Lisa Stern MCIP RPP
Planner
Development Review West
City of Ottawa

Dear Lisa

Pursuant to your email pertaining the Hold designation for the Maritime-Ontario/Tordar proposed development on Campeau Drive, we have prepared the following letter for your review.

Office Use

The office portion of the facility is required to support the distribution activities carried out in the warehouse portion of the facility. The planned use of the finished area is as follows:

Main Floor contains a reception area for visitors, two meeting rooms, washrooms, kitchenette and the large open area for dispatch.

Basement is primarily used for male and female change rooms, lunchroom, safety room and storage.

Second Floor to be unfinished and prepared in the future for future growth to support personnel and general administrative functions in support of the warehouse operation.

There is no immediate or foreseeable equipment planned to be used in the building that would be impacted by vibration. At this time the only equipment to be used on site includes electric forklifts in the warehouse area and general kitchen and office equipment including but not limited to kitchen appliances and photocopier.

As Owner of the site, I declare the following:

I am aware the site is subject to periodic vibrations and sound from the nearby quarry;

I have been advised there is a 100m setback restriction for all building structures; and

I have been advised that there is an agreement between West Carleton Sand & Gravel Inc. (the owners of the quarry) and West Ottawa Land Holdings Ltd. (WOLHL) where the quarry agreed to design blasts to limit the ground and air vibrations to 20.0mm/s and 134 dBL at 100m from the western boundary of the WOLHL property.

Paul Harper, CFO

Paul Harper, CFO

May 6/2021

DATE

1 GENERAL

1.01 RELATED REQUIREMENTS

.1 Section 03 30 00 – Cast-in-Place Concrete

.2 Section 05 12 23 – Structural Steel

.3 Section 05 50 00 – Metal Fabrications

.4 Section 07 92 00 – Joint Sealants

.5 Section 08 11 00 – Metal Doors and Frames

.6 Section 08 36 13.16 – Sectional Metal Doors

.7 Section 11 13 12 – Loading Dock Equipment

.8 Division 26 00 00 – Electrical devices

.9 Structural drawings for reference only

1.02 REFERENCE STANDARDS

.1 ASTM International (ASTM)
- .1 ASTM A 123/A 123M-17, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .2 ASTM A 775/A 775M-17, Standard Specification for Epoxy-Coated Steel Reinforcing Bars.
- .3 ASTM D 412-16, Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers - Tension.
- .4 ASTM D 2240-15, Standard Test Method for Rubber Property - Durometer Hardness.
- .5 ASTM C 494/C 494M-17, Standard Specification for Chemical Admixtures for Concrete.

.2 CSA Group (CSA)
- .1 CSA A23.1-14/A23.2-14, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
- .2 CSA A23.3-14, Design of Concrete Structures.
- .3 CSA A23.4-16, Precast Concrete-Materials and Construction.
- .4 CAN/CSA-A3000-13, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
- .5 CSA G40.20-13/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .6 CSA G279-M1982(R1998), Steel for Prestressed Concrete Tendons (Metric Version).
- .7 CSA S6-14 Package, Canadian Highway Bridge Design Code.

.8 SCA S16:19, Design of Steel Structures.
.9 CSA W47.1-09(R2014), Certification of Companies for Fusion Welding of Steel Structures.
.10 CSA W48-14, Filler Metals and Allied Materials for Metal Arc Welding.
.11 CSA W59-13, Welded Steel Construction (Metal Arc Welding).
.12 CSA W186-M1990(R2016), Welding of Reinforcing Bars in Reinforced Concrete Construction.

.3 National Research Council Canada (NRC)
.1 National Building Code of Canada 2015 (NBC).

.4 Ontario Building Code, 2012 (OBC)

.5 The Master Painters Institute (MPI)
.1 Architectural Painting Specification Manual - current edition.
.1 MPI #18 Primer, Zinc Rich Organic.
.2 MPI #79 Primer, Alkyd, Anti-Corrosive for Metal.

.6 Underwriters' Laboratories of Canada (ULC)
.1 CAN/ULC-S701-11, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.

.7 NACE International
.1 NACE International
.1 ANSI/NACE No. 13/SSPC-ACS-1-2016 -SG, Industrial Coating and Lining Application Specialist Qualification and Certification.

1.03 DEFINITIONS

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

1.04 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 concrete mixes 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. This engineer is referred to as the “delegated design professional engineer” for the purpose of this specification.
.2 Submit shop drawings to CSA A23.4 and CSA A23.3.
.3 Submit detailed calculations and design drawings for typical precast elements and connections for Consultant for review4 weeks prior to manufacture.
.4 Indicate on drawings:

.1 Design calculations for items designated by manufacturer.
.2 Tables and bending diagrams of reinforcing steel.
.3 Design loads on each panel
.4 Reinforcing steel requirements (including number, size, cover, and location of all reinforcing bars)
.5 Required performance specifications of concrete and reinforcing bars
.6 Location of all anchorage points, and design reactions
.7 Location of all embedded items
.8 Location of all openings, recesses, chases, reveals etc.
.9 Details of interconnection required between panels
.10 Proposed sequence of construction
.11 Required concrete strength before lifting panels
.12 Camber.
.13 Finishing schedules.
.14 Methods of handling and erection.
.15 Openings, sleeves, inserts and related reinforcement. Including embedded handling hardware.

.4 Delegated Design Submittals:
.1 Provide regular site reviews in accordance with Section 01 33 50 – Delegated design Submittals.
.2 Submit Letter of Conformance in accordance with Section 01 33 50 – Delegated design Submittals.

.5 Samples:
.1 Produce, deliver and erect where directed by Consultant on project site, 2 - 300 x 300 mm representative samples of each type of precast concrete units showing details, colour, finish and quality for approval of Consultant.
.1 Begin production of precast units after receipt of Consultant written approval.

.6 Submit evidence of welding certification including welding procedures before commencing work.

.7 Certificates:
.1 Submit certifications for Application Specialists to demonstrate compliance to the requirements of ANSI/NACE No.13.

1.05 QUALITY ASSURANCE

.1 Fabricate and erect precast concrete elements using manufacturing plant certified by CSA Group (CSA) in appropriate categories to CSA A23.4.

.2 Precast concrete manufacturer to be certified to CSA's certification procedures for precast concrete plants prior to submitting bid and to specifically verify as part of bid that plant is currently certified in appropriate category, Architectural.

.3 Only precast elements fabricated in such certified plants to be acceptable to owner, and plant certification to be maintained for duration of fabrication, erection until warranty

expires.

.4 Welder Qualification: certified to CSA W47.1 and for weld type required.

.5 Submit evidence of welding certification including welding procedures before commencing work.

.6 Delegated Design Professional Engineer review:
.1 Design engineer to perform regular site reviews in accordance with Section 01 33 50 - Delegated Design Submittals

1.06 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and 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 and in accordance with manufacturer's recommendations.
.2 Store and protect precast panels from damage.
.3 Replace defective or damaged materials with new.

.4 Develop Construction Waste Management Plan related to Work of this Section.

.5 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

1.07 WARRANTY

.1 For spalling and cracking of precast elements 12 months warranty period prescribed is extended to 240 months

.2 Contractor hereby warrants that precast architectural elements will not spall or show visible evidence of cracking, except for normal hairline shrinkage cracks, in accordance with CCDC 2 General Conditions GC 12.3, but for 20 years.

2 PRODUCTS

2.01 MATERIALS

.1 Portland cement: to CAN/CSA-A3001, - Type GU or GUb, colour: White.

.2 Concrete Aggregate: to CSA A23.1, colour: White

.3 Exposed aggregate: CPCI 101 calcite, white sand with light sandblast finish.

.4 Blended hydraulic cements: to CAN/CSA A3000

.5 Other cementing materials: to CAN/CSA-A3000 & A23.1

.6 Use same brands and source of cement and aggregate for entire project to ensure uniformity of colouration and other mix characteristics.

.7 Reinforcing steel: to CSA A23.1.

.8 Welded wire fabric: to CSA A23.1.

.9 Forms: to CSA A23.4.

.10 Hardware and miscellaneous materials: to CSA A23.1/A23.2.

.11 Anchors and supports: to CSA G40.20/G40.21, Type 350 W, galvanized after fabrication.

.12 Welding materials: to CSA W48.

.13 Galvanizing: hot dipped galvanizing with minimum zinc coating of 610 g/m², Coating Grade 85 to ASTM A 123/A 123M.

.14 Steel primer: to MPI #79.

.15 Air entrainment admixtures: ASTM C979.

.16 Chemical admixtures: TO ASTM C 494/C 494M-17.

.17 Bearing pads: neoprene, 60 durometer hardness to ASTM D 2240, and 17 MPa minimum tensile strength to ASTM D 412, moulded to size or cut from moulded sheet.

.18 Shims: plastic.

.19 Zinc-rich primer: to MPI #18.

.20 Surface retardant: to ASTM C 494/C 494MType B water based, low VOC, solvent free. Do not allow moisture of any kind to come in contact with the retarder film.

.21 Weep hole tubes: purpose made plastic.

.22 Insulation: extruded polystyrene to CAN/ULC-S701, Type 4, minimum R-25, insulation to extend to all edges of precast panels, concrete bridging between wythes is not permitted.

.23 Curing compound: not permitted without prior approval of Consultant.

.24 Joint sealant: in accordance with Section 07 92 00 – Joint Sealants

2.02 CONCRETE MIXTURES

.1 Proportion normal density concrete in accordance with CSA A23.1/A23.2 to give following properties:
- .1 Cement: use Type GU Portland cement or Type 20 blended hydraulic cement.
- .2 Minimum compressive strength at 28 days: 35 MPa.
- .3 Class of exposure: C-1.
- .4 Nominal size of coarse aggregate: 10 mm.
- .5 Water cement ratio: to CSA A23.4.
- .6 Air content: 3% to 6 %.
- .7 Chemical admixtures: to ASTM C494.
- .8 Use of calcium chloride is not permitted

2.03 GROUT MIXES

.1 Cement grout: to CSA A179 21 MPa strength at 28 days; 200 – 250 mm slump.

.2 Shrinkage compensating grout: to Section 03 30 00 - Cast-in-Place Concrete.

2.04 DESIGN REQUIREMENTS

.1 Design precast elements to CSA A23.4 and to resist handling, stockpiling, shipping and erection stresses.

.2 Design precast elements to carry loads as indicated, and in accordance with (OBC).
- .1 Design to include resistance to creep, shrinkage and temperature effects, and, wind and earthquake loads.
- .2 Design and fabricate panels, brackets and anchorage devices so that when installed they compensate for unevenness and dimensional differences in structure to which they are secured.
- .3 Compensate for structural deflection of span/360 due to live load and distortion of structure, under design criteria conditions, without imposing load on panel assembly.
- .4 Sustain precast panel loads, and superimposed wind, snow and rain loads, and seismic loads, without exceeding deflection of 1/360.
- .5 Permit no water infiltration into the building under design loads

.3 Carry out vibration analysis and test if and as required by Consultant.

.4 Design connections and attachments of precast elements to load and forces as indicated, and in accordance with (OBC).
- .1 Connections to be designed to withstand long-term corrosion for exposed elements.

2.05 PERFORMANCE REQUIREMENTS

.1 Tolerance of precast elements: to CSA A23.4.

.2 Length of precast elements not to vary from design length by more than plus or minus 6 mm.

.3 Deviations from straight lines not to exceed 6 mm in 3 m.

.4 Precast elements not to vary by more than plus or minus 10 mm from true overall cross-sectional shape as measured by difference in diagonal dimensions.

.5 Retain a delegated design professional engineer, registered in the Province of Ontario to ascertain and report that fabrication and erection of work meets the specific design requirements and performance criteria in this Section.

2.06 FABRICATION

.1 Manufacture units to CSA A23.4.

.2 Mark each precast unit to correspond to identification mark on shop drawings for location with date cast on part of unit which will not be exposed.

.3 Design and attach anchors and inserts to precast concrete elements to carry design loads.

.4 Galvanize anchors and steel embedments after fabrication and touch up with zinc-rich primer after welding.

2.07 PRECAST PANEL DESIGN

.1 Panel assembly: double wythe insulated precast concrete panel, 370 mm overall thickness, with galvanized steel inserts at anchor points and galvanized steel bent plates around loading dock door openings.
- .1 Exterior wythe: 95 mm thick precast concrete
  - .1 Reveals: 12 mm deep x 25 mm overall height horizontal reveals with 45 degree sloped top and bottom edges, located 1000 mm O.C. as indicated on A200 series Architectural drawings.
  - .2 Exterior panel finish: White cement with exposed calcite aggregate, light sandblast finish.
- .2 Insulation: 125 mm thick (minimum R-25 value) extruded polystyrene insulation board, continuous to outside edges of precast panels. Compressive strength to be verified by panel manufacturer.
- .3 Interior wythe (structural): 150 mm thick reinforced precast concrete panels, colour; standard cement with smooth finish using steel trowel.
- .4 Precast panel openings: Provide galvanized bent plates around loading dock door openings for connection of precast panels and loading dock equipment. Set plate to be flush with face of precast panels.
  - .1 Header: J-shaped galvanized bent plate full width of panel opening, welded to jambs.
    - .1 100 mm interior leg, 400 mm high exterior leg, depth to suit precast panel
    - .2 Thickness to be verified by panel manufacturer and to support Dock shelter framing system indicated in Section 11 13 12 – Loading Dock Equipment.
    - .3 Provide weepholes at 600 mm centres

.2 Jambs: J-shaped galvanized bent plate full height of panel opening, thickness to be verified by panel manufacturer, welded to header.
.1 100 mm interior leg, 400 mm exterior leg, depth to suit precast panel
.2 Thickness to be verified by panel manufacturer and to support Dock shelter framing system indicated in Section 11 13 12 – Loading Dock Equipment.

.5 Anchors, inserts and reinforcement: Design in accordance with clause 2.04 in this Section and details indicated on Structural drawings.

2.08 FINISHES

.1 Finish and colour of precast units to match approved sample by Consultant's.

.2 Sandblasted finish (exterior wythe): light sandblast to expose aggregate face, sandblast surface to conform with approved sample.

.3 Smooth steel trowel back surface of precast units on exposed sides.

2.09 SOURCE QUALITY CONTROL

.1 Provide Consultant with certified copies of quality control tests related to this project as specified in CSA A23.4.

.2 Inspect prestressed concrete tendons to CSA G279.

.3 Provide records from in-house quality control program based upon plant certification requirements to Consultant for inspection and review.

.4 Upon request provide Consultant with certified copy of mill test report of reinforcing steel supplied, showing physical and chemical analysis.

.5 Precast plants should keep complete records of supply source of concrete material, steel reinforcement, prestressing steel and provide to Consultant for review upon request.

3 EXECUTION

3.01 GENERAL

.1 Do precast concrete work to CSA A23.4 and CSA A23.3, and CSA S16.

3.02 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for precast concrete 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.

3.03 ERECTION

.1 Erect precast elements within allowable tolerances as indicated.

.2 Non-cumulative erection tolerances in accordance with CSA A23.4.

.3 Avoid cracking and warping of precast panels during delivery and handling.

.4 Set elevations and alignment between units to within allowable tolerances before connecting units.

.5 Fasten precast panels in place as indicated on reviewed shop drawings.

.6 Secure bolts with lockwashers or tack-weld nut to bolt.

.7 Uniformly tighten bolted connections with torque indicated.

.8 Do not weld or secure bearing plates at sliding joints.

.9 Set units dry, without mortar, attaining specified joint dimension with plastic shims.

.10 Clean field welds with wire brush and touch-up galvanized finish with zinc-rich primer.

.11 Remove shims and spacers from joints of non-load bearing panels after fastening but before sealant is applied.

.12 Apply sealers to precast panels to manufacturer's recommendations unless specified otherwise.

.13 Apply sealant to exterior edge of interior and exterior wythe of precast panels in accordance with Section 07 92 00 – Joint Sealants.

.14 Weep hole tubes: Install vents at bottom and top of all exterior joints.

3.04 WELDING

.1 Weld to CSA W59 for welding to steel structures and to CSA W186 for welding of reinforcement.

.2 Welding of the precast units shall be performed in accordance with CSA A23.4

.3 All necessary precautions shall be taken to prevent weld burn and/or splatter on to exposed surfaces

3.05 FIELD QUALITY CONTROL

.1 Delegated Design Engineer’s Review:

.1 Inspection of Work: Schedule and perform inspections to ensure that the Work of this section is in conformance with the shop drawings.

.1 Perform periodic site reviews.
.2 Schedule site visits with the Contractor
.3 Submit inspection reports, within 3 days of review, for each site review performed.
.4 Provide additional site inspections when directed by Contractor.

.2 Letter of Compliance: Provide Letter of Compliance in accordance with Section 01 33 50 – Delegated Design Submittals

3.06 CLEANING

.1 Obtain approval of cleaning methods from Consultant before cleaning soiled precast concrete surfaces.

.2 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
.1 Leave Work area clean at end of each day.

.3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.

3.07 PROTECTION

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

.2 Repair damage to adjacent materials caused by precast concrete installation.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

.1 Section 05 41 00 – Structural Metal Stud Framing

.2 Section 06 08 99 – Rough Carpentry for Minor Works

.3 Section 07 27 10 – Air Barriers.

.4 Section 07 62 00 – Sheet Metal Flashing and Trim.

.5 Section 07 92 00 - Joint Sealants.

.6 Section 08 11 16 – Aluminum Doors and Frames.

.7 Section 08 44 13 - Glazed Aluminum Curtain Walls and Skylights

1.02 REFERENCE STANDARDS

.1 The Aluminum Association, Inc. (AA)
- .1 AA DAF45-03, Designation System for Aluminum Finishes.

.2 American Architectural Manufacturers Association (AAMA)
- .1 AAMA-611-98, Voluntary Specification for Anodized Aluminum.
- .2 AAMA-2605-05, Voluntary Specification, Performance Requirements and Test procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.

.3 ASTM International (ASTM)
- .1 ASTM A 167-99(2004), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- .2 ASTM A 240/A 240M-05a, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
- .3 ASTM A 480/A 480M-05, Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip.
- .4 ASTM D 523-89(R1999), Standard Test Method for Specular Gloss.
- .5 ASTM D 822-01, Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.

.4 CAN/ULC
- .1 CAN/ULC-S102, Surface Burning Characteristics of Building Materials and Assemblies

.5 Canadian General Standards Board (CGSB)
- .1 CGSB 19-GP-14M-76(R1984), Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing.

.6 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

1.03 DESIGN REQUIREMENTS

.1 Design metal cladding to allow for thermal movement of component materials caused by variation in ambient temperature range of 80 degrees C without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects.

.2 Maximum deviation from vertical and horizontal alignment of erected panels: 1 to 1000.

1.04 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
- .1 Submit manufacturer's printed product literature for cladding system materials, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Submit two copies WHMIS SDS - Safety Data Sheets in accordance with Section 02 81 00 - Hazardous Materials.

.3 Shop Drawings:
- .1 Shop drawings: Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada.
- .2 Indicate dimensions and thickness of panels, fastening and anchoring methods, detail and location of joints and gaskets, thermal movement provision, wall openings, head, jamb and sill details, materials and finish, compliance with design criteria and requirements of related work.
- .3 Submit 2 copies of metal panel colours charts indicating manufacturer’s complete range of colours and finishes.

.4 Delegated Design Submittals:
- .1 Provide regular site reviews in accordance with Section 01 33 50 – Delegated design Submittals.
- .2 Submit Letter of Conformance in accordance with Section 01 33 50 – Delegated design Submittals.

.5 Samples:
- .1 Submit duplicate 100 x 100 mm samples of wall and soffit system, representative of materials, finishes and colours.

1.05 QUALITY ASSURANCE

.1 Quality assurance submittals: submit following in accordance with Section 01 45 00 - Quality Control.
- .1 Certificates: submit certificates signed by manufacturer certifying that composite wall panels comply with specified performance characteristics and physical properties.
- .2 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, and cleaning procedures.

.3 Manufacturer's Field Reports: submit to manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

.2 Delegated Design Professional Engineer review:
.1 Design engineer to perform regular site reviews in accordance with Section 01 33 50 - Delegated Design Submittals

1.06 QUALIFICATIONS

.1 Manufacturer: company specializing in producing composite wall panels with 5 years documented experience with sufficient capacity to produce and deliver required units without causing delay in work.

.2 Installer: person specializing in composite wall panel installations with 5 years documented experience and approved by manufacturer.

.3 Mock-ups: construct mock-ups in accordance with Section 01 45 00 - Quality Control and to requirements supplemented as follows:
.1 Provide mock-up for evaluation of surface finishes and workmanship.
.2 Co-ordinate type and location of mock-ups with project requirements.
.3 Accepted units will be used as standard for acceptance of production units.
.4 Remove and replace units which are not accepted.
.5 Do not proceed with remaining work until workmanship, colour, and finish are reviewed and accepted by Consultant.
.6 Refinish mock-up area as required to produce acceptable work.
.7 When accepted, mock-up will demonstrate minimum standard of quality required for this work.
.1 Approved mock-up may remain as part of finished work.

.4 Pre-Installation Meetings: convene pre-installation meeting one week prior to beginning work of this Section, with contractor's representative to:
.1 Verify project requirements.
.2 Review installation and substrate conditions.
.3 Co-ordination with other building subtrades.
.4 Review manufacturer's installation instructions and warranty requirements.

1.07 DELIVERY, STORAGE AND HANDLING

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

.2 Deliver, store and protect material in accordance with panel manufacturer's recommendations.

.3 Do not expose panels with strippable film to direct sunlight or extreme heat.

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

1.08 WARRANTY

.1 Submit manufacturer's written warranty documents signed I the Owner's name starting from project Substantial Performance, indicating that damaged materials shall be refinished, repaired or replaced at no expense to the Owner.
  .1 Bond Integrity Warranty: for a period of 10 years warrant the product in accordance with the conditions set out in the warranty.
  .2 Finishes Warranty: for a period of 30 years warrant that the finish will not peel, check or crack, finish will not fade or chalk, in accordance with the conditions set out in the warranty.

2 PRODUCTS

2.01 MATERIALS

.1 Basis of design: Reynobond composite aluminum Fire Resistant panels by Arconic Architectural Products.
  .1 Acceptable alternates:
    .1 Alcotex
    .2 Alpolic
    .3 Alucobond

.2 Composite panels:
  .1 Thickness: 4 mm.
  .2 Core: Fire resistant (FR) core.
  .3 Fire performance: to CAN/ULC-S102

.3 Aluminum face sheets:
  .1 Thickness: 0.51 mm.
  .2 Alloy: AA-3003.

.4 Panel weight: 4 mm: 7.48 kg/m².

.5 Sub-girts: structural quality steel to ASTM A 653, galvanized with Z275 zinc coating,25 mm nominal depth, profile as indicated to accept pans with structural attachment to building frame.

.6 Extrusions and clips: as recommended by system fabricator

.7 Accessories:
  .1 Fasteners: aluminum extrusion, type continuous edge grip, concealed in accordance with manufacturer's recommendations.

.8 Plywood sheathing: fire-retardant treated plywood in thicknesses indicated on drawings and in accordance with Section 06 10 00 – Rough Carpentry.

.9 Flashings and trim: Prefinished aluminum sheet in accordance with Section 07 62 00 – Sheet Metal Flashing and Trim.

.10 Air barrier: see Section 07 27 00 – Air Barriers.

.11 Concealed sealants: one-component, butyl-polyisobutylene polymer base, solvent curing to CGSB 19-GP-14M.

.12 Exposed sealants: one-component, silicone base, solvent curing, colour to match panel in accordance with Section 07 92 00 - Joint Sealants

2.02 COLUMN CLADDING

.1 Provide specialty panels formed in a curve and mounted on sub-girts at exterior column cladding.
  .1 Vertical joints at column quadrants.
  .2 Horizontal joints where indicated on drawings.

.2 Column radius as indicated

2.03 FABRICATION

.1 Composition: two sheets of aluminum sandwiching core of extruded thermoplastic formed in continuous process with no glues or adhesives.

.2 Factory fabricated.

.3 Tolerances:
  .1 Panel bow: maximum 0.8% of panel dimension in width and length.
  .2 Panel dimensions: where final dimensions cannot be established by field measurement before completion of panel manufacturing, make allowance for field adjustments as recommended by manufacturer.
  .3 Panel lines, breaks and angles: sharp, true and surfaces free from warp or buckle.

2.04 PAINTED FINISHES

.1 Prefinished sheet with factory applied polyvinylidene fluoride (PVDF) to AAMA 2605.
  .1 Coatings: Colorweld 500 coatings with minimum 70 % KYNAR500/HYNAR 5000 PVD resin by Arconic Architectural Products.
  .2 Series 2 Premium Mica finish.
  .3 Panel type MP1 and MP2: Colour as indicated on drawings, final selection by Consultant from manufacturer's complete range of colour and finishes.

3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

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

3.02 EXAMINATION

.1 Before installation examine alignment of substrate and notify Consultant in writing if substrate does not comply with requirements of panel installer.

3.03 INSTALLATION

.1 Install shop assembled composite panels in accordance with manufacturer's written instructions and shop drawings.
  .1 Allow for thermal movement.
  .2 Ensure continuity of "pressure equalization" of rain screen principle.

.2 Install flashings in accordance with Section 07 62 00 – Sheet Metal Flashing and Trim and as detailed.

.3 Maintain following installation tolerances:
  .1 Maximum variation from plane or location shown on shop drawings: 10 mm/10 m of length and up to 20 mm/100 m.
  .2 Maximum deviation for vertical member: 3 mm in an 8.5 m run.
  .3 Maximum deviation for a horizontal member: 3 mm in an 8.5 m run
  .4 Maximum offset from true alignment between two adjacent members abutting end to end, in line: 0.75 mm.

.4 Construct expansion joints to allow for thermal movement.

.5 Use cover sheets, of brake formed profile, of same material and finish as adjacent material.

.6 Use mechanical fasteners to secure sheet materials.

.7 Assemble and secure wall system to sub-frame to minimize stresses on sealants and are within manufacturer’s recommended limits.

.8 Remove strippable coating from panels as they are erected.

.9 Apply perimeter sealant between adjoining material and building systems in accordance with Section 07 92 00 - Joint Sealants

3.04 FIELD QUALITY CONTROL

.1 Manufacturer's Field Services:
  .1 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.

.2 Delegated Design Engineer’s Report:

  .1 Inspection of Work: Schedule and perform inspections to ensure that the Work of this section is in conformance with the shop drawings.

    .1 Perform periodic site reviews.

.2 Schedule site visits with the Contractor
.3 Submit inspection reports, within 3 days of review, for each site review performed.
.4 Provide additional site inspections when directed by Contractor.

.3 Letter of Compliance: Provide Letter of Compliance in accordance with Section 01 33 50 – Delegated Design Submittals

3.05 CLEANING

.1 Proceed in accordance with Section 01 74 00 - Cleaning.

.2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

.3 Leave work areas clean, free from grease, finger marks and stains.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

.1 Section 05 41 00 – Structural Metal Stud Framing

.2 Section 06 08 99 – Rough Carpentry for Minor Works

.3 Section 06 40 00 – Architectural Woodwork

.4 Section 07 21 29 - Sprayed Insulation - Polyurethane Foam.

.5 Section 07 26 00 - Vapour Retarders.

.6 Section 07 27 10 – Air Barriers.

.7 Section 07 42 43.01 - Composite Metal Building Panels.

.8 Section 07 62 00 – Sheet Metal Flashing and Trim.

.9 Section 07 84 00 – Fire Stopping

.10 Section 07 92 00 - Joint Sealants.

.11 Section 08 11 16 – Aluminum Doors and Frames.

.12 Section 08 80 50 – Glazing.

1.02 REFERENCE STANDARDS

.1 Aluminum Association (AA)
- .1 AA DAF 45-03(R2009), Designation System for Aluminum Finishes.

.2 American Architectural Manufacturers Association (AAMA)
- .1 AAMA CW-10-04, Care and Handling of Architectural Aluminum From Shop to Site.
- .2 AAMA CW-11-85, Design Wind Loads and Boundary Layer Wind Tunnel Testing.
- .3 AAMA T1R-A1-04, Sound Control for Fenestration Products.
- .4 AAMA 501-05, Methods of Test for Exterior Walls.
- .5 AAMA 611-98, Voluntary Specifications for Anodized Finishes Architectural Aluminum.
- .6 AAMA 612-02, Voluntary Specifications, Performance Requirements, and Test Procedures for Combined Coatings of Anode Oxide and Transparent Organic Coatings on Architectural Aluminum.
- .7 AAMA 2603-02, Voluntary Specification Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
- .8 AAMA 2604-05, Voluntary Specification Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and

Panels.

.3 ASTM International
- .1 ASTM A 36/A 36M-08, Specification for Carbon Structural Steel.
- .2 ASTM A 123/A 123M-09, Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .3 ASTM A 167-99(2009), Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- .4 ASTM A 653/A 653M-09a, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .5 ASTM B 209-07, Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- .6 ASTM B 221-08, Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- .7 ASTM E 283-04, Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- .8 ASTM E 330-02, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls, by Uniform Static Air Pressure Difference.
- .9 ASTM E 331-00(2009), Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform Static Air Pressure Difference.
- .10 ASTM E 413-04, Classification for Rating Sound Insulation.
- .11 ASTM E 1105-00(2008), Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference.

.4 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB 1.108-M89, Bituminous Solvent Type Paint.
- .2 CAN/CGSB-12.20-M89, Structural Design of Glass for Buildings.

.5 CSA Group (CSA)
- .1 CAN/CSA G40.20/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .2 CAN/CSA S136-07, North American Specification for the Design of Cold Formed Steel Structural Members.
- .3 CAN/CSA-S157/S157.1-05, Strength Design in Aluminum/Commentary on CAN/CSA-S157, Strength Design in Aluminum.
- .4 CSA W59.2-M1991(R2008), Welded Aluminum Construction.

.6 Ontario Building Code (2012)

.7 Society for Protective Coatings (SSPC)
- .1 SSPC - Paint 20-02(R2004), Zinc Rich Coating, Type I - Inorganic and Type II - Organic.
- .2 SSPC - Paint 25 - 97(R2004) BCS, Zinc Oxide, Alkyd, Linseed Oil and Primer for Use Over Hand Cleaned Steel Type 1 and Type 2.

1.03 ADMINISTRATIVE REQUIREMENTS

.1 Co-ordination: co-ordinate work of this Section with installation of fire stopping, air barrier placement, vapour retarder placement, flashing placement and components or materials.

.2 Pre-Installation Meetings:
- .1 Convene pre-installation meeting 1 week prior to beginning work of this Section and on-site installation, with Contractor's Representative to:
  - .1 Verify project requirements.
  - .2 Review installation and substrate conditions.
  - .3 Co-ordination with other building subtrades.
  - .4 Review manufacturer's written installation instructions and warranty requirements.

1.04 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 curtain wall components, anchorage and fasteners, glass and infill, and internal drainage details and include product characteristics, performance criteria, physical size, finish and limitations and water flow diagrams.

.3 Shop Drawings:
- .1 Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada. This engineer is referred to as the “delegated design professional engineer” for the purpose of this specification.
- .2 Indicate on shop drawings:
  - .1 System dimension: framing member structural and physical characteristics, calculations, dimensional limitations, special installation requirements.
  - .2 Framed opening requirements and tolerances,
  - .3 Adjacent construction,
  - .4 Curtain wall connections to building structure and anticipated deflection of members under load.
  - .5 Curtain wall reinforcement as required
  - .6 weep drainage network,
  - .7 Expansion and contraction joint location and details,
  - .8 Field welding as required.

.4 Delegated Design Submittals:
- .1 Provide regular site reviews in accordance with Section 01 33 50 – Delegated design Submittals.
- .2 Submit Letter of Conformance in accordance with Section 01 33 50 – Delegated design Submittals.

.5 Test Reports:
- .1 Submit substantiating engineering data, test results of previous tests by

independent laboratory which purport to meet performance criteria, and supportive data.

1.05 CLOSEOUT SUBMITTALS

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

.2 Operation and Maintenance Data: submit operation and maintenance data for glazed aluminum curtain wall for incorporation into manual.

.3 Delegated Design submittals indicate in PART 3 of this section.

1.06 QUALITY ASSURANCE

.1 Regulatory Requirements:
- .1 Conform to applicable code for acoustic attenuation requirements.

.2 Installer Qualifications:
- .1 See item 2.07.
- .2 All Work by this section shall be installed by one installer
- .3 Be capable of assuming Delegated Design Engineering responsibility indicated in this section.

.3 Mock-ups:
- .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
- .2 Supply 1 (one) complete vertical section, 2 panels wide extending from the ground floor to the floor above including intermediate mullion, vision glass light, and insulated infill panel with glass.
  - .1 Assemble to illustrate component assembly including glazing materials, weep drainage system, attachments, anchors, and perimeter sealant.
- .3 Locate mock-up where directed by Consultant.
- .4 Allow 72 hours for inspection of mock-up by Consultant before proceeding with work.
- .5 When accepted, mock-up will demonstrate minimum standard of quality and materials for work of this Section.
- .6 Mock-up may remain as part of finished work.

.4 Delegated Design Professional Engineer review:
- .1 Design engineer to perform regular site reviews in accordance with Section 01 33 50 - Delegated Design Submittals.

1.07 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and 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 Handle work of this Section in accordance with AAMA CW-10.
.2 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.3 Store and protect aluminum glazed curtain wall components from nicks, scratches, and blemishes.
.4 Protect prefinished aluminum surfaces with wrapping strippable coating. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather.
.5 Replace defective or damaged materials with new.

.4 Develop Construction Waste Management Plan related to Work of this Section.

.5 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management.

1.08 AMBIENT CONDITIONS

.1 Install sealants when ambient and surface temperature is above 5 degrees C minimum.

.2 Maintain this minimum temperature during and for 48 hours minimum after installation of sealants.

1.09 WARRANTY

.1 Contractor hereby warrants that glazed aluminum curtain wall will function in accordance with Section 01 61 00 – Common Product Requirements, but for 60 months.
.1 Contractor’s warranty includes coverage for complete system failure.

2 PRODUCTS

2.01 SYSTEMS

.1 Description:
.1 Vertical glazed aluminum curtain wall system includes thermally broken tubular aluminum sections with self-supporting framing, shop fabricated, factory prefinished, vision glass and insulated metal panel spandrel infill; related flashings, anchorage and attachment devices.
.2 Sloped glazing system includes thermally broken tubular aluminum sections with self-supporting framing, shop fabricated, factory prefinished, vision glass infill; related flashings, anchorage and attachment devices.
.3 Assembled system to permit re-glazing of individual glass (and infill panel) units from exterior without requiring removal of structural mullion sections.

.2 Performance Requirements:
.1 Design the building envelope based on the Rainscreen Principal. The definition of the Rainscreen Principal for the purpose of this specification is as recommended by the National Research Council of Canada (NRCC). Include gaskets, baffles, overlaps and seals necessary to achieve manufacturer’s written

performance specifications for air and water infiltration and condensation control

.2 Design and size components to withstand dead and live loads caused by pressure and suction of wind, snow and hail for sloped glazing, acting normal to plane of system as calculated in accordance with Ontario Building Code of Canada (OBC)2012.

.3 Deflection:

.1 Limit mullion deflection to L/175 with full recovery of glazing materials.

.2 Design wind loads to be based climactic data for the location of the project in accordance with Ontario Building Code, but not less than 1.2 kPa (25 psf).

.3 Design wall system and connections to accommodate vertical deflection of roof and floor structure such that mullions are not loaded axially.

.4 Design and size components to withstand seismic loads and sway displacement as calculated in accordance with Ontario Building Code.

.5 Size glass units and glass dimensions to limits established in CAN/CGSB-12.20.

.6 Ensure system is designed to accommodate the following without damage to components or deterioration of seals:

.1 Movement within system.

.2 Movement between system and perimeter framing components.

.3 Dynamic loading and release of loads.

.4 Deflection of structural support framing.

.5 Shortening of building concrete structural columns.

.6 Creep of concrete structural members.

.7 Mid-span slab edge deflection of 19 mm.

.1 Instantaneous superimposed dead and live/snow load (all floors): 4 mm

.2 Total long-term deflection / creep after installation of non-structural items

.1 Typical floor: 15 mm

.2 Roof: 12 mm

.7 Thermal Resistance of:

.1 System U-value (excluding vision areas): 0.25 minimum.

.2 Vision glass areas RSI: 1.05 minimum.

.8 Provide thermal breaks between the interior and exterior components to prevent condensation at the interior metal surfaces under permanent design conditions.

.9 Design frames such that the temperature at the edges of the interior glass panels of the insulated glass panels does not exceed the admissible variation with temperature of the center of the interior panels.

.10 Limit air infiltration through assembly to 0.0003 m^3 /s/m^2 of wall area, measured at a reference differential pressure across assembly of 75 Pa as measured in accordance with ASTM E 283.

.11 Vapour seal with interior atmospheric pressure of 25 mm sp, 22 degrees C, 40% RH: no failure.

.12 Water leakage: none, when measured to ASTM E 1105.

.13 Ensure system allows for expansion and contraction within system components when temperature range is 95 degrees C over 12-hour period without causing detrimental affect to system components.

.14 Drain water entering joints, condensation occurring in glazing channels, or

migrating moisture occurring within system, to exterior by weep drainage network.

.15 Maintain continuous air barrier and vapour retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound.

2.02 MATERIALS – CURTAIN WALLS

.1 Extruded aluminum: to ASTM B 221 alloy and temper.

.2 Sheet aluminum: to ASTM B 209, anodizing quality.

.3 Steel reinforcement: Hot dipped galvanized with 380g/m3 zinc coating to CAN/CSA-G164.
- .1 Rolled Sheet or Strip: CSA G40.20/G40.21.
- .2 Structural Shapes, Plates and Bars: CSA G40.20/G40.21

.4 Steel sections: to CAN/CSA G40.20/G40.21 Type 304 stainless; shaped to suit mullion sections.

.5 Anti-Rotation Channels: Extruded aluminum anti-rotation channel designed to mechanically retain air seal membrane to the face of the tubular back section.

.6 Anchors: Three-way adjustable aluminum anchors that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by the manufacturer.

.7 Fasteners: stainless, finish to match curtain wall to prevent galvanic action with components fastened, or aluminum for aluminum connections, finish to match curtain wall, of suitable size to sustain imposed loads.

.8 Supporting angles, plates, bars, rods and other steel accessories: mild steel to CAN/CSA G40.20/G40.21, shop painted with zinc chromate primer, thickness as required to sustain imposed loads and in no case less than 4.8 mm thick.

.9 Anchors: Three-way adjustable aluminum anchors that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by the manufacturer.

.10 Pressure Plate: aluminum and fastened to the mullion with stainless steel screws.

2.03 MATERIALS – SKYLIGHTS

.1 Sheet aluminum: to ASTM B 209, anodizing quality.

.2 Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with non-staining, nonferrous shims for aligning system components.

.3 Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating.

.4 Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating.

.5 Fasteners: stainless, finish to match curtain wall to prevent galvanic action with components fastened, or aluminum for aluminum connections, finish to match curtain wall, of suitable size to sustain imposed loads.

.6 Thermal Barrier: elastomer compatible extruded silicone as recommended by the manufacturer.

.7 Pressure Plate: aluminum and fastened to the mullion with stainless steel screws

.8 Sealant: permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.

2.04 ACCESSORIES

.1 Dielectric separator: Bituminous paint to CAN/CGSB 1.108.

.2 Fire Stopping Materials: in accordance with Section 07 84 00 - Fire Stopping.

.3 Window sills: solid surfacing sills in accordance with Section 06 40 00 – Architectural Woodwork

2.05 COMPONENTS

.1 Mullion profile:
- .1 Basis of design: Kawneer 1600 series, system 1 curtain wall system with 25.4 mm insulating glazing units
- .2 System depth: 63.5 x 190.5 mm including 19 mm deep mullion cap.
- .3 Thermally broken with interior tubular section insulated from exterior pressure plate.
- .4 Matching stops and pressure plate of sufficient size and strength to ensure adequate bite on glass and infill panels.
- .5 Drainage holes, deflector plates and internal flashings to accommodate internal weep drainage system.
- .6 Internal mullion baffles to eliminate "stack effect" air movement within internal spaces.
- .7 Products by other manufacturers may be considered if submitted to Consultant for review and approval before tender closing.

.2 Reinforced mullion: similar to standard mullion with steel reinforcing as required.

.3 Infill panel: internally reinforced, glazing edge permitting internal air movement to glazing space, outside air barrier line:
- .1 Outer face: 6 mm tempered glass in accordance with Section 08 80 00 – Glazing.
- .2 Core: 125 mm mineral wool insulation to CAN/CGSB-51.10-92 or fill cavity.
  - .1 Acceptable material: CurtainRock insulation by Roxul or approved

alternate.

.3 Inner face: 20-gauge galvanized sheet steel pan to depth of mullion, all seams welded and sealed to form vapour-tight assembly

.4 Sloped glazing mullion profile:
- .1 Basis of design: Kawneer 2000 series skylight framing system with 25.4 mm insulating glazing units, pressure equalized rainscreen design.
- .2 Framing members: 4-sided captured glazing system.
- .3 System depth: 63.5 x 180 mm includes 19 mm deep mullion cap.
- .4 Thermally broken with interior tubular section insulated from exterior pressure plate.
- .5 Matching sloped stops and pressure plate of sufficient size and strength to ensure bite on glass and infill panels.
- .6 Drainage holes, deflector plates and internal flashings to accommodate internal weep drainage system.
- .7 Internal baffles to eliminate "stack effect" air movement within internal spaces.

.5 Flashing: 2 mm thick extruded aluminum in accordance with Section 07 62 00 – Sheet Metal Flashing and Trim. Finish to match curtain wall mullion sections where exposed, secured with concealed fastening method.

.6 Vapour retarder: specified in Section 07 26 00 - Vapour Retarders

.7 Air barrier: specified in Section 07 27 00.01 - Air Barriers - Descriptive or Proprietary.

.8 Sealants: specified in Section 07 92 00 - Joint Sealants.

2.06 GLAZING SYSTEMS

.1 Glass and insulating glass units in accordance with Section 08 80 00 – Glazing

.2 Gaskets: to ASTM C864 as recommended by manufacturer.

.3 Spacers and setting blocks: Elastomeric type as recommended by manufacturer.

.4 Bond breaker tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.

.5 Glazing Sealants: As recommended by manufacturer for joint type.

2.07 FABRICATION

.1 Fabricate system components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.

.2 Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof

.3 Prepare components to receive anchor devices. Install anchors.

.4 Arrange fasteners and attachments to ensure concealment from view.

.5 Prepare system components to receive exterior doors and hardware specified in Section 08 11 16 – Aluminum Doors and Frames and Section 08 71 00 – Door Hardware.

.6 Reinforce framing members for external imposed loads.

.7 Visible manufacturer's identification labels not permitted.

.8 Infill Panels:
- .1 Fabricate infill panels with metal covered edge seals around perimeter of panel assembly, enabling installation and minor movement of perimeter seal.
- .2 Reinforce interior surface of exterior panel sheet from deflection caused by wind and suction loads.
- .3 Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.
- .4 Place insulation within panel, adhered to exterior face of interior panel sheet over entire area of sheet with impale fasteners.
- .5 Ventilate and pressure equalize the air space outside the exterior surface of the insulation, to the exterior.
- .6 Arrange fasteners and attachments to ensure concealment from view.

.9 Finishes:
- .1 Finish coatings: conform to AAMA 611.
- .2 Exterior exposed aluminum surfaces: AA-M10C21A41 / AA-M45C22A41, Architectural Class I Clear Anodic Coating, 0.7 mils minimum thickness (Color #14 Clear).
- .3 Interior exposed aluminum surfaces: AA-M10C21A31, Architectural Class II Clear Anodic Coating, 0.4 mils minimum thickness, (Color #17 Clear)
- .4 Shop and touch-up primer for steel components: SSPC 25 Paint red oxide.
- .5 Touch-up primer for galvanized steel surfaces: SSPC 20 Paint zinc rich.
- .6 Concealed steel items: galvanized in accordance with ASTM A 123.
- .7 Apply 1 coats of bituminous paint to concealed aluminum and steel surfaces in contact with cementitious or dissimilar materials.

2.08 SOURCE QUALITY CONTROL

.1 Perform work in accordance with AAMA CW-I-9. Maintain 1 copy on site.

.2 Manufacturer qualifications: company specializing in manufacturing the products specified in this section with minimum 5 years documented experience.

.3 Installer qualifications: company specializing in performing the work of this section approved by manufacturer.

.4 Design structural support framing components to CAN/CSA-S157 under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the Province of Ontario

.5 Perform welding Work in accordance with CSA W59.2.

3 EXECUTION

3.01 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for aluminum curtain wall installation in accordance with manufacturer's written instructions.
- .1 Visually inspect substrate.
- .2 Verify dimensions, tolerances, and method of attachment with other work.
- .3 Verify wall openings and adjoining air barrier and vapour retarder materials are ready to receive work of this Section.
- .4 Inform Consultant of unacceptable conditions immediately upon discovery.
- .5 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.

3.02 INSTALLATION

.1 Install curtain wall and sloped glazing system in accordance with manufacturer's instructions.

.2 Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

.3 Use alignment attachments and shims to permanently fasten system to building structure. Clean weld surfaces; apply protective primer to field welds and adjacent surfaces.

.4 Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances and align with adjacent work.

.5 Use thermal isolation where components penetrate or disrupt building insulation.

.6 Install anodized aluminum sill flashings where indicated in accordance with Section 07 62 00 – Sheet Metal Flashing and Trim.

.7 Install eave edge flashings at sloped glazing system.

.8 Co-ordinate installation of fire stop Systems, specified in Section 07 84 00 - Fire Stopping, at each floor slab edge and intersection with vertical construction where indicated.

.9 Co-ordinate attachment and seal of perimeter air barrier and vapour retarder materials to flashing materials.

.10 Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

.11 Install glass and infill panels in accordance with Section 08 80 00 - Glazing, to glazing method required to achieve performance criteria. Cover caps to conceal screws and ensure continuous sightline.

.12 Install perimeter sealant to method required to achieve performance criteria, backing materials, and installation criteria in accordance with Section 07 92 00 - Joint Sealants.

3.03 SITE TOLERANCES

.1 Maximum variation from plumb: 1.5 mm/m non-cumulative or 12 mm/30 m, whichever is less.

.2 Maximum misalignment of two adjoining members abutting in plane: 0.8 mm.

.3 Maximum sealant space between curtain wall and adjacent construction: 13 mm.

3.04 FIELD QUALITY CONTROL

.1 Inspection by independent testing agency will monitor quality of installation and glazing.
- .1 Test system to: ASTM E 1105,andAAMA 501.
- .2 Evaluate installed system by thermo-photographic scan.

.2 Manufacturer's Field Services:
- .1 Obtain written report from manufacturer of curtain wall and sloped glazing verifying compliance of Work, in handling, installing, applying, protecting and cleaning of products, and submit written reports in acceptable format to verify compliance of Work with Contract within 3 days of review.
- .2 Submit manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
- .3 Ensure manufacturer's representative of curtain wall and sloped glazing is present before and during critical periods of installation, construction of field joints and testing.
- .4 Schedule site visits to review Work at stages listed:
  - .1 After delivery and storage of products, and when preparatory Work on which Work of this Section depends is complete, but before installation begins.
  - .2 Twice during progress of Work at 25% and 60% complete.
  - .3 Upon completion of Work, after cleaning is carried out.

.3 Delegated Design Engineer’s Review:

- .1 Inspection of Work: Schedule and perform inspections to ensure that the Work of this section is in conformance with the shop drawings.
  - .1 Perform periodic site reviews.
  - .2 Schedule site visits with the Contractor
  - .3 Submit inspection reports, within 3 days of review, for each site review performed.
  - .4 Provide additional site inspections when directed by Contractor.
- .2 Letter of Compliance: Provide Letter of Compliance in accordance with Section 01 33 50 – Delegated Design Submittals.

3.05 ADJUSTING

.1 Adjust operating sash for smooth operation.

3.06 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
- .1 Leave Work area clean at end of each day.
- .2 Remove protective material from prefinished aluminum surfaces.
- .3 Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
- .4 Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.
- .5 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.

.2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

3.07 PROTECTION

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

.2 Repair damage to adjacent materials caused by glazed aluminum curtain wall installation.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

.1 Section 05 51 00 – Metal Stairs and Ladders

.2 Section 06 08 99 – Rough Carpentry for Minor Works

.3 Section 08 11 00 – Metal Doors and Frames

.4 Section 08 11 16 – Aluminum Doors and Frames

.5 Section 08 36 13.16 – Sectional Metal Doors

.6 Section 08 44 13 – Glazed Aluminum Curtain Wall and Skylights

.7 Section 08 80 50 – Glazing

.8 Section 08 71 00 – Door Hardware

.9 Section 08 71 10 – Door Hardware List

.10 Section 08 71 20 – Door Hardware Schedule

.11 Section 08 71 30 – Door and Frame Schedule

.12 Section 08 87 23.16 – Security Films

1.02 REFERENCE STANDARDS

.1 ASTM International
- .1 ASTM C 542-05, Standard Specification for Lock-Strip Gaskets.
- .2 ASTM C1172-19, Standard Specification for Laminated Architectural Flat Glass
- .3 ASTM D 790-07e1, Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- .4 ASTM D 1003-07e1, Standard Test Method for Haze and Luminous Transmittance of Plastics.
- .5 ASTM D 1929-96(R2001)e1, Standard Test Method for Determining Ignition Temperature of Plastics.
- .6 ASTM D 2240-05, Standard Test Method for Rubber Property - Durometer Hardness.
- .7 ASTM E 84-10, Standard Test Method for Surface Burning Characteristics of Building Materials.
- .8 ASTM E 330-02, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- .9 ASTM F 1233-08, Standard Test Method for Security Glazing Materials and Systems.

.2 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
.2 CAN/CGSB-12.2-M91, Flat, Clear Sheet Glass.
.3 CAN/CGSB-12.3-M91, Flat, Clear Float Glass.
.4 CAN/CGSB-12.4-M91, Heat Absorbing Glass.
.5 CAN/CGSB-12.6-M91, Transparent (One-Way) Mirrors.
.6 CAN/CGSB-12.8-97, Insulating Glass Units.
.7 CAN/CGSB-12.8-97 (Amendment), Insulating Glass Units.
.8 CAN/CGSB-12.9-M91, Spandrel Glass.
.9 CAN/CGSB-12.10-M76, Glass, Light and Heat Reflecting.
.10 CAN/CGSB-12.11-M90, Wired Safety Glass.
.11 CAN/CGSB-12.12-M90, Plastic Safety Glazing Sheets.
.12 CAN/CGSB-12.13-M91, Patterned Glass.

.3 Ontario Building Code (2012)

.4 Glass Association of North American (GANA)
.1 GANA Glazing Manual - 2008.
.2 GANA Laminated Glazing Reference Manual - 2009.

1.03 ADMINISTRATIVE REQUIREMENTS

.1 Pre-Installation Meetings:
.1 Convene pre-installation meeting 1 week prior to beginning work of this Section and on-site installation, with Contractor's Representative to:
.1 Verify project requirements.
.2 Review installation and substrate conditions.
.3 Co-ordination with other building subtrades.
.4 Review manufacturer's written installation instructions and warranty requirements.

1.04 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for glass, sealants, and glazing accessories and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:
.1 Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada. This engineer is referred to as the “delegated design professional engineer” for the purpose of this specification.
.1 Indicate on shop drawings:
.1 Insulating glass units and tempered glass panels physical characteristics, dimensional limitations, special installation requirements.
.2 Indicate loads imposed from snow and ice on Insulating glass

units in skylights comply with requirements in the Ontario Building Code.

.4 Delegated Design Submittals:
- .1 Provide regular site reviews in accordance with Section 01 33 50 – Delegated design Submittals.
- .2 Submit Letter of Conformance in accordance with Section 01 33 50 – Delegated design Submittals

.5 Samples:
- .1 Submit duplicate 300 x 300 mm size samples of each type of glazing assembly and glass panels for review by Consultant.

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

.7 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .1 Submit testing and analysis of glass under provisions of Section 01 45 00 - Quality Control.
- .2 Submit shop inspection and testing for glass.

1.05 CLOSEOUT SUBMITTALS

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

.2 Operation and Maintenance Data: submit operation and maintenance data for glazing for incorporation into manual.

.3 Delegated Design submittals indicate in PART 3 of this section.

1.06 QUALITY ASSURANCE

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

.2 Mock-ups:
- .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
- .2 Coordinate size and location in accordance with Section 08 44 13 – Glazed Aluminum Curtain Wall and Skylights.
- .3 Mock-up will be used:
  - .1 To judge quality of work, substrate preparation, operation of equipment and material application.
- .4 Locate where directed.
- .5 Allow 72 hours for inspection of mock-up before proceeding with work.
- .6 When accepted, mock-up will demonstrate minimum standard of quality required for this work. Approved mock-up may remain as part of finished work.

1.07 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and 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 indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect glazing and frames from nicks, scratches, and blemishes.
- .3 Protect prefinished aluminum surfaces with wrapping strippable coating.
- .4 Replace defective or damaged materials with new.

.4 Develop Construction Waste Management Plan related to Work of this Section.

.5 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials as specified in accordance with Section 01 74 19 - Waste Management.

1.08 AMBIENT CONDITIONS

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

2 PRODUCTS

2.01 MATERIALS

.1 Building Envelope Performance: Provide continuity of building enclosure vapour and air. barrier using Glazing materials utilizing inner light of multiple lite insulated units for continuity of air and vapour seal.

.2 Structural Design Performance: Provide glass products in thicknesses designed in accordance with ASTM E1300 based on the following criteria:
- .1 Design Loads: Glass thicknesses listed in the specification are minimum thicknesses only; provide glass in actual thickness required to meet deflection criteria

.3 Design Criteria:
- .1 Ensure continuity of building enclosure vapour and air barrier using glass and glazing materials as follow:
  - .1 Utilize inner light of multiple light sealed units for continuity of air and vapour seal.
- .2 Size glass to withstand wind loads, dead loads and positive and negative live

loads.

.3 Limit glass deflection to 1/200 with full recovery of glazing materials.

.4 Flat Glass:

.1 Float glass: to CAN/CGSB-12.3, glazing quality, 6 mm thick.

.2 Safety glass type 1: to CAN/CGSB-12.1, clear, 6 mm thick.

.1 Type: clear tempered.

.2 Class: A, float glass

.3 Category: 11, fully tempered

.3 Safety glass type 2: to CAN/CGSB-12.1, transparent, 12 mm thick for use at interior aluminum frames.

.1 Type: clear tempered.

.2 Class: A, float glass

.3 Category: 11, fully tempered.

.4 Provide holes and cutouts for installation of door hardware indicated in Section 08 71 10 – Door Hardware list.

.5 Notwithstanding the requirements of CAN/CGSB-12.1 and ASTM C1172; grind and polish edges before assembly and heat treatment to minimize mismatch of exposed edges to a tolerance not exceeding +1.25 mm / -0.00 mm; align patterns and rollers wave to the greatest extent possible to reduce moiré effect; standard tolerances listed in CAN/CGSB-12.1 and ASTM C1172 apply to glass having non-exposed edges

.4 Safety glass type 3: to CAN/CGSB-12.1 and ASTM C1172-19, transparent, 13.52 mm overall thickness for use at stair guardrails.

.1 Type: 6 mm laminated glass.

.2 Class: A, clear float glass

.3 Category: 11, fully tempered.

.4 Interlayer: 1.52 mm clear polyvinyl butyral (PVB)

.5 Coordinate holes or openings in glass for anchors and handrails with Section 05 51 29 – Metal Handrails, Handrails and Ladders.

.6 Notwithstanding the requirements of CAN/CGSB-12.1 and ASTM C1172; grind and polish edges before assembly and heat treatment to minimize mismatch of exposed edges to a tolerance not exceeding +1.25 mm / -0.00 mm; align patterns and rollers wave to the greatest extent possible to reduce moiré effect; standard tolerances listed in CAN/CGSB-12.1 and ASTM C1172 apply to glass having non-exposed edges.

.5 Safety glass type 4: fire rated ceramic glass to CAN/CGSB-12.11, transparent, 5 mm thick

.1 Type 1-polished both sides (transparent).

.2 Film: Fire-rated surface film.

.3 Fire rating: as noted.

.4 Impact Safety Resistance: ANSI Z97.1 and CPSC 16CFR1201 (Cat. I and II).

.5 Positive Pressure Test: UL 10C.

.6 Use at fire rated interior doors and windows.

.7 Acceptable Product: FireLite NT by Technical Glass Products.

.6 Safety Glass type 5: to CAN/CGSB-12.1 and ASTM C1172-19, transparent, 6.76 mm overall thickness for use at pass through windows.

.1 Type: laminated glass.
.2 Class: A, clear float glass
.3 Category: 11, fully tempered.
.4 Interlayer: 0.76 mm (30 mil) clear polyvinyl butyral (PVB)
.5 Provide openings in glass indicated on drawings.
.6 Notwithstanding the requirements of CAN/CGSB-12.1 and ASTM C1172; grind and polish edges before assembly and heat treatment to minimize mismatch of exposed edges to a tolerance not exceeding +1.25 mm / -0.00 mm; align patterns and rollers wave to the greatest extent possible to reduce moiré effect; standard tolerances listed in CAN/CGSB-12.1 and ASTM C1172 apply to glass having non-exposed edges.

.5 Spandrel glass: type SP1 on drawings to CAN/CGSB-12.9, tempered glass, 6 mm thick.
.1 Acceptable product: PPG Starphire ultra clear glass
.2 Coating: Ceramic frit on surface number 2.
.1 Acceptable material: warm grey 24-8287 by OldCastle Building Envelope

.6 Insulating Glass Units: Type 1 at all vision panels and exterior doors.
.1 Insulating glass units: VP on drawings to CAN/CGSB-12.8, double unit, 25.4 mm overall thickness.
.1 Glass: tempered to CAN/CGSB-12.1.
.2 Glass thickness: 6 mm each light.
.3 Inter-cavity space thickness: 12.7 mm with low conductivity thermally-broken warm edge spacer, colour; black.
.4 Glass coating: surface number 2, low "E" colour.
.5 Inert gas fill: argon.
.6 Solar heat gain coefficient: 0.41
.7 Winter U-value: 0.24
.8 Visible light transmittance: 74%
.9 Light to Solar gain: 1.80
.10 Acceptable product: PPG Starphire ultra clear glass (both panes) with Solarban 60 on surface number 2.

.7 Insulating Glass Units: Type 2 at skylight
.1 Insulating glass units: VP2 on drawings to CAN/CGSB-12.8, double unit, 25.4 mm overall thickness.
.1 Glass: clear tempered to CAN/CGSB-12.1 .
.2 Glass thickness: 6 mm each light.
.3 Inter-cavity space thickness: 12.7 mm with low conductivity thermally-broken warm edge spacer, colour; black.
.4 Glass coating: surface number 2, low "E" colour.
.5 Inert gas fill: argon.
.6 Interlayer: 1.14 mm (0.060”) clear polyvinyl butyral (PVB).
.7 Winter U-value: 0.29
.8 Transmittance (visible): 70%
.9 Transmittance (solar): 33%
.10 Shading Coefficient: 0.44
.11 Acceptable product: PPG Starphire ultra clear glass (both panes) with Solarban 60 on surface number 2.

.8 Insulating Glass Units Type 3: at sectional metal doors
- .1 Glass: clear tempered to CAN/CGSB-12.1.
- .2 Glass thickness: 6 mm each light.
- .3 Inter-cavity space thickness: 12.7 mm with low conductivity thermally-broken warm edge spacer, colour; black.
- .4 Glass coating: surface number 2, low "E" colour.
- .5 Inert gas fill: argon.
- .6 Solar heat gain coefficient: 0.38
- .7 Winter U-value: 0.29
- .8 Transmittance (visible): 70%
- .9 Transmittance (solar): 33%
- .10 Shading Coefficient: 0.44

.2 Equal to: Solarban 60 (2) Clear + Clear by PPG

.9 Smoke baffles: to NFPA 13 requirements
- .1 Safety glass type 2, 12 mm clear tempered glass, 500 mm deep x length indicated on drawings with holes for attachment to glazing shoe
- .2 Glazing shoe: U-shaped mill aluminum 39 mm x 71 mm drilled and countersink holes for anchoring to substrate, and drilled and countersink holes for glass anchors.
  - .1 Provide manufacturer’s standard seals and bushing.
  - .2 Provide 19 mm plywood blocking for glazing shoe attachment in accordance with Section 06 08 99 – Rough Carpentry for Minor Works
  - .3 Acceptable material: C.R. Laurence B5BBSC mill aluminum smoke baffle shoe for 12 mm glass with brushed stainless steel cladding.

.10 Plastic Film: in accordance with Section 08 87 23.16 - Security Films.

.11 Sealant: in accordance with Section 07 92 00 - Joint Sealants.

2.02 ACCESSORIES

.1 Setting blocks, spacer shim and glazing tape and other materials required as recommended by manufacturer.

3 EXECUTION

3.01 EXAMINATION

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

and after receipt of written approval to proceed from Consultant.

3.02 PREPARATION

.1 Clean contact surfaces with solvent and wipe dry.

.2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.

.3 Prime surfaces scheduled to receive sealant.

3.03 INSTALLATION: EXTERIOR WET/DRY METHOD (PREFORMED TAPE AND SEALANT)

.1 Perform work in accordance with GANA Glazing Manual and GANA Laminated Glazing Reference Manual for glazing installation methods.

.2 Cut glazing tape to length and set against permanent stops, 6 mm below sight line. Seal corners by butting tape and dabbing with sealant.

.3 Apply heel bead of sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete continuity of air and vapour seal.

.4 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.

.5 Rest glazing on setting blocks and push against tape and heel head of sealant with sufficient pressure to attain full contact at perimeter of light or glass unit.

.6 Install removable stops with spacer strips inserted between glazing and applied stops 6 mm below sight line.

.7 Fill gap between glazing and stop with sealant to depth equal to bite of frame on glazing, maximum 9 mm below sight line.

.8 Apply cap head of sealant along void between stop and glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.04 INSTALLATION: INTERIOR

.1 Perform work in accordance with GANA Glazing Manual for glazing installation methods and manufacturer’s written instructions.

.2 Cut glazing tape to length and set against permanent stops, projecting 1.6 mm above sight line.

.3 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.

.4 Rest glazing on setting blocks and push against tape for full contact at perimeter of light or unit.

.5 Place glazing tape on free perimeter of glazing in same manner described.

.6 Install removable stop without displacement of tape. Exert pressure on tape for full

continuous contact.

.7 Knife trim protruding tape.

3.05 INSTALLATION: PLASTIC FILM

.1 Install plastic film with adhesive, applied in accordance Section 08 87 23.16 – Security Films and with film manufacturer's instructions.

3.06 FIELD QUALITY CONTROL

.1 Delegated Design Engineer’s Review:

.1 Inspection of Work: Schedule and perform inspections to ensure that the Work of this section is in conformance with the shop drawings.

.1 Perform periodic site reviews.
.2 Schedule site visits with the Contractor
.3 Submit inspection reports, within 3 days of review, for each site review performed.
.4 Provide additional site inspections when directed by Contractor.

.2 Letter of Compliance: Provide Letter of Compliance in accordance with Section 01 33 50 – Delegated Design Submittals.

3.07 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
.1 Leave Work area clean at end of each day.
.1 Remove traces of primer, caulking.
.2 Remove glazing materials from finish surfaces.
.3 Remove labels.
.4 Clean glass and mirrors using approved non-abrasive cleaner in accordance with manufacturer's instructions.
.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.

.2 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.

3.08 PROTECTION

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

.2 After installation, mark each light with an "X" by using removable plastic tape or paste.
.1 Do not mark heat absorbing or reflective glass units.

.3 Repair damage to adjacent materials caused by glazing installation.

3.09 SCHEDULE

.1 Safety glass type 1: At non-fire rated interior pressed steel doors and window frames.
.2 Safety glass type 2: Interior meeting rooms and offices.
.3 Safety glass type 3: At Stair C guardrail.
.4 Safety glass type
.5 Safety glass type 4: At all fire rated interior pressed steel doors
.6 Safety glass type 5: At Dispatch Office pass through window.
.7 Spandrel glass: At exterior curtain wall frame assemblies
.8 Insulating Glass Units Type VP: At exterior curtain wall frame assemblies and in exterior doors.
.9 Insulating Glass Units VP2: At skylight
.10 Insulating Glass Units Type 3: At sectional metal doors

END OF SECTION

MCROBIE
ARCHITECTS + INTERIOR DESIGNERS

MARITIME ONTARIO
OFFICE & CROSS-DOCK, KANATA
VIEW 01

M-O

MCROBIE
ARCHITECTS + INTERIOR DESIGNERS

MARITIME ONTARIO
OFFICE & CROSS-DOCK, KANATA
VIEW 02

M-O

MCROBIE
ARCHITECTS + INTERIOR DESIGNERS

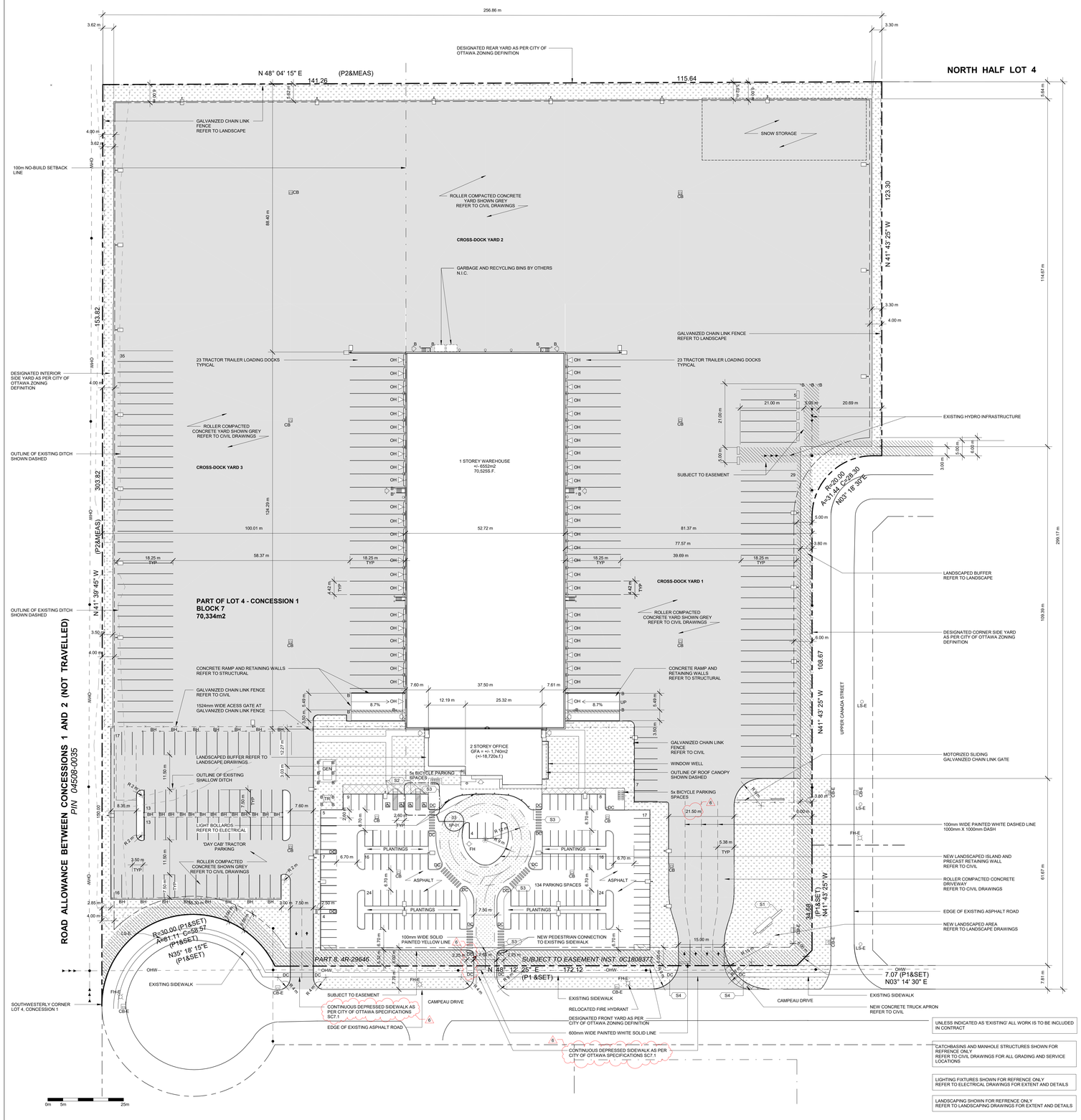
MARITIME ONTARIO
OFFICE & CROSS-DOCK, KANATA
VIEW 03

M-O

MCROBIE
ARCHITECTS + INTERIOR DESIGNERS

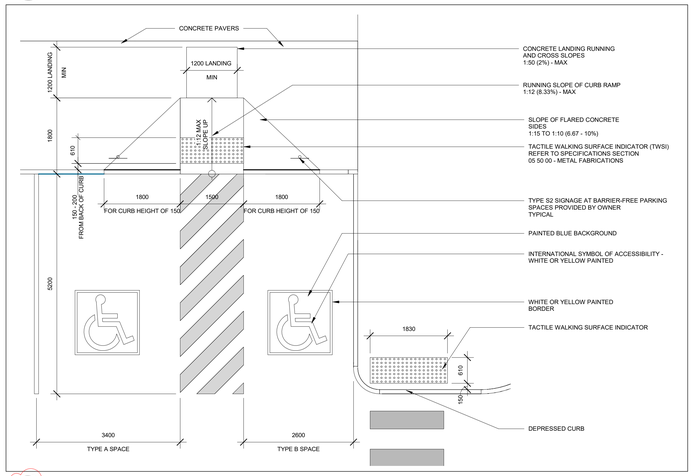
MARITIME ONTARIO
OFFICE & CROSS-DOCK, KANATA
VIEW 04

M-O



05 SP-01 SITE PLAN
Scale: 1 : 500

04 SP-01 RESERVED
Scale:N/A



03 SP-01 TYPICAL DETAIL - DEPRESSED CURB AND TWSI AT BARRIER-FREE PARKING STALL
Scale: 1 : 50

	REQUIRED	PROVIDED
MINIMUM LOT AREA	750m2	70,334m2
MINIMUM LOT WIDTH	NO MINIMUM	297.6m
MINIMUM LOT COVERAGE	55%	10.3%
SETBACKS	FRONT YARD: 6m	FRONT YARD: 59.83m
	INTERIOR SIDE YARD: 4m	INTERIOR SIDE YARD: 100m
	CORNER SIDE YARD: 6m	CORNER SIDE YARD: 81.37m
	REAR YARD: 6m	REAR YARD: 88.4m
MAXIMUM FLOOR SPACE INDEX	2.0	0.103
MAXIMUM BUILDING HEIGHT	22m	12.38m
MINIMUM WIDTH OF LANDSCAPE	ABUTTING A STREET: 3m ALL OTHER CASES: NO MINIMUM	ABUTTING A STREET: 3m (CAMPEAU), 5.32m (UPPER CANADA) ALL OTHER CASES: 1.52m
ACCESSORY SALES AND DISPLAY AREA	MAXIMUM 25% OF THE GROSS FLOOR AREA OF THE PROPOSED BUILDING	N/A
MINIMUM PARKING WAREHOUSE: 0.8/100m2 OF GFA	WAREHOUSE: 58 SPACES	134 SPACES
BARRIER FREE PARKING TYPE A: MINIMUM 3.4m WIDE TYPE B: MINIMUM 2.6m WIDE MINIMUM ACCESS AISLE: 1.5m	4 SPACES (2 TYPE A + 2 TYPE B)	4 SPACES (2 TYPE A + 2 TYPE B)
MINIMUM BICYCLE PARKING WAREHOUSE: 1/1000m2 OF GFA	7 SPACES	10 SPACES
LOADING SPACES	2 SPACES	48 SPACES

02 SP-01 ZONING TABLE
Scale: N/A

SITE PLAN INFORMATION

UNDERLYING TOPOGRAPHICAL INFORMATION IS AS PER A PLAN PREPARED BY STANTEC GEOMATICS LTD, ONTARIO LAND SURVEYORS DATED DECEMBER 20TH, 2019 OF PART OF LOT 4 CONCESSION 1, GEOGRAPHIC TOWNSHIP OF HUNTLEY.

ABBREVIATIONS

AODA : ACCESSIBILITY FOR ONTARIANS WITH DISABILITIES
TWSI : TACTILE WALKING SURFACE INDICATOR
N.I.C. : NOT IN CONTRACT

SIGNAGE

- S1 NEW ILLUMINATED MONUMENT SIGN
- S2 AODA COMPLIANT VERTICAL PARKING SIGN TYPICAL AT EACH AODA PARKING SPACE
- S3 FIRE ROUTE SIGNAGE
- S4 'AUTHORIZED USE ONLY' OVERHEAD SIGN

- LINE OF SETBACK AS PER ZONING BY-LAW
- PROPERTY LINE
- SUBJECT TO EASEMENT
- OHW — OVERHEAD WIRES
- EXISTING UTILITY POLE
- NEW WALL MOUNTED LIGHT FIXTURE REFER TO ELECTRICAL
- NEW EXTERIOR LIGHT STANDARD REFER TO ELECTRICAL
- GEN GENERATOR
- TR TRANSFORMER
- BH POST-MOUNTED BLOCK HEATER OUTLETS - DUAL RECEPTACLE
- LS-E EXISTING LIGHT STANDARD
- NEW SITE LIGHTING FIXTURE REFER TO ELECTRICAL
- PRECAST CONCRETE PAVERS
- FIRE ROUTE
- SOD, REFER TO LANDSCAPE PLAN
- NEW SHRUBS, REFER TO LANDSCAPE PLAN
- NEW TREE, REFER TO LANDSCAPE PLAN
- 2.4M HIGH GALVANIZED CHAIN LINK FENCE WITH 3 ROWS OF BARB WIRE
- GALVANIZED TRAFFIC BARRIER GUARDRAIL ON STEEL POSTS
- BUILDING ENTRANCE
- B 203mm DIAMETER CONCRETE-FILLED BOLLARD
- OH OVERHEAD DOOR
- SC SIAMESE FIRE DEPARTMENT CONNECTION
- FH NEW FIRE HYDRANT
- FH-E EXISTING FIRE HYDRANT
- CB NEW CATCH BASIN
- CB-E EXISTING CATCH BASIN
- BARRIER FREE PARKING STALL
- NEW HORIZONTAL BICYCLE PARKING
- CROSSWALK PAINT MARKINGS
- 610mm DEEP TACTILE WALKING SURFACE INDICATOR (TWSI) -PROFILE TO MATCH EXTENT OF DEPRESSED CURB -TYPICAL ALL DEPRESSED CURBS UNLESS OTHERWISE INDICATED
- DC DEPRESSED CURB

01 SP-01 SITE PLAN NOTES, LEGEND, AND ABBREVIATIONS
Scale:N/A

MCROBIE
ARCHITECTS + INTERIOR DESIGNERS
OTTAWA, ONTARIO

North

Revisions

Revision Number	Description	Date
1	ISSUED FOR SITE PLAN APPLICATION	2020-12-16
2	ISSUED FOR COORDINATION	2021-03-08
3	ISSUED FOR COORDINATION	2021-03-19
4	ISSUED FOR COORDINATION	2021-03-23
5	ISSUED FOR PERMIT	2021-04-07
6	ISSUED IN RESPONSE TO CITY COMMENTS	2021-05-27

Project

MARITIME-ONTARIO OTTAWA FACILITY

8800 CAMPEAU DRIVE. OTTAWA, ON

Drawing

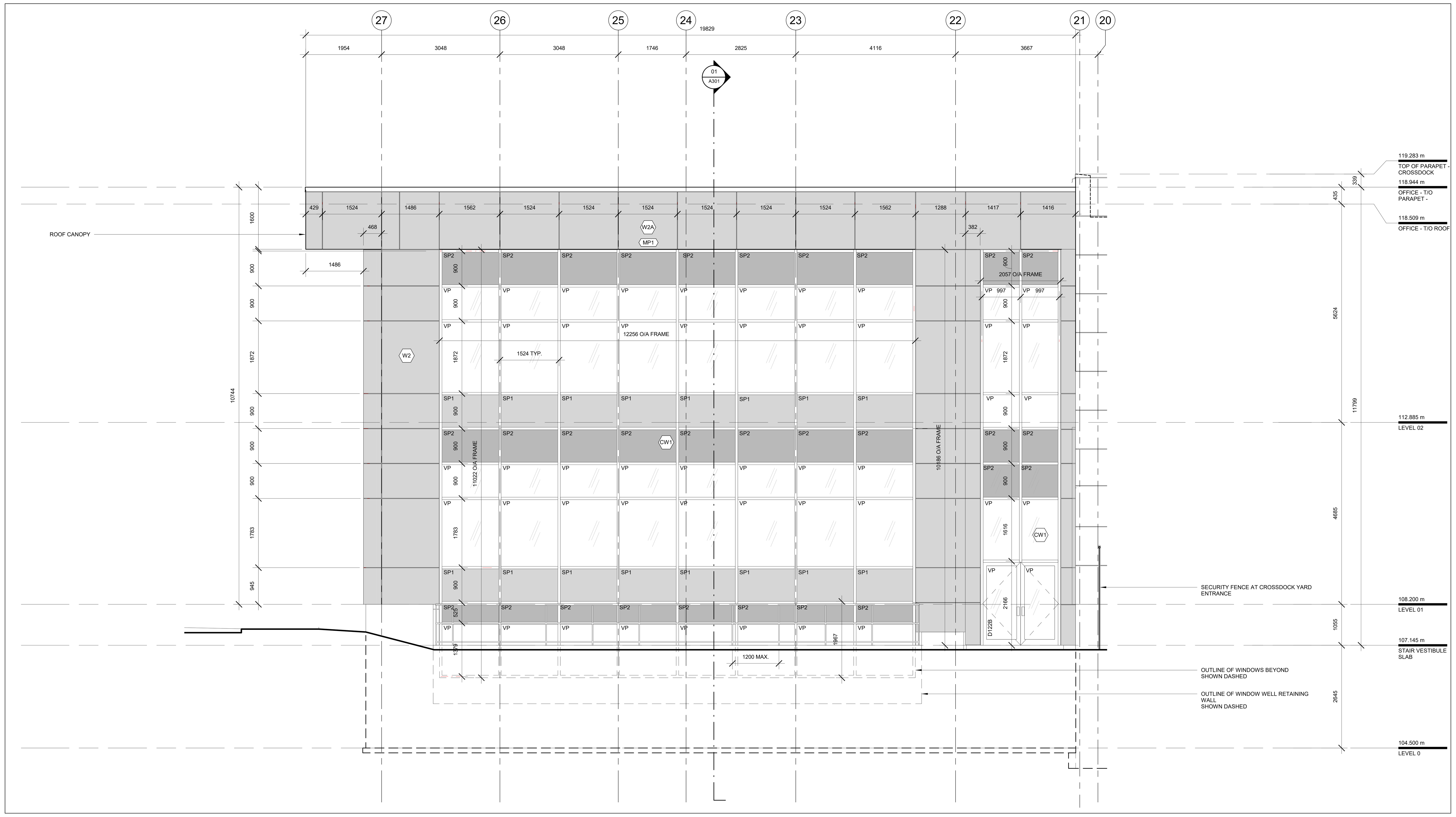
SITE PLAN

Scale: As indicated
Drawn: RH
Checked: DM

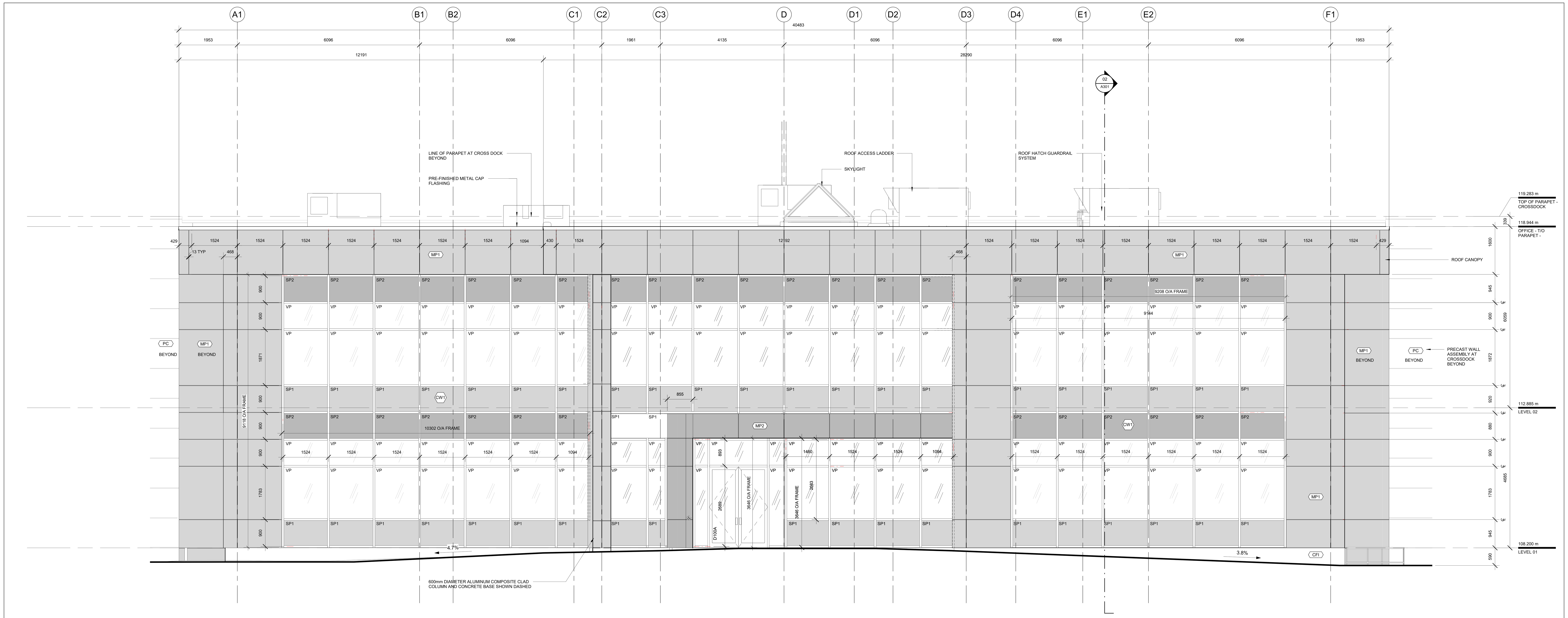
Stamp: ONTARIO ASSOCIATION OF ARCHITECTS — ALL DRAWINGS TO BE READ USING LICENCE 5833

Project No. 19-247
Drawing No. SP-01
Date 2020/07/21

2021-05-28 9:43:03 AM



02 EAST ELEVATION - OFFICE
A201 Scale: 1 : 50



01 SOUTH ELEVATION - OFFICE
A201 Scale: 1 : 50

MCROBIE
ARCHITECTS + INTERIOR DESIGNERS
OTTAWA, ONTARIO

FINISH LEGEND

- MP1 — METAL PANEL TYPE 1, COMPOSITE ALUMINUM PANEL, COLOUR: SILVER
- MP2 — METAL PANEL TYPE 2, COMPOSITE ALUMINUM PANEL, COLOUR: DARK GREY
- CFI — CONCRETE FACED INSULATION PANEL
- PC — PRECAST CONCRETE
- CW1 — CURTAIN WALL TYPE 1, 63 X 190mm (OVERALL DIMENSION), ANNODIZED ALUMINUM FRAME WITH 19 mm DEEP MULLION CAPS

VISION PANEL (VP) LEGEND

25mm INSULATING GLASS UNIT - ARGON FILLED

SPANDREL PANEL (SP) LEGEND

SP1 - SPANDREL PANEL TYPE 1
6mm CLEAR TEMPERED GLASS
COLOUR: SILVER

SP2 - SPANDREL PANEL TYPE 2
6mm CLEAR TEMPERED GLASS
COLOUR: DARK GREY

North

Revisions

Revision Number	Description	Date
1	ISSUED FOR SITE PLAN APPLICATION	2020-12-16
2	ISSUED FOR COORDINATION	2021-02-19
3	ISSUED FOR COORDINATION	2021-03-08
4	ISSUED FOR COORDINATION	2021-03-19
5	ISSUED FOR COORDINATION	2021-03-23
6	ISSUED FOR PERMIT	2021-04-07
7	ISSUED IN RESPONSE TO CITY COMMENTS	2021-05-27

Project

MARITIME-ONTARIO OTTAWA FACILITY

8800 CAMPEAU DRIVE.
OTTAWA, ON

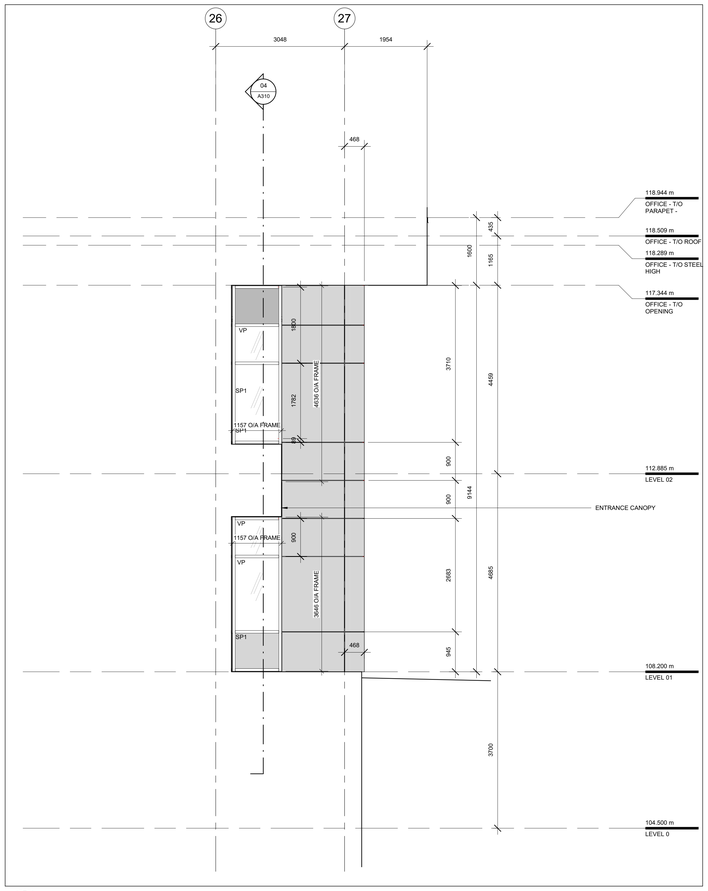
Drawing

OFFICE ELEVATIONS I

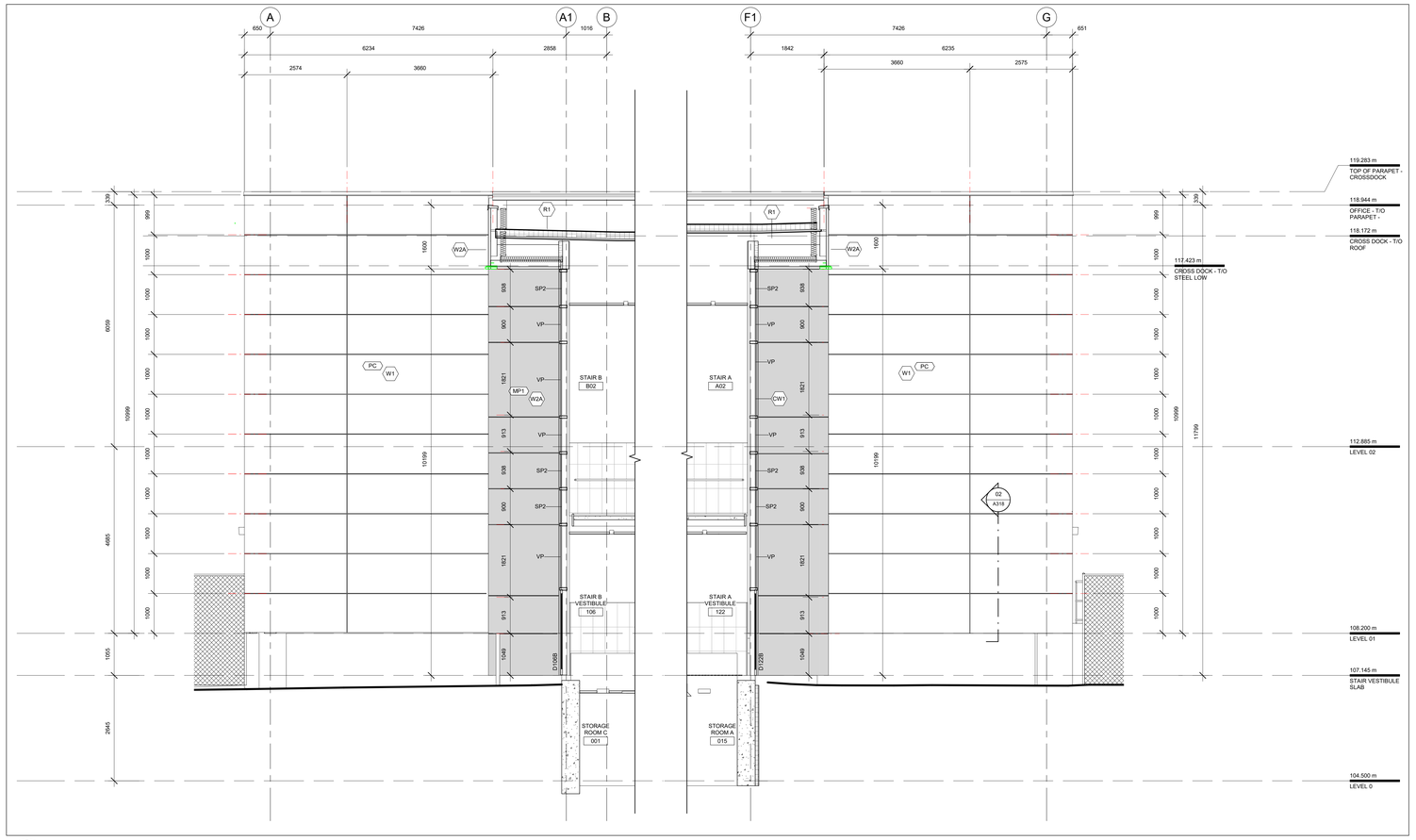
Scale 1 : 50
Drawn RVS
Checked TF
Stamp: ONTARIO ASSOCIATION OF ARCHITECTS — JILL COLLEEN TROWER SPARLING — LICENCE 5833

Project No. 19-247
Date 10/20/20
Drawing No. A201

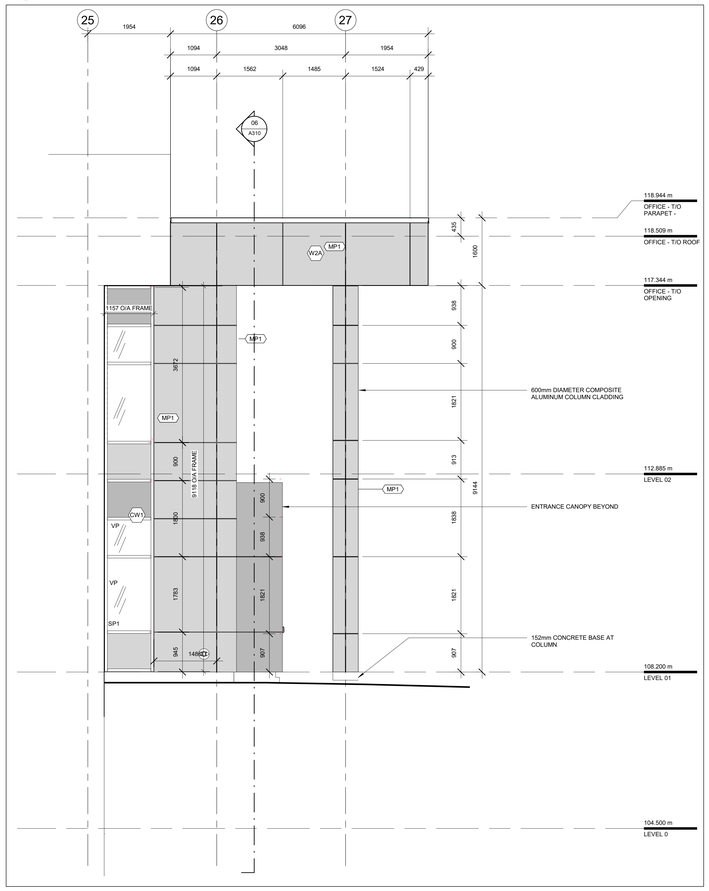
2021-05-27 2:46:36 PM



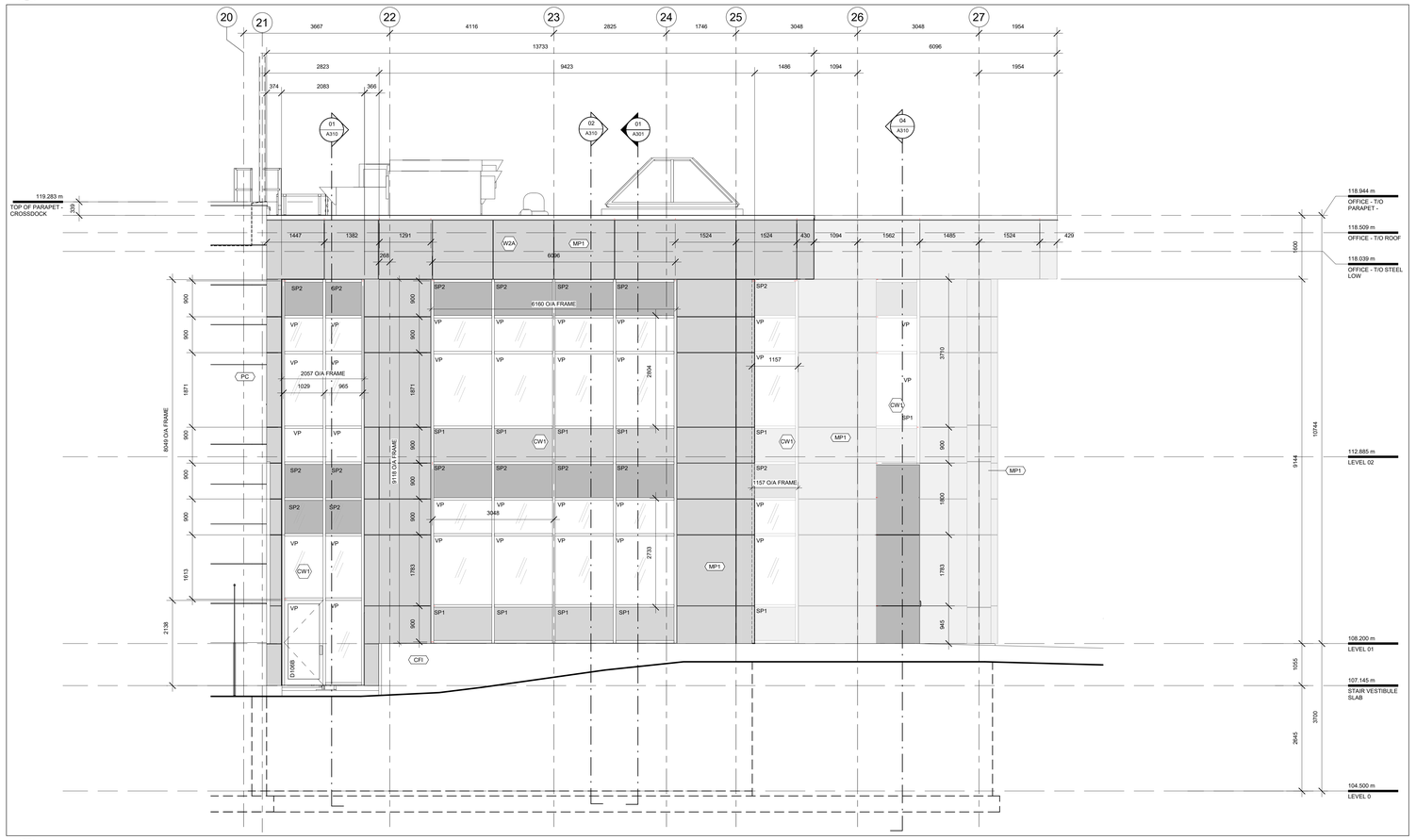
04 A202 ELEVATION - WEST ELEVATION AT OPEN OFFICE
Scale: 1 : 50



02 A202 SOUTH ELEVATION - CROSS DOCK
Scale: 1 : 50



03 A202 ELEVATION - WEST EXTERIOR WALL AT LOBBY
Scale: 1 : 50



01 A202 WEST ELEVATION - OFFICE
Scale: 1 : 50

FINISH LEGEND

- MP1 — METAL PANEL TYPE 1 COMPOSITE ALUMINUM PANEL COLOUR: SILVER
- MP2 — METAL PANEL TYPE 2 COMPOSITE ALUMINUM PANEL COLOUR: DARK GREY
- CFI — CONCRETE FACED INSULATION PANEL
- PC — PRECAST CONCRETE
- CW1 — CURTAIN WALL TYPE 1 63 X 190mm (OVERALL DIMENSION) ANNODIZED ALUMINUM FRAME WITH 19 mm DEEP MULLION CAPS

VISION PANEL (VP) LEGEND

25mm INSULATING GLASS UNIT - ARGON FILLED

SPANDREL PANEL (SP) LEGEND

SP1 - SPANDREL PANEL TYPE 1
6mm CLEAR TEMPERED GLASS
COLOUR: SILVER

SP2 - SPANDREL PANEL TYPE 2
6mm CLEAR TEMPERED GLASS
COLOUR: DARK GREY

MCROBIE
ARCHITECTS + INTERIOR DESIGNERS
OTTAWA, ONTARIO

North

Revisions

Revision Number	Description	Date
1	ISSUED FOR COORDINATION	2021-02-19
2	ISSUED FOR COORDINATION	2021-03-08
3	ISSUED FOR COORDINATION	2021-03-19
4	ISSUED FOR COORDINATION	2021-03-23
5	ISSUED FOR PERMIT	2021-04-07
6	ISSUED IN RESPONSE TO CITY COMMENTS	2021-05-27

Project

MARITIME-ONTARIO
OTTAWA FACILITY

8800 CAMPEAU DRIVE.
OTTAWA, ON

Drawing

OFFICE ELEVATIONS II

Scale: 1 : 50

Drawn: RH

Checked: TF

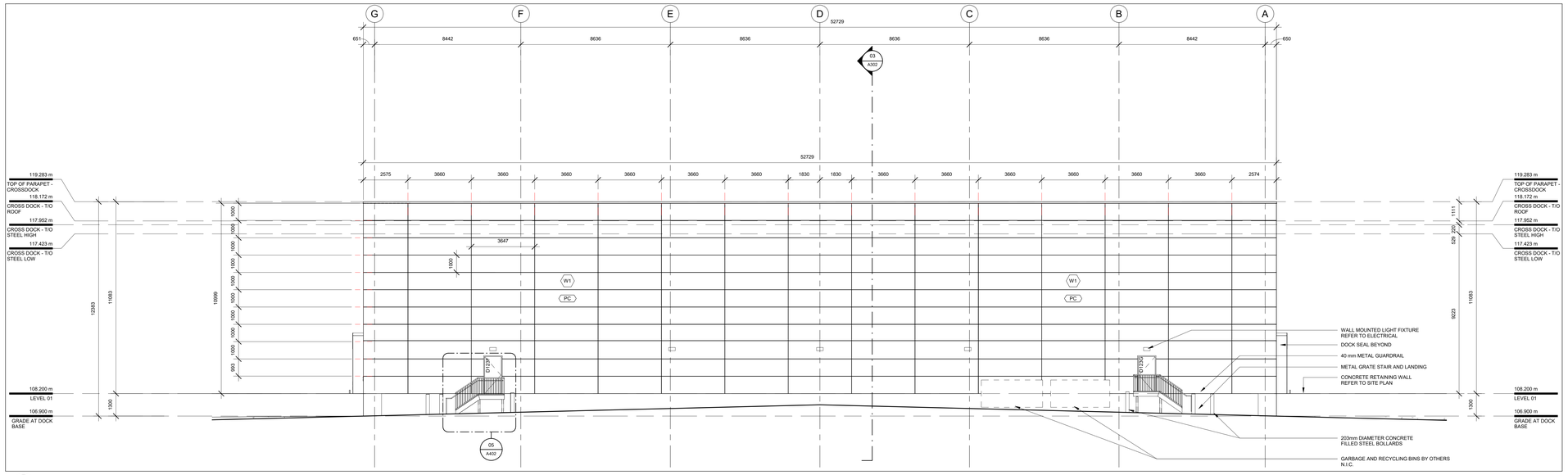
Stamp: ONTARIO ASSOCIATION OF ARCHITECTS — JILL COLLEEN FISHER LICENCE 5028

Project No.: 19-247

Drawing No.: A202

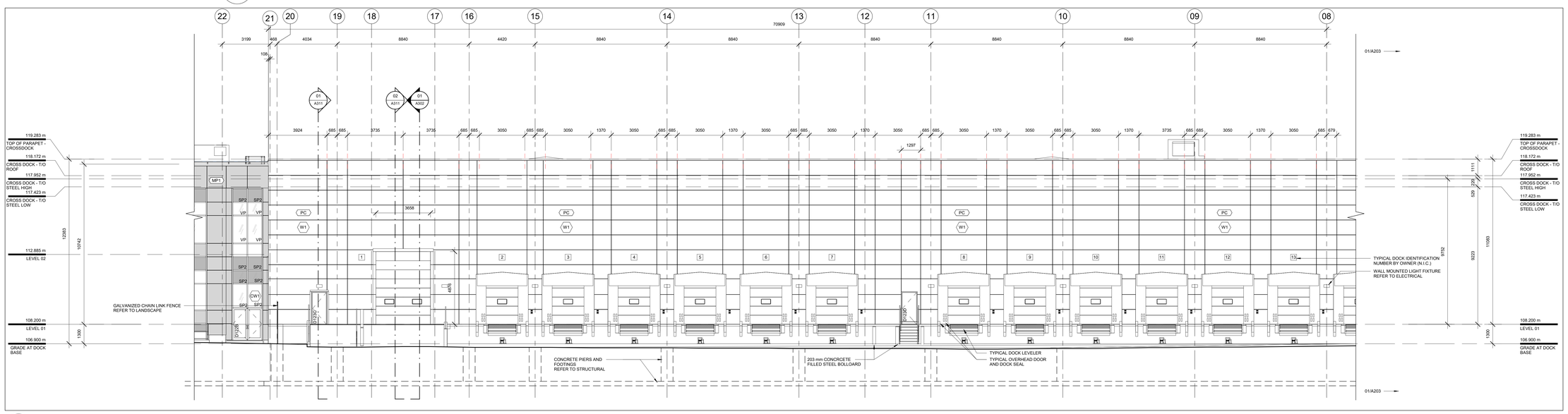
Date: 01/22/21

2021-05-27 2:46:39 PM



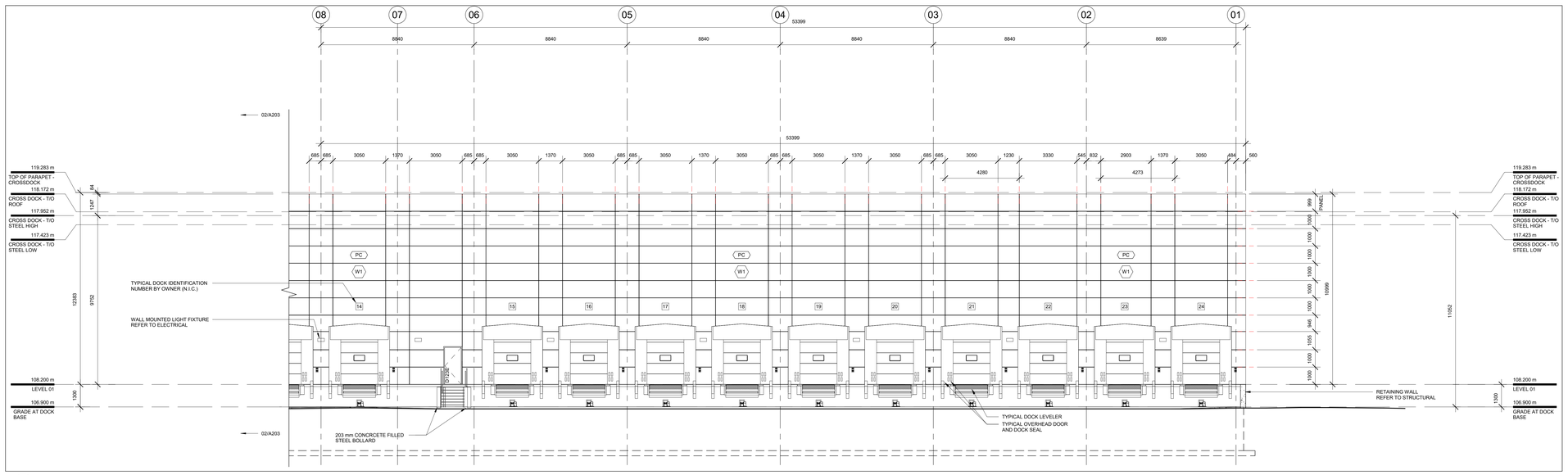
03 A203 NORTH ELEVATION - CROSS DOCK

Scale: 1 : 100



02 A203 PARTIAL EAST ELEVATON - CROSS DOCK1

Scale: 1 : 100



01 A203 PARTIAL EAST ELEVATON - CROSS DOCK

Scale: 1 : 100

MCROBIE
ARCHITECTS + INTERIOR DESIGNERS

OTTAWA, ONTARIO

7

FINISH LEGEND

MP1	METAL PANEL TYPE 1 COMPOSITE ALUMINUM PANEL COLOUR: SILVER
MP2	METAL PANEL TYPE 2 COMPOSITE ALUMINUM PANEL COLOUR: DARK GREY
CFI	CONCRETE FACED INSULATION PANEL
PC	PRECAST CONCRETE
CW1	CURTAIN WALL TYPE 1 63 X 190mm (OVERALL DIMENSION) ANNODIZED ALUMINUM FRAME WITH 19 mm DEEP MULLION CAPS

VISION PANEL (VP) LEGEND

25mm INSULATING GLASS UNIT - ARGON FILLED

SPANDREL PANEL (SP) LEGEND

SP1 - SPANDREL PANEL TYPE 1
6mm CLEAR TEMPERED GLASS
COLOUR: SILVER

SP2 - SPANDREL PANEL TYPE 2
6mm CLEAR TEMPERED GLASS
COLOUR: DARK GREY

North

Revisions

Revision Number	Description	Date
1	ISSUED FOR SITE PLAN APPLICATION	2020-12-16
2	ISSUED FOR COORDINATION	2021-02-19
3	ISSUED FOR COORDINATION	2021-03-08
4	ISSUED FOR COORDINATION	2021-03-19
5	ISSUED FOR COORDINATION	2021-03-23
6	ISSUED FOR PERMIT	2021-04-07
7	ISSUED IN RESPONSE TO CITY COMMENTS	2021-05-27

Project

MARITIME-ONTARIO
OTTAWA FACILITY

8800 CAMPEAU DRIVE.
OTTAWA, ON

Drawing

CROSSDOCK
ELEVATIONS I

Scale: As indicated

Drawn: RVS

Checked: TF

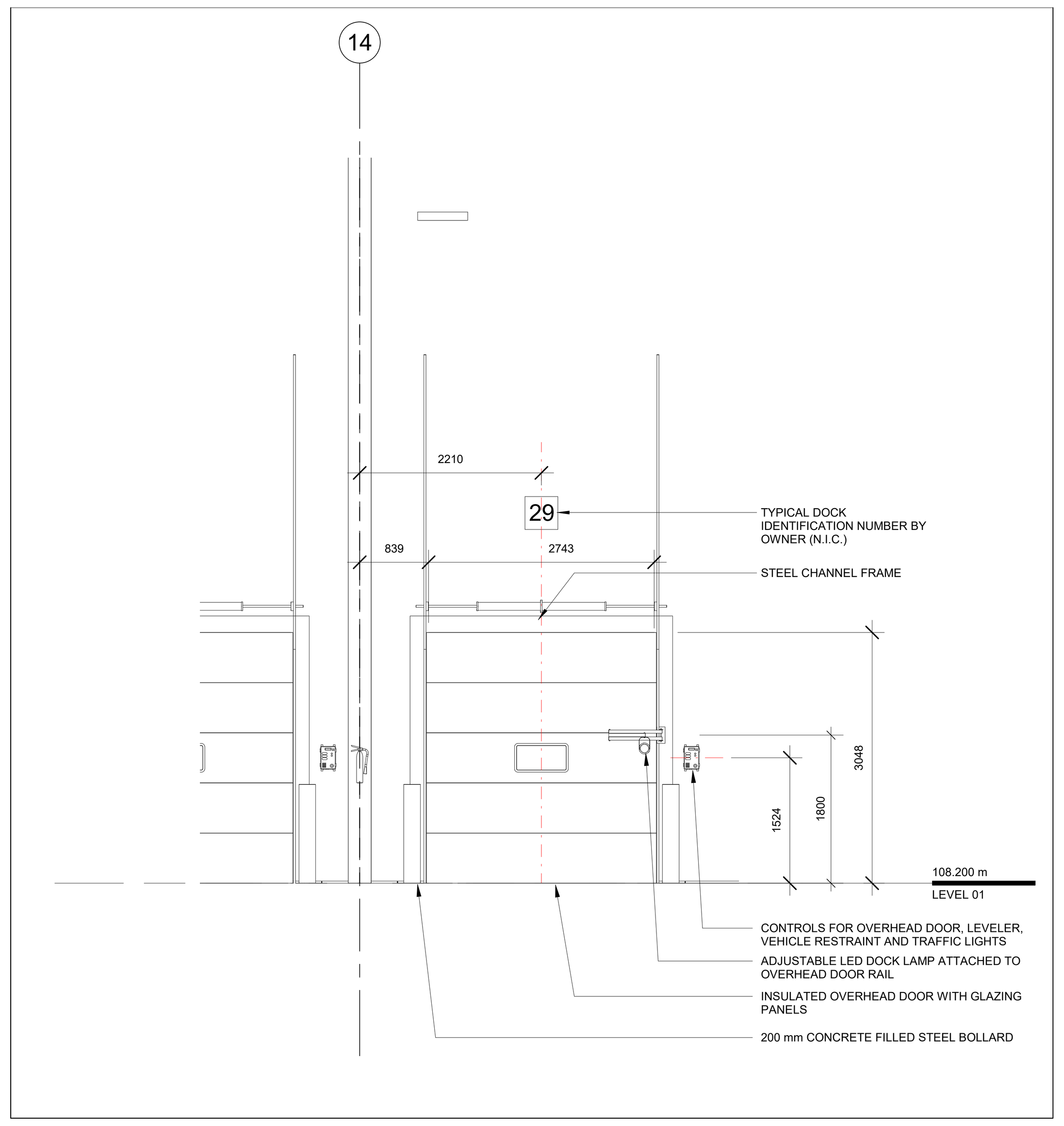
Stamp: ONTARIO ASSOCIATION OF ARCHITECTS — JILL COLLEEN TRUMPER GRADUATE — LICENCE 5033

Project No.: 19-247

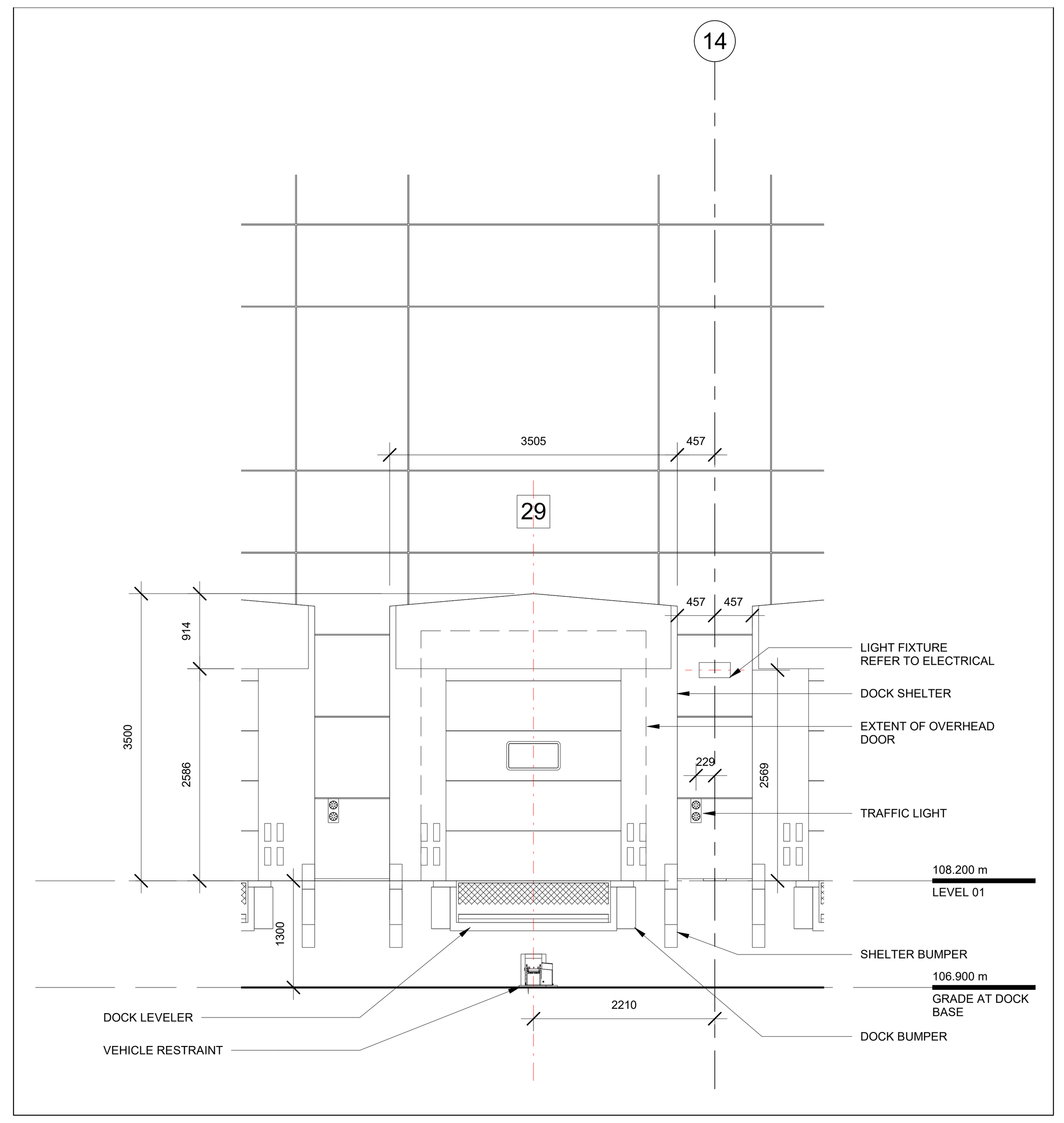
Drawing No.: A203

Date: 10/29/20

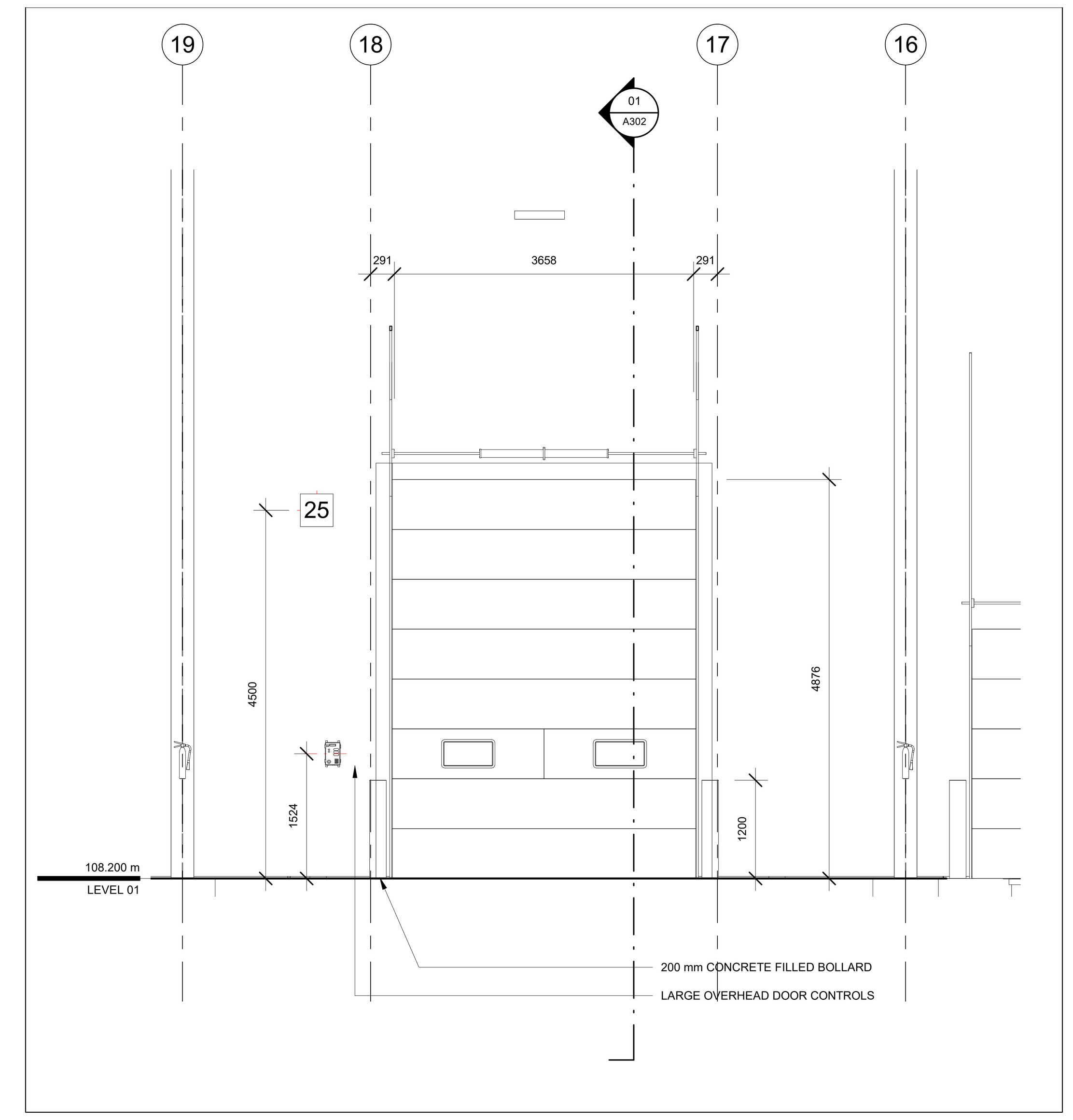
2021-05-27 2:46:49 PM



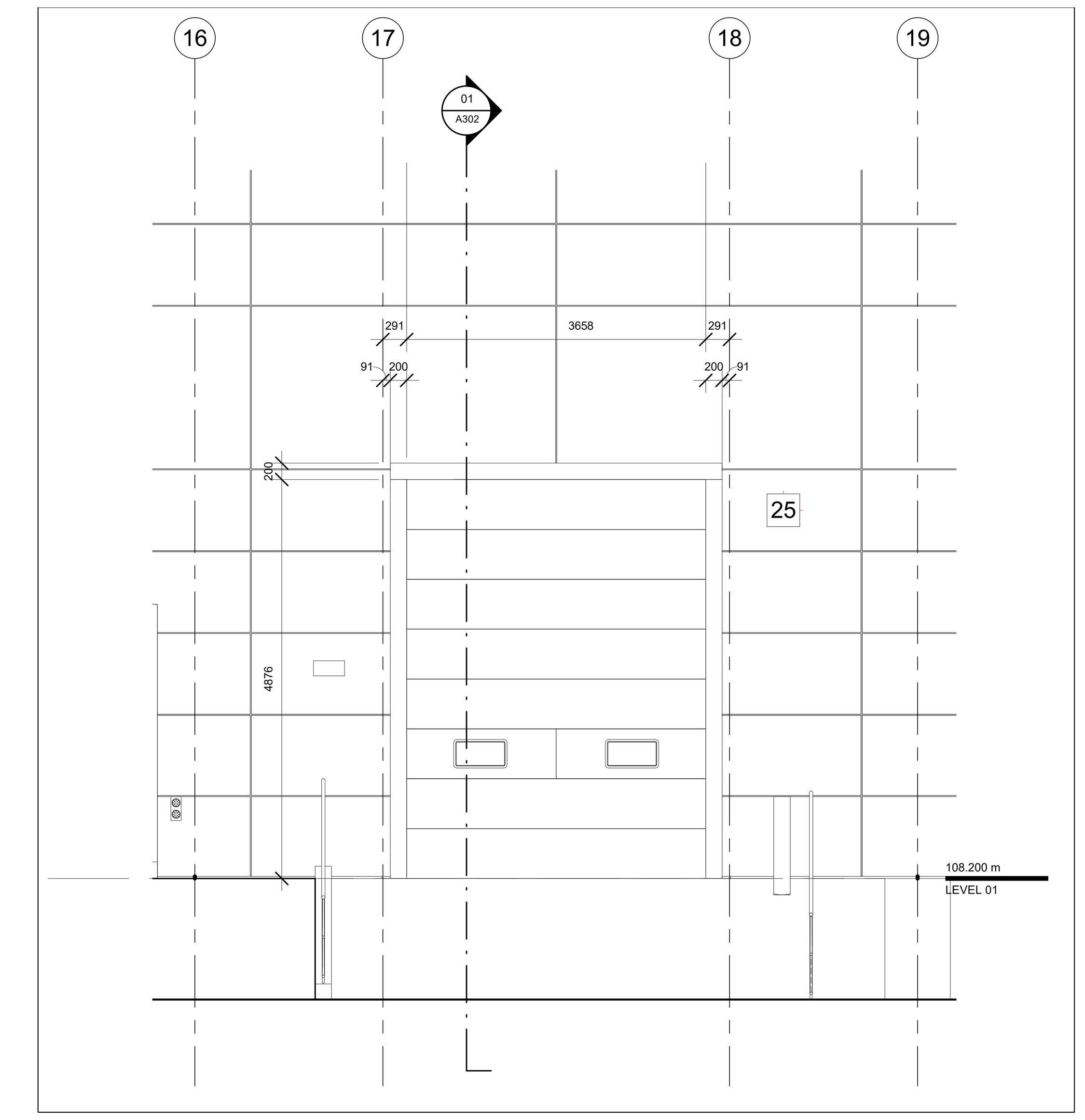
06 INTERIOR ELEVATION - TYPICAL OVERHEAD DOOR
A204 Scale: 1 : 50



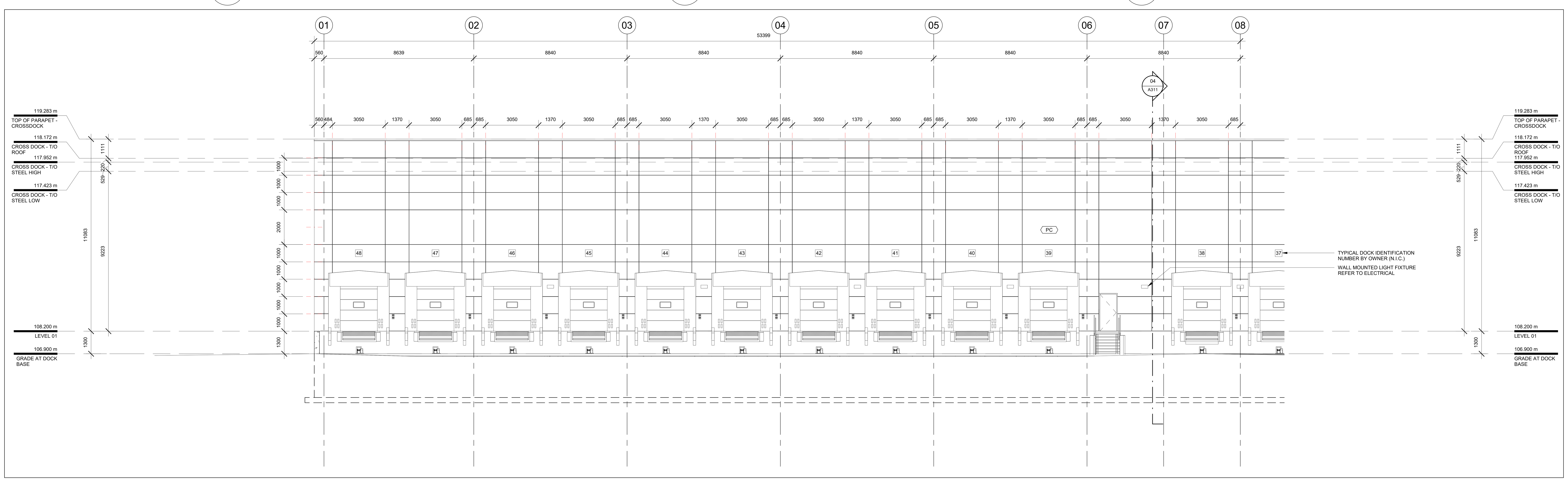
05 EXTERIOR ELEVATION - TYPICAL OVERHEAD DOOR
A204 Scale: 1 : 50



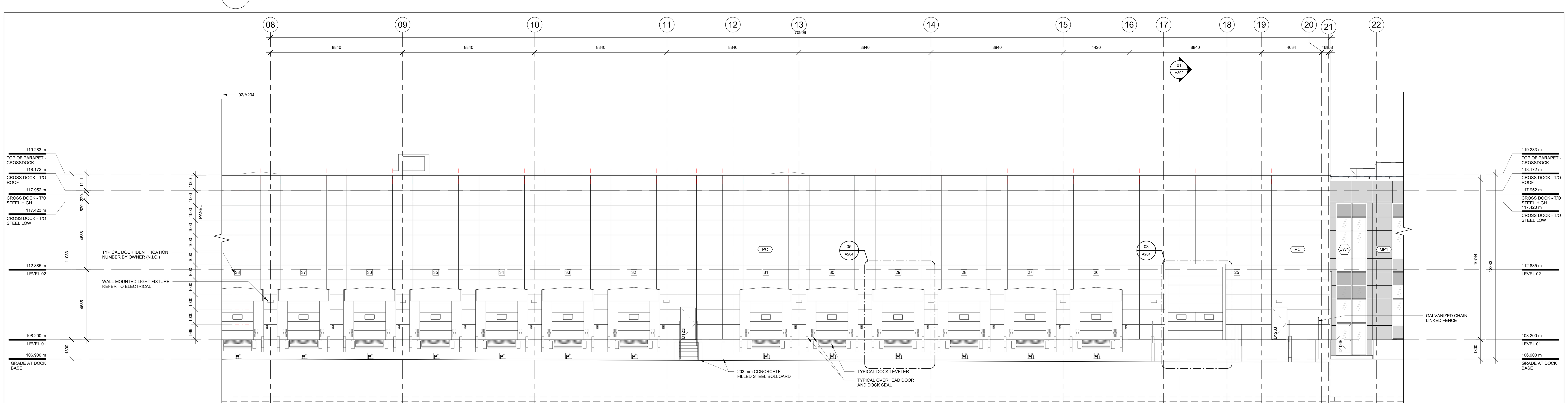
04 INTERIOR ELEVATION - LARGE OVERHEAD DOOR
A204 Scale: 1 : 50



03 EXTERIOR ELEVATION - LARGE OVERHEAD DOOR
A204 Scale: 1 : 50



02 PARTIAL WEST ELEVATON - CROSS DOCK2
A204 Scale: 1 : 100



01 PARTIAL WEST ELEVATON - CROSS DOCK3
A204 Scale: 1 : 100

MCROBIE
ARCHITECTS + INTERIOR DESIGNERS

OTTAWA, ONTARIO

6

FINISH LEGEND

MP1 METAL PANEL TYPE 1
COMPOSITE ALUMINUM PANEL
COLOUR: SILVER

MP2 METAL PANEL TYPE 2
COMPOSITE ALUMINUM PANEL
COLOUR: DARK GREY

CFI CONCRETE FACED INSULATION PANEL

PC PRECAST CONCRETE

CW1 CURTAIN WALL TYPE 1
63 X 190mm (OVERALL DIMENSION)
ANNODIZED ALUMINUM FRAME WITH 19 mm
DEEP MULLION CAPS

VISION PANEL (VP) LEGEND

25mm INSULATING GLASS UNIT - ARGON FILLED

SPANDREL PANEL (SP) LEGEND

SP1 - SPANDREL PANEL TYPE 1
6mm CLEAR TEMPERED GLASS
COLOUR: SILVER

SP2 - SPANDREL PANEL TYPE 2
6mm CLEAR TEMPERED GLASS
COLOUR: DARK GREY

North

Revisions

Revision Number	Description	Date
1	ISSUED FOR COORDINATION	2021-02-19
2	ISSUED FOR COORDINATION	2021-03-08
3	ISSUED FOR COORDINATION	2021-03-19
4	ISSUED FOR COORDINATION	2021-03-23
5	ISSUED FOR PERMIT	2021-04-07
6	ISSUED IN RESPONSE TO CITY COMMENTS	2021-05-27

Project

MARITIME-ONTARIO
OTTAWA FACILITY

8800 CAMPEAU DRIVE.
OTTAWA, ON

Drawing

CROSSDOCK
ELEVATIONS II

Scale: As indicated

Stamp

Drawn: RVS

Checked: JS

Project No.: 19-247

Drawing No.: A204

Date: 02/18/21

2021-05-27 2:46:55 PM