Notre Dame Elementary School
Roof Replacement
Issued for Tender

760 Burnham Street, Cobourg, Ontario

June 11, 2025

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

Prepared by:
ART Engineering Inc.

Owner:

Peterborough Victoria Northumberland and
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Consultant

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Consultant

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

END OF SECTION

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 with concrete topping, new parapet walls, new built-up roof, 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 new concrete topping, insulation, built-up roof, parapets 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 51 13.15: Built-Up Roofing, Cold Applied work.

.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^2.

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.

END OF SECTION

Part 1 General

1.1 GENERAL REQUIREMENTS

.1 Read and conform to General Requirements Division 01, which applies to and forms part of the work.

1.2 SCOPE

.1 This Section specifies the requirements for all labor, materials, equipment and supervision required to furnish and install all reinforcing steel bars, and accessories for cast-in-place concrete in the parking garage as shown on the Contract Drawings and specified herein.

1.3 RELATED WORK

.1 Related work to be co-ordinated with this Section is specified in:

.1 Section 03 30 00: CAST-IN-PLACE CONCRETE - SHORT FORM.

1.4 REFERENCES

.1 Carry out falsework in accordance with the requirements of the latest edition of the following reference standards:

.1 CSA -A23.3 “Design of Concrete Structures”.

.2 Concrete Reinforcing Steel Institute (CRSI), Manual of Standard Practice.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Quality Assurance Submittals:

.1 Mill Test Report: upon request, submit to Owner or Consultant certified copy of mill test report of reinforcing steel, minimum 4 weeks prior to beginning reinforcing work.

.2 Upon request submit in writing to Owner or Consultant proposed source of reinforcement material.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.2 Storage and Handling Requirements:

.1 Store materials, off ground, indoors, in dry location, and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

.1 Substitute different size bars only if permitted in writing Owner or Consultant.

.2 Welded steel wire fabric:

.1 Plain in accordance ASTM A1064/A1064M, fabricated from as drawn steel wire into flat sheets; sizes as indicated on Drawings.

.2 Finish:

.1 Galvanized: Hot dip galvanized after welding having Class A coating in accordance with A641/A641M.

.3 Provide in flat sheets only.

.3 Chairs, bolsters, bar supports, spacers: to CSA A23.1/A23.2 .

.4 Tie wire: 1.5 mm diameter annealed wire.

2.2 FABRICATION

.1 Fabricate reinforcing steel in accordance with CSA A23.1/A23.2, SP-66, and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada.

.1 SP-66 unless indicated otherwise.

.2 Obtain Owner or Consultant written approval for locations of reinforcement splices other than those shown on placing drawings.

.3 Upon approval of Owner or Consultant, weld reinforcement in accordance with CSA W186.

2.3 SOURCE QUALITY CONTROL

.1 Upon request, provide Owner or Consultant with certified copy of mill test report of reinforcing steel, showing physical and chemical analysis, minimum [4] weeks prior to beginning reinforcing work.

.2 Upon request inform Owner or Consultant of proposed source of supplied material.

Part 3 Execution

3.1 PLACING REINFORCEMENT

.1 Cutting or puncturing vapour retarder is not permitted; repair damage and reseal vapour retarder before placing concrete.

.2 Place reinforcing steel as indicated on placing drawings and in accordance with CSA A23.1/A23.2.

.3 Prior to placing concrete, obtain Consultant's approval of reinforcing material and placement.

.1 Maintain cover to reinforcement during concrete pour.

3.2 SITE QUALITY CONTROL

.1 Site tests: conduct tests as follows in accordance with Section 01 45 00 - Quality Control.

- .1 Reinforcing steel.
- .2 Epoxy coating.

.2 Inspection and testing of reinforcing and reinforcing materials carried out by testing laboratory designated by the Consultant for review to CSA A23.1/A23.2.

- .1 Ensure testing laboratory certified to CSA A283.

.3 Ensure test results distributed for discussion at pre-pouring concrete meeting between testing laboratory and the Consultant.

.4 Contractor will pay for costs of tests.

.5 Inspection or testing by the Consultant not to augment or replace Contractor quality control nor relieve Contractor of contractual responsibility.

3.3 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.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

.1 Read and conform to General Requirements Division 01, which applies to and forms part of the work.

1.2 SCOPE

.1 All materials, labour and equipment as necessary to complete the concrete work as shown on the drawings and described herein including supply and placement of all concrete materials, reinforcement, formwork, protection, finishing and curing.

.2 Provide testing inspection results and reports for review by Owner or Owner's Representative and do not proceed without written approval when deviations from mix design or parameters found.

.3 Concrete hauling time: provide for review to Owner or Owner's Representative deviations exceeding maximum allowable time of 120 minutes for concrete delivered to site of Work and discharged after batching.

.4 Quality Assurance Submittals:

- .1 Submit in accordance with Section 01 45 00 - Quality Control
- .2 Mill Test Report: upon request, submit to Owner or Owner's Representative a certified copy of mill test report of reinforcing steel, minimum 4 weeks prior to beginning reinforcing work.
- .3 Upon request submit in writing to Owner or Owner's Representative proposed source of reinforcement material.
- .4 Upon request submit to Owner or Owner's Representative epoxy coating applicator certificates identified in Quality Assurance.
- .5 At least 4 weeks prior to beginning Work, inform Owner or Owner's Representative of source of fly ash.
  - .1 Changing source of fly ash without written approval by Owner or Owner's Representative is prohibited.

1.3 QUALITY ASSURANCE

.1 Provide to Owner or Owner's Representative, 4 weeks minimum prior to starting concrete work, valid and recognized certificate from plant delivering concrete.

.2 Quality Control Plan: provide written report to Owner or Owner's Representative verifying compliance concrete in place meets performance requirements.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Delivery and Acceptance Requirements:

- .1 Concrete hauling time: deliver to site of Work and discharged within 120 minutes maximum after batching.

.1 Modifying maximum time limit without receipt of prior written agreement from Owner or Owner's Representative and concrete producer as described in CSA A23.1/A23.2 is prohibited.

.2 Deviations submitted for review by Owner or Owner's Representative.

.2 Concrete delivery: ensure continuous concrete delivery from plant CSA A23.1/A23.2 .

1.5 AMBIENT CONDITIONS

.1 Placing concrete during rain or weather events damaging to concrete is prohibited.

.2 Protect newly placed concrete from rain or weather events in accordance with CSA A23.1/A23.2.

.3 Cold weather protection:

.1 Maintain protection equipment, in readiness on Site.

.2 Use such equipment when ambient temperature below 5°C, or when temperature may fall below 5°C before concrete cured.

.3 Placing concrete upon or against surface at temperature below 5°C is prohibited.

.4 Hot weather protection:

.1 Protect concrete from direct sunlight when ambient temperature above 27°C.

.2 Prevent forms of getting too hot before concrete placed. Apply accepted methods of cooling not to affect concrete adversely.

.5 Protect from drying.

Part 2 Products

2.1 MATERIALS

.1 Portland Cement: Normal Portland Cement in accordance with CAN/CSA A3000, Type GU.

.2 Foaming agent: MasterCell Series performed foaming agent by Master Builder solutions, as supplied by Lafarge or equivalent.

.3 Water: to CSA A23.1/A23.2.

.4 Chemical Admixtures: to ASTM C 494/ASTM C 1017. Owner or Owner's Representative to approve accelerating or set retarding admixtures during cold and hot weather placing.

.5 Other concrete materials: to CSA A23.1/A23.2 .

2.2 MIXES

.1 Performance Method for specifying concrete: to meet Owner or Owner's Representative performance criteria to CSA A23.1/A23.2.

.1 Provide concrete mix to meet following hard state requirements:

.1 Compressive strength at 28 day: 10 MPa minimum.

.2 Maximum wet cast density: 1800 kg/m^3.

.3 Intended application: roof steel deck topping.

.2 Concrete supplier's certification.

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

.4 Control of Slump.

.1 When a truck mixer or agitator is used for mixing or delivery of the concrete, no water from the truck water system or elsewhere shall be added after the initial introduction of the mixing water to the batch except when, at the start of discharge, the measured slump of the concrete is less than that specified. In this case water may be added so as to obtain the specified slump. Water shall not be added to the batch at any later time.

.2 Adjustments to the slump by the addition of water are the responsibility of, and shall be made by, the Contractor.

Part 3 Execution

3.1 PREPARATION

.1 Place concrete reinforcing in accordance with Section 03 20 00 - Concrete Reinforcing.

.2 During concreting operations:

.1 Development of cold joints not allowed.

.2 Concrete delivery and handling to facilitate placing with minimum of rehandling, and without damage to existing structure or Work.

.3 Protect previous Work from staining.

.4 Clean and remove stains prior to application of concrete finishes.

.5 Install OWSJ, Steel deck, premier angle, and accessories as per contract drawings.

.6 Provide temporary shoring to OWSJ during the placement of concrete as required.

.7 Place reinforcing with correct spacing and coverage using plastic support chairs, and other necessary accessories. Steel support chairs are not permitted

3.2 INSTALLATION/APPLICATION

.1 Do cast-in-place concrete work in accordance with CSA A23.1/A23.2.

.2 Do not temporarily displace reinforcement for convenience in placing concrete.

.3 Do not place load upon new concrete until adequate strength has been attained

3.3 COLD AND HOT WEATHER WORK

.1 Concrete placement is not to be permitted when, in the opinion of the Engineer, the sun, heat, wind, rain, sleet, snow or humidity would prevent proper placement and curing.

.2 Take hot weather precautions whenever the ambient temperature exceeds the limits according to CSA A23.1.

.3 Take cold weather precautions whenever the ambient temperature is, or is expected to be, at or below 5 degrees Celsius.

.4 Maintain concrete temperatures between 10 degrees Celsius and 15 degrees Celsius for a minimum of 5 calendar days for unloaded areas, and 10 calendar days for areas receiving partial load.

.5 Where the Work is enclosed, and heaters are used to provide heat:

.1 Provide an access strip at least 1 m wide between the Work and the nearest heater.

.2 Do not discharge heater outlets directly toward the Work.

.3 Duct heater exhausts outside enclosure.

.4 Maintain the humidity within the enclosure at or above 40 percent and install a suitable measuring device or employ wet curing terminating 12 hr. before the termination of heating.

.5 At the termination of the protection period, do not drop the concrete temperature more than 20 degrees Celsius in the first 24 hours.

.6 Influence of Ambient Concrete Temperature on Concrete Crack Control:

.1 To minimize the formation of thermal cracks during placement and curing, maintain previously cured concrete and concrete that will be placed against it at the same temperature.

3.4 FINISHES

.1 Provide smooth trowelled surface.

3.5 CURING

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

3.6 SITE TOLERANCES

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

3.7 CLEANING

.1 Clean in accordance with Section 01 74 00 – Cleaning.

.2 Designate cleaning area for tools to limit water use and runoff.

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 ASSURANC

.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^2 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^2.

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 drys.

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:

Member Depth	Across Member Depth	Along Member Length	Centre to Centre Spacing (mm)
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 SUMMARY

.1 Cold-applied, built-up asphalt roofing system on steel deck, including but not limited to:

.2 Underlayment Board

.3 Vapour Retarder

.4 Polyisocyanurate insulation

.5 Tapered Insulation

.6 Coverboard

.7 Cold-applied built-up roof membrane

.8 Roof surfacing consisting of peastone surfacing adhered in flood coat of Cold Applied Roofing Adhesive.

.9 Elastomeric sheet flashings adhered in cold applied roofing adhesive

1.2 PREINSTALLATION MEETINGS

.1 Preinstallation Roofing Conference: Conduct conference at Project site.

.1 Meet with Owner, Owner's Consultant, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing manufacturer's representative, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.

.2 Review drawings and specifications.

.3 Review methods and procedures related to roofing installation, including manufacturer's written instructions.

.4 Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

.5 Examine substrate conditions and finishes for compliance with requirements, including flatness and fastening.

.6 Review structural loading limitations of roof deck during and after roofing.

.7 Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing.

.8 Review governing regulations and requirements for insurance and certificates if applicable.

.9 Review temporary protection requirements for roofing during and after installation.

.10 Review roof observation and repair procedures after roofing installation

1.3 ACTION SUBMITTALS

.1 Product Data: For each type of product indicated.

.2 Shop Drawings: For roofing system, include plans, elevations, sections, details, and attachments to other work. Provide roof plan showing orientation and types of roof deck, orientation of membrane roofing, and fastening spacings and patterns for mechanically fastened components.

.1 Tapered insulation, including slopes.

.2 Crickets, saddles, and tapered edge strips, including slopes.

.3 Insulation fastening patterns for corner, perimeter, and field-of-roof locations.

.4 Membrane fastening or adhesion requirements.

.3 Samples for Verification: For the following products:

.1 Sheet roofing materials, of colour specified for exposed material.

.2 0.5 kg (1 lb) of aggregate surfacing material in gradation and colour indicated.

.3 Walkway materials (if applicable).

.4 Metal termination bars.

.5 Safety Equipment (If applicable).

.4 Wind Uplift Resistance Submittal: For roofing system, indicating compliance with wind uplift performance requirements to CSA123.21

1.4 INFORMATIONAL SUBMITTALS

.1 Qualification Data: For Installer, Manufacturer, and Roofing Inspector.

.1 Include letter from Manufacturer written for this Project indicating approval of Installer.

.2 Contractor's Product Certificate: Submit notarized certificate, indicating products intended for Work of this Section, including product names and numbers and manufacturers' names, with statement indicating that products to be provided meet the requirements of the Contract Documents.

.3 Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of built-up roofing.

.4 Warranties: Unexecuted sample copies of special warranties.

.5 Field Quality Control Reports: Reports of Roofing Inspector. Include weather conditions, description of work performed, tests performed, defective work observed, and Contractor's corrective actions taken to correct defective work. Inspections to occur minimum every other production day.

.1 Submit reports within 48 hours after inspection.

.6 CAN/ULC S107 Certification: Class A.

1.5 CLOSEOUT SUBMITTALS

.1 Maintenance Data: To include in maintenance manuals.

.2 Warranties: Executed copies of warranties

1.6 QUALITY ASSURANCE

.1 Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years' experience installing similar work, able to communicate verbally with Contractor, Owner's Consultant, and employees, and qualified by the manufacturer to furnish warranty of type specified.

.2 Manufacturer Qualifications: Approved manufacturer with CAN/ULC-S107 listed roofing systems comparable to those specified for this Project, with minimum five years' experience in manufacture of comparable products in successful use in similar applications, and able to furnish warranty with provisions matching specified requirements.

.3 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 the International Institute of Building Enclosure Consultants (formerly the Roof Consultants Institute) retained by the Contractor or the Manufacturer and approved by the Manufacturer.

.4 Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products

1.7 DELIVERY, STORAGE, AND HANDLING

.1 Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.

.2 Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing manufacturer. Protect stored liquid material from direct sunlight.

.1 Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

.3 Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

.4 Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

.5 Protect property from damage from stored materials.

.6 Supply and maintain construction fencing, signage, walkthrough scaffolding where applicable on-site and to maintain separation between public and employees from the construction area.

.7 Provide guard rails and safety applications in accordance with client and/or local governing authorities.

.8 Do not block fire routes or set up in areas not pre authorized by the client

1.8 PROJECT / FIELD CODITIONS

.1 Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing to be installed according to manufacturer's written instructions and warranty requirements.

.2 Daily Protection: Coordinate installation of roofing so insulation and other components of roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.

.1 Provide tie-ins at end of each day's work to cover exposed roofing and insulation with a course of roofing sheet securely in place with joints and edges sealed.

.2 Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.

.3 Remove temporary plugs from roof drains at end of each day.

.4 Remove and discard temporary seals before beginning work on adjoining roofing.

.3 Project Communication: It is expected that the contractor issues a formal email each day to notify all involved parties of planned work schedule.

.4 Emergency Response: It is expected that the contractor reacts on same day of notification for any unexpected situations arise – damage from high winds, work in progress leaks, etc.

.5 Protect adjacent walls, windows and building property with tarpaulins, poly sheets or other blanket materials to prevent from bituminous staining

1.9 WARRANTY

.1 Manufacturer's Warranty: Roof System Manufacturer's standard form in which Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within warranty period, as follows.

.1 Form of Warranty: Manufacturer's standard warranty form.

.2 Scope of Warranty: Work of this Section and including sheet metal details and termination details installed by the roof system Installer and approved by the Roof System Manufacturer.

.3 Warranty Period: 20 years from date of completion

.2 Manufacturer Inspection and Preventive Maintenance Service: To report maintenance responsibilities necessary for preservation of Owner's warranty rights and to perform periodic routine maintenance required, as described in Manufacturer's standard form. There will be no additional costs associated with the inspections/preventative maintenance for the owner.

.1 Scope of Service: Manufacturer's standard form.

.2 Inspections to occur in following years: 2, 5, 10 and 15 following completion.

.3 Installer Warranty: Installer's warranty signed by Installer, as follows.

.1 Form of Warranty: Form acceptable to Roofing Manufacturer and Owner.

.2 Scope of Warranty: Work of this Section.

.3 Warranty Period: 2 years from date of completion

Part 2 Products

2.1 MANUFACTURERS

.1 Source Limitations: Obtain components for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

2.2 PERFORMANCE REQUIREMENTS

.1 General Performance: Roofing shall withstand exposure to weather without failure or leaks due to defective manufacture or installation.

.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 NRCA Roofing Manual (Sixth Edition) for construction details and recommendations.

.2 SMACNA Architectural Sheet Metal Manual (Seventh Edition) for construction details.

.3 Exterior Fire-Test Exposure: CAN/ULC-S107, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.

.4 Design and tested system to CSA123.21

2.3 MATERIALS, GENERAL

.1 Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.

2.4 ROOFING MEMBRANE MATERIALS

.1 Ply Sheets:

.1 SBS-modified asphalt coated composite polyester / fiberglass/fiberglass mat reinforced high tensile strength base sheet, ASTM D4601 Type II.

.1 Basis of design product:, BURmastic Composite Ply HT.

.2 Tensile Strength at 25 deg. C (77 deg. F), minimum, ASTM D5147: Machine direction, 725 N (165 lbf/in); Cross machine direction, 660 N (150 lbf/in).

.3 Tear Strength at 25 deg. C (77 deg. F), minimum, ASTM D5147: Machine direction,1150 N (260 lbf); Cross machine direction,1120 N (230 lbf).

.4 Thickness, minimum, ASTM D5147: 1.5 mm (0.060 inch).

.5 Plies: 3

.2 Membrane Flashing Sheets:

.1 Flashing Sheet, Thermoset: Elastomeric polyester reinforced sheet with EPDM and SBR elastomers.

.1 Basis of design product: TRA Elastomeric Sheeting.

.2 Breaking Strength, minimum, ASTM D751: Machine direction 1550 N (350 lbf); Cross machine direction 1330 N (300 lbf).

.3 Tear Strength, minimum, ASTM D751: Machine direction 342 N (77 lbf); Cross machine direction 342 N (77 lbf).

.4 Elongation at Failure, minimum, ASTM D751: Machine direction 30 percent; Cross-machine direction 35 percent.

.5 Low Temperature Flexibility, minimum, ASTM D2136: -40 deg. C (-40 deg. F) .

.6 Thickness, minimum, ASTM D751: 1.1 mm (0.045 inch).

.7 Plies: 1

2.5 COLD-APPLIED ADHESIVE MATERIALS

.1 General: Adhesive and sealant materials recommended by roofing manufacturer for intended use and compatible with built-up roofing.

.1 Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

.2 Asphalt Primer:

.1 Asphalt primer, water-based, polymer modified.

.1 Basis of design product: TREMprime WB.

.2 Volatile Organic Compounds (VOC), maximum, ASTM D3960: 2 g/L.

.3 Ply Sheet Adhesive/Top Pour:

.1 Cold-applied roofing adhesive and surfacer, one-part, formulated for compatibility and use with specified roofing membranes and flashings.

.1 Basis of design product: BURmastic Adhesive.

.2 Volatile Organic Compounds (VOC), maximum, ASTM D6511: 250 g/L.

.3 Nonvolatile Content, minimum, ASTM D6511: 72 percent.

.4 Flashing Sheet Adhesive:

.1 Trowel grade, single component, bitumen modified, moisture curing polyurethane. Min elongation 700% to ASTM D412. Basis of Design: Tremlar-V.

.5 Flashing Tape:

.1 Flexible, butyl based sealant tape. Basis of Design: TremFlash Tape

2.6 AUXILIARY BUILT-UP ROOFING MATERIALS

.1 General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.

.2 Stripping Adhesive / Sealer:

.1 Vertical Stripping Adhesive: Single component roof elastomer. Basis of Design: Polyroof LV. Elongation @25 Deg C, minimum, ASTM D412, 1000%. Flexibilit @-40 Deg C, Pass, ASTM D3111.

.2 Field Stripping Adhesive: Fibrated roof mastic. Basis of design: ELS

.3 Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening built-up roofing components to substrate, tested by manufacturer for required pullout strength, and acceptable to roofing manufacturer.

.4 Metal Flashing Sheet: Metal flashing sheet is specified in Division 07 Section "Sheet Metal Flashing and Trim."

.5 Miscellaneous Accessories: Provide miscellaneous accessories recommended by built-up roofing manufacturer

2.7 INSULATION / COVERBOARD

.1 Base Insulation.

.1 Closed cell polyisocyanurate, foam core laminated on both sides with fiber reinforced non-asphaltic facer. To ASTM C1289, Type II, Class I, Grade 2 (20 PSI).

.1 Total Thickness: As indicated on drawings

.2 Total Layers: As indicated on drawings

.2 Coverboard: High density asphalt coated all six sides fibreboard, BP Esgard or approved alternate. Thickness: 13mm (1/2”)

.3 Tapered Insulation: cell polyisocyanurate, foam core laminated on both sides with fiber reinforced non-asphaltic facer. To ASTM C1289, Type II, Class I, Grade 2 (20 PSI).

.1 Back Slope: As indicated on drawings.

.2 Sumps: As indicated on drawings

2.8 VAPOUR RETARDER

.1 Vapour Retarder Membrane:

.1 SBS-modified asphalt coated composite polyester / fiberglass/fiberglass mat reinforced high tensile strength base sheet, ASTM D4601 Type II.

.2 Basis of design product:, BURmastic Composite Ply HT.

.3 Tensile Strength at 25 deg. C (77 deg. F), minimum, ASTM D5147: Machine direction, 725 N (165 lbf/in); Cross machine direction, 660 N (150 lbf/in).

.4 Tear Strength at 25 deg. C (77 deg. F), minimum, ASTM D5147: Machine direction,1150 N (260 lbf); Cross machine direction,1120 N (230 lbf).

.5 Thickness, minimum, ASTM D5147: 1.5 mm (0.060 inch).

.6 Plies: 1

.2 Adhesive: Two part bio based waterproofing/field ply adhesive. 100% solids. Basis of Design: Powerply Endure Bio Adhesive

2.9 ROOF INSULATION ACCESSORIES

.1 Insulation Adhesive:

.1 Urethane adhesive, bead-applied, low-rise two-component solvent-free low odour, formulated to adhere roof insulation to substrate.

.1 Flame Spread Index, ASTM E84: 10.

.2 Smoke Developed Index, ASTM E84: 30.

.3 Volatile Organic Compounds (VOC), maximum, ASTM D3960: 0 g/L.

.4 Tensile Strength, minimum, ASTM D412: 1720 kPa (250 psi).

.5 Peel Adhesion, minimum, ASTM D903: 2.50 kN/m (17 lbf/in).

.6 Flexibility, 39 deg. C (70 deg. F), ASTM D816: Pass.

.7 Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening substrate board to roof deck. As approved by CSA123.21.

.8 Insulation Cant Strips: ASTM C208, Type II, Grade 1, cellulosic-fiber insulation board.

.9 Tapered Edge Strips: ASTM C208, Type II, Grade 1, cellulosic-fiber insulation board.

.10 Batt Insulation: Rock Wool Safe N Sound or approved alternate

2.10 SURFACING

.1 Cold-Applied Adhesive Surfacer:

.1 Cold-applied roofing adhesive and surfacer, one-part, formulated for compatibility and use with specified roofing membranes and flashings.

.1 Basis of design product: BURmastic Adhesive.

.2 Volatile Organic Compounds (VOC), maximum, ASTM D6511: 250 g/L.

.3 Nonvolatile Content, minimum, ASTM D6511: 72 percent.

.2 Aggregate Surfacing Material:

.1 Aggregate: 9mm to 15mm pestone aggregate, clean and free of splinter, dirt or dust

2.11 ACCESSORIES

.1 Roof Drains: Cast aluminum strainer that doubles as a clamping ring. Consisting of a 24oz spun copper flange continuously welded to a copper downspout. Basis of design: Flash-tite flip top drain. MJ/Mechanical Connection

.2 Reinforcing Mesh: Vinyl Coated, fiberglass reinforcing mesh. Burmesh.

.3 Sealant: Non sag, UV stable polyurethane sealant.

.4 Stack Flashings: Prefabricated aluminum sleeves, adjustable rubber boot, insulated, by lexcor, thaler or approved alternate.

.5 Penetration Flashings: By lexcor, Thaler or approved equal.

.6 Termination Bar: 3mm thick aluminum bar, 25mm wide profile, pre-drilled for mechanical attachment.

.7 Self-adhering Membrane: EXO Air 110AT.

.8 Wood Blocking: Kiln dried douglas Fir, prime lumber, with no wane. Sizing to suit application.

.9 B Vent Flashing: Tall Cone with rain collar.

.10 Pitch Pan Sealer: Two-part pitch pan sealer.

.11 Pitch Pan Filler: Quick set mortar.

.12 Pavers: 24” x 24”, min 1.5” thick by Brooklyn Concrete or approved.

.13 Unit Securement to Concrete Pavers: Concrete anchors, length to suit.

.14 Gas Line Supports: Polypropylene gas line supports to replace all wooden supports.

.15 Gas Line Paint: Yellow, exterior grade, gas line paint.

.16 Aluminized coating: Asphaltic, aluminum pigmented, fibrated roof coating

Part 3 Execution

3.1 EXAMINATION

.1 Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:

.1 Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.

.2 Verify that, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation. wood cants.

3.2 PREPARATION/DEMOLITION

.1 Install all safety and working at heights tie-offs, railings and other means of safety.

.2 Apply all appropriate signage throughout site.

.3 Install walkthrough scaffolding where working above pedestrian passageways.

.4 Protect grounds and property from any damage.

.5 Erect disposal chutes and tarps as required to safely remove roofing materials into disposal bins.

.6 Remove existing roofing materials down to the structural deck. Note any structure deficiencies or rot to the immediate attention of the owner and/or their representatives.

.7 Discard materials into disposal bins and keep site free of any construction debris.

.8 Modify roof curbs including disconnection of mechanical, electrical to achieve minimum 200mm flashing height above finished roof surface.

.9 Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing manufacturer's written instructions. Remove sharp projections.

.10 Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

.11 Prime wood surfaces as required.

.12 Coordinate subtrades electrical, mechanical, etc for any disconnections required.

.13 Coordinate with contractor responsible for removal and reinstatement of structural deck. Facility to remain water tight at all times.

.14 Protect adjacent surfaces with tarps, poly, etc from bitumen markings or other possible materials.

.15 Fabricate roof curbs where required.

.16 Insulate all open cavities with batt insulation prior to plywood caps.

3.3 INSTALLATION, GENERAL

.1 Install roofing system in accordance with manufacturer’s written instructions, approved shop drawings, and Contract Documents.

3.4 UNDERLAYMENT BOARD

.1 Install underlayment board over entire deck area with joints staggered and mechanically secure with min one (1) fastener per 2sq.ft throughout field of roof. Increase perimeter and corner enhancements in accordance with ANSI SPRI WD1.

3.5 VAPOUR RETARDER INSTALLATION

.1 Vapour Retarder Installation, General: Completely seal vapour retarder/air barrier at terminations, obstructions, and penetrations to prevent air movement into roofing system. Seal vapour retarder/air barrier to air barrier in adjacent construction at perimeter of roofing system.

.2 Apply vapour reatdrer in cold-applied adhesive with min 75mm side laps and 150mm end laps. Ensure adequate drainage is achievable at all times.

.3 Diligently ensure that vapour retarder is free of wrinkles, blisters, fishmouths, punctures that may effect it from performing as a temporary roof.

.4 Extend vapour barrier onto adjacent roof surface and strip in with waterproofing mastic at end of each working day. Fully discard tie-in upon commencement of installation the following production day

3.6 INSULATION INSTALLATION

.1 Comply with manufacturer's written instructions for installing roof insulation.

.2 Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

.3 Method of Securement Insulation

.1 Base Insulation: As per drawings

.1 Adhesion rate: Beads applied 300mm o.c, and 150mm o.c within 2400mm of perimeter and corners.

.2 Secondary Layer: Adhered

.1 Adhesion rate: Beads applied 300mm o.c, and 150mm o.c within 2400mm of perimeter and corners.

.3 Tapered Insulation: Adhered

.1 Adhesion rate: Beads applied 300mm o.c, and 150mm o.c within 2400mm of perimeter and corners.

.4 Coverboard – Adhered

.1 Adhesion rate: Beads applied 150mm o.c, and 100mm o.c within 2400mm of perimeter and corners.

.4 Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 6 mm (1/4 inch) with insulation.

.1 Cut and fit insulation within 6 mm (1/4 inch) of nailers, projections, and penetrations.

.5 Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 70 mm (2.7 inches) or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 150 mm (6 inches) in each direction.

.6 Ensure all insulation is applied free of damage, warp or defect.

.7 Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

.8 Install cants adhered at all vertical transitions in continuous bead of lowrise foam adhesive.

.9 Cover Board Installation: Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 150 mm (6 inches) in each direction. Loosely butt cover boards together.

.1 Set cover board in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining cover in place.

.10 Install all insulation free of warp, damage or defect

3.7 COLD-APPLIED BUILT -UP ROOFING INSTALLATION, GENERAL

.1 Install roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations in NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing" and as follows:

.1 Number of Ply Sheets: Three.

.1 Adhering Method: Cold-applied adhesive.

.2 Surfacing Type: A (aggregate).

.2 Start installation of built-up roofing in presence of manufacturer's technical personnel.

.3 Cooperate with testing agencies and personnel engaged or required to perform services for installing roofing.

.4 Coordinate installation of roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.

.1 Provide tie-offs at end of each day's work configured as recommended by NRCA Roofing Manual Appendix: Quality Control Guidelines - Insulation to protect new roofing.

.2 Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.

.3 Remove temporary plugs from roof drains at end of each day.

.4 Remove and discard temporary seals before beginning work on adjoining roofing.

.5 Substrate-Joint Penetrations: Prevent roofing asphalt and adhesives from penetrating substrate joints, entering building, or damaging built-up roofing components or adjacent building construction.

3.8 ROOFING MEMBRANE INSTALLATION

.1 Install lapped base-ply sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:

.1 Adhere to substrate in cold-applied adhesive applied at 2 gal/sq.

.2 Ply Sheets: Install ply sheets starting at low point of roofing. Align ply sheets without stretching. Shingle side laps of ply sheets uniformly to achieve required number of plies throughout thickness of roofing membrane. Shingle in direction to shed water. Extend ply sheets over and terminate beyond cants.

.1 Embed each ply sheet in cold-applied membrane adhesive applied at rate required by roofing manufacturer (2gal/sq), to form a uniform membrane without ply sheets touching.

.2 Install all plies in three ply fashion each day. Installing a single ply and leaving site will not be allowable.

.3 Install plies free of fishmouths, wrinkles or defect.

3.9 FLASHING AND STRIPPING INSTALLATION

.1 Install base flashing over cant strips and other sloping and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to built-up roofing manufacturer's written instructions and as follows:

.1 Extend base flashing up walls or parapets a minimum of 300 mm (12 inches) above built-up roofing and 150 mm (6 inches) onto field of built-up roofing.

.2 Prime substrates with asphalt primer if required by built-up roofing manufacturer.

.3 Flashing Sheet Application: Adhere flashing sheet to substrate in cold-applied adhesive. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.

.1 Flashing Sheet Top Termination: Secure top edge of flashing sheet with flashing tape and immediately apply termination bar. Termination bar must be applied at end of each working day.

i. Seal top termination of base flashing with a metal termination bar and a continuous bead of joint sealant.

.2 Flashing Sheet Bottom Termination: Adhere flashing sheet to roofing membrane in continuous bed of cold-applied adhesive.

.2 Install three course of stripping adhesive and reinforcing mesh at all vertical flashing seams. Install field stripping adhesive and reinforcing mesh at leading edge of flashing sheet.

.3 Flashing-Sheet Stripping: Install flashing-sheet stripping in a continuous coating of compatible mastic/adhesive sealer, as recommended by roofing manufacturer, and extend onto roofing membrane. Apply number of courses recommended by manufacturer.

.4 Roof Drains: Set flange in bed of vertical grade stripping adhesive and secure drain into place as per manufacturers written instructions. Install one base sheet 24” x 24” target patch, followed by a 36” x 36” flashing sheet target patch set in flashing adhesive. Tie in all leading edges with three course of stripping adhesive and reinforcing mesh.

.1 Install flashing sheet stripping according to roofing manufacturer's written instructions.

.5 Plumbing Stacks/Penetration Flashings: Set flange in bed of vertical grade stripping adhesive and secure drain into place as per manufacturers written instructions. Install one base sheet 24" x 24" target patch, followed by a 36" x 36" flashing sheet target patch set in flashing adhesive. Tie in all leading edges with three course of stripping adhesive and reinforcing mesh. Fill rubber boot with batt insulation and secure over aluminum body. Install clamping ring.

.6 Tall Cones: Set flange in bed of vertical grade stripping adhesive and secure drain into place as per manufacturers written instructions. Install one base sheet 24" x 24" target patch, followed by a 36" x 36" flashing sheet target patch set in flashing adhesive. Tie in all leading edges with three course of stripping adhesive and reinforcing mesh. Install rain collar with tooled caulking.

.7 Install self-adhering membrane to fully conceal exposed wood blocking on fascia of parapet walls.

.8 Curbs: Install flashing membrane to inside face of curb and extending 150mm onto the roof surface.

.9 Vertical Terminations: Where flashing sheet terminates vertically, the flashing sheet must be secured with flashing tape and termination bar prior to leaving site. All flashing sheets left terminated vertically without termination bar will need to be removed, moisture removed from system and reinstalled.

.10 Parapets: Install flashing sheet to extend to outside face of parapet and nail into place. Where 30" sheet will not fully conceal parapet, apply self-adhering membrane to extend min 4" onto flashing sheet and over outside edge of parapet wall.

.11 Pitch Pans: Pitch to be primed and set into bed of vertical stripping mastic (do not use field stripping mastic). Fill pitch pan with quick set mortar with final 2" free of filler. Fill remainder of pitch pan with two part sealant, allow to settle and top off to shed water. Cap all pitch pans with metal cap and caulk penetration point.

.12 Scuppers: Install flashing membrane into throat of scupper. And to outside face of wall, secure into place. Set scupper into bed of vertical grade flashing adhesive and nail for securement. Fully conceal flange of scupper with flashing membrane and tie-in all leading edges. Fully conceal exterior face with cladding and apply sealant to all intersecting points

3.10 SURFACING INSTALLATION

.1 Flood Coat and Aggregate Surfacing: Promptly after installing and testing roofing membrane, base flashing, and stripping, flood-coat roof surface with cold-applied adhesive surfacing adhesive applied at rate required by roofing manufacturer.

.1 While adhesive coating is fluid, cast aggregate surfacing in a uniform application at the average weight indicated in Part 2 product listing.

.2 Install safety railing as per manufacturers instructions

3.11 FIELD QUALITY CONTROL

.1 Roofing Inspector: Owner will engage a qualified roofing inspector to perform roof tests and inspections and to prepare test reports.

.2 Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation at commencement and upon completion.

.1 Notify Owner's Consultant and Owner 48 hours in advance of date and time of inspection.

.3 Repair or remove and replace components of built-up roofing where test results or inspections indicate that they do not comply with specified requirements.

.1 Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements

3.12 PROTECTING AND CLEANING

.1 Protect built-up roofing from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Owner's Consultant and Owner.

.2 Correct deficiencies in or remove built-up 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 using cleaning agents and procedures recommended by manufacturer of affected construction.

.4 Paint all gas lines yellow with two coats of exterior paint where applicable.

.5 Install new gas line blocks where wood blocks were previously used.

.6 Install skylights in strict accordance with manufacturers written instructions.

.7 Install pavers atop epdm wrapped extruded polystyrene where previously applied.

.8 Where RTUs on sleepers or pads. Secured RTU to concrete paver set atop 1” extruded polystyrene wrapped in 60 mil EPDM.

.9 Reinstate all equipment previously functioning prior to project commencement.

.10 Wrap and insulate all existing duct work.

.11 Install all safety equipment as per manufacturers written instructions.

.12 Remove/paint over any and all bituminous staining to the owners satisfaction.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Scope of Work: Work in this section comprises of installation of metal counter flashings in areas of roof replacement.

1.2 RELATED SECTIONS

.1 07 51 13.15.

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 flashings for consultant review and approval.

1.5 INSPECTION

.1 Roof inspection shall be carried out by an agency selected by the owner.

.2 Carry out procedures as directed by inspector.

1.6 STORAGE AND HANDLING

.1 Secure materials against damage from wind, ongoing work, vandalism and/or theft.

.2 Identify and remove any damaged materials from site.

.3 Protect materials from moisture.

1.7 WARRANTY

.1 Provide contractors two year warranty to correct at their own expense any defects in work due to workmanship appearing within a two year period commencing from date of completion of 100%. Warranty to cover wind damage.

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 Sealant: Tremseal Pro

.4 Hook Strip: Steel, gauge 24, pre punched.

.5 Downspout: 26 gauge pre-painted steel.

.6 Aluminizer: Alumanation 301.

Part 3 Execution

3.1 METAL INSTALLATION

.1 Install new metal counterflashings on perimeter walls, curbs, walls, expansion joints, roof dividers, sleepers and projections.

.2 Install hook strip to outside face of wall 300mm O.C.

.3 Cold-Applied Built-Up Roofing: Where parapet height exceeds 300mm Skirt flashing allowable, metal must extend 100mm beyond bottom edge of self-adhering membrane where utilized and be consistent throughout the site. All exposed flashing membrane must receive coating of alumanizer.

.4 Counterflashings shall be applied using a s-lock type joint which will prevent buckling of metal and provide proper contraction/expansion and produce a surface free of warp, wave, buckles, dents or other defects. Corners shall be square and surface straight and true to plains. All metal shall have hemmed edges.

.5 Install metal with concealed fasteners. Exposed fasteners will only be permitted with owner/consultant approval. Metal to be installed firmly to avoid movement or stripping by wind.

.6 No fastening into canted surfaces.

.7 Finish joints at horizontal mitred joints and canted corners with standing seams.

.8 All metal flashings to terminate at toe of cant except as noted above.

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

760 BURNHAM ST. - COBOURG, ONTARIO
NDES ROOF REPLACEMENT

CONTRACT NUMBER: 7619

GENERAL

1. ANY DEVIATION FROM THE CONDITIONS SHOWN ON THESE DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO COMMENCING WORK. REPORT ANY INCONSISTENCIES BEFORE PROCEEDING WITH THE WORK. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE. DO NOT SCALE THESE DRAWINGS.
3. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER DESIGN DOCUMENTS INCLUDING THE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS, AS APPLICABLE.
4. STRUCTURAL DESIGN COMPLETED IN CONFORMANCE WITH THE 2024 ONTARIO BUILDING CODE. THESE DRAWINGS HAVE BEEN COMPLETED WITH RESPECT TO STRUCTURAL REQUIREMENTS ONLY. NON–STRUCTURAL DETAILS ARE SHOWN FOR REFERENCE ONLY AND SHALL BE CONFIRMED BY OTHERS.
5. TEMPORARY BRACING AND SHORING SHALL BE EMPLOYED WHENEVER NECESSARY TO WITHSTAND ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECT DURING ERECTION AND SUBSEQUENT CONSTRUCTION. TEMPORARY BRACING SHALL REMAIN IN PLACE AS LONG AS REQUIRED FOR THE SAFETY AND INTEGRITY OF THE STRUCTURE. THE CONTRACTOR SHALL HAVE THE SOLE RESPONSIBILITY FOR THE DESIGN, ERECTION, OPERATION, MAINTENANCE, AND REMOVAL OF TEMPORARY SUPPORTS, STRUCTURES, AND FACILITIES, AND THE DESIGN AND EXECUTION OF CONSTRUCTION METHODS REQUIRED IN THEIR USE.
6. ALL WORK TO BE COMPLETED IN ACCORDANCE WITH THE ONTARIO HEALTH AND SAFETY ACT (OHSA) AND ITS REGULATIONS.
7. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER DESIGN DOCUMENTS INCLUDING THE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS, AS APPLICABLE.
8. PROPRIETARY PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
9. ALL MATERIAL SPECIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO PROCUREMENT.
10. ALL SHOP DRAWINGS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE PROFESSIONAL ENGINEERING FOR CONFORMANCE WITH THESE DRAWINGS. SHOP DRAWINGS SHALL BE SUBMITTED TO ART ENGINEERING INC. (AEI) FOR REVIEW AND APPROVAL.

DESIGN INTENT

1. NEW CONSTRUCTION SPECIFIED ON THESE DRAWINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE ONTARIO BUILDING CODE. THE PERFORMANCE LEVEL OF THE EXISTING STRUCTURAL SYSTEM AND THE ELEMENTS OF THIS SYSTEM SHALL NOT BE REDUCED. THE EFFECTS OF THE PROPOSED ALTERATIONS ON THE BASE BUILDING PERFORMANCE LEVEL HAVE BEEN ASSESSED FOR GRAVITY AND WIND LOAD ONLY. NO ADDITIONAL DEAD LOAD IS PROPOSED FROM THE ORIGINAL DESIGN CONFIGURATION.

RECORD DRAWINGS

1. THE CONTRACTOR SHALL MAINTAIN TWO SETS OF RECORD DRAWINGS, SHOWING AS–BUILT CONDITIONS OF ALL THE ASPECTS OF THE STRUCTURE, AVAILABLE FOR REVIEW DURING CONSTRUCTION, AND FOR SUBMISSION TO THE CONSULTANT AND THE OWNER UPON PROJECT COMPLETION.

MILESTONE STRUCTURAL INSPECTIONS

THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING, REQUESTING AN INSPECTION FOR EACH OF THE FOLLOWING MILESTONES, AT LEAST 24 HOUR ADVANCE NOTICE OF THE ANTICIPATED DATE:

- COMPLETED STEP #2 DEMOLITION INITIATION AS PER S02 OF THE CONTRACT DRAWING;
- COMPLETED PHASE 1 ROOF REPLACEMENT;
- COMPLETED PHASE 6 ROOF REPLACEMENT;
- FINAL WALK–THROUGH INSPECTION;

ADDITIONAL INSPECTIONS MAY BE REQUESTED THROUGHOUT CONSTRUCTION, AS DETERMINED BY THE ENGINEER.

SPECIFIED DESIGN LOADS

1. DESIGN LOADS ARE IN ACCORDANCE WITH PART 4 OF THE 2024 ONTARIO BUILDING CODE (OBC):
2. GRAVITY LOADS:

DEAD LOAD: 0.30 kPa (NEW OWSJ ASSEMBLY);
1.27 kPa (NEW 20 GAUGE DECK & 90 mm CONCRETE TOPPING);
0.55 kPa (NEW ROOF ASSEMBLY);
0.30 kPa (M&E ALLOWANCE);
2.42 kPa

DEAD LOAD: 2.47 kPa (EX. ROOF AND CEILING ASSEMBLY)

LIVE LOAD: 1.00 kPa (ROOF LOAD);

3. SNOW LOADS:
CLIMATIC DATA LOCATION – COBOURG ONTARIO:
IMPORTANCE FACTOR – HIGH: I_s (ULS) = 1.15, I_s (SLS) = 0.9;
1–IN–50 YEAR GROUND SNOW LOAD: S_s = 1.2 kPa;
1–IN–50 YEAR ASSOCIATED RAIN LOAD: S_r = 0.4 kPa;
BASIC ROOF SNOW LOAD FACTOR: C_b = 0.8;
WIND EXPOSURE FACTOR: C_w = 1.0;
ROOF SLOPE FACTOR: C_b = 1.0;
ACCUMULATION FACTOR: C_a = 1.0 (x>xd);

BASIC SNOW LOAD: 1.56 kPa (ULS), 1.22 kPa (SLS);

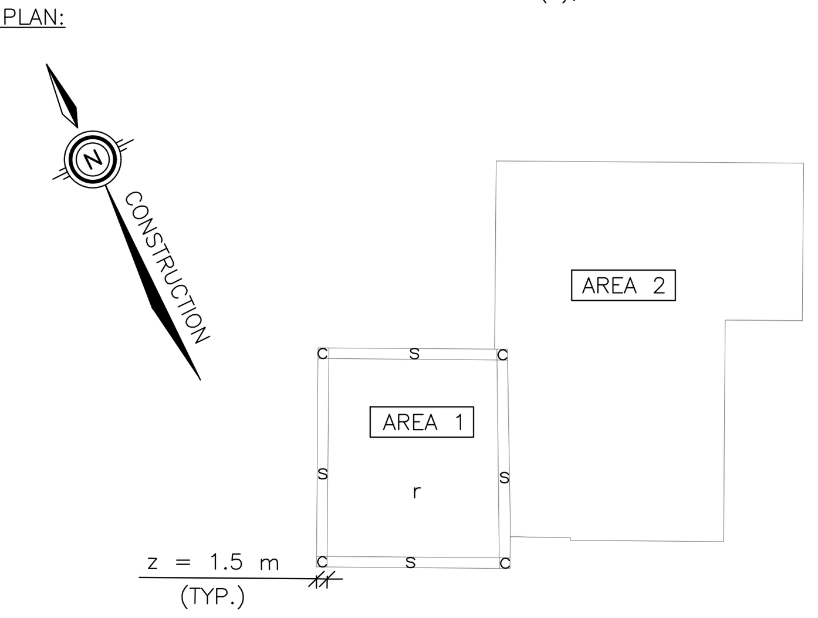
4. WIND LOADS:
CLIMATIC DATA LOCATION – COBOURG ONTARIO:
IMPORTANCE FACTOR – HIGH: I_s (ULS) = 1.15, I_s (SLS) = 0.75;
1–IN–50 YEAR HOURLY WIND PRESSURE q = 0.49 kPa;
OPEN TERRAIN EXPOSURE FACTOR: Ce = 0.9;
NORMAL TOPOGRAPHIC FACTOR: Ct = 1.0;

ROOF ELEMENTS:
CpCg AS PER 2024 OBC FIGURE 4.1.7.6.C.

NET WIND PRESSURE ON ROOF: 0.26 kPa;

NET WIND SUCTION: r = 1.01 kPa (r);
s = 1.52 kPa (s);
c = 2.33 kPa (c);

KEY ROOF PLAN:



5. SEISMIC ASSESSMENT OF BUILDING MODIFICATIONS DUE TO ROOF REPLACEMENT:

THE STRUCTURAL WORK INCLUDES REPLACEMENT OF THE EXISTING ROOF JOIST PANEL, ROOF INSULATION, AND BUILT–UP ROOFING, EXTENSION OF THE EXISTING CMU WALLS, AND EXTENSION OF THE EXTERIOR BRICK VENEER.

IN OUT PROFESSIONAL OPINION, THE ALTERNATION TO THE EXISTING STRUCTURE DUE TO ROOF REPLACEMENT DOES NOT INCREASE THE SEISMIC RISK TO THE PUBLIC AND BUILDING OCCUPANTS. THE STRUCTURAL ADEQUACY OF THE SYSTEM IS NOT ADVERSELY AFFECTED AND COMPLIES WITH SECTION 11.3 OF THE OBC 2024.

DEMOLITION

1. GUARDRAILS OR ALTERNATIVE FALL PROTECTION SHALL BE INSTALLED WHERE EVER A FALLING HAZARD IS PRESENT IN ACCORDANCE WITH O. REG. 213/91.
2. ELECTRICAL AND MECHANICAL REMOVAL AND PROTECTION AS REQUIRED BY ALL RELEVANT AUTHORITIES, SHALL BE CARRIED OUT PRIOR TO THE STRUCTURAL DEMOLITION WORK.
3. ROOF REMOVALS MAY BE STOPPED AT ANY LOCATION IF THE TIME DOES NOT PERMIT COMPLETION OF WORK.
4. CONCRETE SAWCUT AND CHIPPING TO BE PERFORMED IN ACCORDANCE WITH OPSS 928.
5. CONTRCUTION FENCING, TRAFFIC CONTROL, AND SIGNAGE SHALL BE IN PLACE PER THE CONTRACT DRAWINGS BEFORE COMMENCING DEMOLITION OPERATIONS.
6. CONSTRUCTION FENCE AND SIGNAGE SHALL BE IN PLACE PER THE CONTRACT DRAWINGS BEFORE COMMENCING DEMOLITION OPERATIONS.
7. BUILDING 1 SHALL BE CLOSED THROUGHOUT CONSTRUCTION. TEMPORARY FENCING TO PREVENT PUBLIC ACCESS INTO WORK AREA SHALL BE PROVIDED. BUILDING 2 CAN REMAIN OPEN AND THE DOOR BETWEEN BUILDING 1 AND 2 SHALL BE CLOSED AND BLOCKED.
8. ALL EQUIPMENT, TOOLS, MATERIALS, ETC. TO BE KEPT WITHIN STAGING AREA (SECURED AS REQUIRED).
9. CONTRACTOR SHALL PROVIDE ALL REQUIRED SIGNAGE NECESSARY TO PROTECT THE PUBLIC FROM CONSTRUCTION AND INFORM THE PUBLIC THAT CONSTRUCTION ACTIVITY IS IN PROGRESS.
10. WHERE ACTIVE WORK AREAS NEAR THE ROAD, TRAFFIC CONTROL SHALL EXTEND ONTO MUNICIPAL ROADWAYS IN–KEEPING WITH OTM BOOK 7. SEEK ROAD OCCUPANCY PERMITS AS REQUIRED.
11. ADDITIONAL SIGNS MAY BE REQUIRED AT THE DISCRETION OF THE OWNER OR CONSULTANT AS CONSTRUCTION PROGRESSES TO ENSURE VEHICLE AND PEDESTRIAN TRAFFIC IS MAINTAINED. NO EXTRA WILL BE ENTERTAINED FOR SIGNAGE REQUIREMENTS AFTER TENDER CLOSES.
12. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS TO MINIMIZE VIBRATION, NOISE, DUST AND DEBRIS IN ALL AREAS ADJACENT TO AREAS OF DEMOLITION.
13. DISCONNECT AND MAKE SAFE EXISTING SERVICE TO ELECTRICAL COMPONENTS TO BE REMOVED FROM SERVICE PRIOR TO THE START OF ELECTRICAL DEMOLITION. NOTIFY AND OBTAIN PERMISSION FROM THE CONSULTANT AND OWNER IF DISCONNECTION WILL IMPACT THE OWNER'S USAGE OF THE SITE.
14. THE CONTRACTOR IS RESPONSIBLE TO LOCATE ALL EXISTING MECHANICAL AND ELECTRICAL SERVICES AND CAREFULLY REVIEW THE REMOVAL OR PROTECTION METHODOLOGY OF THESE SERVICES PRIOR TO THE COMMENCEMENT OF WORK.
15. THE CONTRACTOR SHALL ENSURE THAT ALL PLANNED REMOVALS ARE CLEAR OF ANY ADJACENT BUILDINGS OR PARTS OF THE EXISTING STRUCTURE TO REMAIN.
16. ALL WORKERS AND EQUIPMENT SHALL BE LOCATED A SAFE DISTANCE FROM AREAS TO BE REMOVED.
17. MOTORIZED EQUIPMENT SHALL NOT BE USED WHEN THE WIND SPEED EXCEEDS THAT LISTED IN THE MANUFACTURER'S SPECIFICATIONS.
18. THE CONTRACTOR SHALL CONFIRM THE EXTENT OF THE DEMOLITION ON SITE. PRIOR TO DEVELOPING METHODOLOGY AND SHORING DESIGN, THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE LAYOUT AND EXISTING CONDITIONS.
19. PROTECT BUILDING SYSTEMS, SERVICES AND EQUIPMENT SCHEDULED TO REMAIN. NOTE THEIR CONDITION AND ADVISE THE CONSULTANT IN WRITING OF ANY DEFECTS OR CONDITIONS WHICH WOULD AFFECT THEIR REMOVAL AND RE–USE.
20. THE CONTRACTOR SHALL REMOVE ALL CONSTRUCTION DEBRIS AND DISPOSE AT LEGAL DESIGNATED SITES.
21. AT THE END OF EACH DAY'S WORK, LEAVE THE SITE IN A SAFE CONDITION SO THAT NO PART IS IN DANGER OS CAUSE INJURY OR DAMAGE. PREVENT DEBRIS AND MATERIAL FROM BLOCKING MEANS OF EGRESS.
22. CONTRACTOR SHALL PROTECT, REINSTATE AND MAKE GOOD ALL AREAS AFFECTED BY REMOVALS AND DEMOLITION WORK.

STRUCTURAL STEEL

1. MATERIALS:
STRUCTURAL STEEL:
PLATE – CSA G40.20/G40.21, GRADE 300W;
W–SHAPES, CSA G40.20/G40.21 GRADE 350W;
ANGLES, CSA G40.20/G40.21 GRADE 300W;
CHANNELS, CSA G40.20/G40.21 GRADE 300W;
WELDING ELECTRODE, E49XX IN ACCORDANCE WITH CSA W59–18.
2. STRUCTURAL STEEL DESIGN COMPLETED IN ACCORDANCE WITH CSA S16–19 "DESIGN OF STEEL STRUCTURES".
3. ERECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH CSA S16–19, CISC CODE OF STANDARD PRACTICE AND THE ONTARIO SAFETY ACT (OHSA) AND IT'S REGULATIONS. TEMPORARY BRACING DURING ERECTION SHALL BE EMPLOYED WHENEVER NECESSARY AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. MEMBER SPLICES SHALL NOT BE MADE UNLESS SHOWN ON THE DRAWINGS OR REVIEWED AND APPROVED BY THE ENGINEER.
5. WELDING SHALL CONFORM TO CSA W59–18 AND SHALL BE PERFORMED BY WELDERS CERTIFIED UNDER CSA W47.1.
6. JOINTS THAT ARE TO BE WELDED SHALL BE KEPT FREE OF ALL FOREIGN MATTER, INCLUDING PAINT, PRIMER, OR OTHER COATING THAT COULD BE DETRIMENTAL TO THE QUALITY OF THE WELD.
7. PROVIDE SHOP COAT TO ALL STRUCTURAL STEEL EXCEPT ON SPECIFIED WELD LOCATIONS. FIELD WELDS SHALL BE COATED WITH TWO COATS OF ZINC RICH PAINT IN THE FIELD.
8. MATING STEEL SURFACES SHALL HAVE FULL BEARING. GAPS OF 2 mm OR LESS ARE PERMITTED IN ACCORDANCE WITH CSA W59–18, PROVIDED THAT A FILLET WELD IS PROVIDED ON BOTH SIDES. FILLET WELDS SHALL BE THE LESSER OF 6 mm OR THE THICKNESS OF THE THINNEST WELDED MEMBER. GAPS LARGER THAN 2 mm SHALL HAVE A STEEL SHIM FOR FULL BEARING AND A 6 mm FILLET WELD ON BOTH SIDES.

STEEL DECK

1. MATERIALS:
CANAM P3615 20 GAUGE STEEL DECK OR APPROVED EQUIVALENT;
2. STEEL DECK SHALL BE GALVANIZED TO ASTM A653M, WITH A ZINC THICKNESS TO Z275 (G90).
3. STEEL DECKING SHALL BE INSTALLED SUCH THAT THE SHEETS ARE SET FOR A MINIMUM OF THREE SPANS WHERE POSSIBLE.
4. FASTENINGS – MINIMUM REQUIREMENTS, UNLESS NOTED OTHERWISE ON DRAWINGS. ACTUAL DECK FASTENING DETAILS SHALL BE ILLUSTRATED BY THE FABRICATOR ON THE STEEL DECK COMPONENT DRAWINGS:
   - AT SIDE LAP – #12 SHEET METAL SCREWS SPACED AT 100 mm MAX. c.c.;
   - AT SUPPORT MEMBER – #12 SHEET METAL SCREW IN 914/5 PATTERN.
5. SUBMIT SHOP DRAWINGS FOR THE DESIGN OF THE DECK SEALED BY AN ENGINEER FOR REVIEW.
6. SEE MECHANICAL, ELECTRICAL, AND ARCHITECTURAL DRAWINGS FOR ALL PROPOSED OPENINGS IN DECK.

OPEN–WEB STEEL JOISTS

1. OWSJ TO BE DESIGNED AND INSTALLED IN ACCORDANCE WITH CSA S16–19, THE SJI MANUAL AND THE MANUFACTURER'S RECOMMENDATIONS.
2. OWSJ SHALL BE DESIGNED BY THE FABRICATOR. STAMPED SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
3. OWSJ CHORDS SHALL HAVE A MINIMUM YIELD STRENGTH OF 350 MPa. OWSJ WEBS SHALL HAVE A MINIMUM YIELD STRENGTH OF 300 MPa.
4. OWSJ TO BE PRIMED WITH A SHOP COAT IN ALL LOCATIONS BESIDES INDICATED WELDS.
5. INSTALL OWSJ BRIDGING IN ACCORDANCE WITH THE SJI MANUAL AND THE MANUFACTURER'S SPECIFICATIONS.
6. THE CENTER OF THE JOIST SHOES SHALL COINCIDE WITH THE CENTERLINE OF THE SUPPORTING WALL AND BEARING PLATE. THE TILT OF THE BEARING SHOE SHALL NOT EXCEED 1–IN–50 MEASURED FROM A PLANE PERPENDICULAR TO THE SUPPORTING BEAM WEB FACE.
7. THE OPEN WEB STEEL JOISTS SHALL BE DESIGNED AT THE DEFLECTION LIMIT OF L/360 FOR ROOF LIVE LOAD AND SNOW LOAD COMBINATION, AND L/240 FOR TOTAL LOAD.
8. THE CONTRACTOR IS RESPONSIBLE FOR SHORING THE OWSJ AS REQUIRED DURING CONCRETE PLACEMENT.

SHOP DRAWINGS AND SUBMITTALS

1. REPRODUCTION OF THE STRUCTURAL DRAWINGS SHALL NOT BE ACCEPTED AS SHOP DRAWINGS.
2. "PROFESSIONAL ENGINEER" THROUGHOUT THESE DRAWINGS MEANS A PROFESSIONAL ENGINEER REGISTERED IN AND LICENSED TO PRACTICE IN THE PROVINCE OF ONTARIO AND THE ENGINEER'S "SEAL" SHALL INCLUDE THEIR STAMP, THEIR SIGNATURE AND THE DATE OF SEALING.
3. REVIEW OF DRAWINGS APPLIES TO GENERAL ARRANGEMENT ONLY FOR THE PURPOSE OF ASCERTAINING CONFORMANCE WITH THE GENERAL DESIGN CONCEPT. THIS REVIEW DOES NOT IMPLY APPROVAL OF DESIGN OR QUANTITIES IN SUBMITTED DRAWINGS, IT DOES NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY FOR MAKING THE WORK COMPLETE, ACCURATE, AND IN ACCORDANCE WITH THE STRUCTURAL DRAWINGS.
4. ALLOW A MINIMUM OF 10 WORKING DAYS FOR REVIEW OF EACH SUBMISSION OF SHOP DRAWINGS. ALLOW MORE TIME WHEN LARGE QUANTITIES OF SHOP DRAWINGS ARE SUBMITTED. SUBMIT IN GENERAL CONFORMITY WITH THE SEQUENCE OF WORK INTENDED.
5. DO NOT COMMENCE PROCUREMENT OF SHOP DRAWING ELEMENTS UNTIL RETURNED SHOP DRAWINGS HAVE BEEN MARKED AS EITHER; "REVIEWED AND ACCEPTED" OR "REVIEWED AS NOTED".
6. SHOP DRAWINGS MARKED AS "REVISE AND RESUBMIT" REQUIRE SUBSTANTIAL REVISIONS AND MUST BE RESUBMITTED FOR ADDITIONAL REVIEW PRIOR TO PROCUREMENT. ALL CHANGES AND ADDITIONS TO THE PREVIOUS SUBMISSION SHALL BE CLEARLY IDENTIFIED ON THE RESUBMITTED DRAWINGS.
7. DRAWINGS MARKED AS "NOT REVIEWED" SHOW WORKS WHICH ARE NOT WITHIN THE SCOPE OF STRUCTURAL CONSULTING SERVICES AND DO NOT IMPACT THE STRUCTURE.

OPEN–WEB STEEL JOISTS (OWSJ):
FLOOR JOISTS DRAWINGS SHALL BE DESIGNED AND DETAILED BY THE FABRICATOR'S ENGINEER IN ACCORDANCE WITH PART 4 OF THE 2024 ONTARIO BUILDING CODE. DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. DRAWINGS SHALL BE SEALED BY A PROFESSIONAL ENGINEER.

STEEL DECK:
STEEL DECK DRAWINGS SHALL BE DESIGNED AND DETAILED BY THE FABRICATOR'S ENGINEER IN ACCORDANCE WITH PART 4 OF THE 2024 ONTARIO BUILDING CODE. DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. DRAWINGS SHALL BE SEALED BY A PROFESSIONAL ENGINEER.

SHORING & TEMPORARY WORKS:
SHORING AND TEMPORARY WORKS SHALL BE DESIGNED AND DETAILED BY THE CONTRACTOR'S ENGINEER IN ACCORDANCE WITH THE 2024 ONTARIO BUILDING CODE. ENGINEERED DETAILS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. SHORING PLANS SHALL BE SEALED BY A PROFESSIONAL ENGINEER.

SEISMIC/WIND RESTRAINT OF MISC. ARCH/MECH/ELEC ELEMENTS (SECONDARY ELEMENTS):
SEISMIC & WIND RESTRAINT DETAILS OF MISC. ARCH/MECH/ELECT ELEMENTS SHALL BE DESIGNED AND DETAILED BY THE CONTRACTOR'S ENGINEER. SEISMIC RESTRAINT SHALL BE DESIGNED TO THE LATERAL LOADS PRESCRIBED IN CLAUSE 4.1.8.18 OF THE 2024 ONTARIO BUILDING CODE.

NON–STRUCTURAL (SECONDARY ELEMENTS) MAY INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
- ARCHITECTURAL COMPONENTS SUCH AS FLAG POSTS, CANOPIES, CEILINGS ETC...
- CLADDING, WINDOW MULLIONS, GLAZING, INTERIOR AND EXTERIOR INFILL WALLS, ETC...
- ARCHITECTURAL PRE–CAST AND PRE–CAST CLADDING;
- ATTACHMENT AND BRACING FOR ELECTRICAL AND MECHANICAL COMPONENTS;
- WINDOW WASHING EQUIPMENT AND ITS ATTACHMENTS;
- BRICK OR BLOCK VENEERS AND THEIR ATTACHMENTS;
- INTERIOR AND EXTERIOR LIGHT GAUGE STEEL STUD WALLS;
- NON–LOAD BEARING MASONRY WALLS IF NOT DETAILED ON THESE DRAWINGS;
- NON–STRUCTURAL CONCRETE TOPPING;
- LANDSCAPE ELEMENTS SUCH AS BENCHES, LIGHT POSTS, PLANTERS ETC...
- ROOFING MATERIAL.

PARAPETS:
SHOP DRAWINGS FOR PARAPETS SHALL BE PREPARED, SIGNED AND SEALED BY THE CONTRACTOR'S PROFESSIONAL ENGINEER AND SUBMITTED FOR REVIEW AND APPROVAL. PARAPETS SHALL BE DESIGNED FOR WIND, SEISMIC, GRAVITY AND GUARD LOADS, AS APPLICABLE, IN LOADING COMBINATIONS OUTLINED IN THE 2024 OBC SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.

OTHER SUBMITTALS:

IN ADDITION TO THE ABOVE ITEMS, THE CONTRACTOR SHALL SUBMIT THE FOLLOWING:

- STRUCTURAL STEEL MILL CERTIFICATES.
- QUANTITY SHEETS AND BILLS OF MATERIAL.
- STRUCTURAL CALCULATIONS, UPON REQUEST.

MASONRY & MASONRY VENEER

1. MATERIALS:
CONCRETE MASONRY UNITS (CMU), IN ACCORDANCE WITH CSA A165.1, TYPE H/20/A/M;
MORTAR TO CAN/CSA A179–14, TYPE 'S' FOR ALL WALLS;
FINE GROUT, 15 MPa 28–DAY COMPRESSIVE STRENGTH MINIMUM, IN ACCORDANCE WITH CAN/CSA A179–14;
CLAY BRICKS TO MATCH EXISTING BRICKS;
BRICK TIES SHALL BE SS304 OR SS316.
2. MASONRY DESIGN COMPLETED IN ACCORDANCE WITH CSA S304–14 "DESIGN OF MASONRY STRUCTURES".
3. ALL MASONRY WORK SHALL BE DONE IN ACCORDANCE WITH CSA A371–14, "MASONRY CONSTRUCTION FOR BUILDINGS".
4. MASONRY CONTRACTOR SHALL PROVIDE TO THE ENGINEER WRITTEN CONFIRMATION OF UNIT STRENGTHS PRIOR TO INSTALLATION.
5. ALL BARS MUST BE CONTINUOUS, PROPERLY LAPPED AT SPLICES.
6. GROUT SHALL BE PLACED IN CORES AND SHALL BE SEALED ALL AROUND WITH MORTAR.
7. GROUT CELLS WITH ANCHORS AND ANCHOR RODS. PROVIDE MINIMUM 100 mm GROUT AROUND ANCHOR RODS.
8. PLACE GROUT AND ANCHORS IN ACCORDANCE WITH CSA S304–14, CSA A371–14, AND THESE DRAWINGS.
9. REINFORCEMENT SHALL BE SUPPORTED TO PREVENT DISPLACEMENT DURING PLACEMENT OF GROUT.
10. REINFORCING STEEL LAP SPLICES FOR 15M BARS SHALL BE 640 mm MINIMUM, UNLESS NOTED OTHERWISE.
11. NO MASONRY WORK SHALL BE PERMITTED WITH TEMPERATURE BELOW 5°C, UNLESS COLD TEMPERATURE CONSTRUCTION PRACTICES ARE IMPLEMENTED. PROTECT WORK FROM EXTREME WEATHER CONDITIONS TO CSA S304–14 AND CSA A371–14.
12. MASONRY WALLS SHALL BE EQUIPPED WITH CLEAN–OUT PORTS AT THE BOTTOM OF THE WALL. ANY BUILD–UP OF MORTAR FOUND AT THE BASE OF THE WALL SHALL BE REMOVED PRIOR TO GROUTING OPERATIONS. DO NOT CLOSE PORTS UNTIL REINFORCING STEEL HAS BEEN INSPECTED.
13. MASONRY WALL SHALL BE CLEANED AFTER GROUTING OPERATIONS.
14. THE CONTRACTOR SHALL ENSURE THAT ALL REINFORCING STEEL IS INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO PLACING GROUT.
15. WALLS SHALL BE INTERLOCKED TOGETHER BY ALTERNATING COURSES, AT WALL INTERSECTIONS.
16. PROTECT WORK FROM EXTREME WEATHER CONDITIONS TO CSA S304–14 AND CSA A371–14.
17. BRICK TIES SHALL BE PLACED AS PER CSA A370 AS FOLLOWS:
VERTICAL SPACING SHALL BE 600 mm MAX.;
VERTICAL SPACING FROM OPENINGS SHALL BE 300 mm MAX.;
HORIZONTAL SPACING SHALL BE 800 mm MAX.;
HORIZONTAL SPACING AT OPENING SHALL BE 300 mm MAX.
18. FLASHING SHALL BE REQUIRED AS PER ARCHITECTURAL DRAWINGS IN ACCORDANCE WITH CSA 371.

ABBREVIATIONS

ARCH.	– DENOTES ARCHITECTURAL
℄	– DENOTES CENTRE LINE
C.C.	– DENOTES CENTER TO CENTER
c/w	– DENOTES COMPLETE WITH
CONC.	– DENOTES CONCRETE
ø	– DENOTES DIAMATER
ELEC.	– DENOTES ELECTRICAL
EQ.	– DENOTES EQUAL
EX.	– DENOTES EXISTING
LONG.	– DENOTES LONGITUDINAL
MAX.	– DENOTES MAXIMUM
MECH.	– DENOTES MECHANICAL
MIN.	– DENOTES MINIMUM
OWSJ	– DENOTES OPEN WEB STEEL JOIST
RAAC	– DENOTES REINFORCED AUTOCLAVED AERATED CONCRETE
SMS	– DENOTES SHEET METAL SCREWS
TCB.	– DENOTES TRAFFIC CONTROL BARRIER
TYP.	– DENOTES TYPICAL
THRU.	– DENOTES THROUGH
THK.	– DENOTES THICK

ROOF PROTECTION

1. ROOFING WORK SHALL BE DONE BY A CONTRACTOR PRE–APPROVED BY PVNC CATHOLIC DISTRICT SCHOOL BOARD.
2. CONTRACTOR TO COORDINATE WITH PVNC CATHOLIC DISTRICT SCHOOL BOARD PRIOR TO COMMENCING WORK TO DETERMINE REQUIREMENTS NEEDED TO MAINTAIN ACTIVE WARRANTIES. CONTRACTOR TO MEET THE REQUIREMENTS AND FOLLOW UP ONCE WORK IS COMPLETE TO ENSURE ACTIVE WARRANTIES ARE MAINTAINED.
3. ENSURE ROOF AND WALL SYSTEMS ARE WATERTIGHT AT THE END OF THE DAY AND DURING INCLEMENT WEATHER.
4. THE CONTRACTOR SHALL PROTECT, REINSTATE AND MAKE GOOD ALL AREAS WHICH MAY BE AFFECTED BY WORKS.

ANCHORAGE

1. MATERIALS:
NELSON SHEAR STUD ANCHOR, IN ACCORDANCE WITH ASTM A108 GRADE 1010 TO 1020 (OR APPROVED EQUIVALENT).
2. DO NOT USE BENT ANCHOR RODS OR ANCHOR BOLTS.
3. EXISTING REINFORCING BARS MAY CONFLICT WITH THE PROPOSED ANCHORAGE LOCATIONS. UNLESS NOTED ON THE STRUCTURAL DRAWINGS THAT THE BARS CAN BE CUT, THE CONTRACTOR SHALL LOCATE THE POSITION OF ALL REINFORCING STEEL BEFORE ANY HOLES ARE DRILLED.
4. DO NOT CUT REINFORCING BARS TO INSTALL ANCHORS OR DOWELS UNLESS THE STRUCTURAL DRAWINGS SPECIFICALLY NOTE FOR A PARTICULAR DETAIL THAT THE REINFORCING BARS CAN BE CUT.
5. AT LOCATIONS OF INTERFERENCE BETWEEN ANCHORS AND REINFORCEMENT, ADJUST PROPOSED LOCATIONS OF ANCHORS AS REQUIRED TO PREVENT CUTTING REINFORCEMENT. SUBMIT A PROPOSED ANCHOR LAYOUT TO AEI FOR REVIEW AND APPROVAL PRIOR TO INSTALLING ANCHORS.

COLD FORMED STEEL

1. MATERIALS:
COLD FORMED STEEL (CFS) STUDS, TRACKS, & FURRING CHANNELS
ASTM A653/A653M, TYPE SS,
GRADE 33 (FOR 25–18 ga.), GRADE 50 (FOR 16–12 ga.),
GALVANIZED TO Z275 [G90], ASTM A1003;
#10 SHEET METAL SCREWS (SMS), ASTM C1513, ZINC PLATED;
#12 TEKS METAL–TO–METAL SCREWS;
1/4" ø TAPCON CONCRETE ANCHORS;
4 mm ø HILTI X–U FASTENERS
2. PARAPET DETAILS SHOWN IN THESE DRAWINGS ARE TYPICAL. REFER TO THE ARCHITECTURE DRAWINGS FOR SPECIFIC LOCATIONS OF PARAPETS AND FOR PARAPET WALL ASSEMBLIES. ANY DEVIATIONS FROM THE CONDITIONS SHOWN SHALL BE REPORTED TO THE ENGINEER.
3. PROPRIETARY PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
4. VERTICAL STUDS SHALL BE INSTALLED PLUMB. STUDS SHALL SEAT SQUARELY INTO THE TOP AND BOTTOM TRACKS. THE GAP BETWEEN THE END OF THE STUD AND THE WEB OF THE TRACK SHALL NOT EXCEED 3.2 mm (1/8"). STUDS SHALL BE FASTENED TO THE TOP AND BOTTOM TRACKS WITH #10 SMS TO BOTH TRACK FLANGES.
5. USE #10 (4.83 mm ø) SHEET METAL SCREWS (SMS) FOR ALL CFS CONNECTIONS UNLESS NOTED OTHERWISE. SMS SHALL PROTRUDE BEYOND THE FASTENED MEMBER BY A MINIMUM OF 10 mm. #10 SMS SHALL BE INSTALLED WITH A MINIMUM EDGE DISTANCE OF 8 mm AND A MINIMUM FASTENER SPACING OF 15 mm.
6. THE PARAPET FRAMING SHALL BE INSPECTED BY THE ENGINEER PRIOR TO COVERING.

COLD–FORMED STEEL SECTION DESIGNATIONS

362S125–43

MEMBER DEPTH IN 1/100THS INCHES THUS 362 MEANS 362/100 = 3.62" OR 3 ⅝"

FLANGE WIDTH IN 1/100THS INCHES THUS 125 MEANS 125/100 = 1.25" OR 1 ¼"

STYLE:
S = STUD OR JOIST SECTION
T = TRACK SECTION
U = CHANNEL SECTION
F = FURRING CHANNEL (HAT)

MIN. THICKNESS IN 1/1000THS INCHES THUS 43 MEANS 43/1000 = 0.043"

STEEL THICKNESS TABLE			
MINIMUM THICKNESS (MILS)	DESIGN THICKNESS in.	DESIGN THICKNESS mm	REFERENCE ONLY GAUGE NO.
18	0.0188	0.477	25
27	0.0283	0.718	22
30	0.0312	0.792	20–DRYWALL
33	0.0346	0.878	20–STRUCTURAL
43	0.0451	1.145	18
54	0.0566	1.437	16
68	0.0713	1.811	14
97	0.1017	2.583	12

LUMBER

1. LUMBER DESIGN COMPLETED IN ACCORDANCE WITH THE CSA O86–19 "ENGINEERING DESIGN IN WOOD".
2. MATERIALS:
CSP PLYWOOD SHALL CONFORM TO CSA O151 AND CSA O325.
4. ALL WOOD USED IN EXTERIOR UNPROTECTED LOCATIONS SHALL BE PRESSURE TREATED. WHERE PRESSURE TREATED WOOD IS CUT, APPLY PRESERVATIVE END TREATMENT.
5. WOOD FRAMING MEMBERS THAT ARE NOT PRESSURE–TREATED AND THAT ARE SUPPORTED ON CONCRETE OR MASONRY IN CONTACT WITH THE GROUND OR FILL SHALL BE SEPARATED FROM THE CONCRETE OR MASONRY BY NOT LESS THAN 6 MIL POLYETHYLENE FILM OR TYPE S ROLL ROOFING.
6. PROVIDE SUFFICIENT CLEARANCE AROUND ALL MECHANICAL, ELECTRICAL, PLUMBING, FINISHES OR ANY OTHER SYSTEMS THAT MAY BE DAMAGED BY THE RELATIVE MOVEMENT OF WOOD PRODUCTS. ALLOW FOR RELATIVE MOVEMENT OF DIFFERENTIAL MATERIALS.
7. METAL FASTENERS AND ACCESSORIES USED IN EXTERIOR LOCATIONS SHALL BE CORROSION RESISTANT.

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
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project
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scale N/A

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GENERAL NOTES

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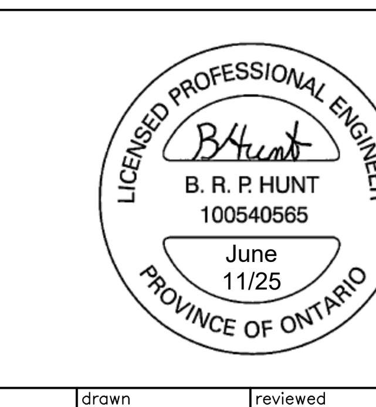
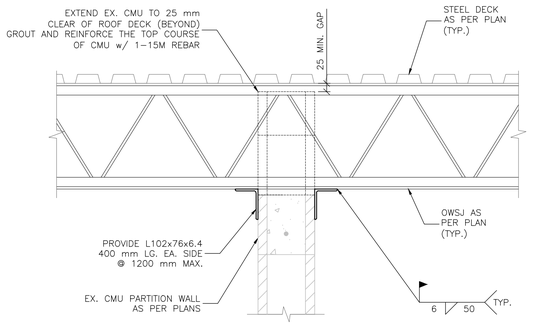


designed	drawn	reviewed	approved
F.S.	F.S.	B.H.	B.H.

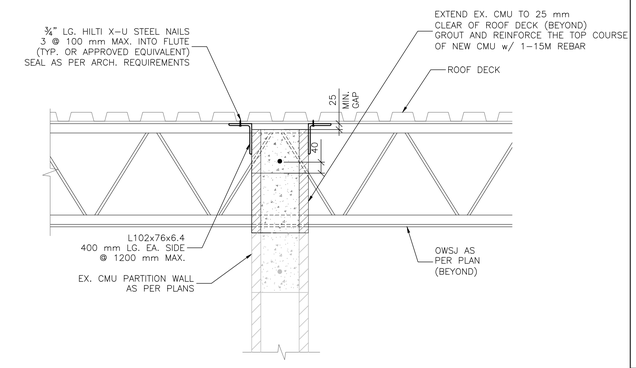
date	project number	drawing number
June 10, 2025	7619	S00

CONCRETE & REINFORCEMENT

1. MATERIALS
   CONCRETE:
   10 MPa CELLULAR NON-STRUCTURAL LIGHTWEIGHT CONCRETE FILL, IN ACCORDANCE WITH CSA A23.1/A23.2/A23.3 (1600 kg/m³ MIN. AND 1800 kg/m³ MAX.)
   REINFORCING STEEL:
   WELDED WIRE FABRIC (WWF) – IN ACCORDANCE WITH ASTM 1064;
2. CONCRETE DESIGN COMPLETED IN ACCORDANCE WITH CSA A23.3-19, DESIGN OF CONCRETE STRUCTURES.
3. CONCRETE IS SPECIFIED AS PER THE PERFORMANCE ALTERNATIVE AS OUTLINED IN CSA A23.1.
4. THE CONTRACTOR IS RESPONSIBLE FOR WORKING WITH THE CONCRETE SUPPLIER TO ENSURE THAT THE PLASTIC AND HARDENED MIX PROPERTIES MEET SITE REQUIREMENTS FOR PLACING, FINISHING AND THE SPECIFIED PERFORMANCE REQUIREMENTS. THE SUPPLIER AND CONTRACTOR SHALL MEET THE DOCUMENTATION AND QUALITY CONTROL REQUIREMENTS OUTLINED IN THE "PERFORMANCE" ALTERNATIVE OF TABLE 5 IN CSA A23.1-19. CONCRETE MIX DESIGN TO BE SUBMITTED TO AEI FOR REVIEW AND APPROVAL.
5. CONCRETE SHALL BE MIXED, PLACED, AND CURED IN ACCORDANCE WITH CSA A23.1/A23.2-19. MAINTAIN RECORDS OF POURED CONCRETE ITEMS. RECORD DATE, LOCATION OF POUR, QUANTITY, AIR TEMPERATURE AND ANY TEST SAMPLES TAKEN. CONCRETE TESTING SHALL BE AS PER CSA A23.2-19-25C UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL TEST CONCRETE FOR EACH DAYS CONCRETING AND/OR 30 CUBIC METERS. FORWARD TEST RESULTS TO THE ENGINEER FOR REVIEW; MINIMUM THREE CYLINDERS PER COMPRESSIVE TEST. ONE ADDITIONAL CYLINDER TO BE TAKEN DURING COLD WEATHER CONCRETING AND BE CURED ON JOBSITE UNDER THE SAME CONDITIONS AS THE CONCRETE IT REPRESENTS. ONE SLUMP TEST AND ONE AIR TEST TO BE TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN.
6. CURING AND PROTECTION OF CONCRETE FOR HOT, COLD OR DRY WEATHER AS PER CSA A23.1-19.
7. ALL CONCRETE SHALL BE CONSOLIDATED WITH INTERNAL VIBRATORS AND FINISHED TO THE ARCHITECT'S REQUIREMENTS.
8. DO NOT INCORPORATE CALCIUM CHLORIDE IN ANY FORM INTO CONCRETE MIX DESIGNS.
9. ALL REINFORCING STEEL SHALL BE CLEAN AND FREE OF RUST, OIL OR ANY OTHER DELETERIOUS MATERIAL.
10. CONCRETE REINFORCING, PLACEMENT AND TOLERANCES SHALL BE IN ACCORDANCE WITH CSA A23.1-19 & A23.2-19.
11. SECURE AND SUPPORT REINFORCING STEEL TO PREVENT MOVEMENT AND MAINTAIN CONCRETE COVER REQUIREMENTS AS SPECIFIED DURING THE POURING OF CONCRETE. SUPPORT REINFORCING WITH CHAIRS, ACCESSORIES, OR REINFORCING BARS AS REQUIRED. SUPPORTS FOR WELDED WIRE REINFORCEMENT SHALL TAKE INTO ACCOUNT THE DIAMETER AND SPACING OF REINFORCEMENT, THE STABILITY OF THE SUPPORTING SUBSTRATE, AND ANY CONSTRUCTION LOADS THAT WILL BE APPLIED BEFORE AND DURING CONCRETE PLACEMENT. WELDED WIRE REINFORCEMENT SHALL BE SUPPORTED AT REGULAR INTERVALS OF A MAXIMUM OF 915 MM EACH WAY.
12. WELDED WIRE FABRIC LAP SPLICES SHALL BE 300 mm MINIMUM. LAP SPLICES SHALL BE OFFSET OR STAGGERED AND SHALL NOT LAP THROUGH ANY CRACK CONTROL JOINTS.
13. DO NOT SUBSTITUTE DEFORMED WIRE FOR REINFORCING BARS OR FIBERS WITHOUT PRIOR APPROVAL OF AEI.
14. THE CONTRACTOR SHALL ENSURE THAT ALL REINFORCING STEEL IS INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO PLACING CONCRETE.



EXTENSION OF CMU WALL IN PERPENDICULAR TO OWSJ @ OWSJ



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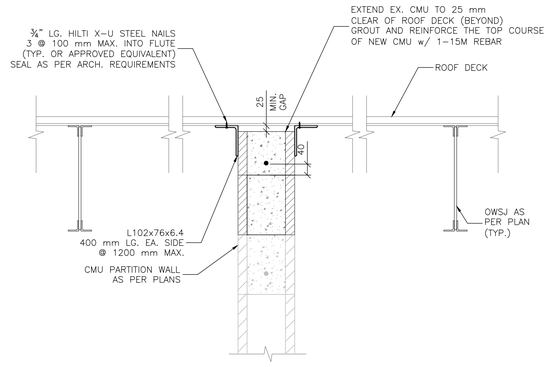
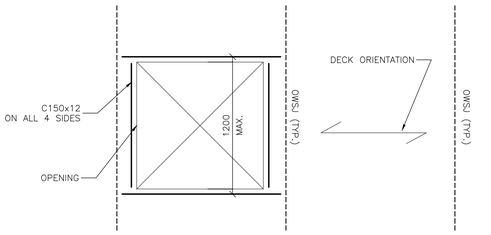


EXTENSION OF EX. CMU WALL IN PARALLEL TO OWSJ

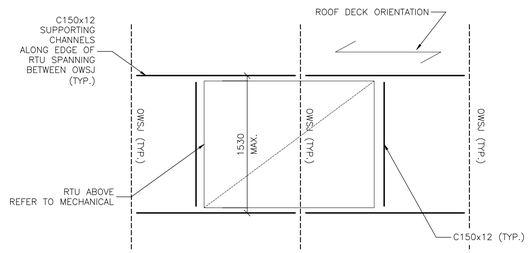
TYPICAL CMU PARTITION WALL EXTENSION & LATERAL RESTRAINT DETAIL



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



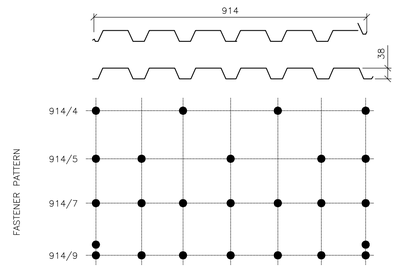
NOTES: REFER TO MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF RTUs.

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.

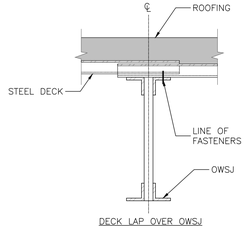
ANCHOR RTUs TO CHANNEL SUPPORTS FOR SEISMIC IN ACCORDANCE WITH OBC 2012 [2020 AMD.].

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.)



DECK LAP OVER OWSJ

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

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GENERAL NOTE & TYPICAL DETAILS

stamp

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June 11/25
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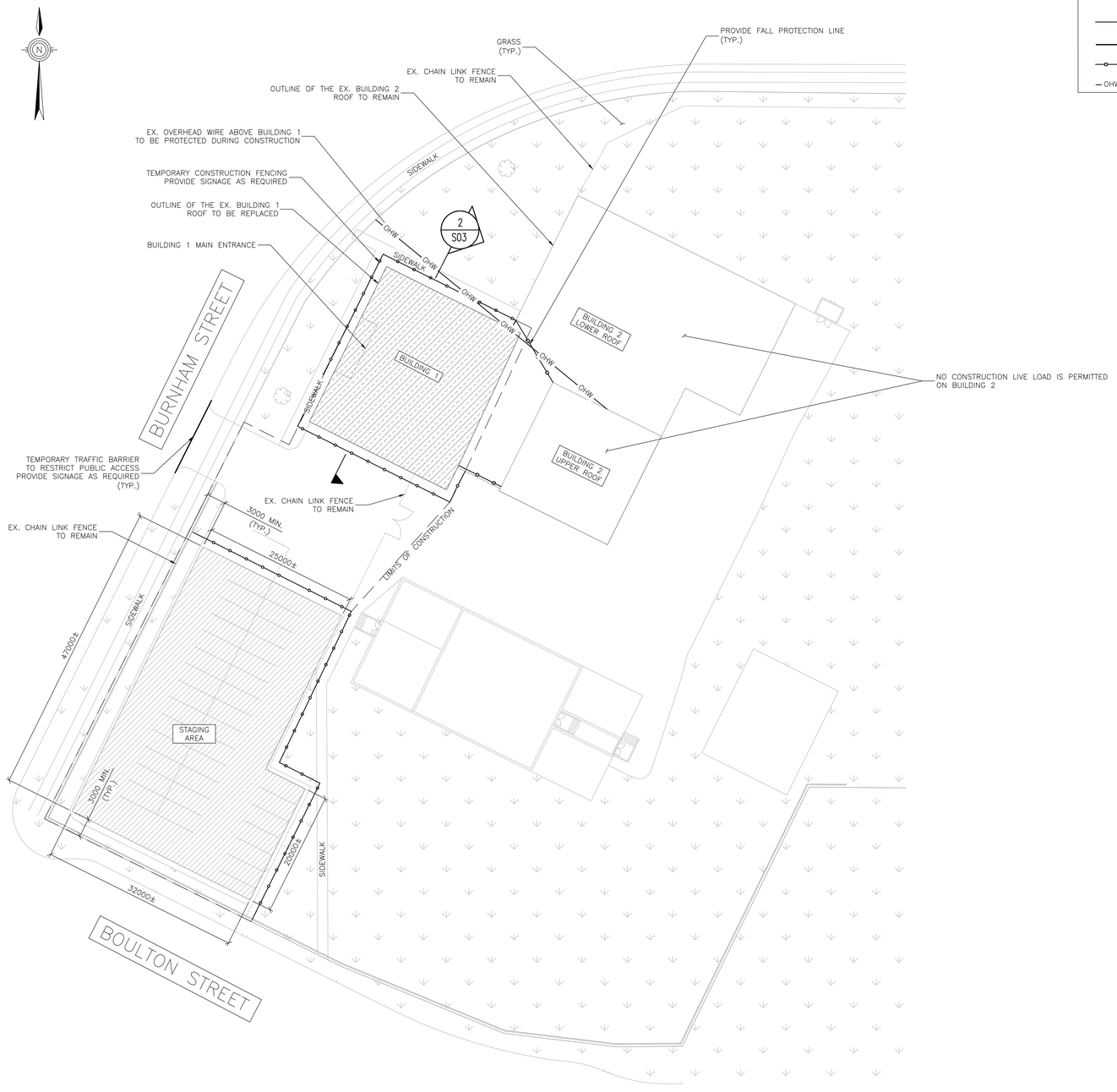

1 S02 SITE PLAN
1:400

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 NORTE 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 PRIMIER 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. POUR ROOF CONCRETE TOPPING AS PER 8/S07.

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.

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

SUBMIT ROOF SLAB REMOVAL MACHINARY SPECIFICCATIONS AND WORK PLAN TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO COMENCING REMVALS.

client

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scale N/A

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revisions		date

drawing

NOTES, DEMOLITION SEQUENCES, & SITE PLAN

stamp

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June 11/25
PROVINCE OF ONTARIO

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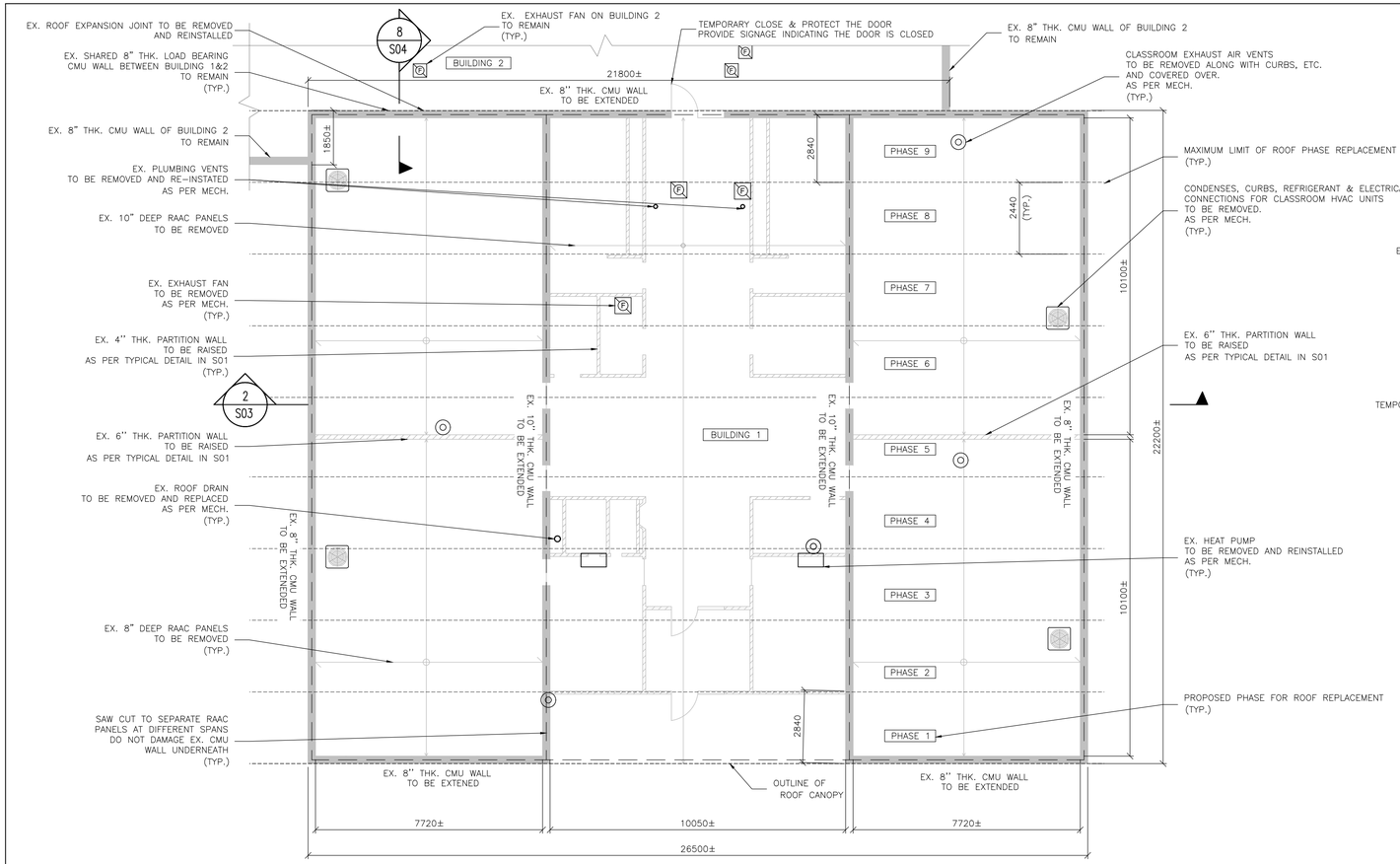
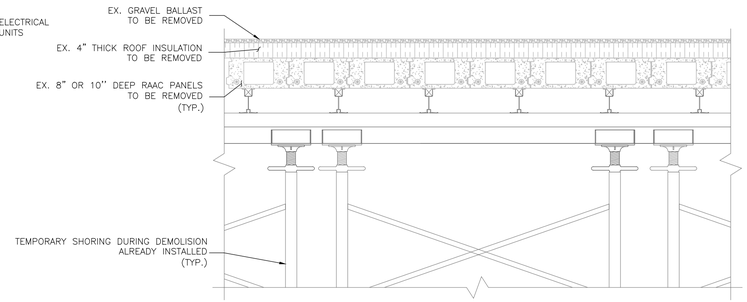


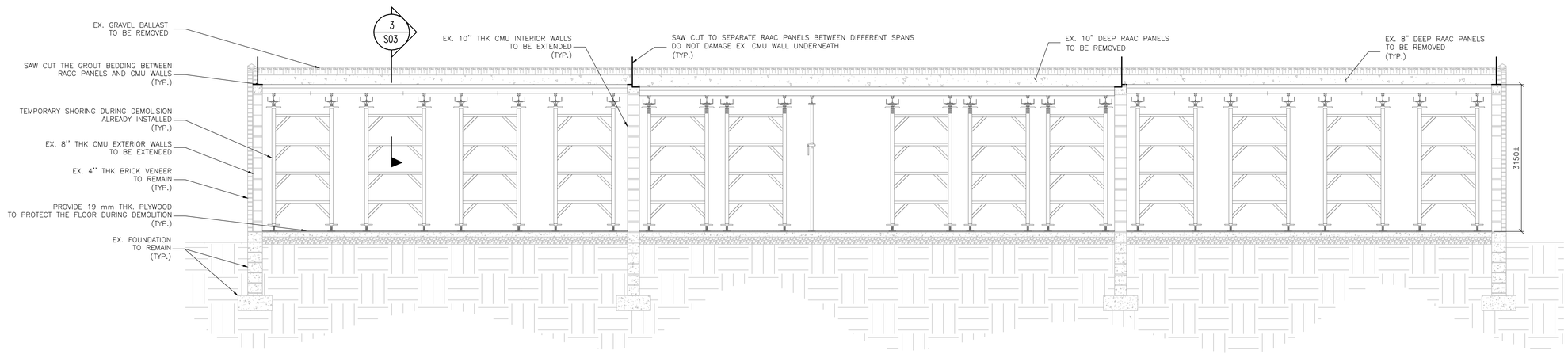
1 S03 **BUILDING 1 EXISTING ROOF FRAMING & PHASE REPLACEMENT PLAN**
1:100

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



3 S03 **TYPICAL BUILDING 1 SECTION**
1:20

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



2 S03 **TYPICAL EXISTING BUILDING 1 ELEVATION**
1:50

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

SUBMIT ROOF SLAB REMOVAL MACHINARY SPECIFICCATIONS AND WORK PLAN TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO COMENCING REMVALS.

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scale N/A

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PHASE DEMOLITION PLAN, ELEVATION, & SECTION

stamp

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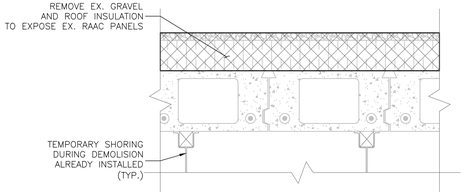
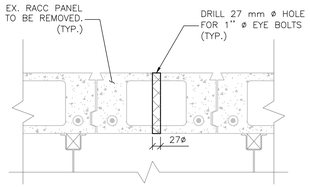


1 S04 RIGGING DETAIL: STEP 1
1:10



2 S04 RIGGING DETAIL: STEP 1
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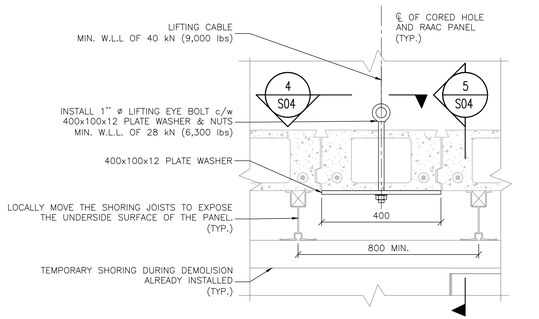
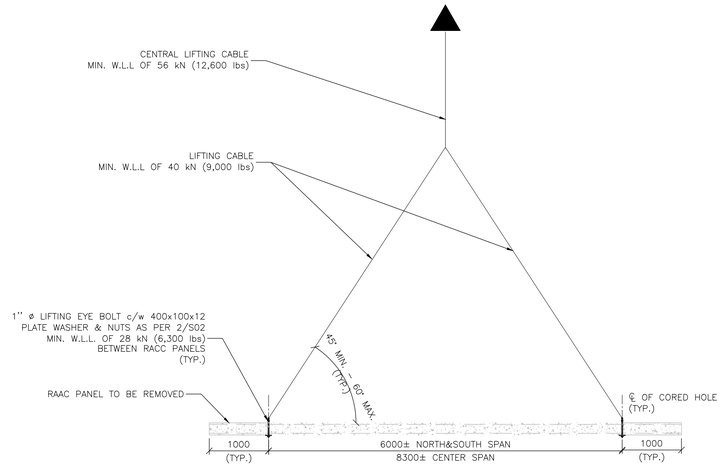
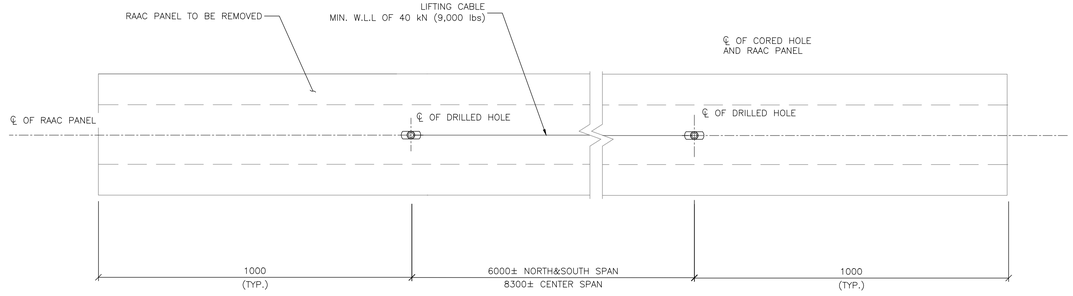


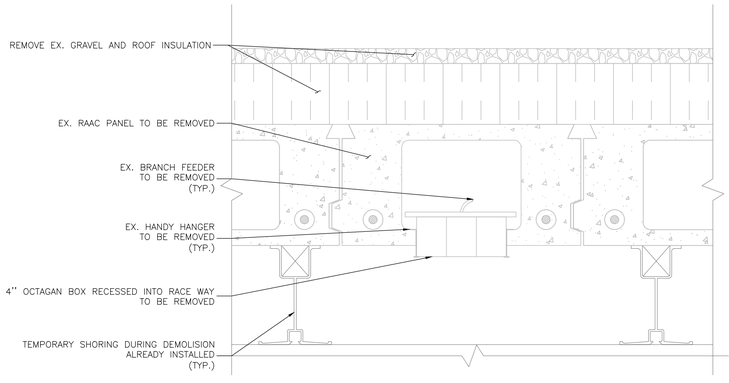
3 S04 RIGGING DETAIL: STEP 3 SECTION
1:10



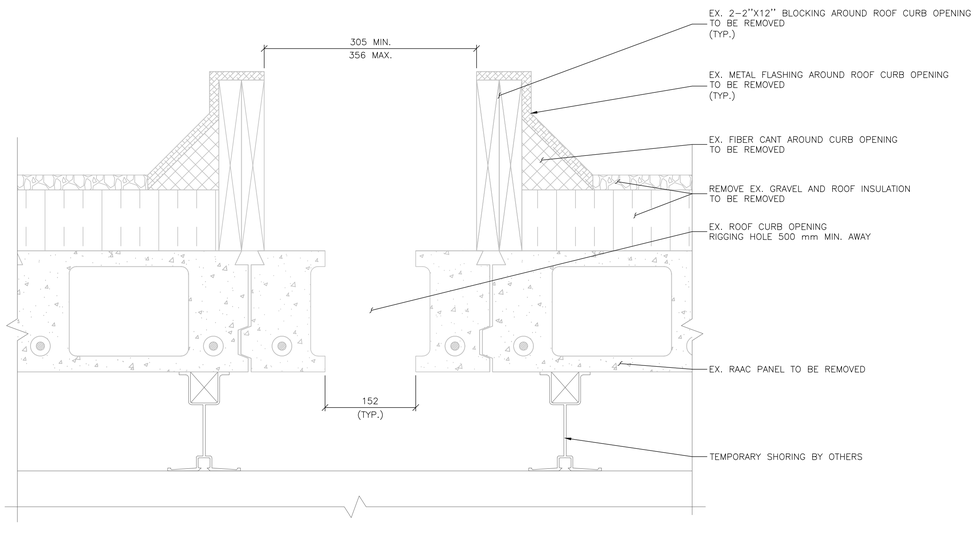
5 S04 RIGGING DETAIL: STEP 3 ELEVATION
1:50



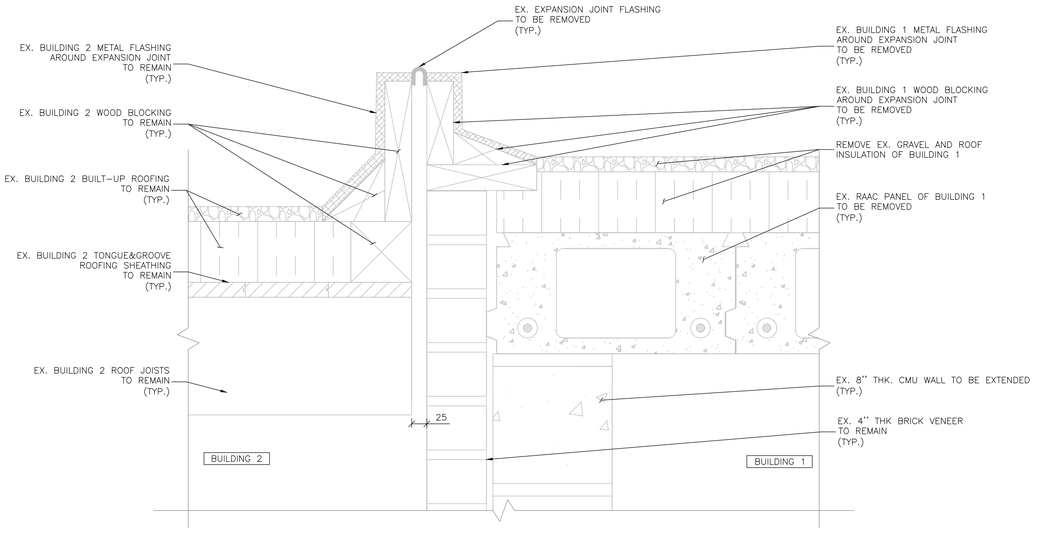
4 S04 RIGGING DETAIL: STEP 3 PLAN
1:10



6 S04 TYPICAL OUTLET BOX AT CEILING SLAB REMOVAL DETAIL
1:5



7 S04 TYPICAL ROOF CURB REMOVAL DETAIL
1:5



8 S04 TYPICAL REMOVAL DETAIL @ EXPANSION JOINT
1:5

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.

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 MACHINARY SPECIFICCATIONS AND WORK PLAN TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO COMENCING REMVALS.

client

PVNC CATHOLIC DISTRICT SCHOOL BOARD

project

NOTRE DAME ELEMENTARY SCHOOL ROOF REPLACEMENT

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A / B — A detail no. no. de détail; B location drawing no. sur dessin no.

scale N/A

revisions		date
0.	ISSUED FOR PERMIT	10-06-25

drawing

PROPOSED REMOVAL & RIGGING DETAILS

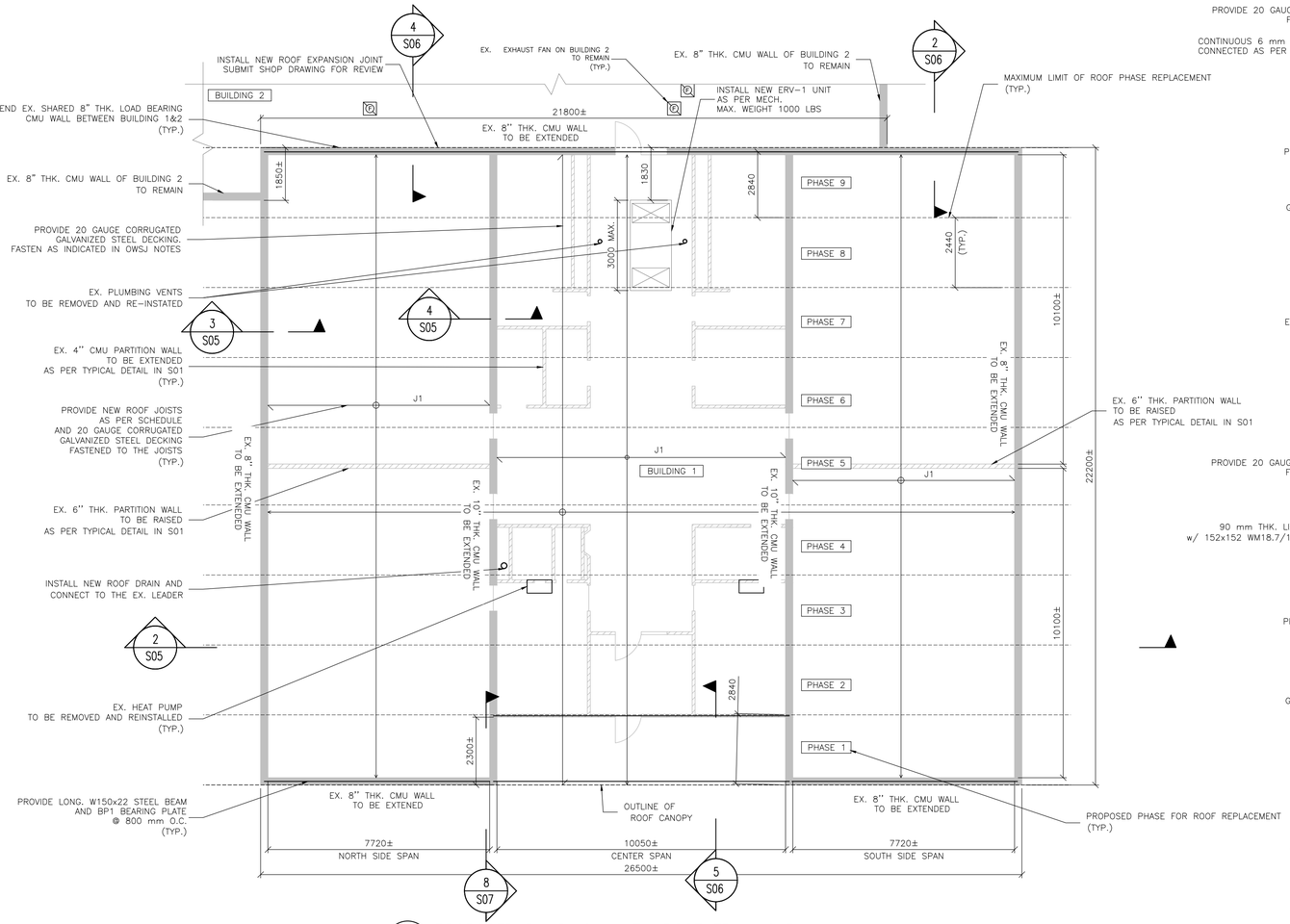
stamp

LICENSED PROFESSIONAL ENGINEER
B. R. P. HUNT
100540565
June 11/25
PROVINCE OF ONTARIO

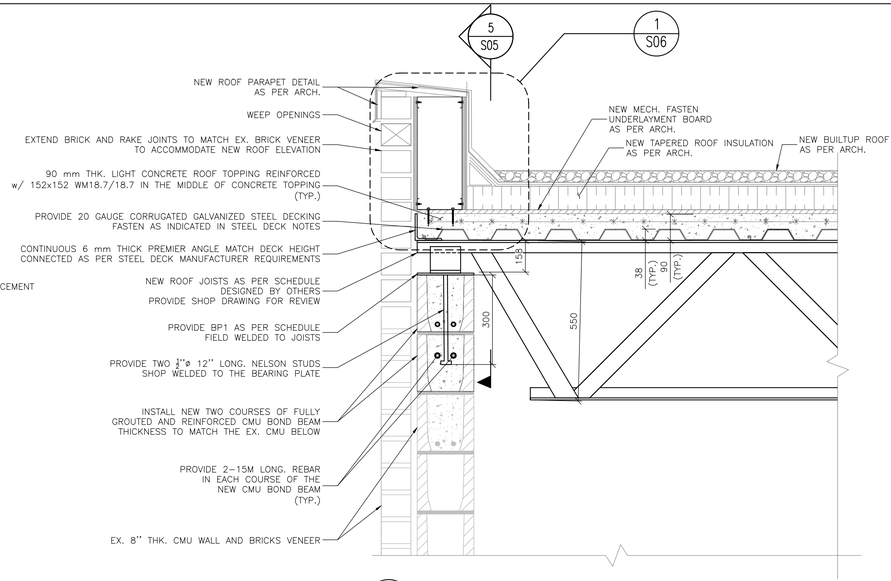
designed	drawn	reviewed	approved
F.S.	F.S.	B.H.	B.H.
date		project number	drawing number
June 10, 2025		7619	S04

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

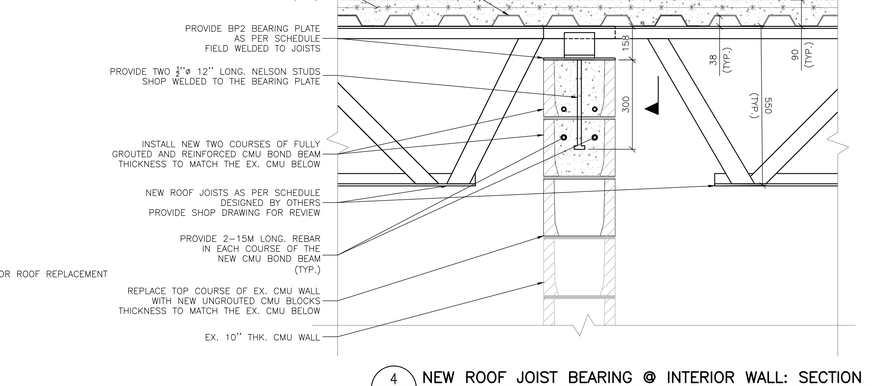
BEARING PLATE SCHEDULE	
ANNOTATION	MEMBER SIZE (mm)
BP1	400x200x6
BP2	400x250x6



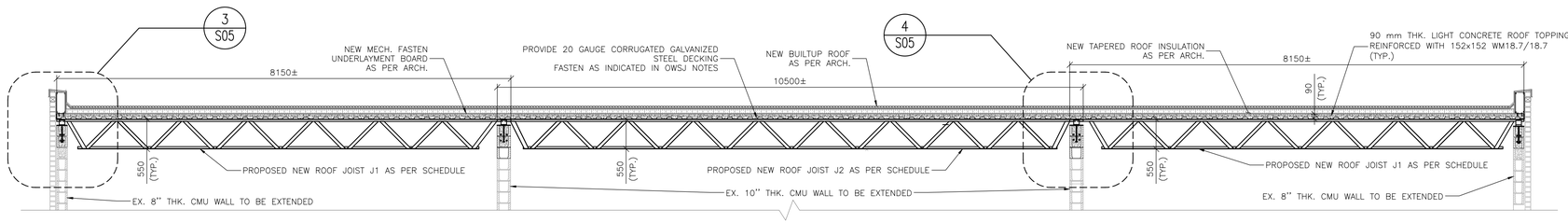
1 S05 PROPOSED BUILDING 1 NEW ROOF FRAMING PLAN
1:100



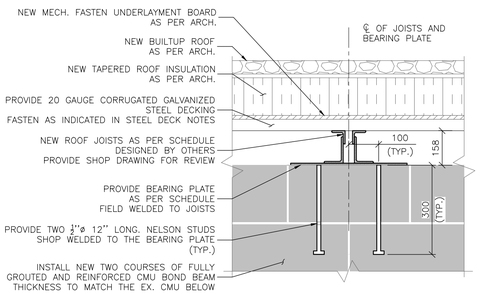
3 S05 NEW ROOF JOIST BEARING @ EXTERIOR WALL: SECTION
1:10
TYPICAL, MIRROR AS REQUIRED



4 S05 NEW ROOF JOIST BEARING @ INTERIOR WALL: SECTION
1:10



2 S05 PROPOSED BUILDING 1 NEW ROOF PHASE FRAMING SECTION
1:50



5 S05 NEW ROOF JOIST BEARING: ELEVATION
1:10
SIMILAR FOR BEARING PLATES WITH TWO SHOES

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.

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B location drawing no. sur dessin no.

scale N/A

revisions		
0.	ISSUED FOR PERMIT	10-06-25
		date

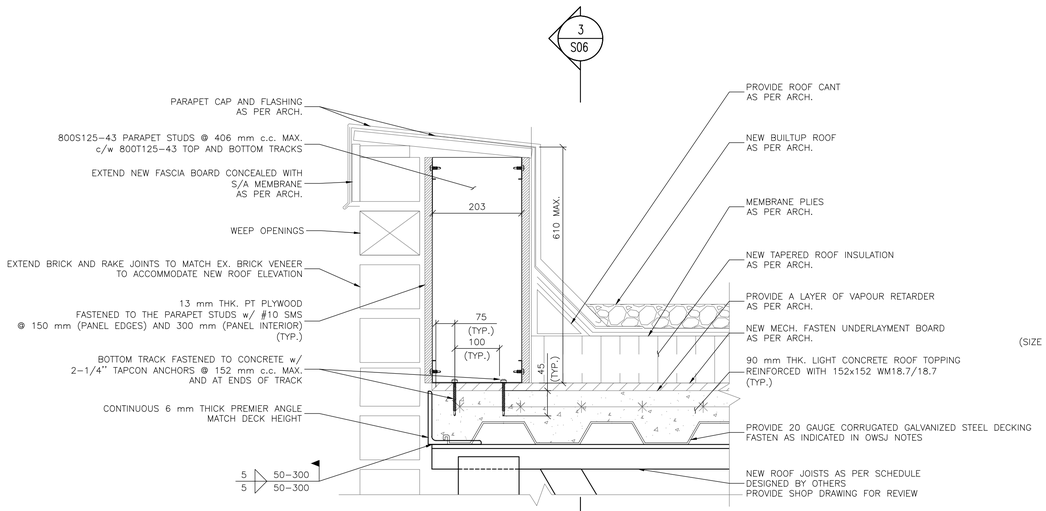
drawing

NEW ROOF FRAMING PLAN, SECTION, ELEVATION & DETAILS

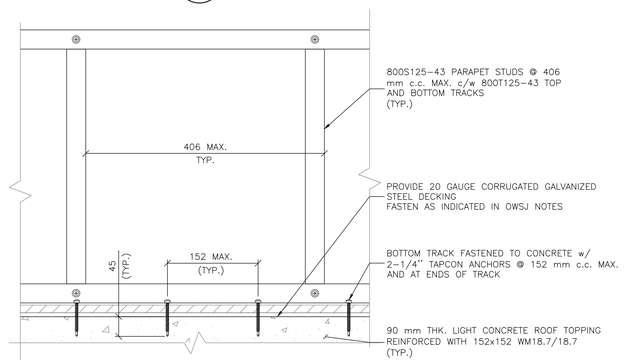
stamp

LICENSED PROFESSIONAL ENGINEER
B. R. P. HUNT
100540565
June 11/25
PROVINCE OF ONTARIO

designed	drawn	reviewed	approved
F.S.	F.S.	B.H.	B.H.
date		project number	drawing number
June 10, 2025		7619	S05

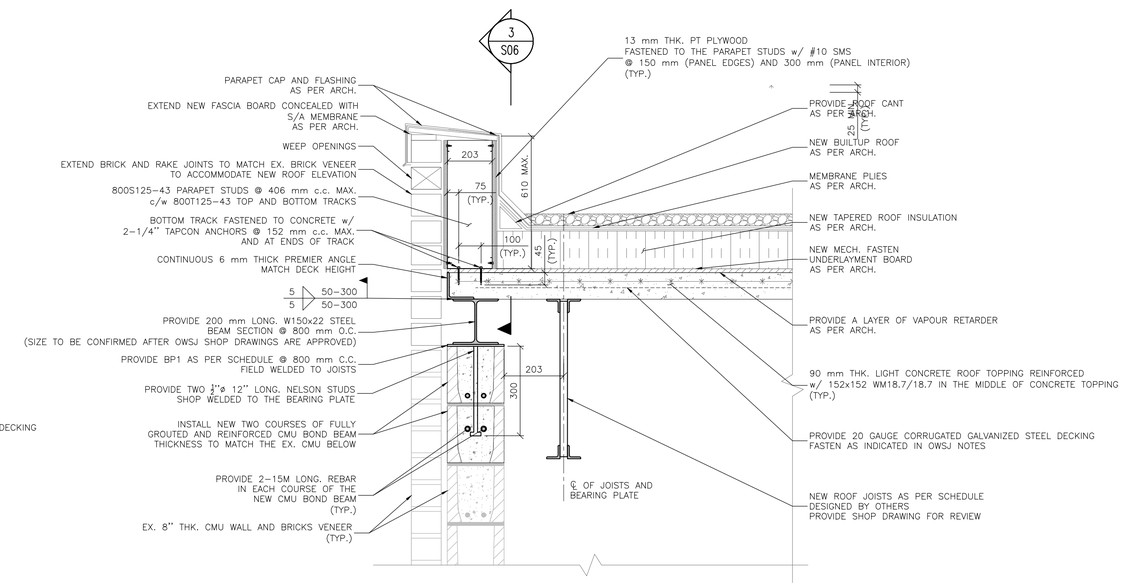


1 S06 PARAPET FRAMING DETAIL: SECTION
1:5 TYPICAL, MIRROR AS REQUIRED

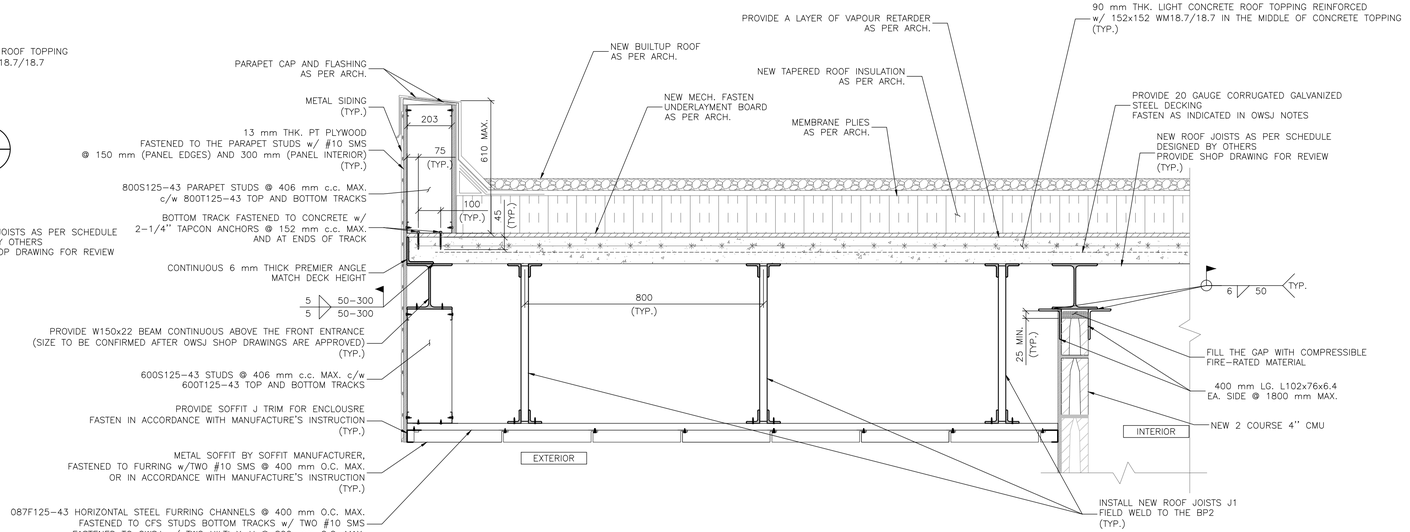


3 S06 PARAPET FRAMING DETAIL: ELEVATION
1:5

4 S06 TYPICAL FRAMING DETAIL @ EXPANSION JOINT
1:10



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



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

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.

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client

PVNC CATHOLIC DISTRICT SCHOOL BOARD

project

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

scale N/A

revisions		date
0.	ISSUED FOR PERMIT	10-06-25

drawing

NEW ROOF PARAPET FRAMING AND EXPANSION JOINT DETAILS

stamp

LICENSED PROFESSIONAL ENGINEER
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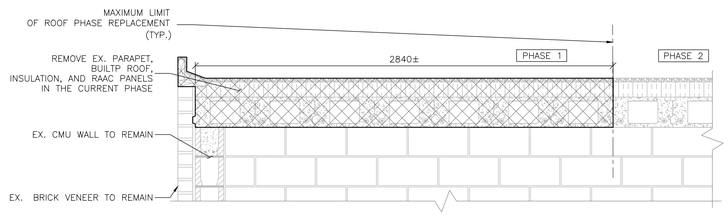
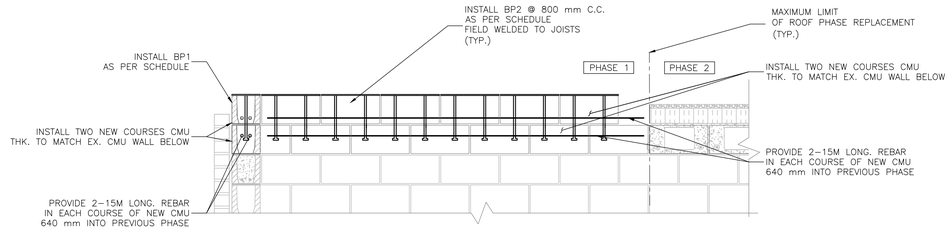
designed	drawn	reviewed	approved
F.S.	F.S.	B.H.	B.H.
date		project number	drawing number
June 10, 2025		7619	S06



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



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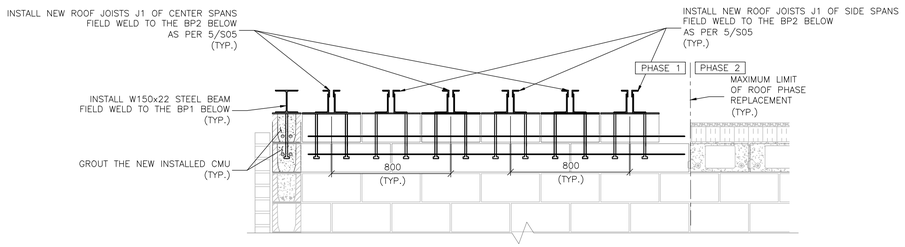

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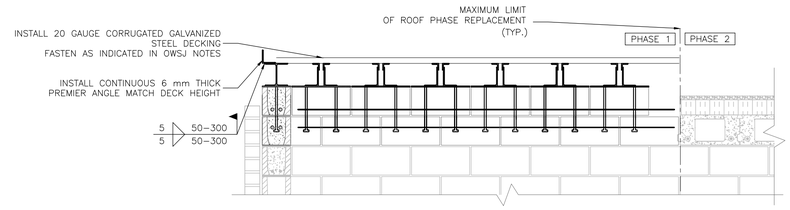

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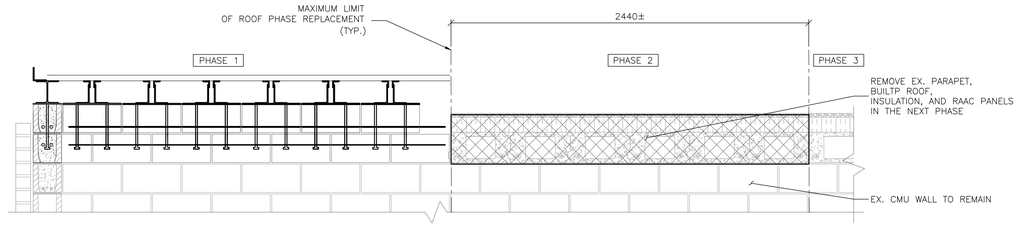
1:20



5 / S07 PROPOSED NEW ROOF JOIST REPLACEMENT: STEP 5
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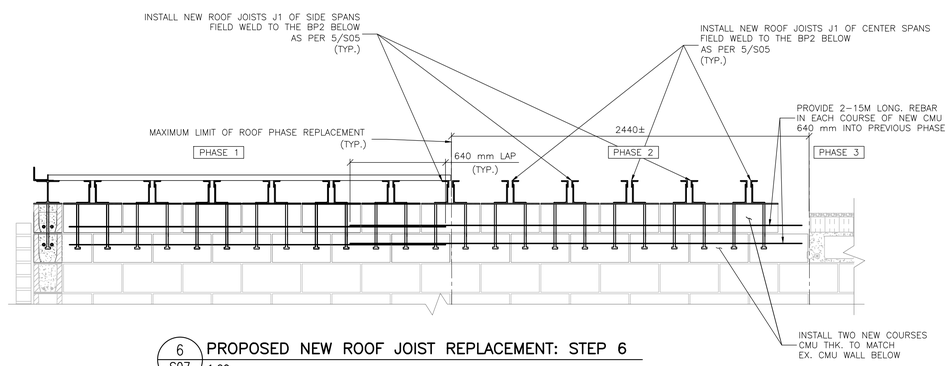
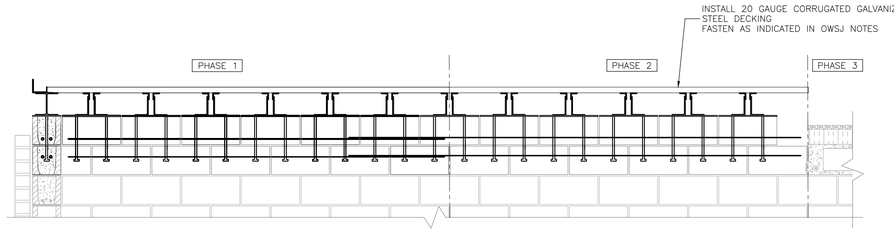
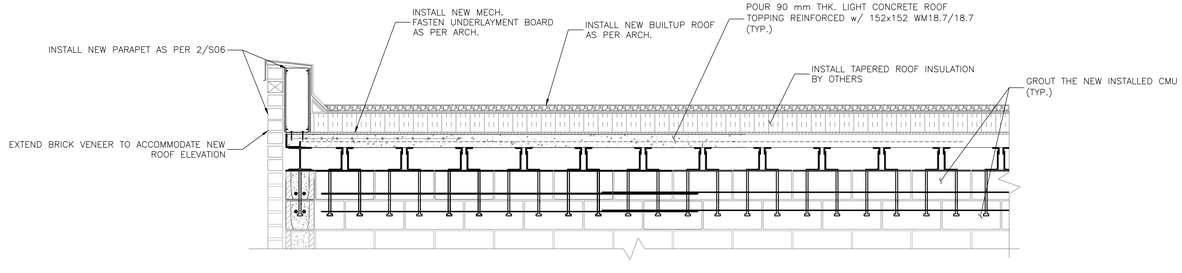


6 / S07 PROPOSED NEW ROOF JOIST REPLACEMENT: STEP 6
1:20



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



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

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

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

scale N/A

0.	ISSUED FOR PERMIT	10–06–25
revisions		date

drawing

PROPOSED PHASE ROOF REPLACEMENT

stamp

LICENSED PROFESSIONAL ENGINEER
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June 11/25
PROVINCE OF ONTARIO

designed	drawn	reviewed	approved
F.S.	F.S.	B.H.	B.H.
date		project number	drawing number
June 10, 2025		7619	S07

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*).

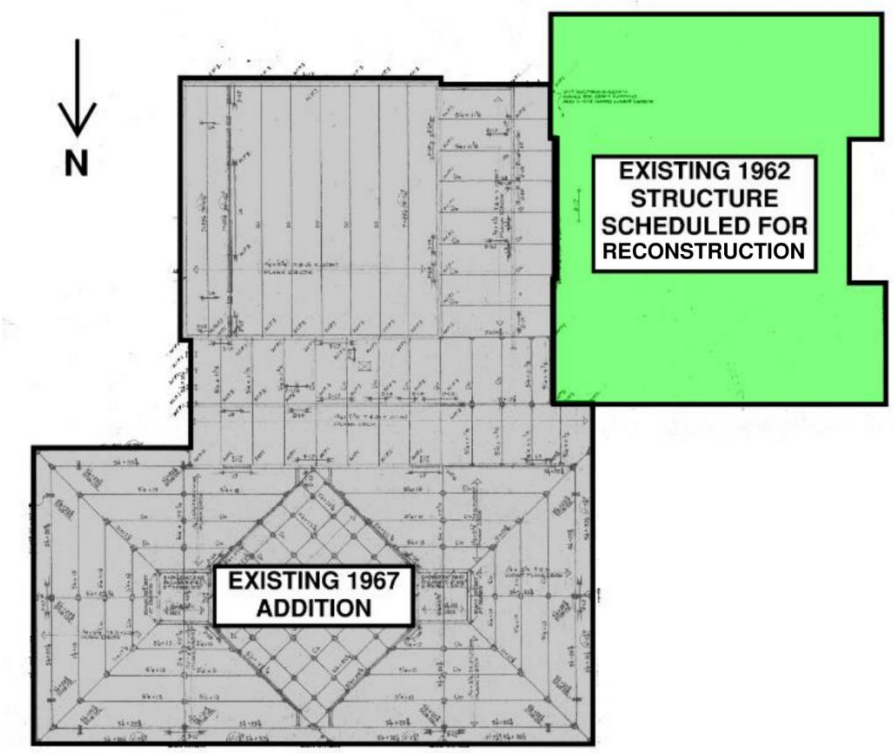


Figure 1: Plan View of Notre Dame Catholic Elementary School with Construction Eras

2.2 Investigation Limitations

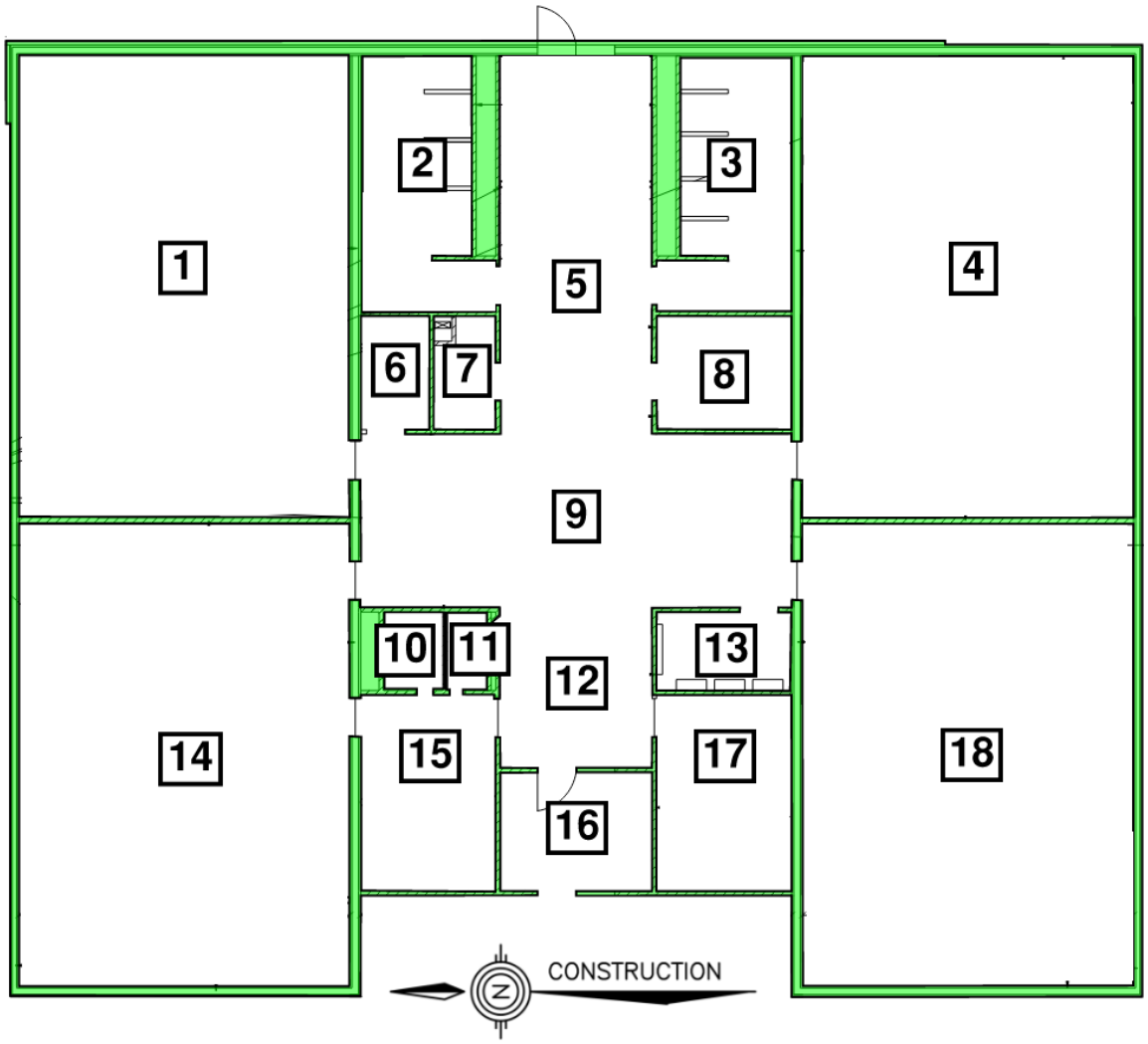
The following limitations apply to the pre-construction survey completed by AEI, AEI does not assume liability for elements not reviewed:

- 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(1), 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

Location: Classroom [103]	Element Photographed: East Wall

Image 1

Location: Classroom [103]	Element Photographed: South Wall

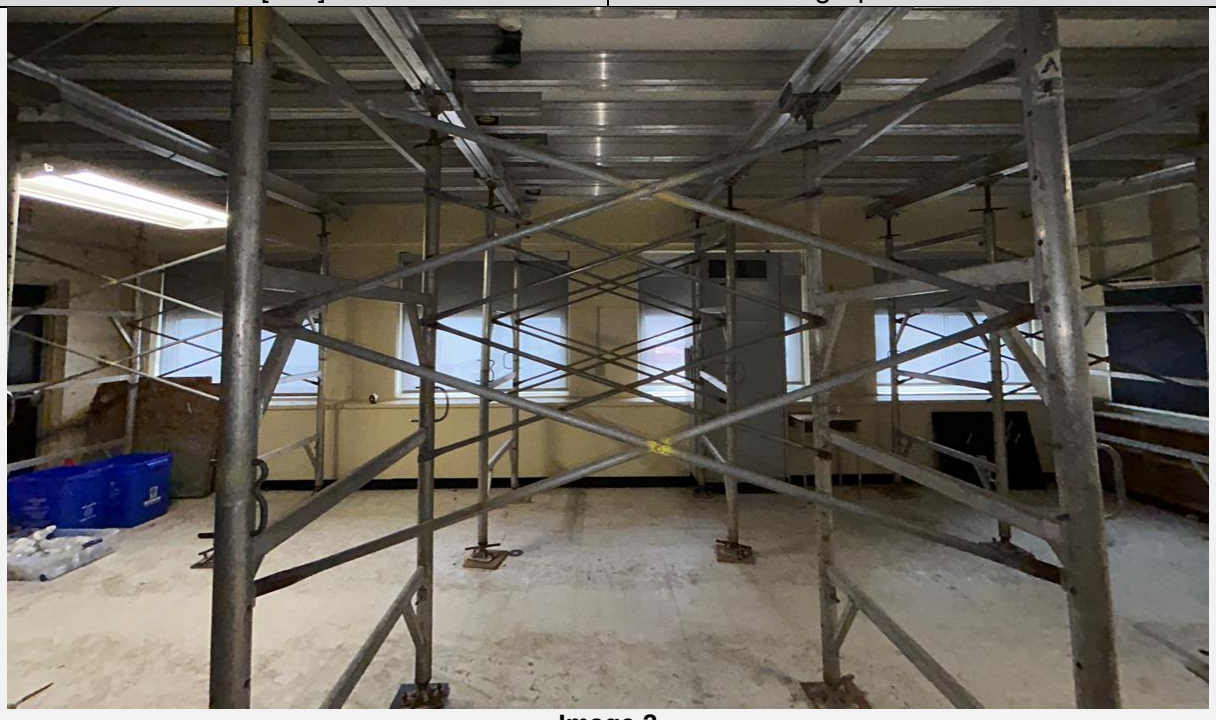


Image 2

Location: Classroom [103]	Element Photographed: West Wall

Image 3

Location: Classroom [103]	Element Photographed: North Wall

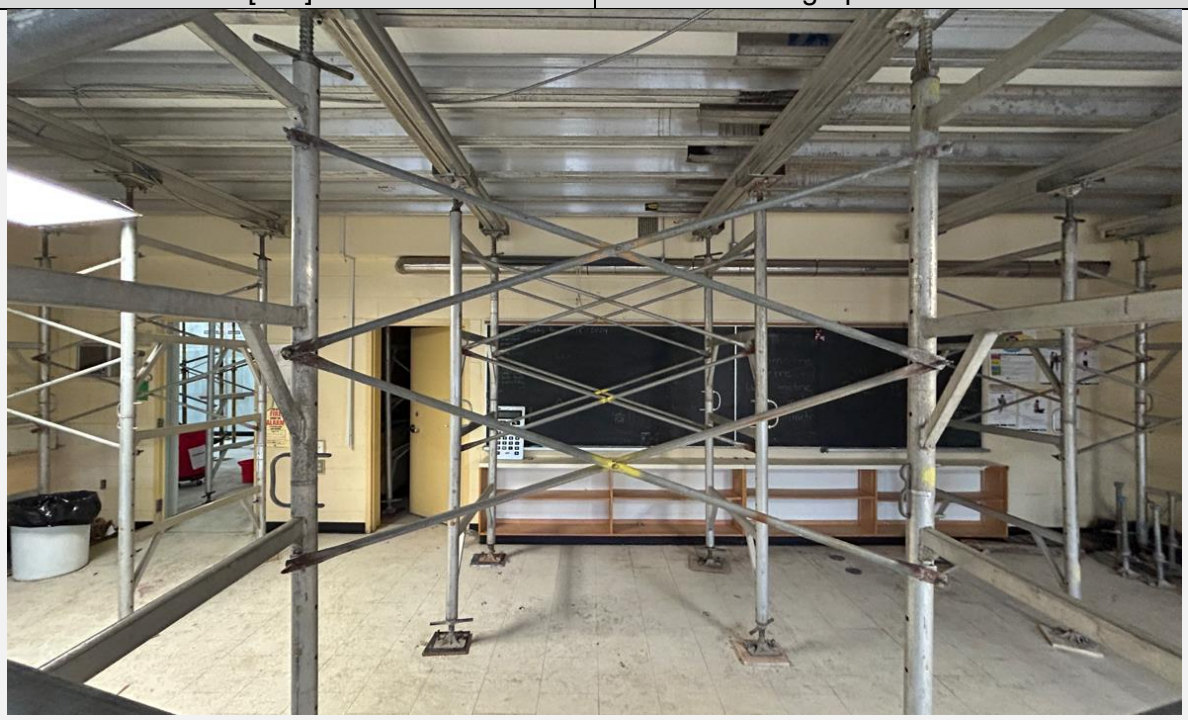


Image 4

Location: Classroom [104]	Element Photographed: East Wall

Image 5

Location: Classroom [104]	Element Photographed: South Wall

Image 6

Location: Classroom [104]	Element Photographed: West Wall

Image 7

Location: Classroom [104]	Element Photographed: North Wall

Image 8

Location: Classroom [101]	Element Photographed: East Wall

Image 9

Location: Classroom [101]	Element Photographed: South Wall

Image 10

Location: Classroom [101]	Element Photographed: West Wall

Image 11

Location: Classroom [101]	Element Photographed: North Wall

Image 12

Location: Classroom [102]	Element Photographed: East Wall

Image 13

Location: Classroom [102]	Element Photographed: South Wall

Image 14

Location: Classroom [102]	Element Photographed: West Wall

Image 15

Location: Classroom [102]	Element Photographed: North Wall

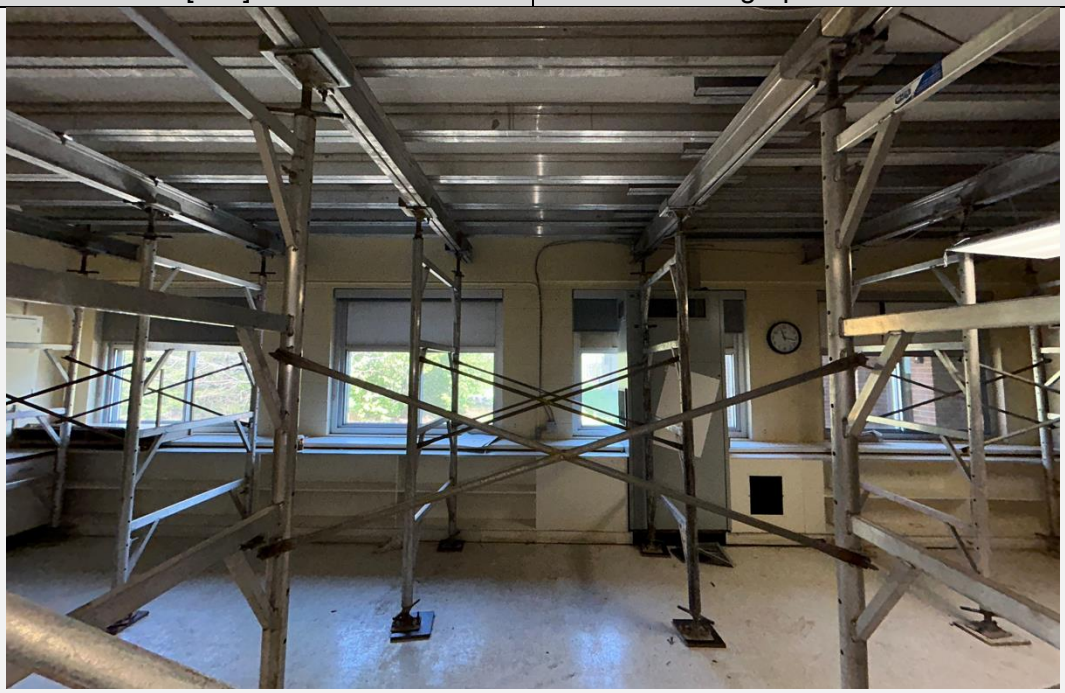


Image 16

Location: Staff Washroom [111]	Element Photographed: East Wall

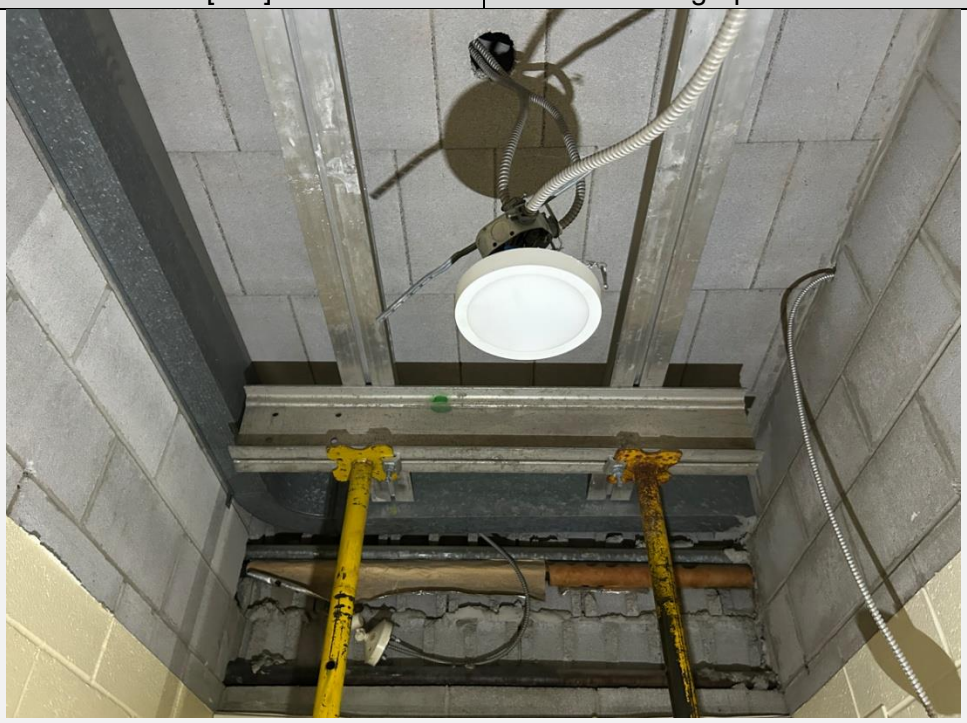


Image 17

Location: Staff Washroom [111]	Element Photographed: West Wall

Image 18

Location: Janitor [112]	Element Photographed: East Wall

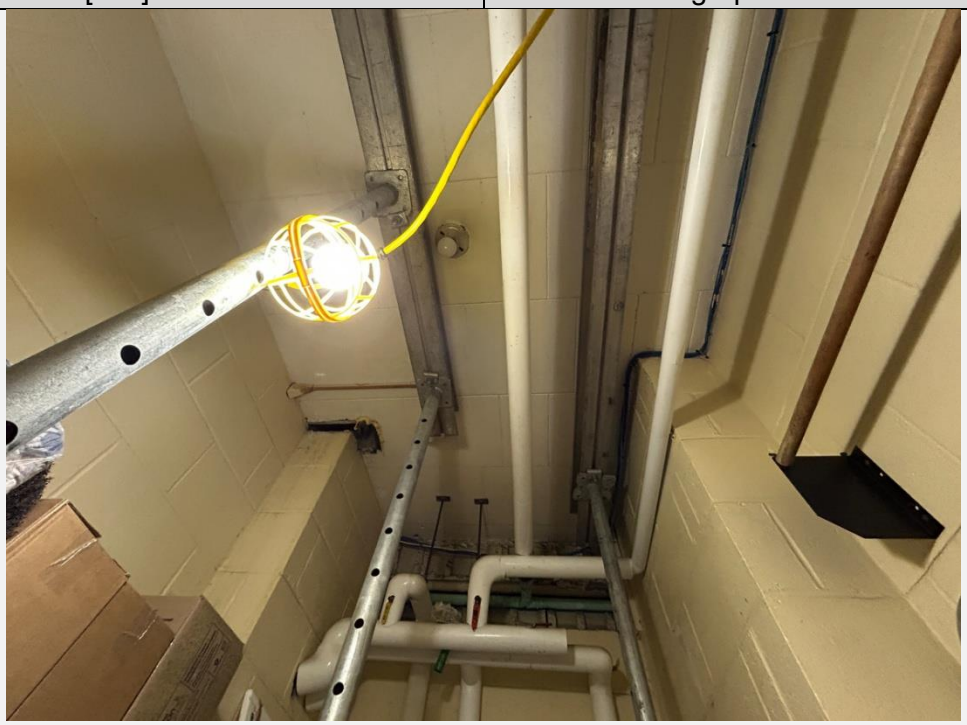


Image 19

Location: Janitor [112]	Element Photographed: West Wall

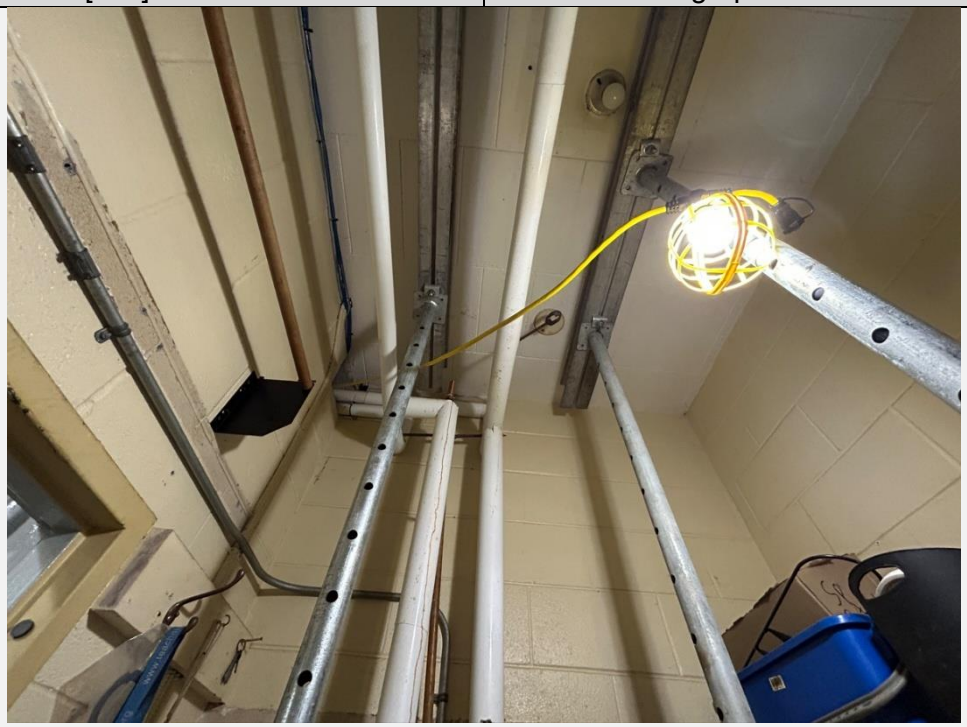


Image 20

Location: Janitor [112]	Element Photographed: Concrete Slab

Image 21

Location: Boys Washroom [115]	Element Photographed: East Wall

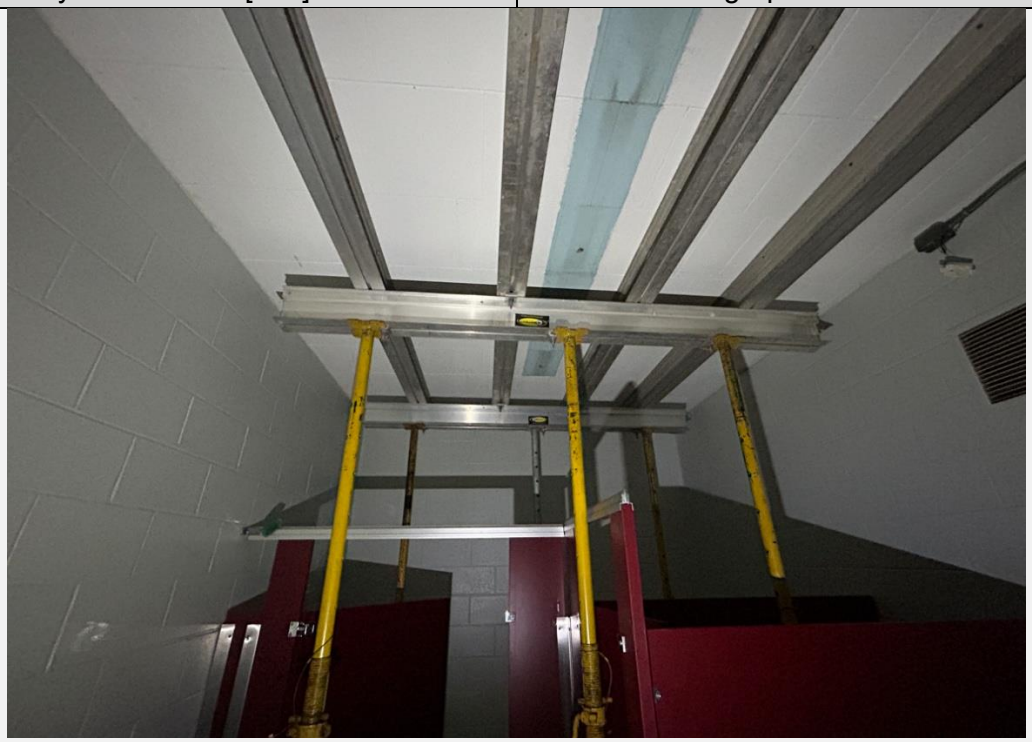


Image 22

Location: Boys Washroom [115]	Element Photographed: West Wall

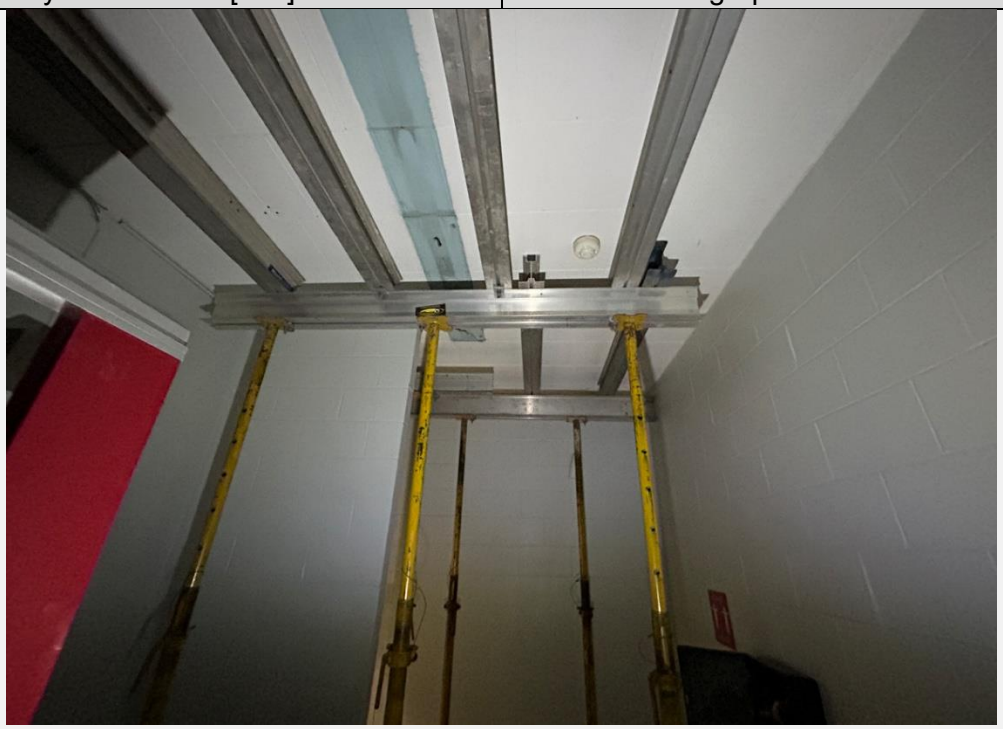


Image 23

Location: Boys Washroom [115]	Element Photographed: South Wall

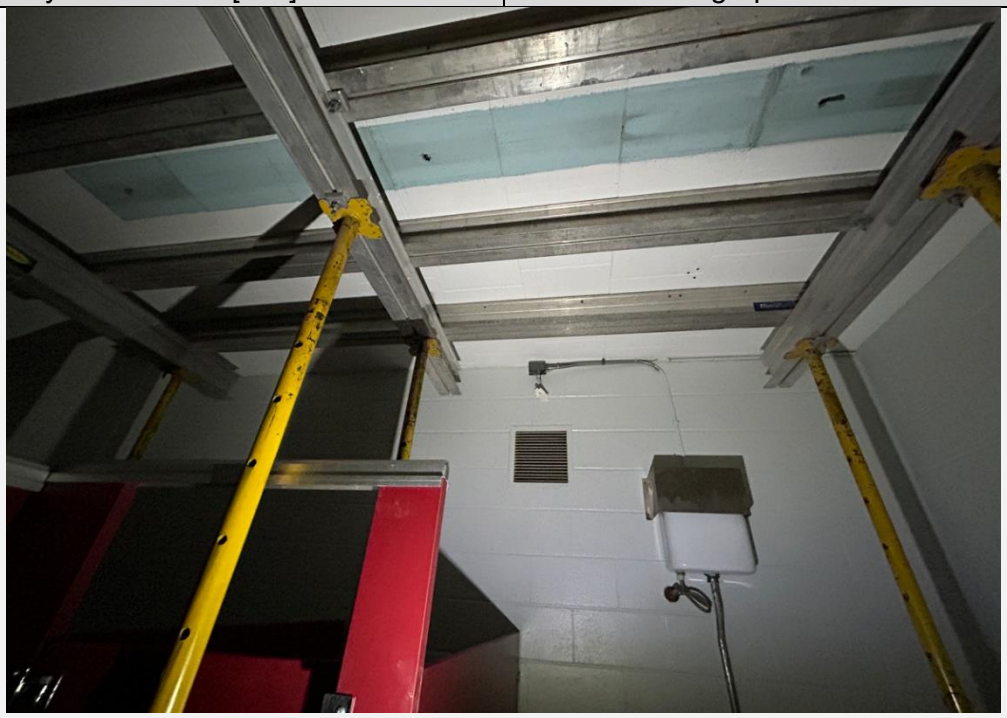


Image 24

Location: Boys Washroom [115]	Element Photographed: North Wall

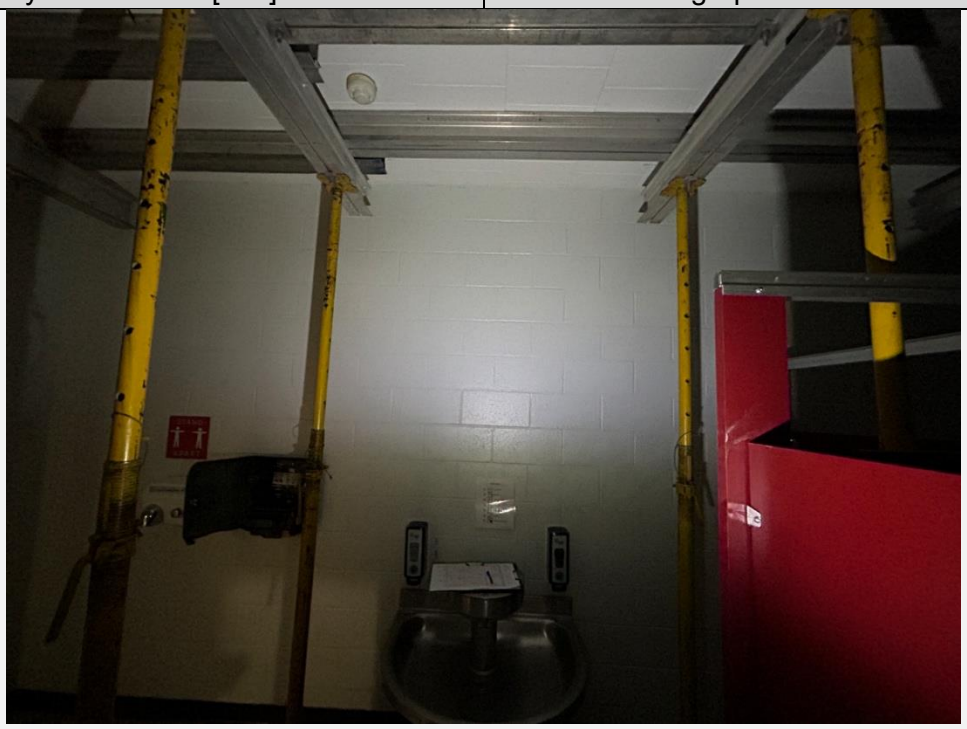


Image 25

Location: Girls Washroom [114]	Element Photographed: East Wall

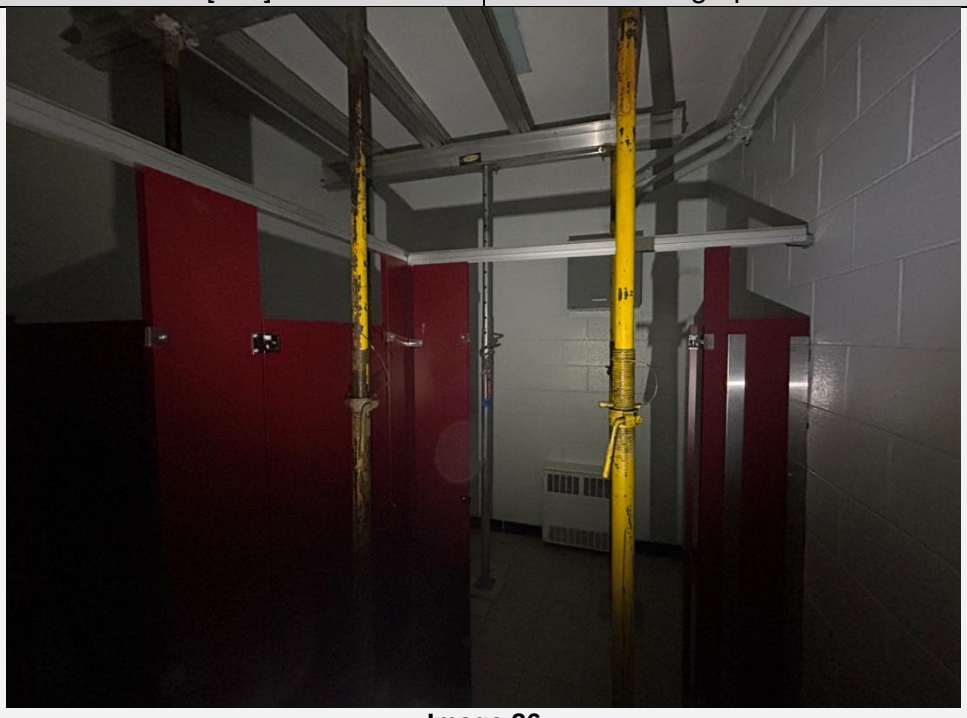


Image 26

Location: Girls Washroom [114]	Element Photographed: North Wall

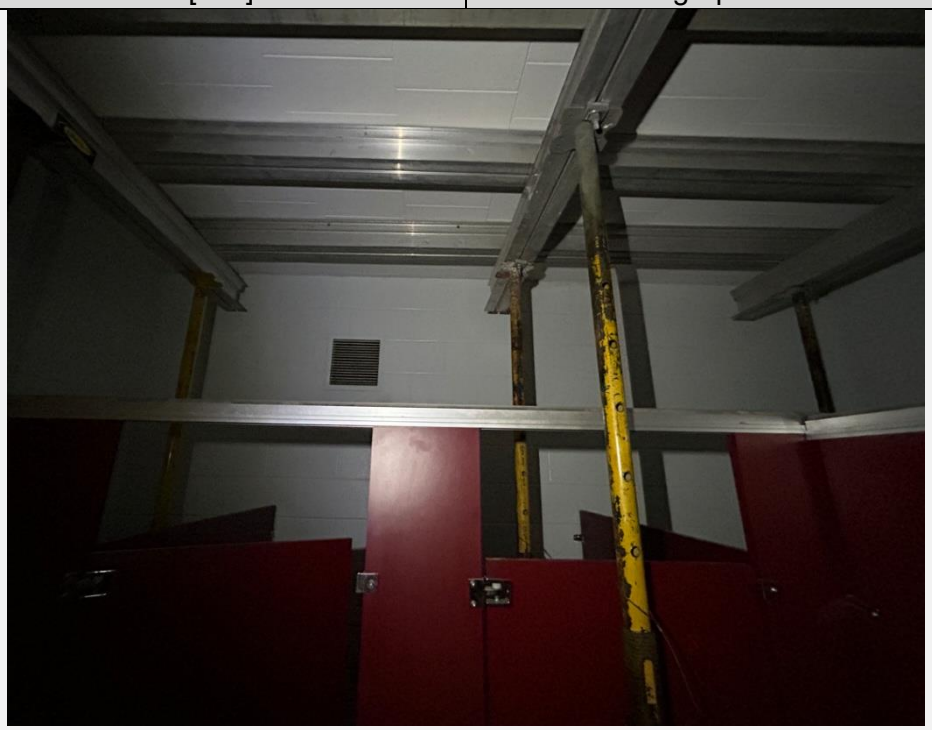


Image 27

Location: Girls Washroom [114]	Element Photographed: South Wall

Image 28

Location: Girls Washroom [114]	Element Photographed: West Wall

Image 29

Location: Girls Washroom [114]	Element Photographed: Entrance

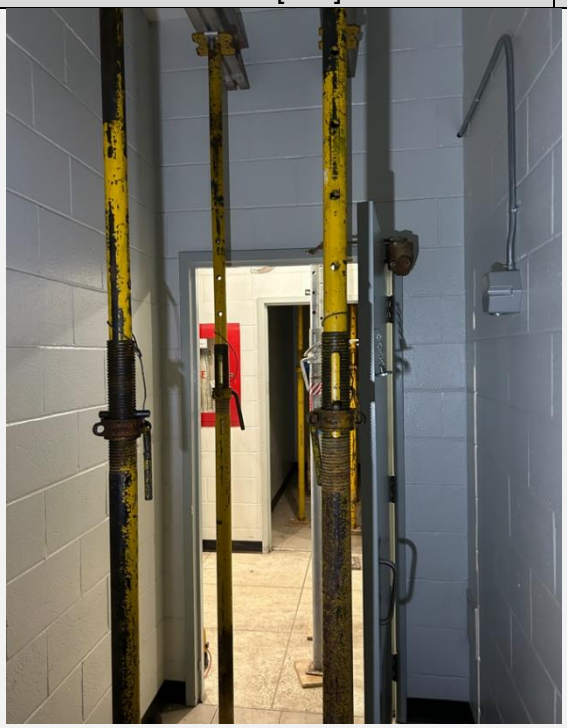


Image 30a

Image 30b

Location: Storage [113]	Element Photographed: South Wall

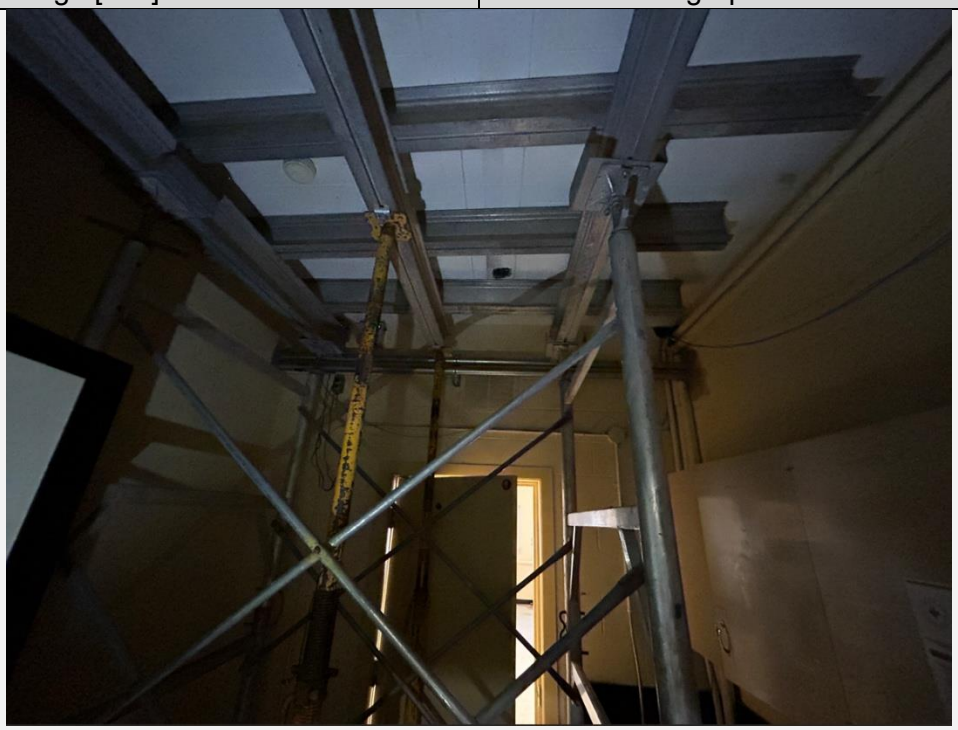


Image 31

Location: Storage [113]	Element Photographed: North Wall

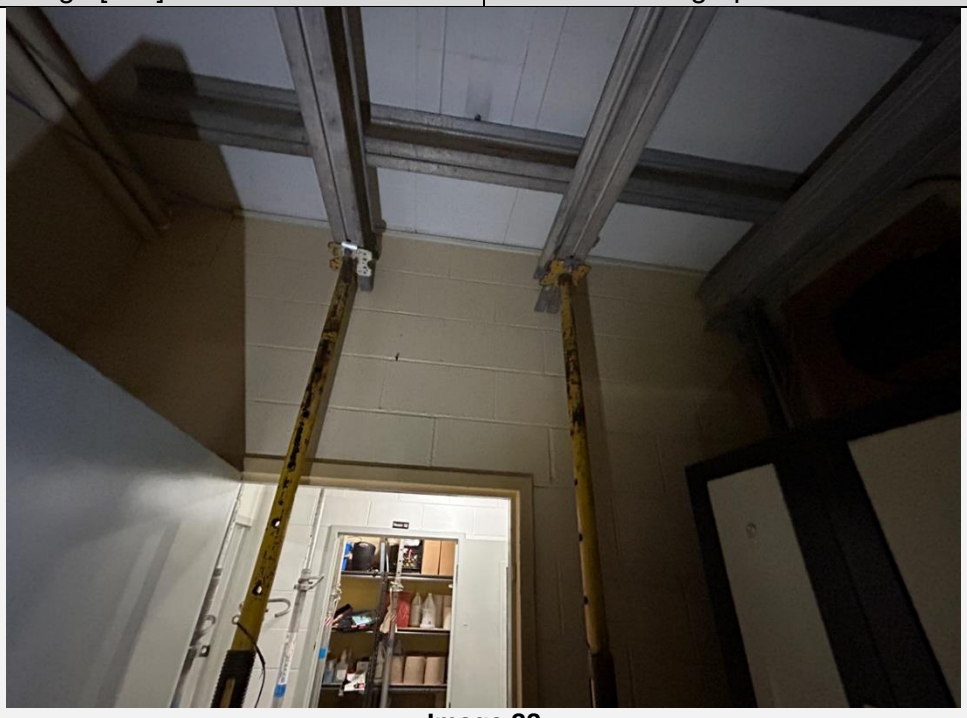


Image 32

Location: Storage [113]	Element Photographed: West Wall

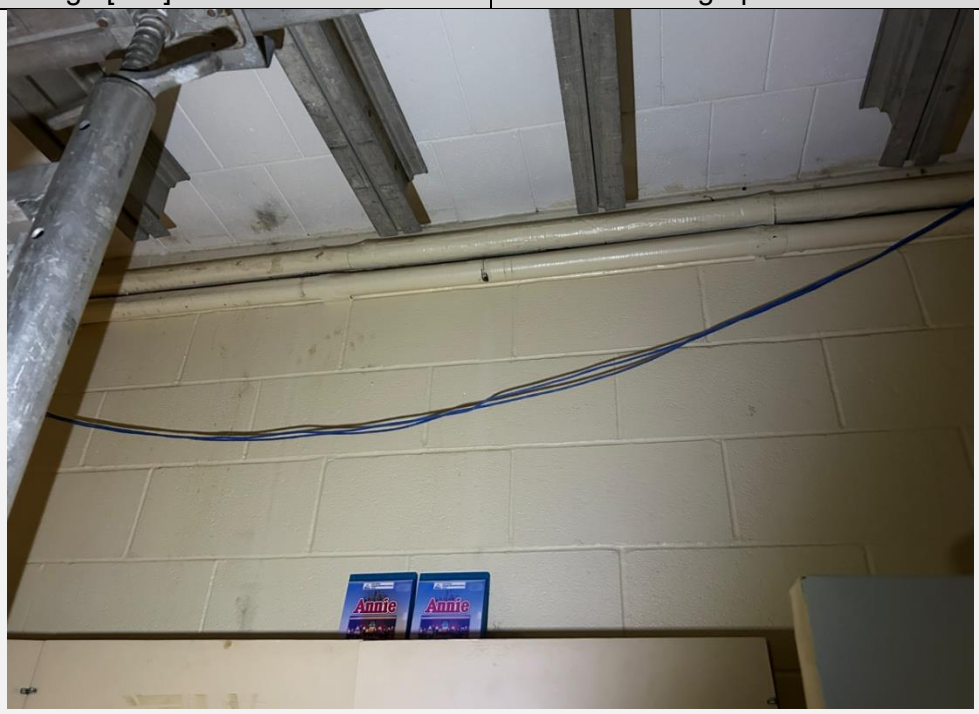


Image 33

Location: Storage [113]	Element Photographed: East Wall Segment

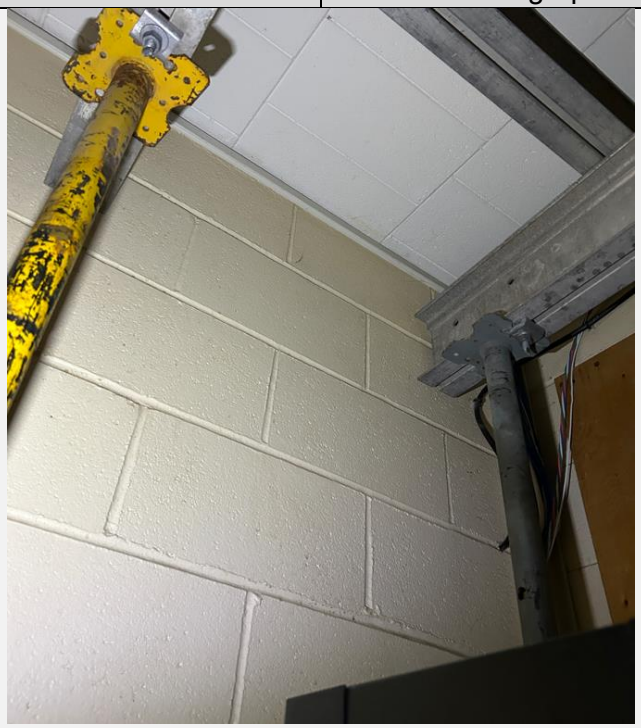


Image 34

Location: Electrical [108]	Element Photographed: South Wall

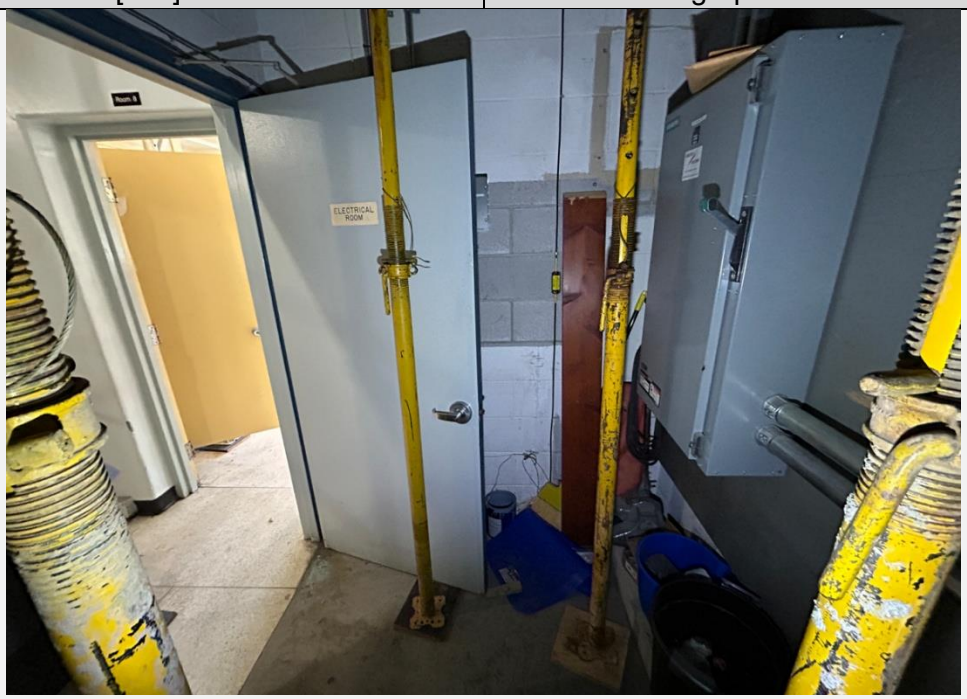


Image 35

Location: Electrical [108]	Element Photographed: North Wall

Image 36

Location: Staffroom [104]	Element Photographed: East Wall

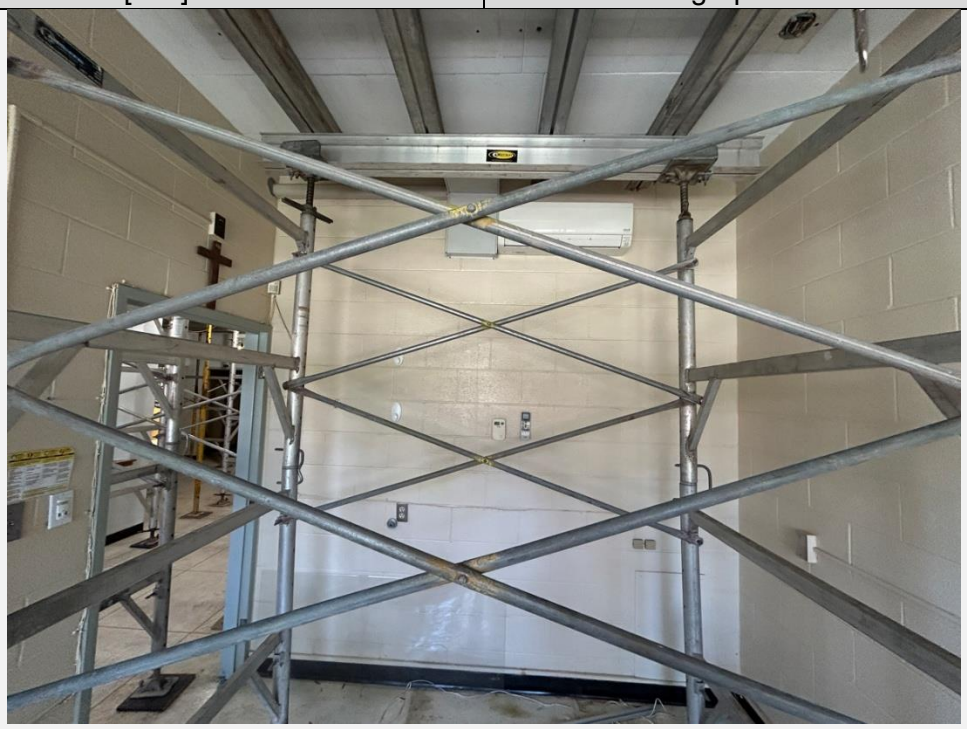


Image 37

Location: Staffroom [104]	Element Photographed: South Wall

Image 38

Location: Staffroom [104]	Element Photographed: West Wall

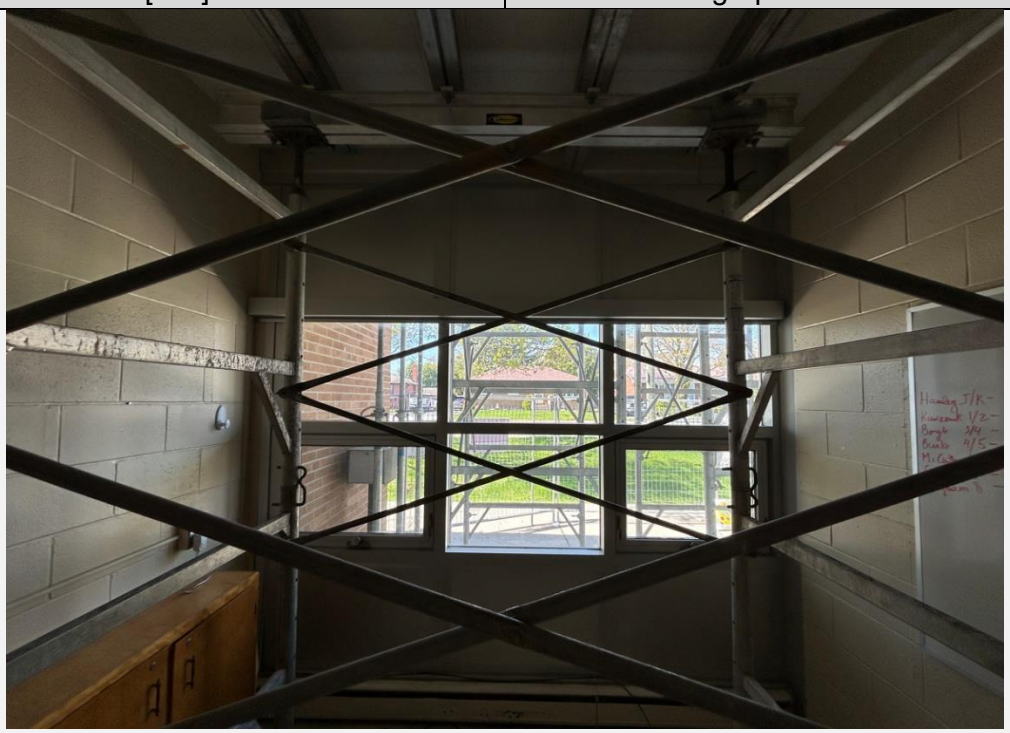


Image 39

Location: Staffroom [104]	Element Photographed: North Wall

Image 40

Location: Principal Office [106]	Element Photographed: East Wall

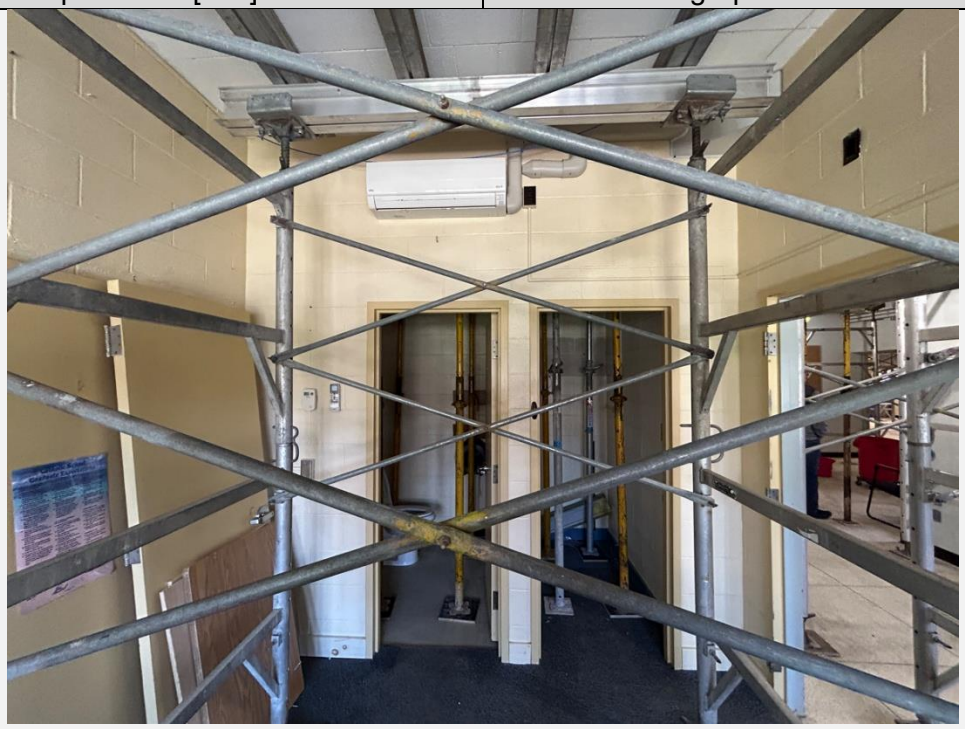


Image 41

Location: Principal Office [106]	Element Photographed: North Wall

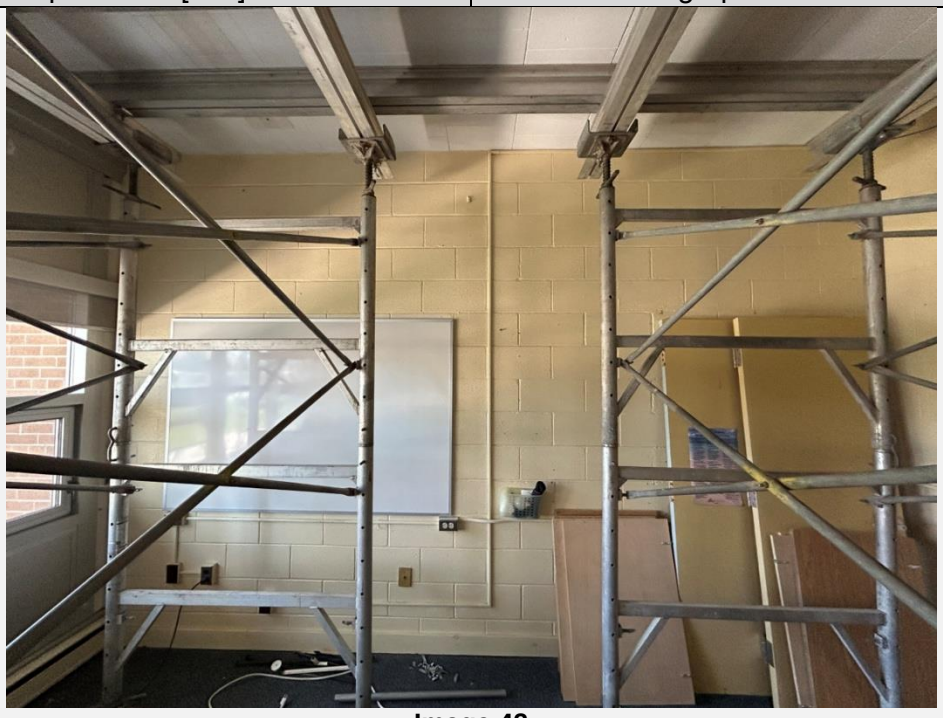


Image 42

Location: Principal Office [106]	Element Photographed: West Wall

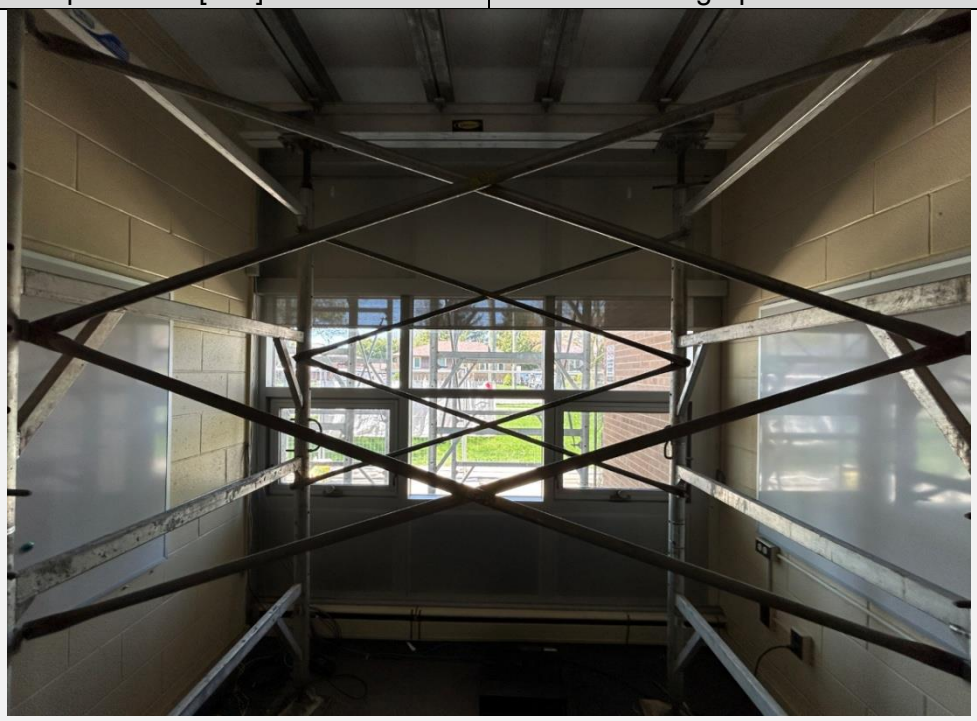


Image 43

Location: Principal Office [106]	Element Photographed: South Wall

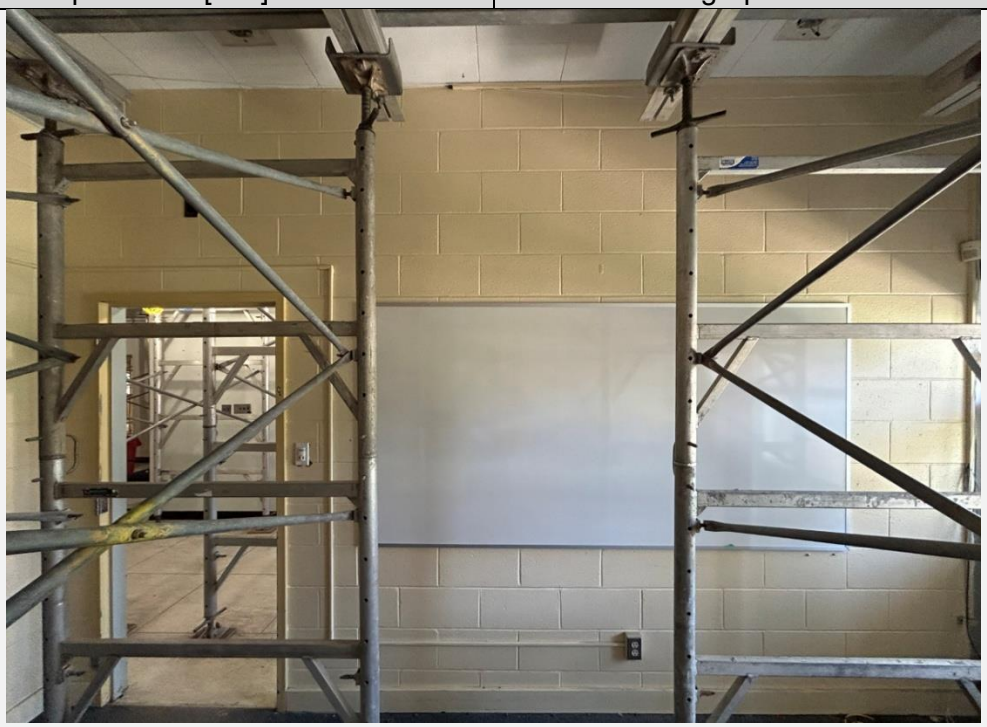


Image 44

Location: Closet [106A]	Element Photographed: West Wall

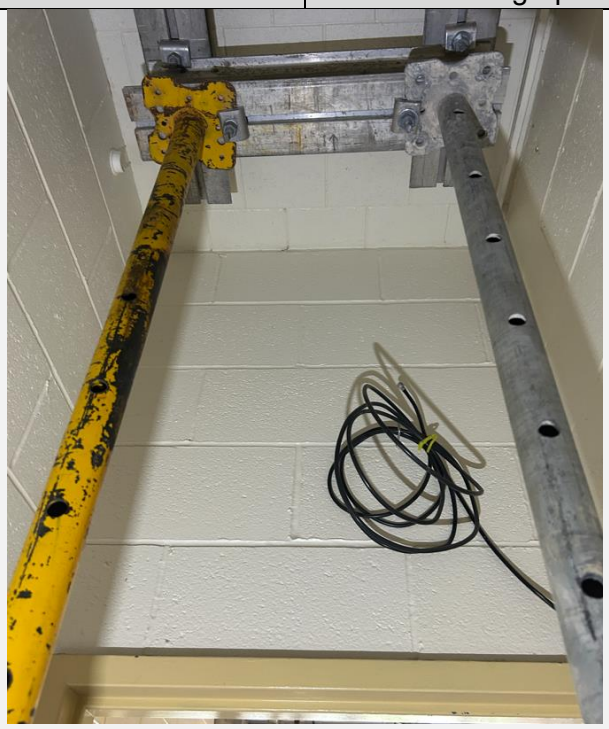


Image 45

Location: Closet [106A]	Element Photographed: East Wall

Image 46

Location: Closet [106A]	Element Photographed: North Wall

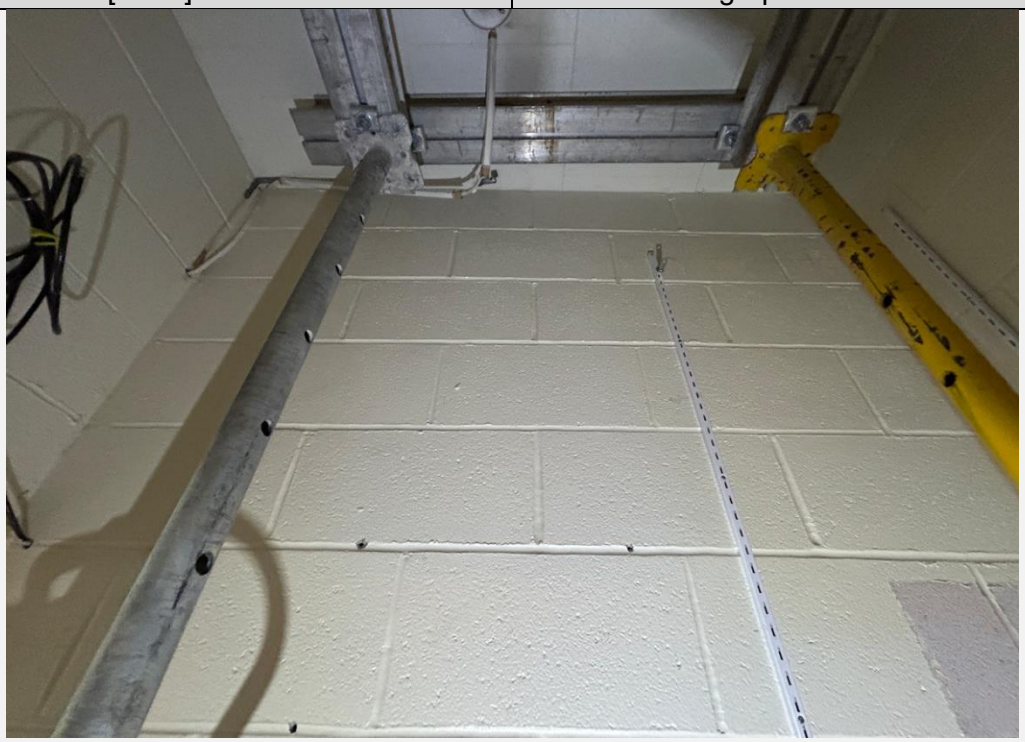


Image 47

Location: Closet [106A]	Element Photographed: South Wall

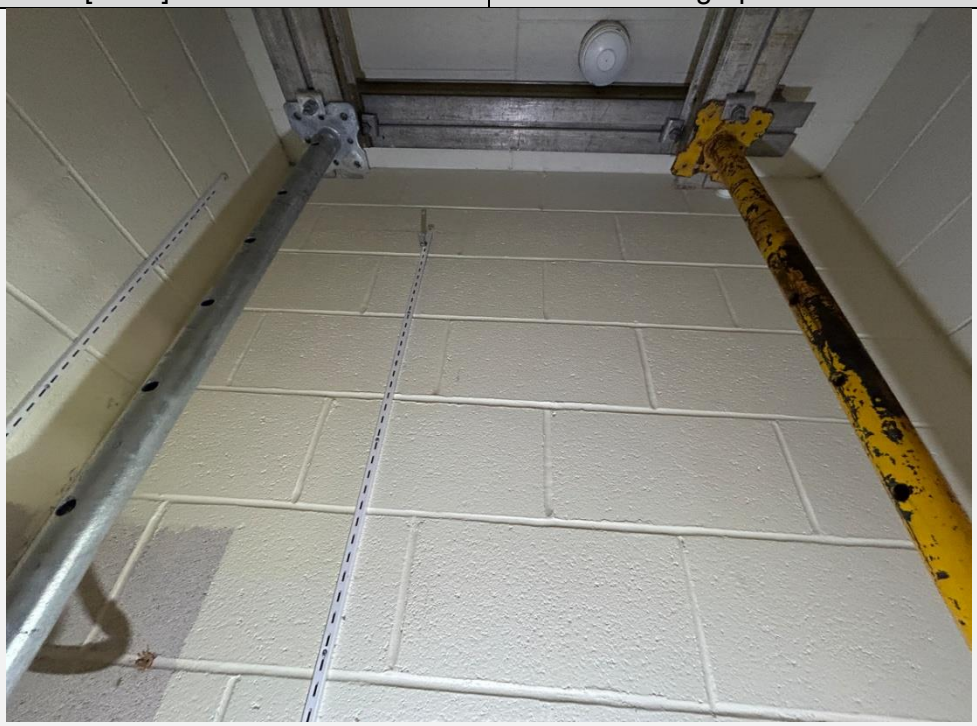


Image 48

Location: Washroom [109]	Element Photographed: West Wall

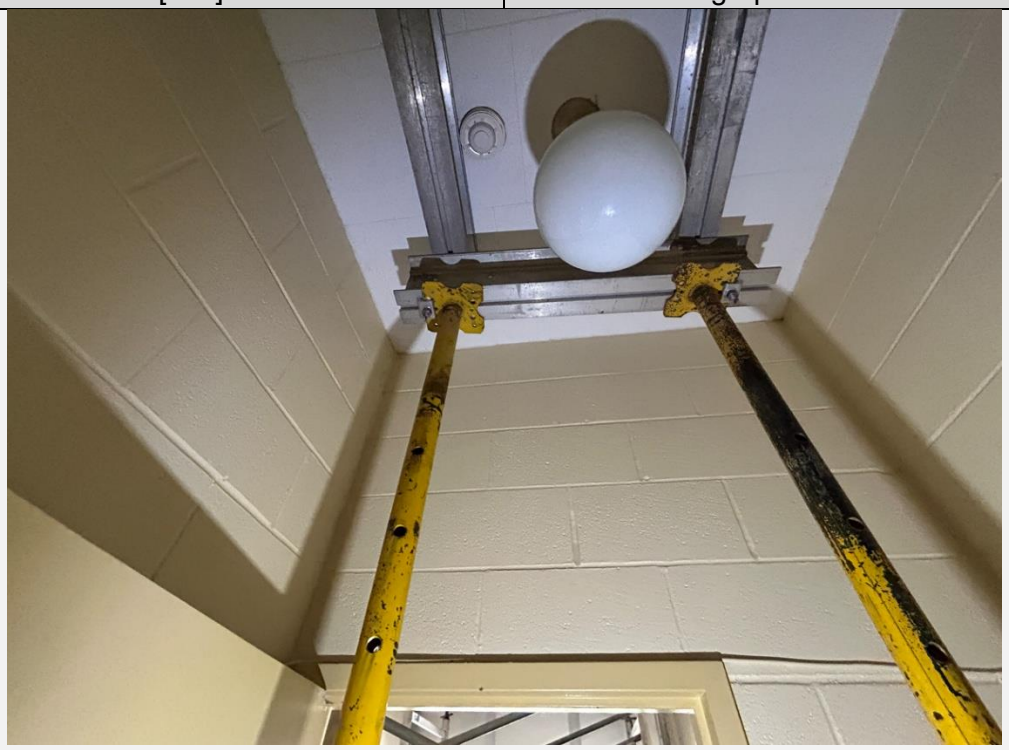


Image 49

Location: Washroom [109]	Element Photographed: East Wall

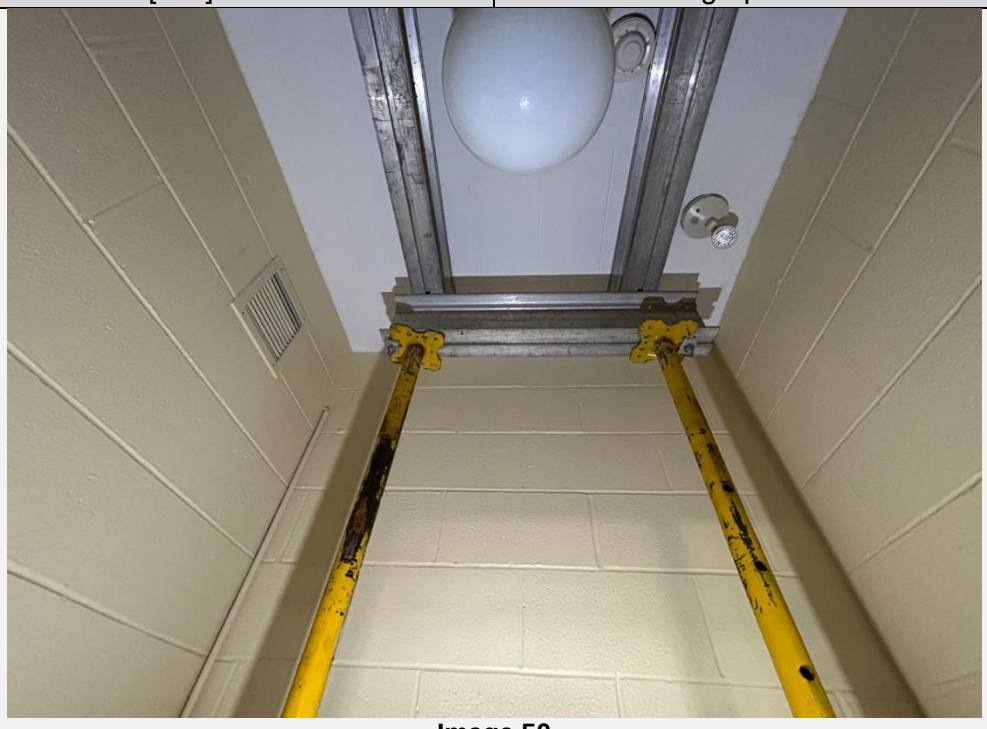


Image 50

Location: Washroom [109]	Element Photographed: North Wall

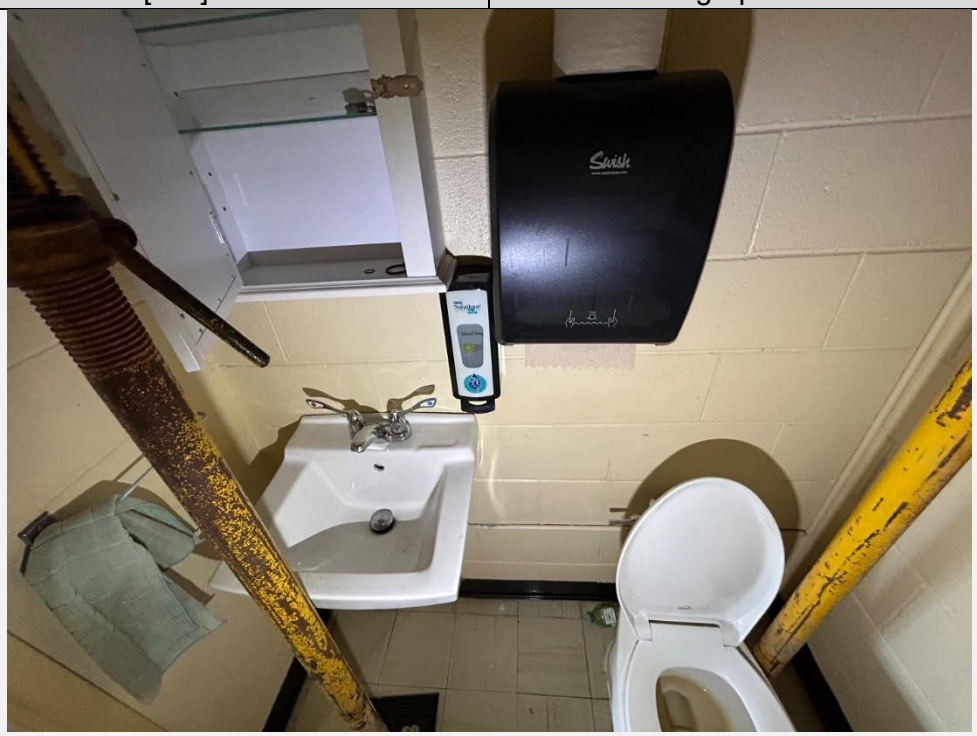


Image 51

Location: Washroom [109]	Element Photographed: South Wall

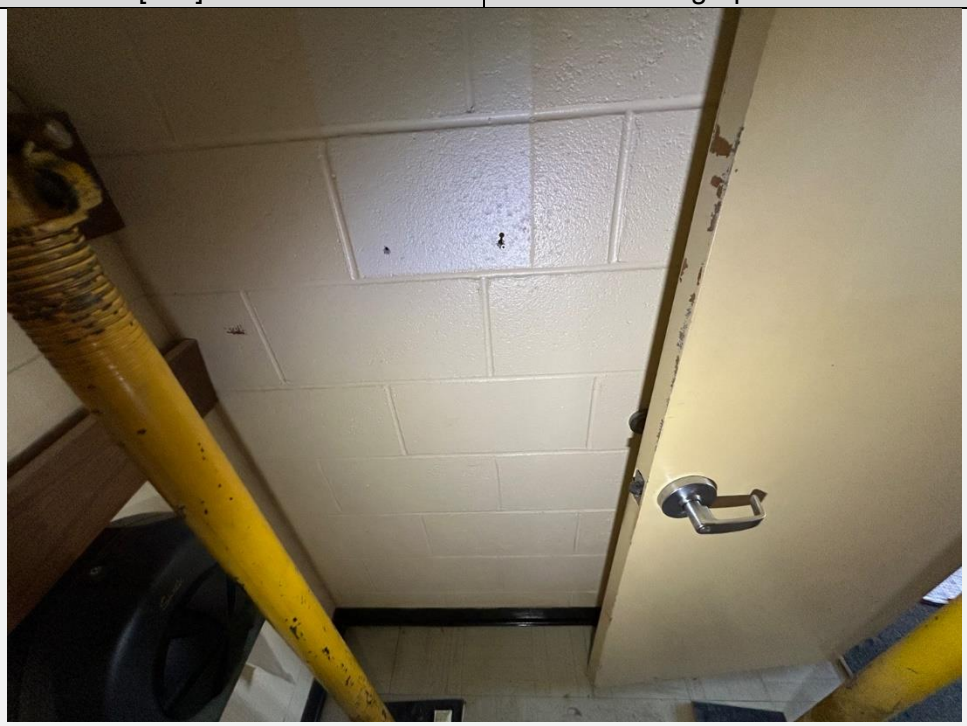


Image 52

Location: Vestibule [105]	Element Photographed: South Wall

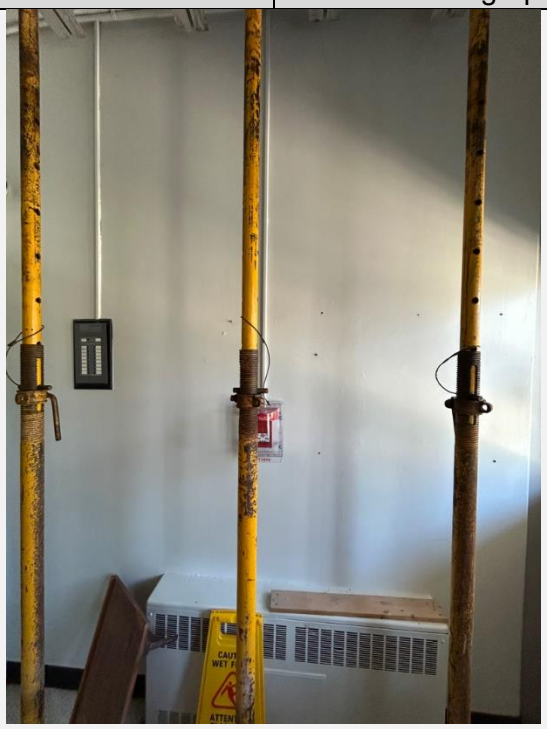


Image 53

Location: Vestibule [105]	Element Photographed: West Wall

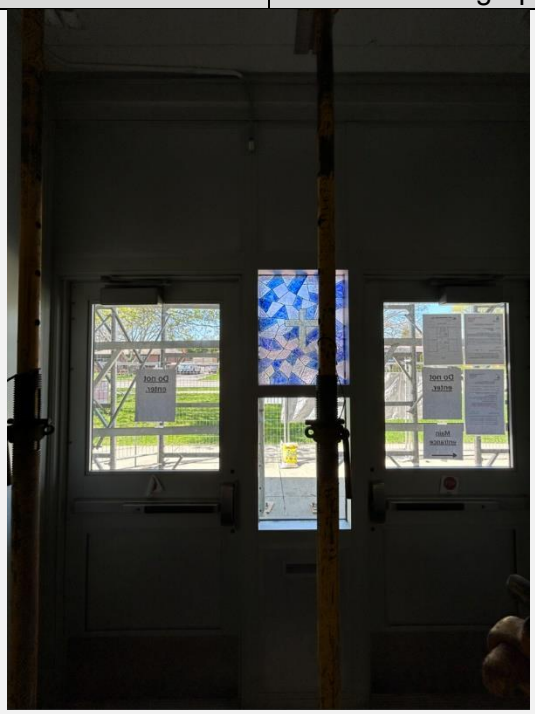


Image 54

Location: Vestibule [105]	Element Photographed: North Wall

Image 55

Location: West Corridor	Element Photographed: North Wall

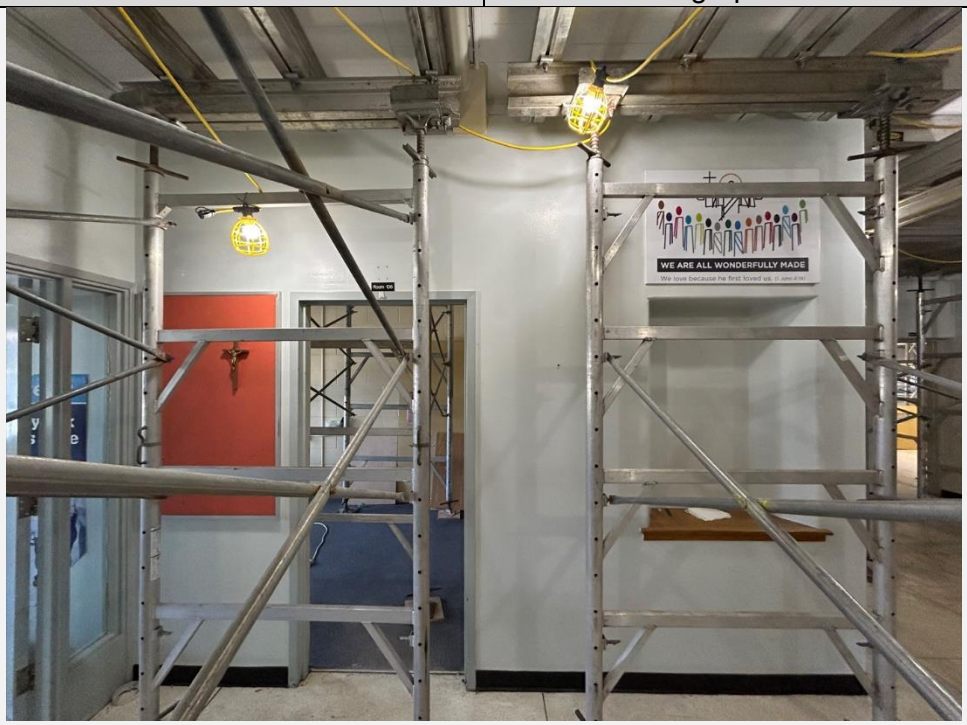


Image 56

Location: West Corridor	Element Photographed: West Wall

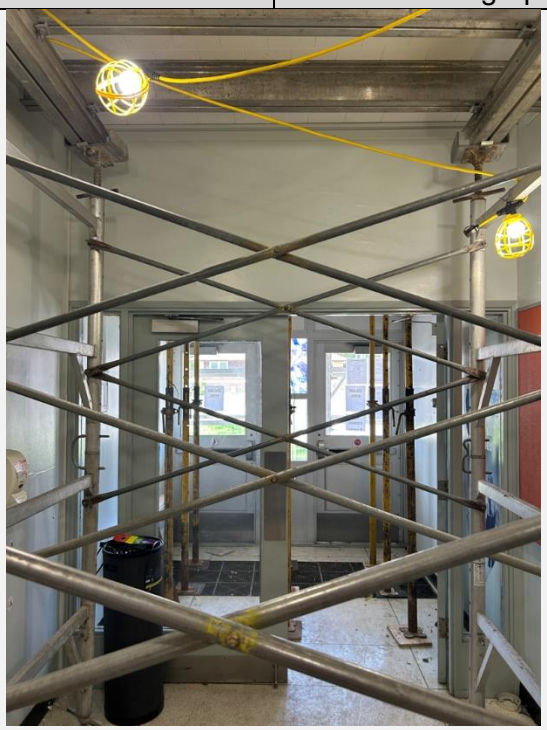


Image 57

Location: West Corridor	Element Photographed: South Wall

Image 58

Location: Crush Space [110]	Element Photographed: North Wall

Image 59

Location: Crush Space [110]	Element Photographed: East Wall (1 of 2)

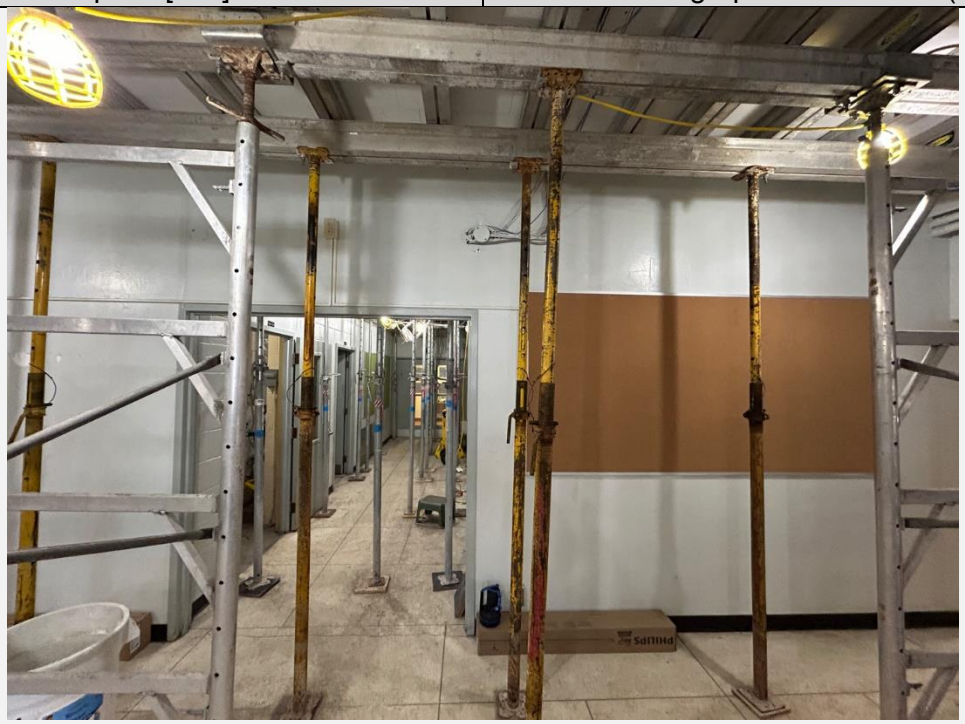


Image 60

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

Location: East Corridor	Element Photographed: North Wall (1 of 3)

Image 65

Location: East Corridor	Element Photographed: North Wall (2 of 3)

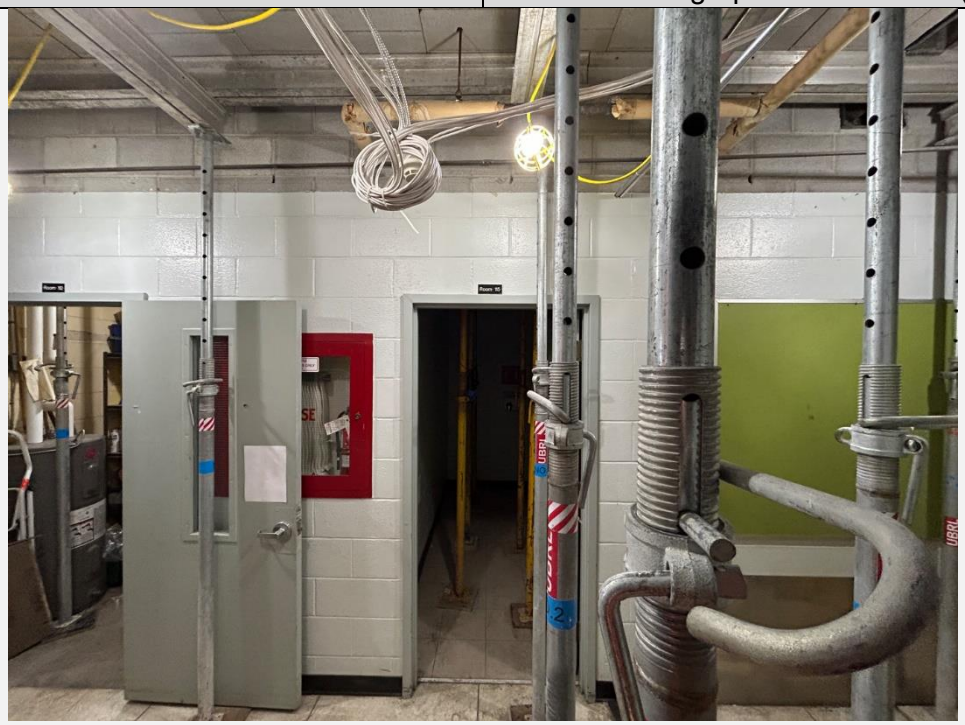


Image 66

Location: East Corridor	Element Photographed: North Wall (3 of 3)

Image 67

Location: East Corridor	Element Photographed: South Wall (1 of 3)

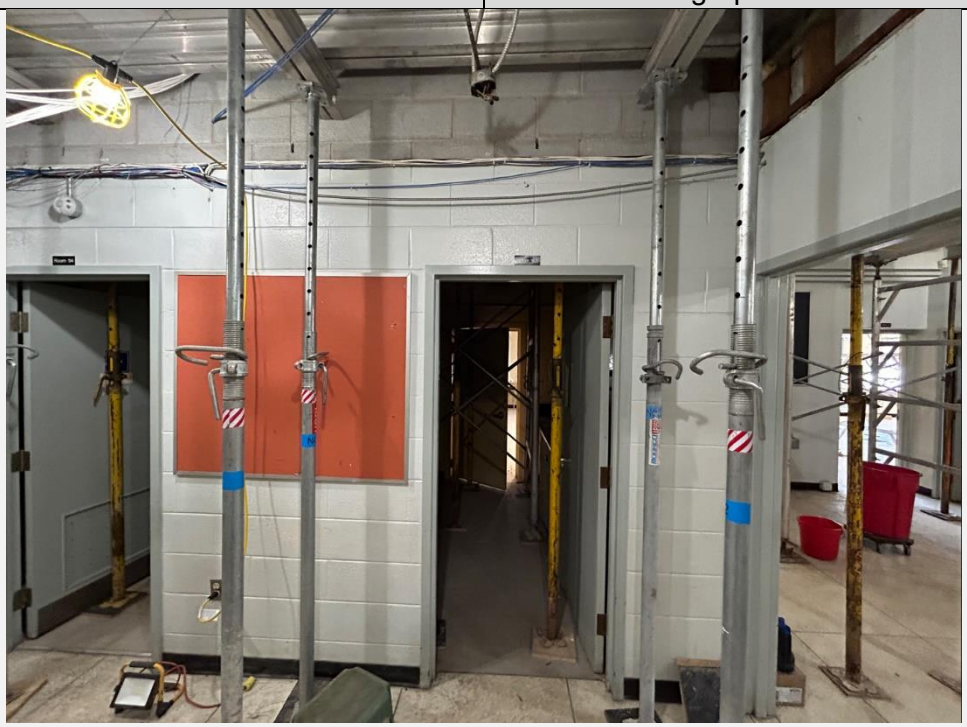


Image 68

Location: East Corridor	Element Photographed: South Wall (2 of 3)

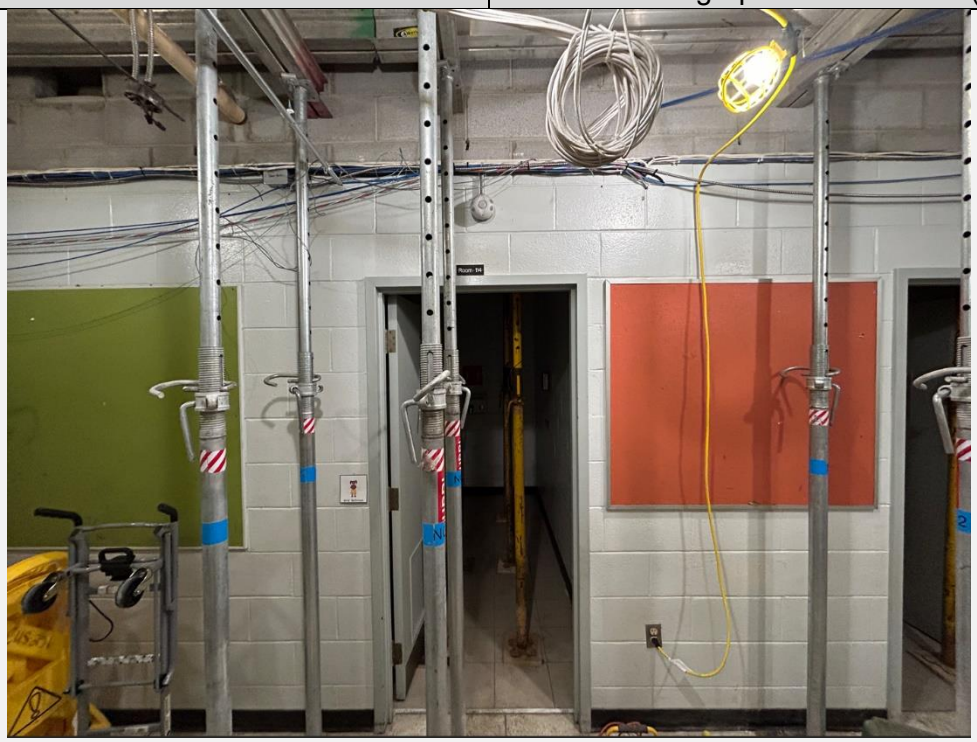


Image 69

Location: East Corridor	Element Photographed: South Wall (3 of 3)

Image 70

Location: East Corridor	Element Photographed: West Wall

Image 71

Location: East Corridor	Element Photographed: East Wall

Image 72

Location: 1967 Corridor to 1962 Structure	Element Photographed: Shared Wall (1 of 3)

Image 73

Location: 1967 Corridor to 1962 Structure	Element Photographed: Shared Wall (2 of 3)

Image 74

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

Image 75

Location: Exterior	Element Photographed: East Elevation (1 of 2)

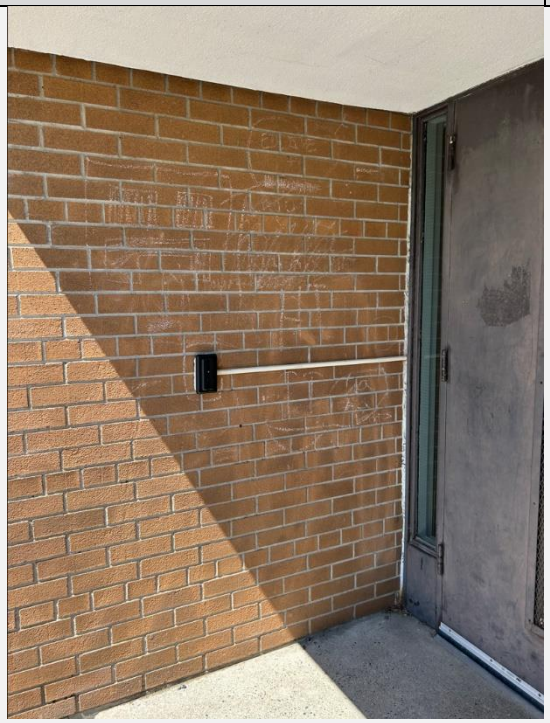


Image 76a

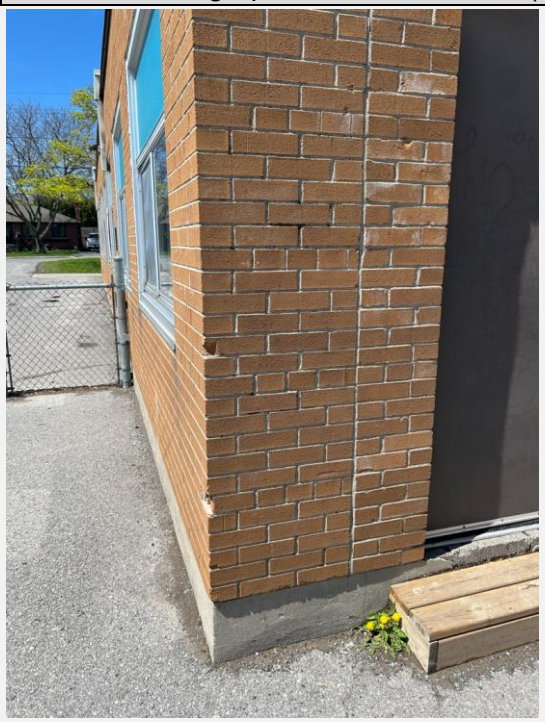


Image 76b

Location: Exterior	Element Photographed: East Elevation (2 of 2)

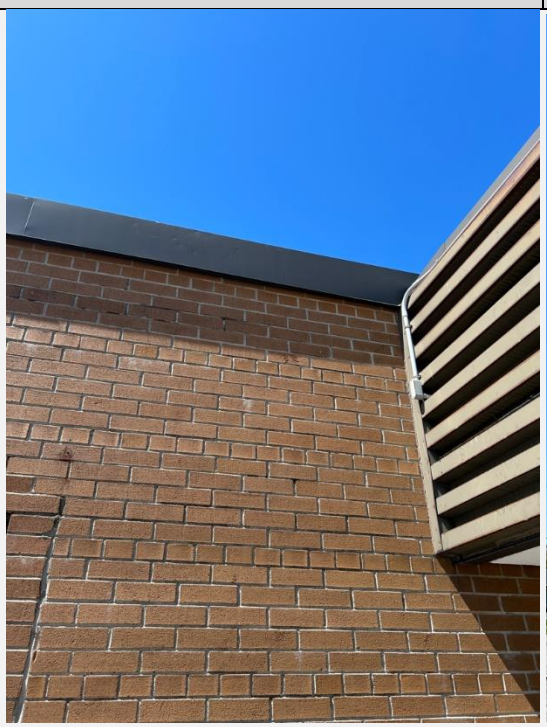


Image 77a

Image 77b

Location: Exterior	Element Photographed: South Elevation (1 of 3)

Image 78a

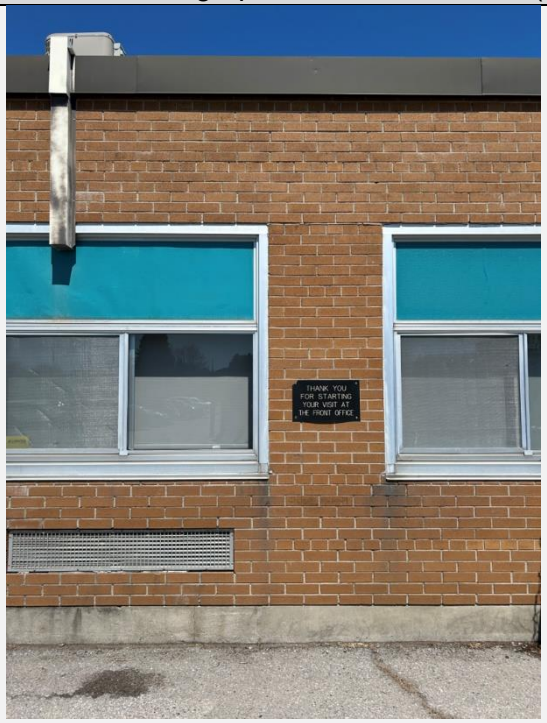


Image 78b

Location: Exterior	Element Photographed: East Elevation (2 of 3)

Image 79a

Image 79b

Location: Exterior	Element Photographed: South Elevation (3 of 3)

Image 80a

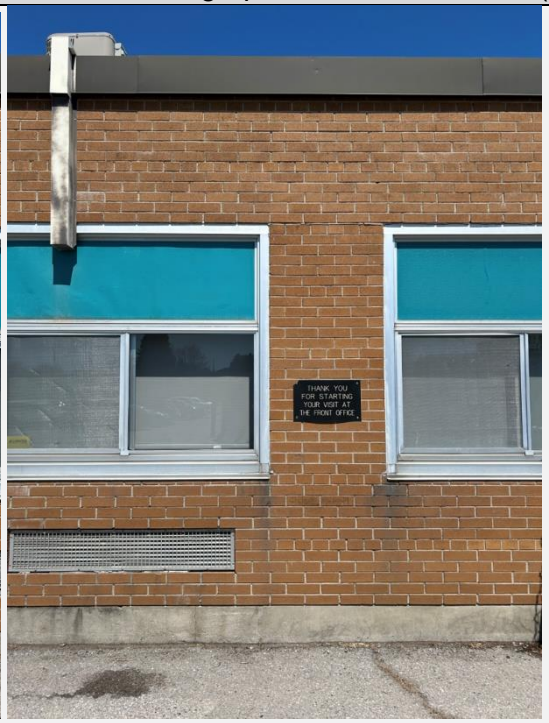


Image 80b

Location: Exterior	Element Photographed: West Elevation (1 of 3)

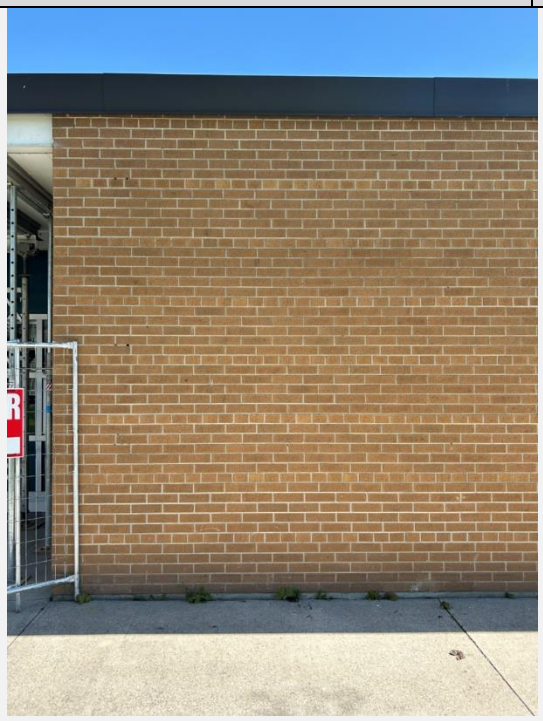


Image 81a

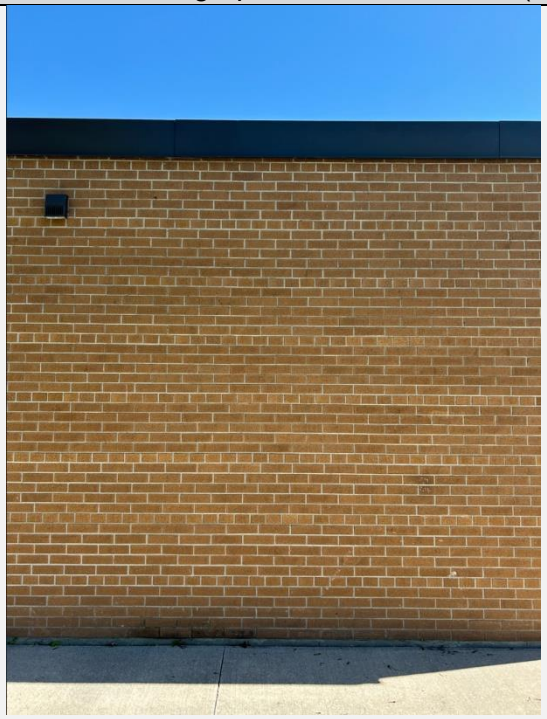


Image 81b

Location: Exterior	Element Photographed: West Elevation (2 of 3)

Image 82a

Image 82b

Location: Exterior	Element Photographed: West Elevation (3 of 3)

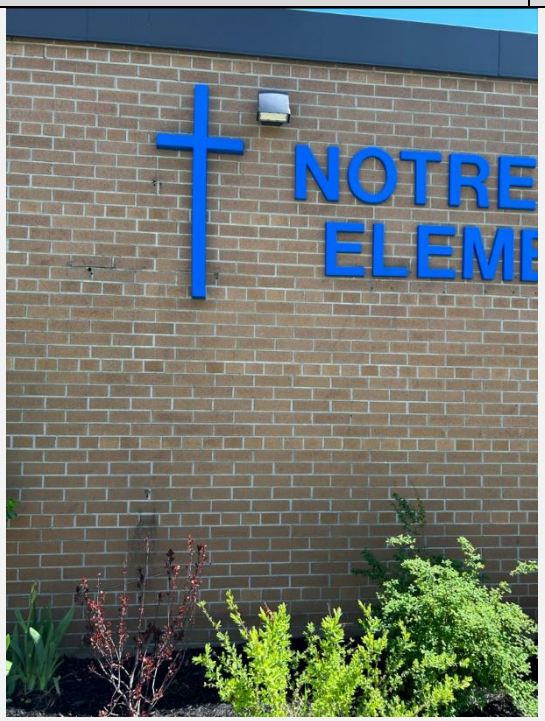


Image 83a

Image 83b

Location: Exterior	Element Photographed: North Elevation (1 of 4)

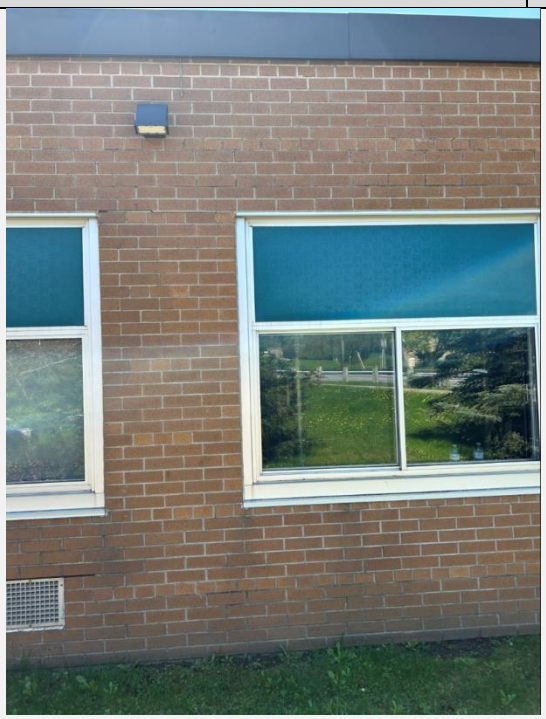


Image 84a

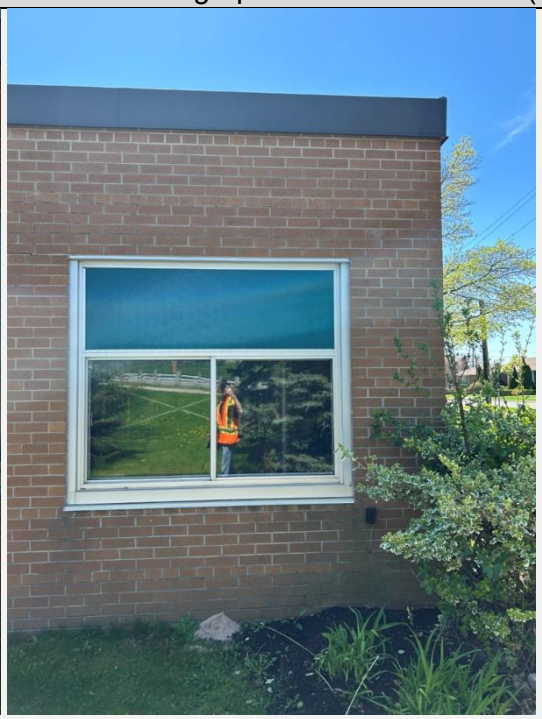


Image 84b

Location: Exterior	Element Photographed: North Elevation (2 of 4)

Image 85a

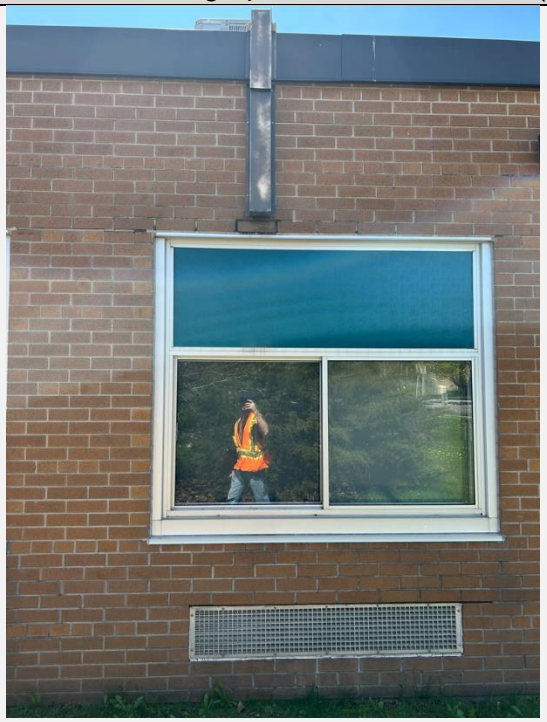


Image 85b

Location: Exterior	Element Photographed: North Elevation (3 of 4)

Image 86a

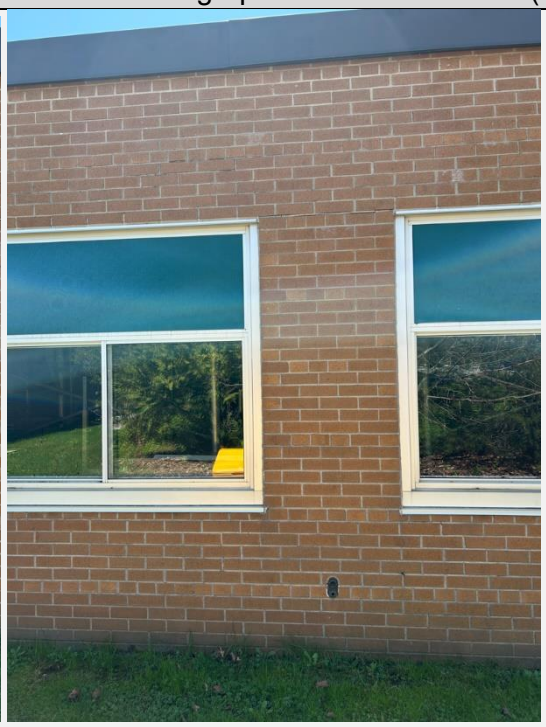


Image 86b

Location: Exterior	Element Photographed: North Elevation (4 of 4)

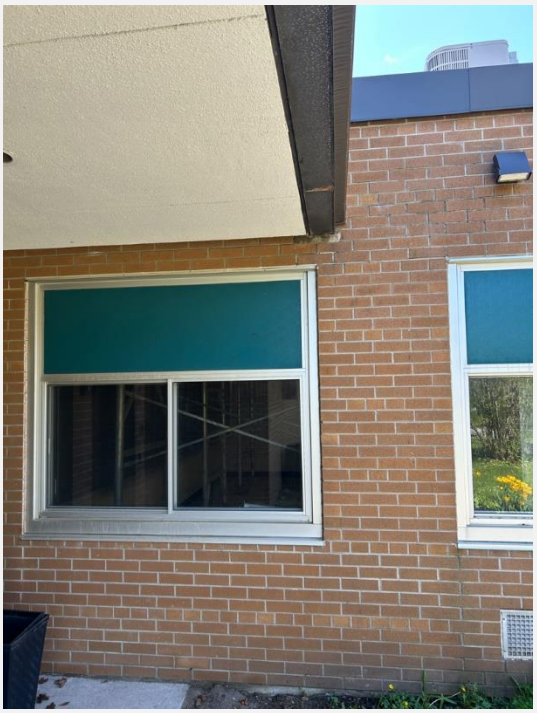


Image 87a

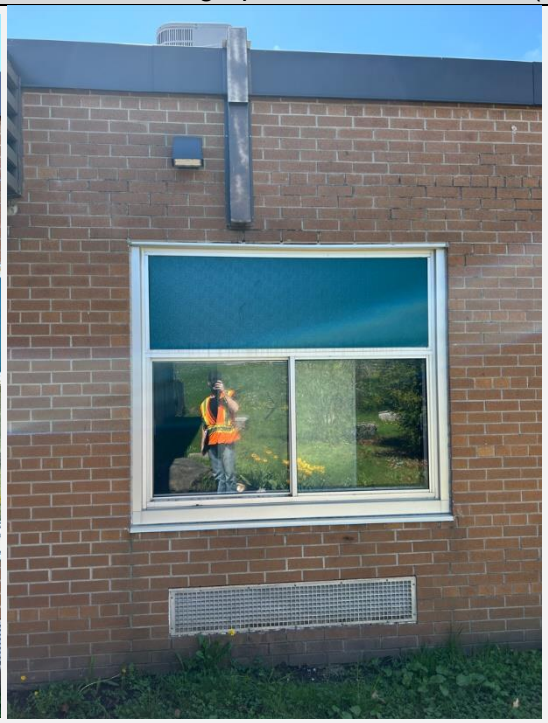


Image 87b

Appendix B: Photographs of Observed Structural Deficiencies

Location: Classroom [103]	Sample Deficiency: CMU Lintel Crack

Image 1

Location: Classroom [103]	Sample Deficiency: CMU Mortar Crack

Image 2

Location: Classroom [103]	Sample Deficiency: Spall

Image 3

Location: Classroom [103]	Sample Deficiency: CMU Lintel Crack

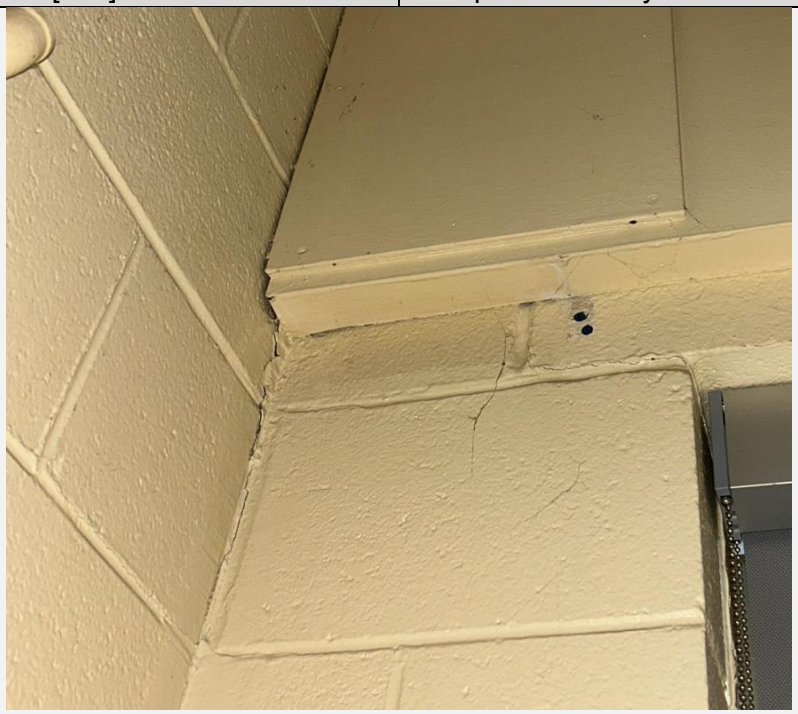


Image 4

Location: Classroom [103]	Sample Deficiency: Loss of Mortar

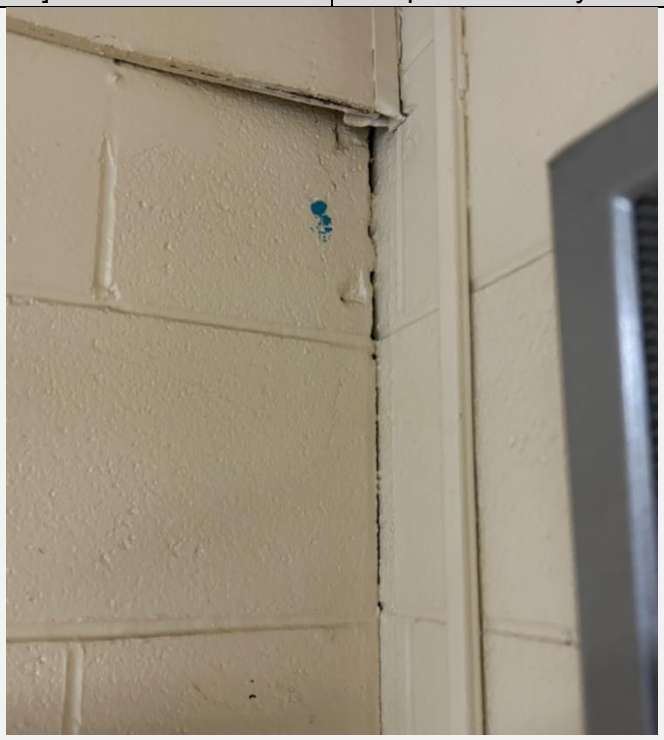


Image 5

Location: Classroom [103]	Sample Deficiency: Hairline CMU Step Crack

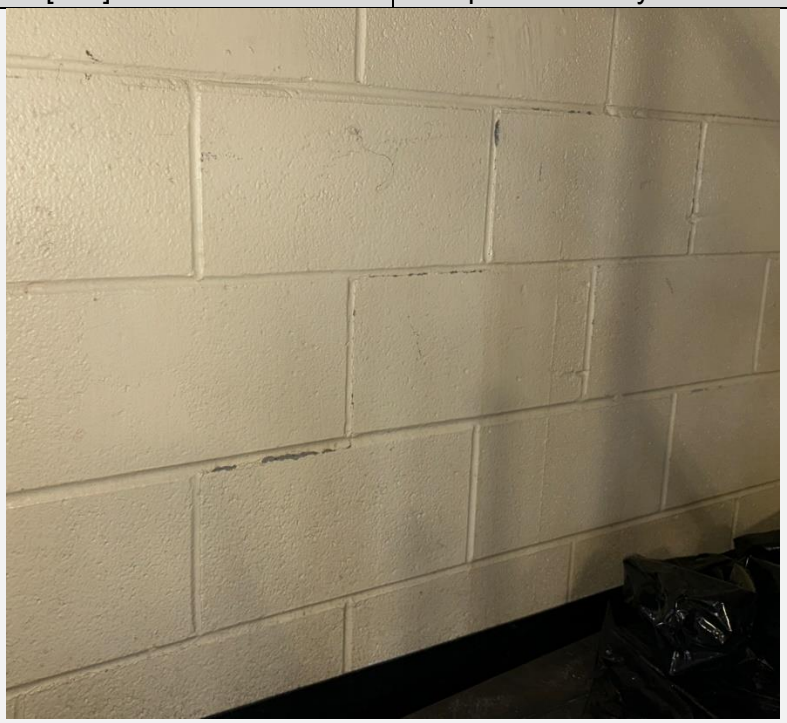


Image 6

Location: Classroom [103]	Sample Deficiency: Vertical Crack

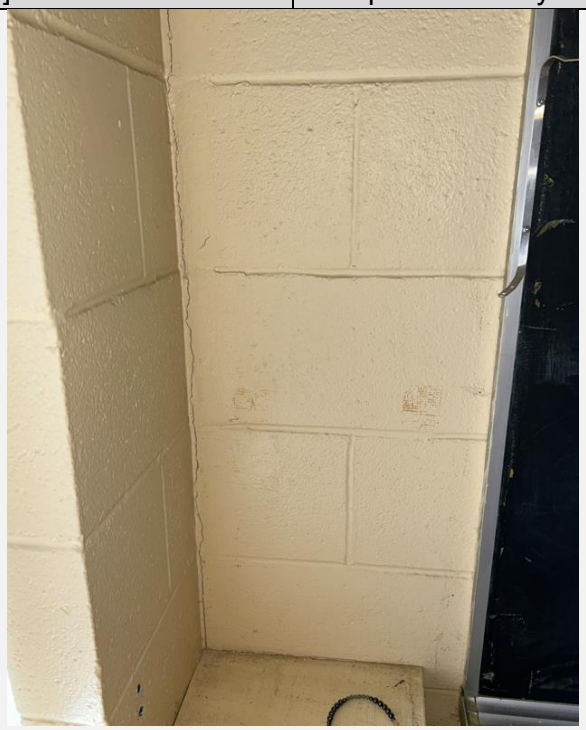


Image 7

Location: Classroom [103]	Sample Deficiency: Ply Board Cracks (Non Structural)

Image 8

Location: Classroom [103]	Sample Deficiency: CMU Vertical Crack

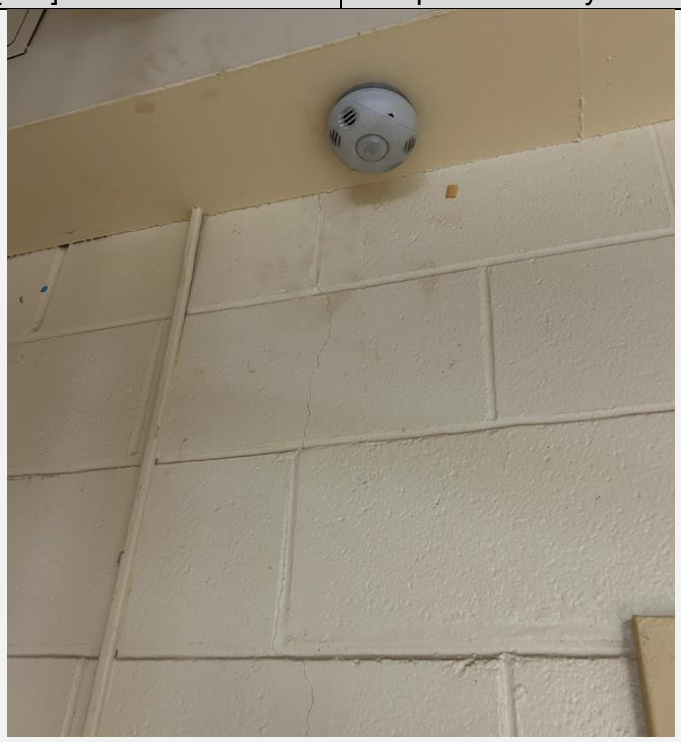


Image 9

Location: Classroom [103]	Sample Deficiency: Loss of Mortar

Image 10

Location: Classroom [107]	Sample Deficiency: CMU Crack

Image 11a

Image 11a

Location: Classroom [107]	Sample Deficiency: CMU Step Crack

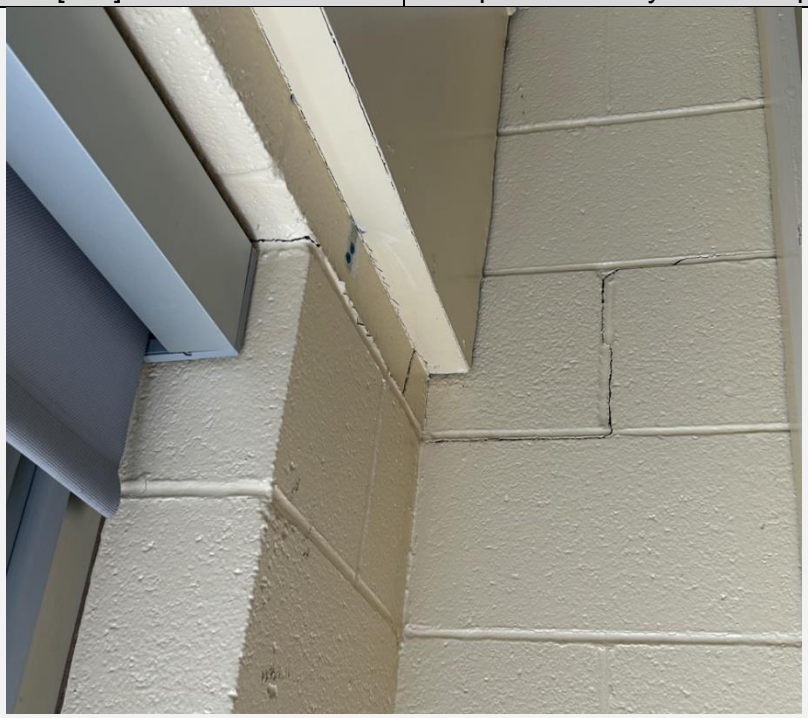


Image 12

Location: Classroom [107]	Sample Deficiency: Hole in CMU

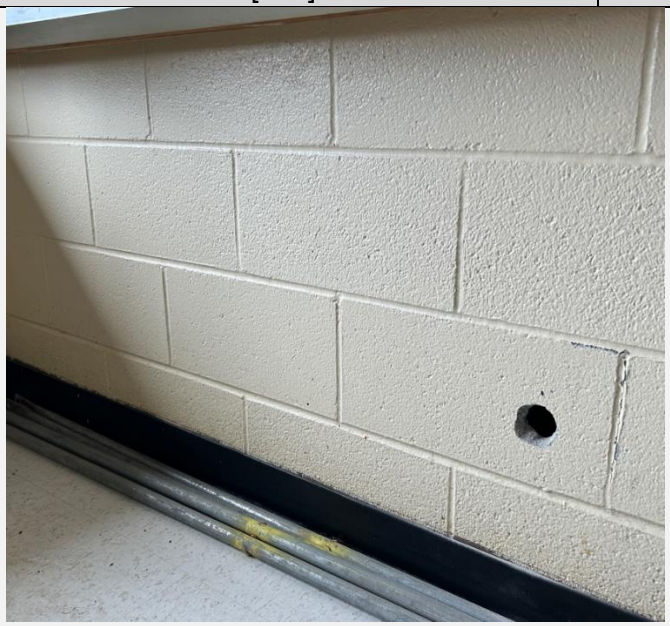


Image 13a

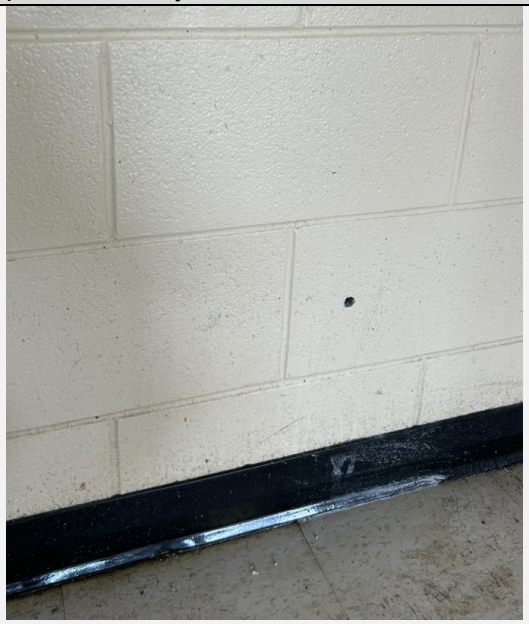


Image 13b

Location: Classroom [107]	Sample Deficiency: Joint Crack

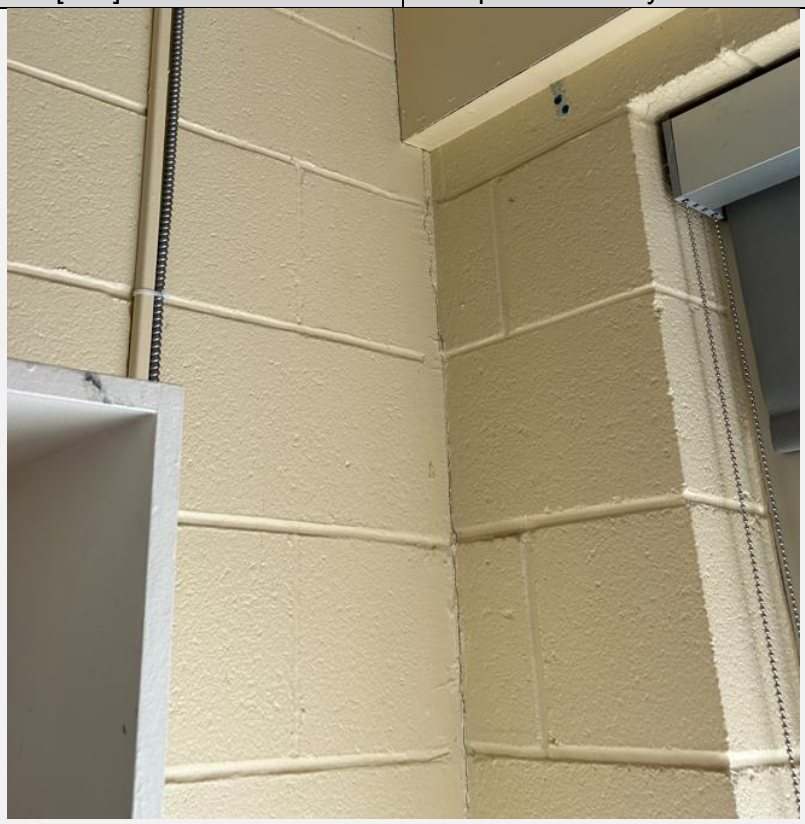


Image 14

Location: Classroom [101]	Sample Deficiency: Hole in CMU

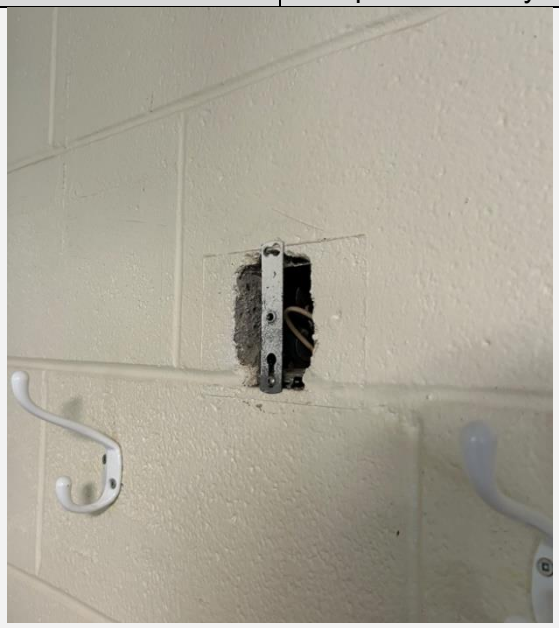


Image 15

Location: Classroom [101]	Sample Deficiency: Joint Crack

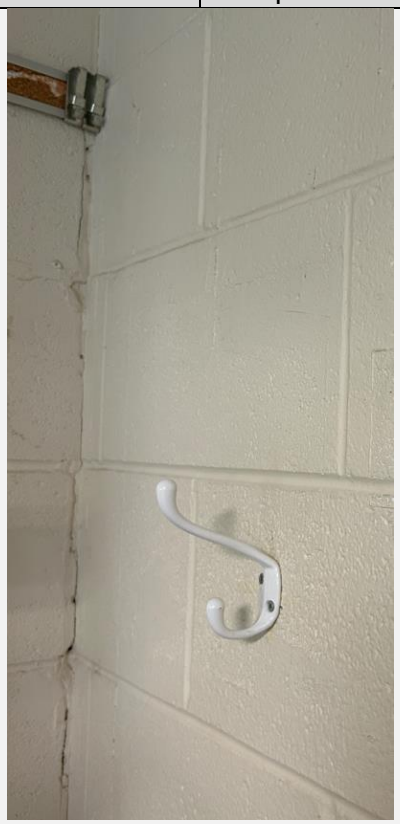


Image 16

Location: Classroom [101]	Sample Deficiency: Pilot Holes in CMU

Image 17

Location: Classroom [101]	Sample Deficiency: Damaged CMU

Image 18

Location: Classroom [101]	Sample Deficiency: CMU Crack

Image 19a

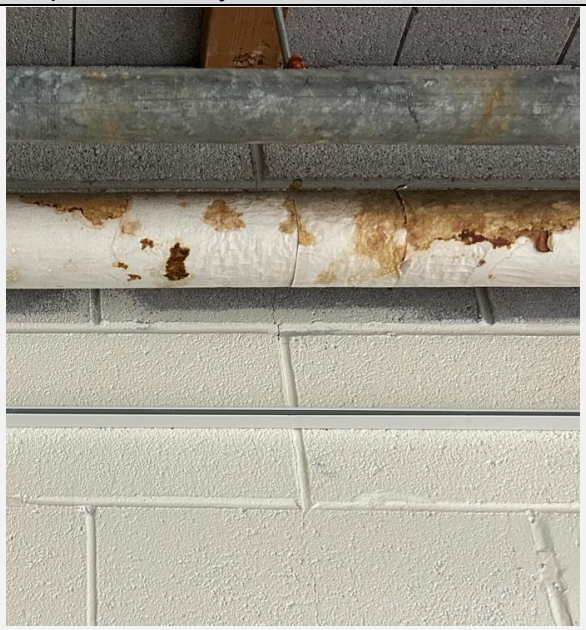


Image 19b

Location: Classroom [101]	Sample Deficiency: CMU Crack

Image 20a

Image 20b

Location: Classroom [101]	Sample Deficiency: CMU Crack

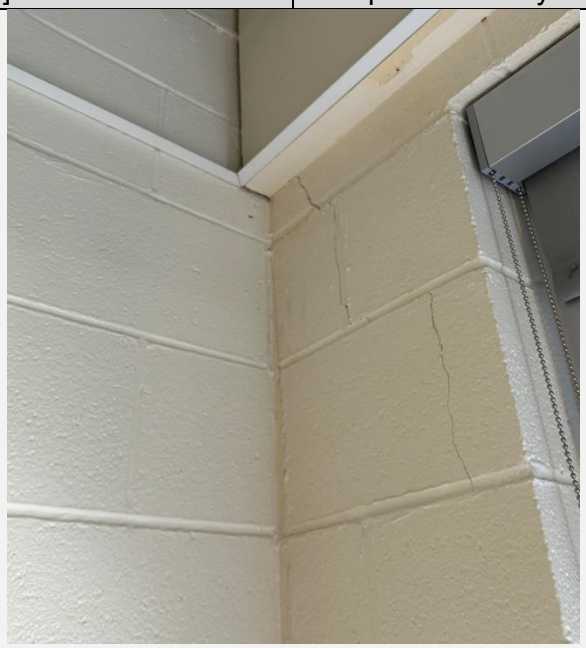


Image 21

Location: Classroom [102]	Sample Deficiency: CMU Crack / Joint Crack

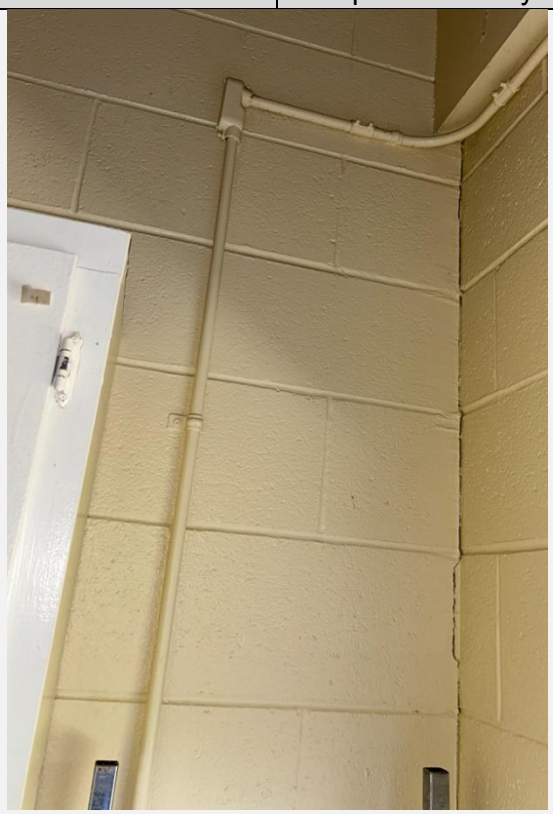


Image 22

Location: Classroom [102]	Sample Deficiency: Chipped CMU

Image 23

Location: Classroom [102]	Sample Deficiency: Hairline CMU Step Crack

Image 24

Location: Classroom [102]	Sample Deficiency: Grouped Screws in CMU

Image 25

Location: Classroom [102]	Sample Deficiency: CMU Crack

Image 26

Location: Staff Washroom [111]	Sample Deficiency: CMU Holes and Cracks

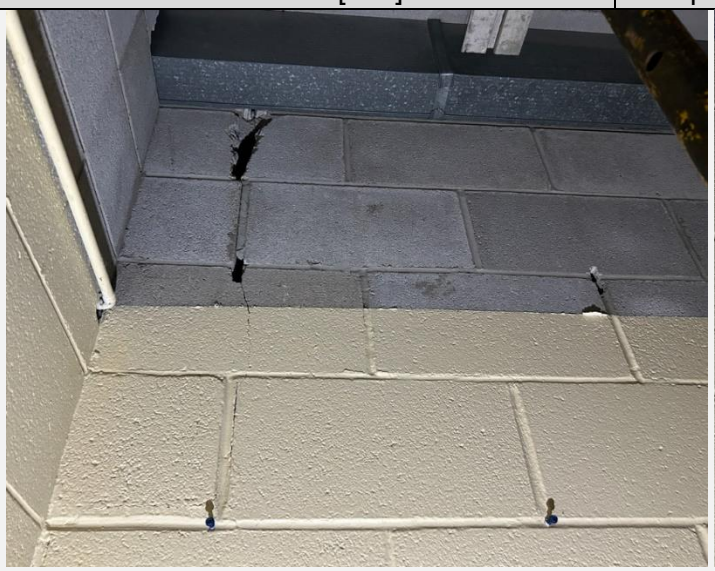


Image 27a

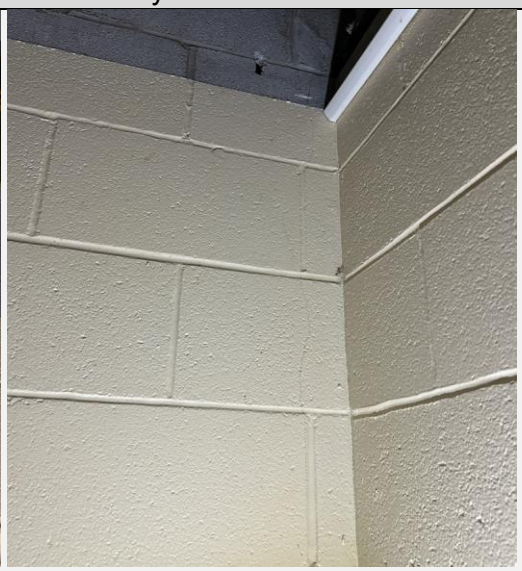


Image 27b

Location: Staff Washroom [111]	Sample Deficiency: CMU Spall

Image 28

Location: Staff Washroom [111]	Sample Deficiency: Partial CMU Blocks

Image 29

Location: Electrical [108]	Sample Deficiency: Holes in CMU

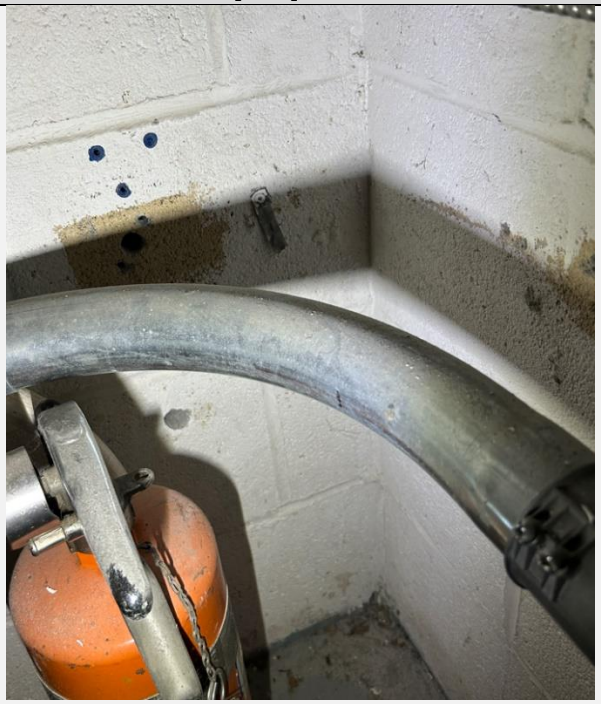


Image 30a

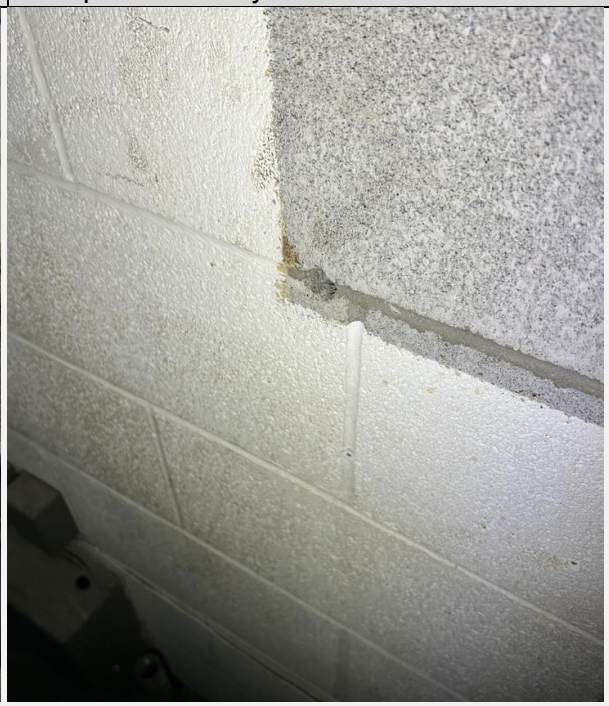


Image 30b

Location: Janitor [112]	Sample Deficiency: Partial CMU Blocks

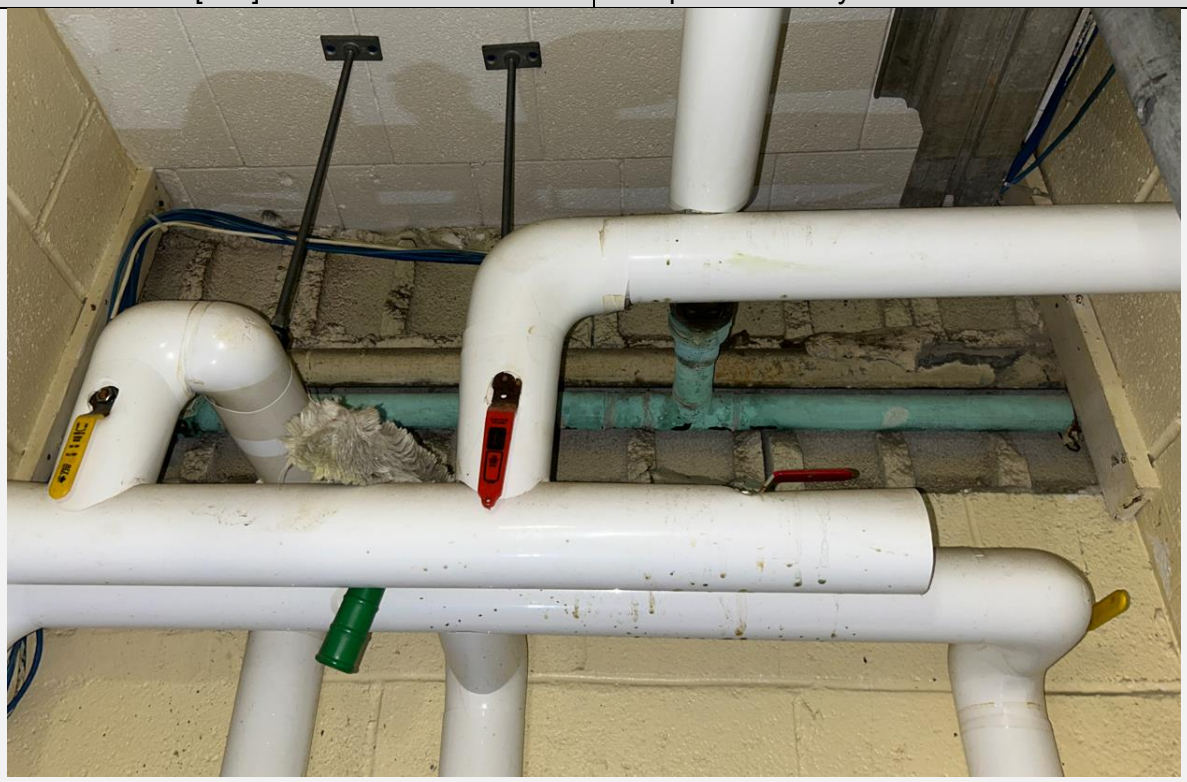


Image 31

Location: Electrical [108]	Sample Deficiency: Spalls at Utilities

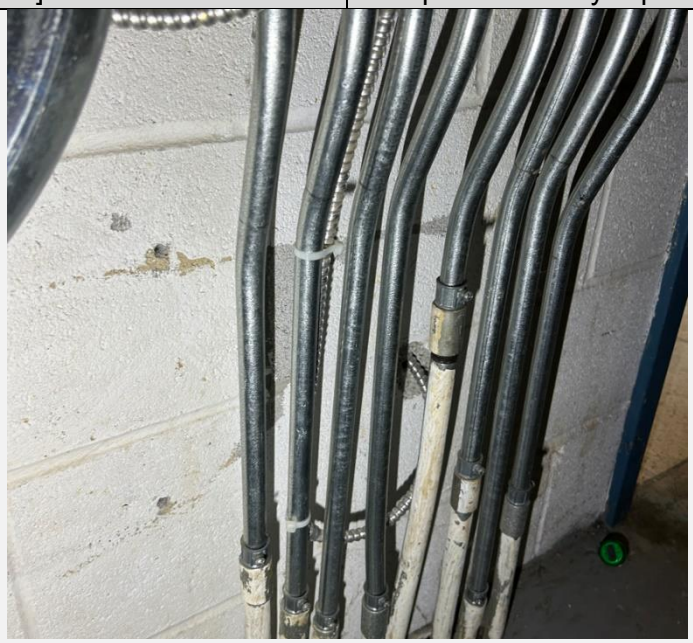


Image 32

Location: Principal Office [106]	Sample Deficiency: CMU Opening at Plate

Image 33

Location: Closet [106A], Washroom [109]	Sample Deficiency: CMU Spall

Image 34a

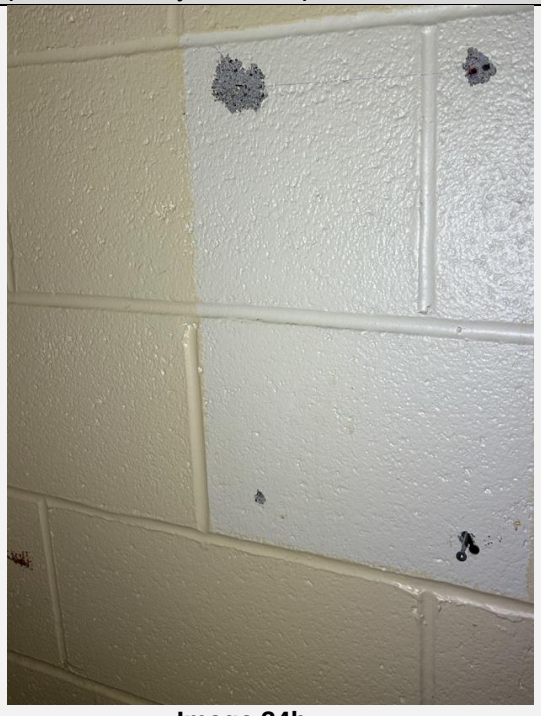


Image 34b

Location: Vestibule [105]	Sample Deficiency: Pile Holes in Plaster

Image 35

Location: Crush Space [110]	Sample Deficiency: Pilot Holes in Plaster

Image 36

Location: East Corridor	Sample Deficiency: Sealant Discolouration

Image 37

Location: East Corridor	Sample Deficiency: Mortar Loss

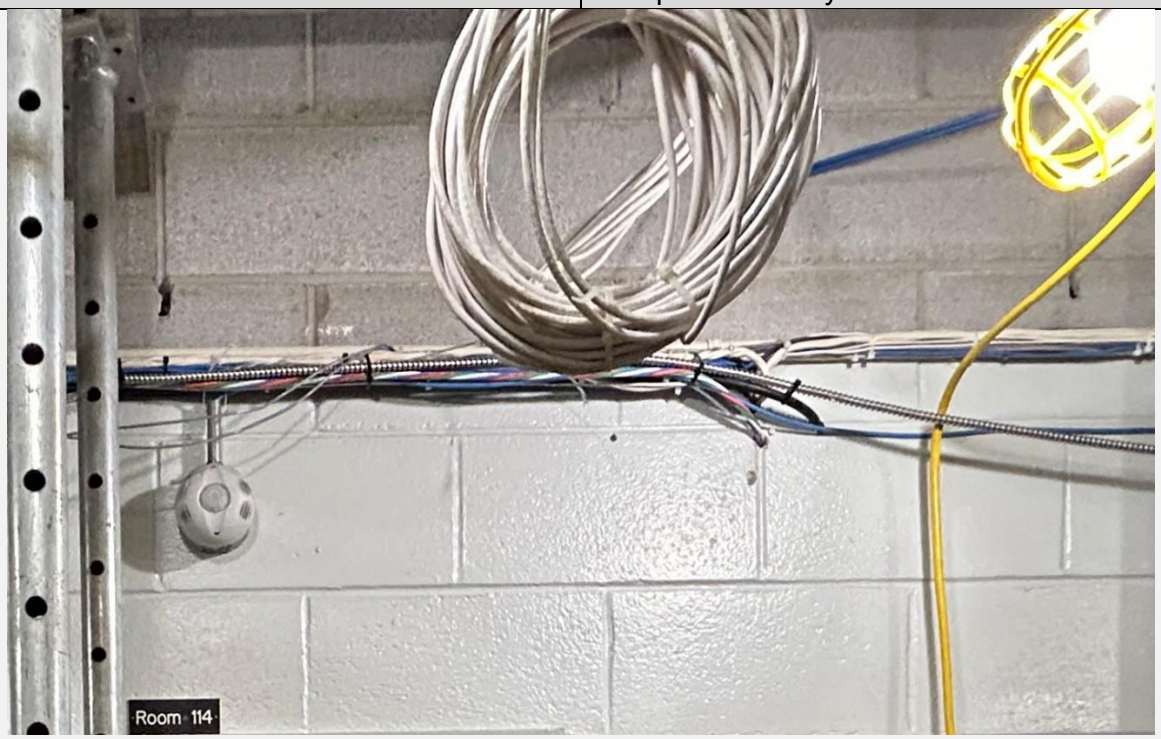


Image 38

Location: Exterior	Sample Deficiency: Foundation Damage

Image 39

Location: Exterior	Sample Deficiency: Loss of Mortar (Non-Structural)

Image 40

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

Image 41

Location: Exterior	Sample Deficiency: Foundation Damage

Image 42

Location: Exterior	Sample Deficiency: Sealant Cracking (Non-Structural)

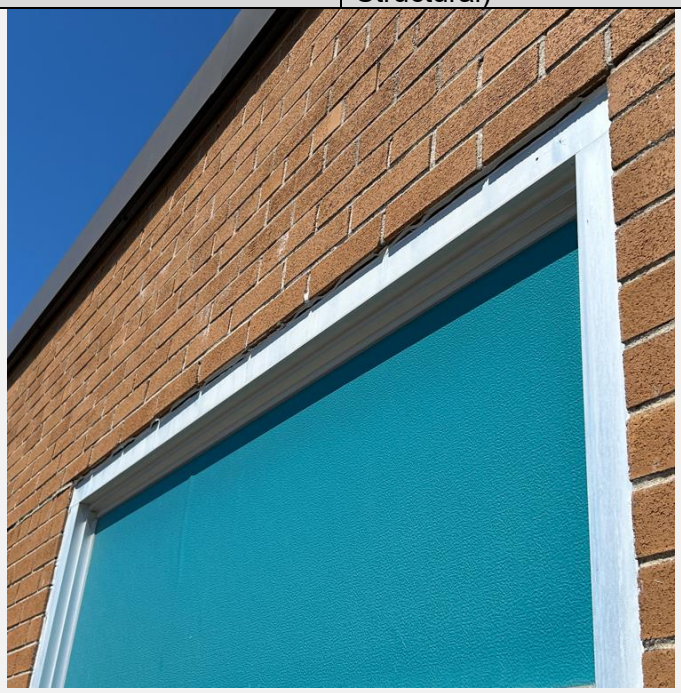


Image 43

Location: Exterior	Sample Deficiency: Loss of Sealant (Non-Structural)

Image 44

Location: Exterior	Sample Deficiency: Mortar not Secure (Non-Structural)

Image 45

Location: Exterior	Sample Deficiency: Discolouration (Non-Structural)

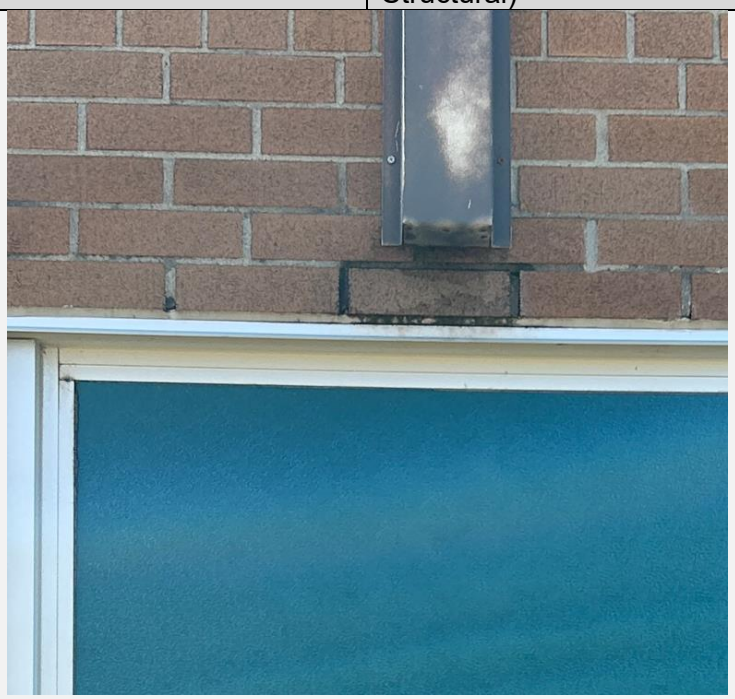


Image 46