.
H. MOUNT ALL DEVICES AT HEIGHTS SHOWN ON DRAWINGS. COMPLY WITH OBC-3.6, BARRIER FREE DESIGN.
I. PROVIDE EMERGENCY LIGHTING AND EXIT LIGHTING SHOWN. PROVIDE WIREGUARDS AS INDICATED.
J. IF ASBESTOS MATERIAL IS ENCOUNTERED, STOP WORK IN THE AFFECTED AREA IMMEDIATELY AND NOTIFY THE CONSULTANT.
K. PROVIDE ALL CUTTING AND PATCHING REQUIRED TO CARRY OUT WORK UNDER THIS CONTRACT.
JUNCTION BOXES & PULL BOXES
A. JUNCTION AND PULL BOXES: STEEL METAL ENCLOSURE, WELDED CORNERS AND FORMED HINGED COVER SUITABLE FOR LOCKING IN CLOSED POSITION.
B. COVERS WITH 1" (25mm) MINIMUM EXTENSION ALL AROUND, FOR FLUSH-MOUNTED PULL AND JUNCTION BOXES.
C. FIXTURE BOXES: ELECTRO-GALVANIZED STEEL 100mm (4") OCTAGON COMPLETE WITH 10mm (3/8") FIXTURE STUD WHERE NECESSARY.

ELECTRICAL SPECIFICATIONS (CONT'D)
D. WHERE OUTLET BOXES ARE INSTALLED IN EXTERIOR WALLS AND/OR INSULATED CEILING HAVING ASSOCIATED VAPOUR BARRIERS ON THE WARM SIDE OF THE INSULATION AND WHERE OUTLET BOXES PERFORATE THE VAPOUR BARRIER, PROVIDE ELECTRICAL BOX VAPOUR BARRIERS BEHIND AND AROUND OUTLET BOXES.
E. SWITCHES AND RECEPTACLE BOXES SHALL BE 1104 TYPE FOR RECESSED MOUNTING.
F. BOXES FOR OUTDOOR USE: GALVANIZED CAST FERALOY COMPLETE WITH NEOPRENE GASKET. BOXES FOR INDOOR USE: CODE GAUGE ELECTRO-GALVANIZED STEEL FOR CONCEAL MOUNTING AND GALVANIZED CAST FERALOY OR CAST BRUSHED ALUMINUM FOR EXPOSED USE, UNLESS OTHERWISE NOTED.
RACEWAYS
A. WIRING SHALL BE CONCEALED IN WALLS OR ABOVE CEILINGS UNLESS OTHERWISE APPROVED. EMT SHALL BE USED FOR WIRING AND CONCEALED WHEREVER POSSIBLE. EMT COUPLINGS AND CONNECTORS SHALL BE STEEL SETSCREW CONCRETE TIGHT OR STEEL COMPRESSION RAIN TIGHT.
B. ELECTRICAL METALLIC TUBING (EMT): GALVANIZED ELECTRICAL METALLIC TUBING TO CSA C22.2 No. 83, COMPLETE WITH AN INTERIOR COATING, FACTORY MADE BENDS, WHERE SITE BENDING IS NOT POSSIBLE, AND JOINTS AND TERMINATIONS MADE WITH STEEL COUPLERS AND SET SCREW TYPE CONNECTORS WITH INSULATED THROATS. CONCRETE TIGHT WHERE REQUIRED.
C. RIGID NON-METALLIC (PVC) CONDUIT: RIGID PVC CONUIT TO CSA C22.2, RT-4 RATED RIGID PVC (UNPLASTICISED) CONDUIT, COMPLETE WITH HEAT GUN BENDS IN CONDUIT TO 2"(50mm) DIAMETER, SOLVENT WELD JOINTS, FACTORY MADE EXPANSION JOINTS WHERE REQUIRED, AND TERMINATIONS MADE WITH PROPER AND SUITABLE CONNECTORS AND ADAPTERS.
D. FLEXIBLE STEEL OR ALUMINUM CONDUIT AND LIQUID-TIGHT FLEXIBLE METAL CONDUIT.
E. FISHCORD: POLYPROPYLENE.
F. RUN CONDUITS PARALLEL OR PERPENDICULAR TO BUILDING LINES. DO NOT PASS CONDUITS THROUGH STRUCTURAL MEMBERS EXCEPT AS INDICATED. RUN CONDUITS IN FLANGED PORTION OF STRUCTURAL STEEL.
OUTLET BOXES
A. BOXES FOR OUTDOOR USE: GALVANIZED CAST FERALOY COMPLETE WITH NEOPRENE GASKET.
B. BOXES FOR INDOOR USE: CODE GAUGE ELECTRO-GALVANIZED STEEL FOR CONCEAL MOUNTING AND GALVANIZED CAST FERALOY OR CAST BRUSHED ALUMINUM FOR EXPOSED USE, UNLESS OTHERWISE NOTED.
C. FIXTURE BOXES: ELECTRO-GALVANIZED STEEL 100mm (4") OCTAGON COMPLETE WITH 10mm (3/8") FIXTURE STUD WHERE NECESSARY.
D. WHERE OUTLET BOXES ARE INSTALLED IN EXTERIOR WALLS AND/OR INSULATED CEILING HAVING ASSOCIATED VAPOUR BARRIERS ON THE WARM SIDE OF THE INSULATION AND WHERE OUTLET BOXES PERFORATE THE VAPOUR BARRIER, PROVIDE ELECTRICAL BOX VAPOUR BARRIERS BEHIND AND AROUND OUTLET BOXES.
DISCONNECT SWITCHES:
A. FUSED AND NON-FUSED, HEAVY DUTY, QUICK-MAKE, QUICK-BREAK MECHANISM, LOAD BREAK TYPE WITH DOOR, HANDLE AND SWITCHING MECHANISM INTERLOCK, ARC EXTINGUISHERS, SILVER PLATED WIPE ACTION CONTACTS, AND SPRING REINFORCED FUSE CLIPS, OF SIZES INDICATED, CSA CERTIFIED. PROVIDE DISCONNECT SWITCHES AHEAD OF EACH PIECE OF EQUIPMENT WHERE NECESSARY TO MEET CODE REQUIREMENTS.
FUSES:
A. [250V] 600V 200,000 RMS SYMMETRICAL INTERRUPTING RATING, HRCl-J TYPE. FOR MOTOR PROTECTION: TIME DELAY 200,000A RMS SYMMETRICAL RATING, HRCl-J TIME DELAY TYPE.
UNIT EQUIPMENT FOR EMERGENCY LIGHT
A. SUPPLY AND INSTALL SOLID STATE EMERGENCY LIGHTING EQUIPMENT AS INDICATED. EQUIPMENT TO MEET THE REQUIREMENTS OF CSA STANDARD C22.2-141, EQUIPMENT FOR EMERGENCY LIGHTING.
B. PROVIDE BATTERY UNITS OF VOLTAGE NOTED AND CAPABLE OF SUPPLYING LOAD IN THE TIME INDICATED TO 91% AND VOLTAGE, AND TO AUTOMATICALLY SHUT-OFF. PROVIDE CHARGER AND CONTROLS WITH THE FOLLOWING COMPONENTS:
a. SOLID STATE PULSE TYPE CHARGER.
b. SOLID STATE TRANSFER AND LOW VOLTAGE DROP-OUT CIRCUIT.
c. READY/DISCONNECT SWITCH AND LIGHT.
d. VOLTMETER.
e. PRESS-TO-TEST SWITCH.
f. OUTPUT PROTECTION WHERE REMOTE FIXTURES ARE USED.
C. INCLUDE WITH UNITS, APPROPRIATE MOUNTING BRACKETS AND 3-WIRE CORDSET. INCLUDE RECEPTACLE BY EACH UNIT.
D. EACH UNIT TO CONTAIN A SEALED MAINTENANCE FREE BATTERY ENCASED IN A HIGH-IMPACT, HEAT RESISTANT TRANSLUCENT PLASTIC. BATTERY TO OPERATE LONGER THAN 10 YEARS ENTIRELY UNATTENDED AND HAVE A 5 YEAR FULL GUARANTEE AND PRO-RATA FOR THE NEXT 5 YEARS.
E. SIZE WIRING FROM UNITS TO REMOTE FIXTURES FOR NO GREATER THAN 5% VOLTAGE DROP. SUBMIT SHOP DRAWINGS FOR REVIEW SHOWING WIRE SIZING TO ALL UNITS.
a. PROVIDE WIRE GUARDS WHERE INDICATED.
b. SUPPLY VOLTAGE: 120 V, AC.
c. OUTPUT VOLTAGE: 12V DC.
d. OPERATING TIME: MINIMUM 1 HOUR
e. BATTERY: SEALED, MAINTENANCE FREE
F. CHARGER: SOLID STATE, MULTI-RATE, VOLTAGE/CURRENT REGULATED, INVERSE TEMPERATURE COMPENSATED, SHORT CIRCUIT PROTECTED.
G. SOLID STATE TRANSFER
H. LOW VOLTAGE DISCONNECT: SOLID STATE, MODULAR, OPERATES AT 80% BATTERY OUTPUT VOLTAGE.

ELECTRICAL SPECIFICATIONS (CONT'D)
I. SIGNAL LIGHTS: SOLID STATE, LIFE EXPECTANCY 1000,000 H MINIMUM, FOR "AC POWER ON" AND "HIGH CHARGE."
J. LAMP HEADS: INTEGRAL ON UNIT AND/OR REMOTE, 360° HORIZONTAL AND 180° VERTICAL ADJUSTMENT. LAMP TYPE: LED, GLARE FREE.
K. CABINET: SUITABLE FOR SHELF MOUNTING TO WALL AND COMPLETE WITH KNOCKOUTS FOR CONDUIT.HINGED FRONT PANEL FOR EASY ACCESS TO BATTERIES.
L. FINISH: EGGSHELL WHITE.
BRANCH CIRCUIT PANELBOARD (NEW)
A. CSA C22.2 NO.29 CIRCUIT BREAKER TYPE, LIGHTING AND APPLIANCE BRANCH CIRCUIT PANELBOARD.
B. PANELBOARD BUS: COPPER. PROVIDE COPPER GROUND BUS AS WELL AS PHASE AND GROUND BUSES IN EACH PANELBOARD.
C. MINIMUM INTEGRATED SYMMETRICAL SHORT CIRCUIT RATING 22,000 A-RMS
D. BOLT ON MOULDED CASE CIRCUIT BREAKERS: NEMA AB 1 TYPE THERMAL MAGNETIC TRIP CIRCUIT BREAKERS WITH COMMON TRIP HANDLE FOR ALL POLES, LISTED AS TYPE SWD FOR LIGHTING CIRCUITS. TYPE HACR FOR MOTORIZED EQUIPMENT CIRCUITS, CLASS A GROUND FAULT INTERRUPTER CIRCUIT BREAKERS WHERE SCHEDULED. DO NOT USE TANDEM CIRCUIT BREAKERS.
E. ENCLOSURE NEMA 2 (PB 1).
F. CABINET BOX: 153MM (6") DEEP, 508MM (20") WIDE FOR 240 VOLTS AND LESS PANELBOARDS.
G. FINISH IN MANUFACTURER'S STANDARD GREY.
H. TWO KEYS FOR EACH PANELBOARD.
I. ALL PANELBOARDS TO HAVE LOCKING HINGED DOOR C/W TYPED PLASTIC DIRECTORY INSIDE DOOR IN PLASTIC SLEEVE.
J. MAINS SUITABLE FOR BOLT ON BREAKERS.
K. COPPER BUS WITH NEUTRAL OF DOUBLE AMPERE RATING AS MAINS.
L. MAIN BREAKER: SEPARATELY MOUNTED ON TOP OR BOTTOM OF PANEL TO SUIT CABLE ENTRY.
TRANSFORMER
A. NEMA 2R, FACTORY ASSEMBLED AIR COOLED DRY TYPE TRANSFORMER, RATINGS AS INDICATED, DESIGNED TO SUPPLY A 50 PERCENT NONLINEAR LOAD.
B. PRIMARY VOLTAGE: 600 VOLTS, 1 PHASE
C. SECONDARY VOLTAGE: 240Y/120 VOLTS, 1 PHASE.
D. CORE FLUX DENSITY: BELOW SATURATION AT 10 PERCENT PRIMARY OVER VOLTAGE.
F INSULATION AND TEMPERATURE RISE: CLASS 220 INSULATION SYSTEM WITH 80 DEGREES C AVERAGE WINDING TEMPERATURE RISE.
G. BASE TEMPERATURE: DO NOT EXCEED 35 DEGREES C RISE ABOVE AMBIENT AT WARMEST POINT AT FULL LOAD.
H. WINDING TAPS: TRANSFORMERS LESS THAN 15 KVA: TWO 5 PERCENT BELOW RATED VOLTAGE, FULL CAPACITY TAPS ON PRIMARY WINDING. TRANSFORMERS 15KVA AND LARGER: FOUR Ø 2.5% TAPS (2) FCAN AND (2) FCBN.
I. SOUND LEVELS: NEMA ST20
J. BASIC IMPULSE LEVEL: 10KV
K. GROUND CORE AND COIL ASSEMBLY TO ENCLOSURE BY MEANS OF A VISIBLE FLEXIBLE COPPER GROUNDING STRAP.
L. CONTINUOUS WINDINGS WITH TERMINATIONS BRAZED OR WELDED. INDIVIDUALLY INSULATE SECONDARY CONDUCTORS AND ARRANGE TO MINIMIZE HYSTERESIS AND EDDY CURRENT LOSSES AT HARMONIC FREQUENCIES. SIZE SECONDARY NEUTRAL CONDUCTOR FOR TWICE THE SECONDARY PHASE CONDUCTOR AMPACITY. COPPER WINDING CONDUCTORS.
M. ELECTROSTATIC SHIELD: COPPER BETWEEN PRIMARY AND SECONDARY WINDINGS.
N. ISOLATE CORE AND COIL FROM ENCLOSURE USING VIBRATION ABSORBING MOUNTS.
O. INCLUDE TRANSFORMER CONNECTION DATA AND OVERLOAD CAPACITY BASED ON RATED ALLOWABLE TEMPERATURE RISE.
P. SET TRANSFORMER PLUMB AND LEVEL.
Q. USE FLEXIBLE CONDUIT, 600MM (24") MINIMUM LENGTH, FOR CONNECTIONS TO TRANSFORMER CASE. MAKE CONDUIT CONNECTIONS TO SIDE PANEL OF ENCLOSURE.
R. MOUNT FLOOR MOUNTED TRANSFORMERS ON HOUSEKEEPING PA D WITH VIBRATION ISOLATING PADS SUITABLE FOR ISOLATING THE TRANSFORMER NOISE FROM THE BUILDING STRUTURE.
S. PROVIDE GROUNDING AND BONDING.
MOTOR STARTERS
A. GENERAL REQUIREMENTS:
a. STARTERS SHALL BE BASED ON CSA-C22.2-14.
b. STARTERS SHALL HAVE THERMAL MAGNETIC OVERLOADS WITH EXTERNAL MANUAL RESET, SIZED IN ACCORDANCE WITH VOLTAGE AND FULL LOAD CURRENT AS CERTIFIED BY MOTOR MANUFACTURER
c. STARTERS SHALL HAVE OVERLOAD RELAYS IN EACH UNGROUNDED PHASE. CLASS 20: CLASS 20 (STANDARD TRIP) MELTING ALLOY.
d. ALL 3 PHASE STARTERS SHALL HAVE SINGLE PHASING PROTECTION.
e. ENSURE CORRECT FUSES AND OVERLOAD DEVICES ELEMENTS ARE INSTALLED.
f. PERFORM TESTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

ELECTRICAL SPECIFICATIONS (CONT'D)
g. OPERATE SWITCHES AND CONTACTORS TO VERIFY CORRECT FUNCTIONING.
h. PERFORM STARTING AND STOPPING SEQUENCES OF CONTACTORS AND RELAYS.
i. CHECK THAT SEQUENCE CONTROLS INTERLOCKING WITH OTHER SEPARATE RELATED STARTERS, EQUIPMENT AND CONTROL DEVICES, OPERATE AS INDICATED.
B. MOTOR STARTERS DETAILS
o. COMBINATION STARTERS (CIRCUIT BREAKERS): CSA CERTIFIED, EEMAC RATED, SIZED AS INDICATED COMPLETE WITH EEMAC ENCLOSURE SUITABLE FOR ENVIRONMENT IN WHICH INSTALLED.
b. FULL VOLTAGE NON-REVERSING WITH APPROPRIATE SHORT CIRCUIT PROTECTION.
c. MAGNETIC STARTERS: COMPLETE WITH 100VA OR LARGER 120V INDIVIDUAL CONTROL TRANSFORMERS PROTECTED BY CONTROL FUSES.
d. CONTROL VOLTAGE: 24VAC.
e. UNLESS NOTED OTHERWISE, ALL ELECTRICALLY HELD MAGNETIC STARTERS SHALL INCLUDE HAND-OFF-AUTO 3 POSITION, MAINTAINED CONTACT ON-OFF SELECTOR SWITCHES SO THAT MOTORS AND OTHER EQUIPMENT AUTOMATICALLY RE-ENERGIZE AFTER POWER INTERRUPTION.
f. THREE PHASE MAGNETIC STARTERS: MINIMUM EEMAC SIZE 1.
g. EACH MAGNETIC STARTER TO HAVE 2-NC AND 2-NO AUXILIARY CONTACTS.
EXIT LIGHT
EXIT LIGHT SHALL BE SUITABLE FOR SURFACE, WALL OR CEILING MOUNTING. GREEN PICTOGRAM ON BRUSHED ALUMINUM BACKGROUND, FORMED ALUMINUM STENCIL FACE, L.E.D. ILLUMINATED, DISSIPATING NO MORE THAN 5 WATTS PER SINGLE OR DOUBLE FACED SIGN. 25 YEARS MINIMUM LIFE EXPECTANCY.
LABELING
ENSURE ALL NEW EQUIPMENT IS LABELLED APPROPRIATELY AS PER THE SPECIFICATIONS BELOW. WORK THAT DOES NOT INCLUDE PROPER LABELLING WILL BE CONSIDERED INCOMPLETE AND WILL BE MARKED AS DEFICIENT UNTIL LABELLING IS IMPLEMENTED AS PER SPECIFICATIONS BELOW.
A. NORMAL LABEL SPECIFICATIONS:
a. ALL EQUIPMENT MUST BE LABELLED.
b. OBTAIN WRITTEN APPROVAL OF IDENTIFICATION SYSTEM FROM DEPARTMENTAL REPRESENTATIVE BEFORE STARTING MANUFACTURE OF LABELS. CONTRACTOR MUST NOT LABEL ITEMS BY NAME AND NUMBER ON THE CONSTRUCTION PLAN UNLESS ADVISED TO DO SO BY THE DEPARTMENTAL REPRESENTATIVE.
# ISSUE DATE
01 PRELIMINARY REVIEW 10/22/2021
02 75% REVIEW 11/04/2021
03 99% REVIEW 11/19/2021
04 TRANSLATION 12/02/2021
05 ISSUE FOR TENDER 12/15/2021
PROJECT NAME
CENTRAL EXPERIMENTAL FARM Building 26 OTTAWA, ON
ACCOMMODATION FIT-UP
SHEET TITLE
ELECTRICALSPECIFICATIONS
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PROJECT # 21-OXX
DRAWN BY AK
CHECKED BY SB
SHEET

Agriculture and Agri-food Canada

Canada Agriculture et Agroalimentaire Canada

STEWART + TSAI ARCHITECTS INC.  
t: 613.686.5910  
f: 613.686.6216  
e: info@stewarttsai.com

SEAL

CONSULTANTS

**VR**  
ENGINEERING FORWARD  
Vanderweest & Rutherford Associates Inc.  
Mechanical & Electrical Engineers  
London, Windsor, Ottawa  
www.vreng.ca | 613-563-2100  
21-130

KEY PLAN

# ISSUE DATE

01	PRELIMINARY REVIEW	10/22/2021
02	75% REVIEW	11/04/2021
03	99% REVIEW	11/19/2021
04	TRANSLATION	12/02/2021
05	ISSUE FOR TENDER	12/15/2021

PROJECT NAME

CENTRAL EXPERIMENTAL FARM  
Building 26  
OTTAWA, ON

ACCOMMODATION FIT-UP

SHEET TITLE

ELECTRICALSPECIFICATIONS

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PROJECT # 21-OXX

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CHECKED BY SB

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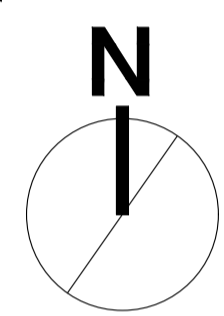
E-001

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KEY PLAN



#	ISSUE	DATE
01	PRELIMINARY REVIEW	10/22/2021
02	75% REVIEW	11/04/2021
03	99% REVIEW	11/19/2021
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05	ISSUE FOR TENDER	12/15/2021



PROJECT NAME  
 CENTRAL EXPERIMENTAL FARM  
 Building 26  
 OTTAWA, ON

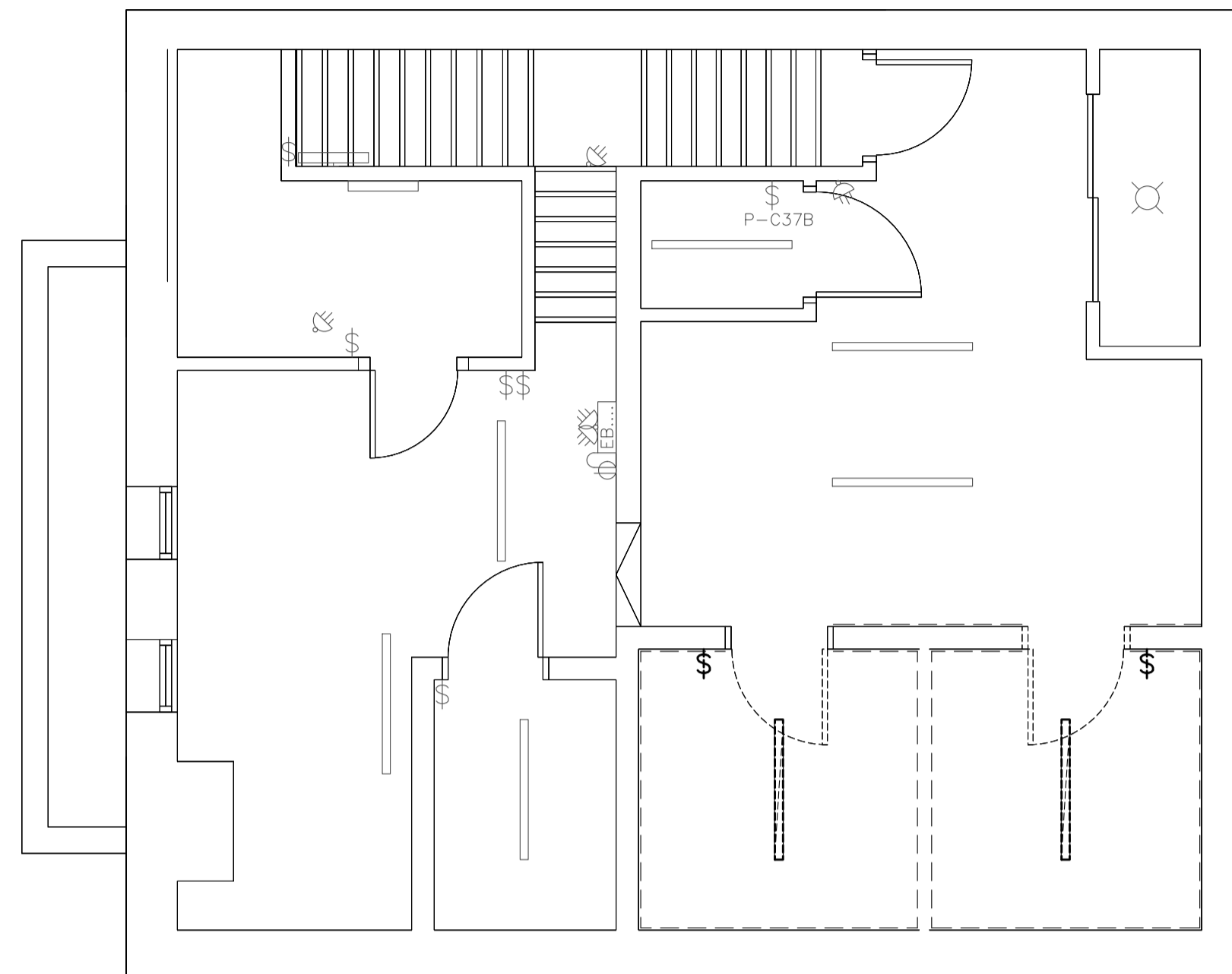
ACCOMMODATION FIT-UP

SHEET TITLE  
 BASEMENT:  
 ELECTRICAL  
 DEMOLITION AND NEW  
 FLOOR PLAN

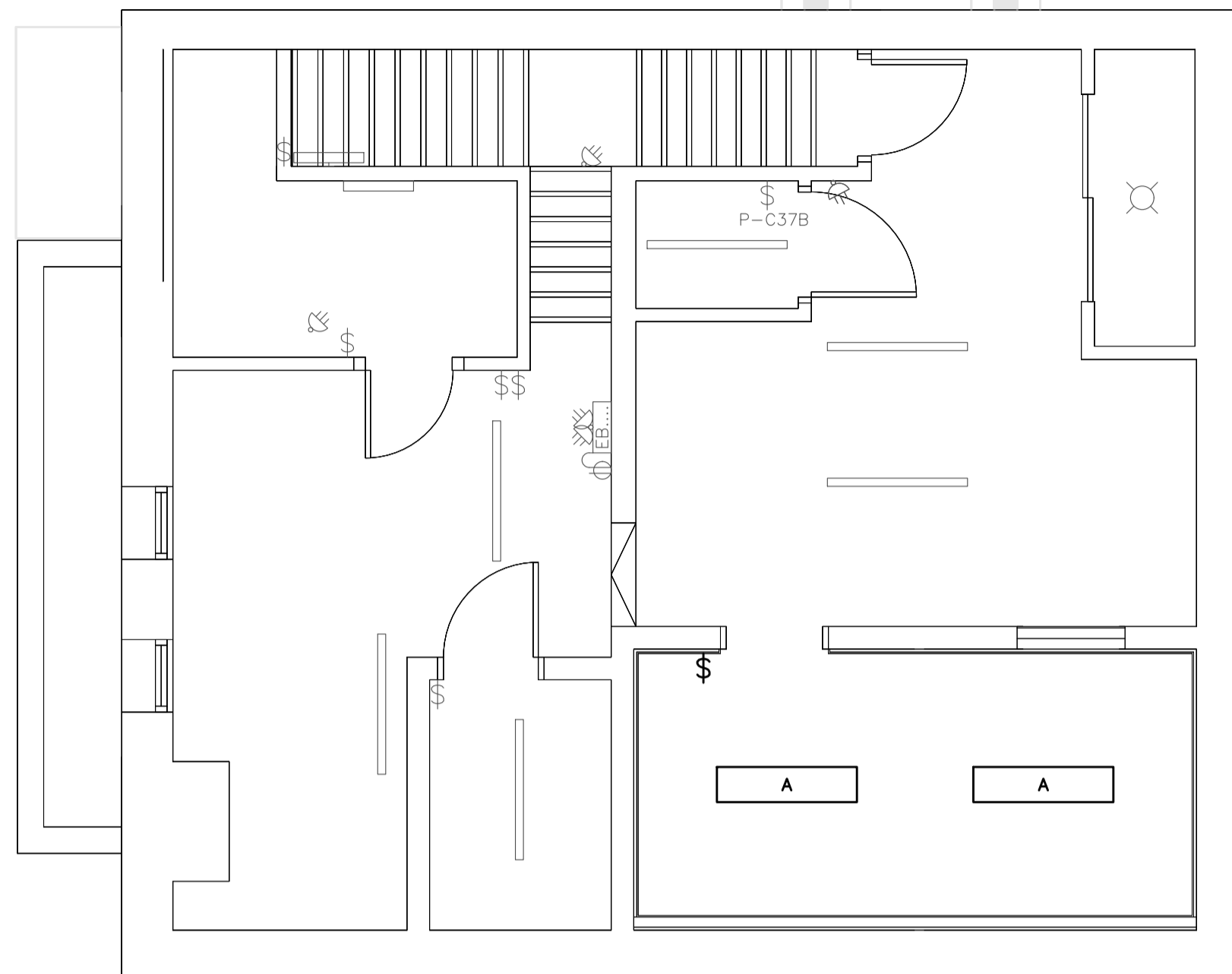
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PROJECT #: 21-OXX  
 DRAWN BY: AK  
 CHECKED BY: SB  
 SHEET

E-100



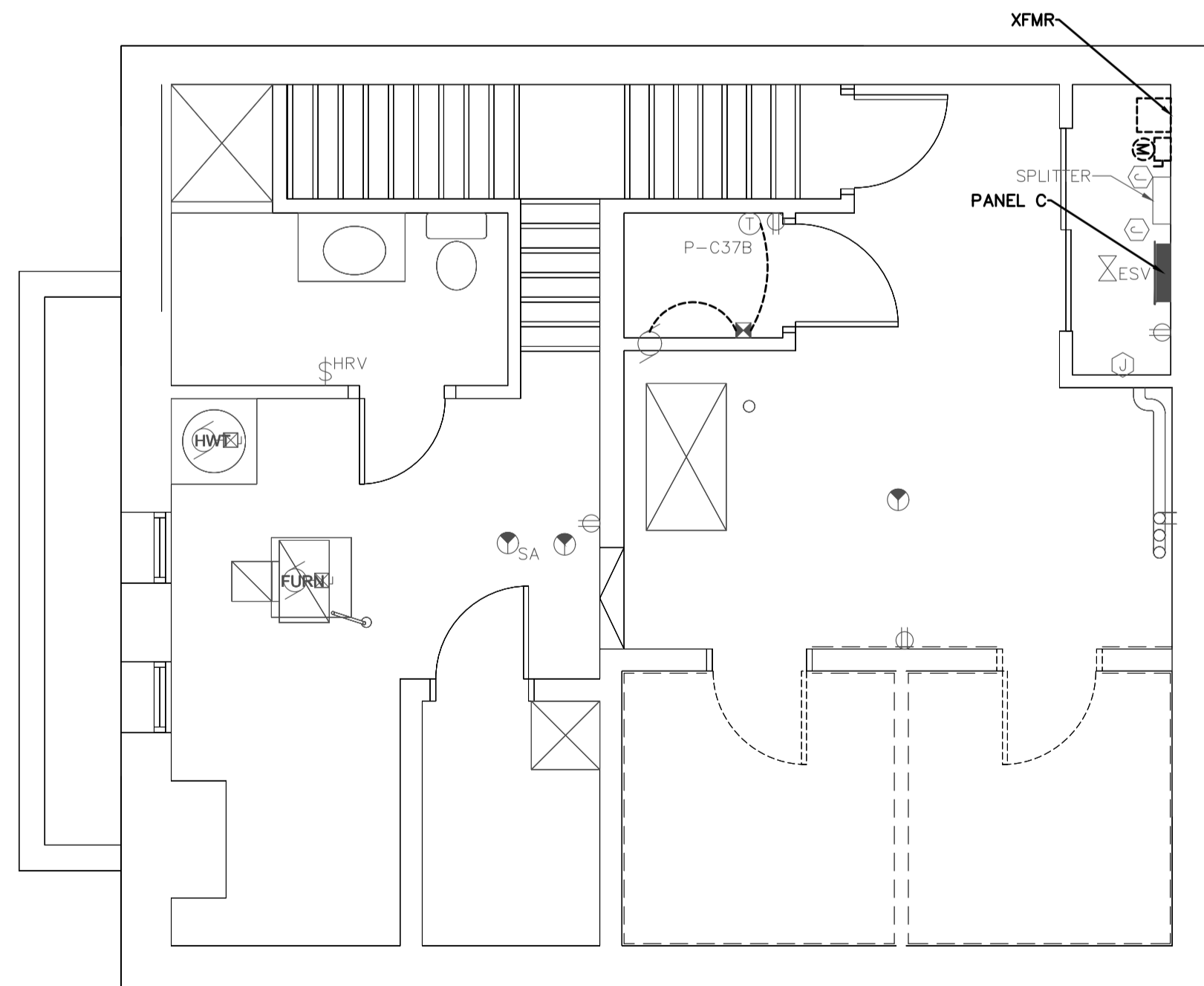
**DEMOLITION NOTES**  
 1. DISCONNECT AND REMOVE LIGHTING AS SHOWN IN BOLD DASHED LINES. PRESERVE WIRING FOR REUSE UNDER NEW CONSTRUCTION.



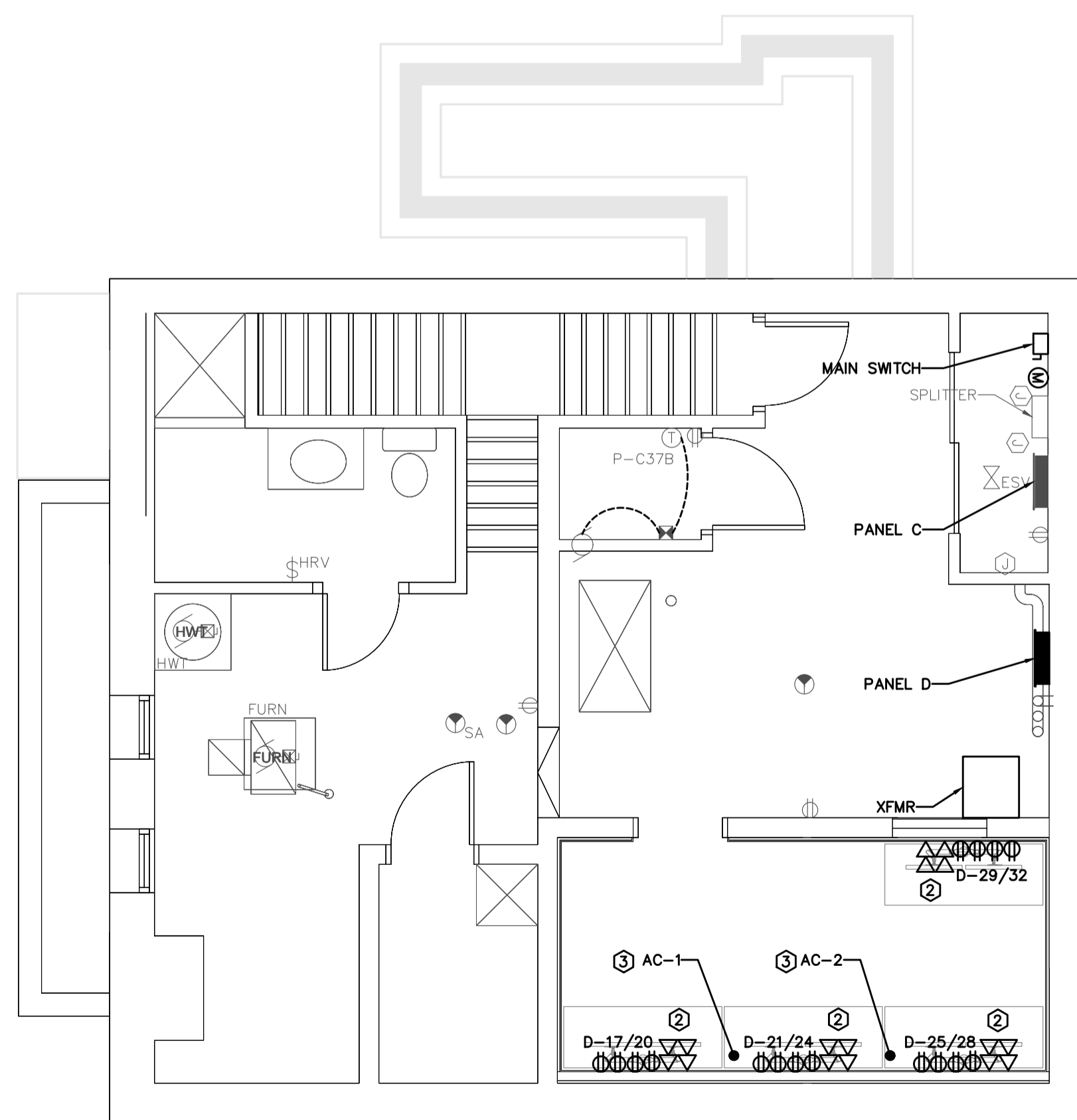
**NEW NOTES**  
 1. PROVIDE NEW LIGHTING AS SHOWN IN BOLD. CONNECT TO EXISTING CIRCUITS. REWORK WIRING AS NEEDED. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS.

1 LIGHTING DEMO BASEMENT PLAN  
 Scale: 1:50

2 LIGHTING NEW BASEMENT PLAN  
 Scale: 1:50



**DEMOLITION NOTES**  
 1. DISCONNECT AND REMOVE EXISTING DEVICES SHOWN IN BOLD DASHED LINES. WHERE REQUIRED UNDER NEW WORK, PRESERVE WIRING FOR RECONNECTION. OTHERWISE REMOVE REDUNDANT WIRING BACK TO SOURCE. ANY PANEL CIRCUIT NUMBERS ARE SHOWN FOR REFERENCE ONLY.



**NEW NOTES**  
 1. PROVIDE NEW DEVICES AND EQUIPMENT SHOWN IN BOLD. COORDINATE EXACT LOCATIONS OF ALL ELECTRICAL RECEPTACLE, OUTLETS AND DATA CONNECTIONS WITH NEW LAYOUT.  
 2. PROVIDE 6x6 BOX ABOVE EACH WORK STATION C/W BUSHING, 1" CONDUIT AND PULL STRING TO IT EQUIPMENT.  
 3. CONNECT POWER FROM NEW CONDENSING UNITS TO NEW AC UNITS.

3 POWER AND SYSTEMS DEMO BASEMENT PLAN  
 Scale: 1:50

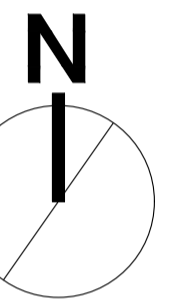
4 POWER AND SYSTEMS NEW BASEMENT PLAN  
 Scale: 1:50

SEAL

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KEY PLAN



#	ISSUE	DATE
01	PRELIMINARY REVIEW	10/22/2021
02	75% REVIEW	11/04/2021
03	99% REVIEW	11/19/2021
04	TRANSLATION	12/02/2021
05	ISSUE FOR TENDER	12/15/2021



PROJECT NAME  
 CENTRAL EXPERIMENTAL FARM  
 Building 26  
 OTTAWA, ON

ACCOMMODATION FIT-UP

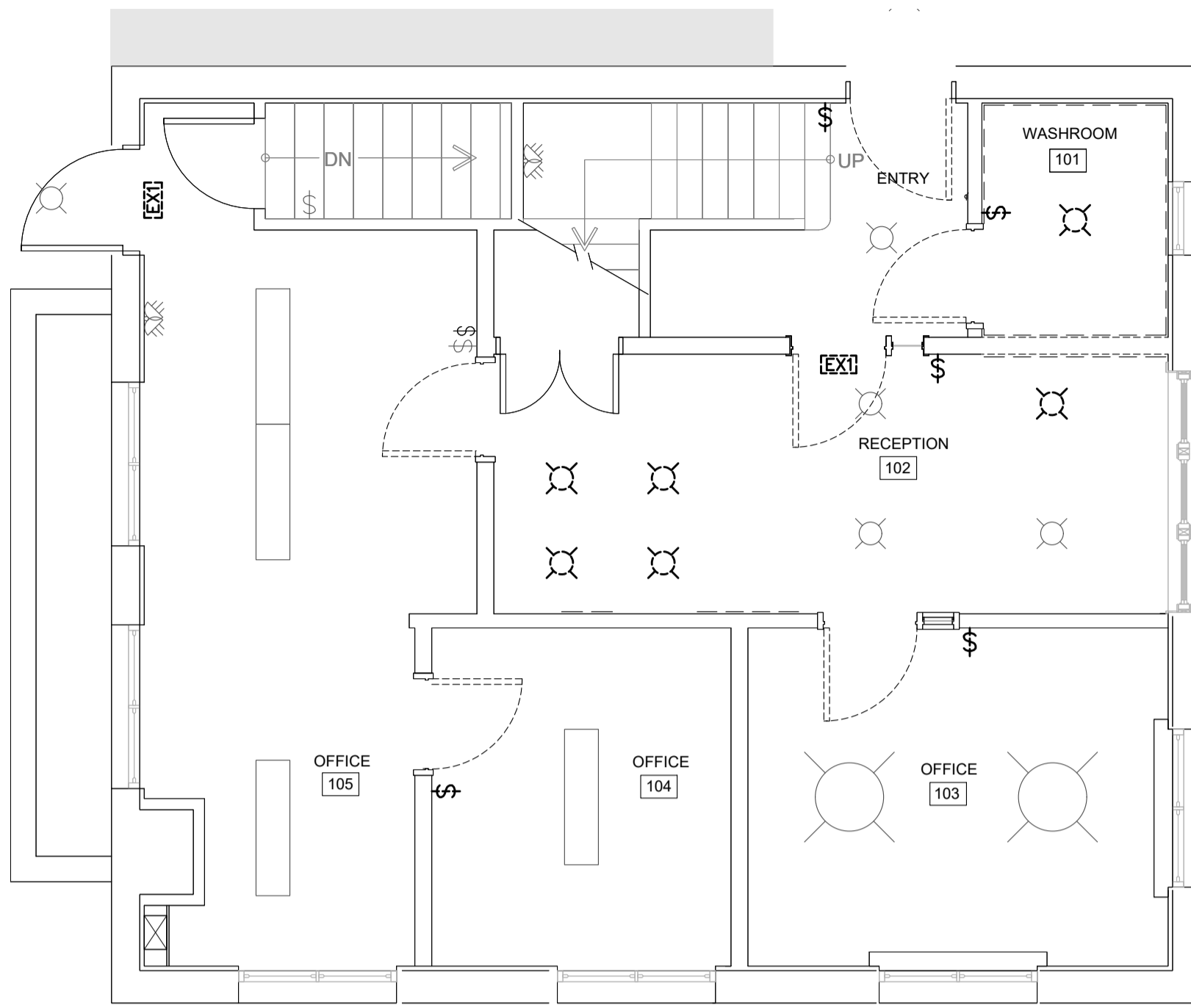
SHEET TITLE  
 GROUND FLOOR:  
 ELECTRICAL  
 DEMOLITION AND NEW  
 FLOOR PLAN

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PROJECT #: 21-OXX  
 DRAWN BY: AK  
 CHECKED BY: SB

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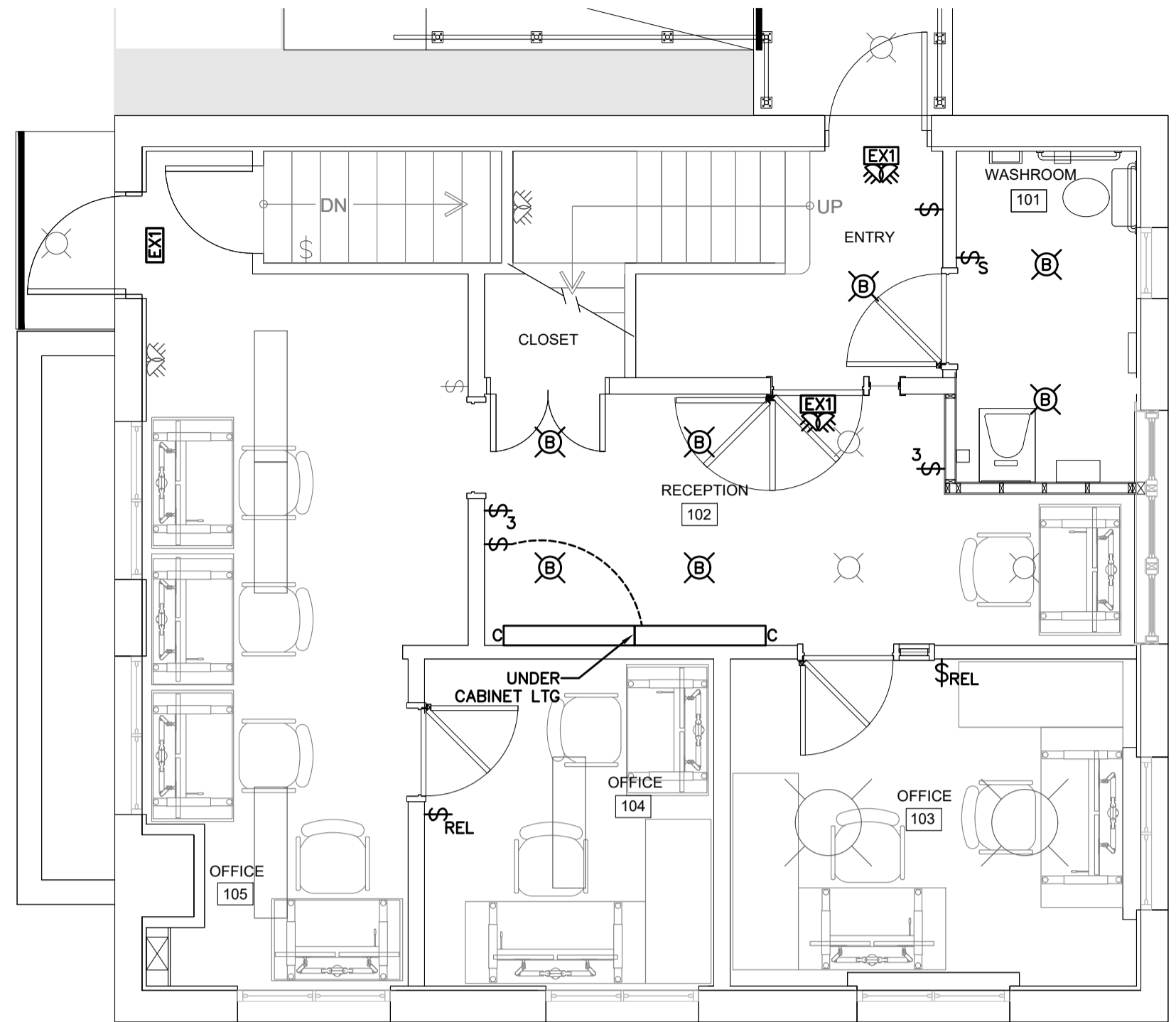
E-101



**DEMOLITION NOTES**

- DISCONNECT AND REMOVE LIGHTING AS SHOWN IN BOLD DASHED LINES. PRESERVE WIRING FOR REUSE UNDER NEW CONSTRUCTION.

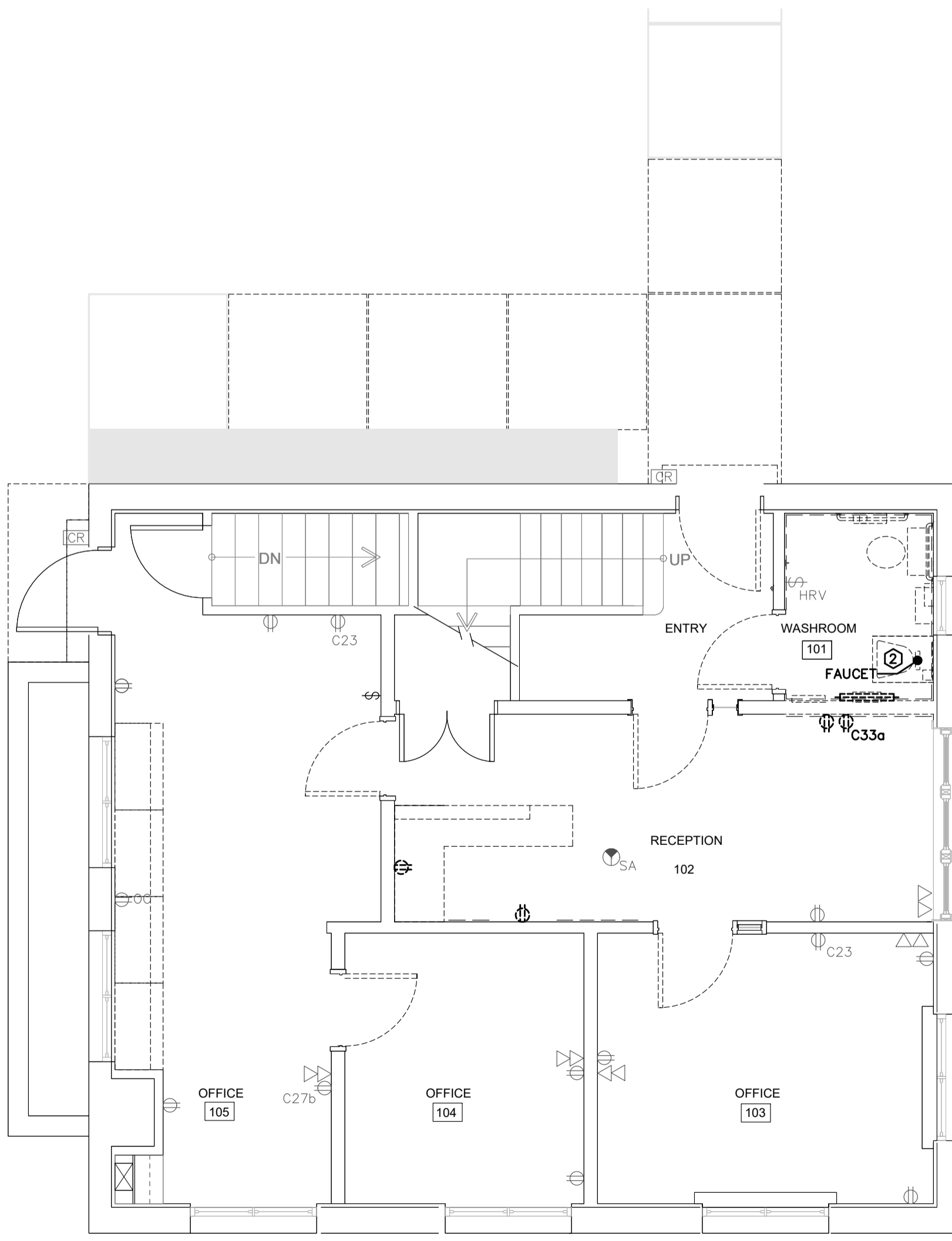
**1 LIGHTING DEMO GROUND FLOOR PLAN**  
Scale: 1:50



**NEW NOTES**

- PROVIDE NEW LIGHTING AS SHOWN IN BOLD. CONNECT TO EXISTING CIRCUITS. REWORK WIRING AS NEEDED. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS.
- REINSTALL LIGHT SWITCHES AT ACCESSIBLE HEIGHT (1100MM AFF) WHERE TAGGED 'REL'.

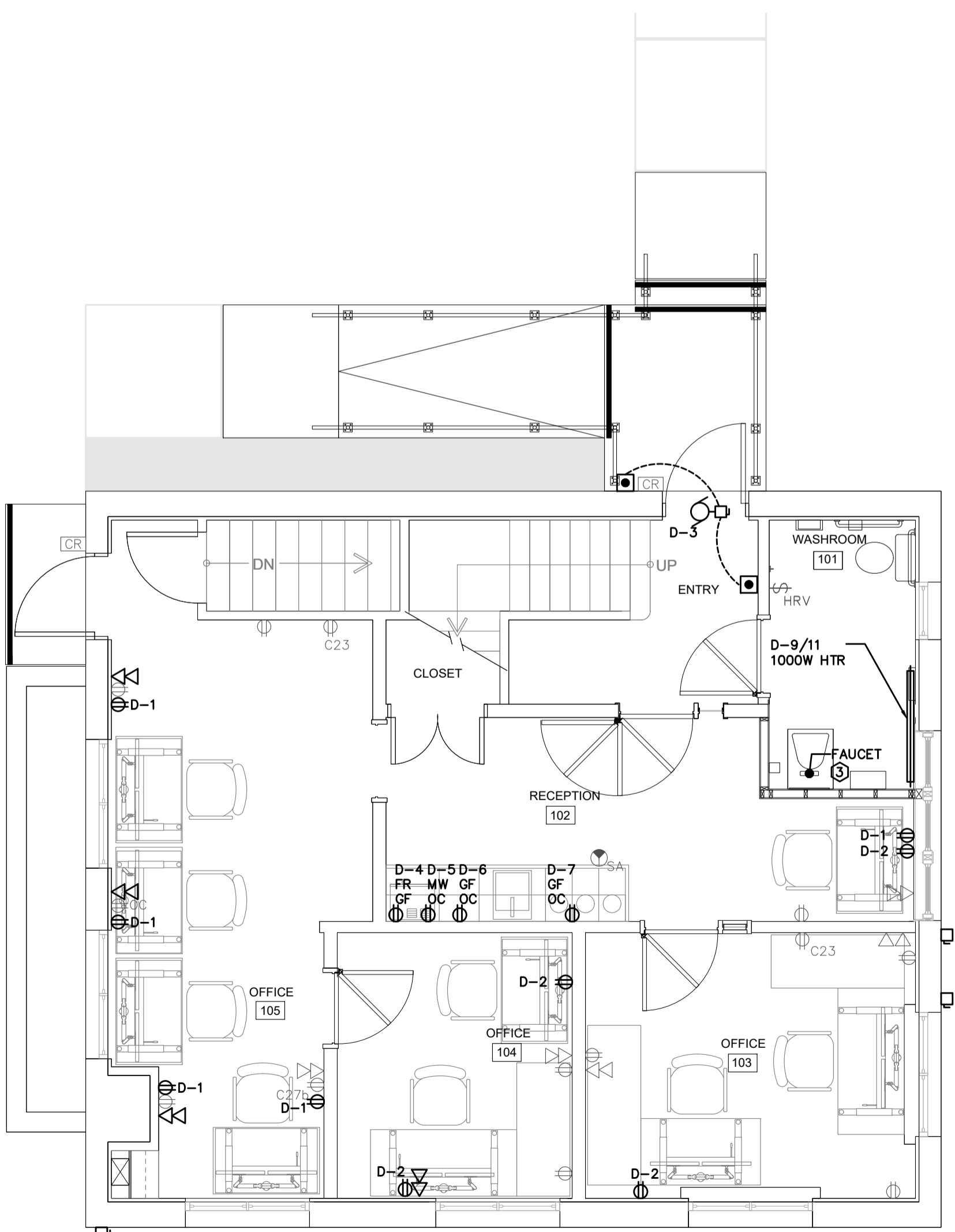
**2 LIGHTING NEW GROUND FLOOR PLAN**  
Scale: 1:50



**DEMOLITION NOTES**

- DISCONNECT AND REMOVE EXISTING DEVICES SHOWN IN BOLD DASHED LINES. WHERE REQUIRED UNDER NEW WORK, PRESERVE WIRING FOR RECONNECTION. OTHERWISE REMOVE REDUNDANT WIRING BACK TO SOURCE. ANY PANEL CIRCUIT NUMBERS ARE SHOWN FOR REFERENCE ONLY.
- DISCONNECT FAUCET AND PRESERVE WIRING FOR RELOCATION OF SINK.
- DISCONNECT EXISTING CONDENSING UNIT, PRESERVE WIRING FOR NEW WORK.

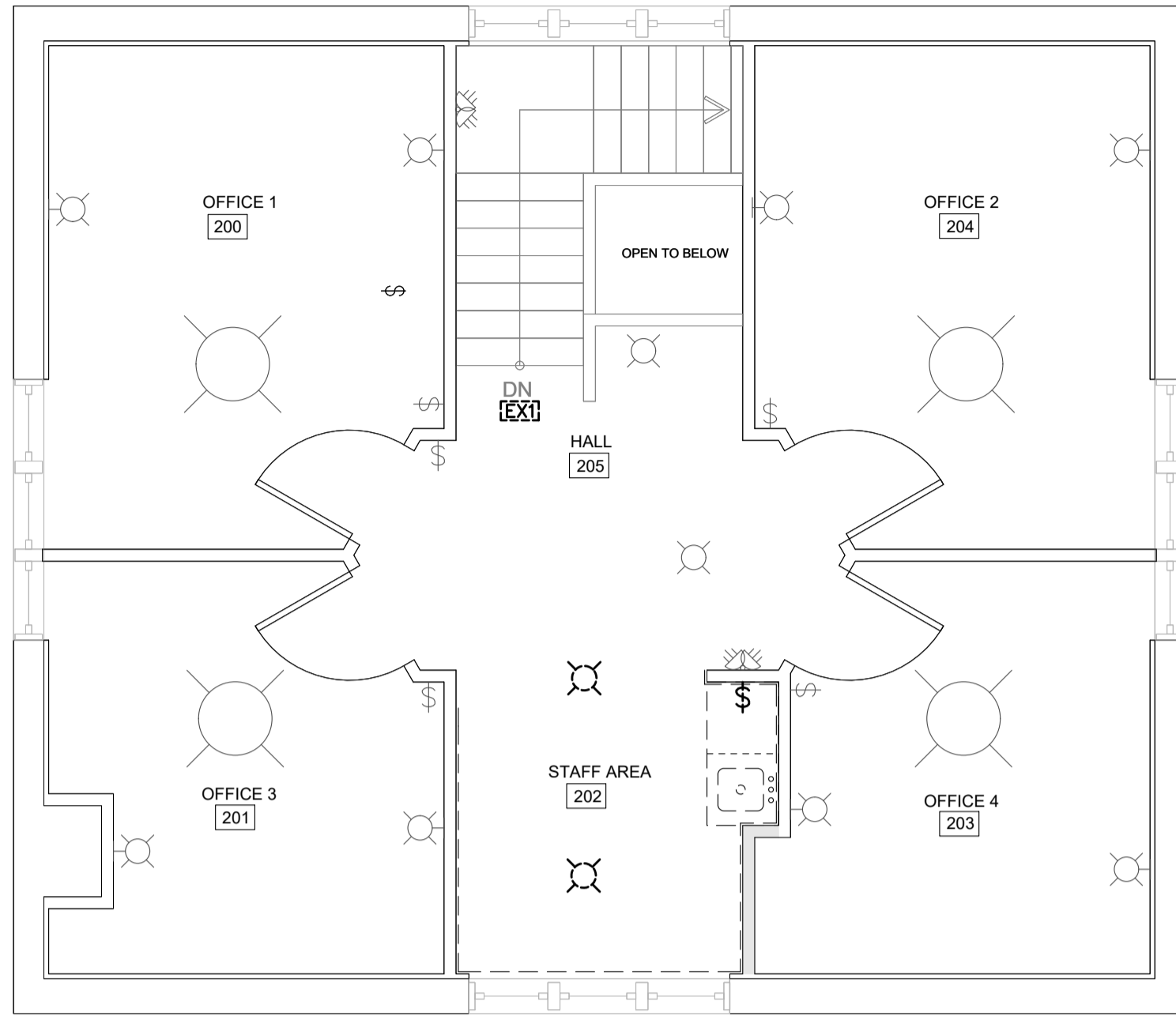
**3 POWER AND SYSTEMS DEMO GROUND FLOOR PLAN**  
Scale: 1:50



**NEW NOTES**

- PROVIDE NEW DEVICES SHOWN IN BOLD. COORDINATE EXACT LOCATIONS OF ALL ELECTRICAL RECEPTACLE, OUTLETS AND DATA CONNECTIONS WITH NEW LAYOUT.
- CONNECT EXISTING CIRCUIT TO NEW CONDENSING UNIT-3. EXTEND AND REWORK WIRING AS REQUIRED.
- CONNECT RELOCATED FAUCET TO EXISTING CIRCUIT. EXTEND AND REWORK WIRING AS REQUIRED.

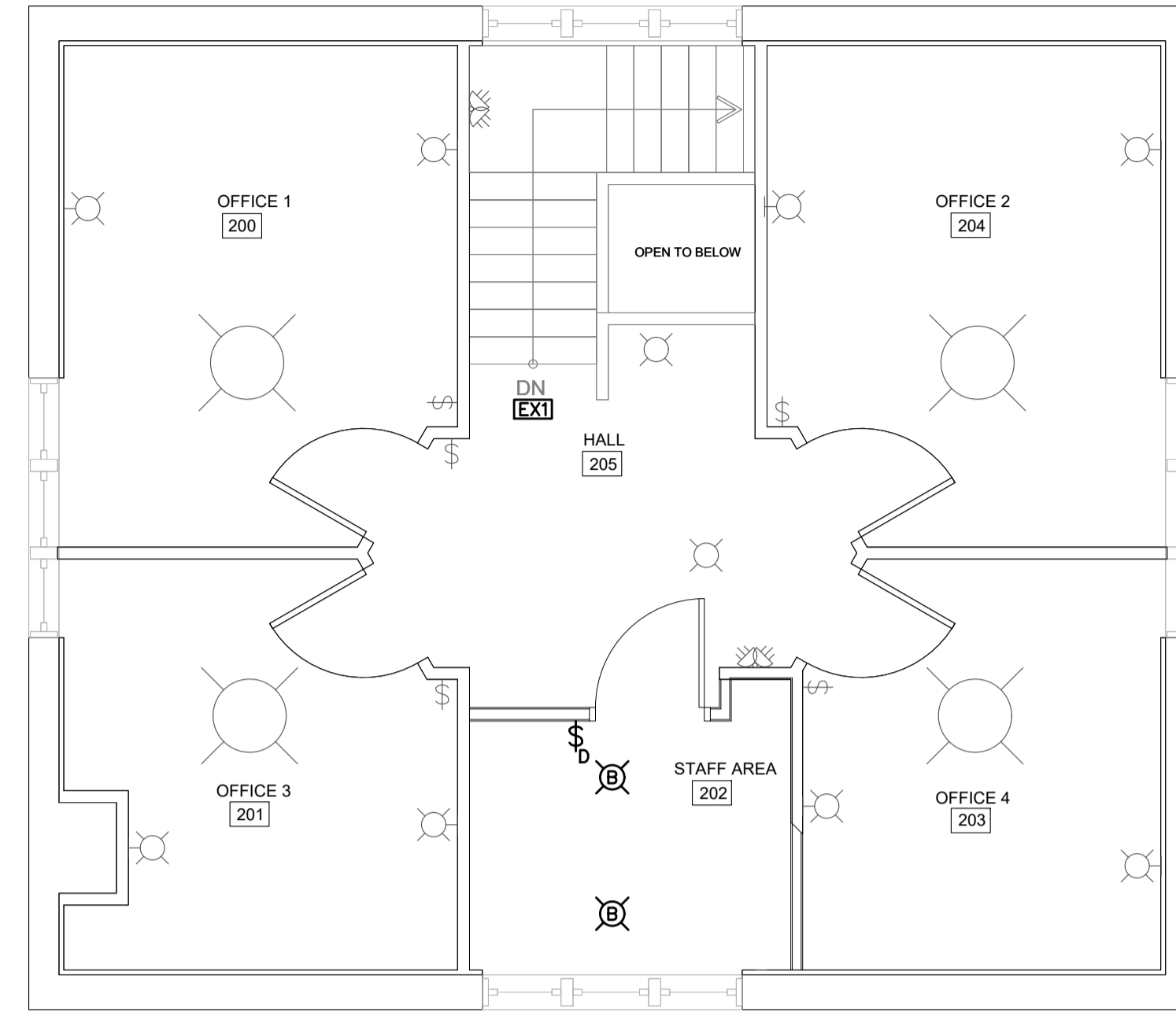
**4 POWER AND SYSTEMS NEW GROUND FLOOR PLAN**  
Scale: 1:50



**DEMOLITION NOTES**

1. DISCONNECT AND REMOVE LIGHTING AS SHOWN IN BOLD DASHED LINES. PRESERVE WIRING FOR REUSE UNDER NEW CONSTRUCTION.

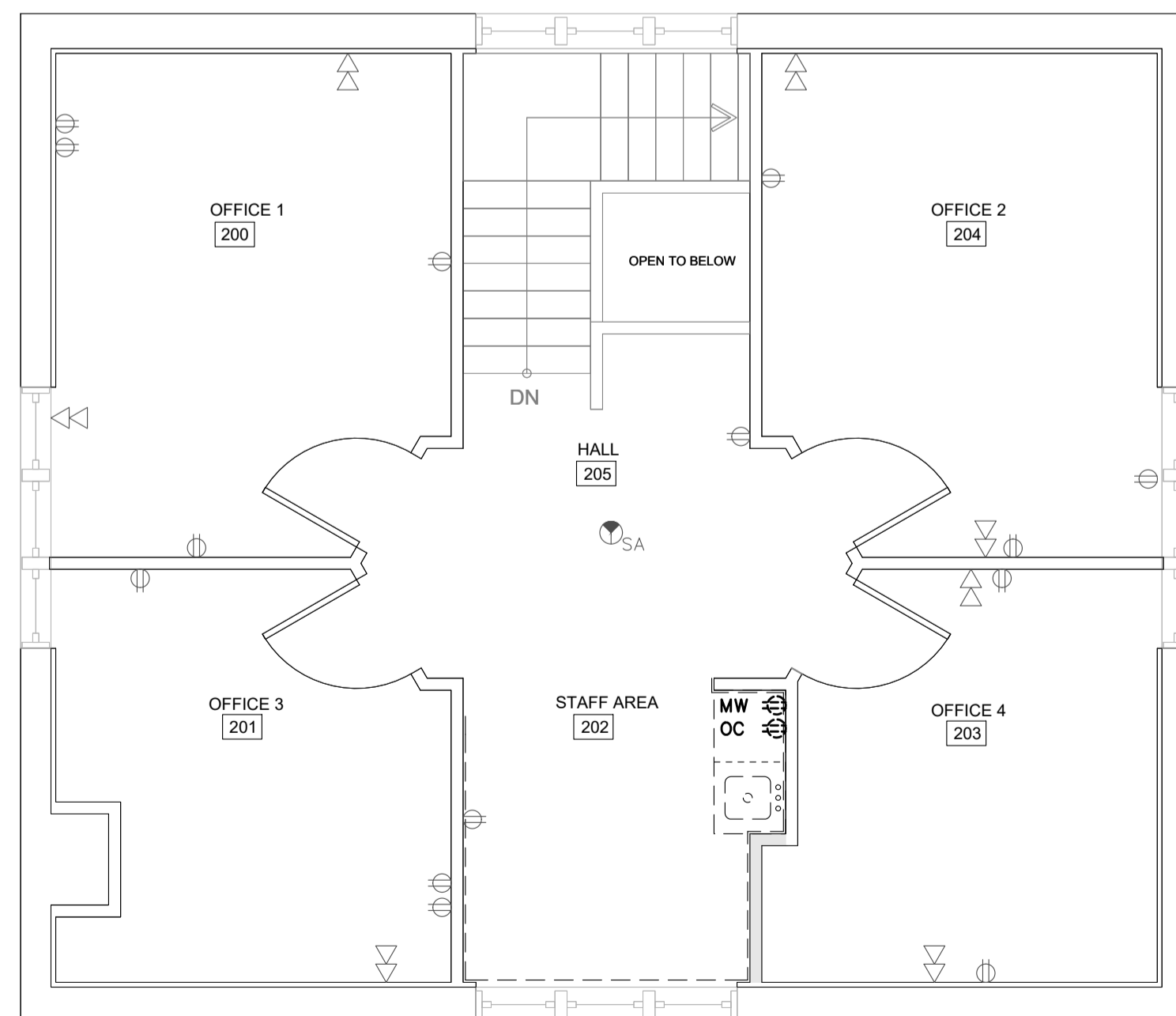
1 LIGHTING DEMO SECOND FLOOR PLAN  
Scale: 1:50



**NEW NOTES**

1. PROVIDE NEW LIGHTING AS SHOWN IN BOLD. CONNECT TO EXISTING CIRCUITS. REWORK WIRING AS NEEDED. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS.

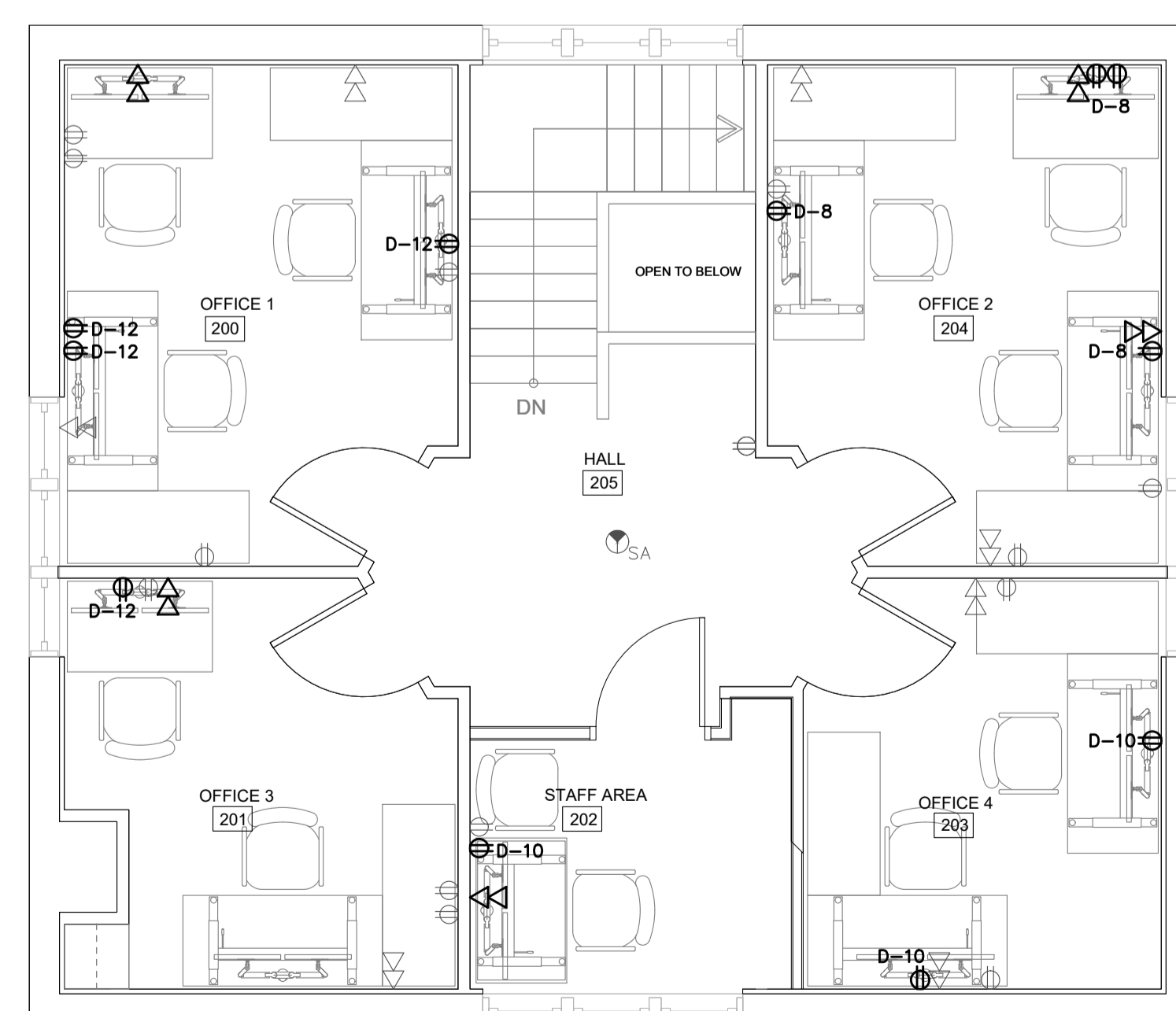
2 LIGHTING NEW SECOND FLOOR PLAN  
Scale: 1:50



**DEMOLITION NOTES**

1. DISCONNECT AND REMOVE EXISTING DEVICES SHOWN IN BOLD DASHED LINES. WHERE REQUIRED UNDER NEW WORK, PRESERVE WIRING FOR RECONNECTION. OTHERWISE REMOVE REDUNDANT WIRING BACK TO SOURCE. ANY PANEL CIRCUIT NUMBERS ARE SHOWN FOR REFERENCE ONLY.

3 POWER AND SYSTEMS SECOND FLOOR PLAN  
Scale: 1:50



**NEW NOTES**

1. PROVIDE NEW DEVICES SHOWN IN BOLD. COORDINATE EXACT LOCATIONS OF ALL ELECTRICAL RECEPTACLE, OUTLETS AND DATA CONNECTIONS WITH NEW LAYOUT.

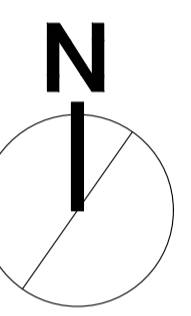
4 POWER AND SYSTEMS NEW SECOND FLOOR PLAN  
Scale: 1:50

SEAL

CONSULTANTS



KEY PLAN



#	ISSUE	DATE
01	PRELIMINARY REVIEW	10/22/2021
02	75% REVIEW	11/04/2021
03	99% REVIEW	11/19/2021
04	TRANSLATION	12/02/2021
05	ISSUE FOR TENDER	12/15/2021



PROJECT NAME  
CENTRAL EXPERIMENTAL FARM  
Building 26  
OTTAWA, ON

ACCOMMODATION FIT-UP

SHEET TITLE  
SECOND FLOOR:  
ELECTRICAL  
DEMOLITION AND NEW  
FLOOR PLAN

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PROJECT #: 21-OXX  
DRAWN BY: AK  
CHECKED BY: SB

SHEET

E-103





## Appendix "F"

### INSURANCE TERMS



## INSURANCE TERMS

### IN1 GENERAL

- IN1.1 Worker's Compensation
- IN1.2 Indemnification
- IN1.3 Proof of Insurance
- IN1.4 Insured
- IN1.5 Payment of Deductible

### IN2 COMMERCIAL GENERAL LIABILITY

- IN2.1 Scope of Policy
- IN2.2 Period of Insurance

### IN3 AUTOMOBILE INSURANCE

- IN3.1 Scope of Policy

### IN4 BUILDER'S RISK / INSTALLATION FLOATER

- IN4.1 Scope of Policy
- IN4.2 Amount of Insurance
- IN4.3 Period of Insurance
- IN4.4 Insurance Proceeds

## IN1 GENERAL

### IN1.1 Worker's Compensation

- 1) The Contractor shall provide and maintain Worker's Compensation Insurance in accordance with the legal requirements of the Province or Territory where the work is being carried out.

### IN1.2 Indemnification

- 1) The insurance required by the provisions of these Insurance Terms shall in no way limit the Contractor's responsibility under the Indemnification clause of the General Conditions of the contract. Any additional coverage the Contractor may deem necessary to fulfill his obligations under the aforesaid clause shall be at his own discretion and expense.

### IN1.3 Proof of Insurance

- 1) Before commencement of the Work, and within thirty (30) days after acceptance of its bid, the Contractor shall deposit with Canada a CERTIFICATE OF INSURANCE (form AAFC / AAC5314) available upon request.
- 2) In the event that the Contractor already possesses an insurance certificate clearly demonstrating that their insurance coverage meets IN2.1 Scope of Policy provisions, then the Contractor may deposit an original copy of this insurance certificate.
- 3) Upon request by Canada, the Contractor shall provide originals or certified true copies of all contracts of insurance maintained by the Contractor pursuant to the provisions contained herein.

### IN1.4 Insured

- 1) Each policy shall insure the Contractor and shall include Her Majesty the Queen in right of Canada, represented by the Minister of Agriculture & Agri-Food Canada as an additional Insured, with respect to liability arising out of the operations of the contractor with regard to the work.

## **INSURANCE TERMS (Continued)**

### **IN1.5 Payment of Deductible**

- 1) The payment of monies up to the deductible amount made in satisfaction of a claim shall be borne by the Contractor.

## **IN2 COMMERCIAL GENERAL LIABILITY**

### **IN2.1 Scope of Policy**

- 1) The insurance coverage provided shall not be less than that provided by IBC Form 2100, as amended from time to time, and shall have:
  - (a) an Each Occurrence Limit of not less than \$5,000,000.00 ;
  - (b) a Products/Completed Operations Aggregate Limit of not less than \$5,000,000.00 ; and
  - (c) a General Aggregate Limit of not less than \$10,000,000.00 per policy year, if the policy is subject to such a limit.
- 2) The policy shall either include or be endorsed to include coverage for the following exposures or hazards if the Work is subject thereto:
  - (a) Blasting.
  - (b) Pile driving and caisson work.
  - (c) Underpinning.
  - (d) Removal or weakening of support of any building or land whether such support be natural or otherwise if the work is performed by the insured contractor.
  - (e) Asbestos.
  - (f) Non-owned Automobile Policy.

### **IN2.2 Period of Insurance**

- 1) Unless otherwise directed in writing by Canada, or, otherwise stipulated elsewhere herein, the policy required herein shall be in force and be maintained from the date of contract award until the day of issue of the Certificate of Completion except that the coverage for Completed Operations Liability shall, in any event, be maintained for a period of at least six (6) years beyond the date of the CERTIFICATE OF SUBSTANTIAL PERFORMANCE.

## **IN3 AUTOMOBILE INSURANCE**

### **IN3.1 Scope of Policy**

- 1) Automobile Liability Insurance in respect of licensed vehicles shall have limits of not less than one million dollars inclusive per occurrence for bodily injury, death, and damage to property.

## **INSURANCE TERMS (Continued)**

### **IN4 BUILDER'S RISK / INSTALLATION FLOATER**

#### **IN4.1 Scope of Policy**

- 1) The insurance coverage provided by a Builder's Risk policy or an Installation Floater policy shall not be less than that provided by IBC Forms 4042 and 4047, as amended from time to time.
- 2) The policy shall permit use and occupancy of the project, or any part thereof, where such use and occupancy is for the purposes for which the project is intended upon completion.
- 3) The policy may exclude or be endorsed to exclude coverage for loss or damage caused by any of the following:
  - (a) Asbestos.
  - (b) Fungi or spores.
  - (c) Cyber.
  - (d) Terrorism.

#### **IN4.2 Amount of Insurance**

- 1) The amount of insurance shall not be less than the sum of the contract value plus the declared value (if any) set forth in the contract documents of all material and equipment supplied by Canada at the site of the project to be incorporated into and form part of the finished Work. If the value of the Work is changed, the policy shall be changed to reflect the revised contract value.

#### **IN4.3 Period of Insurance**

- 1) Unless otherwise directed in writing by Canada, or, stipulated elsewhere herein, the policy required herein shall be in force and be maintained from prior to the commencement of work until the day of issue of the CERTIFICATE OF SUBSTANTIAL PERFORMANCE.

#### **IN4.4 Insurance Proceeds**

- 1) The policy shall provide that the proceeds thereof are payable to Her Majesty or as Canada may direct in accordance with GC 10.2 Insurance Proceeds.
- 2) The Contractor shall, without delay, do such things and execute such documents as are necessary to effect payment of the proceeds.



## Appendix "G"

### CONTRACT DOCUMENTS



## MAJOR WORKS - CONTRACT DOCUMENTS

### SC01 CONTRACT DOCUMENTS

- 1) The following are the contract documents:
  - (a) Contract page when signed by Canada;
  - (b) Duly completed Bid and Acceptance Form and any Appendices attached thereto;
  - (c) Drawings and Specifications;
  - (d) AAFC General Conditions form AAFC / AAC5321-E:
    - (i) GC1 General Provisions
    - (ii) GC2 Administration of the Contract
    - (iii) GC3 Execution and Control of the Work
    - (iv) GC4 Protective Measures
    - (v) GC5 Terms of Payment
    - (vi) GC6 Delays and Changes in the Work
    - (vii) GC7 Default, Suspension or Termination of Contract
    - (viii) GC8 Dispute Resolution
    - (ix) GC9 Contract Security
    - (x) GC10 Insurance
  - (e) Supplementary Conditions, if any;
  - (f) Insurance Terms form AAFC / AAC5315-E;
  - (g) Any amendment issued or any allowable bid revision received before the date and time set for solicitation closing;
  - (h) Any amendment incorporated by mutual agreement between Canada and the Contractor before acceptance of the bid; and
  - (i) Any amendment or variation of the contract documents that is made in accordance with the General Conditions.
- 2) The language of the contract documents shall be the language of the Bid and Acceptance Form submitted.

### SC02 ACCEPTANCE AND CONTRACT

- 1) Upon acceptance of the Contractor's offer by Canada, a binding Contract shall be formed between Canada and the Contractor. The documents forming the Contract shall be the contract documents referred to in SC01 CONTRACT DOCUMENTS.



Appendix "H"

CONTRACT

## CONTRACT

**PURCHASING OFFICE**

Agriculture and Agri-Food Canada  
 Eastern Service Centre  
 Tender Receiving Unit  
 2001 Robert-Bourassa Boulevard, Suite 671-TEN  
 Montréal, Quebec  
 H3A 3N2

**Your tender is accepted** to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the construction listed herein and on any attached sheets at the price or prices set out therefor.

Comments

Vendor / Firm Name and Address

Title		
Renovation of Building 26 - Accommodation Fit-Up - Central Experimental Farm		
Solicitation / Contract No.	Date	
01B46-21-155		
Client Reference No.		
File No.		
Financial Code(s)		
<input type="radio"/> GST <input type="radio"/> HST <input type="radio"/> QST		
F.O.B		
Destination		
Applicable Taxes		
Included		
Destination		
Central and Experimental Farm (CEF) Agriculture and Agri-Food Canada K.W. Neatby Building 960 Carling Avenue Ottawa, ON K1A 0C6		
Invoices - Original and two copies to be sent to :		
Address Enquiries to:		
Telephone No.	Ext.	Fax No.
Total Estimated Cost	Currency Type	
	CAD	
For the Minister		
Signature _____		Date _____





## FORMS

- Bid Bond
- Certificate of Insurance
- Labour and Material Payment Bond
- Performance Bond
- T4-A Certification

## BID BOND

**BOND NUMBER:** \_\_\_\_\_

**AMOUNT:** \_\_\_\_\_

KNOW ALL PERSONS BY THESE PRESENTS, that \_\_\_\_\_ as Principal,  
hereinafter called the Principal, and \_\_\_\_\_ as Surety,

hereinafter called the Surety, are, subject to the conditions hereinafter contained, held and firmly bound unto Her Majesty the Queen in right of Canada as represented by the Minister of Agriculture and Agri-Food, as Oblige, hereinafter called the Crown, in the amount of

\_\_\_\_\_ dollars (\$ \_\_\_\_\_), lawful money of Canada, for the payment of which sum, well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

SIGNED AND SEALED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

WHEREAS, the Principal has submitted a written tender to the Crown, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_,

for \_\_\_\_\_

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION are such that if:

- (a) the Principal, should his tender be accepted within the period specified by the Crown, or, if no period be specified, within sixty (60) days after closing date of the tender, does execute within a period specified by the Crown, or, if no period be specified therein, within fourteen (14) days after the prescribed forms are presented to him for signature, execute such further contractual documents, if any, as may be required by the terms of the tender as accepted, and does furnish a Performance Bond and a Labour and Material Payment Bond, each in the amount of 50% of the Contract price and satisfactory to the Crown, or other security acceptable to the Crown, or
- (b) the Principal does pay to the Crown the difference between the amount of the Principal's tender and the amount of the Contract entered into by the Crown for the work, supplies and services which were specified in the said tender, if the latter amount be in excess of the former,

then this obligation shall be void; otherwise it shall remain in full force and effect.

PROVIDED, HOWEVER, that the Surety and the Principal shall not be liable to the Crown for an amount greater than the amount specified in this bond.

PROVIDED FURTHER that the Surety shall not be subject to any suit or action unless such suit or action is instituted and process therefore served upon the Surety at its Head Office in Canada, within twelve (12) months from the date of this bond.

IN TESTIMONY WHEREOF, the Principal has hereto set its hand and affixed its seal, and the Surety has caused these presents to be sealed with its corporate seal duly attested by the signature of its authorized signing authority, the day and year first above written.

SIGNED, SEALED AND DELIVERED in the presence of:

\_\_\_\_\_  
Principal

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Surety

Note: Affix Corporate seal if applicable.

## PERFORMANCE BOND

**BOND NUMBER:** \_\_\_\_\_

**AMOUNT:** \_\_\_\_\_

KNOW ALL PERSONS BY THESE PRESENTS, that \_\_\_\_\_ as Principal,  
hereinafter called the Principal, and \_\_\_\_\_ as Surety,

hereinafter called the Surety, are, subject to the conditions hereinafter contained, held and firmly bound unto Her Majesty the Queen in right of Canada as represented by the Minister of Agriculture and Agri-Food, as Obligee, hereinafter called the Crown, in the amount of

\_\_\_\_\_ dollars (\$ \_\_\_\_\_), lawful money of Canada, for the payment of which sum, well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

SIGNED AND SEALED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

WHEREAS, the Principal entered into a Contract with the Crown dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_,  
for \_\_\_\_\_

which Contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION are such that, if the Principal shall well and faithfully observe and perform all the obligations on the part of the Principal to be observed and performed in connection with the Contract, then this obligation shall be void, otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. Whenever the Principal shall be, and declared by the Crown to be, in default under the Contract, the Surety shall:
  - (a) if the work is not taken out of the Principal's hands, remedy the default of the Principal,
  - (b) if the work is taken out of the Principal's hands and the Crown directs the Surety to undertake the completion of the work, complete the work in accordance with the Contract provided that if a contract is entered into for the completion of the work,
    - (i) it shall be between the Surety and the completing contractor, and
    - (ii) the selection of such completing contractor shall be subject to the approval of the Crown,
  - (c) if the work is taken out of the Principal's hands and the Crown, after reasonable notice to the Surety, does not direct the Surety to undertake the completion of the work, assume the financial responsibility for the cost of completion in excess of the moneys available to the Crown under the Contract,
  - (d) be liable for and pay all the excess costs of completion of the Contract, and
  - (e) not be entitled to any Contract moneys earned by the Principal, up to the date of his default on the Contract and any holdbacks relating to such earned Contract moneys held by the Crown, and the liability of the Surety under this Bond shall remain unchanged provided, however, and without restricting the generality of the foregoing, upon the completion of the Contract to the satisfaction of the Crown, any Contract moneys earned by the Principal or holdbacks related thereto held by the Crown may be paid to the Surety by the Crown.
2. The Surety shall not be liable for a greater sum than the amount specified in this Bond.
3. No suit or action shall be instituted by the Crown herein against the Surety pursuant to these presents after the expiration of two (2) years from the date on which final payment under the Contract is payable.

IN TESTIMONY WHEREOF, the Principal has hereto set its hand and affixed its seal, and the Surety has caused these presents to be sealed with its corporate seal duly attested by the signature of its authorized signing authority, the day and year first above written.

SIGNED, SEALED AND DELIVERED in the presence of:

\_\_\_\_\_  
Principal

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Surety

Note: Affix Corporate seal if applicable.



T4-A CERTIFICATION

The Contractor shall complete and submit this T4-A Certification within fourteen (14) calendar days of Notification of Contract award and within fourteen (14) calendar days immediately following any change to the information already provided under the Contract. Failure to provide this information or failure to provide the correct information shall result in a fundamental breach of the Contract.

1. The Contractor shall enter a [ x ] in one of the boxes below opposite the description that best describes its status.

- [ ] A business incorporated either federally or provincially;
[ ] An unincorporated business, either as a sole proprietor or a partnership; or
[ ] An individual.

Note: The information provided in Section 2 must correspond with that provided in Section 1.

Corporate or unincorporated business or individual's name: \_\_\_\_\_

Street Name or Box #: \_\_\_\_\_

City, Town or Village: \_\_\_\_\_

Province: \_\_\_\_\_

Postal Code: \_\_\_\_\_

2. Contractor shall complete Section 2(a) or 2(b) or 2(c), whichever is applicable to its situation.

(a) If incorporated:

Business Number (BN): \_\_\_\_\_, or
GST / HST Number: \_\_\_\_\_, or
T2 Corporation Tax Number (T2N): \_\_\_\_\_, whichever is applicable

(b) If unincorporated:

Social Insurance Number (SIN): \_\_\_\_\_, and
Business Number (BN): \_\_\_\_\_, or
GST / HST Number: \_\_\_\_\_, whichever is applicable

Note: The Unincorporated Business Name must be the same as the name associated with the Revenue Canada Business Number or the GST Number.

(c) If individual:

Social Insurance Number (SIN): \_\_\_\_\_, and
Business Number (BN): \_\_\_\_\_, or
GST / HST Number: \_\_\_\_\_, whichever is applicable

Note: The Individual's Name must be the same as the name associated with the Social Insurance Number.

3. WE HEREBY CERTIFY that I/We have examined the information provided above, including the legal name, address and Revenue Canada identifier (SIN, BN, GST / HST No., T2N), as applicable, and that it is correct and complete, and fully discloses my/our identification.

Contractor's signature Title of Signatory Date



## CERTIFICATE OF INSURANCE

To be completed by the Insurer

CONTRACT						
Description and location of work					Contract No.	
					Project No.	
INSURER			BROKER			
Company name			Company name			
Unit/Suite/Apt.	Street number	Number suffix	Unit/Suite/Apt.	Street number	Number suffix	
Street name			Street name			
Street type	Street direction	PO Box or Route Number	Street type	Street direction	PO Box or Route Number	
Municipality (City, Town, etc.)			Municipality (City, Town, etc.)			
Province/State	Postal/ZIP code		Province/State	Postal/ZIP code		
INSURED			ADDITIONAL INSURED			
Contractor name			Her Majesty the Queen in right of Canada as represented by the Minister of Agriculture and Agri-Food Canada.			
Unit/Suite/Apt.	Street number	Number suffix				
Street name						
Street type	Street direction	PO Box or Route Number				
Municipality (City, Town, etc.)						
Province/State	Postal/ZIP code					
This insurer certifies that the following policies of insurance are at present in force covering all operations of the Insured, in connection with the contract made between the named insured and Her Majesty the Queen in right of Canada, represented by the Minister of Agriculture and Agri-Food Canada.						
POLICY						
Scope of Policy	Number	Inception Date	Expiry Date	Limit of Liability		
				Per Occurrence	General Aggregate Limit	Products / Completed Operations Aggregate Limit
Commercial General Liability						
Builder's Risk "All Risks"/ Installation Floater "All Risks"						
Automobile Insurance				(not less than \$1,000,000.00 inclusive per occurrence)		
Other (list)						
Each of these policies includes the coverages and provisions as specified in Insurance Terms and each policy has been endorsed to cover Her Majesty as an Additional Insured. The Insurer agrees to notify Her Majesty and the Named insured in writing thirty (30) days prior to any material change in, or cancellation of any policy or coverage.						
Name of Insurer's Officer or Authorized Employee			Telephone number		Ext.	
Signature			Date			

## LABOUR AND MATERIAL PAYMENT BOND

BOND NUMBER: \_\_\_\_\_

AMOUNT: \_\_\_\_\_

KNOW ALL PERSONS BY THESE PRESENTS, that \_\_\_\_\_ as Principal,  
hereinafter called the Principal, and \_\_\_\_\_ as Surety,

hereinafter called the Surety, are, subject to the conditions hereinafter contained, held and firmly bound unto Her Majesty the Queen in right of Canada as represented by the Minister of Agriculture and Agri-Food, as Obligee, hereinafter called the Crown, in the amount of

\_\_\_\_\_ dollars (\$ \_\_\_\_\_), lawful money of Canada, for the payment of which sum, well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

SIGNED AND SEALED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_

WHEREAS, the Principal has entered into a Contract with the Crown dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_,  
for \_\_\_\_\_

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION are such that, if payment is promptly made to all Claimants who have performed labour or services or supplied material in connection with the Contract and any and all duly authorized modifications and extensions of the Contract that may hereafter be made, notice of which modifications and extensions to the Surety being hereby waived, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. For the purpose of this bond, a Claimant is defined as one having a direct contract with the Principal or any Sub-Contractor of the Principal for labour, material or both, used or reasonably required for use in the performance of the Contract, labour and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone services or rental of equipment (but excluding rental of equipment where the rent pursuant to an agreement is to be applied towards the purchase price thereof) directly applicable to the Contract.
2. For the purpose of this Bond, no payment is required to be made in respect of a claim for payment for labour or services performed or material supplied in connection with the Contract that represents a capital expenditure, overhead or general administration costs incurred by the Principal during the currency or in respect of the Contract.
3. The Principal and the Surety hereby jointly and severally agree with the Crown that if any Claimant has not been paid as provided for under the terms of his contract with the Principal or a Sub-Contractor of the Principal before the expiration of a period of ninety (90) days after the date on which the last of such Claimant's labour or service was done or performed or materials were supplied by such Claimant, the Crown may sue on this bond, have the right to prosecute the suit to final judgment for such sum or sums as may be due and have execution thereon; and such right of the Crown is assigned by virtue of Part VIII of the *Financial Administration Act* to such Claimant.
4. For the purpose of this bond the liability of the Surety and the Principal to make payment to any claimant not having a contract directly with the Principal shall be limited to that amount which the Principal would have been obliged to pay to such claimant had the provisions of the applicable provincial or territorial legislation on lien or privileges been applicable to the work. A claimant need not comply with provisions of such legislation setting out steps by way of notice, registration or otherwise as might have been necessary to preserve or perfect any claim for lien or privilege which the claimant might have had. Any such claimant shall be entitled to pursue a claim and to recover judgment hereunder subject to the terms and notification provisions of the Bond.
5. Any material change in the Contract between the Principal and the Crown shall not prejudice the rights or interest of any Claimant under this Bond who is not instrumental in bringing about or has not caused such change.

6. No suit or action shall be commenced hereunder by any Claimant:

- (a) Unless such Claimant shall have given written notice within the time limits hereinafter set forth to the Principal and the Surety above named, stating with substantial accuracy the amount claimed. Such notice shall be served by mailing the same by registered mail to the Principal and the Surety at any place where an office is regularly maintained for the transaction of business by such persons or served in any manner in which legal process may be served in the Province or other part of Canada in which the subject matter of the Contract is located. Such notice shall be given
  - (i) in respect of any claim for the amount or any portion thereof required to be held back from the Claimant by the Principal or by the Sub-Contractor of the Principal under either the terms of the Claimant's Contract with the Principal or the Claimant's Contract with the Sub-Contractor of the Principal within one hundred and twenty (120) days after such Claimant should have been paid in full under this Contract;
  - (ii) in respect of any claim other than for the holdback or portion thereof referred to above within one hundred and twenty (120) days after the date upon which such Claimant did or performed the last of the service, work or labour or furnished the last of the materials for which such claim is made under the Claimant's Contract with the Principal or a Sub-Contractor of the Principal;
- (b) After the expiration of one (1) year following the date on which the Principal ceased work on the said Contract, including work performed under the guarantees provided in the Contract;
- (c) Other than in a court of competent jurisdiction in the province or district of Canada in which the subject matter of the Contract or any part thereof is situated and not elsewhere, and the parties hereto hereby agree to submit to the jurisdiction of such court.

7. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder.

8. The Surety shall not be entitled to claim any moneys relating to the Contract and the liability of the Surety under this Bond shall remain unchanged and, without restricting the generality of the foregoing, the Surety shall pay all valid claims of Claimants under this Bond before any moneys relating to the Contract held by the Crown are paid to the Surety by the Crown.

9. The Surety shall not be liable for a greater sum than the amount specified in this bond.

IN TESTIMONY WHEREOF, the Principal has hereto set its hand and affixed its seal, and the Surety has caused these presents to be sealed with its corporate seal duly attested by the signature of its authorized signing authority, the day and year first above written.

SIGNED, SEALED AND DELIVERED in the presence of:

\_\_\_\_\_  
Principal

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Surety

Note: Affix Corporate seal if applicable.