

**2025-T-07**

## **Notre Dame CES Roof Replacement**

### **ADDENDUM #2**

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This addendum shall form an integral part of the bid documents for the above noted bid and shall be read in conjunction therewith. This addendum shall, however, take precedence over all requirements as it pertains to the particular and specific items noted below.

#### **Part 1 – Answers to Questions**

**Question 1:** I have reviewed the drawings and have reached out to our joist supplier to get delivery date from them. Unfortunately, best case scenario if joists were booked today, we wouldn't see them until the end of August at best. I was wondering if there is an option to possibly look at WF beams vs the joist option. It would speed up the delivery and eliminate the bridging. Let me know if this could be an option.

**Answer 1:** See Addendum No. 01, prepared by Art Engineering Inc.

#### **Part 2 – Additional Information**

- Addendum No. 01, prepared by Art Engineering Inc. (190 pages) is attached.

**END OF ADDENDUM #2**



# art engineering inc.

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Project No: 6771

## Addendum No. 01

**DATE:** June 26, 2025  
**CLIENT:** PVNC Catholic District School Board  
**PROJECT:** Notre Dame Elementary School Roof Replacement

The following items are now part of the Contract Documents and are to be included in the Base Bid.

The Bid Documents are revised as follows.

Item No.	Dwg. Ref.	Spec. Ref.	Revisions/Clarifications/Additional Information/Remarks
1	S00	N/A	The specified design load has been updated in attached drawing 'S00' in accordance with the updated inverted roof system
2	S01	N/A	Drawing notes have been updated in attached drawing 'S01' in accordance with the updated inverted roof system
3	S05	07 55 53- Elastometric Prot. Membrane Roofing, Cold Applied  07 62 00- Metal Flashings and Trim	See attached drawing 'S05' for the details of the updated inverted roof system. The new scope will involve replacing the proposed built-up roof system from the base scope with a new inverted roof system
4	S06	07 55 53- Elastometric Prot. Membrane Roofing, Cold Applied  07 62 00- Metal Flashings and Trim	See attached drawing 'S06' for the details of the updated roof parapet and expansion joint framing details to accommodate the inverted roof system in the new scope.
5	S08	N/A	Drawing 'S08' has been added to show the proposed new roof plan of the new scope.
6	N/A	N/A	<p>Question: I was wondering if there is an option to possibly look at WF beams vs the joist option. It would speed up the delivery and eliminate the bridging</p> <p>Response: At this stage, switching from OWSJ to wide flange beams would unfortunately not be feasible. The use of OWSJ was a specific preference of the owner from the outset and it is integrated into the overall design and construction approach. Hence, replacing the joists with WF beams will require significant revisions to the current design, which could likely result in significant delays to an already tight project schedules.</p>

End of Addendum No. 01.

**Notre Dame Elementary School  
Roof Replacement  
Issued for Permit – Addendum 01**

760 Burnham Street, Cobourg, Ontario

June 26, 2025

**Prepared for:**  
Peterborough Victoria Northumberland and Clarington Catholic District School Board

**Prepared by:**  
ART Engineering Inc.

**Owner:**

Peterborough Victoria Northumberland and  
Clarington Catholic District School Board  
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**Consultant**

ART Engineering Inc.  
171 Walgreen Road  
Carp, Ontario  
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K0A 1L0

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Approved by: Bradley Hunt, Ph.D., P.Eng.  
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760 Burnham Street, Cobourg, Ontario  
N.D.E.S. Roof Replacement  
Project No. 7619

Section 00 01 07  
SEALS PAGE  
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**Consultant**

ART Engineering Inc.  
171 Walgreen Road  
Carp, ON, K0A 1L0



**END OF SECTION**

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00 21 13	DIV-00	INSTRUCTIONS TO BIDDERS	00
00 42 13	DIV-00	PROPOSAL FORM – STIPULATED PRICE CONTRACT	00
00 43 25	DIV-00	SUBSTITUTION REQUEST FORM	00
00 43 33	DIV-00	PROPOSED PRODUCTS FORM	00
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01 11 00	DIV-01	SUMMARY OF WORK	01
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02 22 10	DIV-02	EXISTING BUILDING CONDITION ASSESSMENTS	00
02 41 19.13	DIV-02	SELECTIVE BUILDING DEMOLITION	00
04 05 13	DIV-04	MASONRY MORTARING AND GROUTING	00
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04 05 23	DIV-04	MASONRY ACCESSORIES	00
04 21 13	DIV-04	BRICK MASONRY	00
04 22 00	DIV-04	CONCRETE UNIT MASONRY	00
05 12 23	DIV-05	STRUCTURAL STEEL FOR BUILDINGS	00
05 21 00	DIV-05	STEEL JOIST FRAMING	00
05 31 00	DIV-05	STEEL DECKING	00
05 41 00	DIV-05	STRUCTURAL METAL STUD FRAMING	01
07 55 53	DIV-07	ELASTOMERIC PROTECTED MEMBRANE ROOFING, COLD-APPLIED	01
07 62 00	DIV-07	SHEET METAL FLASHING AND TRIM	01
<b>STRUCTURAL DRAWINGS</b>			
7619-250626-760 Burnham St. NDES Roof Replacement [S00-S08] IFP - Addendum No.1, prepared by ART Engineering Inc. dated June 26, 2025.			
<b>TECHNICAL DRAWINGS</b>			
Notre Dame CS – PVNCCSDB-Mater Roof Plan, prepared by TREMCO Inc. dated June 25, 2025			
<b>PRE-CONSTRUCTION CONDITION SURVEY OF MASONRY WALLS</b>			
7619-250514-Notre Dame Pre-Construction Condition Survey of Masonry Walls, prepared by ART Engineering Inc. dated May 06, 2025.			

**END OF SECTION**

**Part 1            General**

**1.1               PROJECT INFORMATION**

- .1            Owner:** Peterborough Victoria Northumberland and Clarington Catholic District School Board
- .2            Project:** Notre Dame Elementary School Roof Replacement
- .3            Consultant:**
- .4            The Owner invites Bids for construction of the work, which in general terms, will consist of:**
  - .1            Phased demolition and removal of existing building roof, including the autoclaved aerated concrete panels, 4" insulation, built-up roofing, and electrical and mechanical items.**
  - .2            Installation of new CMU bond beams, open-web-steel-joist framing, new steel deck, new parapet walls, new inverted roof system, extension of partition walls, new brick veneer, and electrical and mechanical items.**

**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            Initiate and Perform Work within time stated in the provided timetable.

**1.2                CONTRACT DOCUMENTS IDENTIFICATION**

- .1            Contract Documents are identified as Project No. 7619 as prepared by ART Engineering, located at 2-695 Innovation Drive, Kingston, ON, K7K 7E6.

**1.3                CONTRACT/BID DOCUMENTS**

- .1            Agreement Form.
- .2            Product/System Options
  - .1            Where Bid Documents stipulate a particular product, substitutions will be considered by Consultant up to 10 days before receipt of Bids.
  - .2            When request to substitute product is made, Consultant may approve substitution and will issue Addendum to known Bidders.
  - .3            Ensure submission provides sufficient information to enable Consultant to determine acceptability of such products.

**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 WORK COVERED BY CONTRACT DOCUMENTS**

- .1 Work of this Contract comprises the partial replacement of the existing roof at the Notre Dame Elementary School located at 760 Burnham Street in Cobourg, Ontario. The scope of work generally includes the following:
  - .1 Installation of temporary fencing and safety measures by August 01, 2025.
  - .2 Remove existing roof deck overlay.
  - .3 Remove existing aerated autoclaved concrete roof deck.
  - .4 Remove existing roofing assembly including mechanical and electrical components.
  - .5 Extend existing concrete masonry wall.
  - .6 Install new open web steel joists and roof deck by August 31, 2025.
  - .7 Install parapets, insulation, inverted roof system, and extend existing brick veneer.
  - .8 Install new roof finishes.
  - .9 Final cleaning of the area and the disposal of all waste products and debris generated by the construction activities.

### **1.2 CONTRACT METHOD**

- .1 Construct Work under single contract.
- .2 Employ roofing products from Tremco Construction Products Group for:
  - .1 Section 07 62 00: Metal Flashing and Trim work.
  - .2 Section 07 55 53: Elastomeric Protected Membrane Roofing, Cold-Applied.
- .3 Relations and responsibilities between Contractor and subcontractors are as defined in Conditions of Contract. Assigned Subcontractors shall, in addition:
  - .1 Purchase and maintain liability insurance to protect Contractor from claims for not less than limits of liability that Contractor is required to have.

### **1.3 SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures
- .2 Submit site-specific and Work Plan Health and Safety Plan in accordance with Section 01 35 29.06 - Health and Safety Requirements.

### **1.4 WORK BY OTHERS**

- .1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Consultant.
- .2 Verify work of Project which will be executed after completion of Work covered under this Contract, and which is specifically excluded from this Contract:
  - .1 Interior Classroom Renovations.

## **1.5 WORK SEQUENCE**

- .1 Construct Work to accommodate Owner's intermittent use of premises during construction.
- .2 Required stages:
  - .1 Removal of existing roof.
  - .2 Installation of new roof.
- .3 Maintain fire access/control.
- .4 Protect workers and public safety.

## **1.6 CONTRACTOR USE OF PREMISES**

- .1 Coordinate work with the Owner and provide detailed phasing/staging plan for 's approval before the commencement of onsite work.
- .2 Limit use of premises for Work, for storage, and for access.
- .3 Co-ordinate use of premises under direction of the Owner.
- .4 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .5 Refer to Section 01 56 00 - Temporary Barriers and Enclosures for temporary facilities, access roads and parking areas, traffic regulations, and utilities.
- .6 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .7 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Consultant.
- .8 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.

## **1.7 OWNER OCCUPANCY**

- .1 Co-operate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.

## **1.8 PARTIAL OWNER OCCUPANCY**

- .1 Schedule and substantially complete designated portions of Work for Owner's occupancy prior to Substantial Performance of entire Work.
- .2 Designated areas for Owner's occupancy are as follows:
  - .1 Parking Lot.
- .3 Execute Partial Interim Certificate of Completion for each designated portion of Work prior to Owner occupancy. Contractor shall allow:
  - .1 Use of parking facilities.

## **1.9 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING**

- .1 Execute work with least possible interference or disturbance to building operations, occupants, public, and normal use of premises. Arrange with Owner to facilitate execution of work.

#### **1.10 EXISTING SERVICES**

- .1 Notify Owner and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give Owner 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 to the Owner.
- .3 Provide alternative routes for personnel and vehicular traffic.
- .4 Establish location and extent of service lines in area of work before starting Work. Notify Owner of findings.
- .5 Submit schedule for approval by Owner 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.
- .6 Where unknown services are encountered, immediately advise Owner and confirm findings in writing.
- .7 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .8 Record locations of maintained, re-routed and abandoned service lines.
- .9 Construct barriers, as required, in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

#### **1.11 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 ACCESS AND EGRESS**

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

**1.2 USE OF SITE AND FACILITIES**

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Owner to facilitate work as stated.
- .2 Maintain existing services to building and provide for personnel and vehicle access.
- .3 Where security is reduced by work provide temporary means to maintain security.
- .4 Closures: protect work temporarily until permanent enclosures are completed.

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

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

**1.4 EXISTING SERVICES**

- .1 Notify Owner and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give Owner 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.
- .3 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

**1.5 SPECIAL REQUIREMENTS**

- .1 Carry out noise generating Work Monday to Friday in compliance with local by-laws.
- .2 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .3 Keep within limits of work and avenues of ingress and egress.

**1.6 BUILDING SMOKING ENVIRONMENT**

- .1 Comply with smoking restrictions. Smoking is not permitted.

**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 REQUIREMENTS**

- .1 Ensure Master Plan is practical and remain within specified Contract duration.
- .2 Plan to complete Work in accordance with prescribed milestones and time frame.

**1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental Representative within 5 working days of Award of Contract Bar (GANTT) 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.

**1.3 MASTER PLAN**

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

**1.4 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.

**1.5 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.

**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 Consultant 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 Consultant. 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 Consultant, 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 Consultant's review of submittals.
- .9        Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant review.
- .10       Keep one reviewed copy of each submission on site.

**1.2            SHOP DRAWINGS AND PRODUCT DATA**

- .1        Refer to CCDC 2 GC 3.8.
- .2        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.
- .3        Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada.
- .4        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.
- .5        Allow 10 days for Consultant's review of each submission.

- .6 Adjustments made on shop drawings by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.
- .7 Make changes in shop drawings as Consultant may require, consistent with Contract Documents. When resubmitting, notify Consultant in writing of revisions other than those requested.
- .8 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.
- .9 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.
- .10 After Consultant's review, distribute copies.
- .11 Submit copies of shop drawings for each requirement requested in specification Sections and as Consultant may reasonably request.
- .12 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Consultant where shop drawings will not be prepared due to standardized manufacture of product.

- .13 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Consultant.
  - .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.
- .14 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Consultant.
  - .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.
- .15 Submit electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Consultant.
  - .1 Pre-printed material describing installation of product, system or material, including special notices and Safety Data Sheets concerning impedances, hazards and safety precautions.
- .16 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Consultant.
- .17 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .18 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Consultant.
- .19 Delete information not applicable to project.
- .20 Supplement standard information to provide details applicable to project.
- .21 If upon review by Consultant, 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.
- .22 The review of shop drawings by the Consultant is for sole purpose of ascertaining conformance with general concept.
  - .1 This review shall not mean that the Consultant approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
  - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

### 1.3

### SAMPLES



- .1 Submit for review samples as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Consultant's business address.
- .3 Notify Consultant 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 Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.
- .6 Make changes in samples which Consultant 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 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 References**

- .1 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 Consultant and/or authority having jurisdiction as requested and as required by governing authorities.
- .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 Consultant will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 5 days after receipt of plan. Revise plan as appropriate and resubmit plan to Consultant within 10 days after receipt of comments from Consultant.
- .7 Consultant'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 Consultant.
- .9 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

**1.3 FILING OF NOTICE**

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.

**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 Consultant prior to commencement of Work.

## **1.6 REGULATORY REQUIREMENTS**

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

## **1.7 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 Consultant may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

## **1.8 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.

## **1.9 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.

## **1.10 UNFORSEEN HAZARDS**

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Consultant verbally and in writing.
- .2 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, advise Health and Safety co-ordinator/Safety Officer and follow procedures in accordance with Acts and Regulations of Province having jurisdiction and advise Consultant verbally and in writing.

## **1.11 HEALTH AND SAFETY CO-ORDINATOR**

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
  - .1 Have site-related working experience specific to activities expected on site.
  - .2 Have working knowledge of occupational safety and health regulations.
  - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
  - .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.

- .5 Be on site during execution of Work and report directly to and be under direction of site supervisor.

#### **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 Consultant.

#### **1.13 CORRECTION OF NON-COMPLIANCE**

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

#### **1.14 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               INSPECTION**

- .1            Refer to CCDC 2 GC 2.3.
- .2            Allow Consultant 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.
- .3            Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Consultant instructions, or law of Place of Work.
- .4            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.
- .5            Consultant 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. If such Work is found in accordance with Contract Documents, Consultant will pay cost of examination and replacement.

**1.2               INDEPENDENT INSPECTION AGENCIES**

- .1            Independent Inspection/Testing Agencies shall be engaged by the Contractor for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Contractor.
- .2            Provide equipment required for executing inspection and testing by engaged 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 Consultant at no cost to Consultant. 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 Consultant 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 Refer to CCDC 2, GC 2.4.
- .2 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 Consultant as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .3 Make good other Contractor's work damaged by such removals or replacements promptly.
- .4 If in opinion of Consultant 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 Consultant.

## **1.6 REPORTS**

- .1 Submit copies of inspection and test reports to Consultant.
- .2 Provide copies to subcontractor of work being inspected or tested and manufacturer or fabricator of material being inspected or tested.

## **1.7 EQUIPMENT AND SYSTEMS**

- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.
- .2 Refer to specific sections for definitive requirements.

## **Part 2 Products**

### **2.1 NOT USED**

- .1 Not Used.

## **Part 3 Execution**

### **3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

Approved: 2006-06-30

**Part 1            General**

**1.1                INSTALLATION AND REMOVAL**

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

**1.2                TEMPORARY POWER AND LIGHT**

- .1            Owner will provide and pay for temporary power during construction for temporary lighting and operating of power tools, to a maximum supply of 110 volts 15 amps.
- .2            Arrange for connection with appropriate utility company. Pay costs for installation, maintenance and removal.
- .3            Temporary power for electric cranes and other equipment requiring in excess of above is responsibility of Contractor.

**1.3                FIRE PROTECTION**

- .1            Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.
- .2            Burning rubbish and construction waste materials is not permitted on Site.

**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.

**1.2 INSTALLATION AND REMOVAL**

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Prepare phasing and staging plans upon coordination with owner. Install and remove phasing and staging measures accordingly. Indicate use of supplemental or other staging area.
- .3 Prepare signage plans upon coordination with owner. Install and remove signage accordingly.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

**1.3 HOISTING**

- .1 Provide, operate and maintain hoists and cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists and cranes to be operated by qualified operator.

**1.4 SITE STORAGE/LOADING**

- .1 Refer to CCDC 2.
- .2 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .3 Do not load or permit to load any part of Work with weight or force that will endanger Work.

**1.5 CONSTRUCTION PARKING**

- .1 Provide and maintain adequate access to project site.

**1.6 SECURITY**

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

**1.7 EQUIPMENT, TOOL AND MATERIALS STORAGE**

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.



- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

## **1.8 SANITARY FACILITIES**

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

## **1.9 CONSTRUCTION SIGNAGE**

- .1 Provide and erect project sign, within one weeks of signing Contract, in a location designated by Consultant.
- .2 No other signs or advertisements, other than warning signs, are permitted on site.
- .3 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321
- .4 Maintain approved signs and notices in good condition for duration of project, and dispose of off site on completion of project or earlier if directed by Consultant.

## **1.10 PROTECTION AND MAINTENANCE OF TRAFFIC**

- .1 Provide access and temporary relocated roads as necessary to maintain traffic.
- .2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Consultant.
- .3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs
- .4 Protect travelling public from damage to person and property.
- .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .6 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .7 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .8 Dust control: adequate to ensure safe operation at all times.

## **1.11 CLEAN-UP**

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

**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. Provide one lockable truck gate. Maintain fence in good repair.

**1.3                GUARD RAILS AND BARRICADES**

- .1            Provide secure, rigid guard rails and barricades around open edges, roofs and 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            Design enclosures to withstand wind pressure.

**1.5                DUST TIGHT SCREENS**

- .1            Provide dust tight screens 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 Consultant locations and installation schedule 3 days prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.

**1.11 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

**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 QUALITY**

- .1 Refer to CCDC 2.
- .2 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.
- .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 Consultant based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

**1.2 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 Consultant 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 Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Consultant reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

**1.3 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 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.
- .5 Store sheet materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .6 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.
- .7 Remove and replace damaged products at own expense and to satisfaction of Consultant.

- .8 Touch-up damaged factory finished surfaces to Consultant's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

#### **1.4 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 Consultant. Unload, handle and store such products.

#### **1.5 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 Consultant in writing, of conflicts between specifications and manufacturer's instructions, so that Consultant will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Consultant to require removal and re-installation at no increase in Contract Price or Contract Time.

#### **1.6 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 Consultant if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Consultant 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 Consultant, whose decision is final.

#### **1.7 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.

#### **1.8 CONCEALMENT**

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

#### **1.9 REMEDIAL WORK**

- .1 Refer to CCDC 2.
- .2 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.

- .3 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

#### **1.10 LOCATION OF FIXTURES**

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

#### **1.11 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.

#### **1.12 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.

#### **1.13 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 Consultant.

#### **1.14 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, building occupants, 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, 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 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .6 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .7 Restore work with new products in accordance with requirements of Contract Documents.
- .8 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

## **1.5 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

## **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 PROJECT CLEANLINESS**

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Consultant. Do not burn waste materials on site, unless approved by Consultant.
- .3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .4 Provide on-site containers for collection of waste materials and debris.
- .5 Provide and use marked separate bins for recycling. Refer to Section 01 74 19 - Waste Management and Disposal.
- .6 Dispose of waste materials and debris off site.
- .7 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .8 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .9 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .10 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .11 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 Refer to CCDC 2 GC 3.14.
- .2 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .3 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .4 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .5 Remove waste products and debris including that caused by Owner or other Contractors.
- .6 Remove waste materials from site at regularly scheduled times or dispose of as directed by Consultant. Do not burn waste materials on site, unless approved by Consultant.
- .7 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

- .8 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.
- .9 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, and floors.
- .10 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .11 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .12 Broom clean exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .13 Remove dirt and other disfiguration from exterior surfaces.
- .14 Clean and sweep roofs, gutters, areaways, and sunken wells.
- .15 Clean roofs, downspouts, and drainage systems.

**1.3 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

**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 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.

**1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide required information in accordance with Section 01 33 00 - Submittal Procedures.

**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 Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, composting and return methods being used for the project to Subcontractor(s) at appropriate stages of the project.
- .2 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.

**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 Consultant in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
    - .2    Request Consultant's inspection.
  - .2    Consultant's Inspection:
    - .1    Consultant and Contractor to inspect Work and identify defects and deficiencies.
    - .2    Contractor to correct Work as directed.
  - .3    Completion Tasks: submit written certificates in English 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, adjusted and balanced and fully operational.
    - .4    Certificates required by Utility companies: submitted.
    - .5    Operation of systems: demonstrated to Owner's personnel.
    - .6    Work: complete and ready for final inspection.
  - .4    Final Inspection:
    - .1    When completion tasks are done, request final inspection of Work by Consultant, and Contractor.
    - .2    When Work incomplete according to Owner and Consultant, complete outstanding items and request re-inspection.
  - .5    Declaration of Substantial Performance: when Consultant considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.
  - .6    Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
  - .7    Final Payment:
    - .1    When Consultant considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.
    - .2    Refer to CCDC 2: when Work deemed incomplete by Consultant, complete outstanding items and request re-inspection.

- .8 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

**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 Consultant, final four (4) copies of operating and maintenance manuals in English.
- .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 Provide a digital copy of required documents in a organized manner.
- .2 Group similar items in files and subfiles as required. Files to be named in relation to the items contained within.
- .3 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .4 Text: manufacturer's printed data, or typewritten data.

**1.3 CONTENTS - PROJECT RECORD DOCUMENTS**

- .1 For each product or system:
  - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .2 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .3 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .4 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 MATERIALS AND FINISHES**

- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
  - .1 Provide information for re-ordering custom manufactured products.
- .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.

## **1.5 WARRANTIES**

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Consultant approval.
- .3 Warranty management plan to include required actions and documents to assure that Consultant receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to Consultant for approval prior to each monthly pay estimate.
- .6 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.

## **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 SECTION INCLUDES**

- .1 This Section clarifies Contractor's responsibilities and obligations to review the information provided in the Site specific "Pre-Construction Condition Survey of Masonry Walls" (PCCS) report pertaining to existing on Site building located at 760 Burnham Street, Cobourg, Ontario, prepared by ART Engineering Inc (AEI).
- .2 This Section is to be read in conjunction with the Site specific PCCS dated May 14, 2025.
  - .1 A copy of the Site specific PCCS dated May 14, 2025 is attached under a separate cover forming part of tender documents as Appendix D.

**1.2 ADMINISTRATIVE REQUIREMENTS**

- .1 Owner will ensure that Contractor has received a copy of the Site specific PCCS before binding on supplying Work for this Project.

**1.3 RESPONSIBILITY**

- .1 Contractor shall be responsible for reading and evaluating the information provided in the Site specific PCCS dated May 14, 2025 report as they are pertinent to the scope of work of this Project under this Contract.
- .2 Contractor shall review reports, plans, pertinent to on Site building to evaluate building components identified in the Site specific PCCS dated May 14, 2025.
- .3 Contractor shall ask the Owner should they have any questions related to the Site specific PCCS dated May 14, 2025.
- .4 Contractor shall notify Owner and Consultant should they notice any variances between the Site specific PCCS dated May 14, 2025 and the Project's drawings and specifications in accordance with ASTM E2018 requirements.
- .5 Contractor shall incorporate any recommendations in the Site specific PCCS dated May 14, 2025 as they pertain to the health and safety of workers on Site, in accordance with Section 01 35 29.06 - Health and Safety Requirements, and in compliance with NBC 2020 for safety measures at construction and demolition sites. Contractor shall exercise every reasonable precaution for the protection of each worker on Site.
- .6 Contractor shall furnish the Site specific PCCS dated May 14, 2025 to all subcontractors who will be performing work on Site.

**1.4 REGULATORY REQUIREMENTS**

- .1 Refer to laws, by laws, ordinances, rules, regulations, and orders of authority having jurisdictions, and other legally enforceable requirements applicable to Work at that area; or become in force during performance or work.

**1.5 SITE INFORMATION**

- .1 Site located at 760 Burnham Street, Cobourg, Ontario, features two existing building(s), built in 1962, currently vacant.

- .2 The Site covers a total surface area of 588 m<sup>2</sup>.

## **1.6 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 before mobilization to Site. List any relevant hazards present on Site and need to be included in the Contractor's Site specific Health and Safety plan as required by authority having jurisdiction.
  - .1 Prepare Site specific Health and Safety Plan in accordance with Section 01 35 29.06 - Health and Safety Requirements.

## **Part 2 Products**

### **2.1 Not Used**

- .1 Not Used.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Before Work starts verify existing Site and building(s) conditions. Notify Owner and Consultant should any variations from the Site specific PCCS dated May 14, 2025 report be noticed.

### **3.2 VERIFICATION OF CONDITIONS**

- .1 Identify and confirm any discrepancies or missing information in the Site specific PCCS dated May 14, 2025 with Owner and Consultant.
- .2 Assess any on-Site unknown conditions observed through Site walk-through and discuss with Owner and Consultant should any extra work be required beyond the Contract scope of work.
- .3 Notify Owner and Consultant should any extra work beyond the scope of work under this Contract be required, due to hidden and unknown conditions observed upon Contractor Site observation.
  - .1 Do not proceed with any extra work without obtaining Owner written approval.
- .4 Contractor to verify and compare the current conditions of each of the following Site components:
  - .1 Current Site conditions, including: parking lots (including: curbs and gutters), sidewalks, fencing, planting and landscaping.
  - .2 Building Structure: CMU Walls.
  - .3 Building Exteriors: exterior walls, doors, windows, roofing systems.
  - .4 Building Interior: walls, floors, ceilings, equipment, painting, shoring posts.

### **3.3 PROTECTION OF IN-PLACE CONDITIONS**

- .1 Provide in-place protection should the current verified Site conditions be considered unsafe in accordance with the requirements of the Site specific Health and Safety Plan, and to protect on-Site personnel and ensure Site safety during all times of work execution.
- .2 Handle, store and dispose flammable materials on site in a safe manner in accordance with NFC (2020) requirements
- .3 Notify Owner and Consultant of any identified potential risks due to onsite obstacles.
  - .1 Do not remove any obstacles before obtaining Owner and Consultant written approval.

**END OF SECTION**

**Part 1 General**

**1.1 ADMINISTRATIVE REQUIREMENTS**

- .1 Coordination: 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.
- .2 Pre Demolition Meeting: Conduct a pre demolition meeting at Project site to confirm extent of salvaged and demolished materials; and to review Contractor's demolition plan prepared by a professional engineer.

**1.2 ACTION AND INFORMATION SUBMITTALS**

- .1 Action Submittals: Provide the following submittals before starting any work of this Section:
  - .1 Schedule of Selective Demolition Activities: Indicate the following:
    - .1 Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
    - .2 Coordinate with Owner's ongoing site operations and limit the number of interruptions during regular business hours.
    - .3 Interruption of utility services.
    - .4 Coordination for shutoff, capping, and continuation of utility services.
    - .5 Locations of temporary partitions and means of egress.
    - .6 Coordination with Owner's continuing occupancy of portions of existing building.
  - .2 Demolition Plan: Review plan of demolition area indicating extent of temporary facilities and supports, methods of removal and demolition prepared by a professional engineer in accordance with requirements of Authority Having Jurisdiction, and as follows:
    - .1 Inventory: Submit a list of items that have been removed and salvaged after selective demolition is complete.
    - .2 Pre demolition Photographs or Videotape: Submit photographs or videotape indicating existing conditions of adjoining construction and site improvements prior to starting Work. Include finish surfaces that may be misconstrued as damage caused by selective demolition operations.
- .2 Informational Submittals: Provide the following submittals when requested by the Owner:
  - .1 Qualification Data: Submit information for companies and personnel indicating their capabilities and experience to perform work of this Section including; but not limited to, lists of completed projects with project names and addresses, names and addresses of architects and owners, for work of similar complexity and extent.

### **1.3 QUALITY ASSURANCE**

- .1 Regulatory Requirements: Comply with governing environmental notification requirements and regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction and in accordance with the following:
  - .1 Ontario Workers' Compensation Boards/Commissions.
  - .2 Ontario Occupational Health and Safety Standards and Programs.
- .2 Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project:
  - .1 Conform to the Ontario Occupational Health and Safety Act and Regulations.
  - .2 Conform to Ontario Workers' Compensation Board Regulations.
  - .3 Conform to the local municipal bylaws and regulations governing this type of work.

### **1.4 SITE CONDITIONS**

- .1 Owner will occupy portions of building immediately adjacent to selective demolition area:
  - .1 Conduct selective demolition so that Owner's operations will not be disrupted.
  - .2 Provide not less than 72 hours notice to Owner of activities that will affect Owner's operations.
- .2 Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities and as follows:
  - .1 Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.
- .3 Consultant 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 Owner as far as practical.
  - .2 Owner will remove the following items prior to selective demolition:
    - .1 Interior furnishings.
- .4 Discovery of Hazardous Substances: It is not expected that Hazardous Substances will be encountered in the Work; immediately notify Consultant 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.
- .5 Storage or sale of removed items or materials on site will not be permitted.
- .6 Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
- .7 Maintain fire protection facilities in service during selective demolition operations.

## **Part 2            Products**

### **2.1                MATERIALS**

- .1        Temporary Support Structures: 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        Repair Materials: 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 materials whose installed performance equal or surpasses that of existing materials.
  - .3        Comply with material and installation requirements specified in individual technical specification Sections.

## **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 Consultant 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 Consultant.
  - .2        Consultant will issue additional instructions or revise drawings as required to correct conflict.
- .5        Engage a professional engineer to survey condition of building when removing elements that may result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
- .6        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.
- .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 Conduct selective demolition and debris removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities:
  - .1 Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
  - .2 Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
  - .3 Protect existing site improvements, appurtenances, and landscaping to remain.
- .2 Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain in accordance with Section 01 51 00 - Temporary Utilities, and as follows:
  - .1 Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  - .2 Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  - .3 Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  - .4 Cover and protect furniture, furnishings, and equipment that have not been removed.
- .3 Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities in accordance with Section 01 52 00 - Construction Facilities
  - .1 Provide temporary weather tight enclosure for building exterior.
  - .2 Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.

- .4 Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise in accordance with Section 01 51 00 - Temporary Utilities.
- .5 Provide and maintain shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished:

### **3.4 POLLUTION CONTROLS**

- .1 Remove and transport debris to prevent spillage on adjacent surfaces and areas.
- .2 Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- .3 Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

### **3.5 SELECTIVE DEMOLITION**

- .1 Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - .1 Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  - .2 Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  - .3 Remove decayed, vermin infested, or otherwise dangerous or unsuitable materials and promptly dispose of off site.
  - .4 Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  - .5 Dispose of demolished items and materials promptly.
  - .6 Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- .2 Comply with Owner's requirements for using and protecting walkways, building entries, and other building facilities during selective demolition operations.
- .3 Removed and Reinstalled Items:
  - .1 Clean and repair items to functional condition adequate for intended re use. Paint equipment to match new equipment
  - .2 Pack or crate items after cleaning and repairing
  - .3 Identify contents of containers
  - .4 Protect items from damage during transport and storage
  - .5 Reinstall items in locations indicated
  - .6 Comply with installation requirements for new materials and equipment

- .7 Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated
- .4 Existing Items to Remain:
  - .1 Protect construction indicated to remain against damage and soiling during selective demolition
  - .2 Items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete
- .5 Concrete:
  - .1 Demolish in small sections
  - .2 Cut concrete full depth at junctures with construction to remain and at regular intervals, using power driven saw, then remove concrete between saw cuts.
  - .3 Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete indicated for selective demolition
  - .4 Neatly trim openings to dimensions indicated
- .6 Masonry:
  - .1 Demolish in small sections
  - .2 Cut masonry at junctures with construction to remain, using power driven saw, then remove masonry between saw cuts
- .7 Roofing: Remove no more existing roofing than can be covered in one day by new roofing. Refer to Section 07 62 00 and Section 07 51 13.15 for new roofing requirements.
- .8 Air Conditioning Equipment: Remove equipment without releasing refrigerants.

### **3.6 CLOSEOUT ACTIVITIES**

- .1 Patching and Repairs: Promptly repair damage to adjacent construction caused by selective demolition operations and as follows:
  - .1 Patch to produce surfaces suitable for new materials where repairs to existing surfaces are required,
  - .2 Completely fill holes and depressions in remaining existing masonry walls remain with an approved masonry patching material applied according to manufacturer's written recommendations.
  - .3 Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.
- .2 Demolition Waste Disposal: Arrange for legal disposal and remove demolished materials to accredited provincial landfill site or alternative disposal site (recycle centre) and as follows:
  - .1 Promptly dispose of demolished materials.
  - .2 Do not allow demolished materials to accumulate onsite.
  - .3 Do not burn demolished materials.

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**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .1 Canadian Standards Association (CSA).
  - .1 CSA A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
  - .2 CSA A179, Mortar and Grout for Unit Masonry.
  - .3 CSA A371, Masonry Construction for Buildings.
  - .4 CSA A3000, Cementitious Materials Compendium; CSA A3002, Masonry and Mortar Cement

**1.2 SUBMITTALS**

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and data sheet including product characteristics, performance criteria, and limitations.
  - .2 Submit copy of WHMIS MSDS Material Safety Data Sheets.
- .2 Samples:
  - .1 Submit two samples of mortar showing actual product colour when set.
- .3 Manufacturer's Instructions:
  - .1 Submit manufacturer's installation instructions

**1.3 QUALITY ASSURANCE**

- .1 Submit test reports showing compliance with specified performance characteristics and physical properties.

**1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver prepackaged, dry-blended mortar mix to project site in labelled plastic-lined bags each bearing name and address of manufacturer, production codes or batch numbers, and color or formula numbers.
- .2 Maintain mortar, grout, and packaged materials clean, dry, and protected against dampness, freezing, traffic and contamination by foreign materials.

**1.5 SITE CONDITIONS**

- .1 Ambient Conditions: maintain materials and surrounding air temperature to:
  - .1 Minimum 5 degrees C prior to, during, and 48 hours after completion of masonry work.
  - .2 Maximum 32 degrees C prior to, during, and 48 hours after completion of masonry work.

## **Part 2            Products**

### **2.1                MATERIALS**

- .1        Use same brands of materials and source of aggregate for entire project.
- .2        Cement:
  - .1        Portland Cement: to CSA A3000.
  - .2        Masonry Cement: to CSA A3002 and CSA A179.
  - .3        Mortar Cement: to CSA A3002 and CSA A179.
  - .4        Packaged Dry Combined Materials for mortar: to CSA A179, using gray color cement.
- .3        Aggregate: supplied by one supplier.
  - .1        Fine Aggregate: to CSA-A179, natural sand.
  - .2        Course Aggregate: to CSA-A179
- .4        Grout:
  - .1        Fine Grout: to CSA A179.
- .5        Water: clean and potable.

### **2.2                COLOUR ADDITIVES**

- .1        Use colouring admixture not exceeding 10% of cement content by mass, or integrally coloured masonry cement, to produce coloured mortar to match approved sample. Admixtures approved prior to use. Use in accordance with specific manufacturer's recommendations.
- .2        White mortar: use white masonry cement to produce mortar type specified.

### **2.3                MORTAR MIXES**

- .1        Mortar: Type N based on proportion specifications.
- .2        Pointing Mortar: CSA A179, Type N using property specification.

### **2.4                MORTAR MIXING**

- .1        Add mortar color in accordance with manufacturer's instructions. Provide uniformity of mix and coloration.
- .2        Use a batch type mixer in accordance with CSA A179.
- .3        Pointing mortar: prehydrate pointing mortar by mixing ingredients dry, then mix again adding just enough water to produce damp unworkable mix that will retain its form when pressed into ball. Allow to stand for not less than 1 hour no more than 2 hours then remix with sufficient water to produce mortar of proper consistency for pointing.
- .4        Re-temper mortar only within two hours of mixing, when water is lost by evaporation.
- .5        Use mortar within 2 hours after mixing at temperatures of 32 degrees C, or 2-1/2 hours at temperatures under 5 degrees C.

### **2.5                GROUTING**

- .1 Dry pack grout to consist of 1 part Portland Cement, 1-1/2 parts sand, 2 parts 9 mm (3/8") pea gravel with only sufficient water to dampen mixture.
- .2 Measure and mix block filler in accordance with CSA A179; mix filler to consistency in accordance with manufacturer's recommendations; do not mix different types of grout in same mixer used for mixing of mortar unless mixer is thoroughly cleaned. Use and place grout in its final position within 2-1/2 hours of mixing it. Discard grout not used within 2-1/2 hours. Use coarse grout where required, in spaces 50 mm (2") or more in least horizontal dimension. Use fine grout in spaces less than 50 mm (2") in horizontal dimension.

### **Part 3 Execution**

#### **3.1 EXAMINATION**

- .1 Add mortar color in accordance with manufacturer's instructions. Provide uniformity of mix and coloration.
- .2 Use a batch type mixer in accordance with CSA A179.
- .3 Pointing mortar: prehydrate pointing mortar by mixing ingredients dry, then mix again adding just enough water to produce damp unworkable mix that will retain its form when pressed into ball. Allow to stand for not less than 1 hour no more than 2 hours then remix with sufficient water to produce mortar of proper consistency for pointing.
- .4 Re-temper mortar only within two hours of mixing, when water is lost by evaporation.
- .5 Use mortar within 2 hours after mixing at temperatures of 32 degrees C, or 2-1/2 hours at temperatures under 5 degrees C.

#### **3.2 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.

#### **3.3 CONSTRUCTION**

- .1 Do masonry mortar and grout work in accordance with CSA-A179 except where specified otherwise
- .2 Apply parging in uniform coating of thickness indicated.

#### **3.4 MIXING**

- .1 Pointing mortar can be mixed using a regular paddle mixer. Only electric motor mixers are permissible. Mixers run on hydrocarbons are not permitted, due to fumes..
- .2 Clean mixing boards and mechanical mixing machine between batches.
- .3 Mortar: weaker than units it is binding.

- .4 Contractor to appoint one individual to mix mortar, for duration of project. In event that this individual is changed, mortar mixing must cease until new individual is trained, and mortar mix is tested.

### **3.5 INSTALLATION**

- .1 Install mortar and grout to manufacturer's instructions.
- .2 Do masonry mortar and grout work in accordance with CSA A179 and CSA A371.
- .3 Remove excess mortar from grout spaces.

### **3.6 CLEANING**

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.
- .2 Remove droppings and splashings using clean sponge and water.
- .3 Clean masonry with low pressure clean water and soft natural bristle brush.

**END OF SECTION**



**Part 1 General**

**1.1 REFERENCES**

- .1 Canadian Standards Association (CSA International).
  - .1 CSA A370, Connectors for Masonry.
  - .2 CSA A371, Masonry Construction for Buildings.
  - .3 CSA S304, Design of Masonry Structures.
  - .4 CSA A179, Mortar and Grout for Unit Masonry.
  - .5 Reinforcing Steel Institute of Canada (RSIC).
  - .6 Reinforcing Steel Manual of Standard Practice.

**1.2 Submittals**

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications, and data sheet.
  - .2 Submit two copies of Material Safety Data Sheets. Indicate galvanized protective coatings and touch-up products illustrating products to be incorporated into project for specified products.
- .2 Manufacturer's Instructions:
  - .1 Submit manufacturer's installation instructions.

**1.3 SITE MEASUREMENTS**

- .1 Make site measurements necessary for proper fit of members.

**Part 2 Products**

**2.1 MATERIALS**

- .1 Ties:
  - .1 Stainless Steel SS304 or SS316.
- .2 Anchorage:
  - .1 ¼" Φ, 4" long, tapcon screw anchor.
  - .2 #10 sheet metal screws (SMS), ASTM C1513 zinc plated.

**2.2 FABRICATION**

- .1 Fabricate connectors in accordance with CSA A370.
- .2 Ship connectors clearly identified in accordance with drawings.

**2.3 SOURCE QUALITY CONTROL**

- .1 Upon request inform Owner's Representative of proposed source of material to be supplied.

**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                GENERAL**

- .1            Supply and install masonry connectors in accordance with CSA A370, CSA A371, and CSA S304, unless indicated otherwise.

**3.3                MASONRY REINFORCEMENT**

- .1            Install masonry connectors and masonry reinforcement in accordance with CSA A370 and CSA A371.
- .2            Provide block reinforcement, adjustable veneer ties and veneer anchors in accordance with manufacturer's instructions. Reinforce all blockwork.
- .3            Supervise and coordinate installation of veneer anchors.
- .4            Reinforce load bearing interior masonry partitions every alternate horizontal joint with continuous block reinforcing.

**3.4                BONDING AND TYING**

- .1            Tie masonry veneer to backing in accordance with CSA S304, CSA A371, and as indicated.

**3.5                LATERAL SUPPORT AND ANCHORAGE**

- .1            Supply and install lateral support and anchorage in accordance with CSA S304 and as indicated.

**3.6                CLEANING**

- .1            Upon completion of installation, remove surplus materials, rubbish, tools, and equipment barriers.

**END OF SECTION**

**Part 1 General**

**1.1 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 masonry accessories and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Manufacturer's instructions:
  - .1 Submit the manufacturer's installation instructions.

**1.2 DELIVERY, STORAGE AND HANDLING**

- .1 Keep fillers and adhesives dry, protected against dampness, and freezing.
- .2 Store packaged materials off ground and in accordance with manufacturer's written instructions

**Part 2 Products**

**2.1 MATERIALS**

- .1 Movement joint filler: purpose-made elastomer durometer hardness to ASTM D2240 of size and shape indicated
- .2 Weep hole vents: purpose-made PVC.
- .3 Mechanical fasteners: recommended by flashing manufacturer to suit project requirements.

**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: MATERIALS**

- .1 Install continuous movement joint fillers in movement joints at locations indicated on drawings.
- .2 Install weep hole vents in vertical joints immediately over flashings, in exterior wythes of cavity wall and masonry veneer wall construction, at maximum horizontal spacing of 600 mm on centre.

- .3 Mechanical fasteners: install fasteners to suit application and in accordance with manufacturer's written installation instructions.

### **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.
- .3 Waste Management: separate waste materials for reuse and 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.

**END OF SECTION**

**Part 1            General**

**1.1                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 brick masonry and include product characteristics, performance criteria, physical size, finish and limitations.

**1.2                QUALITY ASSURANCE**

- .1            Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

**1.3                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.

**1.4                SITE CONDITIONS**

- .1            Ambient Conditions: assemble and erect components only when temperature is above 4 degrees C.

**Part 2            Products**

**2.1                MANUFACTURED UNITS**

- .1            Face brick:
  - .1            Fired clay brick: to CAN/CSA-A82.
    - .1            Type: X.
    - .2            Grade: EG.
    - .3            Size: 4".
    - .4            Colour and texture: to match the existing brick veneer of the building.
    - .5            Solid.
    - .6            Colour and texture: to match approved sample.
- .2            Accessories:
  - .1            Brick Ties: to Section 04 05 19 – Masonry Anchorage and Reinforcing.
  - .2            Mortar and Mortar Mixes: to Section 04 05 13 - Masonry Mortar and Grout.
  - .3            Grout and Grout Mixes: to Section 04 05 13 - Masonry Mortar and Grout.

**2.2 Cleaning Compounds:**

- .1 Compatible with substrate and acceptable to masonry manufacturer for use on products.
- .2 Cleaning compounds compatible with brick masonry units and in accordance with manufacturer's written recommendations and instructions.

**Part 3 Execution**

**3.1 MANUFACTURE'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 EXAMINATION**

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

**3.3 PREPARATION**

- .1 Protect adjacent finished materials from damage due to masonry work.

**3.4 INSTALLATION**

- .1 Construction to conform to CSA-A371.
- .2 Build masonry plumb, level, and true to line, with vertical joints in alignment.
- .3 Layout coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings, with minimum of cutting.

**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 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.
- .3 Clean unglazed clay masonry: [10 m<sup>2</sup> area of wall designated by [Departmental Representative] [DCC Representative] [Consultant]] [mock up panel specified in Section [04 05 00 - Common Work Results for Masonry]] as directed below and leave for one week. If no harmful effects appear and after mortar has set and cured, protect windows, sills, doors, trim and other work, and clean brick masonry as follows.
  - .1 Remove large particles with wood paddles without damaging surface. Saturate masonry with clean water and flush off loose mortar and dirt.

- .2 Scrub with solution of 25 ml trisodium phosphate and 25 ml household detergent dissolved in 1 L of clean water using stiff fibre brushes, then clean off immediately with clean water using hose. Alternatively, use proprietary compound recommended by brick masonry manufacturer in accordance with manufacturer's directions.
- .3 Repeat cleaning process as often as necessary to remove mortar and other stains.
- .4 Use acid solution treatment for difficult to clean masonry as described in Technical Note No.20 by the Brick Industry Association.
- .4 Clean concrete brick masonry as work progresses.
  - .1 Allow mortar droppings on masonry to partially dry then remove by means of trowel, followed by rubbing lightly with small piece of brick and finally by brushing.
- .5 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment barriers.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .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 [concrete masonry units] and include product characteristics, performance criteria, physical size, finish and limitations.

**1.2 SUBMITTALS**

- .1 Product Data
  - .1 Submit manufacturer's printed product literature, specifications, and data sheet.

**1.3 QUALITY ASSURANCE**

- .1 Test reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

**1.4 QUALIFICATIONS**

- .1 Manufacturer: company specializing in manufacturing products of this section with minimum 10 years experience.
- .2 Installer: company specializing in performing work of this section approved by manufacturer. Minimum 5 years experience.
- .3 Design structural installations under direct supervision of Professional Engineer experienced in structural design of brick masonry installation and registered in the Province of Ontario.

**Part 2 Products**

**2.1 MATERIALS**

- .1 Standard concrete block units: to CSA-A165 Series
  - .1 Classification: H/20/A/M
  - .2 Dimensions Nominal:
    - .1 Interior concrete block units: 254 mm wide x 204 mm high x 508 mm long.
    - .2 Exterior concrete block units: 204 mm wide x 204 mm high x 508 mm long.
    - .3 Partition wall concrete block units: 102 mm wide x 204 mm high x 508 mm long.



- .4 Partition wall concrete block units: 152 mm wide x 204 mm high x 508 mm long

- .3 Special shapes: provide additional special shapes as indicated.

## **2.2 REINFORCEMENT**

- .1 Reinforcement in accordance with Section 04 05 19 - Masonry Anchorage and Reinforcing.

## **2.3 CLEANING COMPOUNDS**

- .1 Compatible with substrate and acceptable to masonry manufacturer for use on products.
- .2 Cleaning compounds compatible with brick masonry units and in accordance with manufacturer's written recommendations and instructions.

## **2.4 TOLERANCES**

- .1 Tolerances for standard concrete unit masonry tolerances in accordance with CSA-A165.1 supplemented as follows:
  - .1 Maximum variation between units within specific job lot not to exceed 2 mm.
  - .2 No parallel edge length, width or height dimension for individual unit to differ by more than 2 mm.
  - .3 Out of square tolerance not to exceed 2 mm.

## **Part 3 Execution**

### **3.1 MANUFACTURER'S INSTRUCTION**

- .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 PREPARATION**

- .1 Protect adjacent finished materials from damage due to masonry work.

### **3.3 INSTALLATION**

- .1 Concrete block units:
  - .1 Bond: running.
  - .2 Coursing height: 200 mm for one block and one joint.
  - .3 Jointing: flush where exposed or where paint or other finish coating is specified.

### **3.4 REINFORCEMENT**

- .1 Install reinforcing in accordance with Section 04 05 19 - Masonry Anchorage and Reinforcing.

### **3.5 MORTAR PLACEMENT**

- .1 Place mortar in accordance with Section 04 05 13 - Masonry Mortar and Grouting.

**3.6 GROUT PLACEMENT**

- .1 Place grout in accordance with Section 04 05 13 - Masonry Mortar and Grouting.

**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 Standard Concrete Unit Masonry:
    - .1 Allow mortar droppings on masonry to partially dry then remove by means of trowel, followed by rubbing lightly with small piece of block. Clean wall surface with suitable brush or burlap.
- .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 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.

**3.8 PROTECTION**

- .1 Brace and protect concrete unit masonry.

**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 Shop Drawings:
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada.
- .3 Erection drawings:
  - .1 Submit erection drawings indicating details and information necessary for assembly and erection purposes including:
    - .1 Description of methods.
    - .2 Sequence of erection.
    - .3 Type of equipment used in erection.
    - .4 Temporary bracings.
- .4 Fabrication drawings:
  - .1 Submit fabrication drawings showing designed assemblies, components and connections are stamped and signed by qualified professional engineer licensed in the Ontario, Canada.
- .5 Samples:
  - .1 Prepare sample of typical exposed structural connections in accordance with AISC Specifications of Architecturally exposed structural steel for approval of Owner or Owner's Representative. Samples to be judged upon alignment of surfaces, uniform contact between surfaces, smoothness and uniformity of finished welds. When approved, sample units will serve as a standard for workmanship, appearance and material acceptable for entire project.
- .6 Source Quality Control Submittals:
  - .1 Submit one copy of mill test reports 4 weeks prior to fabrication of structural steel.
    - .1 Mill test reports to show chemical and physical properties and other details of steel to be incorporated in project.
    - .2 Provide mill test reports certified by metallurgists qualified to practise in Province of Ontario, Canada.
- .7 Fabricator Reports:
  - .1 Provide structural steel fabricator's affidavit stating that materials and products used in fabrication conform to applicable material and products standards specified and indicated.
- .8 Certificates:
  - .1 Submit certifications for Application Specialists to demonstrate compliance to the requirements of ANSI/NACE No.13.

## **1.2 QUALIFICATIONS**

- .1 Ensure that 50% of industrial coating, lining applications, specialists persons, 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 Owner or Owner's 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.

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

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver materials in manufacturer's original, undamaged containers with identification labels intact.

## **Part 2 Products**

### **2.1 DESIGN REQUIREMENTS**

- .1 Design details and connections in accordance with requirements of CAN/CSA-S16 and CAN/CSA-S136 with CSA-S136.1 to resist forces, moments, shears and allow for movements indicated.
- .2 Shear connections:
  - .1 Select framed beam shear connections from an industry accepted publication such as "Handbook of the Canadian Institute of Steel Construction" when connection for shear only (standard connection) is required.
  - .2 Select or design connections to support reaction from maximum uniformly distributed load that can be safely supported by beam in bending, provided no point loads act on beam, when shears are not indicated.
- .3 For composite construction select or design minimum end connection to resist reaction resulting from factored movement resistance as tabulated in the "Handbook of the Canadian Institute of Steel Construction" assuming 100% shear connection with depth of steel deck and/or slab shown on drawings.
- .4 Submit sketches and design calculations stamped and signed by qualified professional engineer licensed in Ontario, Canada for nonstandard connections.

### **2.2 MATERIALS**

- .1 Structural steel: to CSA-G40.20/G40.2, Grade as indicated.

- .2 Anchor bolts: to CSA-G40.20/G40.21, Grade 300W, ASTM A36M.
- .3 Bolts, nuts and washers: to ASTM A307, ASTM A325, ASTM A325M, ASTM A490/A490M.
- .4 Welding materials: to CSA W48, CSA W59 and certified by Canadian Welding Bureau.
- .5 Hot dip galvanizing: galvanize steel, where indicated, to CAN/CSA-G164, minimum zinc coating of 600 g/m<sup>2</sup>.

## **2.3 FABRICATION**

- .1 Fabricate structural steel in accordance with CAN/CSA-S16, CAN/CSA-S136, and in accordance with approved shop drawings.
- .2 Continuously seal members by continuous welds, intermittent welds and plastic filler, where indicated.

## **2.4 SHOP PAINTING**

- .1 Clean, prepare surfaces and shop prime structural steel in accordance with CAN/CSA-S16, CAN/CSA-S136.
- .2 Clean members, remove loose mill scale, rust, oil, dirt and foreign matter. Prepare surface according to NACE No.3/SSPC-SP-6.
- .3 Apply paint under cover, on dry surfaces when surface and air temperatures are above 5 degrees C.
- .4 Maintain dry condition and 5 degrees C minimum temperature until paint is thoroughly dry.
- .5 Strip paint from bolts, nuts, sharp edges and corners before prime coat is dry.

## **Part 3 Execution**

### **3.1 APPLICATION**

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

### **3.2 GENERAL**

- .1 Structural steel work: in accordance with CSA-S16, CSA-S136.
- .2 Welding: in accordance with CSA W59.
- .3 Companies to be certified under Division 1 or 2.1 of CSA W47.1 for fusion welding of steel structures and CSA W55.3 for resistance welding of structural components

### **3.3 CONNECTION TO EXISTING WORK**

- .1 Verify dimensions and condition of existing work, report discrepancies and potential problem areas to Owner or Owner's Representative for direction before commencing fabrication.

**3.4 MARKING**

- .1 Mark materials in accordance with CSA G40.20/G40.21. Do not use die stamping. When steel is to be left in unpainted condition, place marking at locations not visible from exterior after erection
- .2 Match marking: shop mark bearing assemblies and splices for fit and match.

**3.5 ERECTION**

- .1 Erect structural steel, as indicated and in accordance with CAN/CSA-S16, CAN/CSA-S136, and in accordance with reviewed erection drawings.
- .2 Field cutting or altering structural members: to approval of Owner or Owner's Representative.
- .3 Clean with mechanical brush and touch up shop primer to bolts, rivets, welds and burned or scratched surfaces at completion of erection.
- .4 Continuously seal members by continuous welds where indicated. Grind smooth.

**3.6 FIELD QUALITY CONTROL**

- .1 Inspection and testing of materials and workmanship will be carried out by testing laboratory designated by Owner or Owner's Representative.
- .2 Provide safe access and working areas for testing on site, as required by testing agency and as authorized by Owner or Owner's Representative.
- .3 Submit test reports to Owner or Owner's Representative within 2 weeks of completion of inspection.
- .4 Owner or Owner's Representative will pay costs of tests.

**END OF SECTION**

**Part 1 General**

**1.1 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 steel joist framing 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 Ontario, Canada.
  - .2 Indicate on erection drawings, relevant details such as joist mark, depth, spacing, bridging lines, bearing, anchorage and details.
  - .3 Indicate particulars, on shop drawings, relative to joist geometry, framed openings, splicing details, bearing and anchorage. Include member size, properties, specified and factored member loads, and stresses under various loadings, deflection and camber.
- .4 Delegated Design Submittals:
  - .1 Submit one copy of calculations and joist design drawings for typical joists to Consultant for review minimum 2 weeks prior to fabrication and delivery.

**1.2 QUALITY ASSURANCE**

- .1 Submit one copy of mill test reports minimum 4 weeks prior to fabrication of steel joists and accessories. Reports to show:
  - .1 Chemical and physical properties.
  - .2 Other details of steel incorporated into work.
  - .3 Certification by qualified metallurgists confirming that tests conform to requirements of CSA G40.20/G40.21.
- .2 Submit affidavit prepared by fabricator of structural steel joists stating materials and products used in fabrication conform to this specification.

**1.3 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 Replace defective or damaged materials with new.

## **1.4 SITE CONDITIONS**

- .1 Verify dimensions and condition of existing work; report discrepancies and potential problem areas to Consultant for direction before commencing fabrication.

## **Part 2 Products**

### **2.1 DESIGN CRITERIA**

- .1 Design steel joists to carry loads indicated in joist schedule shown on drawings to CSA S16.
- .2 Design joists and anchorages for uplift forces as indicated.
- .3 Manufacture joists to consider load effects due to fabrication, erection and handling.
- .4 Limit roof joist deflection due to specified live load to 27.9 mm (L/360) maximum of span and deflection due to specified total load to 41.9 mm (L/240) maximum of span.

### **2.2 MATERIALS**

- .1 Open web steel joists: to CSA S16.
- .2 Structural steel: to CSA G40.20/G40.21.
- .3 Welding materials: to CSA W59.
- .4 Shop paint primer: to CISC/CPMA-2.

### **2.3 FABRICATION**

- .1 Fabricate steel joists and accessories as indicated in accordance with CSA S16 and in accordance with approved shop drawings.
- .2 Weld in accordance with CSA W59.
- .3 Provide diagonal and horizontal bridgings and anchorages as indicated.
- .4 Weld studs to top chords for attachment purposes.
- .5 Install shear studs in accordance with CSA W59.

### **2.4 SHOP PAINTING**

- .1 Clean, prepare and shop prime surfaces of steel joists to CSA S16.
- .2 Clean members of loose mill scale, rust, oil, dirt and other foreign matter.
- .3 Apply one coat of CISC/CPMA 2 primer to steel surfaces to achieve dry film thickness of .065 mm to .080 mm maximum except:
  - .1 Surfaces encased in concrete.
  - .2 Surfaces to receive field installed stud shear connectors and steel decks.
  - .3 Surfaces and edges field welded.
  - .4 Faying surfaces of friction-type connections.
  - .5 Below grade surfaces in contact with soil.



- .4 Apply paint under cover, on dry surfaces when surface and air temperatures minimum 5 degrees C.
- .5 Maintain dry condition and 5 degrees C minimum temperature until paint thoroughly dry.
- .6 Strip paint bolts, nuts, sharp edges and corners before prime coat dries.

### **Part 3 Execution**

#### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts acceptable for steel joist framing installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Consultant.
  - .2 Inform Consultant 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 Consultant.

#### **3.2 ERECTION**

- .1 Do structural steel work: to CSA S16.
- .2 Do welding: in accordance with CSA W59.
- .3 Ensure installers certified to CSA W47.1 for fusion welding and CSA W55.3 for resistance welding
- .4 Submit certification welded joints qualified by Canadian Welding Bureau.
- .5 Erect steel joists as indicated to CSA S16 and in accordance with approved erection drawings.
- .6 Complete installation of bridging and anchorages before placing construction loads on joists.
- .7 Field cutting or altering joists or bridging not shown on shop drawings: to approval of Consultant.
- .8 Clean and touch up shop primer to bolts, welds, burned or scratched surfaces at completion of erection.

#### **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.

#### **3.4 PROTECTION**

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

**END OF SECTION**

**Part 1 General**

**1.1 DESIGN REQUIREMENTS**

- .1 Design steel deck to CSA S136 and CSSBI 10M.
- .2 Design roof and floor composite steel deck to CSA S16, CSA S136, and CSSBI 12M.
- .3 Steel deck and connections to steel framing to carry dead, live and other loads including lateral loads, diaphragm action, composite deck action, and uplift as indicated.
- .4 Deflection under specified live load maximum 1/240 of span, except when plaster gypsum board ceilings hung directly from deck, live load deflection maximum 1/360 of span.
- .5 Where vibration effects controlled as indicated, dynamic characteristics of decking system designed in accordance with CSA S16.

**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 steel decking and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Submit drawings stamped and signed by a professional Engineer licensed in the province of Ontario, Canada.
  - .2 Submit design calculations if requested by the Consultant.
  - .3 Indicate deck plan, profile, dimensions, base steel thickness, metallic coating designation, connections to supports and spacings, projections, openings, reinforcement details and accessories.
  - .4 Indicate details of temporary shoring of steel deck, such as location, time and duration of placement and removal of shoring for concrete fill decks.

**1.3 QUALITY ASSURANCE**

- .1 Retain a professional Engineer licensed in the province of Ontario, Canada, with experience in steel deck Work of comparable complexity and scope, to perform following services as part of Work of this Section:
  - .1 Structural design of steel deck and composite deck.
  - .2 Review, stamp, and sign Shop, shoring and erection Drawings, design calculations, and revisions required.
  - .3 Conduct on-site inspections and prepare and submit inspection reports verifying this part of Work in accordance with Contract Documents and reviewed Shop Drawings. Perform inspections minimum of once per month.
- .2 Qualifications:

- .1 Ensure that industrial coating 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).

#### **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 off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect decking from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

### **Part 2 Products**

#### **2.1 MATERIALS**

- .1 Zinc (Z) coated steel sheet: to A653M structural quality Grade 255, with Z275, coating.
- .2 Closures: as indicated in accordance with manufacturer's recommendations.

#### **2.2 TYPES OF DECKING**

- .1 Steel deck thickness: refer to Structural Drawings.

#### **2.3 EXAMINATION**

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts acceptable for steel decking installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Consultant.
  - .2 Inform Consultant of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation after unacceptable conditions remedied and after receipt of written approval to proceed from the Consultant.

#### **2.4 PREPARATION**

- .1 Locate bundles of deck materials to prevent overloading of supporting members.
- .2 Install temporary shoring before placing deck panels, if required to meet deflection limitations.

#### **2.5 ERECTION**

- .1 Structural steel work: in accordance with CSA S136, CSSBI 10M and CSSBI 12M.
- .2 Welding: in accordance with CSA W59, except where specified otherwise

- .3 Companies to be certified under Division 1 or 2.1 of CSA W47.1 for fusion welding of steel or CSA W55.3 for resistance welding
- .4 Erect steel deck as indicated and in accordance with CSA S136 and CSSBI 10M and CSSBI 12M and in accordance with reviewed erection drawings.
- .5 Butt ends: to 1.5 to 3 mm gap. Install steel cover plates or over gaps minimum 3 mm wide.
- .6 Lap ends: to 50 mm minimum.
- .7 Immediately after deck is permanently secured in place, touch up metallic coated top surface with compatible primer where burned by welding.
- .8 Prior to concrete placement, steel deck free of soil, debris, standing water, loose mil scale and other foreign matter.
- .9 Temporary shoring, if required, designed to support construction loads, wet concrete and other construction equipment. Do not remove temporary shoring until concrete attains 75% of its specified 28 day compression strength.
- .10 Place and support reinforcing steel as indicated.
- .11 Closures: Install closures in accordance with approved details.
- .12 Openings and Areas of Concentrated Loads
  - .1 No reinforcement required for openings cut in deck maximum 150 mm square.
  - .2 Frame deck openings with dimension between 150 to 300 mm as recommended by manufacturer, except as otherwise indicated.
  - .3 For deck openings with dimension minimum 300 mm and for areas of concentrated load, reinforce in accordance with structural framing details, except as otherwise indicated.
- .13 Connections: Install connections in accordance with CSSBI recommendations.

## **2.6 FIELD TOUCH-UP PAINTING**

- .1 Upon erection completion, mechanically brush clean bolts, rivets, welds, and burned or scratched surfaces.
- .2 For galvanized steel surface with damage and without shop coat, repair with field touch up primer.

## **2.7 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - 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 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Waste Management and Disposal.

## **2.8 PROTECTION**

- .1 Protect installed products and components from damage during construction.

- .2 Repair damage to adjacent materials caused by steel decking installation.

**END OF SECTION**

**Part 1 General**

**1.1 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 structural metal studs and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit 2 copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Shop Drawings:
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada.
  - .2 Indicate design loads, member sizes, materials, design thickness exclusive of coatings, coating specifications, connection and bracing details, screw sizes and spacing, and anchors.
  - .3 Indicate locations, dimensions, openings and requirements of related work.
  - .4 Indicate welds by welding symbols as defined in CSA W59.

**1.2 QUALITY ASSURANCE**

- .1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Manufacturer Reports: Submit manufacturer's written report, within 3 days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

**1.3 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 and protect structural metal studs from nicks, scratches, and blemishes.
  - .2 Protect steel studs during transportation, site storage and installation in accordance with CSSBI Sheet Steel Facts #3.
  - .3 Handle and protect galvanized materials from damage to zinc coating.
  - .4 Replace defective or damaged materials with new.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Steel: to CSA S136, fabricated from ASTM A653M.
- .2 Zinc coated steel sheet: quality to ASTM A653M, with Z275 designation coating.
- .3 Aluminum-zinc alloy coated steel sheet: quality to ASTM A792/A792M, with AZM180 designation coating.
- .4 Welding materials: to CSA W59 and certified by Canadian Welding Bureau.
- .5 Screws: self-drilling, self-tapping sheet metal screws and HILTI X-U fasteners, corrosion protected with minimum zinc coating thickness of 0.008 mm
- .6 Anchors: Tapcon concrete anchors.
- .7 Touch up primer: zinc rich, to MPI #18.

### **2.2 STEEL STUD DESIGNATIONS**

- .1 Colour code: to CSSBI Technical Bulletin Vol.7, No. 2.

### **2.3 METAL FRAMING**

- .1 Steel studs: to CAN/CSA S136, fabricated from metallic coated steel, depth as indicated.
  - .1 Minimum steel thickness as specified.
- .2 Stud tracks: fabricated from same material and finish as steel studs, depth to suit.
  - .1 Bottom track: single piece.
  - .2 Top track: as specified.
- .3 Bridging: fabricated from same material and finish as studs, 38 x 12 x 1.09 mm minimum thickness.
- .4 Angle clips: fabricated from same material and finish as studs, 38 x 38 mm x depth of steel stud, 1.37 mm minimum thickness.
- .5 Tension straps and accessories: as recommended by manufacturer.

### **2.4 SOURCE QUALITY CONTROL**

- .1 Mill reports for material properties reviewed by Consultant.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify conditions of substrate previously installed under other Sections or Contracts acceptable for structural metal stud in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Consultant.



- .2 Inform Consultant of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions remedied.

### **3.2 GENERAL**

- .1 Weld in accordance with CSA W59.
- .2 Certification of companies: to CSA W47.1 for fusion welding and CSA W55.3 for resistance welding.
- .3 Do structural metal stud framing work to CSSBI S5.

### **3.3 ERECTION**

- .1 Erect components to requirements of reviewed shop drawings.
- .2 Anchor tracks securely to structure at 800 mm on centre maximum, unless lesser spacing prescribed on shop drawings.
- .3 Erect studs plumb, aligned and securely attached with 2 screws minimum or welded in accordance with manufacturer's recommendations.
- .4 Seat studs into bottom and top tracks or top and bottom connections as specified in the contract documents.
- .5 Install 50 mm minimum telescoping track at top of walls where required to accommodate vertical deflection.
  - .1 Nest top track into deflection channel minimum of 30 mm and maximum of 40 mm.
  - .2 Do not fasten tracks together.
  - .3 Stagger joints.
- .6 Install studs at maximum 50 mm from abutting walls, openings, and each side of corners and terminations with dissimilar materials.
- .7 Brace steel studs with horizontal internal bridging at 1200 mm maximum.
  - .1 Fasten bridging to steel clips fastened to steel studs with screws or by welding.
- .8 Frame openings in stud walls to adequately carry loads by use of additional framing members and bracing as detailed on shop drawings.
- .9 Touch up welds with coat of zinc rich primer.
- .10 Erection Tolerances
  - .1 Plumb: maximum 1/500th of member length.
  - .2 Camber: maximum 1/1000th of member length.
  - .3 Spacing: maximum +/- 3 mm from design spacing.
  - .4 Gap between end of stud and track web: maximum 4 mm.
- .11 Cutouts
  - .1 Maximum size of cutouts for services as follows:

<b>Member Depth</b>	<b>Across Member Depth</b>	<b>Along Member Length</b>	<b>Centre to Centre Spacing (mm)</b>
92	40 max.	105 max.	600 min.
102	40 max.	105 max.	600 min.
152	65 max.	115 max.	600 min.

- .2 Limit distance from centerline of last unreinforced cutout to end of member maximum 300 mm.

### **3.4 FIELD QUALITY CONTROL**

- .1 Manufacturer's Field Services:
- .1 Obtain written report from manufacturer's verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - QUALITY ASSURANCE.
  - .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
    - .1 Schedule site visits to review Work after delivery and storage of products, and when preparatory Work complete but before installation begins. Twice during progress of Work at 25% and 60% complete and upon completion of Work, after cleaning carried out.

### **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.

### **3.6 PROTECTION**

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

**END OF SECTION**

## **Part 1 General**

### **1.1 RELATED SECTIONS**

- .1 Section 07 62 00 – Sheet Metal Flashings and Trims.
- .2 Section includes elastomeric protected membrane roofing system, cold – applied.

### **1.2 REFERENCES**

- .1 References, General: The most recent adopted versions of the following references apply to the Work of this Section.
- .2 Asphalt Roofing Manufacturers Association/National Roofing Contractors Association (ARMA): [www.asphaltroofing.org](http://www.asphaltroofing.org)
  - .1 Quality Control Guidelines for the Application of Built-up Roofing
- .3 ASTM International (ASTM): [www.astm.org](http://www.astm.org)
- .4 Canadian General Standards Board (CGSB): [www.tpsgc-pwgsc.gc.ca/ongc-cgsb](http://www.tpsgc-pwgsc.gc.ca/ongc-cgsb)
- .5 Canadian Roofing Contractors Association (CRCA): [www.roofingcanada.com](http://www.roofingcanada.com)
  - .1 Roofing Specifications Manual
  - .2 Roofing Reference Manual
- .6 National Roofing Contractors Association: [www.nrca.net](http://www.nrca.net)
  - .1 NRCA – The NRCA Roofing Manual
- .7 Sheet Metal and Air Conditioning Contractors' National Association (SMACNA): [www.smacna.org](http://www.smacna.org)
  - .1 Architectural Sheet Metal Manual
- .8 Underwriters Laboratories of Canada (ULC): [www.ul.com/canada/eng/pages](http://www.ul.com/canada/eng/pages)
  - .1 ULC - Fire Resistance Directory
  - .2 CAN/ULC-S102 - Surface Burning Characteristics of Building Materials and Assemblies
  - .3 CAN/ULC-S107 - Fire Tests of Roof Coverings
  - .4 CAN/ULC-S126 - Standard Method of Test for Fire Spread Under Roof-Deck Assemblies

### **1.3 DEFINITIONS**

- .1 Roofing Terminology Definitions: ASTM D1079 and the following:
  - .1 CRCA Roofing Specifications Manual.
  - .2 CRCA Reference Manual.

### **1.4 ADMINISTRATIVE REQUIREMENTS**

- .1 Preinstallation Conference: Prior to commencing Work, conduct at Project site.

- .1 Meet with Owner, testing and inspecting agency representative, roofing Installer, roofing manufacturer's representative, and installers of related work.
- .2 Review installation methods and procedures, including manufacturer's written instructions and requirements of referenced standards.
- .3 Review and finalize construction schedule. Verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
- .4 Review structural loading limitations of roof deck during roofing operations.
- .5 Review base flashings, edge conditions and terminations, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing.
- .6 Review requirements of authorities having jurisdiction and requirements for insurance and certificates if applicable.
- .7 Review temporary protection requirements for roofing.
- .8 Review roof observation, inspection, and repair procedures.
- .9 Examine deck substrate conditions and finishes for compliance with requirements.

#### **1.5 ACTION SUBMITTALS**

- .1 Product Data: For each specified product.

#### **1.6 INFORMATIONAL SUBMITTALS**

- .1 Qualification Data: For Installer.
  - .1 Include original letter from Manufacturer written for this Project indicating manufacturer's approval.
- .2 Contractor's Product Certificate: Notarized certificate, listing product names and numbers and manufacturers' names, indicating that products to be provided and the completed roofing system meet the requirements of the Contract Documents. Submit the following as attachments:
  - .1 Test Reports based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency.
  - .2 Evidence of compliance with performance requirements.
  - .3 Statement indicating that proposed system components are compatible.
- .3 Warranties: Unexecuted copy of warranties.

- .4 Inspection Reports: Daily reports of Roofing Inspector. Include weather conditions, description of work performed, tests performed, defective work observed, and corrective actions taken to correct defective work.

## **1.7 CLOSEOUT SUBMITTALS**

- .1 Maintenance Data.
- .2 Warranties:
  - .1 Manufacturer's and Installer's executed warranty documents. Submit prior to acceptance of Work.

## **1.8 QUALITY ASSURANCE**

- .1 Quality Standards: Perform Work of this Section in accordance with the following:
  - .1 CRCA Reference Manual.
  - .2 NRCA Roofing Manual
- .2 Manufacturer Qualifications: A qualified manufacturer with minimum five years' experience in manufacture of specified products in successful use on similar projects and able to provide roofing system meeting specified requirements. Systems listed by UL and Factory Mutual.
- .3 Installer Qualifications: A manufacturer-approved firm with minimum five years' experience in installation of specified products in successful use on similar projects, employing workers trained by manufacturer, including a full-time on-site supervisor with a minimum of three years' experience installing similar work, able to communicate verbally with Contractor and employees, and qualified by the manufacturer to furnish warranty of type specified.
- .4 Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:
  - .1 An authorized full-time technical employee of the manufacturer.
  - .2 An independent party certified as a Registered Roof Observer by RCI, retained by the Contractor or the Manufacturer and approved by the Manufacturer.

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

- .1 Deliver products in manufacturer's original containers, dry, undamaged, with manufacturer's seals and labels intact.
- .2 Store products in weather protected environment, clear of ground and moisture. Protect foam insulation from direct exposure to sunlight.
- .3 Handle and store roofing materials and place equipment in a manner that does not result in permanent deflection of deck.

## **1.10 PROJECT CONDITIONS**

- .1 Weather Limitations: Comply with manufacturer's written instructions and warranty requirements.
- .2 Do not apply roofing membrane to damp or frozen deck surface or when precipitation is occurring.
- .3 Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

## **1.11 WARRANTY**

- .1 . Roof System Warranty: Warranties specified in this Section include the following components and systems specified in other sections supplied by the roofing system Manufacturer, and installed by the roofing system Installer:
  - .1 Sheet metal flashing and trim, including roof penetration flashings.
  - .2 Manufactured copings, roof edge, counterflashings, and reglets.
  - .3 Roof curbs, hatches, and penetration flashings.
  - .4 Roof and parapet expansion joint assemblies.
  - .5 Metal roof, wall, and soffit panels and trim.
- .2 Manufacturer's Warranty: Manufacturer's standard or customized form, in which manufacturer agrees to repair or replace components of roofing that fail in materials or workmanship within specified warranty period.
  - .1 Manufacturer's warranty includes roofing membrane, base flashings, roofing membrane accessories, roof insulation, fasteners, and other components of roofing.
  - .2 Manufacturer to provide inspections of roofing systems in year two (2), five (5), ten (10) and fifteen (15) of this warranty. Inspection to include visual inspection, minor repairs and limited cleaning of debris with reporting to building owner.
  - .3 Warranty Period: 20 years from date of Substantial Completion.
- .3 Installer's Warranty: Roofing system Installer's warranty, on warranty form at end of this Section signed by Installer, covering the Work of this Section, including all components of roofing such as roofing membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, roof pavers, and walkway products, for the following warranty period:
  - .1 Warranty Period: Two years from date of Substantial Completion

## **Part 2 Products**

### **2.1 SYSTEM DESCRIPTION**

- .1 Adhered Elastomeric Sheet Membrane Protected Roofing System: Elastomeric protected membrane in cold-applied adhesive on concrete deck, and including the following:
  - .1 Metal Deck
  - .2 Tapered Insulation
  - .3 Underlayment Board
  - .4 Roof membrane sheet and membrane base flashing sheet.
  - .5 Slip sheet.
  - .6 Drainage board
  - .7 Loose-laid insulation.
  - .8 Water pervious filter fabric.
  - .9 Pavers/Pedestals
  - .10 Metal flashings.
  - .11 Accessories.
- .2 Flashings and Fastening: Provide base flashings, perimeter flashings, detail flashings, and component materials and installation techniques that comply with requirements and recommendations of the following:
  - .1 CRCA Roofing Manual for construction details and recommendations.
  - .2 SMACNA Architectural Sheet Metal Manual for construction details.

### **2.2 PERFORMANCE REQUIREMENTS**

- .1 General Performance: Roofing system shall remain weathertight and withstand, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, or installation.
- .2 Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- .3 Exterior Fire-Test Exposure:
  - .1 UL 790, Class A
  - .2 CAN/ULC S107, Class A

### **2.3 PRIMER**

- .1 Asphalt based, bituminous primer. ASTM D 41.

### **2.4 ROOFING MEMBRANE AND FLASHING MEMBRANE**

- .1 Elastomeric, polyester-reinforced sheet with EPDM and SBR elastomers. Specifically designed for inverted roofing. Basis of Design: TRA Elastomeric Sheeting.
  - .1 Breaking Strength, minimum, CGSB 37-GP-52: machine direction (1446 N); cross machine direction (1288 N).

- .2 Tear Strength, minimum, CGSB 37-GP-52: machine direction (313 N); cross machine direction (348 N).
- .3 Low Temperature Flexibility, minimum, CGSB 37-GP-52: -40 deg. F (-40 deg. C).
- .2 Flashing Membrane Sheet: Same as roof membrane sheet.

## **2.5 ROOFING MEMBRANE ACCESSORIES**

- .1 General: Auxiliary materials recommended by roofing manufacturer for intended use and compatible with roofing.
- .2 Membrane Adhesive: Single Component, moisture curing polyurethane – squeegee grade. Basis of Design: Tremlar H
  - .1 Ultimate Elongation, minimum, 950%, ASTM D412.
  - .2 Ultimate Tensile Strength, minimum, 300psi, ASTM D412.
- .3 Vertical Lap and Stripping Adhesive: One-part polymer-modified roof elastomer, trowel grade. Basis of Design: Polyroof LV
  - .1 Tensile Strength: ASTM D412: min 650 kPa @100% elongation
  - .2 Elongation at -34 deg. C (-30 deg. F), minimum, ASTM D412: 100 percent
  - .3 Elongation at 25 deg. C (77 deg. F), minimum, ASTM D412: 1000 percent.
  - .4 Flexibility at -40 deg. C (-40 deg. F), pass, ASTM D 3111
- .4 Stripping Reinforcement Fabric: non-shrinking, non-rotting, vinyl coated, woven glass bonded mesh.
  - .1 Tensile strength to ASTM D 146
- .5 Flashing Adhesive: Single Component, moisture curing polyurethane – trowel grade. Basis of Design: Tremlar V.
  - .1 Ultimate Elongation, minimum, 700%, ASTM D412.
  - .2 Ultimate Tensile Strength, minimum, 250psi, ASTM D412.
- .6 Asphalt Mastic: to ASTM D 4586.

## **2.6 ACCESSORIES**

- .1 Termination Bar: 1 mm (0.040 inch) aluminum, pre-drilled for mechanical attachment.
- .2 Sealing Tape: Butyl, as recommended by manufacturer.
- .3 Miscellaneous Membrane Accessories: Flexible molded boots and collars, pourable sealers, preformed corners, in-seam sealants, and other accessories.
- .4 Stack Flashing: Spun aluminum pre-insulated to suit application with min 450mm integral deck flange.
- .5 Scuppers: 26 gauge pre-painted steel with flange, formed to fit site conditions.
- .6 Metal Flashings: As specified in section 07 62 00.
- .7 Sealant: One part polyurethane as recommended by warranting manufacturer, colour to closely match metal flashings.



- .8 Roof Drains: Vandal proof cast aluminum dome with hinged access gate, min 200mm leader length, drain body, flange and base to be constructed of copper. Basis of Design: RD-7C-RR by Thaler.
- .9 Drain Inspection Boxes: Mil finished aluminum, drain inspection boxes with perforated side drainage holes and lockable lid.

## **2.7 ROOF INSULATION**

- .1 General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated.
- .2 Extruded-Polystyrene Board Insulation: CAN/ULC-S701 Type VI, shiplap-edged, with integral high-density skin:
  - .1 Thermal Resistance: R5 per 25mm of thickness.
  - .2 Compressive Strength: 241 kPa
  - .3 Water Vapour Permeance: Max 1.1 perms, ASTM E 96.
  - .4 ASTM C 578
  - .5 Total Thickness: 125mm (4")
  - .6 Total Layers: 2
- .3 Insulation Cant Strips: High density asphalt impregnated fibreboard.
- .4 Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.
- .5 Insulation Adhesive: Two part lowrise foam, 100% solids. Tremco Low Rise Foam or approved alternate.
- .6 Tapered Insulation: High density polyisocyanurate, minimum 25 PSI, slopes must terminate at ZERO. By Accuplane, Posi slope or approved equal.

## **2.8 ROOF INSULATION ACCESSORIES**

- .1 General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with roofing.
- .2 Slip Sheet: Polyethylene slip sheet, 0.15 mm thick.
- .3 Drainage Layer: High Density polyethylene dimpled drainage board.
- .4 Insulation Adhesive: Two Part Lowrise Foam.

## **2.9 BALLAST MATERIALS**

- .1 Aggregate Filter Fabric: Woven or nonwoven polypropylene, polyolefin, or polyester fabric, water permeable and resistant to UV degradation, type and weight as recommended by roofing system manufacturer for application
- .2 Pavers: Precast concrete pavers, 597mm x 597mm, 50mm thick, min weight: 117.2kg/m<sup>2</sup>.ign: Tremco VR Paver, Colour Grey.

- .3 Paver Pedestal: Fixed height, polypropylene paver pedestal. Min axial compression, 4,380lbf. Basis of Design: Tremco PP-F Paver Pedestal

### **Part 3 Execution**

#### **3.1 EXAMINATION**

- .1 Examine surfaces and site conditions, with Installer, for compliance with requirements, prior to commencing work.
  - .1 Verify surfaces and site conditions are ready to receive work.
  - .2 Verify deck is supported and secure.
  - .3 Verify that roof openings and penetrations are in place, curbs are set and braced, blocking, curbs, wood cants, and nailers are anchored to roof deck at penetrations and terminations, that wood nailers match insulation thickness, and roof drain bodies are properly installed.
  - .4 Verify deck surfaces are clean, dry, and free of snow or ice.
- .2 Report: Provide written report to Owner indicating conditions that do not meet requirements.
- .3 Proceed with installation once non-complying conditions have been corrected.

#### **3.2 PREPARATION/DEMOLITION**

- .1 Remove all existing roof components down to the structural deck. Dispose of at a licensed facility.
- .2 Remove only as much roofing that can be made water tight by end of each day, including new steel deck replacement.
- .3 Clean substrate of substances and projections detrimental to roofing installation according to roofing manufacturer's written instructions.
- .4 Prevent materials from entering roof drains and conductors and from contacting surfaces of other construction.
- .5 Substrate-Joint Penetrations: Prepare joints as required to prevent asphalt and adhesives from penetrating joints, entering building, or damaging roofing components or other construction.
- .6 Seal open joints in concrete to prevent bitumen from entering the facility.

#### **3.3 INSTALLATION, GENERAL**

- .1 Install roofing membrane system components according to roofing manufacturer's written instructions, applicable referenced roofing system approval, and approved shop drawings.
- .2 Cooperate with testing agencies and personnel engaged or required to perform services for installing roofing.

#### **3.4 ROOFING MEMBRANE INSTALLATION**

- .1 Adhere 1% backslope tapered insulation applied around entire perimeter. Set insulation in beads of lowrise foam applied 300mm o.c. Apply backslope around entire perimeter 2400mm.
- .2 Adhere underlayment board over steel deck with continuous ribbons applied 300mm o.c.
- .3 Ensure boards are applied in a staggered fashion and free of damage, warp and defect.
- .4 Tape seams of boards as required to prevent any material from entering the facility.
- .5 Ensure substrate is clean, free of moisture and no major defects are present.
- .6 Start installation of roofing in presence of manufacturer's technical personnel.
- .7 Coordinate installation of roofing to protect roofing system components and structure from exposure to precipitation.
- .8 Cant Strips: Secure cant strips at junctures of roofing at vertical intersections with membrane adhesive.
- .9 Install tapered insulation in beads of insulation adhesive applied 12" O.C.
- .10 Membrane Sheet: Adhere to substrate according to membrane manufacturer's written instructions.
  - .1 Adhere membrane without wrinkles, blisters or fishmouths in a solid application of membrane adhesive applied at rate 1.2 kg/m<sup>2</sup>.
  - .2 Overlap membrane sheet edges and ends minimum 100 mm and seal by membrane adhesive. Seal permanently waterproof.
  - .3 Reinforce membrane seams. Apply stripping adhesive (two courses) with reinforcing mesh, minimum 150 mm wide over seam, fully conceal reinforcing mesh with second application of stripping adhesive.
  - .4 Extend membrane to top of cant strips.
  - .5 Seal membrane around roof penetrations.
  - .6 Leave seams exposed until inspected.

### **3.5 FLASHING AND STRIPPING INSTALLATION**

- .1 Base Flashing: Install flexible flashing sheet at roof edges and at penetrations through roof. Secure to substrates according to roofing manufacturer's written instructions.
  - .1 Prime substrates with primer if required.
  - .2 Flashing Sheet Application:
    - .1 Embed flashing sheet in a uniform coverage of Flashing Adhesive. Apply at rate of 1.2kg/m<sup>2</sup>.
  - .3 Unless stated otherwise, extend base flashing up walls or parapets a minimum of 300 mm above insulation and 150 mm onto field of roofing.
  - .4 Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.
  - .5 Reinforce flashing and flashing-to-membrane seams with application of stripping adhesive (two courses) and reinforcing mesh.
  - .6 Seal top termination of base flashing with a metal termination bar.

.2 Canted Eave:

- .1 Extend reinforced elastomeric sheeting over outside face of cant and extend minimum 25 mm below blocking. Mechanically fasten with 38 mm common roofing nails, 200 mm OC.
- .2 Extend reinforced elastomeric sheeting down over cant strip and embed in flashing adhesive from top of cant onto roof.
- .3 Ensure complete bond and continuity without wrinkles or voids. Lap sheeting ends 100 mm and adhere with flashing adhesive.

.3 Canted Eave with Fascia

- .1 Extend reinforced elastomeric sheeting over outside face of cant and fascia and secure to underside of fascia. Mechanically fasten with 38 mm common roofing nails, 200 mm OC.
- .2 Extend reinforced elastomeric sheeting down over cant strip and embed in flashing adhesive onto roof surface a minimum of 150 mm.
- .3 Ensure complete bond and continuity without wrinkles or voids. Lap sheeting ends 100 mm and adhere with flashing adhesive.

.4 Low Parapet Wall Flashing

- .1 Seal exposed joint between the wall and roof deck for airtight seal.
- .2 Adhere elastomeric sheeting completely to flashing surface, cant, and roofing with flashing adhesive.
- .3 Ensure complete bond and continuity without wrinkles or voids. Lap sheeting ends 100 mm and adhere with flashing adhesive.
- .4 Extend elastomeric sheeting up and over parapet at least 38 mm and face nail with 38 mm common roofing nails, 200 mm OC.

.5 Flashing At Edges and Gutters

- .1 Fabricate and install new one-piece gutter with downspouts. Slope gutter to downspouts.
- .2 Prior to setting and nailing horizontal flanges of gutter, uniformly trowel a 1.5 mm thick layer of cold flashing adhesive to roofing surface designated to receive metal flange.
- .3 Nail flange to wood blocking 75 mm OC, staggered.
- .4 Prime metal flange with asphaltic primer.
- .5 Adhere sufficiently wide strip of elastomeric sheeting completely to flashing surface with flashing adhesive. Ensure complete bond and continuity without wrinkles or voids lap sheeting ends 100 mm and adhere with flashing adhesive. Elastomeric sheeting to cover gravel stop completely and overlap onto adjacent roof a minimum of 150 mm.

.6 Wall Flashing

- .1 Seal exposed joint between the wall and roof deck for airtight seal.
- .2 Adhere elastomeric sheeting completely to flashing surface, cant and roofing with flashing adhesive.

- .3 Ensure complete bond and continuity without wrinkles or voids. Lap sheeting ends 100 mm and adhere with flashing adhesive.
- .4 Elastomeric sheeting width: sufficient to extend at least 150 mm beyond toe of cant onto roof surface and 200 mm above the roof surface.
- .5 Secure top of elastomeric sheeting to vertical plane with termination bar. Mechanically fasten 300 mm OC. Overcoat bar with end lap stripping adhesive and membrane.

.7 Building Expansion Joints

- .1 Fill joint with loose insulation.
- .2 Provide 13 mm thick plywood to top of wood blocking, secured one side only.
- .3 Apply foam rubber or 25 mm thick mineral fibre insulation to top of plywood.
- .4 Install elastomeric sheeting centred over expansion joint.
- .5 Fully adhere sheeting to horizontal and vertical blocking surfaces with flashing adhesive. Press sheeting into adhesive. Ensure complete bond and continuity without wrinkles or voids.
- .6 Lap sheeting ends 100 mm and adhere with flashing adhesive.
- .7 Tie-in secondary sheet extending a minimum of 150mm onto adjacent built-up roof. Spud and prepare surface to bare felts prior to adhesion.
- .8 Three course seam between two flashing tie-ins.
- .9 Expansion joint MUST be applied to two piece flashing application.

.8 Control Joint

- .1 Install elastomeric sheeting centered over joint.
- .2 Fully adhere sheeting to horizontal and vertical blocking surfaces with flashing adhesive. Press sheeting into adhesive. Ensure complete bond and continuity without wrinkles or voids.
- .3 Lap sheeting ends 100 mm and adhere with flashing adhesive.

.9 Curb Flashing

- .1 Fully adhere sheeting to horizontal and vertical blocking surfaces with flashing adhesive. Press sheeting into adhesive. Ensure complete bond and continuity without wrinkles or voids.
- .2 Mechanically fasten sheeting on top face of curb.
- .3 Lap sheeting ends 100 mm and adhere with flashing adhesive.
- .4 If membrane does not completely cover sleeper, secure top edge with a termination bar. Mechanically fasten 300 mm OC. Overcoat bar with end lap stripping adhesive and membrane.

.10 Projection Flashing

- .1 Apply stripping adhesive to prepared area and Provide aluminium base over pipe and set into the stripping adhesive.
- .2 Select proper step of rubber cap and cut off above index ring.
- .3 Install cap onto base collar and press edge to ensure proper seal.

- .4 Provide clamp around pipe and rubber cap. Prime flange.
- .5 Install elastomeric sheeting with stripping ply adhesive and membrane.
- .6 Cover flange completely.
- .7 Remove wrinkles and voids. Lap flashing ply ends 100 mm.

.11 Pitch Pans

- .1 Uniformly apply a 3 mm thick layer of stripping adhesive to surfaces designated to receive metal flange.
- .2 Install pre-manufactured pitch pan into adhesive. Prime flange prior to installation.
- .3 Ensure minimum 50 mm clearance between projection and side wall.
- .4 Fully adhere elastomeric sheeting to flashing surface with flashing adhesive. Cover flange completely. Ensure complete bond and continuity without wrinkles and voids. Lap sheeting ends minimum 100 mm.
- .5 Fill pitch pan 25 mm from top with pitch pan base filler.
- .6 Fill remainder with pourable sealer. Crown top of mastic to ensure water run-off.
- .7 Install metal cap and caulk conduit penetration.

.12 Scuppers

- .1 Uniformly apply a 3 mm thick layer of stripping adhesive to surfaces designated to receive metal flange.
- .2 Install pre-manufactured scupper into adhesive. Prime flange prior to installation.
- .3 Prime top of scupper at area to receive flashing membrane.
- .4 Extend flashing membrane 150mm into scupper beyond parapet wall and 150mm onto field of roof beyond flange in continuous spread of flashing adhesive.

.13 Roof Drain Insert

- .1 Cut 225 mm OD opening through membrane and insulation; coinciding with existing drain opening.
- .2 Install roof drain insert into existing drain pipe in accordance with drain insert manufacturer's written installation guidelines.
- .3 Adhere drain flange to membrane with flashing adhesive.
- .4 Provide 900 x 900 mm size elastomeric sheeting reinforcement, centered over drain; and fully adhere sheeting with flashing adhesive. Remove wrinkles and entrapped air.
- .5 Trim excess sheeting within drain.
- .6 Seal leading edge of sheet with reinforcing membrane embedded between alternate continuous courses of flashing adhesive.

.14 Stripping Installation:

- .1 Install stripping where metal flanges and edgings are set on roofing, and in sealing end laps and leading edges of flashings.

- .2 Ensure surfaces are clean and dry. Trowel apply stripping mastic at rate of 20 ft<sup>2</sup>/gal (0.5m<sup>2</sup>/L) per course. Set stripping fabric into freshly applied trowel course of stripping mastic. Fully cover fabric with a top course of stripping mastic

### **3.6 ROOF SLIP SHEET, DRAINAGE BOARD, INSULATION INSTALLATION**

- .1 Allow membrane to remain uncovered for a minimum of 4 days prior to installation of overburden to allow for odours to dissipate.
- .2 Slip Sheet: Loose lay slip sheet over completed cured membrane installation prior to installation of insulation.
- .3 Install drainage board over entire field of roof.
- .4 Place insulation boards; butt in close contact. Place channel cut face of first insulation layer down against slip sheet. Bevel insulation to allow snug fit at cants. Cut neatly around protrusions through roof.
- .5 Install insulation in a continuous straight line with joints staggered, abutting edges and ends. Fit insulation within 6 mm of projections and penetrations.
- .6 Install second course of insulation on top of primary course. Stagger joints minimum of 12 inches from previous course.
- .7 Apply filter fabric to conceal insulation entirely.

### **3.7 BALLAST INSTALLATION**

- .1 Place paver pedestals loose laid at corners of all pavers, supporting as per manufacturers instructions.
- .2 Apply pavers over the entire roof surface, all supported by pavers.
- .3 Apply pavers free of damage cracks or defects.
- .4 Install roof drain inspection boxes at all roof drains. Ensure drain inspection boxes are at minimum flush with the paver surface.

### **3.8 FIELD QUALITY CONTROL**

- .1 Manufacturers Field Service: Arrange for manufacturer's technical representative to regularly inspect the roofing application (minimum twice per week, additional inspections as required) and confirm that roofing system application is in strict accordance with manufacturers guidelines and recommendations, provide inspection report within 24 hours of each visit.
- .2 Contractor Inspections: Contractor to inspect membrane before installation of slip sheet for punctures, tears and membrane variances. Apply additional layer of waterproofing over punctures and tears extending a minimum of 150mm beyond damaged area in all directions, ensure seam treatment in continuous without voids.
- .3 Repair or remove and replace non-complying components of roofing. Retest to demonstrate compliance.

### **3.9 PROTECTING AND CLEANING**

- .1 Protect roofing from damage and wear during construction according to manufacturer's instructions.



- .2 Correct deficiencies in or remove roofing that does not comply with requirements, repair substrates, and repair or reinstall roofing to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- .3 Clean overspray and spillage from adjacent construction.
- .4 Paint gas lines yellow with two coats of exterior grade gas line paint.

**END OF SECTION**

**Part 1 General**

**1.1 SUMMARY**

- .1 Scope of Work: Work in this section comprises of installation of metal counterflashing in areas of roof replacement.

**1.2 RELATED SECTIONS**

- .1 07 54 16.

**1.3 REFERENCES**

- .1 S.M.A.C.N.A – Sheet Metal and Air Conditioning Contractors National Association, Architectural Sheet Metal Manual.

**1.4 SHOP DRAWINGS**

- .1 Submit shop drawings of all flashing conditions for consultant review and approval.

**1.5 INSPECTION**

- .1 Roof inspection shall be carried out by an agency selected by the owner to be borne by the owner.
- .2 Carry out procedures as directed by the roof inspector.

**1.6 STORAGE AND HANDLING**

- .1 Secure stored materials against damage from wind, ongoing work, vandalism and theft.
- .2 Identify and remove any damaged materials from site immediately.

**1.7 WARRANTY**

- .1 For the work of this Section 07 62 00 provide:
  - .1 Contractor's two year warranty to correct at their own expense any defects in work due to faulty workmanship appearing within a two year period commencing from the date of completion of the total work

**Part 2 Products**

**2.1 MATERIALS**

- .1 Metal Counterflashing: 26 gauge pre-painted galvanized steel, Persectra series finish.
- .2 Colours: From standard colours as selected by owner/consultant.
- .3 Hook Strip: Steel, gauge 24, pre punched.

**Part 3            Execution**

**3.1                METAL INSTALLATION**

- .1        Install new metal counterflashing on perimeters, walls, curbs, expansion joints, flashed sleepers and projections. Owner to select colour from standard colours, except as indicated in the Products section above.
- .2        All metal base flashing shall extend to base of pavers. Exposed flashing sheet will not be accepted for roofing. Single ply roofing will allow cap flashing.
- .3        Counterflashing shall be applied using a s-lock type joint which will prevent buckling of metal and provide proper contraction and expansion, and produce a surface free of warp, wave, buckle, dents and other defects. Corners shall square and surface straight and true to plains. All metal shall have hemmed edges.
- .4        Install sheet metal with concealed fasteners. Exposed fasteners permitted only with Owner's approval. Metal to be installed firmly to avoid movement or stripping by wind. Fasten into vertical surfaces only. No fastening into canted surfaces will be accepted.
- .5        Finish joints at horizontal mitred joints and canted corners with folded standing seams.

**END OF SECTION**

# PVNC CATHOLIC DISTRICT SCHOOL BOARD



**art engineering inc.**

## LIST OF DRAWINGS

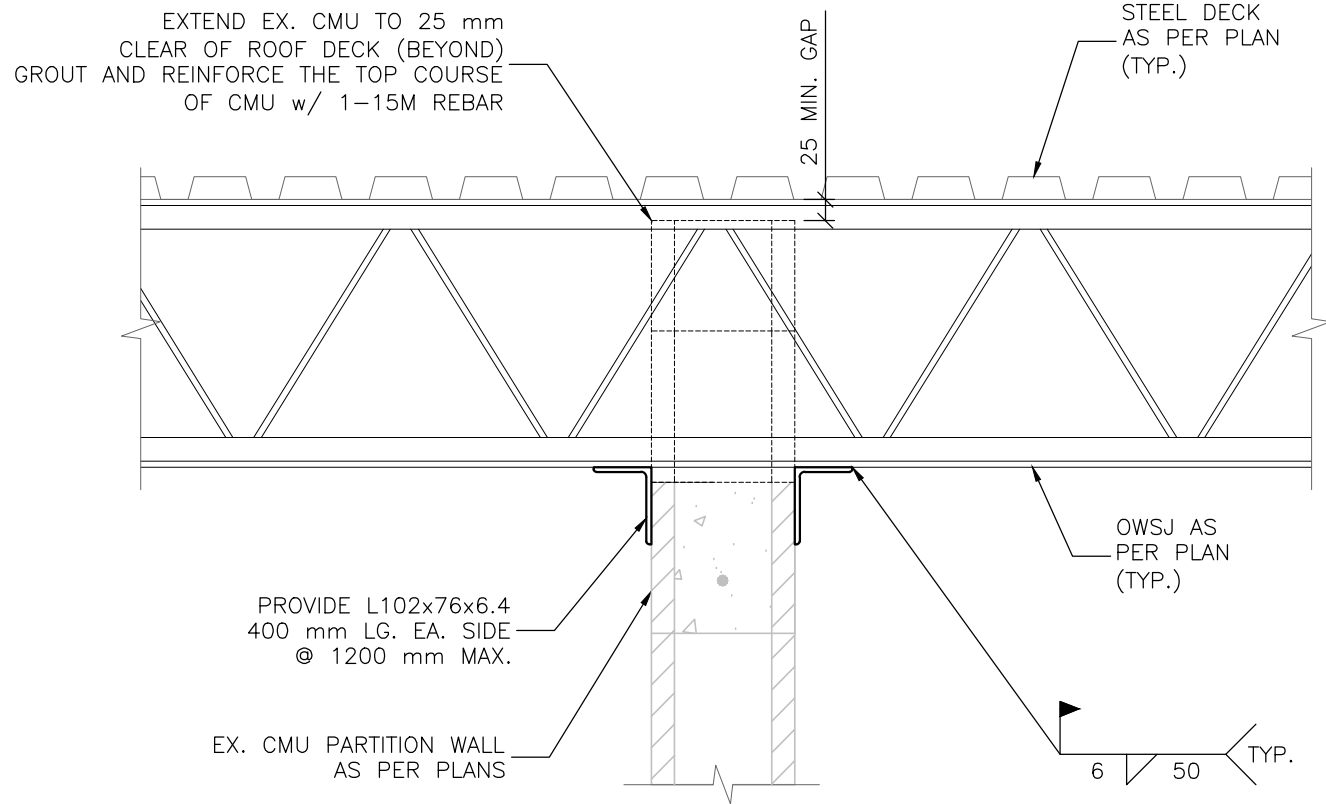
-	COVER SHEET
S00-S01	GENERAL NOTES & TYPICAL DETAILS
S02-S04	PROPOSED DEMOLITION SEQUENCES, SITE PLAN, & DETAILS
S05-S06	NEW ROOF FRAMING PLANE, SECTION, ELEVATION & FRAMING DETAILS
S07	PROPOSED PHASE ROOF REPLACEMENT
S08	NEW ROOF PLAN <sup>△</sup>

760 BURNHAM ST. - COBOURG, ONTARIO  
NDES ROOF REPLACEMENT

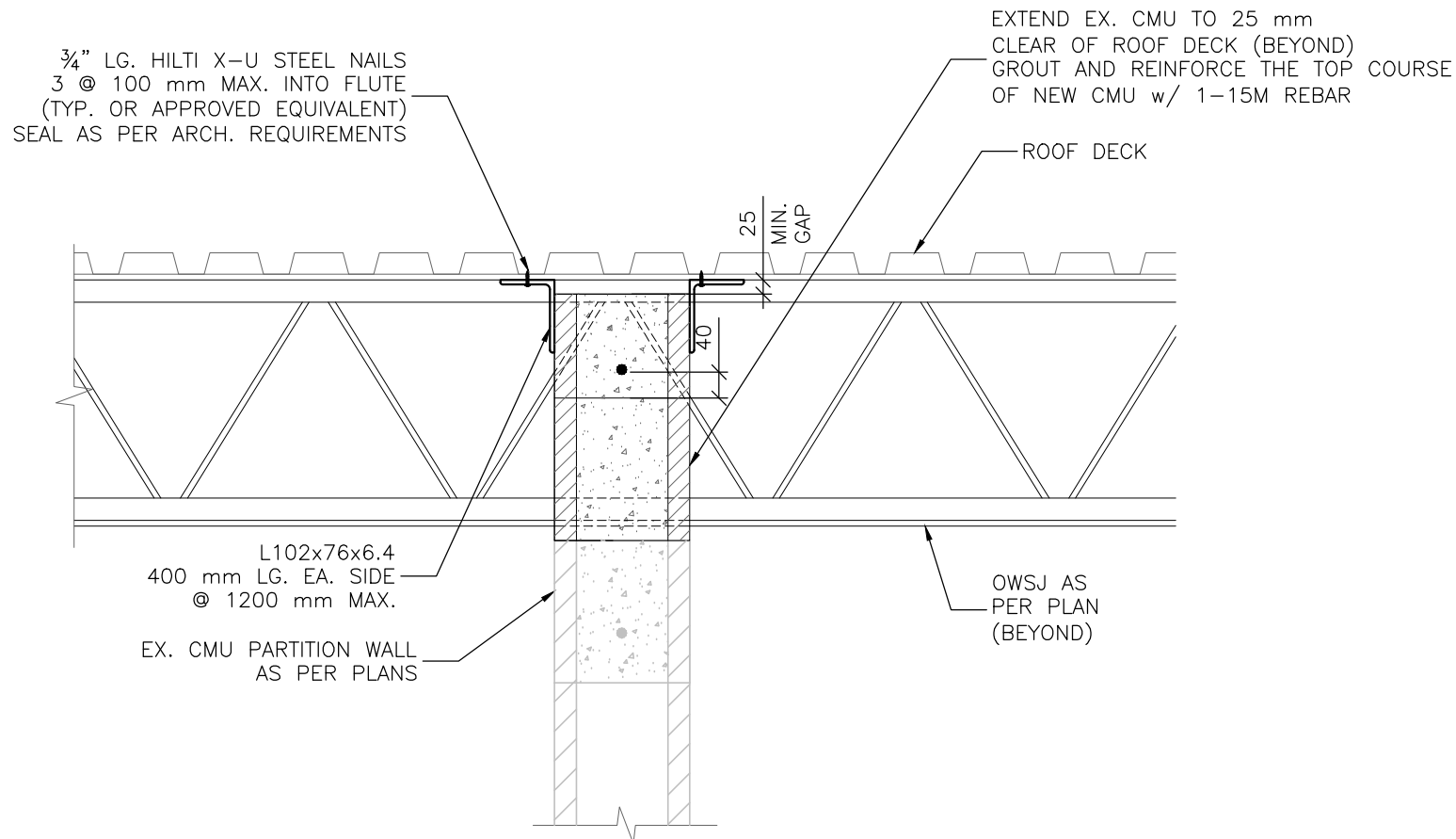
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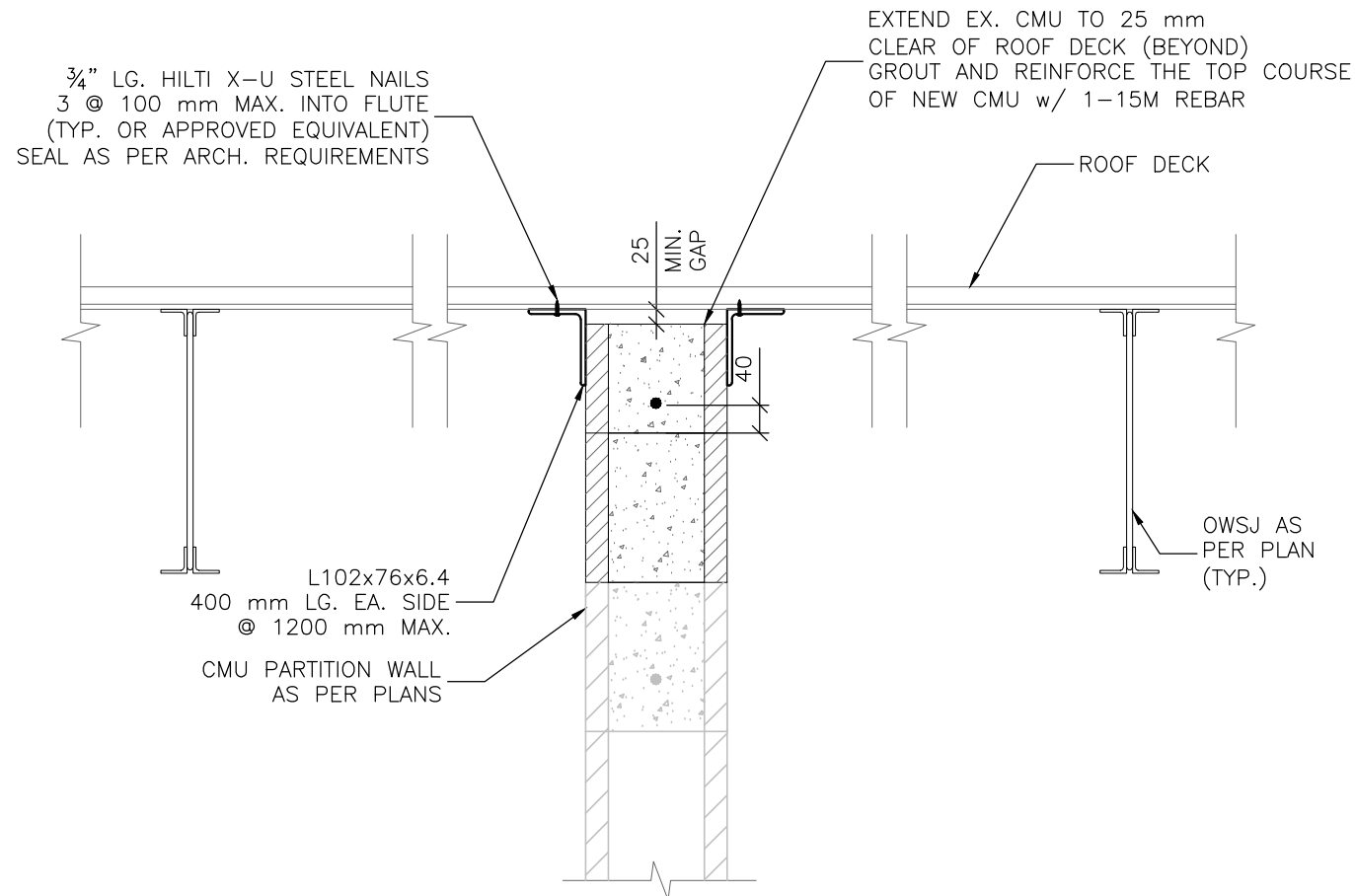
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EXTENSION OF CMU WALL IN PERPENDICULAR TO OWSJ @ OWSJ

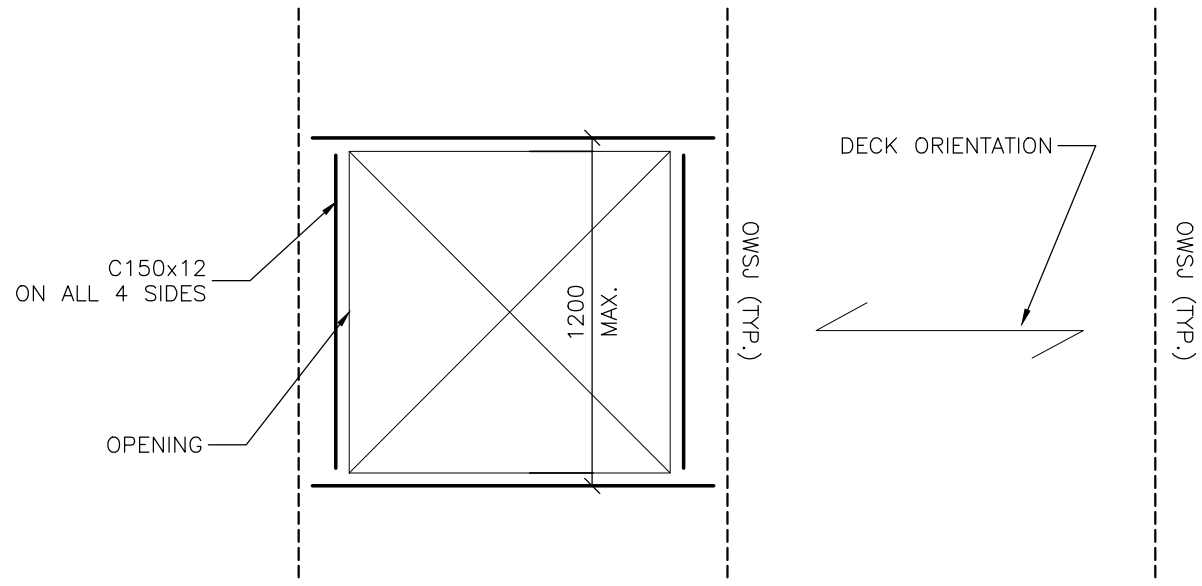


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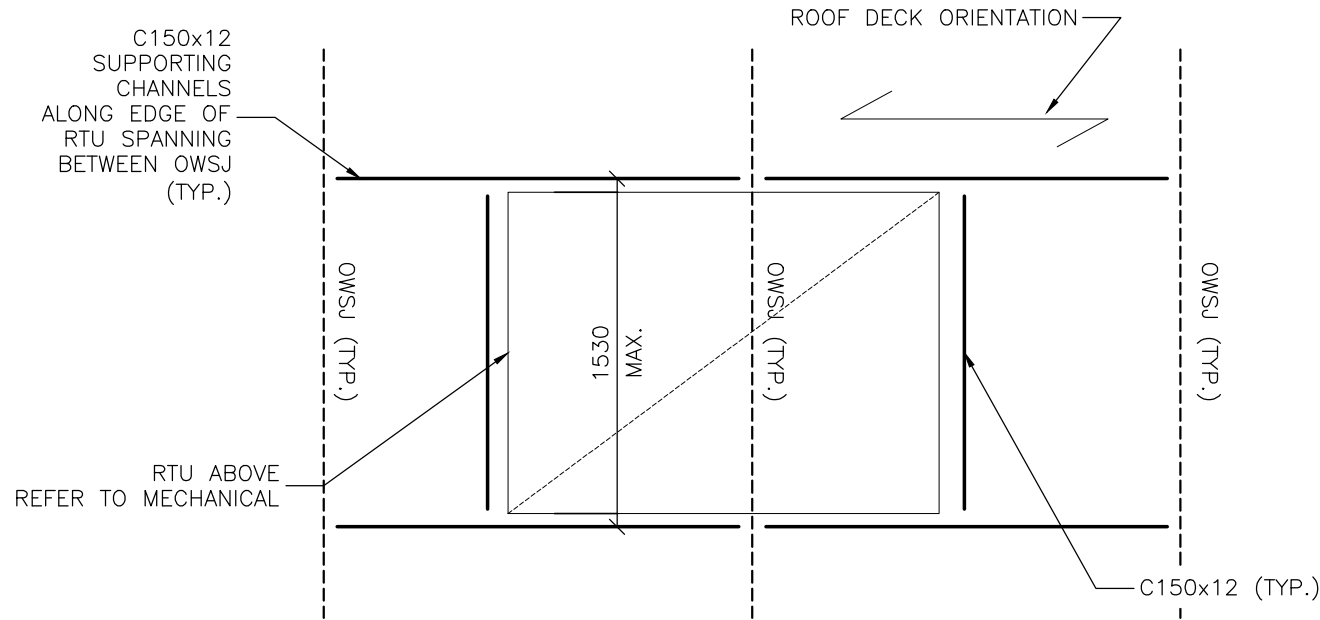
EXTENSION OF EX. CMU WALL IN PARALLEL TO OWSJ

TYPICAL CMU PARTITION WALL EXTENSION & LATERAL RESTRAINT DETAIL



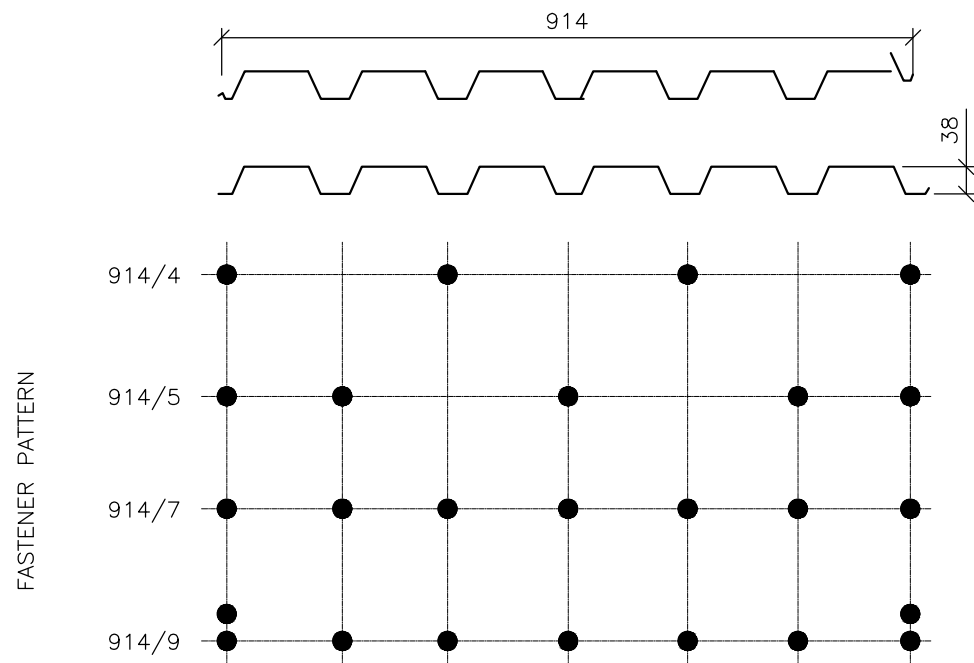
NOTES: REFER TO MECHANICAL, ELECTRICAL AND ARCHITECTURAL DRAWINGS FOR SIZE AND LOCATION OF OPENINGS. OPENINGS LESS THAN 150 mm WIDE DO NOT REQUIRE REINFORCING.  
PROVIDE OWSJ TOP CHORD REINFORCING WHERE THE C150x12 DOES NOT INTERSECT WITHIN 100 mm OF A PANEL POINT, TO BE REVIEWED AND APPROVED BY THE ENGINEER.

TYPICAL OPENINGS IN DECK DETAIL

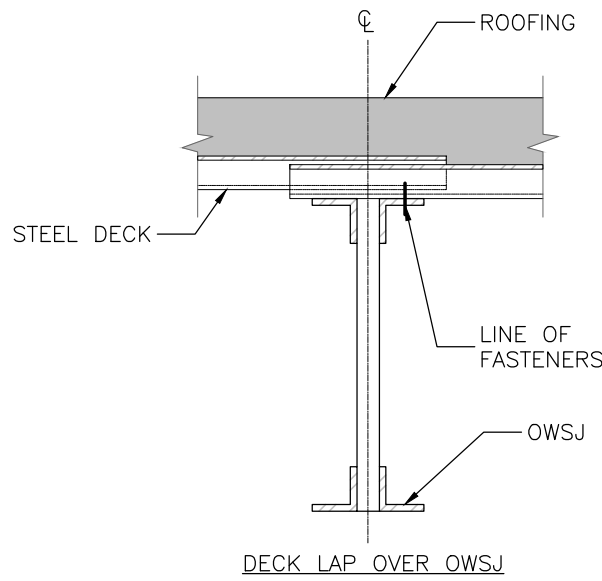


NOTES: REFER TO MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF RTUs.  
PROVIDE OWSJ TOP CHORD REINFORCING WHERE THE C150x12 DOES NOT INTERSECT WITHIN 100 mm OF A PANEL POINT, TO BE REVIEWED AND APPROVED BY THE ENGINEER.  
ANCHOR RTUs TO CHANNEL SUPPORTS FOR SEISMIC IN ACCORDANCE WITH OBC 2012 [2020 AMD].  
PROVIDE ADDITIONAL CHANNEL REINFORCING AROUND ANY OPENINGS REQUIRED IN ACCORDANCE WITH THE TYPICAL DETAIL.

TYPICAL FRAMING SUPPORTING RTU DETAIL



TYPICAL STEEL DECK FASTENING DETAILS (N.T.S.)



TYPICAL STEEL DECK LAP DETAILS (N.T.S.)

THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS ON SITE. THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION UNLESS STAMPED AND SIGNED BY THE ENGINEER AND ISSUED "FOR CONSTRUCTION". DO NOT SCALE THESE DRAWINGS.

client  
**PVNC CATHOLIC DISTRICT SCHOOL BOARD**

project  
**NOTRE DAME ELEMENTARY SCHOOL ROOF REPLACEMENT**



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B location drawing no. sur dessin no.

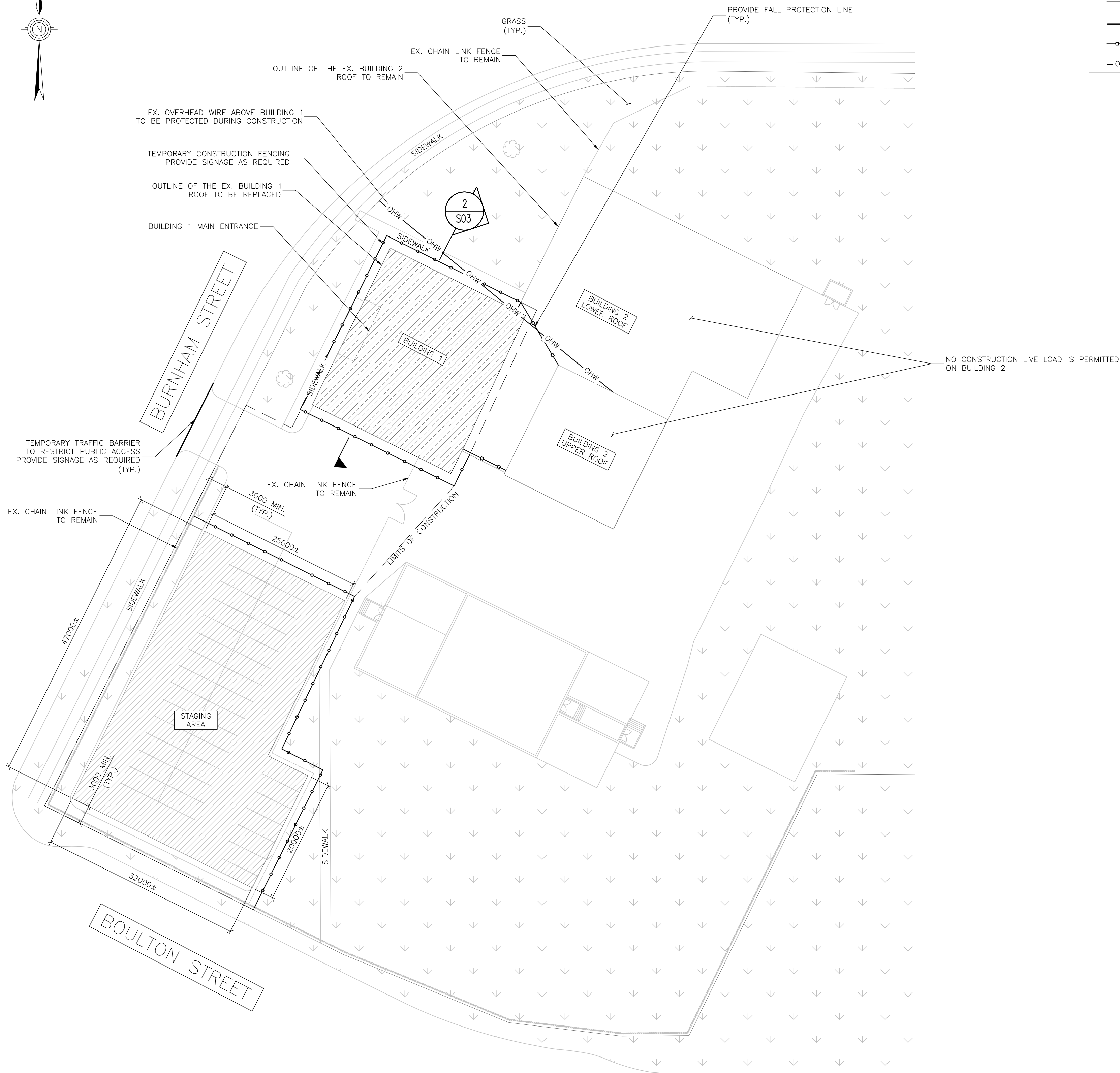
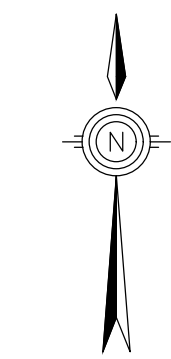
scale N/A

revisions	date
1.	ADDENDUM NO.1 26-06-25
0.	ISSUED FOR PERMIT 11-06-25

TYPICAL DETAILS



designed F.S.	drawn F.S.	reviewed B.H.	approved B.H.
date June 11, 2025	project number 7619	drawing number S01	



1 SITE PLAN  
S02 1:400

DRAWING NOTES:

LEGEND

- AREA OF WORK
- STAGING AREA
- CONSTRUCTION FENCING
- TRAFFIC CONTROL
- FALL PROTECTION LINE
- OHW — OVERHEAD WIRE

SEQUENCE OF WORK

THE FOLLOWING SEQUENCE OF WORK IS APPLICABLE TO THE EX. ROOF REPLACEMENT FOR NOTRE DOME ELEMENTARY SCHOOL BUILDING 1. THE WORK SHALL PROCEED FROM STEP #1 TO STEP #6. THE STEPS MUST BE COMPLETED IN NUMERICALLY SEQUENTIAL ORDER.

STEP #1 (WORK PLAN SUBMISSION)

1. CONTRACTOR SHALL SUBMIT THE WORK PLAN FOR THE REMOVALS AND THE CRANE TO BE USED TO AEI FOR REVIEW AND APPROVAL BEFORE COMMENCING DEMOLITION OPERATIONS.

STEP #2 (DEMOLITION INITIATION)

- 2a. SETUP TRAFFIC CONTROL, CONSTRUCTION FENCING, WORKER FALL PROTECTION, AND SIGNAGE IN ACCORDANCE WITH 1/S02.
- 2b. PROTECT CONCRETE WALKS, LIGHT POLES, ELECTRICAL/UTILITY SYSTEMS, SIGNS, GRASS TO REMAIN.
- 2c. DISCONNECT ELECTRICAL POWER AT THE MAIN FEED FOR THE BUILDING.
- 2d. REMOVE AND DISPOSE OF THE ELECTRICAL EQUIPMENT IN THE CEILING SPACE OF BUILDING 1 INCLUDING ALL DEVICES (I.E., LIGHTING, FIRE ALARM, RECEPTACLES, ETC.), CONDUIT AND WIRING.
- 2e. REMOVE THE HVAC DUCT IN THE CEILING SPACE. REMOVE AND RETAIN OR DISPOSE OF THE MECHANICAL EQUIPMENT ABOVE THE EXISTING ROOF AS PER MECH..

STEP #3 (EX. ROOF ASSEMBLY REMOVAL)

- 3a. USING HANDTOOLS, MAXIMUM CONSTRUCTION LIVE LOAD ON EXISTING ROOF IS 2.4 kPa WITH CURRENT SHORING INSTALLED, TO REMOVE AND DISPOSE ALL THE GRAVEL, ROOF INSULATION, AND ROOF CURBS FRAMING AROUND ROOF OPENING.
- 3b. PROVIDE TARPS AS REQUIRED TO PREVENT WATER FROM ENTERING THE BUILDING.

STEP #4 (PHASED ROOF REPLACEMENT)

- 4a. POSITION THE MOBILE CRANE IN ACCORDANCE WITH THE MANUFACTURE REQUIREMENTS FOR THE LIFTING WEIGHT AND RADIUS REQUIREMENTS.
- 4b. PERFORM THE LONGITUDINAL SAW CUTS AS INDICATED ON TYPICAL SECTION 1/S03 AND 2/S03 TO SEPARATE THE RAAC PANEL FROM THE CMU WALLS.
- 4c. RIG THE RAAC PANEL FOR REMOVAL WITH THE APPROVED RIGGING DEVICES. RAAC PANEL SHALL BE REMOVED STARTING FROM PHASE 1.
- 4d. ENGAGE THE MOBILE CRANE AND LIFT OUT THE RIGGED RAAC PANEL. ENSURE WORKERS ARE POSITIONED OUTSIDE THE OVERHEAD LIFT.
- 4e. LOAD THE REMOVED RAAC PANEL TO TRUCK FOR DISPOSAL OR RECYCLE.
- 4f. EXTEND EXISTING CMU WALL BY TWO COURSES, BEARING PLATE, ANCHOR STUD, AND LONGITUDINAL CMU REBER AS INDICATED ON 2/S07.
- 4g. INSTALL NEW ROOF JOIST AND FIELD WELD TO THE BEARING PLATE AS PER 3/S07.
- 4h. INSTALL STEEL DECK AND PRIMER ANGLE AS PER 4/S07.
- 4i. MOVE TO THE NEXT PHASE OF REPLACEMENT AS PER 5-7/S07 AND REPEAT STEPS 4a TO 4h TO REPLACE THE ENTIRE ROOF OF BUILDING 1.

STEP #5

- 5a. INSTALL NEW ROOF ASSEMBLY AS PER 8/S07 AND S08.
- 5b. INSTALL PARAPET AS PER S06 AND ARCH. DRAWINGS.
- 5c. EXTEND EX. BRICK VENEER AND COPPER PANELS SIDING TO ACCOMMODATE NEW ROOF ELEVATION.
- 5d. INSTALL MECH. FASTEN UNDERLAYMENT BOARD, TAPERED ROOF INSULATION AND NEW BUILT-UP ROOF AS PER ARCH. AND MECH. DRAWING.

STEP #6

6. INSTALL ELEC., MECH., AND HVAC UNIT AS PER ARCH., MECH., AND ELEC. DRAWINGS.

THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS ON SITE. THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION UNLESS STAMPED AND SIGNED BY THE ENGINEER AND ISSUED "FOR CONSTRUCTION". DO NOT SCALE THESE DRAWINGS.

CONTRACTOR TO SURVEY ALL EXISTING WALLS. ANY DAMAGED SHALL BE DOCUMENTED AND THE ENGINEER SHALL BE NOTIFIED.

SUBMIT ROOF SLAB REMOVAL MACHINERY SPECIFICATIONS AND WORK PLAN TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO COMENING REMVALS.

client

PVNC CATHOLIC  
DISTRICT SCHOOL  
BOARD

project

NOTRE DAME ELEMENTARY  
SCHOOL ROOF REPLACEMENT

760 BURNHAM STREET,  
COBOURG, ONTARIO



A detail no.  
no. de détail  
B location drawing no.  
sur dessin no.

scale N/A

1.	ADDENDUM NO.1	26-06-25
0.	ISSUED FOR PERMIT	11-06-25
revisions		date

drawing

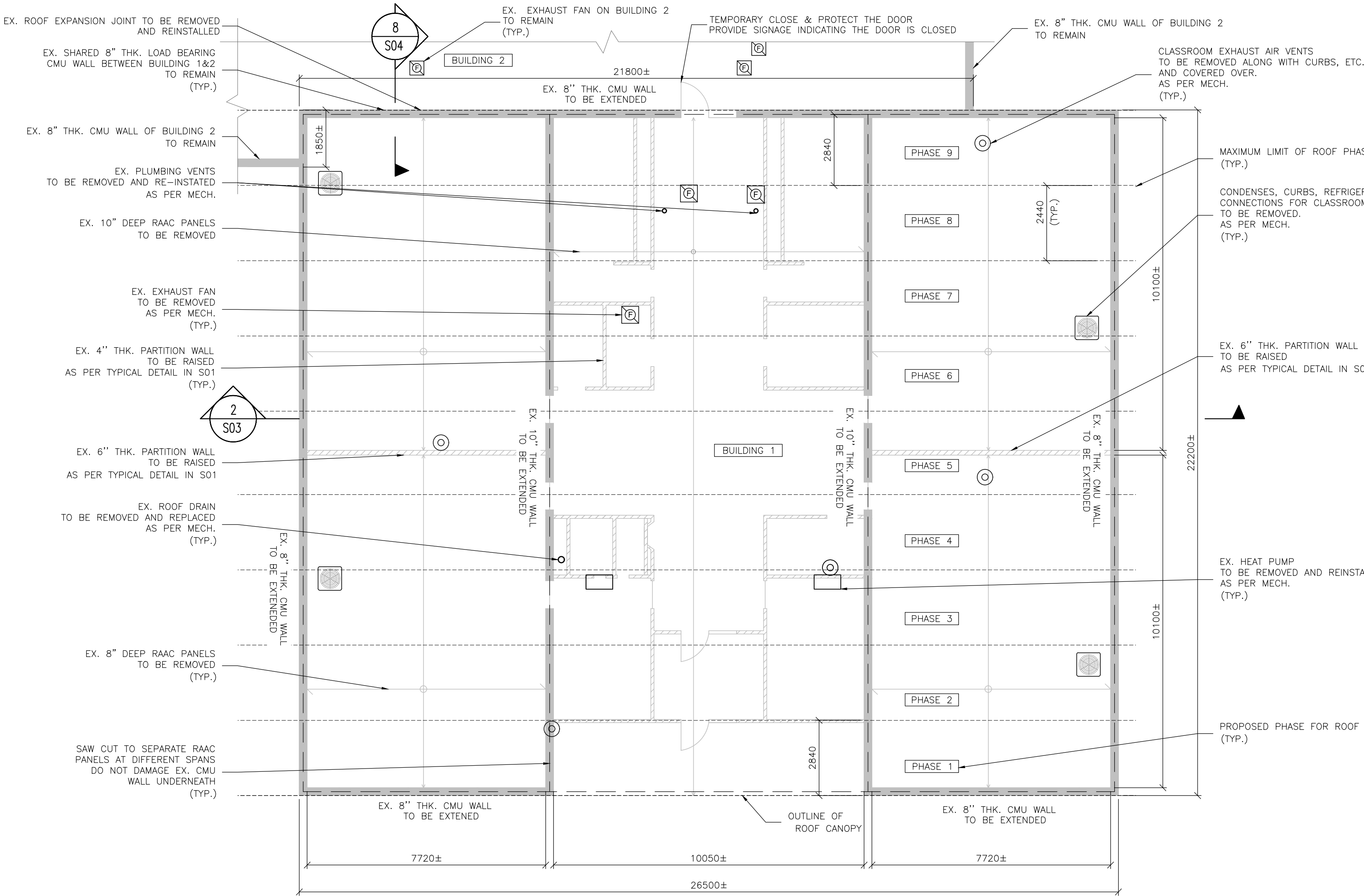
NOTES, DEMOLITION  
SEQUENCES, & SITE PLAN

stamp



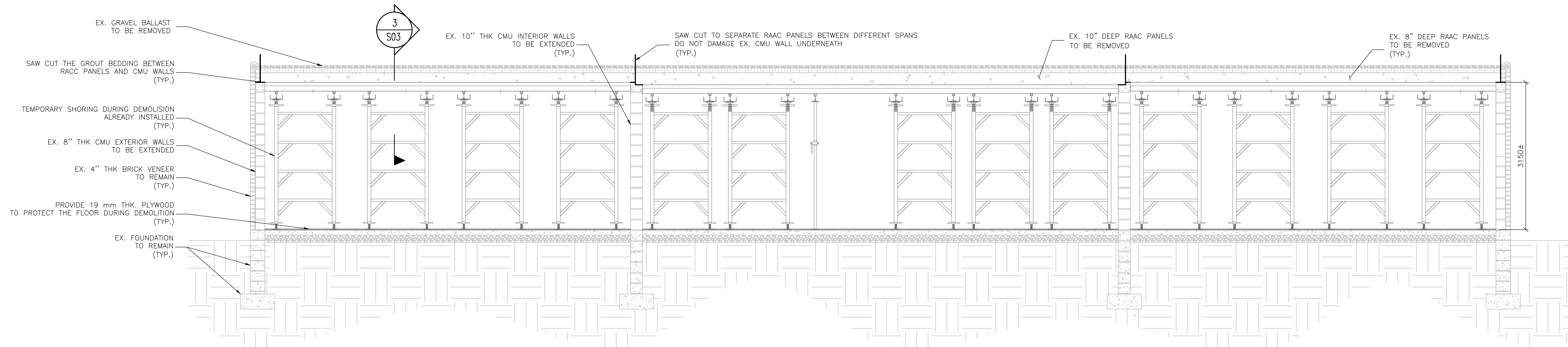
designed	drawn	reviewed	approved
F.S.	F.S.	B.H.	B.H.
date	project number	drawing number	
June 11, 2025	7619	S02	



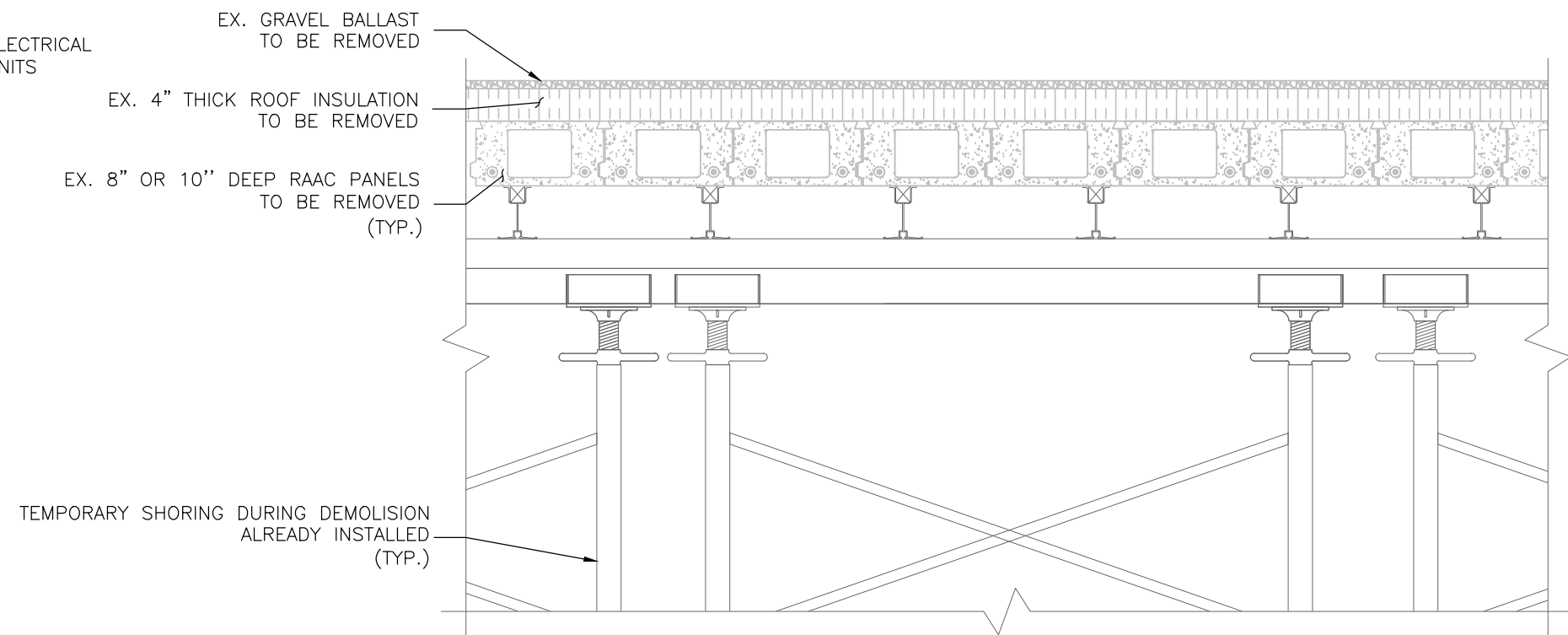


1 BUILDING 1 EXISTING ROOF FRAMING & PHASE REPLACEMENT PLAN  
S03 1:100

NOTE: CONTRACTOR'S ELECTRICIAN TO VERIFY THAT EXISTING ELECTRICAL IS DE-ENERGIZED. REMOVE ALL ABANDONED ELECTRICAL COMPONENTS AND CAP OFF



2 TYPICAL EXISTING BUILDING 1 ELEVATION  
S03 1:50



3 TYPICAL BUILDING 1 SECTION  
S03 1:20

NOTE: LIVE LOAD ON BUILDING 1 DURING CONSTRUCTION SHALL BE LIMITED TO 2.4 kPa ON ROOF

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client  
**PVNC CATHOLIC DISTRICT SCHOOL BOARD**

project  
**NOTRE DAME ELEMENTARY SCHOOL ROOF REPLACEMENT**  
**760 BURNHAM STREET, COBOURG, ONTARIO**



A detail no. or detail  
B location drawing no. or design no.

scale N/A		
0.	ISSUED FOR PERMIT	11-06-25
revisions		date
drawing		

**PHASE DEMOLITION PLAN, ELEVATION, & SECTION**

stamp 			
designed F.S.	drawn F.S.	reviewed B.H.	approved B.H.
date June 11, 2025	project number 7619	drawing number S03	



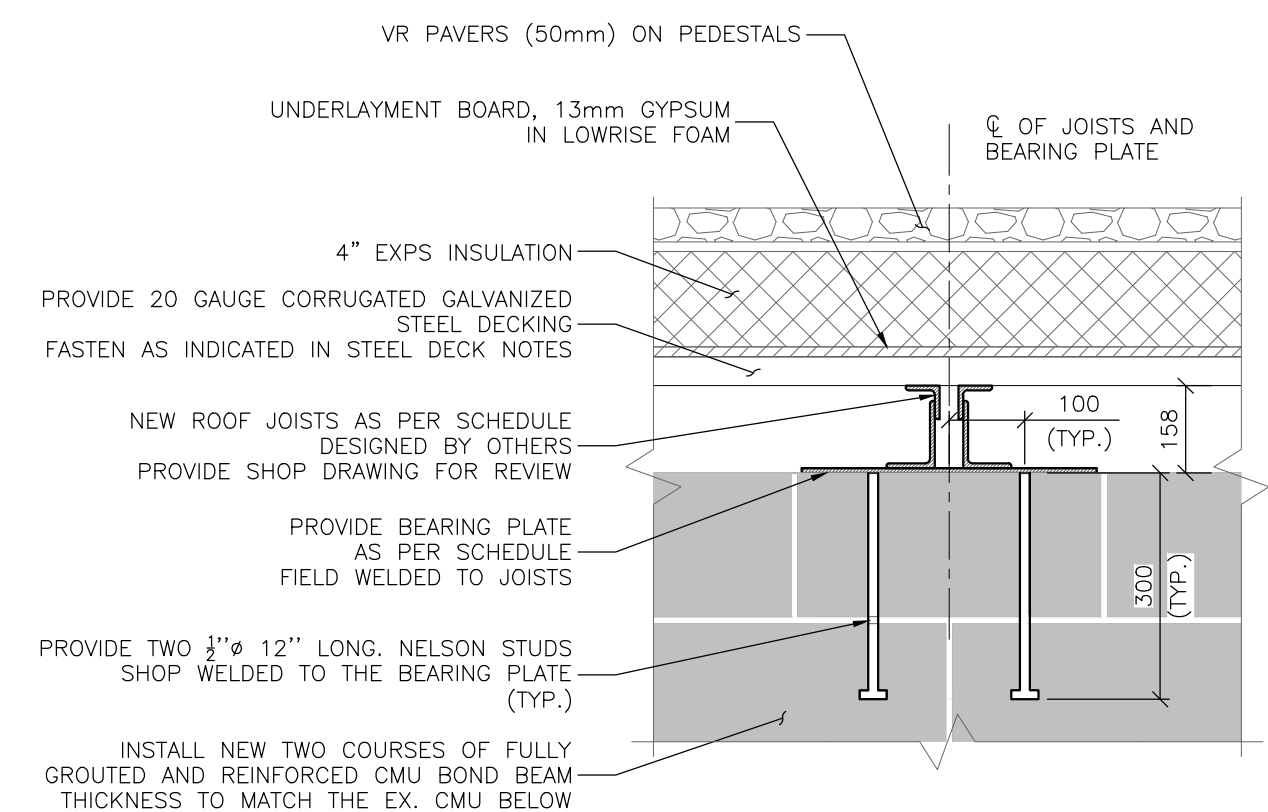
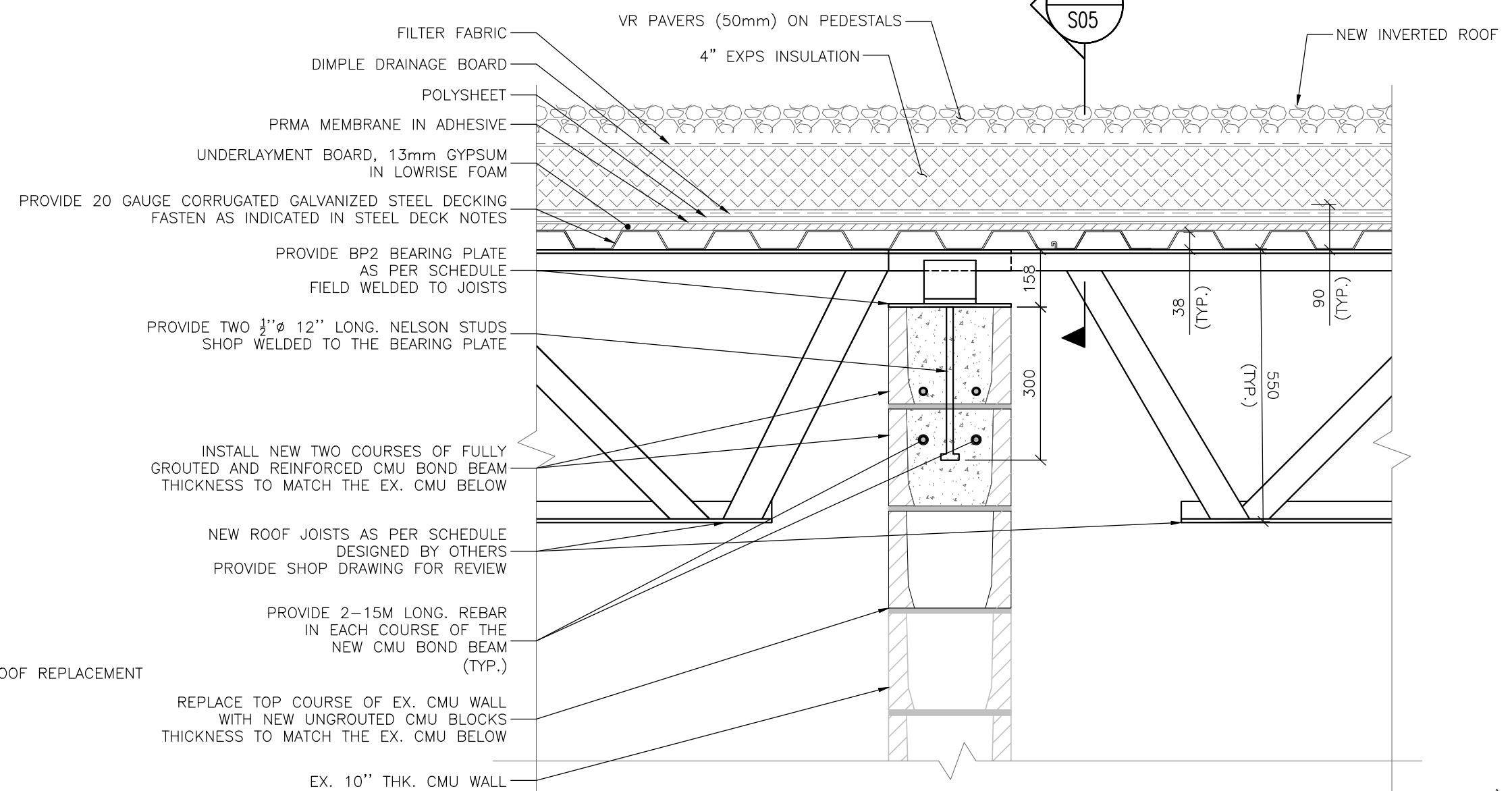
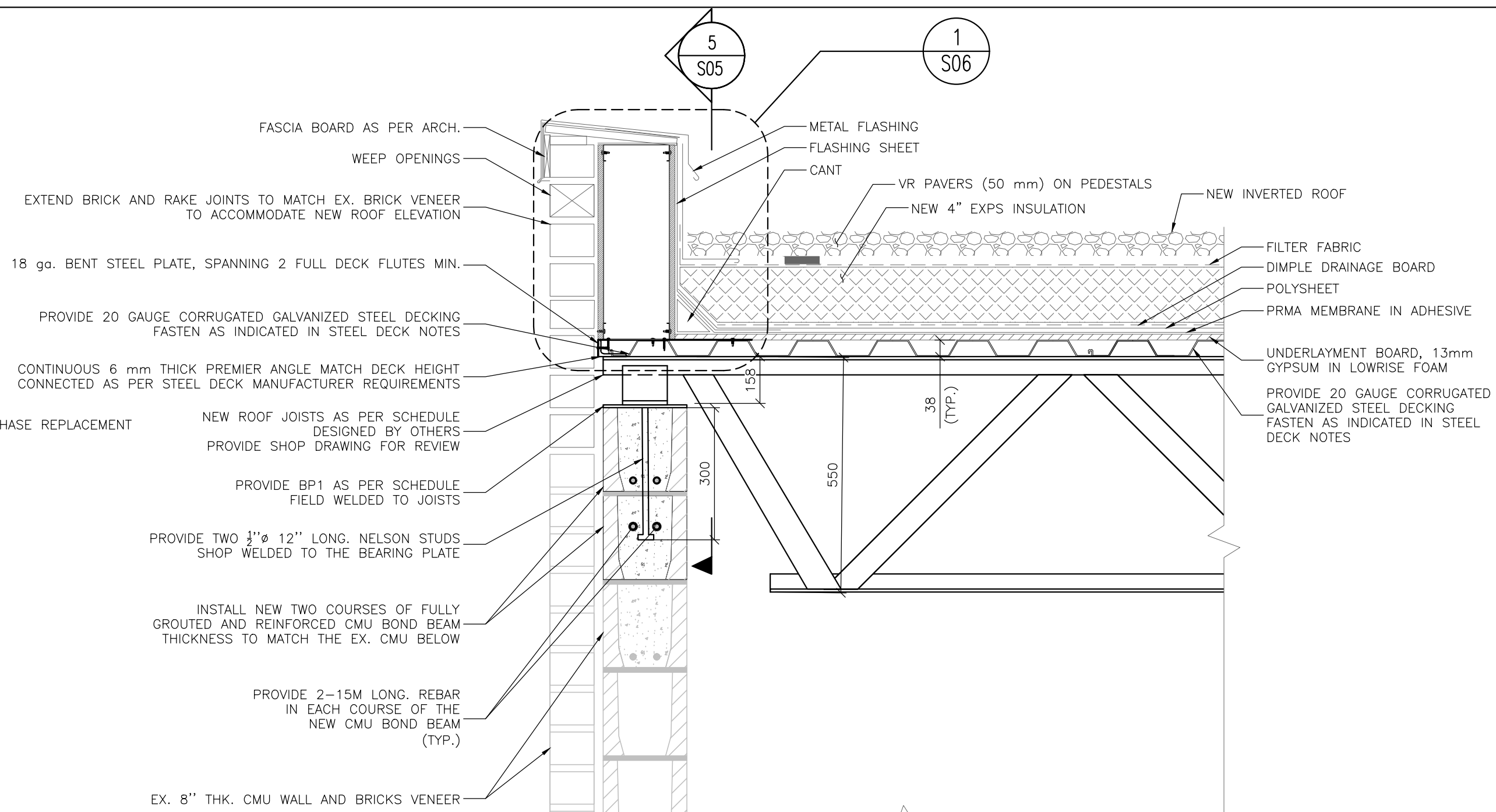
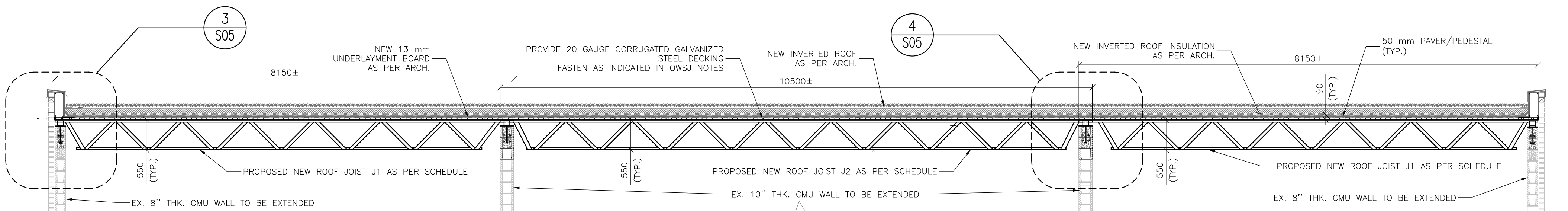
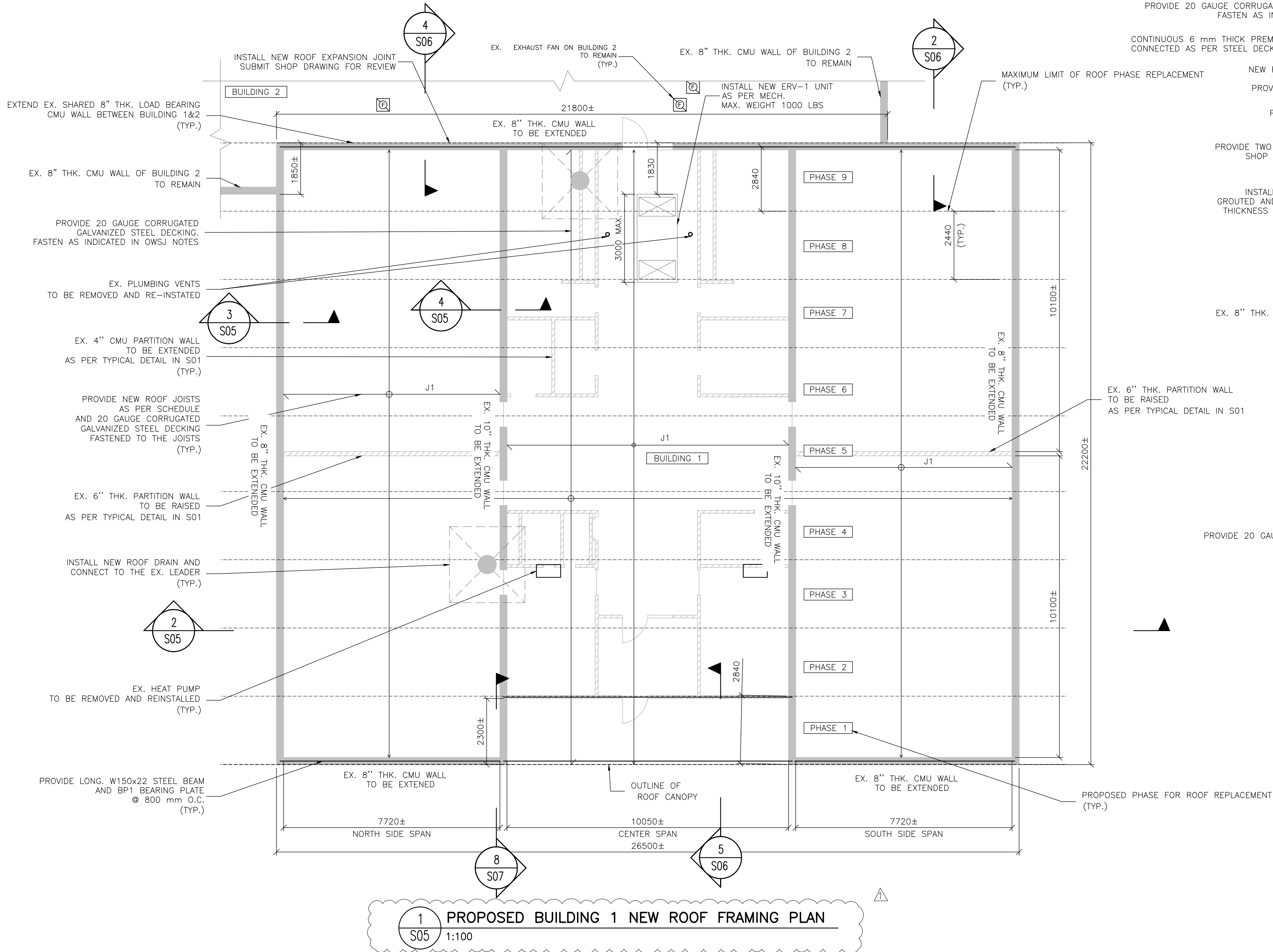


NOTE: CONTRACTOR TO PROVIDE PROTECTION TO BUILDING 2 TO REMAIN. ENSURE THE STRUCTURE IS TEMPORARLY SUPPORTED AS DIRECTED BY CONTRACTORS ENGINEER. ENSURE THAT BUILDING 2 IS PROTECTED FROM THE ENVIRONMENT.

designed F.S.	drawn F.S.	reviewed B.H.	approved B.H.
date June 11, 2025		project number 7619	drawing number S04

OWSJ SCHEDULE		
ANNOTATION	MEMBER SIZE	NOTES
J1	550 mm DEEP @ 810 mm c.c. MAX.	DESIGNED AS PER SHOP DRAWING

BEARING PLATE SCHEDULE	
ANNOTATION	MEMBER SIZE (mm)
BP1	400x200x6
BP2	400x250x6



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client


**PVNC CATHOLIC DISTRICT SCHOOL BOARD**

project

**NOTRE DAME ELEMENTARY SCHOOL ROOF REPLACEMENT**

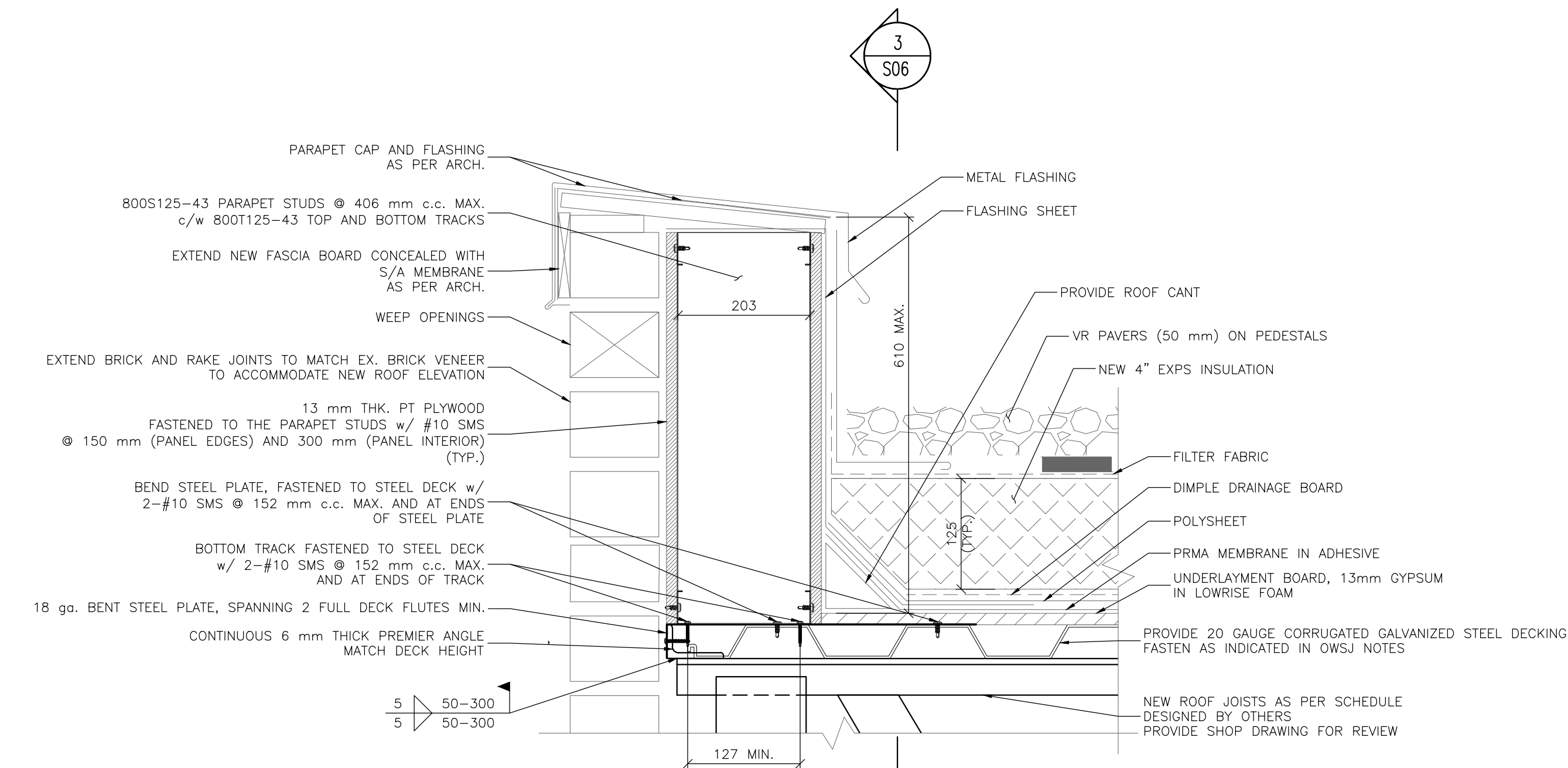
**760 BURNHAM STREET, COBOURG, ONTARIO**



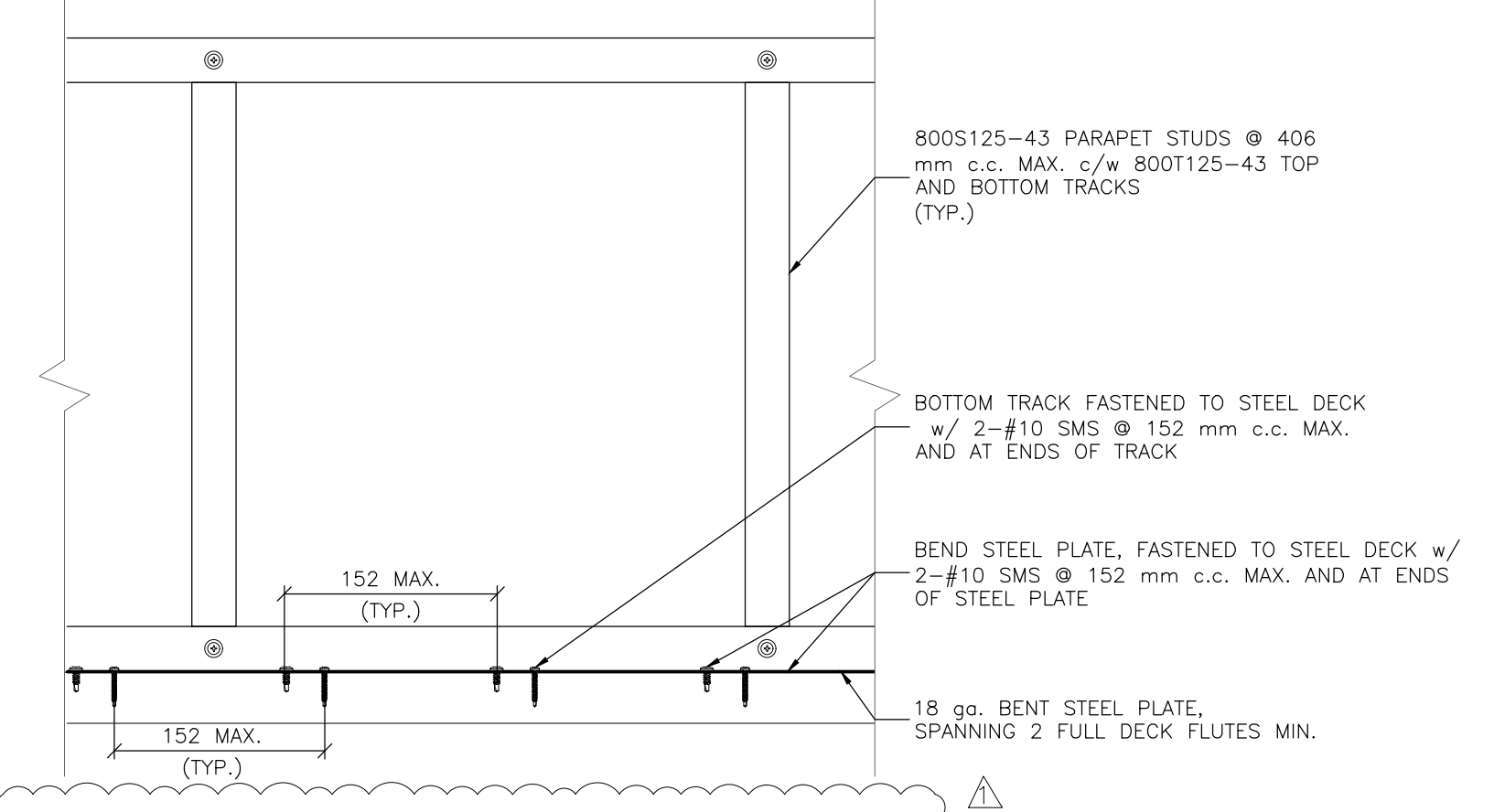
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e N/A		
1.	ADDENDUM NO.1	26-06-25
0.	ISSUED FOR PERMIT	11-06-25
revisions		date
drawing		

**NEW ROOF FRAMING PLAN, SECTION, ELEVATION & DETAILS**

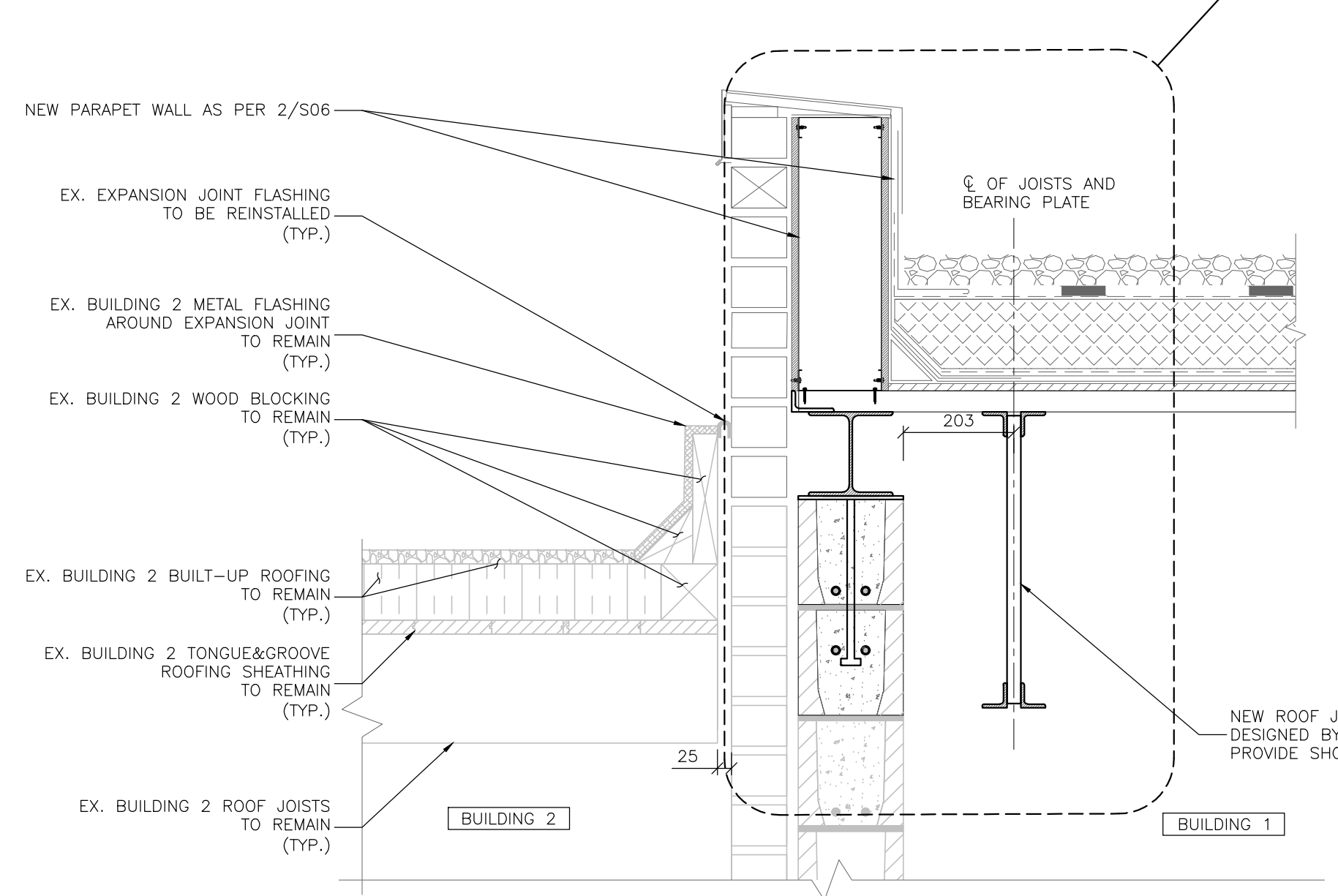
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F.S.	F.S./V.Y.	B.H.	B.H.
date	project number	drawing number	
June 11, 2025	7619	S05	



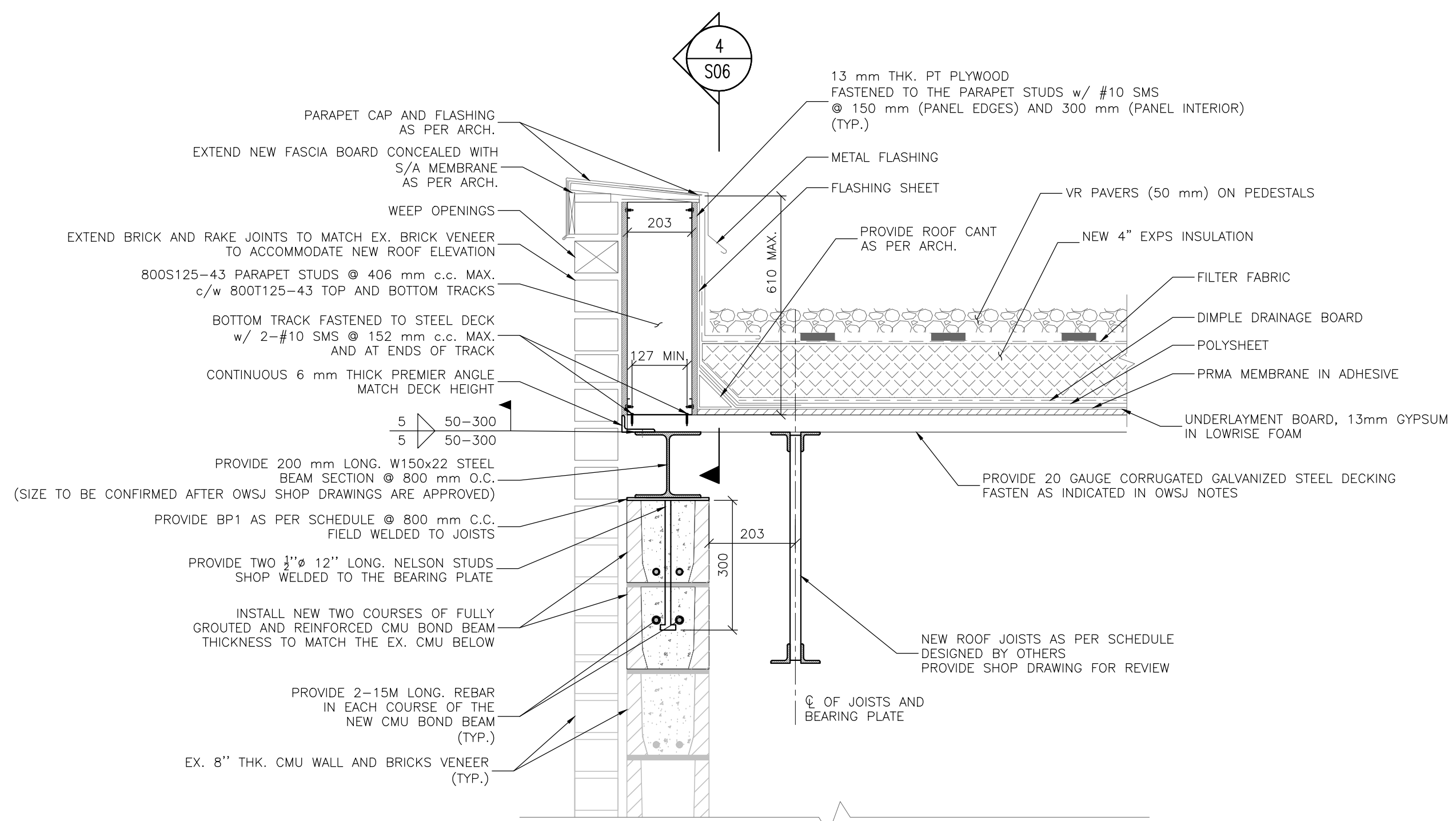
1 PARAPET FRAMING DETAIL: SECTION  
S06 1:5  
TYPICAL, MIRROR AS REQUIRED



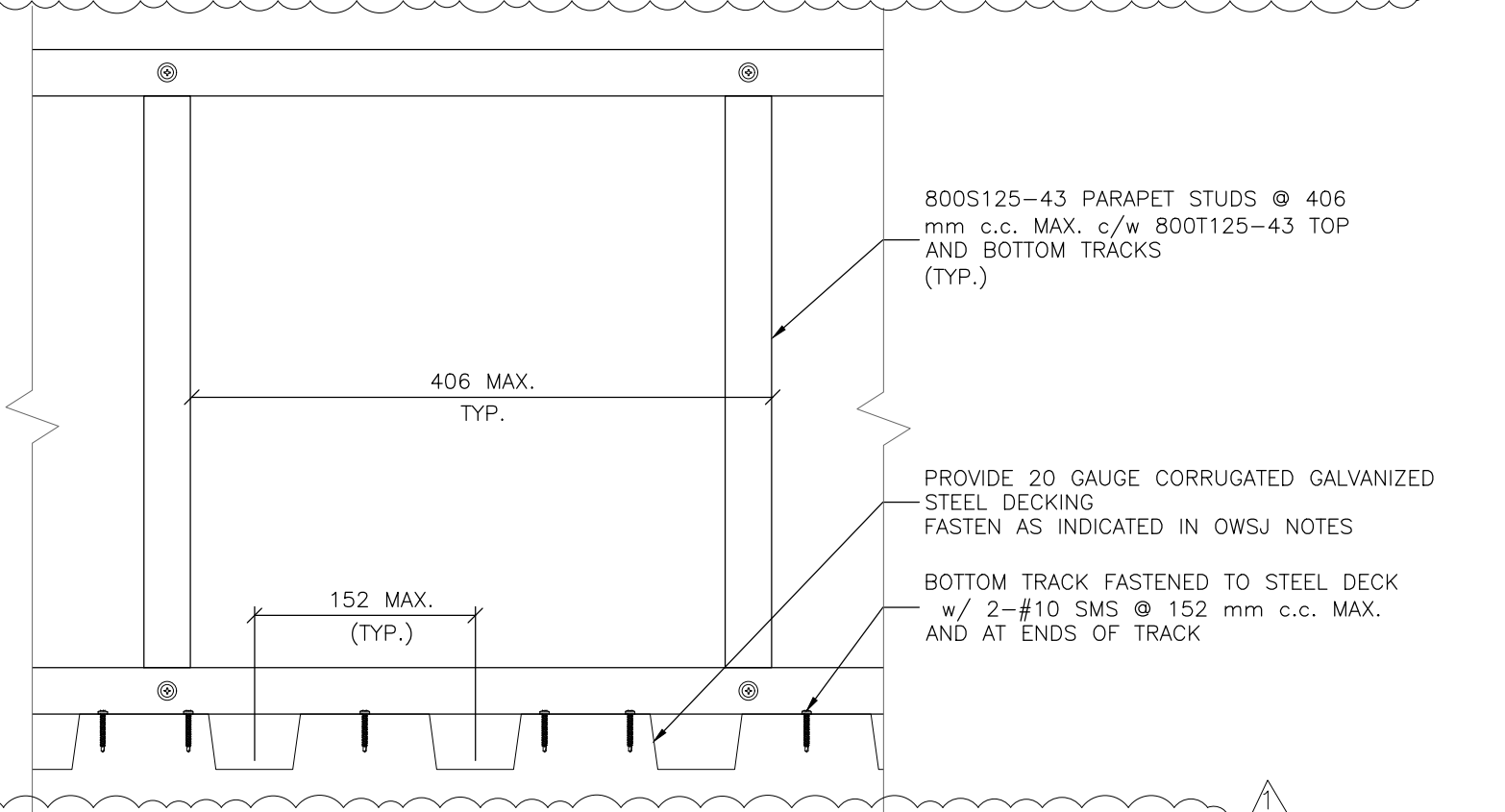
3 PARAPET FRAMING DETAIL: ELEVATION  
S06 1:5  
TYPICAL, MIRROR AS REQUIRED



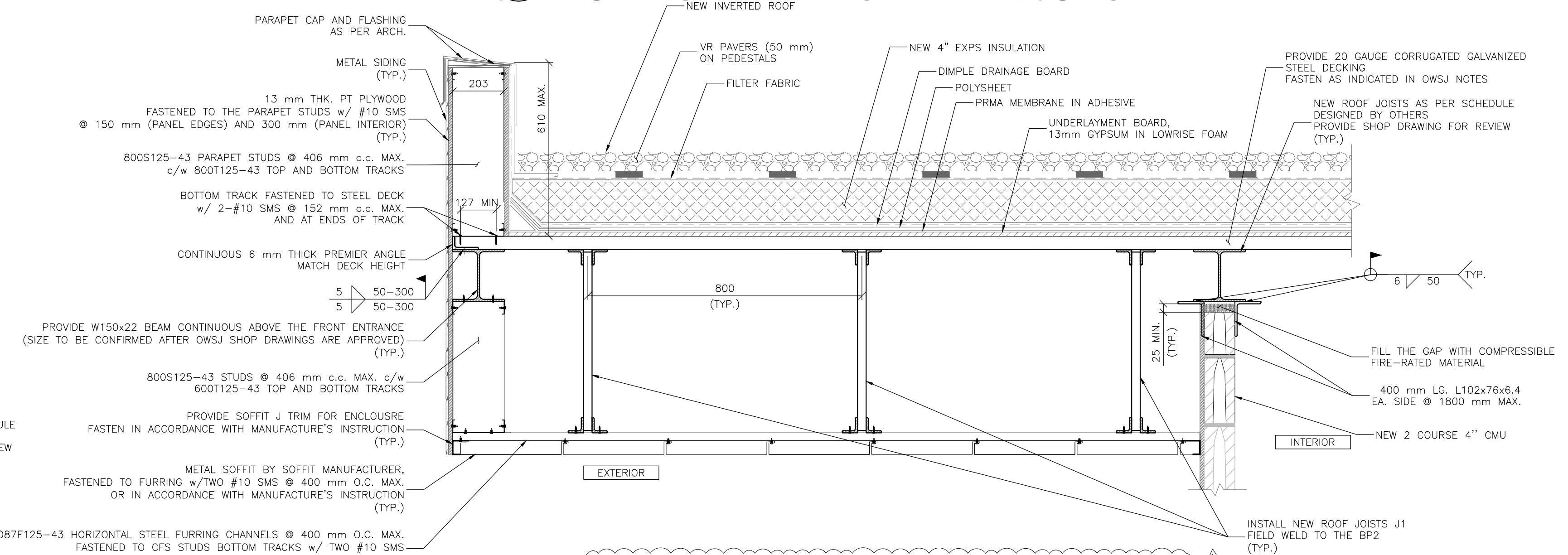
5 TYPICAL FRAMING DETAIL @ EXPANSION JOINT  
S06 1:10



2 TYPICAL FRAMING DETAIL @ NON-LOADING BEARING CMU: SECTION  
S06 1:10  
MIRROR AS REQUIRED



4 PARAPET FRAMING DETAIL @ NON-LOADING BEARING CMU: ELEVATION  
S06 1:5  
TYPICAL, MIRROR AS REQUIRED



6 TYPICAL SOFFIT FRAMING DETAIL @ FRONT ENTRANCE  
S06 1:10

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CONTRACTOR TO SURVEY ALL EXISTING WALLS. ANY DAMAGED SHALL BE DOCUMENTED AND THE ENGINEER SHALL BE NOTIFIED.

client

PVNC CATHOLIC DISTRICT SCHOOL BOARD

project

NOTRE DAME ELEMENTARY SCHOOL ROOF REPLACEMENT

760 BURNHAM STREET, COBOURG, ONTARIO



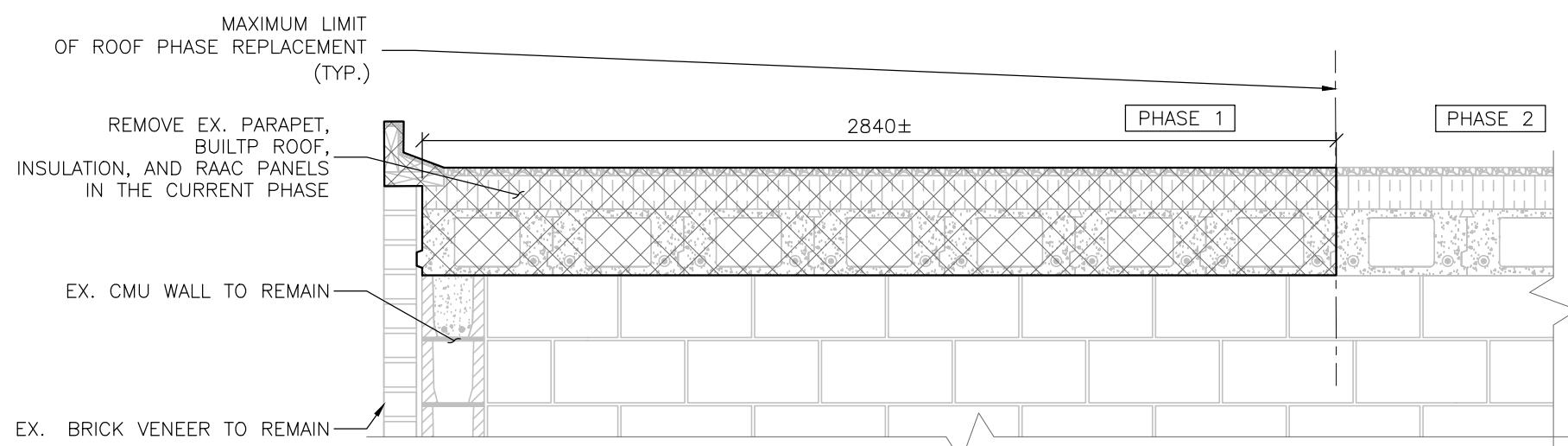
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revisions		date
drawing		

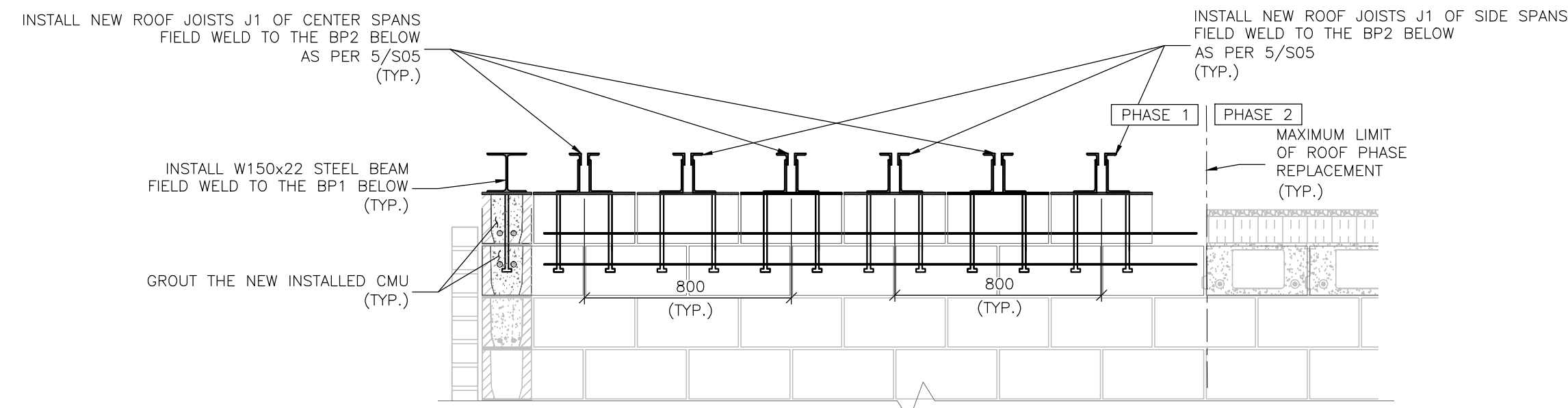
NEW ROOF PARAPET FRAMING AND EXPANSION JOINT DETAILS

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designed	drawn	reviewed	approved
F.S.	F.S./V.Y.	B.H.	B.H.
date	project number	drawing number	
June 11, 2025	7619	S06	

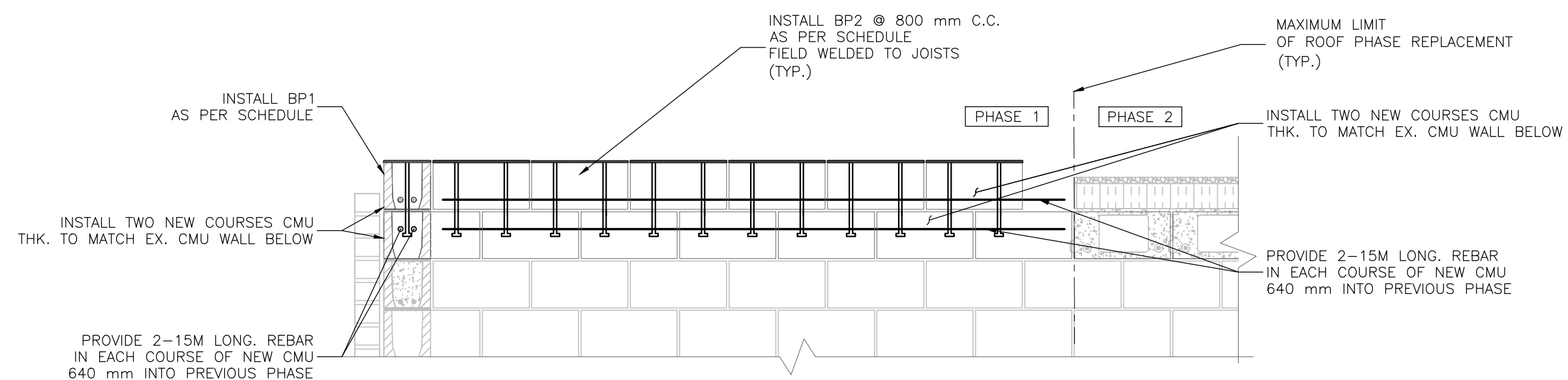




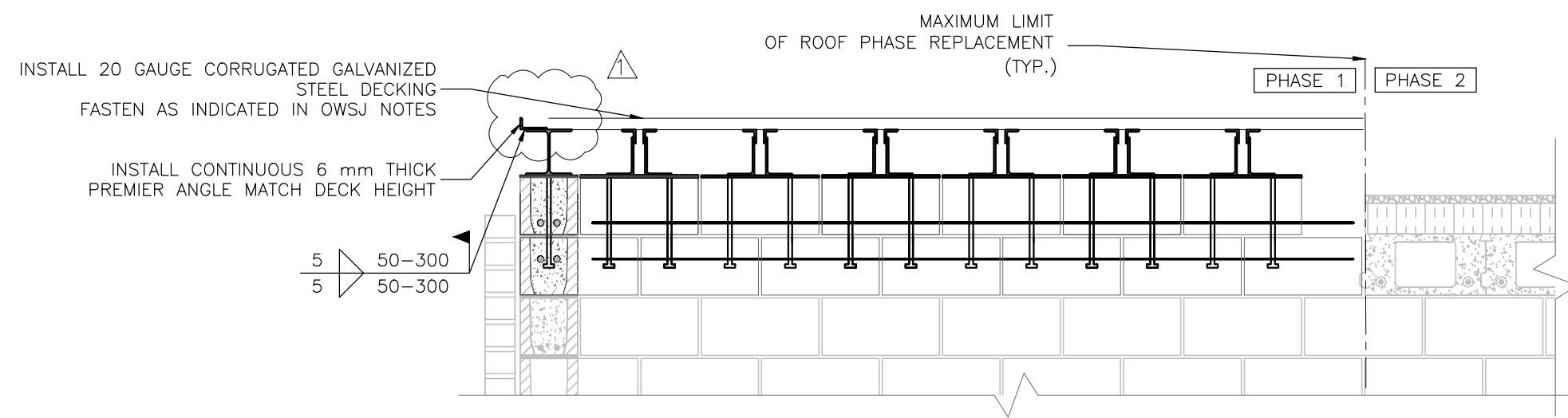
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S07  
1:20  
PROPOSED NEW ROOF JOIST REPLACEMENT: STEP 1



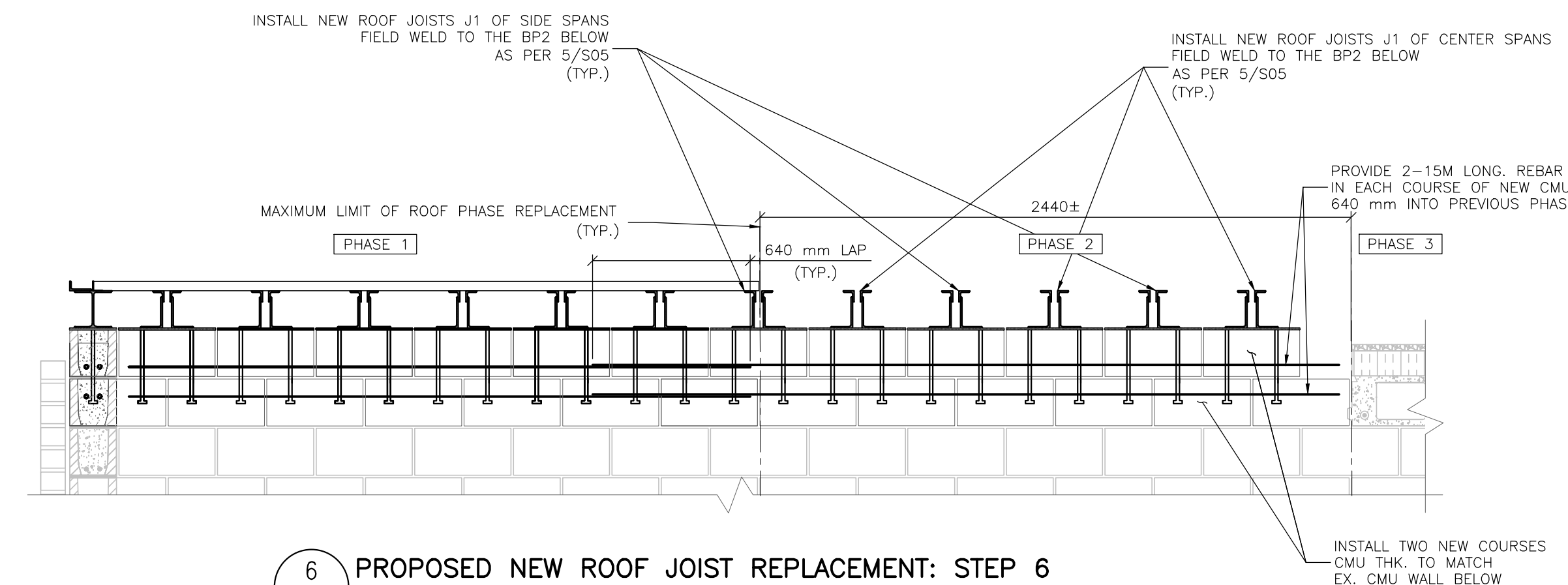
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S07  
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PROPOSED NEW ROOF JOIST REPLACEMENT: STEP 3



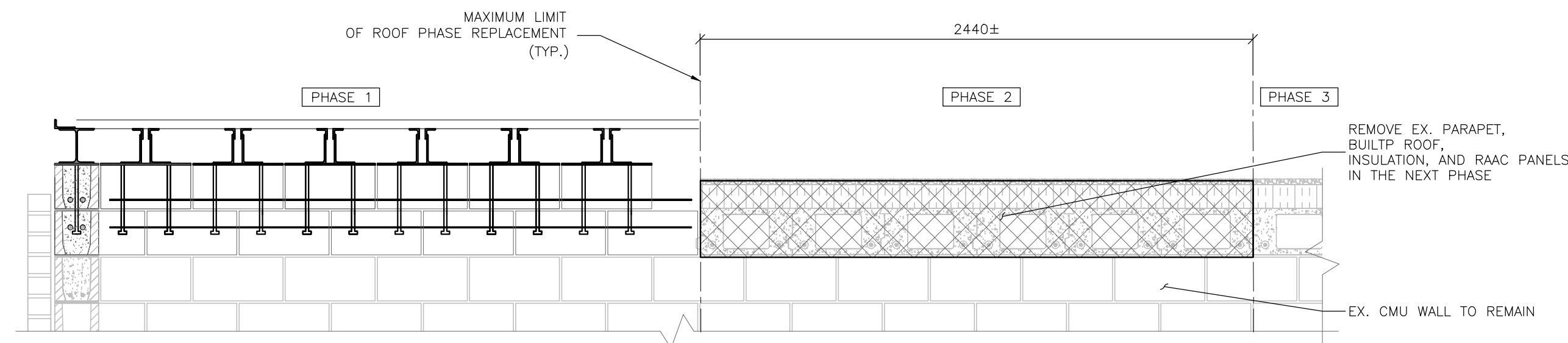
2  
S07  
1:20  
PROPOSED NEW ROOF JOIST REPLACEMENT: STEP 2



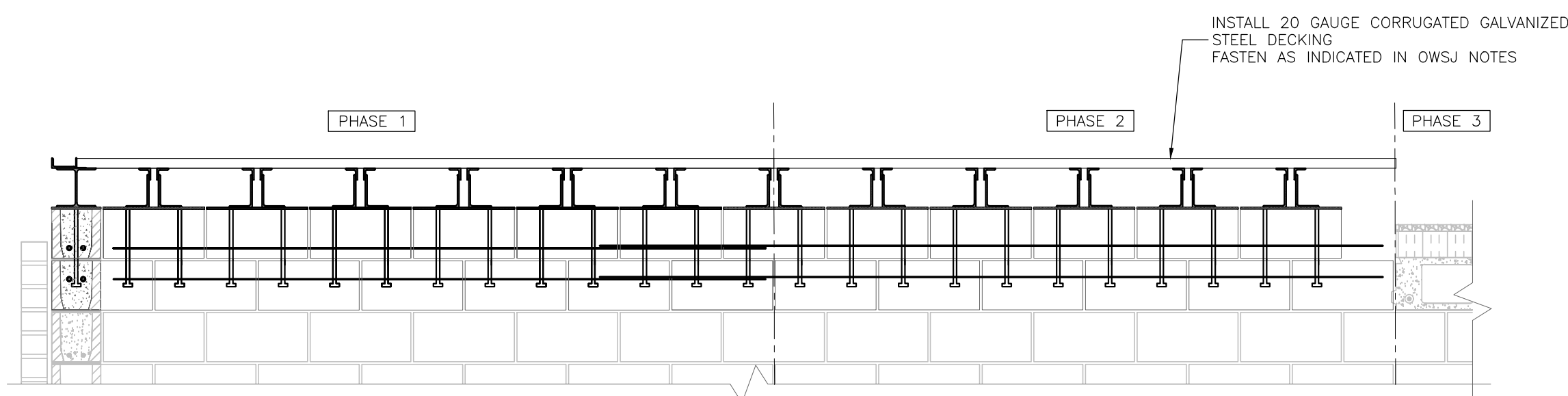
4  
S07  
1:20  
PROPOSED NEW ROOF JOIST REPLACEMENT: STEP 5



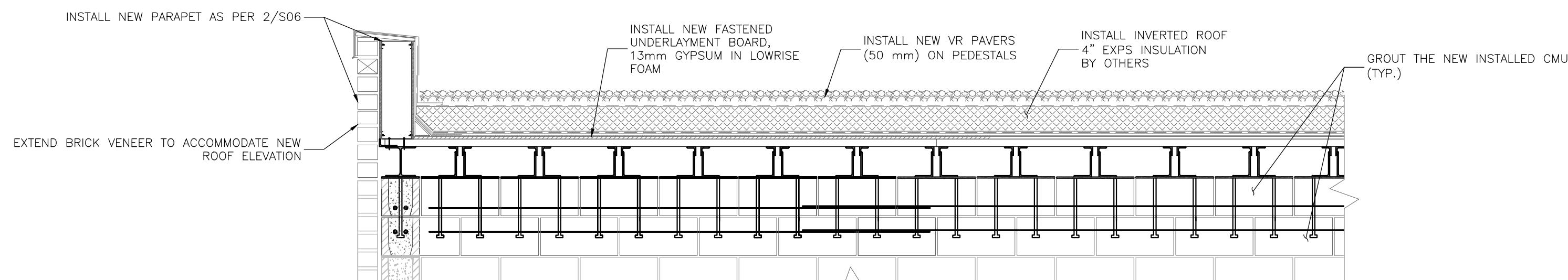
6  
S07  
1:20  
PROPOSED NEW ROOF JOIST REPLACEMENT: STEP 6



5  
S07  
1:20  
PROPOSED NEW ROOF JOIST REPLACEMENT: STEP 5



7  
S07  
1:20  
PROPOSED NEW ROOF JOIST REPLACEMENT: STEP 7



8  
S07  
1:20  
PROPOSED NEW ROOF JOIST REPLACEMENT: STEP 8

NOTE:  
- DO NOT IMPLEMENT STEP 8 UNTIL STEP 1-7 HAVE BEEN IMPLEMENTED FOR THE ENTIRE ROOF;  
- CONTRACTOR SHALL FINISH EACH PHASE STEP 1-4 OR STEP 5-7 BEFORE THE END OF THE DAY;  
- CONTRACTOR SHALL PROTECT THE OPEN ROOF AREA WITH TEMPORARY WATERTIGHT TARP AT THE END OF THE DAY AND DURING INCLEMENT WEATHER;

THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS ON SITE. THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION UNLESS STAMPED AND SIGNED BY THE ENGINEER AND ISSUED "FOR CONSTRUCTION". DO NOT SCALE THESE DRAWINGS.  
CONTRACTOR TO SURVEY ALL EXISTING WALLS. ANY DAMAGED SHALL BE DOCUMENTED AND THE ENGINEER SHALL BE NOTIFIED.

client  
PVNC CATHOLIC DISTRICT SCHOOL BOARD

project  
NOTRE DAME ELEMENTARY SCHOOL ROOF REPLACEMENT  
760 BURNHAM STREET, COBOURG, ONTARIO

art engineering inc.  
171 Walgreen Road  
Camp - Ontario - K0A 1L0 - Canada  
(613) 836-0632 - Fax: (613) 836-1226  
www.artengineering.ca

A detail no.  
no. de détail  
B location drawing no.  
sur dessin no.

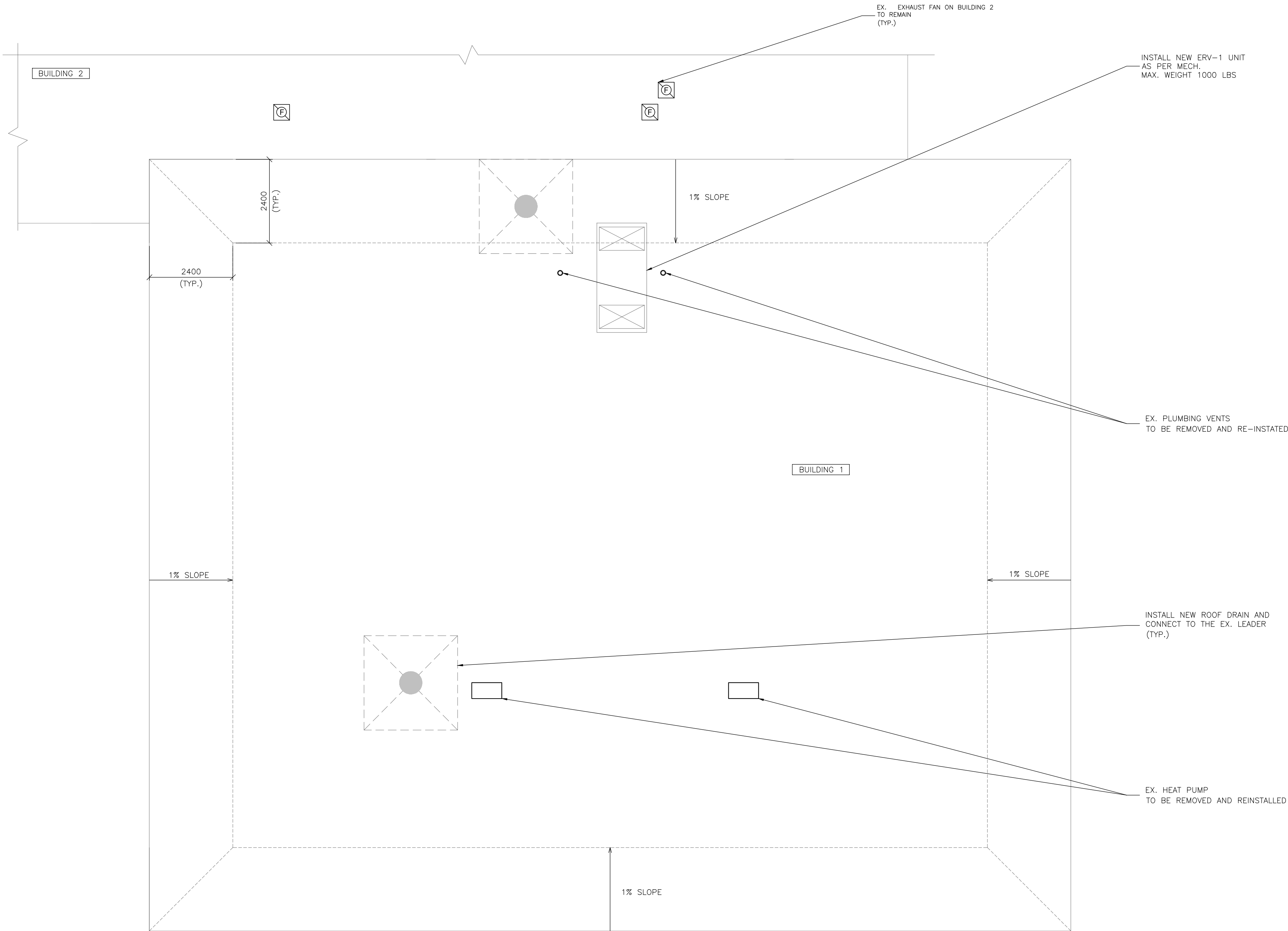
scale N/A

1.	ADDENDUM NO.1	26-06-25
0.	ISSUED FOR PERMIT	11-06-25
revisions		date

PROPOSED PHASE ROOF REPLACEMENT

stamp  
LICENSED PROFESSIONAL ENGINEER  
B. R. P. HUNT  
100540665  
June 26/25  
PROVINCE OF ONTARIO

designed F.S.	drawn F.S./V.Y.	reviewed B.H.	approved B.H.
date June 11, 2025	project number 7619	drawing number S07	



1  
S08  
PROPOSED BUILDING 1 NEW ROOF PLAN  
1:75

THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS ON SITE. THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION UNLESS STAMPED AND SIGNED BY THE ENGINEER AND ISSUED "FOR CONSTRUCTION". DO NOT SCALE THESE DRAWINGS.

CONTRACTOR TO SURVEY ALL EXISTING WALLS. ANY DAMAGED SHALL BE DOCUMENTED AND THE ENGINEER SHALL BE NOTIFIED.

client

PVNC CATHOLIC DISTRICT SCHOOL BOARD

project

NOTRE DAME ELEMENTARY SCHOOL ROOF REPLACEMENT

760 BURNHAM STREET, COBOURG, ONTARIO



A detail no.  
no. de détail

B location drawing no.  
sur dessin no.

scale N/A		
1.	ADDENDUM NO.1	26-06-25
revisions		date

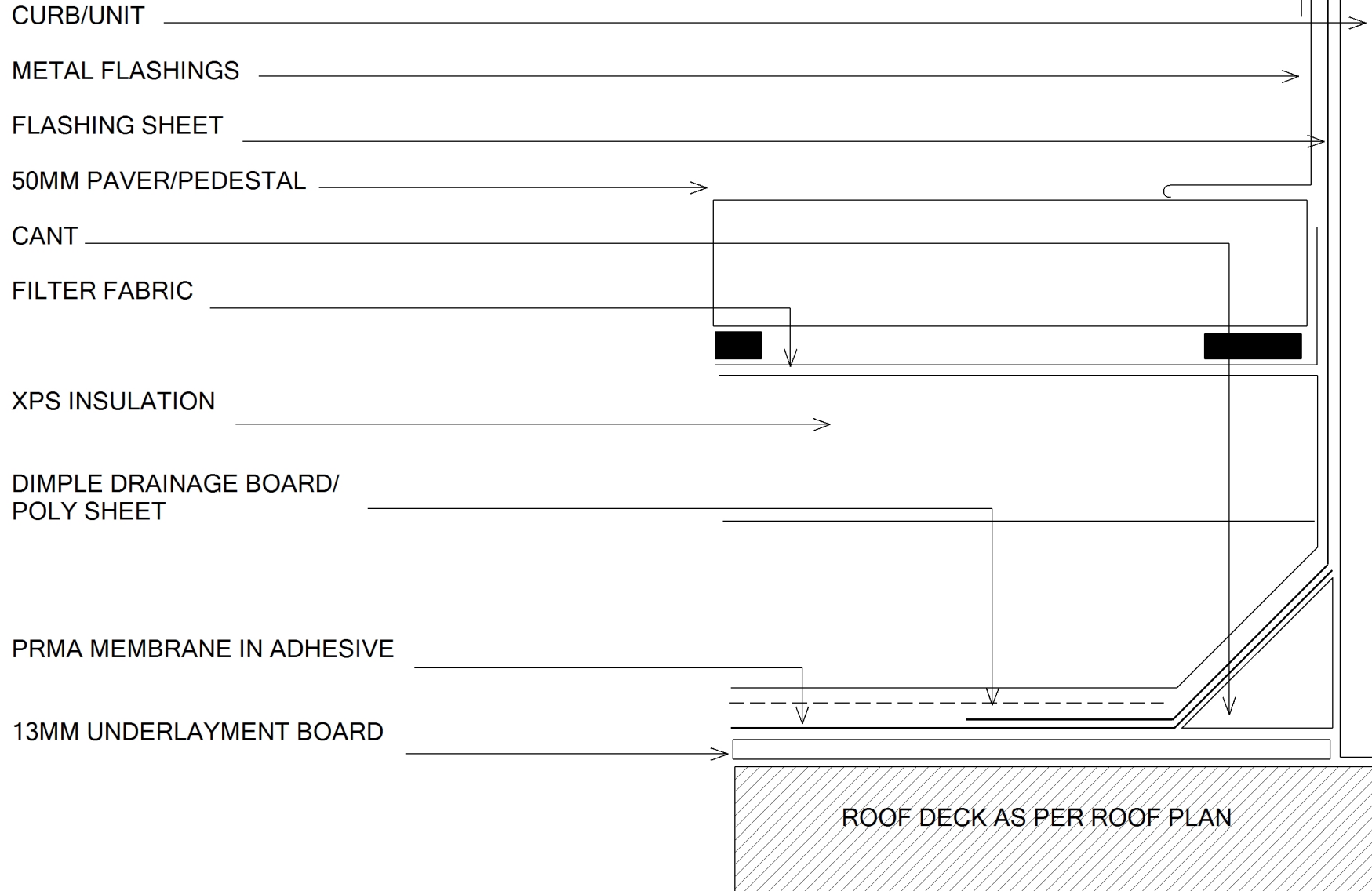
drawing

NEW ROOF PLAN



designed F.S.	drawn V.Y.	reviewed B.H.	approved B.H.
date June 26, 2025	project number 7619	drawing number S08	





C1 - TYPICAL CURB

METAL FLASHINGS

FASCIA BOARD ADDED

FLASHING SHEET

50MM PAVER/PEDESTAL

CANT

FILTER FABRIC

XPS INSULATION

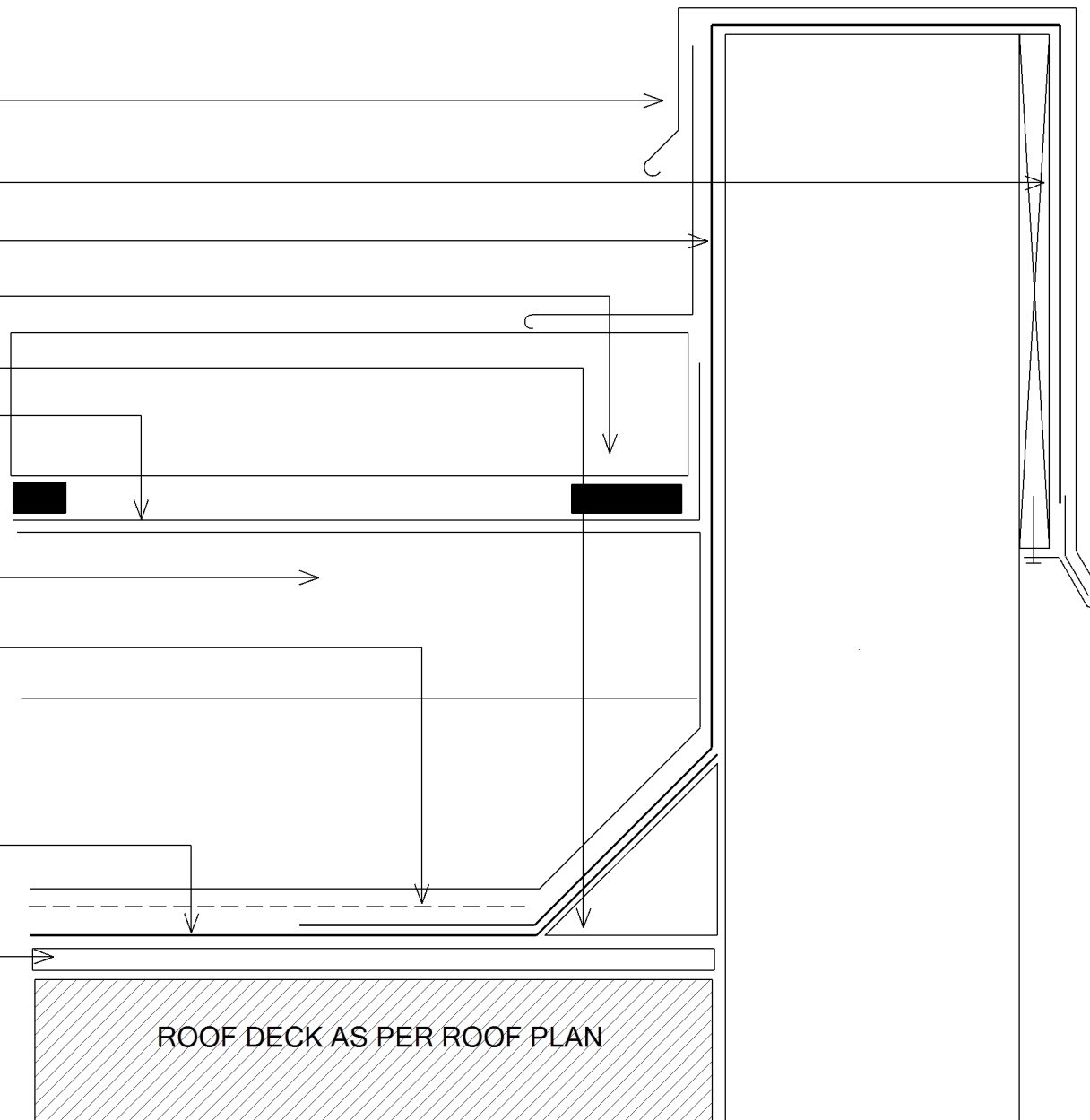
DIMPLE DRAINAGE BOARD/  
POLY SHEET

PRMA MEMBRANE IN ADHESIVE

13MM UNDERLAYMENT BOARD

ROOF DECK AS PER ROOF PLAN

P1 - TYPICAL PARAPET







# **art engineering Inc.**

2171 Avenue Road • Unit 303 • Toronto • Ontario • M5M 4B4 • Canada  
(613) 836-0632 • Fax: (613) 836-1226  
www.artengineering.ca

Project No: 7619

## **NOTRE DAME CATHOLIC ELEMENTARY SCHOOL**

760 Burnham Street, Cobourg, Ontario

### **PRE-CONSTRUCTION CONDITION SURVEY OF MASONRY WALLS**

Project No: 7619

Date of Inspection: May 6, 2025

Prepared by: Ryan Machado  
B. Eng.

Reviewed by: Sam Fox  
B. Eng.

Approved by: Brad Hunt  
Ph. D., P. Eng.

Prepared for: Peterborough Victoria Northumberland and Clarington Catholic District School  
Board (PVNC CDSB)  
1355 Lansdowne Street West, Peterborough, Ontario



## **1.0 Introduction**

### **1.1 Scope of Work**

ART Engineering Inc. (AEI) was retained by Peterborough Victoria Northumberland and Clarington Catholic District School Board (PVNC CDSB) to conduct a visual pre-construction condition survey at Notre Dame Catholic Elementary School, located at 760 Burnham Street in Cobourg, Ontario. The purpose of the survey is to provide a record of the condition of the existing 1962 structure at the time of inspection. During the survey, the condition of the existing masonry walls in the 1962 structure were documented and photos were taken.

## **2.0 Background Information**

### **2.1 General Description of the Building Structure**

The area of the school under investigation is the existing 1962 structure scheduled for reconstruction related to roof replacement works. The approximate 5,900 square feet, one-story structure consists of four classrooms and a foyer area with several smaller offices and bathrooms located in the center. The existing structure is constructed from concrete masonry unit (CMU) walls that support reinforced autoclaved aerated concrete roof panels. The roof panels span from north to south in the classroom and foyer areas. The CMU walls are connected to the roof panels with rebar dowels along the top of the walls (Refer to *Figure 1*).



**Figure 1:** Plan View of Notre Dame Catholic Elementary School with Construction Eras



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## **2.2 Investigation Limitations**

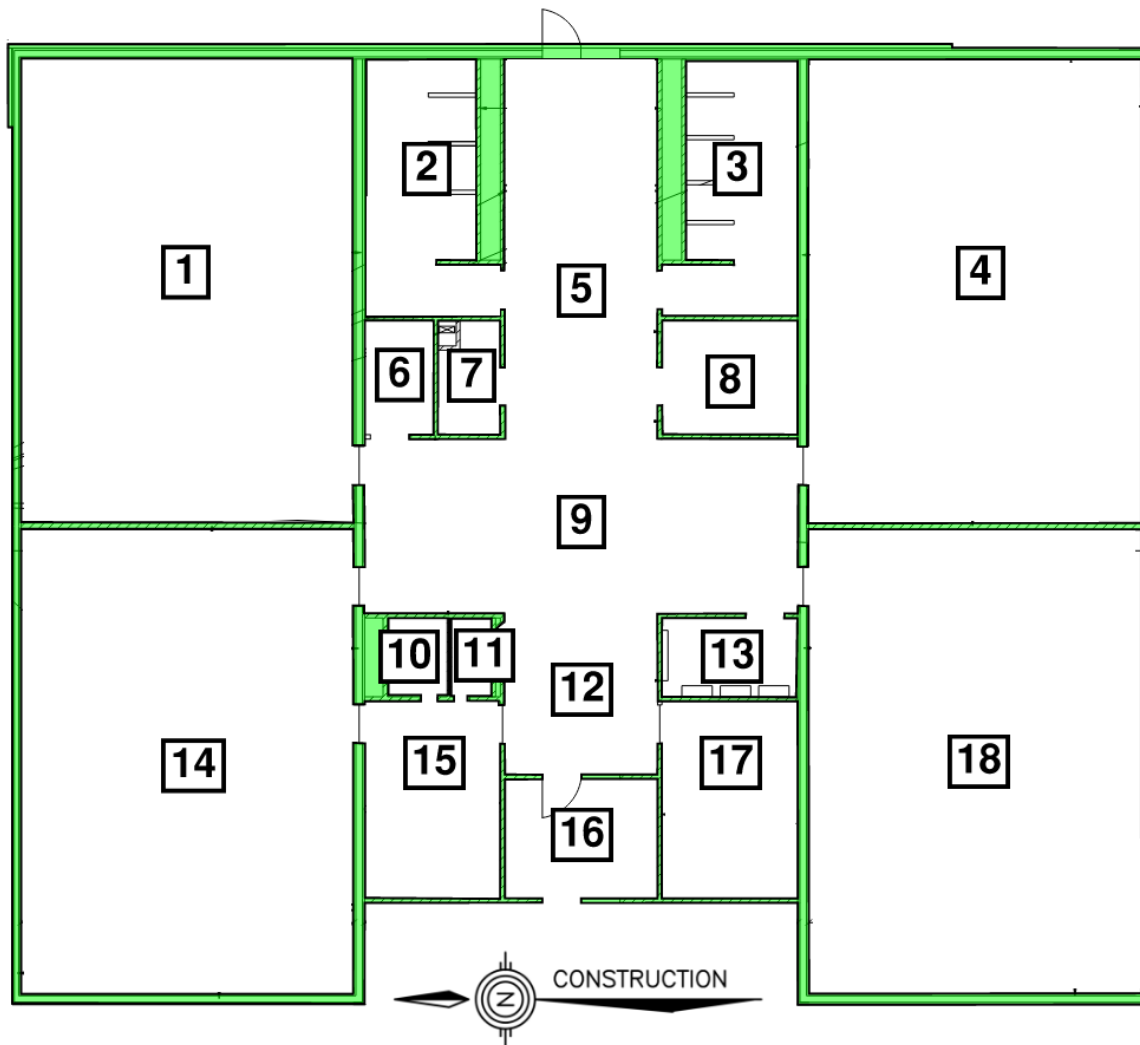
The following limitations apply to the pre-construction survey completed by AEI, AEI does not assume liability for elements not reviewed:

- The scope of the inspection is limited to a structural visual assessment of the masonry walls;
- Invasive removals of finishes or covers were not conducted and limit the total area observed by AEI;
- Based on the anticipated scope of construction, the condition of roof panels were not documented by AEI;
- The condition of the 1967 structure was not documented by AEI during the time of the inspection;
- The visual assessment did not include a review of the building for compliance with the Ontario Building Code, Ontario Fire Code, or any other regulatory codes. and;
- The report does not include all photographs taken during the time of the inspection. A drive with all photographs from the inspection may be provided to the owner upon request.

## **2.3 Visual Survey**

A visual pre-construction condition survey was conducted by a representative of AEI at 10:00 am on May 6, 2025, as requested by the client. The existing condition, at the time of inspection, of the interior and exterior CMU walls of the 1962 structure were noted and captured photographically. General interior and exterior elevations observed are provided in *Appendix A*. General deficiencies observed are noted in *Appendix B*. If conditions not mentioned in this report are observed at a future date, the condition shall be noted and provided to AEI for review. The 1962 structure shall be continuously monitored during reconstruction of the roof. The roof reconstruction contractor shall be responsible for temporary works and protection of the remaining masonry walls.

Locations identified in *Appendix A* and *Appendix B* will be referenced with respect to the naming conventions provided in *Figure 2*.



Location ID	Description	Location ID	Description
1	Classroom [102]	10	Washroom [109]
2	Boys Washroom [115]	11	Closet [106A]
3	Girls Washroom [114]	12	West Corridor
4	Classroom [103]	13	Electrical [108]
5	East Corridor	14	Classroom [101]
6	Staff Washroom [111]	15	Principal Office [106]
7	Janitor [112]	16	Vestibule [105]
8	Storage [113]	17	Staffroom [107]
9	Crush Space [110]	18	Classroom [107]

**Figure 2:** Location Identification for the 1962 Structure



## **2.4 Summary of Pre-Construction Condition of Masonry Walls**

In general, CMU walls of the 1962 building structure were found to be in good condition<sup>(1)</sup>, with minor structural deficiencies noted in *Appendix B*. A summary of findings are as follows:

- Classroom [101]:
  - Several locations noted with CMU cracks.
  - 2 Locations noted with damaged CMU blocks for utility clearance.
  - Several grouped pilot holes noted in a portion of CMU wall.
- Classroom [102]:
  - Several locations noted with CMU cracks.
  - 1 Location noted with chipped CMU block.
- Classroom [103]:
  - Several locations noted with CMU cracks.
  - 1 Location near the exit doorframe noted with CMU spall.
  - Joints between CMU walls near the entrance doorframe noted with lost mortar.
- Vestibule [105]:
  - Multiple pilot holes noted.
- Principal Office [106]:
  - 1 Location noted with a damaged CMU block for electrical clearance.
- Closet [106A]:
  - 1 Location noted with CMU spall.
- Classroom [107]:
  - Several locations noted with CMU cracks.
  - 2 Location noted with holes in CMU blocks.
- Electrical [108]:
  - Several small spalls and holes in CMU blocks were noted.
- Washroom [109]:
  - 1 Location noted with CMU spall.
- Crush Space [110]:
  - Multiple pilot holes noted.
- Staff Washroom [111]:
  - Several locations noted with CMU cracks, damaged CMU blocks, and lost mortar between header joints.
  - 1 Location noted with CMU spall.
  - A portion at the top of the east CMU wall uses partially damaged blocks to support roof panels.
- Janitor [112]:
  - A portion at the top of the east CMU wall uses partially damaged blocks to support roof panels.
- West Corridor:
  - Multiple pilot holes noted.
- East Corridor:
  - Several locations noted with lost mortar between CMU block header joints.
- Exterior Façade:
  - Multiple locations demonstrating loss of mortar, and spall / chipped bricks.
  - Cracks at the foundation wall, cracked sealants, loss of sealant, and locations with brick discolouration are also noted.

(1) Good condition: Minor defects are visible which do not affect element performance and no remedial action is required.



## 2.5 Conclusion

All masonry walls to remain, in particular the noted deficiencies in *Appendix B*, should be monitored during demolition and construction by the owner (or owner's representative) to ensure that the deficiencies do not worsen. If any deficiencies are noted to worsen during construction, AEI shall be promptly notified to investigate and assess.

We trust that the pre-construction structural condition survey provided satisfies your requirements. Should you have any questions, please do not hesitate to contact our office at (613) 836-0632.

Approved by:  
Brad Hunt  
Ph. D., P. Eng.

Prepared by:  
Ryan Machado  
B. Eng.



## **Appendix A: Photographs of General Elevations**

APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Classroom [103]

Element Photographed: East Wall



Image 1

Location: Classroom [103]

Element Photographed: South Wall



Image 2



APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Classroom [103]

Element Photographed: West Wall



Image 3

Location: Classroom [103]

Element Photographed: North Wall



Image 4



APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Classroom [104]

Element Photographed: East Wall



Image 5

Location: Classroom [104]

Element Photographed: South Wall



Image 6



APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Classroom [104]

Element Photographed: West Wall



Image 7

Location: Classroom [104]

Element Photographed: North Wall



Image 8



APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Classroom [101]

Element Photographed: East Wall



Image 9

Location: Classroom [101]

Element Photographed: South Wall



Image 10



APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Classroom [101]

Element Photographed: West Wall



Image 11

Location: Classroom [101]

Element Photographed: North Wall



Image 12

APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Classroom [102]

Element Photographed: East Wall



Image 13

Location: Classroom [102]

Element Photographed: South Wall



Image 14



APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Classroom [102]

Element Photographed: West Wall



Image 15

Location: Classroom [102]

Element Photographed: North Wall



Image 16

APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Staff Washroom [111]

Element Photographed: East Wall



Image 17

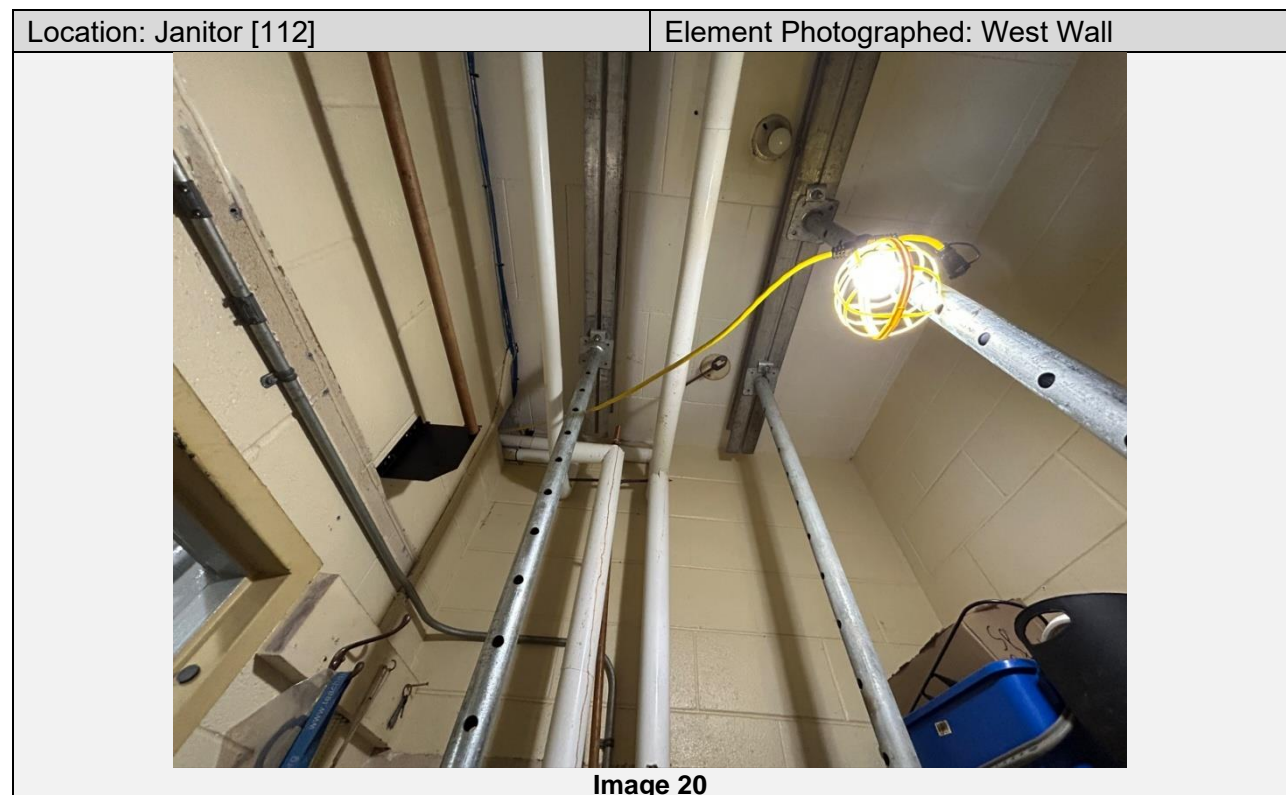
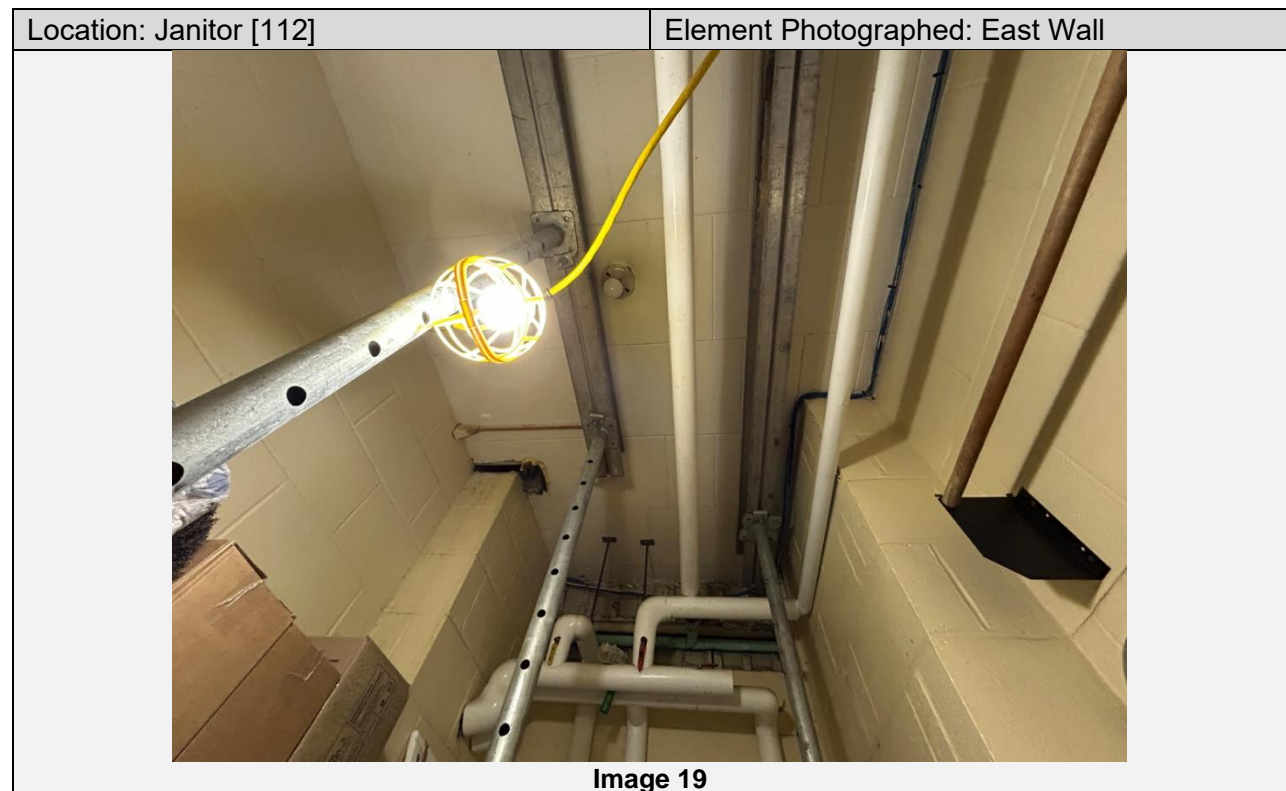
Location: Staff Washroom [111]

Element Photographed: West Wall



Image 18





APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Janitor [112]

Element Photographed: Concrete Slab



Image 21

Location: Boys Washroom [115]

Element Photographed: East Wall



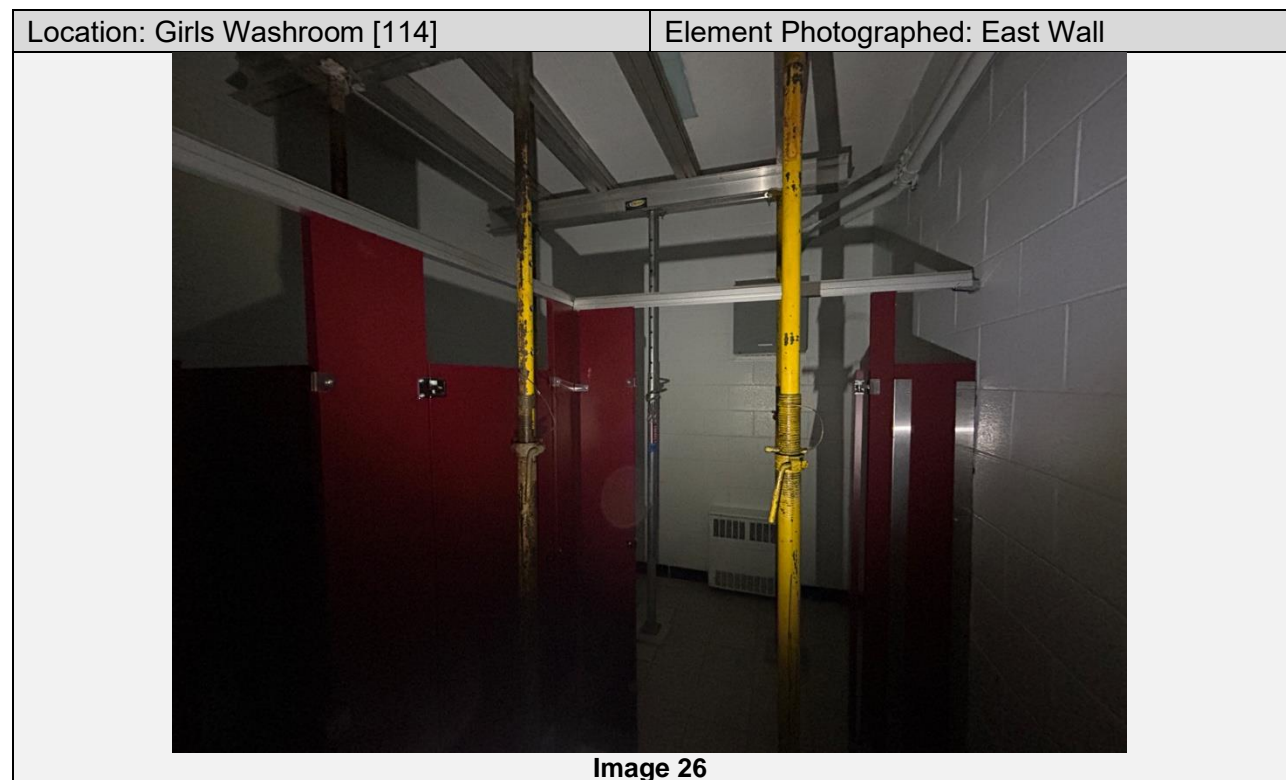
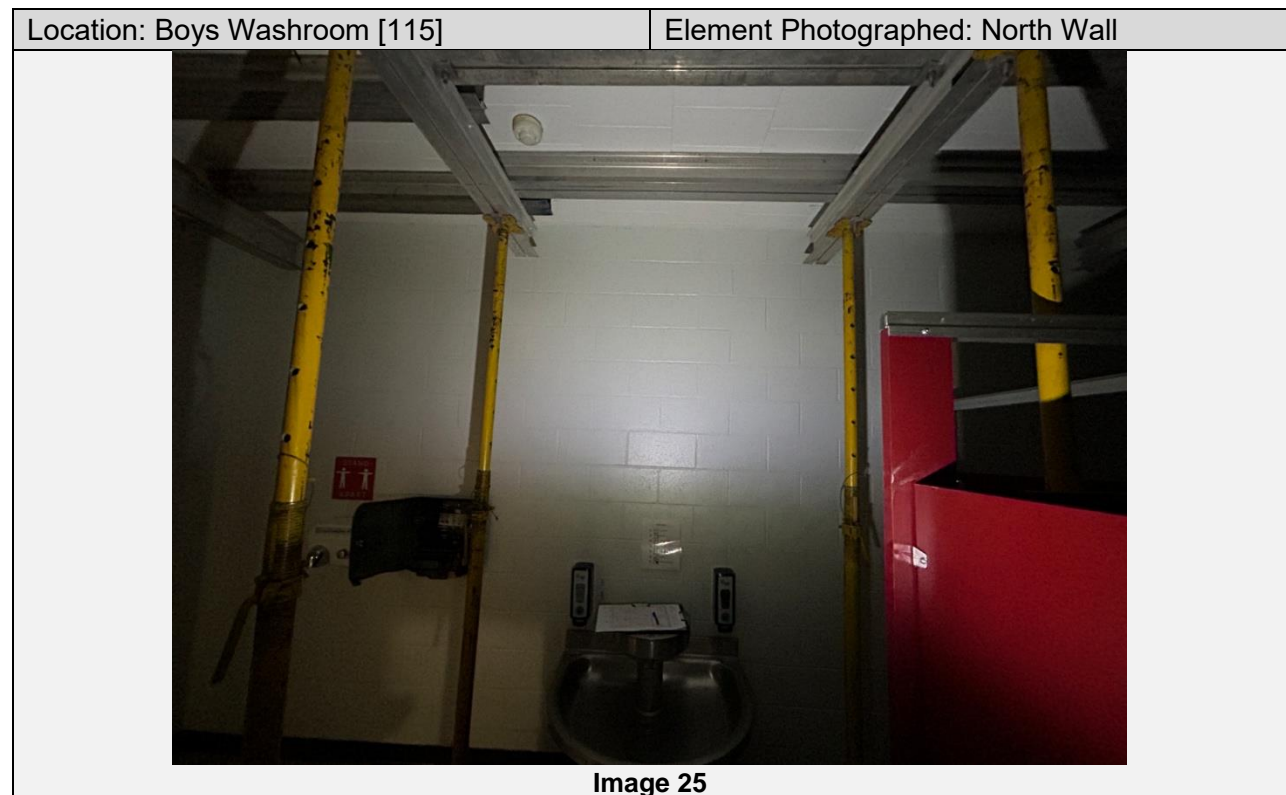
Image 22

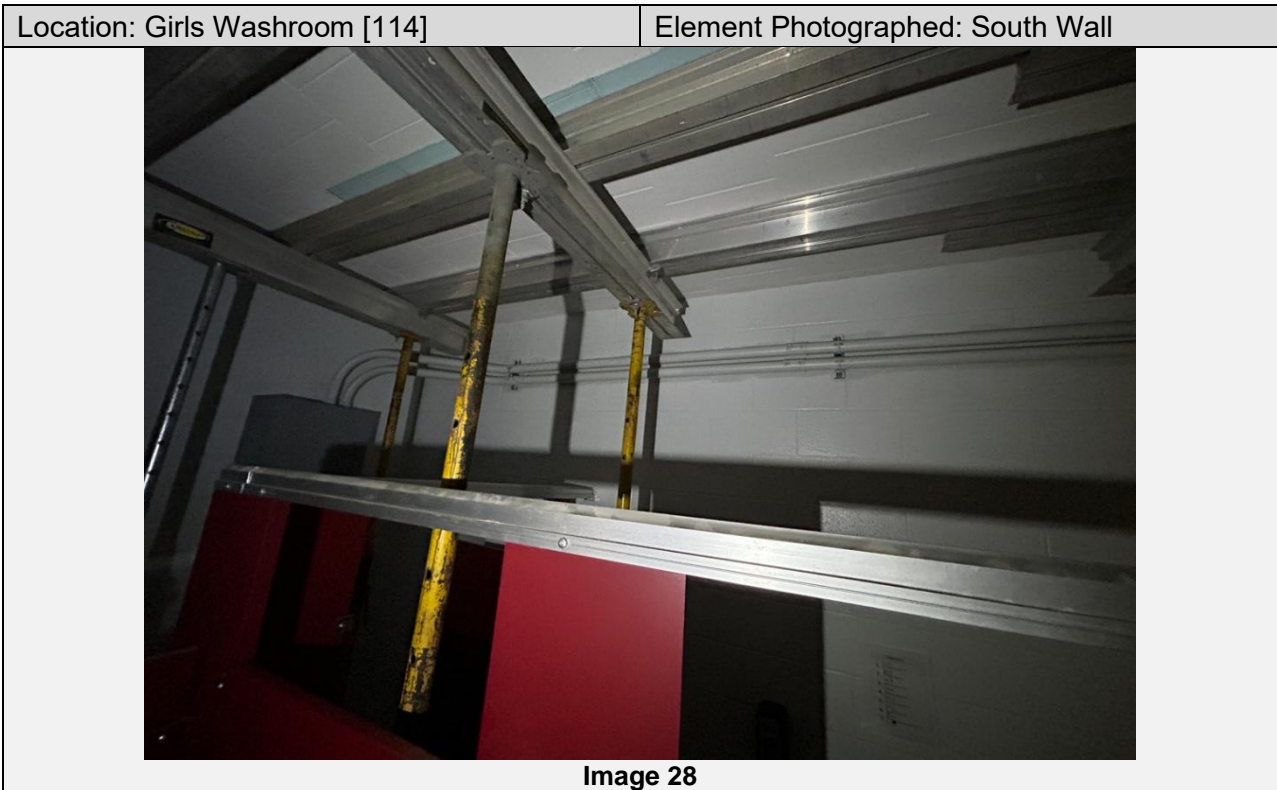
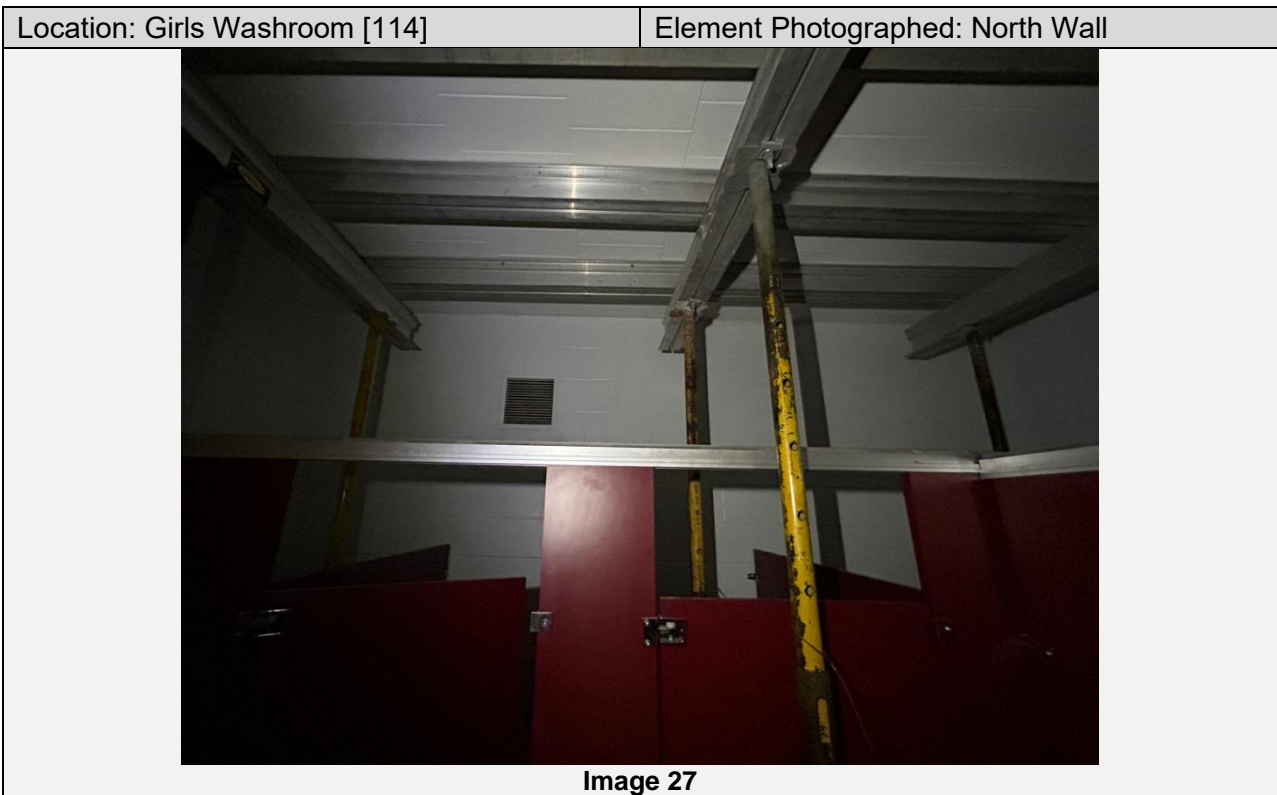


APPENDIX A: Photographs of General Elevations

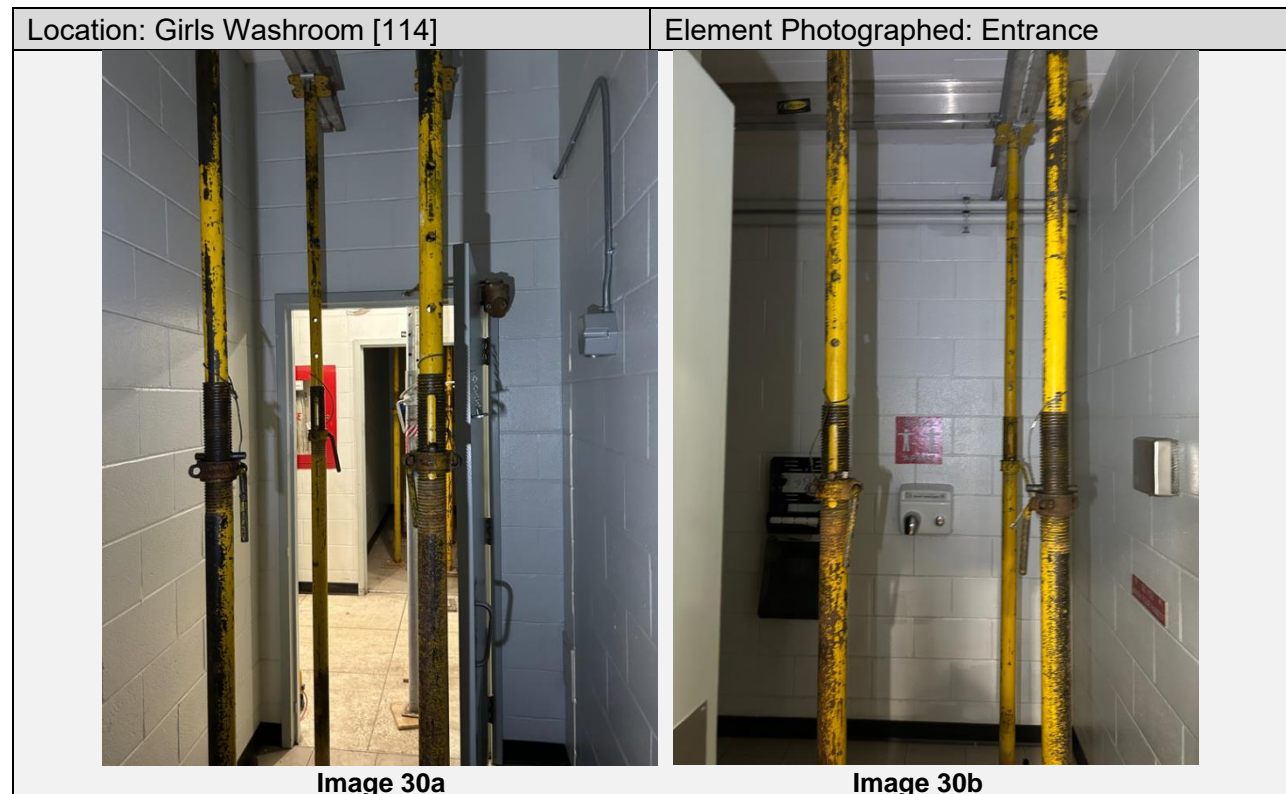
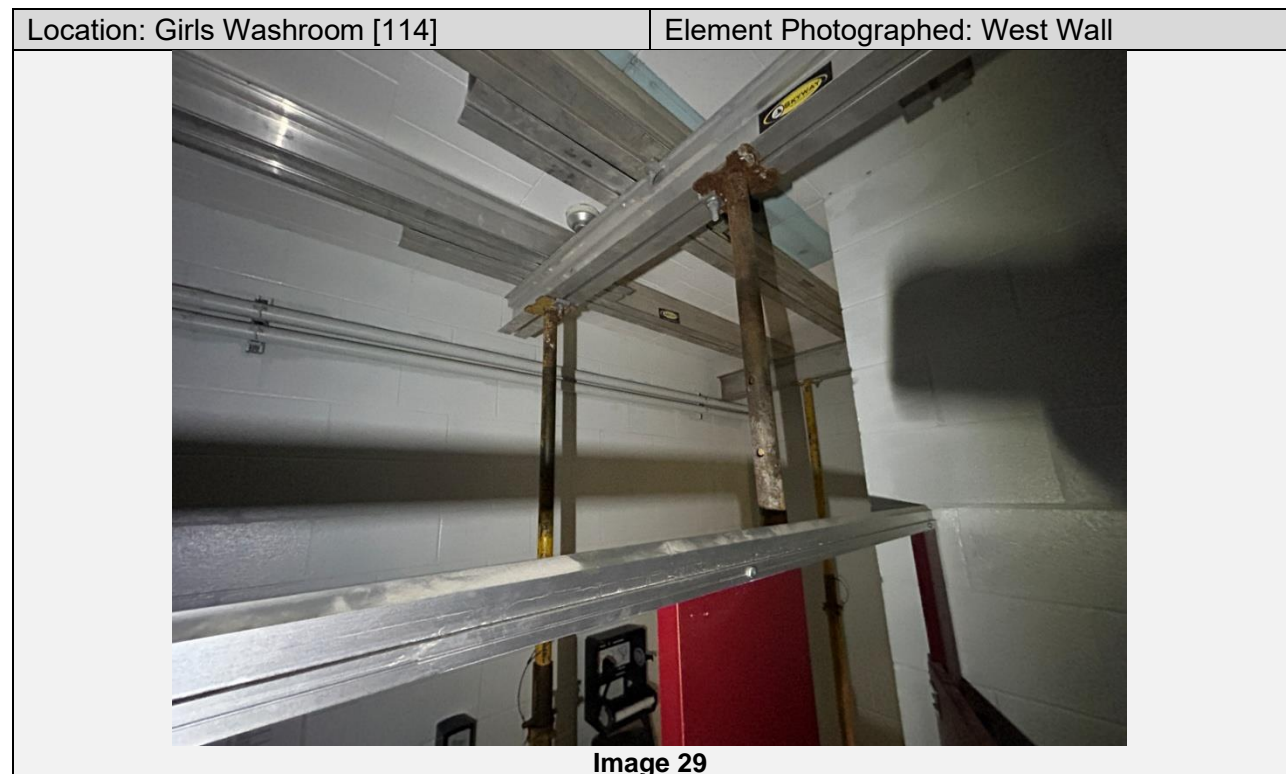
Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls

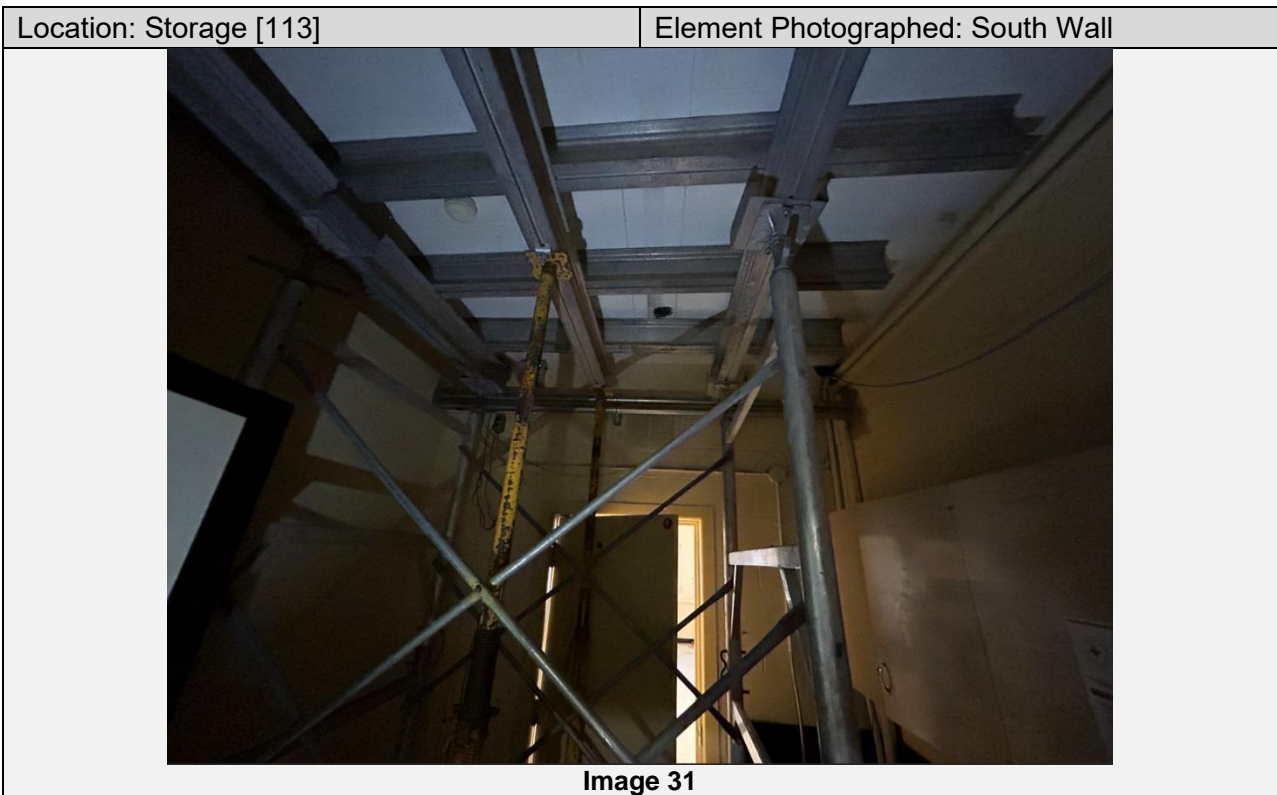


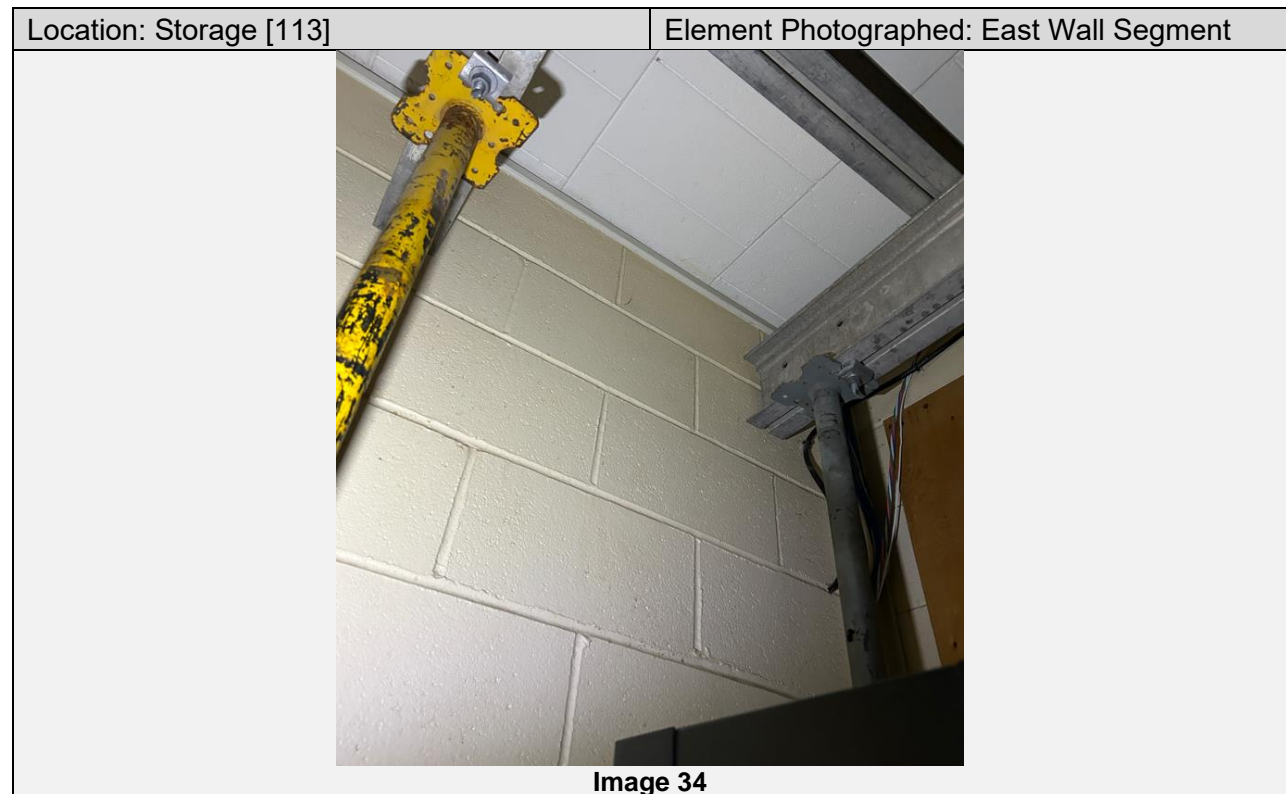
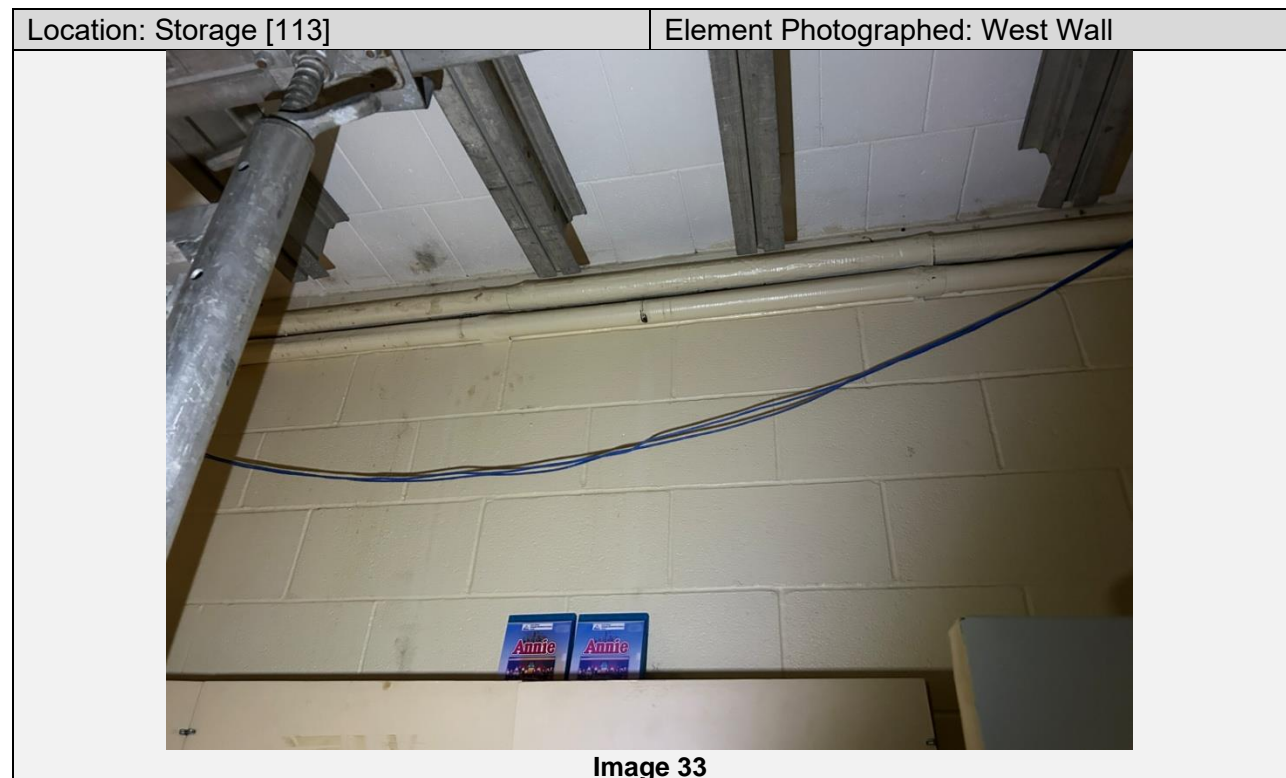














APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Electrical [108]

Element Photographed: South Wall



Image 35

Location: Electrical [108]

Element Photographed: North Wall



Image 36

APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Staffroom [104]

Element Photographed: East Wall



Image 37

Location: Staffroom [104]

Element Photographed: South Wall



Image 38



APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Staffroom [104]

Element Photographed: West Wall



Image 39

Location: Staffroom [104]

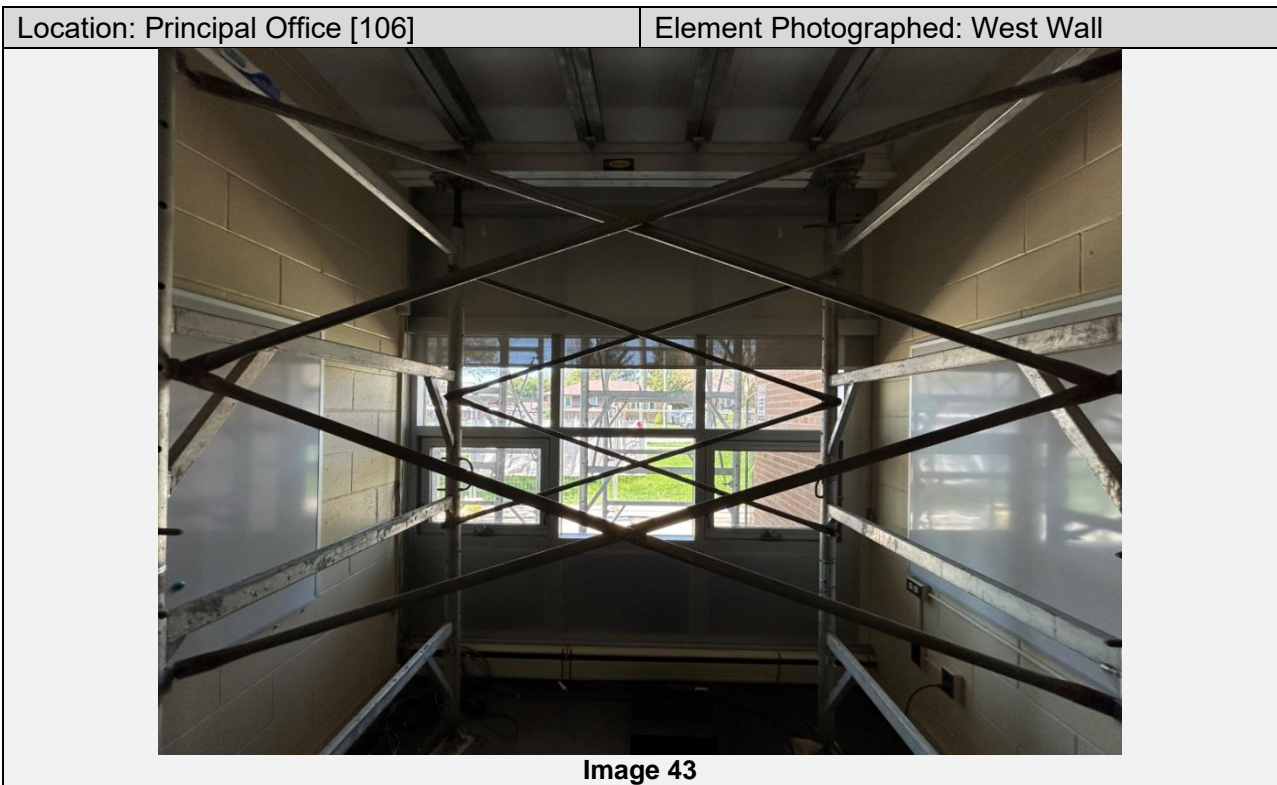
Element Photographed: North Wall

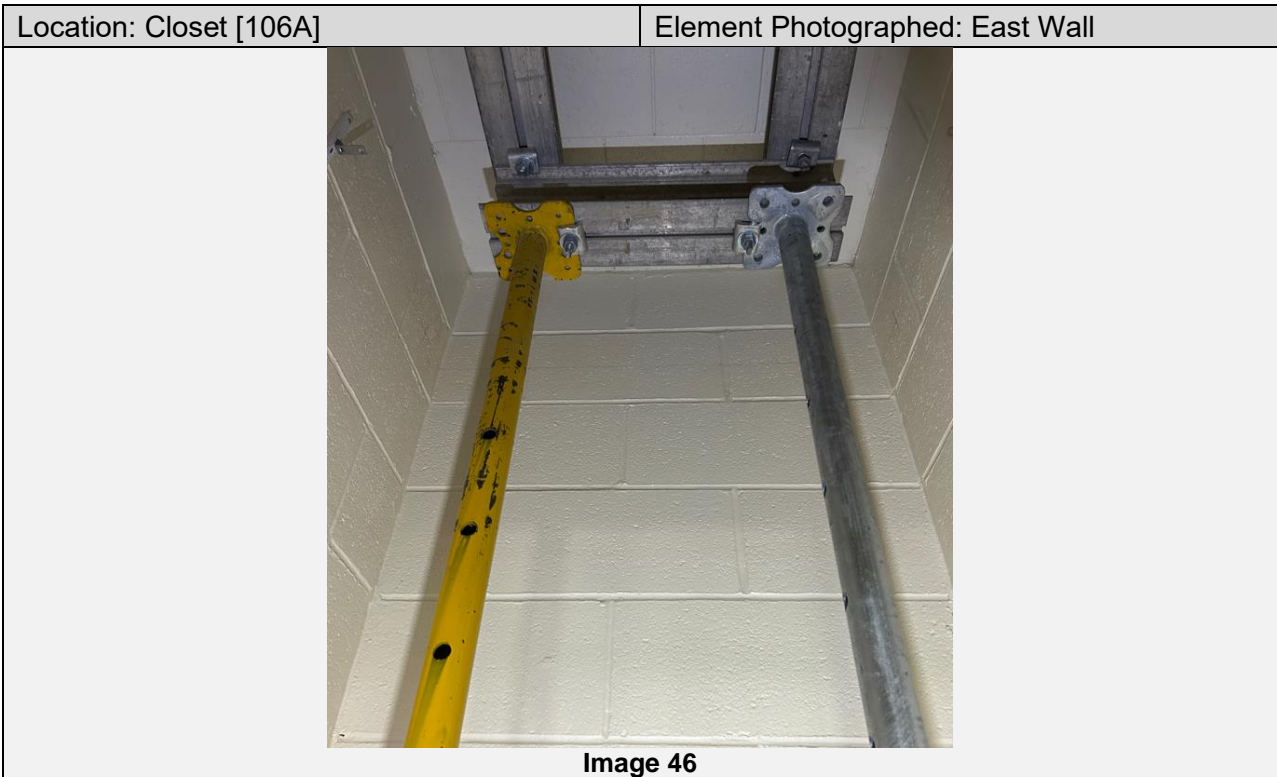
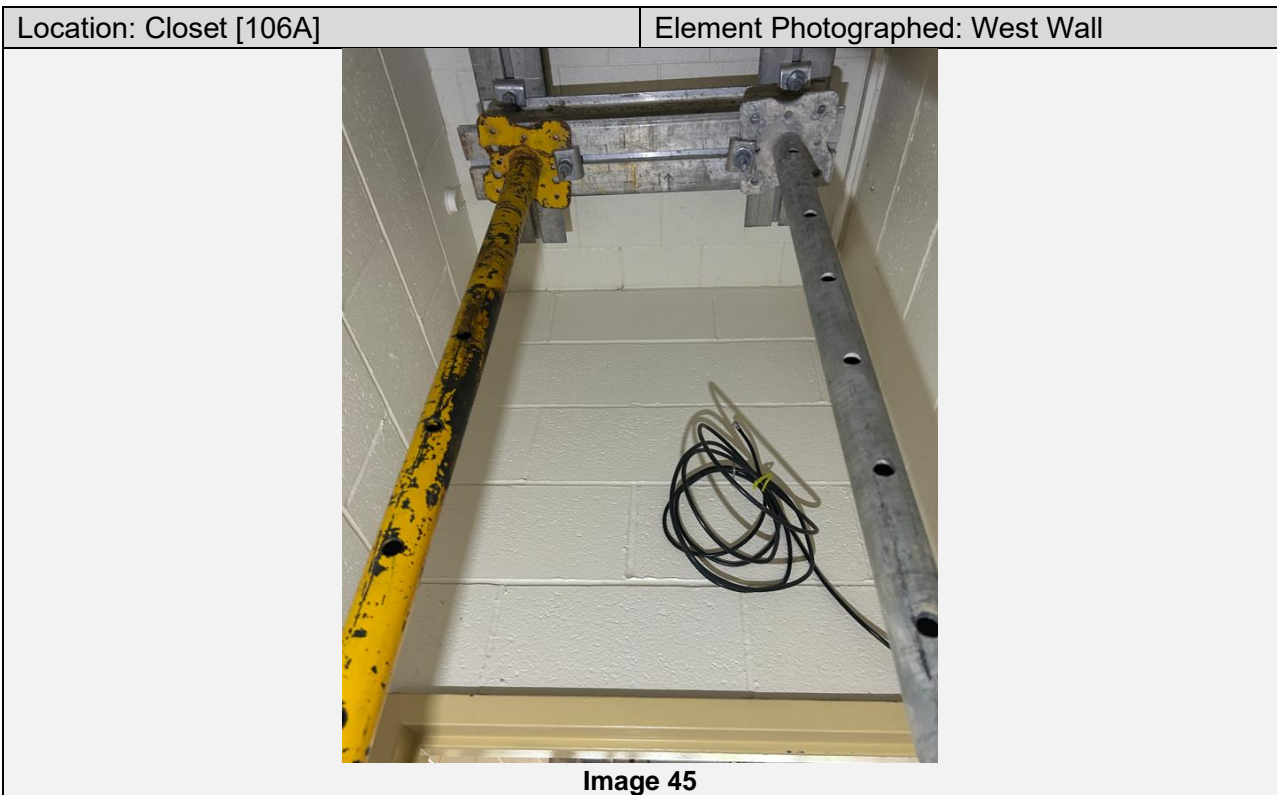


Image 40











APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Closet [106A]

Element Photographed: North Wall



Image 47

Location: Closet [106A]

Element Photographed: South Wall



Image 48

APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Washroom [109]

Element Photographed: West Wall



Image 49

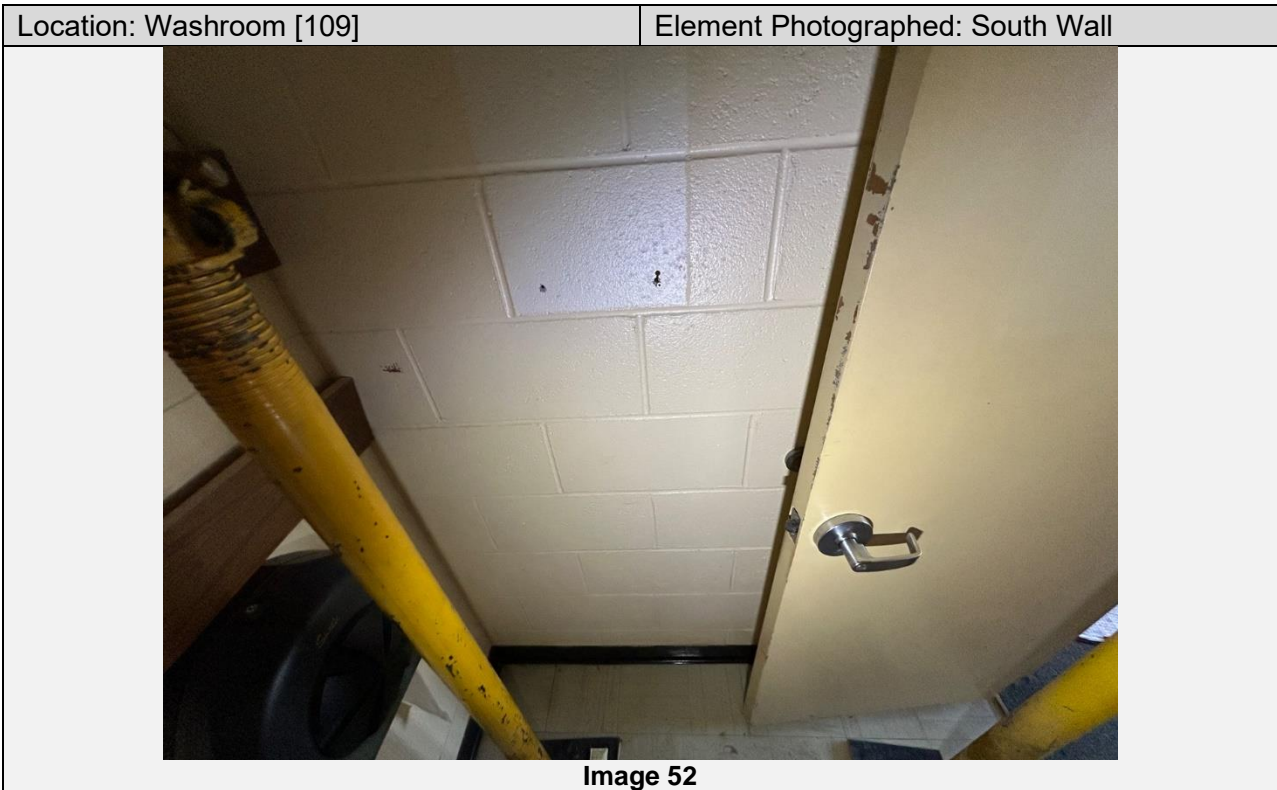
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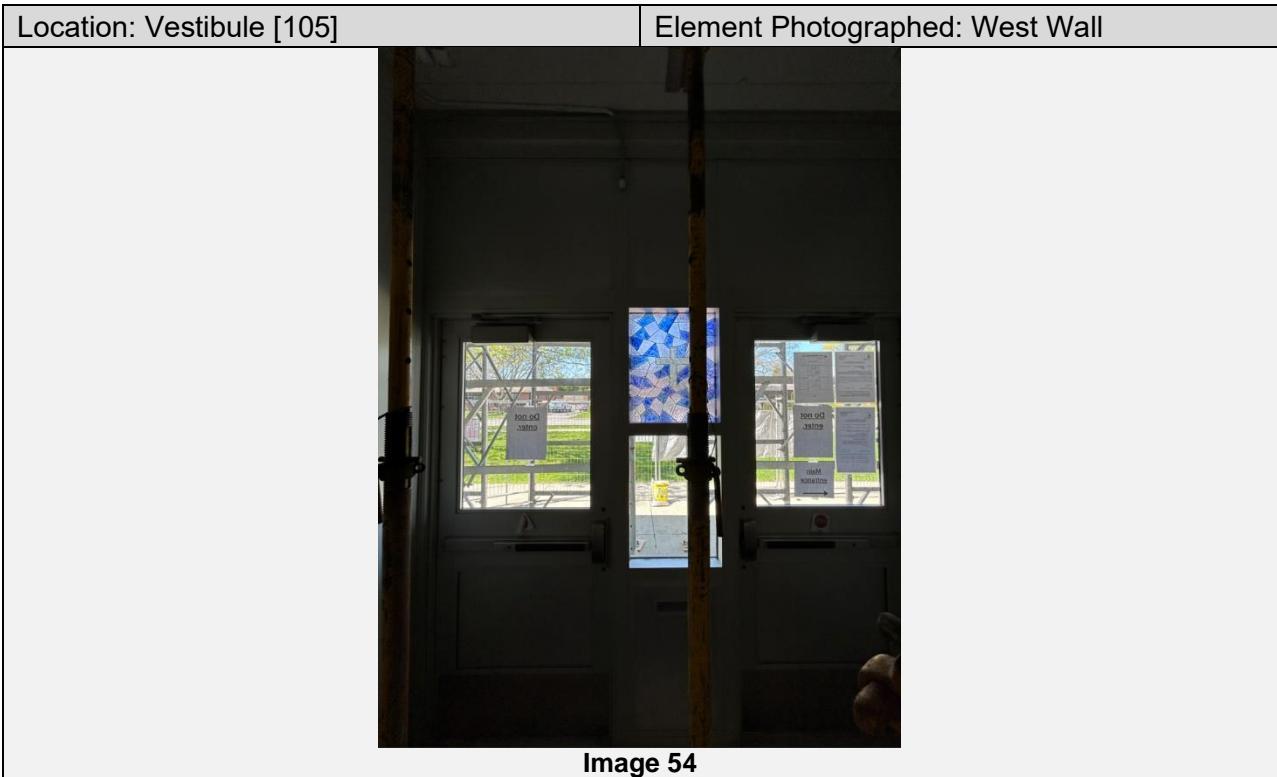
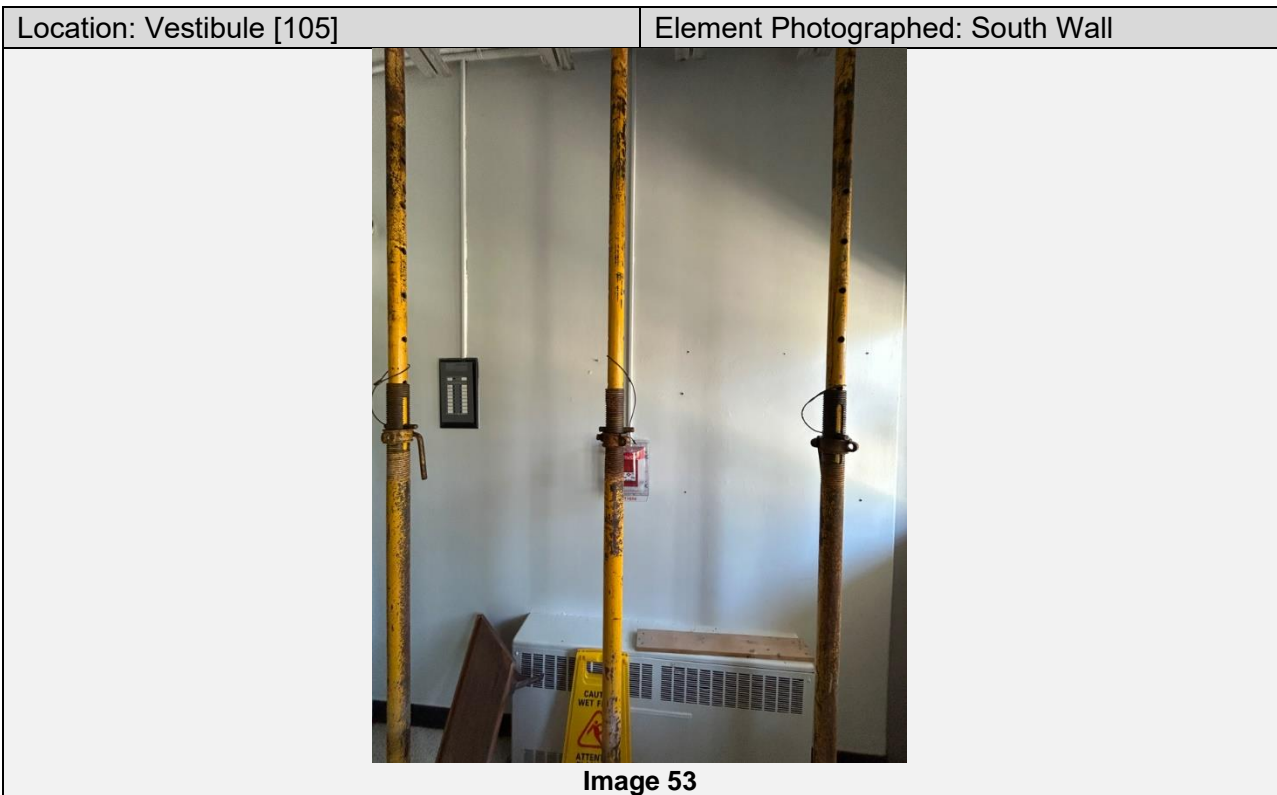
Element Photographed: East Wall



Image 50

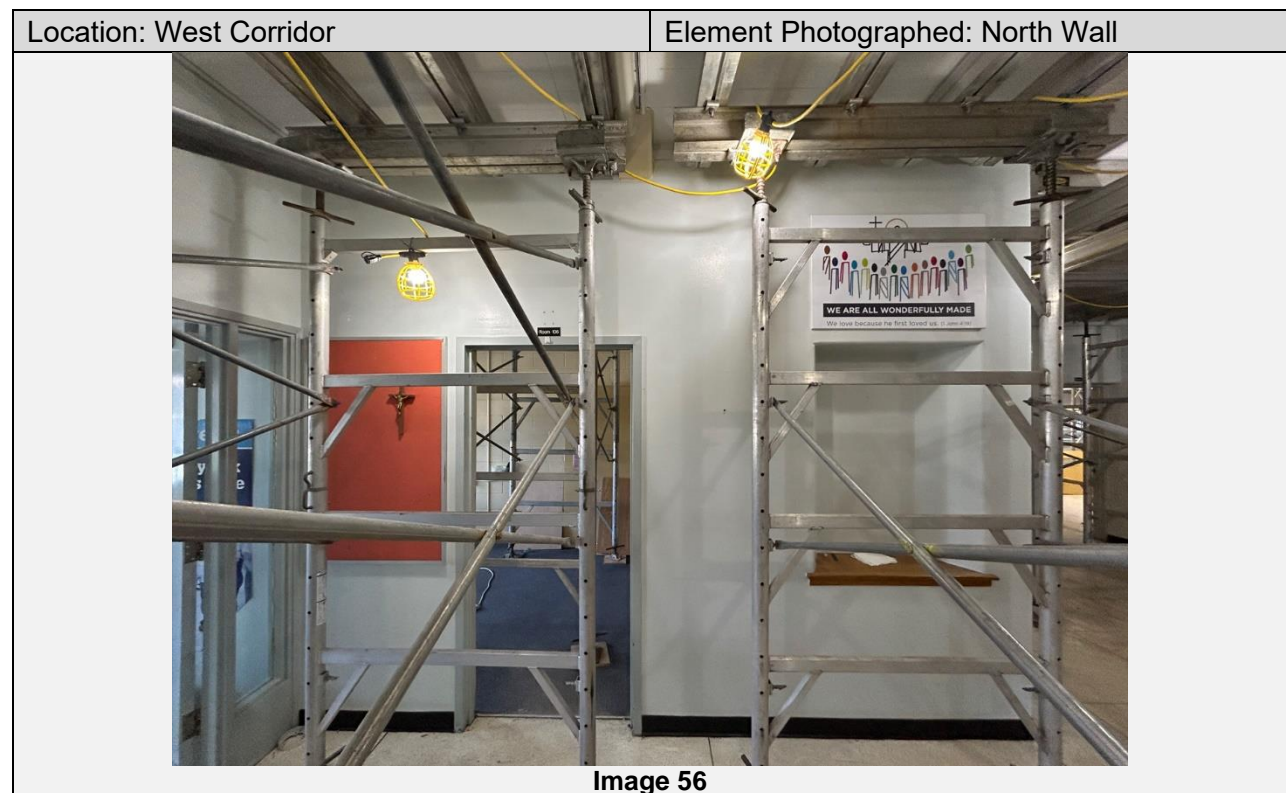
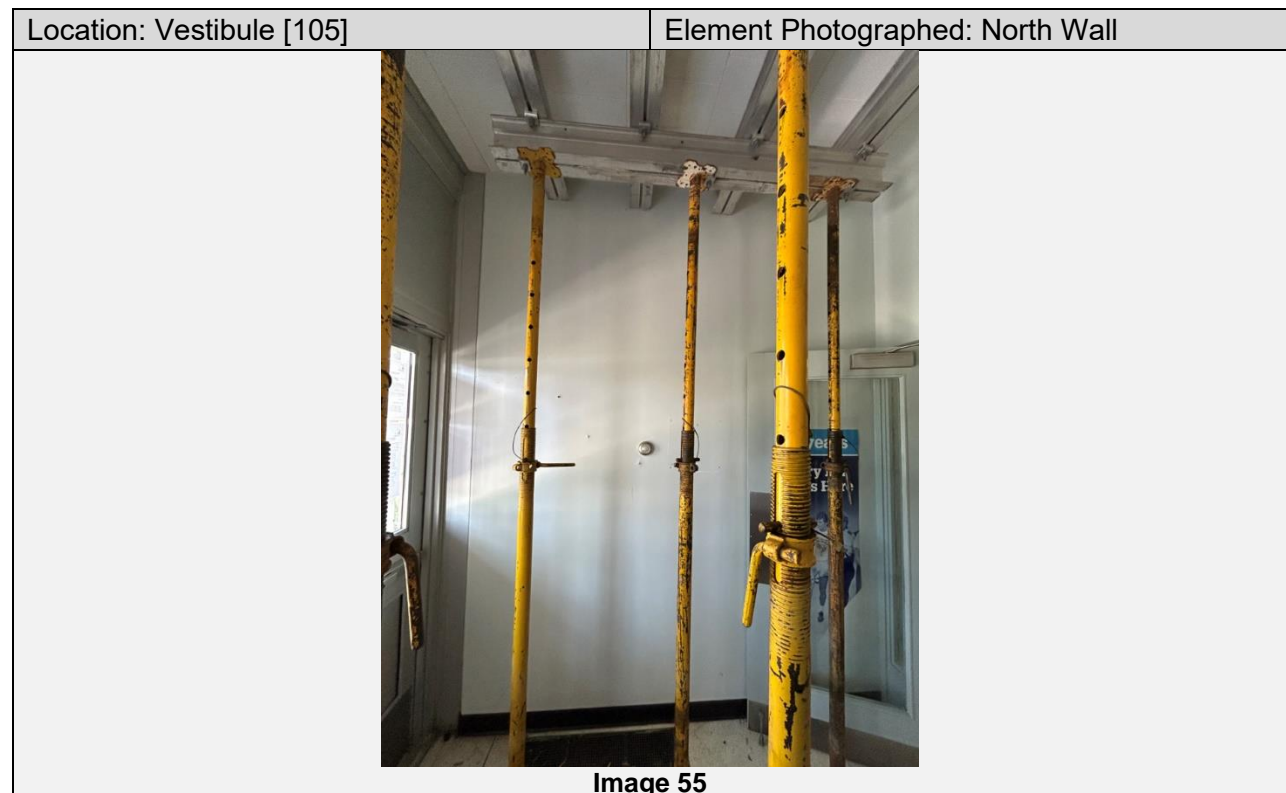






APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls





APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: West Corridor

Element Photographed: West Wall



Image 57

Location: West Corridor

Element Photographed: South Wall



Image 58

APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Crush Space [110]

Element Photographed: North Wall



Image 59

Location: Crush Space [110]

Element Photographed: East Wall (1 of 2)



Image 60





Location: Crush Space [110]

Element Photographed: East Wall (2 of 2)



Image 61

Location: Crush Space [110]

Element Photographed: South Wall



Image 62



Location: Crush Space [110]

Element Photographed: West Wall (1 of 2)



Image 63

Location: Crush Space [110]

Element Photographed: West Wall (2 of 2)



Image 64



APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: East Corridor

Element Photographed: North Wall (1 of 3)



Image 65

Location: East Corridor

Element Photographed: North Wall (2 of 3)

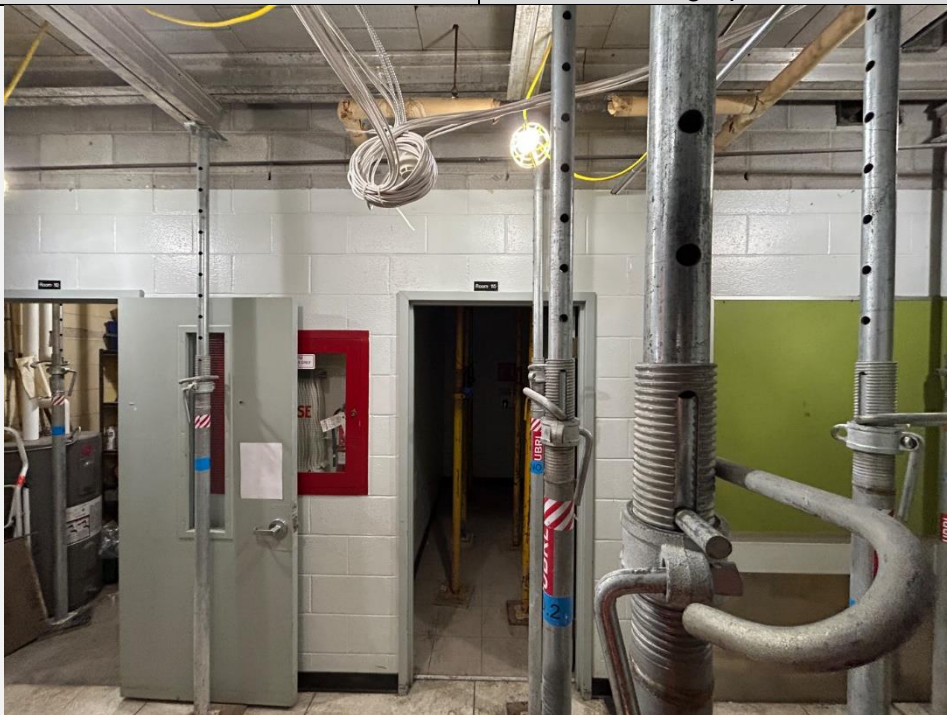


Image 66



APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: East Corridor

Element Photographed: North Wall (3 of 3)



Image 67

Location: East Corridor

Element Photographed: South Wall (1 of 3)



Image 68

APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: East Corridor

Element Photographed: South Wall (2 of 3)



Image 69

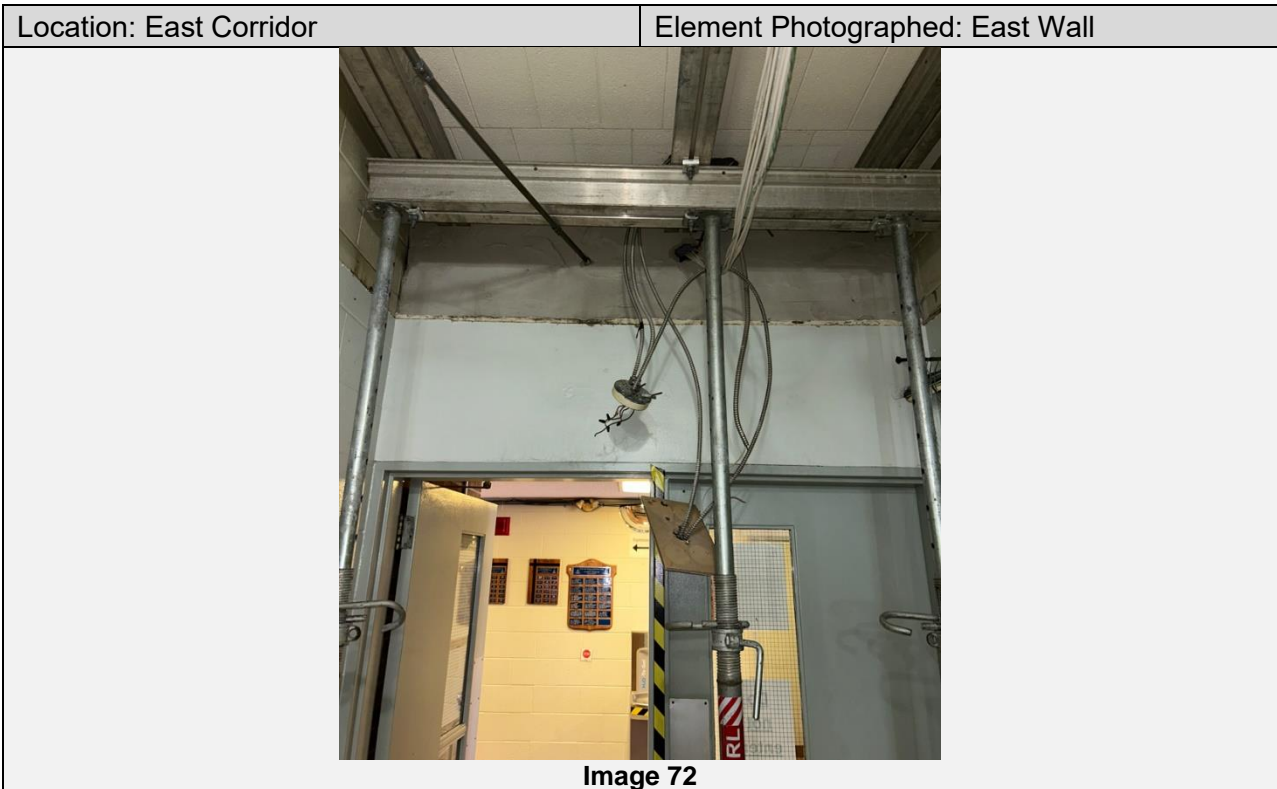
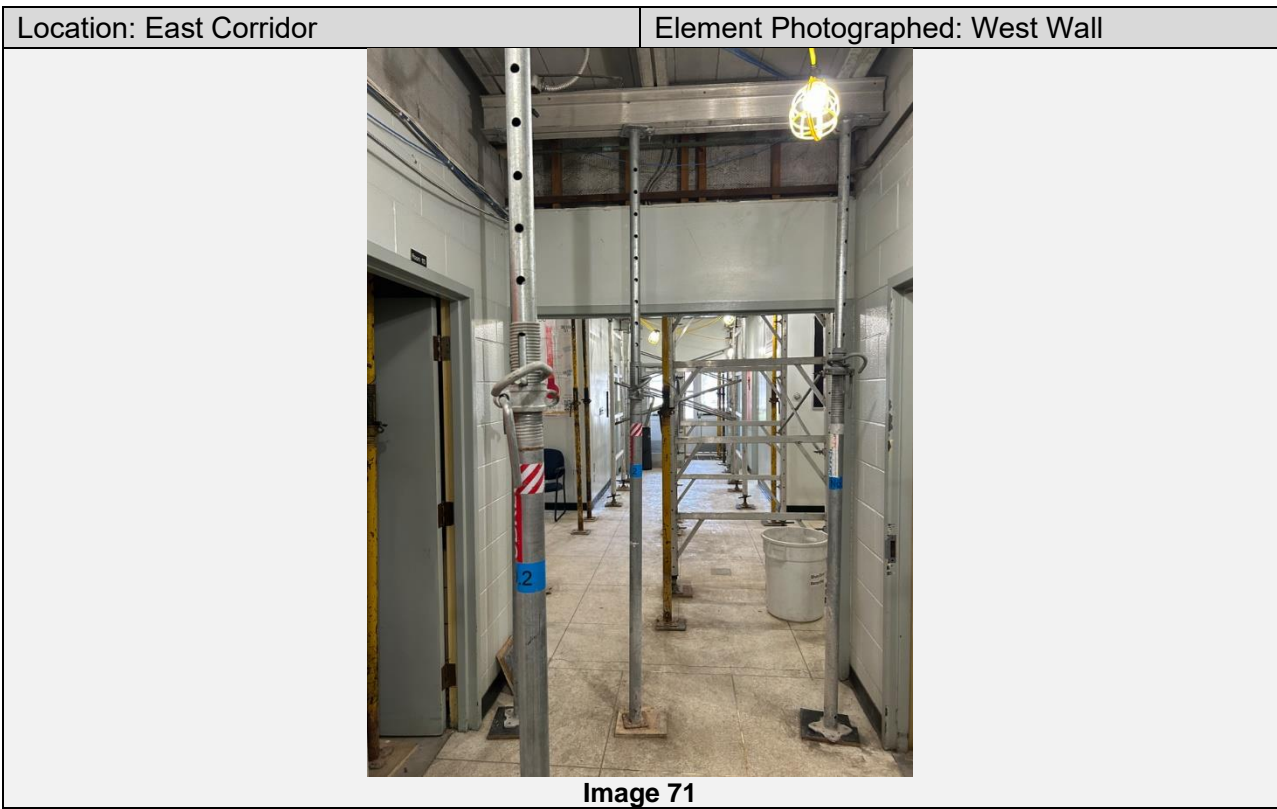
Location: East Corridor

Element Photographed: South Wall (3 of 3)




Image 70










Location: 1967 Corridor to 1962 Structure	Element Photographed: Shared Wall (1 of 3)
	
	<p data-bbox="764 1020 883 1050"><b>Image 73</b></p>

Location: 1967 Corridor to 1962 Structure	Element Photographed: Shared Wall (2 of 3)
	
	<p data-bbox="764 1839 883 1869"><b>Image 74</b></p>

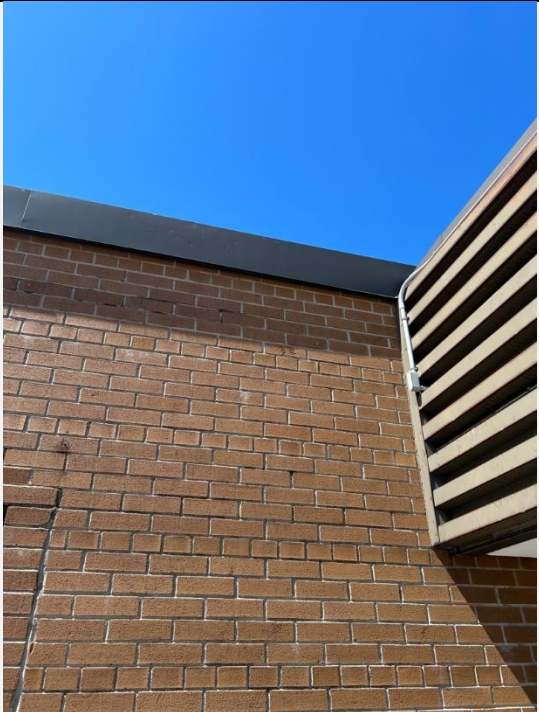





Location: 1967 Corridor to 1962 Structure	Element Photographed: Shared Wall (3 of 3)
	
Image 75	

Location: Exterior	Element Photographed: East Elevation (1 of 2)
	
Image 76a	Image 76b



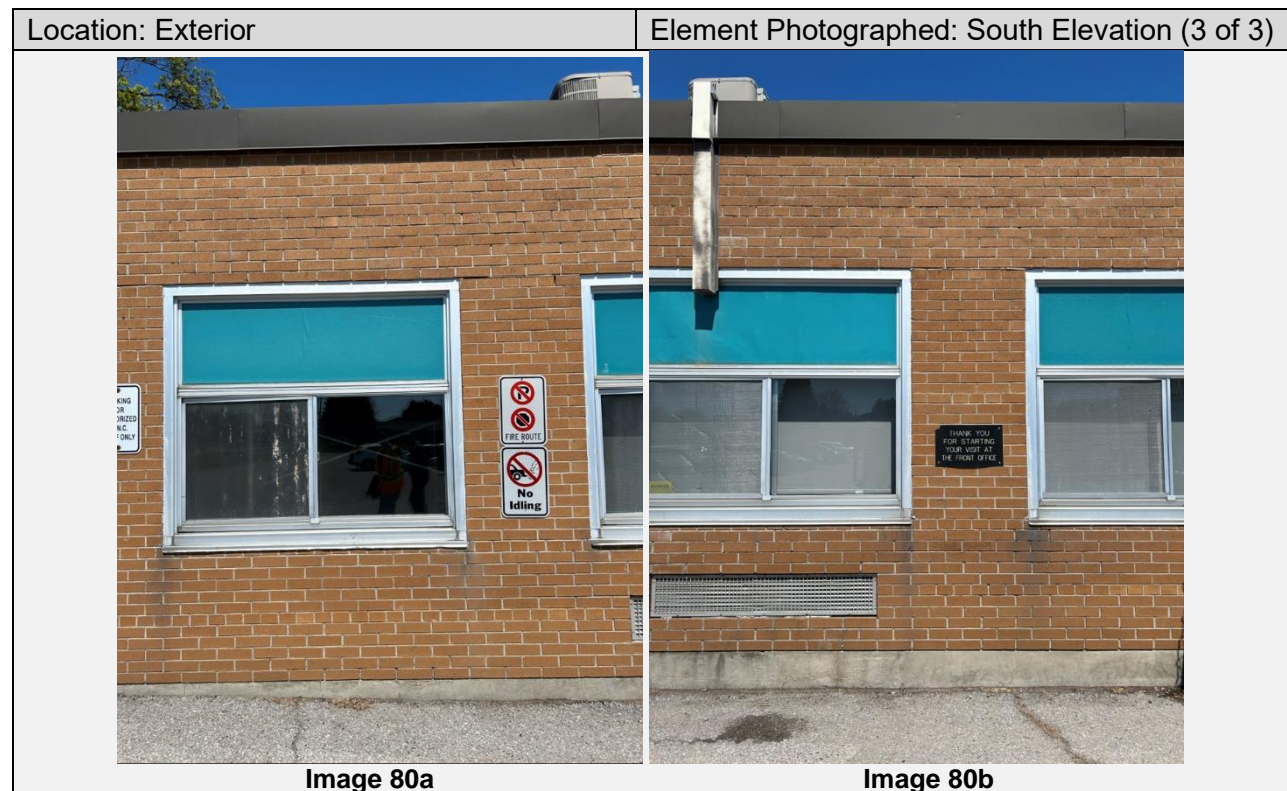
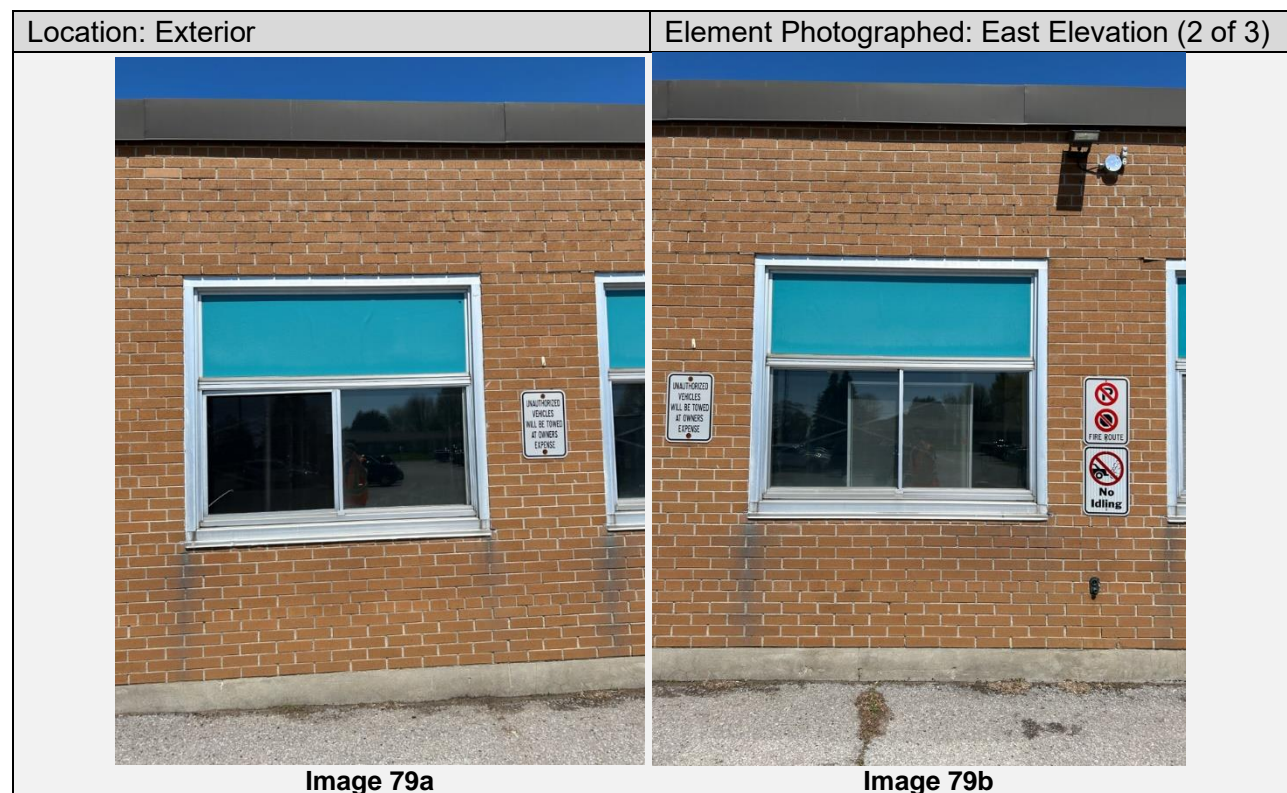
Location: Exterior	Element Photographed: East Elevation (2 of 2)
 <p data-bbox="483 1003 613 1033"><b>Image 77a</b></p>	 <p data-bbox="1036 1003 1166 1033"><b>Image 77b</b></p>

Location: Exterior	Element Photographed: South Elevation (1 of 3)
 <p data-bbox="483 1822 613 1852"><b>Image 78a</b></p>	 <p data-bbox="1036 1822 1166 1852"><b>Image 78b</b></p>



# APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls

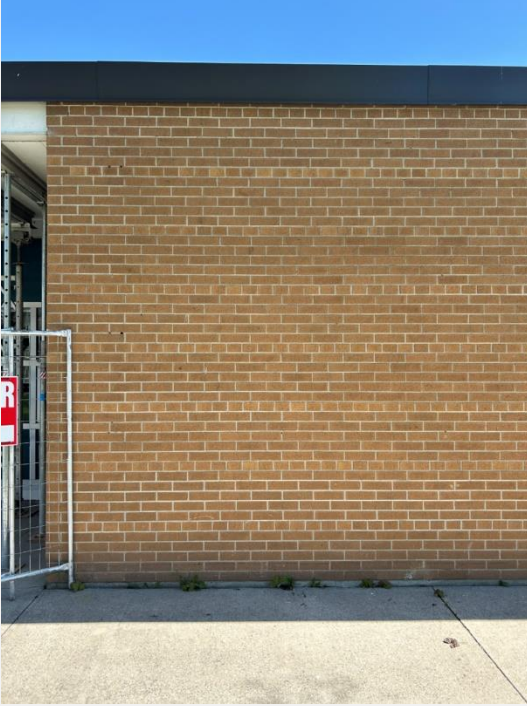
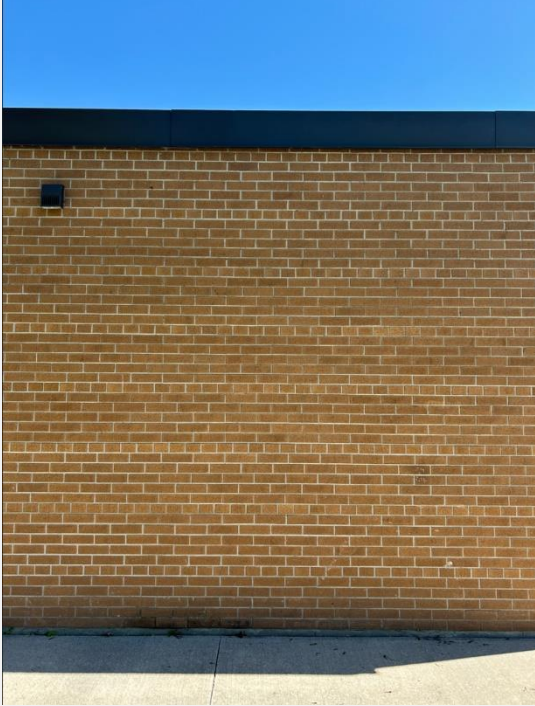






APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



Location: Exterior	Element Photographed: West Elevation (1 of 3)
 <p data-bbox="483 1003 613 1031">Image 81a</p>	 <p data-bbox="1036 1003 1166 1031">Image 81b</p>

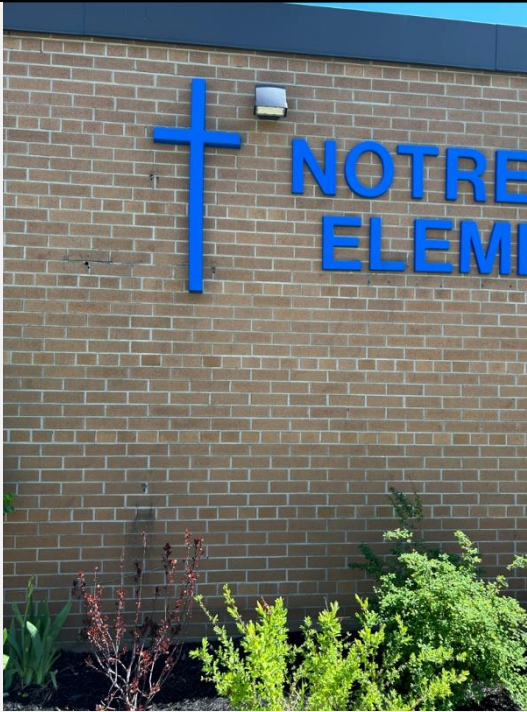

Location: Exterior	Element Photographed: West Elevation (2 of 3)
 <p data-bbox="483 1820 613 1848">Image 82a</p>	 <p data-bbox="1036 1820 1166 1848">Image 82b</p>



APPENDIX A: Photographs of General Elevations

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls







Location: Exterior	Element Photographed: West Elevation (3 of 3)
 <p data-bbox="479 1003 609 1031">Image 83a</p>	 <p data-bbox="1036 1003 1166 1031">Image 83b</p>

Location: Exterior	Element Photographed: North Elevation (1 of 4)
 <p data-bbox="479 1816 609 1843">Image 84a</p>	 <p data-bbox="1036 1816 1166 1843">Image 84b</p>





Location: Exterior	Element Photographed: North Elevation (2 of 4)
	
Image 85a	Image 85b

Location: Exterior	Element Photographed: North Elevation (3 of 4)
	
Image 86a	Image 86b



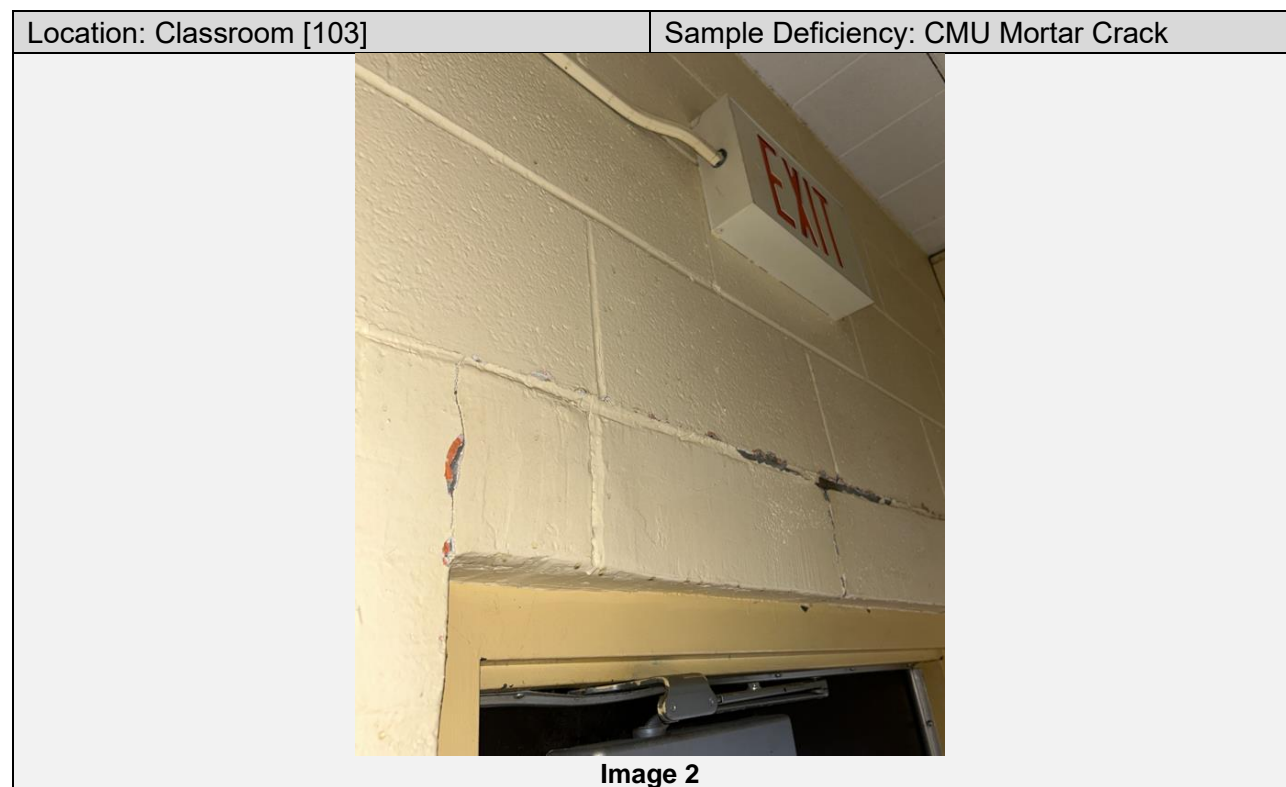
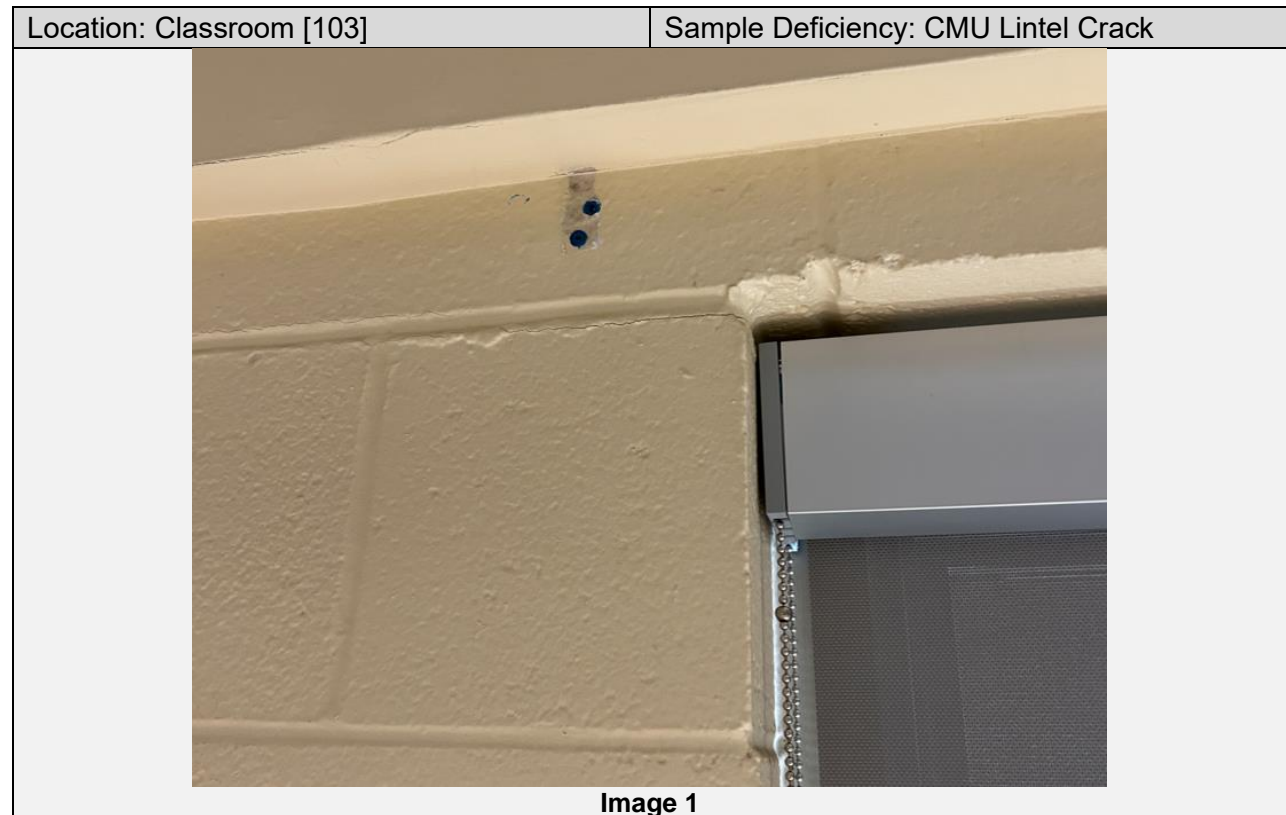
Location: Exterior	Element Photographed: North Elevation (4 of 4)
 <p data-bbox="483 1005 610 1037"><b>Image 87a</b></p>	 <p data-bbox="1036 1005 1162 1037"><b>Image 87b</b></p>



## **Appendix B: Photographs of Observed Structural Deficiencies**

APPENDIX A: Photographs of Observed Structural Deficiencies

Notre Dame Catholic Elementary School  
760 Burnham Street, Cobourg, Ontario  
Pre-Construction Condition Survey of Masonry Walls



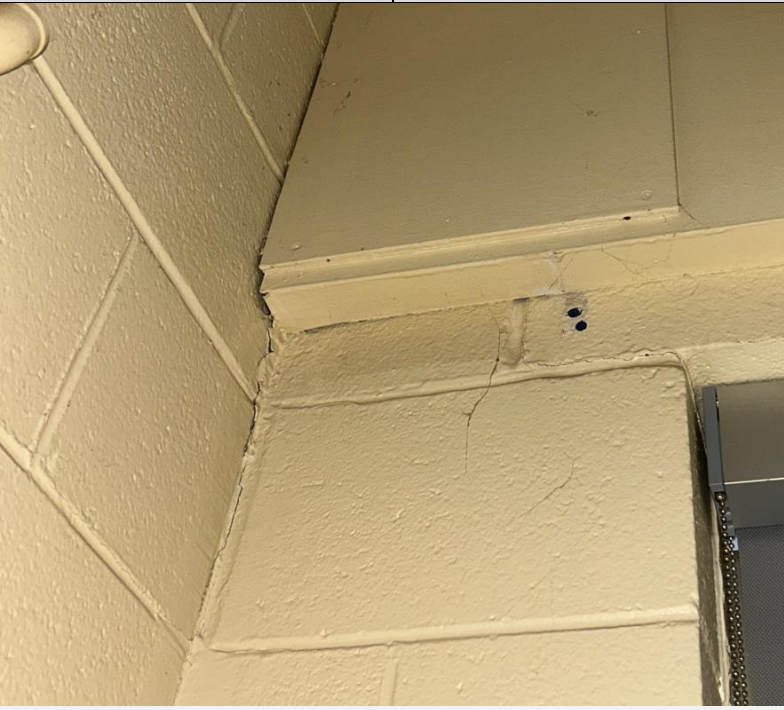


APPENDIX A: Photographs of Observed Structural Deficiencies

Notre Dame Catholic Elementary School  
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Location: Classroom [103]	Sample Deficiency: Spall
 <p data-bbox="776 1010 873 1037">Image 3</p>	


Location: Classroom [103]	Sample Deficiency: CMU Lintel Crack
 <p data-bbox="776 1822 873 1848">Image 4</p>	

APPENDIX A: Photographs of Observed Structural Deficiencies

Notre Dame Catholic Elementary School  
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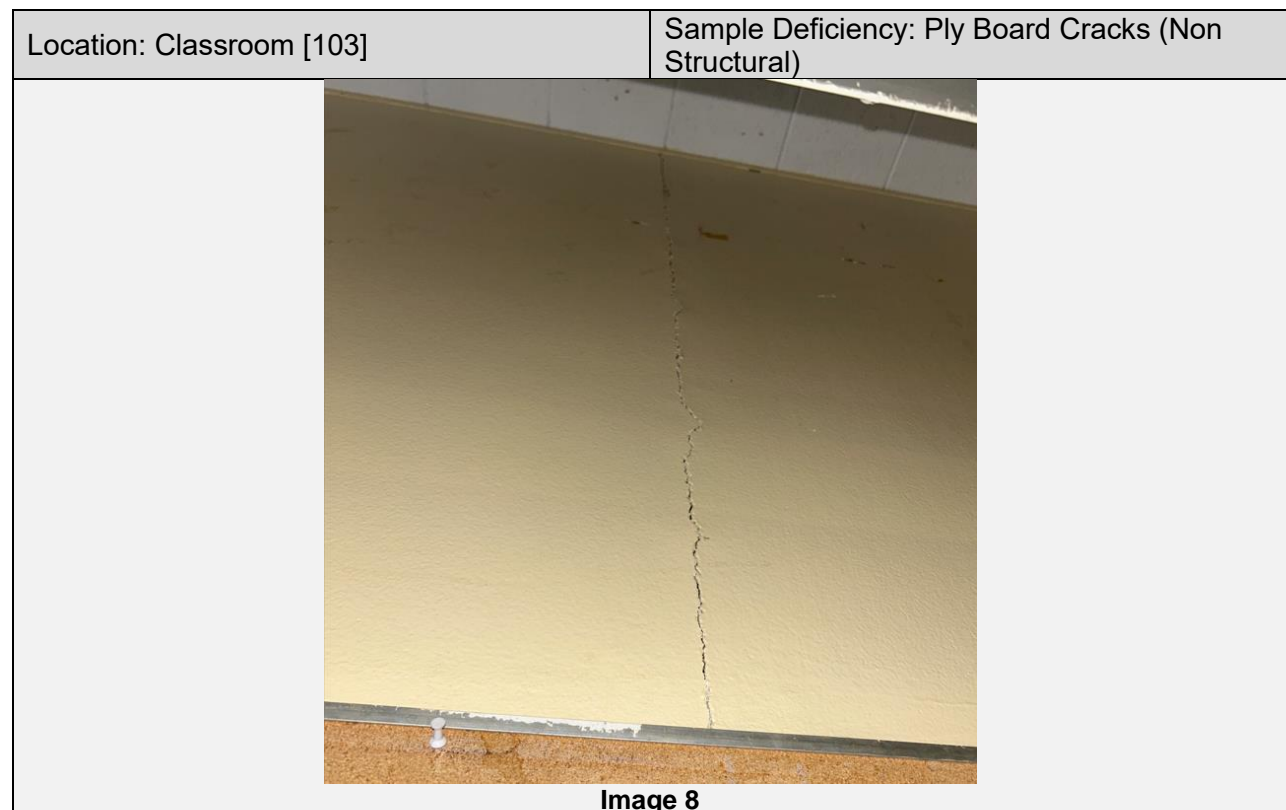
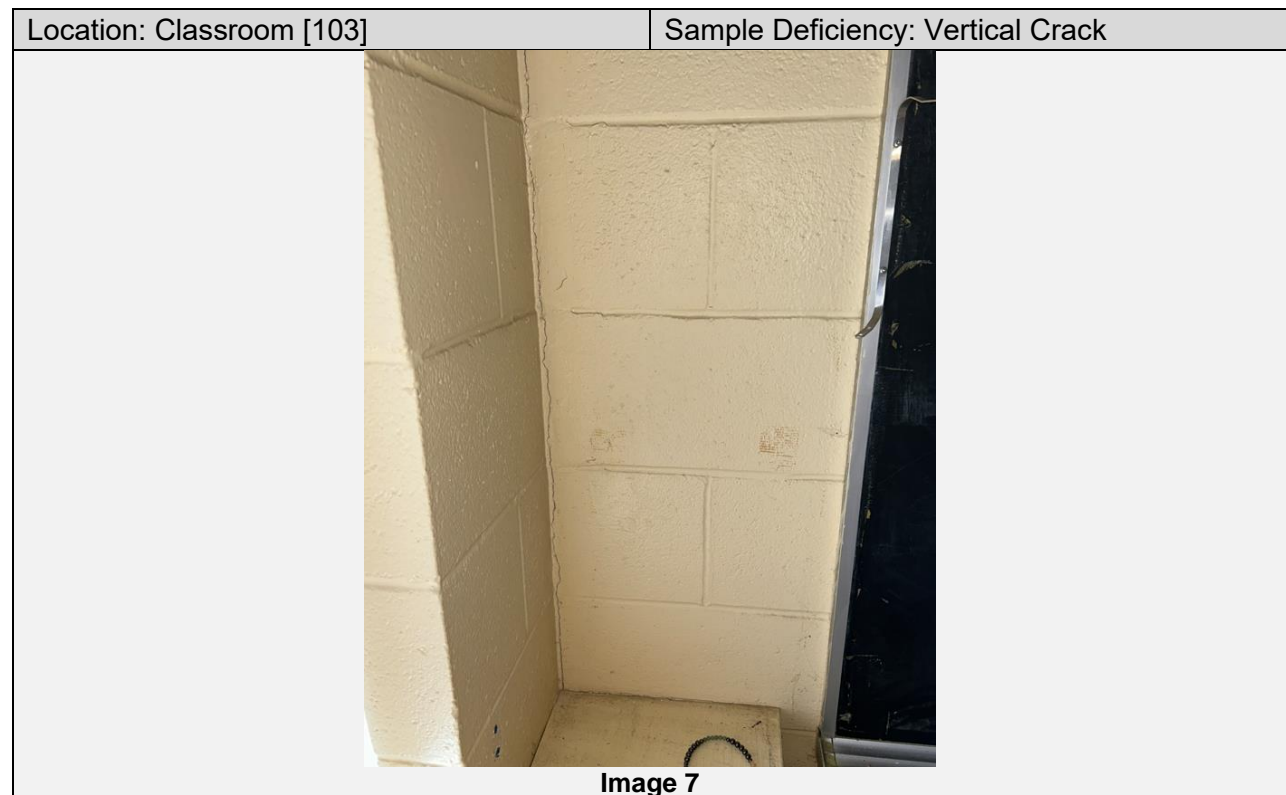


Location: Classroom [103]	Sample Deficiency: Loss of Mortar
 <p data-bbox="776 1020 873 1050"><b>Image 5</b></p>	

Location: Classroom [103]	Sample Deficiency: Hairline CMU Step Crack
 <p data-bbox="776 1839 873 1864"><b>Image 6</b></p>	

APPENDIX A: Photographs of Observed Structural Deficiencies

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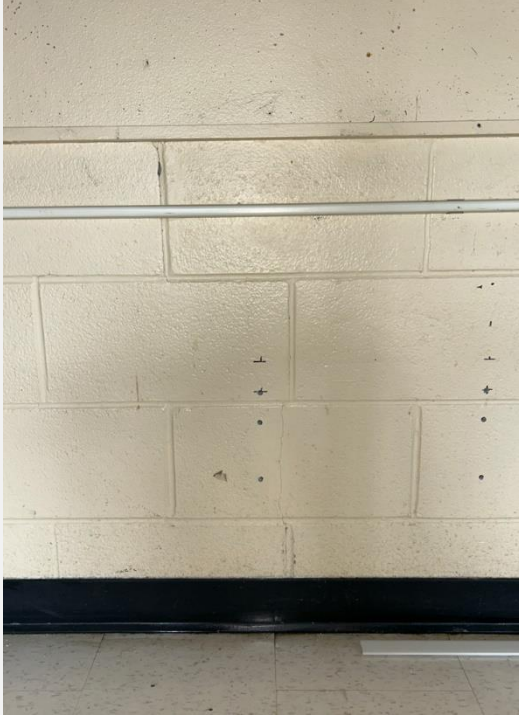
Location: Classroom [103]	Sample Deficiency: CMU Vertical Crack
 <p data-bbox="776 1020 873 1050"><b>Image 9</b></p>	


Location: Classroom [103]	Sample Deficiency: Loss of Mortar
 <p data-bbox="776 1822 873 1852"><b>Image 10</b></p>	

APPENDIX A: Photographs of Observed Structural Deficiencies

Notre Dame Catholic Elementary School  
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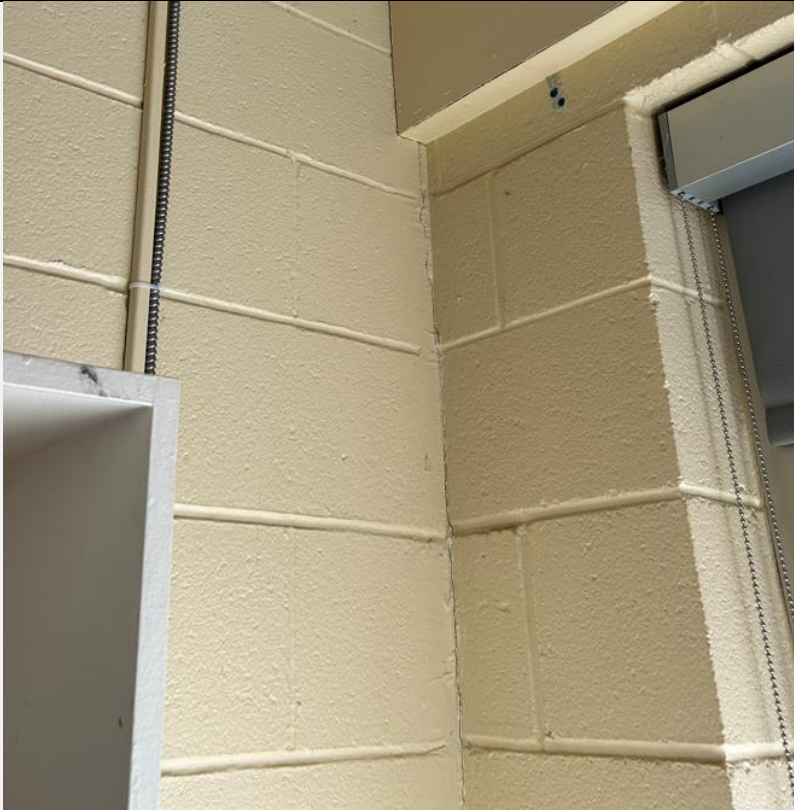


Location: Classroom [107]	Sample Deficiency: CMU Crack
 <p data-bbox="526 1010 656 1037">Image 11a</p>	 <p data-bbox="992 1010 1122 1037">Image 11a</p>

Location: Classroom [107]	Sample Deficiency: CMU Step Crack
 <p data-bbox="764 1822 883 1850">Image 12</p>	



Location: Classroom [107]	Sample Deficiency: Hole in CMU
 <p data-bbox="440 909 570 938"><b>Image 13a</b></p>	 <p data-bbox="1076 909 1206 938"><b>Image 13b</b></p>


Location: Classroom [107]	Sample Deficiency: Joint Crack
 <p data-bbox="768 1824 881 1854"><b>Image 14</b></p>	



APPENDIX A: Photographs of Observed Structural Deficiencies

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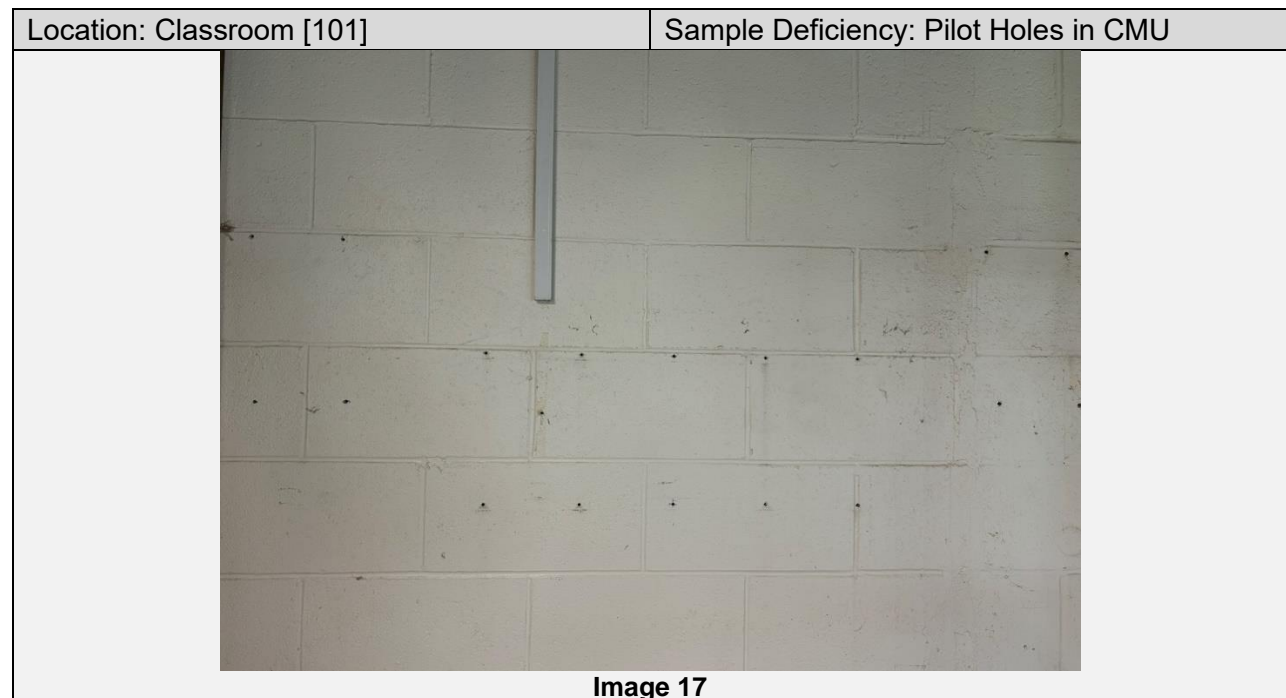


Location: Classroom [101]	Sample Deficiency: Hole in CMU
	 <p data-bbox="764 909 883 936"><b>Image 15</b></p>

Location: Classroom [101]	Sample Deficiency: Joint Crack
	 <p data-bbox="764 1827 883 1856"><b>Image 16</b></p>

APPENDIX A: Photographs of Observed Structural Deficiencies



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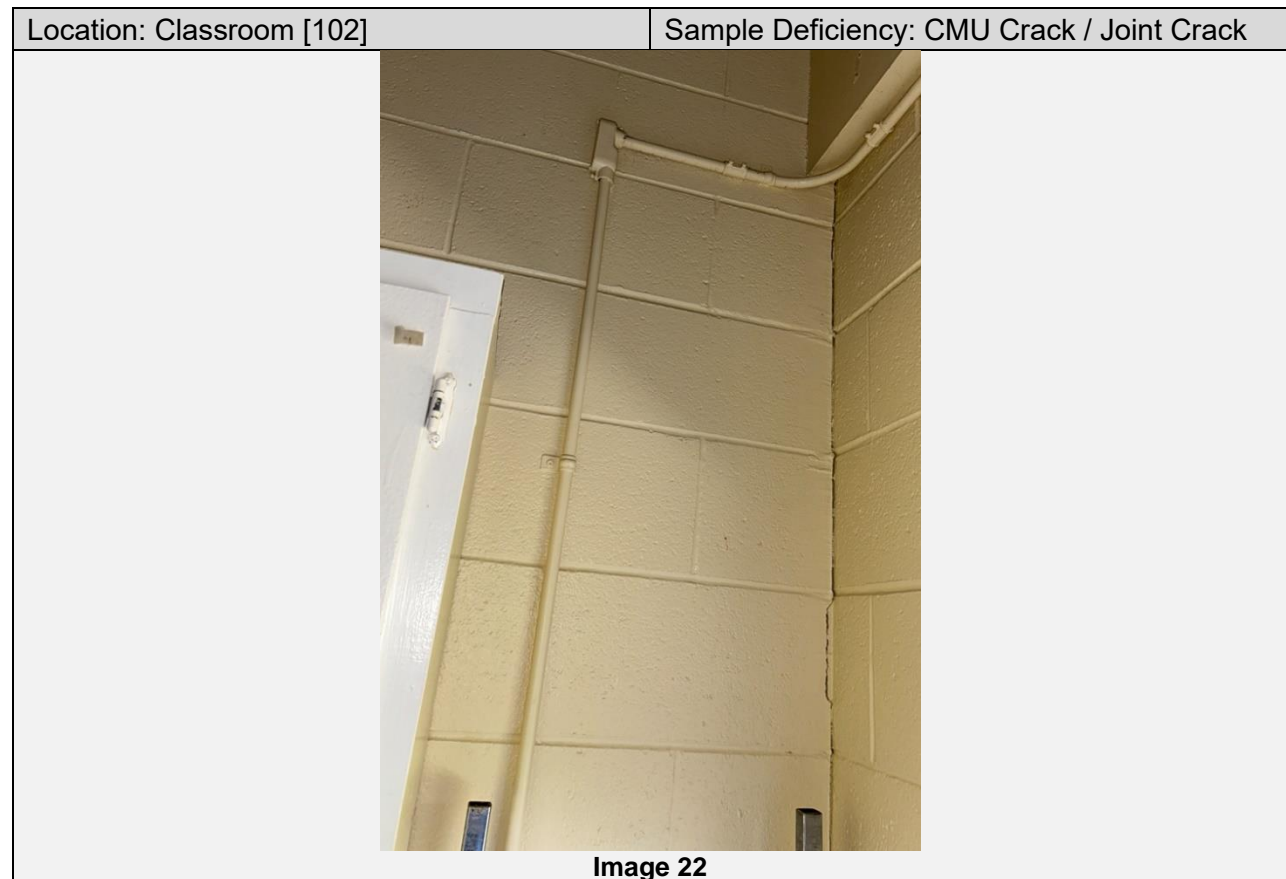
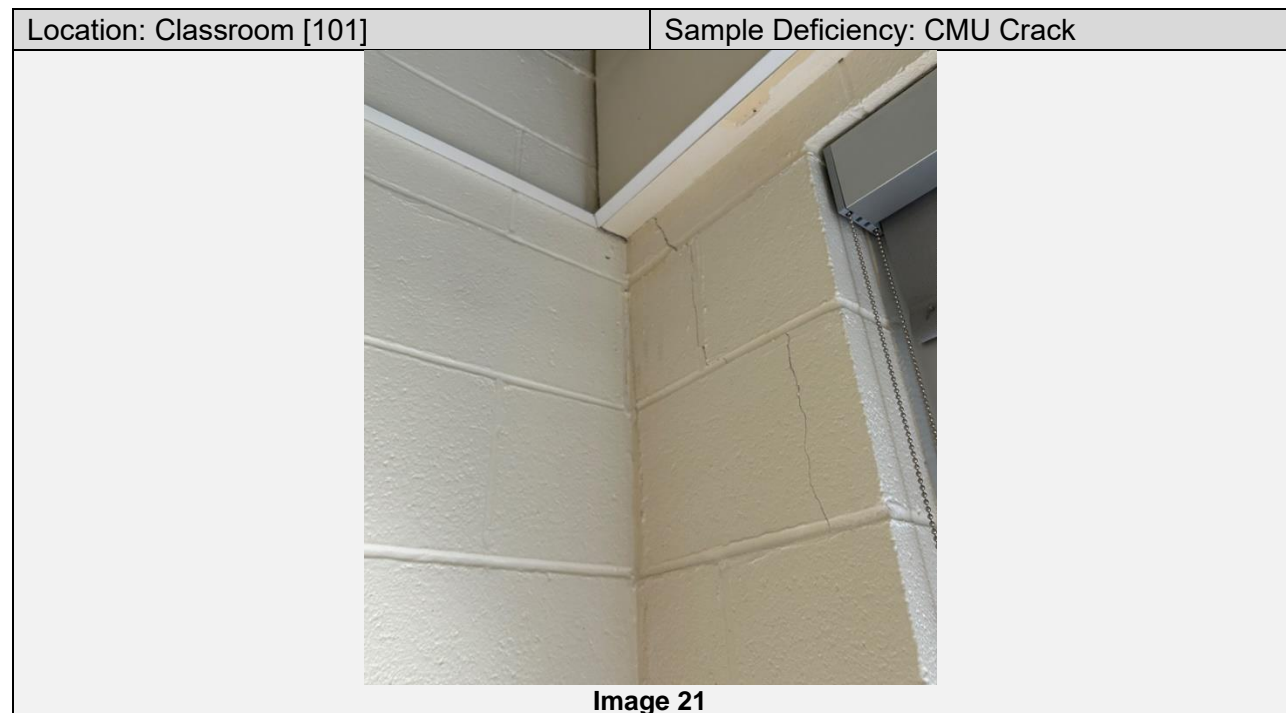
Location: Classroom [101]	Sample Deficiency: CMU Crack
 <p data-bbox="464 915 594 940">Image 19a</p>	 <p data-bbox="1057 915 1187 940">Image 19b</p>

Location: Classroom [101]	Sample Deficiency: CMU Crack
 <p data-bbox="464 1835 594 1862">Image 20a</p>	 <p data-bbox="1057 1835 1187 1862">Image 20b</p>



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APPENDIX A: Photographs of Observed Structural Deficiencies

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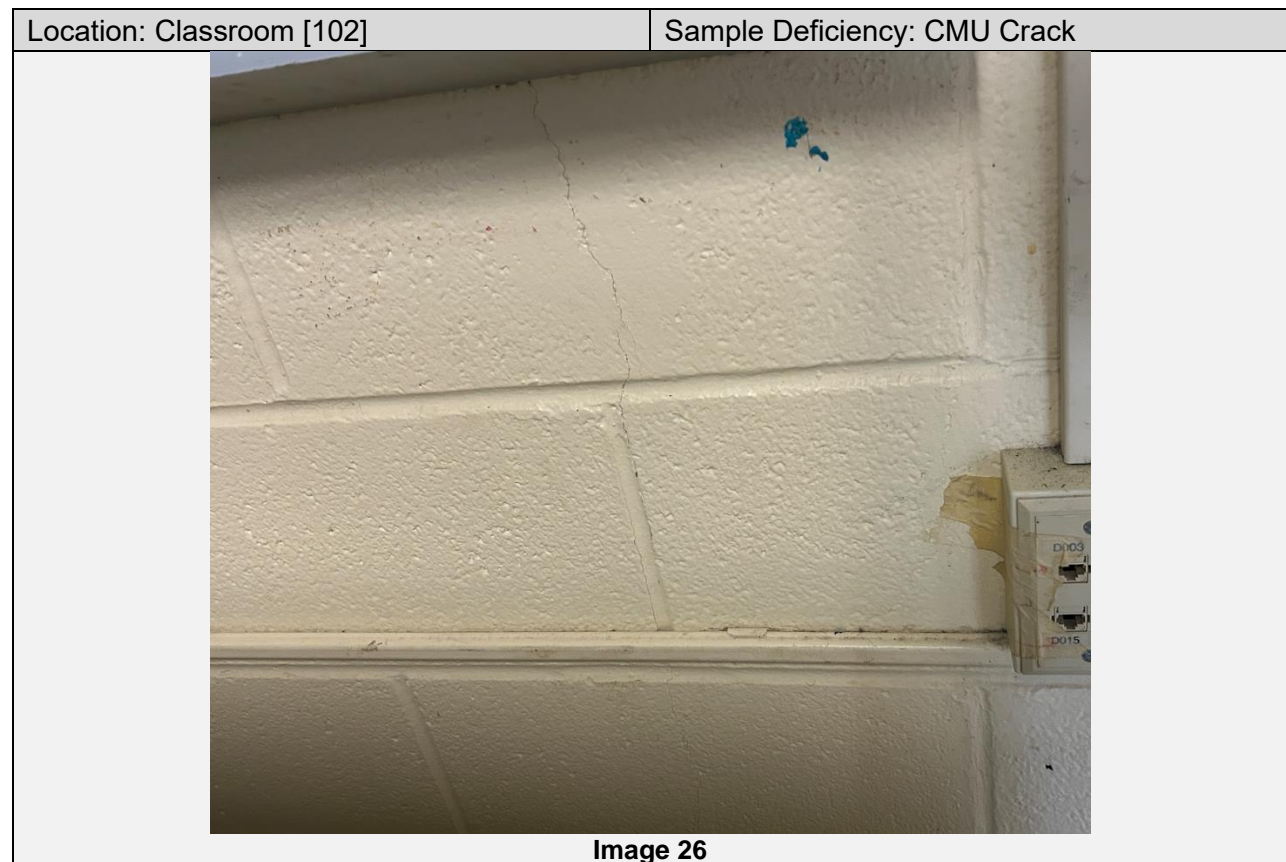
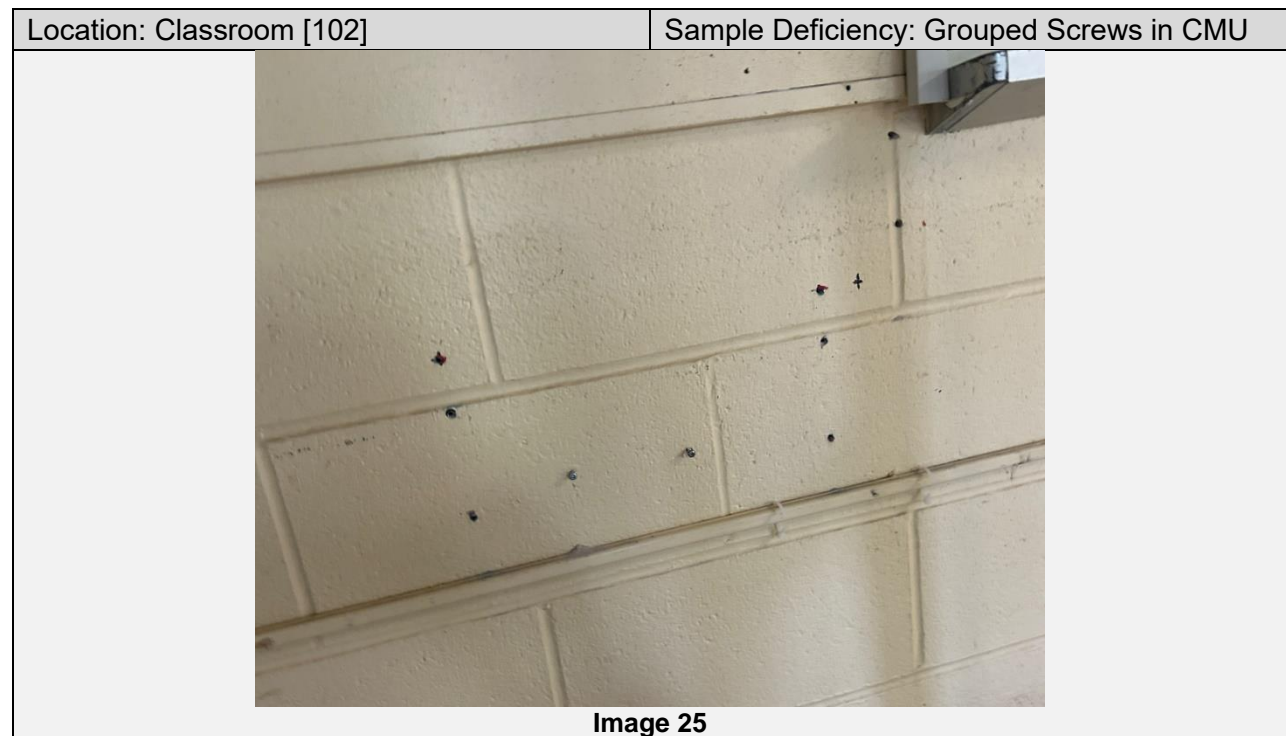


Location: Classroom [102]	Sample Deficiency: Chipped CMU
 <p data-bbox="768 947 881 974">Image 23</p>	

Location: Classroom [102]	Sample Deficiency: Hairline CMU Step Crack
 <p data-bbox="768 1827 881 1854">Image 24</p>	

APPENDIX A: Photographs of Observed Structural Deficiencies

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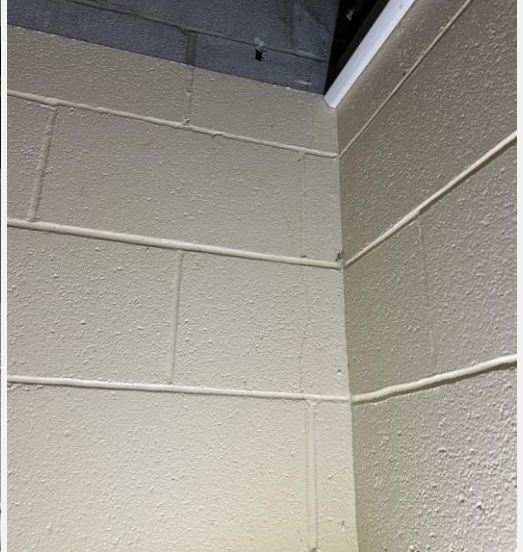





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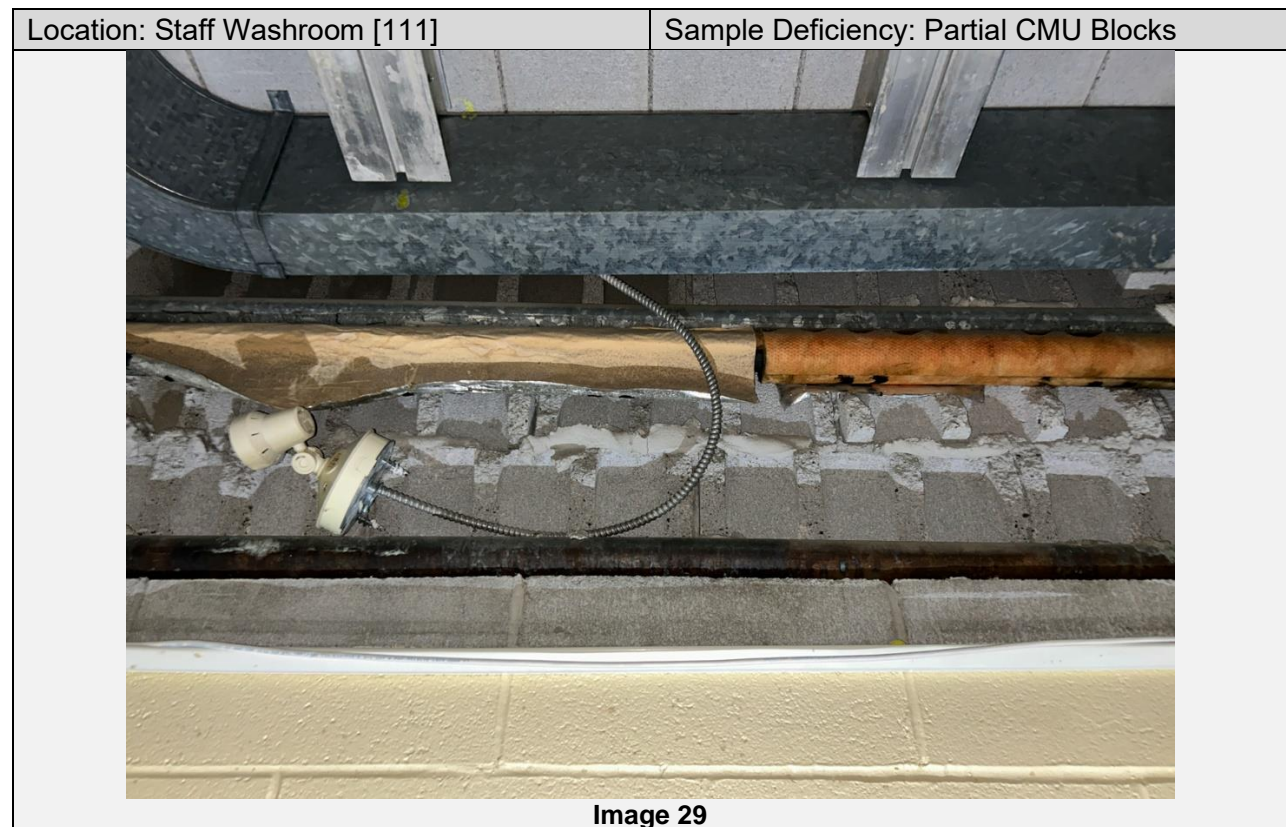


Location: Staff Washroom [111]	Sample Deficiency: CMU Holes and Cracks
 <p data-bbox="446 850 576 879">Image 27a</p>	 <p data-bbox="1063 850 1193 879">Image 27b</p>

Location: Staff Washroom [111]	Sample Deficiency: CMU Spall
 <p data-bbox="763 1795 885 1824">Image 28</p>	

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Location: Janitor [112]

Sample Deficiency: Partial CMU Blocks

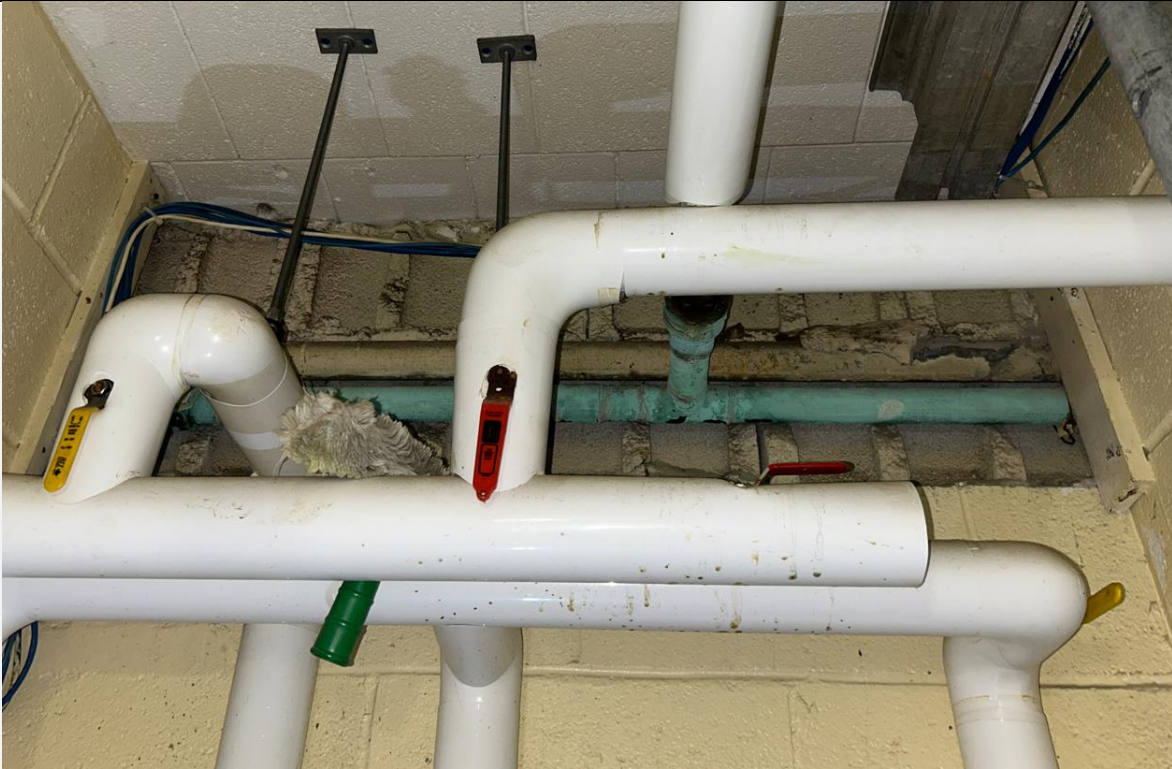


Image 31

Location: Electrical [108]

Sample Deficiency: Spalls at Utilities

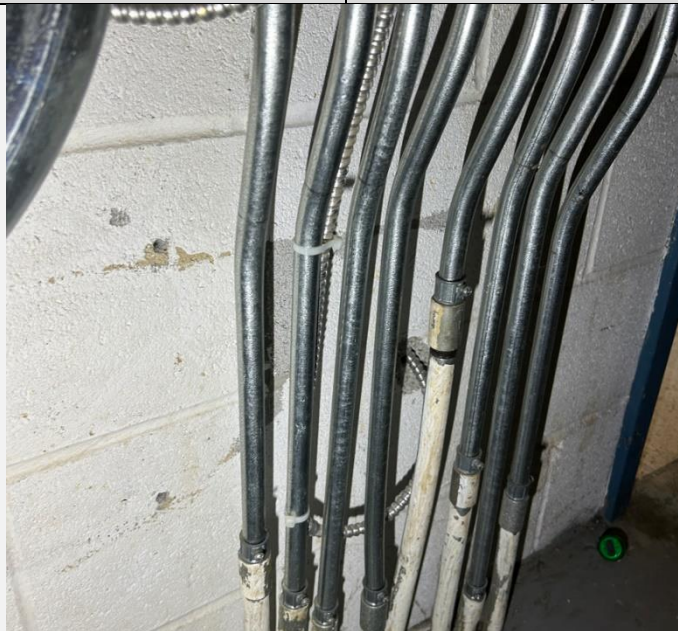





Image 32

APPENDIX A: Photographs of Observed Structural Deficiencies

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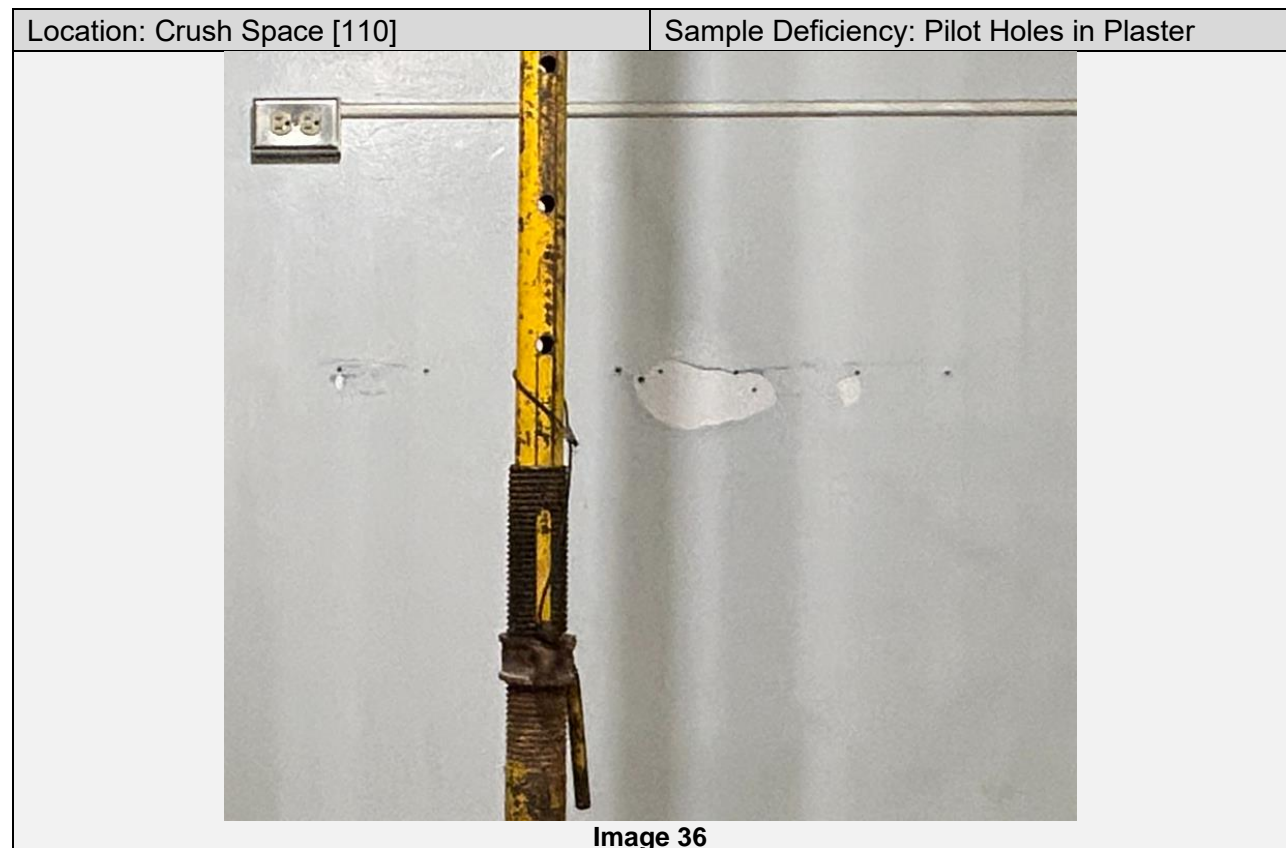
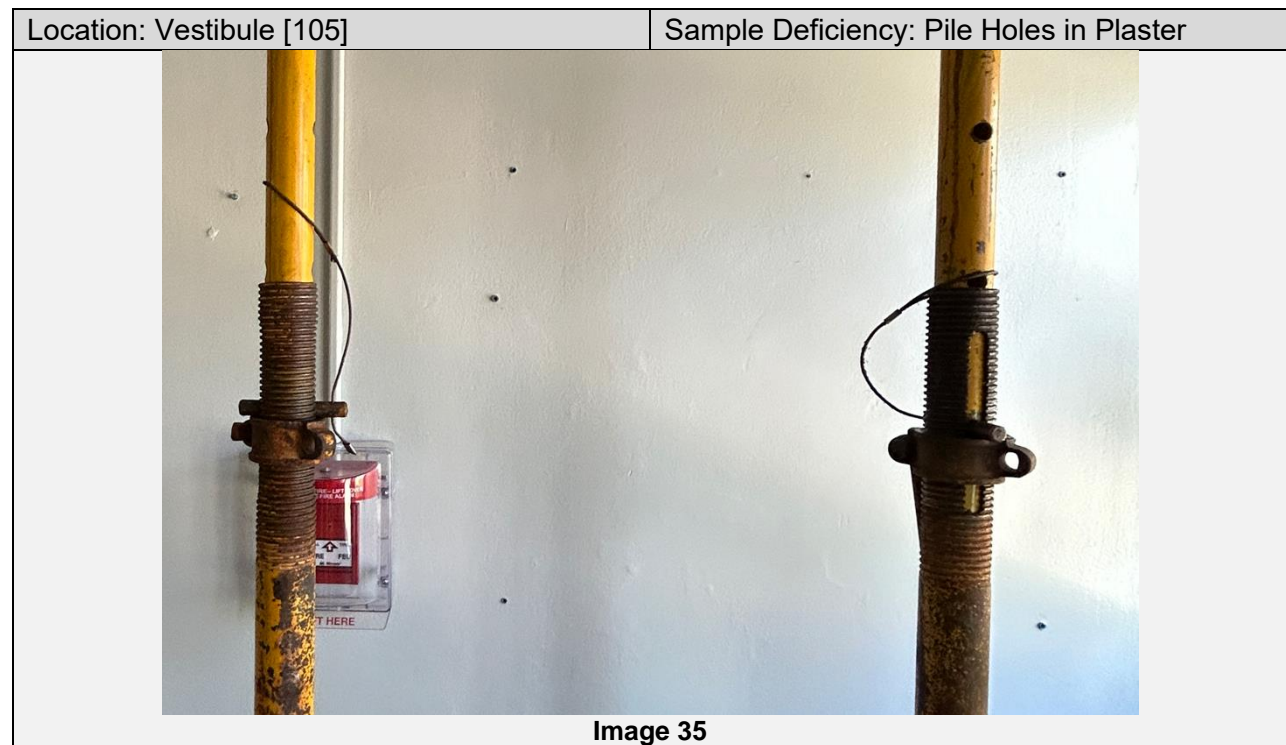
Location: Principal Office [106]	Sample Deficiency: CMU Opening at Plate
	
<p>Image 33</p>	

Location: Closet [106A], Washroom [109]	Sample Deficiency: CMU Spall
	
<p>Image 34a</p>	<p>Image 34b</p>



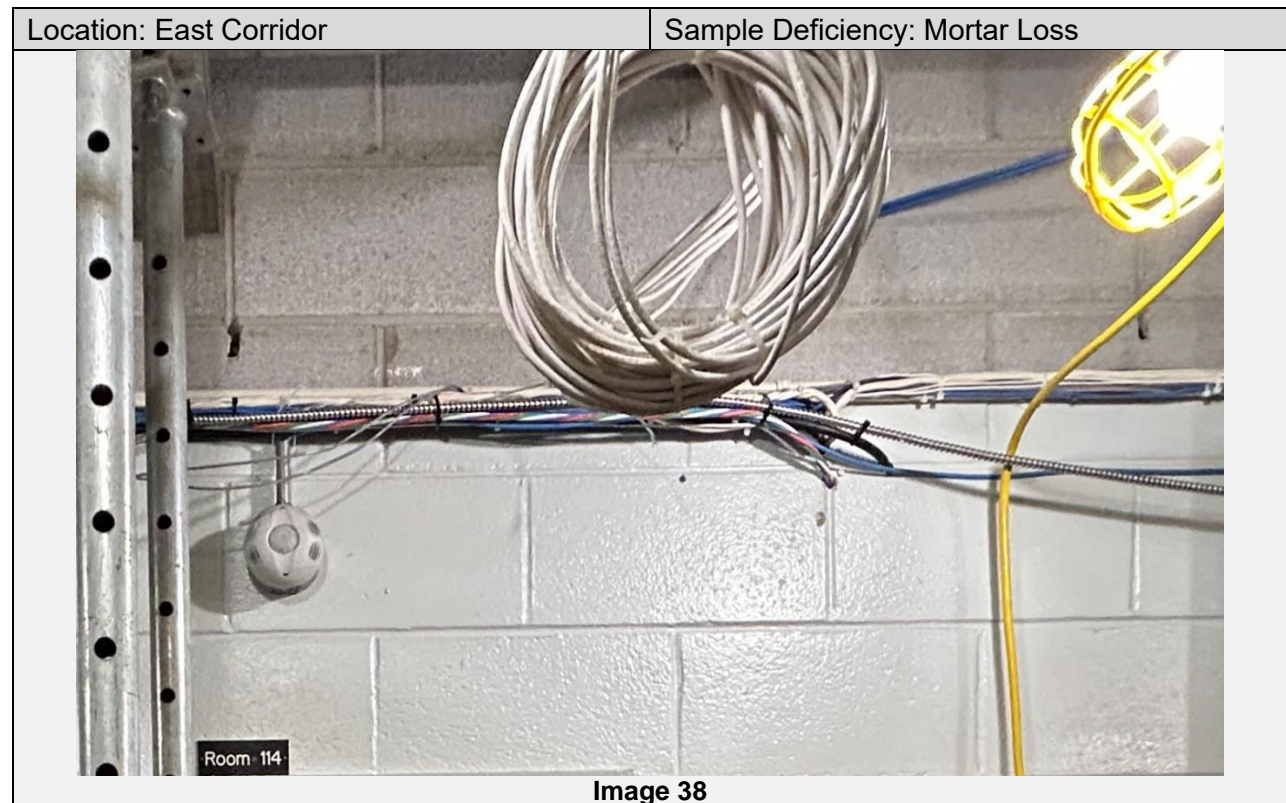
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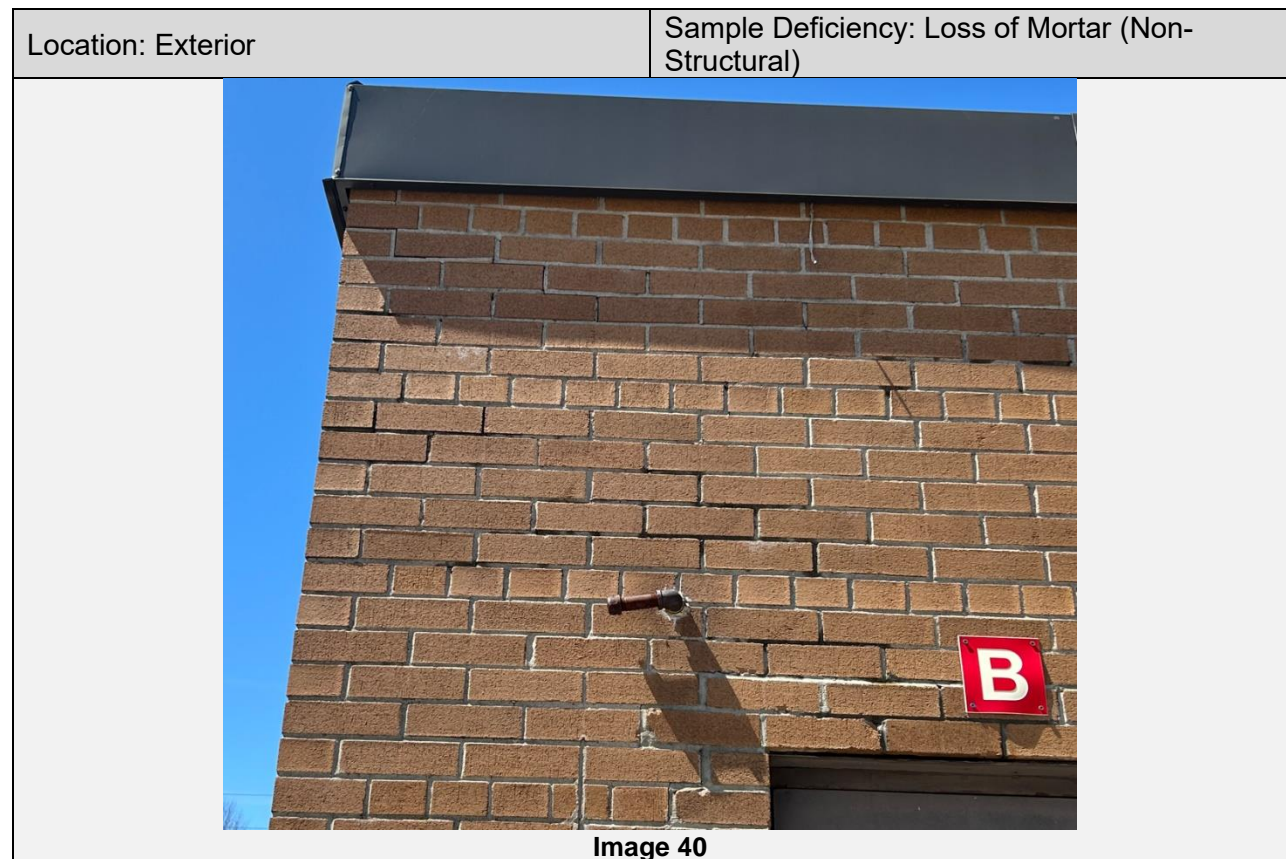
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Location: Exterior

Sample Deficiency: Brick Chips and Spalls  
(Non-Structural)



Image 41

Location: Exterior

Sample Deficiency: Foundation Damage



Image 42



APPENDIX A: Photographs of Observed Structural Deficiencies

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Location: Exterior

Sample Deficiency: Sealant Cracking (Non-Structural)

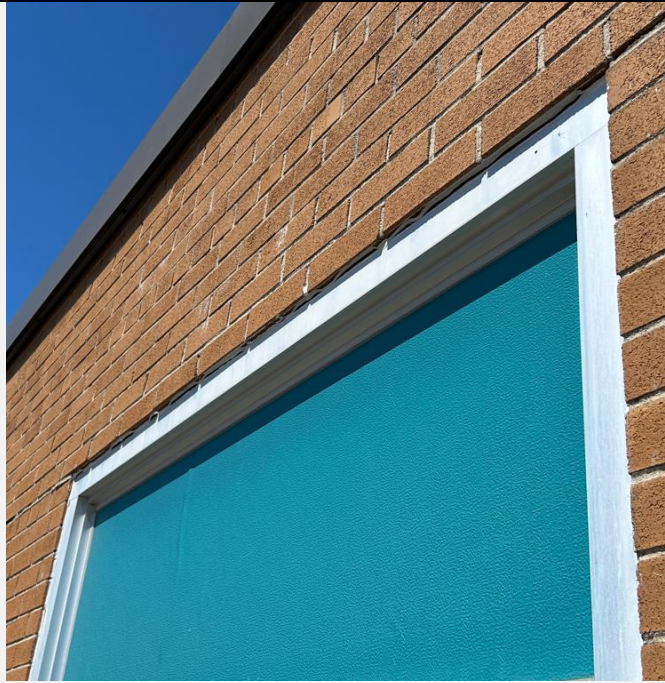


Image 43

Location: Exterior

Sample Deficiency: Loss of Sealant (Non-Structural)



Image 44

APPENDIX A: Photographs of Observed Structural Deficiencies

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