

- 3.2.4 Do not leave gaps between joint fillers.
- 3.2.5 When handling, do not stretch, puncture, twist, or tear pre-formed joint fillers.
- 3.2.6 Use bond breaker tapes between sealants and joint fillers, compression seals, or back of joints.
- 3.2.7 Begin tooling of non-sag sealant immediately before setting and curing begins, unless otherwise instructed by the manufacturer.
- 3.2.8 When tooling, form smooth, uniform heads to eliminate air pockets. Remove excess sealant from adjacent surfaces. Do not use tooling agents that damage the sealant or adjacent surfaces. Provide concave and flushed joints, unless otherwise indicated in drawings.
- 3.2.9 When installing pre-formed foam sealants, install immediately after removal of protective wrapping. Do not stretch, twist, or pull the material. Ensure continuity between ends, turns, and intersections of joints. When applying during low temperatures, apply heat to sealant as needed following prescriptions by manufacturer.
- 3.2.10 Install all gaskets within tolerances and conditions allowed by the manufacturer. Use the appropriate adhesives and when required, always provide watertight joints.
- 3.2.11 For fire-stopping sealants, comply with installation requirements established by the testing and inspecting agency.

3.3 CLEANING AND PROTECTION

- 3.3.1 Remove excess sealant and smears adjacent to joints. Only use appropriate cleaning materials.
- 3.3.2 Protect accomplished joint sealer work during and after curing period.
- 3.3.3 In case of damages before the time of Substantial Completion, remove damaged and deteriorated portions but cutting and immediately replace and reseal with new materials such the original work and repair work is indistinguishable.

END OF SECTION

DIVISION 08 DOORS, WINDOWS, and OPENINGS

08 00 00	DIVISION 8 DOORS, WINDOWS, and OPENINGS
08 11 0	Steel Doors and Frames

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

- 1.1.1 Technical Architectural Drawings
- 1.1.2 Specifications
- 1.1.3 Requests for Interpretation
- 1.1.4 Product Samples and Brochures
- 1.1.5 Manufacturer's Data Sheets and Certificates
- 1.1.6 Material Safety Data Sheets
- 1.1.7 Work Program and Methodology Submittals
- 1.1.8 Finish Hardware Schedule and Door Schedule
- 1.1.9 Schedule of Doors and Windows

1.2 SUMMARY

- 1.2.1 This section includes provisions on both fire-rated and non-rated Wooden Doors, Steel Doors, Steel Door Frames, Louvers, and Vision panel assemblies.

1.3 RELATED SECTIONS

- 1.3.1 Joint Sealants
- 1.3.2 Door Hardware
- 1.3.3 Glazing

1.4 GENERAL PROVISION

- 1.4.1 Check all door assembly requirements on the technical working drawings. Check quantities according to types of door assemblies. In case of discrepancies, submit a request for interpretation to the Architect. Do not place final orders for door assemblies without approval and verification from the architect.
- 1.4.2 Verify actual dimensions of all openings through field measurements and indicate on shop drawings based on actual conditions. Ensure the door fabrications shall be consistent with actual dimensions. Indicate actual dimensions of pre-installed anchorages and indicate on shop drawings.
- 1.4.3 Manufacturers shall provide complete instructions on anchorage requirements for door assemblies. Contractor to comply with manufacturer's requirements.
- 1.4.4 Provide proper labels on all doors. Indicate fire rating, location, and testing results according to ratings required. Do not paint over door labels. All labels shall be affixed by the manufacturer.

1.5 MAINTENANCE, DELIVERY, STORAGE AND HANDLING

- 1.5.1 All Door Assembly deliveries shall be completely protected by crates, cardboard wrapping, or other means of protection as warranted by the manufacturer.
- 1.5.2 Inspect doors and frames upon delivery. Do not accept damaged deliveries and do not accept deliveries inconsistent with drawing requirements.
- 1.5.3 Storage of delivered door assemblies shall be completely weather protected. Use appropriate wood blockings and take care to store door assemblies according to the manufacturer's requirements. Do not store door assemblies in areas with high humidity and other areas that can affect the quality of the finish.

1.6 SUBMITTALS

1.6.1 PRODUCT APPROVAL ATTACHMENTS

- 1.6.1.1 Detailed Shop drawings of each type of door indicated in the drawings as listed according to the Schedule of Doors. Be sure to indicate door designation, type, location of door installation, model of door, material description, core description, construction details, label compliances, sound and fire resistance ratings and finishes.

- 1.6.1.2 Shop Drawings shall include elevations of each door design, door details, frame details for each frame type, shall be drawn to scale, with proper dimensions, complete with indications for locations of reinforcement and preparations for hardware, anchorages, accessories, joints and connections, glazing frames, and other glazing requirements.
- 1.6.1.3 Submit painted steel swatches from manufacturer's color charts following the color indicated in the drawings. Submit samples for each type of exposed finish not less than 75mm X 125mm in size and must be of the same thickness as the actual material.
- 1.6.1.4 Submit glazing samples with complete description of glazing performance.
- 1.6.1.5 Use the same door designation as indicated in the drawings.

1.6.2 EXECUTION APPROVAL ATTACHMENTS

1.6.3 Detailed work methodology indicating manufacturer's instructions for installing anchorages, sleeves, concrete inserts, anchor bolts, and other similar items.

1.7 QUALITY ASSURANCE

- 1.7.1 Engage manufacturers with significant experience in completing projects of the same size and scale as of the project.
- 1.7.2 Ensure material and assembly consistency.
- 1.7.3 Manufacturers shall have good records in on-time delivery, provides support services in installation demonstration, and with good after-sales service records.
- 1.7.4 Only source required metal door assemblies from a single manufacturer unless manufacturer is proven to be a poor performer.
- 1.7.5 No door assembly from two different manufacturers shall be allowed for installation on site unless the door assemblies are proven consistent and similar in make to the approved shop drawings. Submit new shop drawings for every manufacturer.

1.8 WARRANTIES

Material and installation of door assemblies shall be warranted for two (2) years.

2. PART 2 PRODUCTS

2.1 FINISHES

- 2.1.1 Comply with finish color and texture as indicated and required in the technical working drawings.
- 2.1.2 All steel doors and frames shall have a layer of factory-applied, rust-inhibiting primer. Comply with ANSI A250.3 for performance and acceptance criteria.
- 2.1.3 Final paint finish of the door assembly shall be factory-applied. Comply with ANSI A250.3.
- 2.1.4 In case of damages during handling on site, restore finishes to its original condition as delivered.
- 2.1.5 For fire rated doors, manufacturer shall provide one-coat of baked-on prime coat paint.
- 2.1.6 Primers shall be of rust-inhibitive enamel or paint, applied via air-dry or baking.

2.2 STEEL DOORS

- 2.2.1 For both fire-rated and non-rated fire doors, use GA No.18 Steel for all door faces and use Ga. No. 16 Steel for hinge and lock rails, and top and bottom channels.
- 2.2.2 All doors both non-fire rated and fire-rated steel door and access door systems shall comply with ANSI/SDI 100.
- 2.2.3 Hot-rolled steel sheets used as material for door facing shall comply with ASTM 569/A 569M, Commercial Steel (CS), Type B. All sheets shall be free of scale, pitting, and other surface defects.
- 2.2.4 Cold-rolled steel sheets used as material for door facing shall comply with ASTM A 366/A 366M, Commercial Steel (CS), Type B, stretcher-leveled.
- 2.2.5 Metallic-Coated Steel Sheets used as material for door facing shall comply with ASTM A 653/A653M, Commercial Steel (CS), Type B with A40 (ZF120) zinc-iron alloy galvanized coating, stretcher-leveled.
- 2.2.6 Only use electrolytic Zinc-Coated Steel Sheet for unexposed applications. Comply with ASTM A 591/A 591M, Commercial Steel (CS), Class B coating.

2.3 FABRICATION

- 2.3.1 Prepare doors to receive specified hardware, i.e. lock rails, door handles, door sills.
- 2.3.2 Unless otherwise indicated, all doors shall be 44mm thick as measured from finish to finish of top and bottom channels and rails.

2.3.3 Comply with ANSI A250.8.

2.3.4 Fabricate steel door and frame assemblies to be rigid, neat, and free from warps, buckling, and other defects visually affecting its appearance. Close top and bottom edges of doors such that fabrication is integral.

2.3.5 Square off all edges unless otherwise required.

2.3.6 For allowable tolerances, comply with SDI 117

2.3.7 Provide for countersunk flat or oval heads for exposed screws and bolts.

2.3.8 Comply with ANSI A115 series specifications for door and frame hardware preparation. Prepare doors and frames to receive concealed finish hardware. Provide cutouts, reinforcements, spaces, and other similar provisions as applicable.

2.3.9 For frames, fabricated with mitered corners. Continuously weld until face is seamless. Mechanically interlock or continuously weld stops and rabbets. Comply with ANSI/SDI 100.

2.3.10 Allowable clearances shall be as follows:

2.3.10.1	Jams and heads	3.2mm
2.3.10.2	Between pairs of doors	6.4mm
2.3.10.3	Bottom of door	19mm

2.4 GLAZING, HARDWARE AND ACCESSORIES

2.4.1 Provide a minimum of four anchors for each door jamb. Wall to jamb anchors shall be located opposite each other and in same relative position on side jams.

2.4.2 Provide floor anchors drilled for at least 9mm at bottom of each jamb member.

2.4.3 For zinc-coated inserts, bolts, and fasteners, refer to manufacturer's standard units and comply with ASTM A 153, Class C or D as applicable.

2.4.4 Provide weather-stripping and sound-stripping for jams, heads, and sills as shown on drawings.

2.4.5 All glazing for vision panels shall be of wired, safety glass as indicated in schedules.

2.4.6 Provide Astragals as required by NFPA 80 for fire rated spaces.

2.4.7 Provide for door louvers where indicated.

2.4.8 Provide door silencers where required.

3. PART 3 EXECUTION

3.1 GENERAL INSTALLATION

3.1.1 Comply with manufacturer's requirements for general installation procedures

3.1.2 Comply with SDI 105.

3.1.3 Comply with NFPA 80.

3.1.4 Set frames in accurate positions. Plumb, align and brace securely until permanent anchors are set.

3.1.5 Remove temporary braces and spreaders upon completion of installation. restore all damaged surfaces.

3.1.6 Provide at least three wall anchors per jamb. Use acceptable masonry wire and T-anchors where needed.

3.1.7 Always install additional anchors for door assemblies higher than the standard 2100mm height.

3.1.8 For smoke-control doors, comply with NFPA 105.

3.2 CLEANING AND ADJUSTMENTS

3.2.1 Restore all surfaces damaged during installation. Smooth any rusted or damaged areas.

3.2.2 Remove protective wrappings upon substantial completion of project.

END OF SECTION

08 00 00	DIVISION 8 DOORS, WINDOWS, and OPENINGS
08 21 1	Flush Wood Doors

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

- 1.1.1 Technical Architectural Drawings
- 1.1.2 Specifications
- 1.1.3 Requests for Interpretation
- 1.1.4 Product Samples and Brochures
- 1.1.5 Manufacturer's Data Sheets and Certificates
- 1.1.6 Material Safety Data Sheets
- 1.1.7 Work Program and Methodology Submittals

1.2 SUMMARY

This section includes provisions on door specifications for the following areas:

- 1.2.1 Solid—core and Hollow—core doors with laminated facing situated in Toilet, Service Areas, and other areas as specified in the technical working drawings.
- 1.2.2 Other wooden doors as needed on the project.

1.3 RELATED SECTIONS

- 1.3.1 Division 6 Wood and Plastics Rough Carpentry
- 1.3.2 Division 6 Interior Architectural Woodwork
- 1.3.3 Division 8 Door Hardware

1.4 GENERAL PROVISION

- 1.4.1 Submit Shop Drawings for approval prior to purchase from manufacturer and production of door assemblies for delivery.
- 1.4.2 For Fire rated doors, comply with NFPA 80.
- 1.4.3 Comply with hardware requirements. Double check door hardware schedule

1.5 MAINTENANCE, DELIVERY, STORAGE

- 1.5.1 All door assemblies delivered shall be properly protected and accurately labeled according to its location and type of handle. Door quantities shall be consistent with requirements on the technical working drawings.
- 1.5.2 Store delivered doors according to standards specified by the manufacturers in their written instructions.
- 1.5.3 Store doors in dry, weather-protected areas. Ensure that storage areas are weather tight.
- 1.5.4 Do not deliver doors during bad weather.

1.6 SUBMITTALS

1.6.1 PRODUCT APPROVAL ATTACHMENTS

- 1.6.1.1 Submit product data for each type of door. Declare core details, material and construction of edge, factory-finish and colors.
- 1.6.1.2 Samples at least 200mm X150mm, of actual thickness for each material finish and wood specie. The sample should be a complete assembly using actual glue and wood for use in the project site, reflecting actual laminate to be used for approval. Include brochures for laminate options and other samples for finish choice. Samples shall be cut from the corner portion of the door.

1.6.2 EXECUTION APPROVAL ATTACHMENTS

- 1.6.3 Detailed work methodology on installation and restoration instructions.
- 1.6.4 Shop drawings indicating location, size, actual dimensions of openings on site, hand of each door, elevations, construction details, and required hardware blocking. Show location of mortises and holes for hardware, anticipate cut-outs for hardware.

1.7 QUALITY ASSURANCE

- 1.7.1 Only engage the services of qualified manufacturers with punctual delivery records and quality products.
- 1.7.2 Only obtain flush wood doors from a single manufacturer. In case of a change of manufacturers, ensure approval of new samples.
- 1.7.3 Manufacturers shall properly label all doors in accordance to specifications in the technical working drawings.

1.8 WARRANTIES

- 1.8.1 Manufacturer's warranty should include an agreement to repair or replace door assemblies with workmanship and material issues. Material issues include all forms of warping of core and/or face veneers.
- 1.8.2 All doors shall be guaranteed of good quality for at least two (2) years from date of Substantial Completion.

2. PART 2 PRODUCTS

2.1 INTERIOR SOLID-CORE DOORS

- 2.1.1.1 Exposed Vertical and top Edges shall be of closed-grain hardwood.
- 2.1.1.2 Core shall be glued wood stave or structural composite lumber.
- 2.1.1.3 Stiles and rails shall be bonded to the core, and the entire door face, planed abrasively prior to veneering.
- 2.1.1.4 Performance Grade shall be Heavy-Duty, WDMA I.S. 1-A.
- 2.1.1.5 Door thickness shall be 44mm.
- 2.1.1.6 Fire rating of Interior Solid-Core Doors shall not be less than 45 minutes, unless otherwise required by the architect.

2.1.2 INTERIOR HOLLOW-CORE DOORS

- 2.1.2.1 Use premium grade facing, with exposed vertical and top edges of any closed-grain hardwood, standard duty. Compliant to WDMA I.S.1-A.
- 2.1.2.2 Door thickness shall be 44mm.

2.1.3 HEAVY DUTY FIRE-PROTECTION-RATED DOORS

- 2.1.3.1 Door material shall not contain urea formaldehyde, with mineral core specified according to required fire-protection. Stiles, edges, and astragals where needed shall also be of fire-retardant materials. Complete assemblies with intumescent seals.
- 2.1.3.2 Color and finish of edges and astragals shall be of the same color as the door facing unless otherwise specified.
- 2.1.3.3 Mineral-core doors shall be of non-combustible mineral product with 125mm blocking for top-rail, mid-rail, and bottom-rail.

3. PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

- 3.1.1 Check delivered door assemblies and match with appropriate openings. Check swings and handle requirements. Double check plumb jams. Reject assemblies not fit to project requirements.
- 3.1.2 Ensure that openings are ready to accept door installation.
- 3.1.3 Check finishes of doors to be free from imperfections. Do not install doors that are not finished according to the approved finish.

3.2 INSTALLATION

- 3.2.1 Comply with manufacturer's written instructions and NFPA 80 for installation procedures.
- 3.2.2 Seal edges of doors, cutouts, and mortises after fitting and machining.
- 3.2.3 Ensure alignment and correct fit of doors. All clearances shall be uniform and beveled as indicated on drawings or as specified:
 - 3.2.3.1 Provide 3.2mm clearances at heads, bottom of doors to top of finish, jams, and between pairs of doors.
 - 3.2.3.2 Where a threshold is required, provide 6.4mm clearances between bottom of door and top of threshold. Provide a door bottom seal.
 - 3.2.3.3 Bevel all doors at 3 ½ degrees along the lock and hinge edges.

- 3.2.3.4 Test swinging of doors and ensure that operation is free and smooth. Re-hang or replace door assemblies otherwise.
- 3.2.3.5 Install hardware appropriate hardware. Refer to Division 8 "Door Hardware" for details.
- 3.2.3.6 Clean and restore all door surfaces and finishes damaged during installation back to original conditions.

END OF SECTION

08 00 00	DIVISION 8 DOORS, WINDOWS, and OPENINGS	
08 42 00	Entrances	

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

- 1.1.1 Technical Architectural Drawings
- 1.1.2 Specifications
- 1.1.3 Requests for Interpretation
- 1.1.4 Product Samples and Brochures
- 1.1.5 Manufacturer's Data Sheets and Certificates
- 1.1.6 Material Safety Data Sheets
- 1.1.7 Work Program and Methodology Submittals

1.2 SUMMARY

- 1.2.1 This section includes provisions on aluminum framed doors for entrances as specified on technical working drawings. Verify door specifications on drawings.

1.3 RELATED SECTIONS

- 1.3.1 Hardware
- 1.3.2 Glazing

1.4 GENERAL PROVISION

- 1.4.1 Comply with door specifications as indicated in the technical working drawings. Aluminum-framed doors powder coated aluminum metal. Submit brochures, samples/ shop drawings showing door assemblies drawn to scale for the approval of the architect.
- 1.4.2 Do not install handles on aluminum.
- 1.4.3 All aluminum frame members shall withstand minimum 25psf wind load and shall be provided with internal reinforcing if necessary.
- 1.4.4 Use EPDM Rubber between glazing and framing.
- 1.4.5 Include top and bottom mohair in assembly.
- 1.4.6 Only use H-type handles, installed vertically.
- 1.4.7 Only use lever-type door locks.
- 1.4.8 Comply with manufacturer's standards for the structural attachment of framing members.
- 1.4.9 Use standard pivot hinges.
- 1.4.10 Use heavy-duty soft-closing door closers. Install alongside the top rail.
- 1.4.11 Use heavy-duty deadbolt locksets with keying mechanisms to be installed at the bottom rail only.
- 1.4.12 All exposed areas shall be finished with a Class 1 electrolytically deposited color in clear anodized finish.

1.5 MAINTENANCE, DELIVERY, STORAGE, AND HANDLING

- 1.5.1 Protect installed and finished doors with strippable membrane, with proper markings for safety. Keep membrane on glass until substantial completion of project.
- 1.5.2 Upon substantial completion, restore glazing and thoroughly clean glass surface.
- 1.5.3 Comply with manufacturer's lead-time requirements.
- 1.5.4 All materials shall be delivered in protective packaging, sealed, undamaged, and properly labeled. All labels shall indicate precise location and orientation of doors. Handle all deliveries with care.
- 1.5.5 Maintain temperature, humidity, and ventilation on site and storage area within recommended limits by the manufacturer.
- 1.5.6 Adjust all moveable parts until operation is ensured smooth and safe prior to acceptance.
- 1.5.7 Label all keys to match all doors prior to turn-over.

1.6 SUBMITTALS

1.6.1 PRODUCT APPROVAL ATTACHMENTS

- 1.6.1.1 Submit data on manufacturing and installation details.

- 1.6.1.2 Submit product data on fasteners and sealants.
- 1.6.1.3 Submit sample section cuts showing final finish and profile of framing material. Do not manufacture and install on site without approval from the architects. Sample profiles shall be cut in 200mm lengths. The sample profile should be submitted as a complete assembly showing the corners of the door. Do not submit disintegrated samples.
- 1.6.1.4 Submit sample cuts of glazing material at least 200mm X 200mm. Show true color and make of glazing. Only approved glazing can proceed with fabrication and site installation.
- 1.6.1.5 Submit shop drawings of all profiles cut at the jamb, head, lock-stile. Indicate nominal thickness of all aluminum sections to be used in the assembly. No aluminum section shall be less than 1.2mm thick.

1.6.2 EXECUTION APPROVAL ATTACHMENTS

- 1.6.2.1 Submit design calculations and shop drawings. Properly label dimensions and material specifications for each part. Indicate location and specification of hardware and fastener. Indicate door assembly labels and areas of installation.
- 1.6.2.2 Submit detailed work methodology indicating order of installation of the assembly.
- 1.6.2.3 Submit restoration procedures upon completion of work.

1.7 QUALITY ASSURANCE

- 1.7.1 Only source door assemblies from experienced manufacturers with good records in the timely delivery and installation of door assemblies. Manufacturer shall be capable of providing field services during and after construction.
- 1.7.2 Only source aluminum door assemblies from one manufacturer/ a single source.
- 1.7.3 Only engage installers with specialized expertise in the installation of door assemblies in a project size and scope similar to the project.
- 1.7.4 Conduct pre-installation walk thru meetings to inspect readiness of installation area.
- 1.7.5 Provide a mock-up installation complete with surface preparation techniques. Have the mock-up approved prior to complete installation.
- 1.7.6 Do not proceed with work when assemblies delivered have defects due to workmanship, color, finish, sheen, and other conditions degrading the quality and appearance of the material.
- 1.7.7 Do not conduct installation works in environmental conditions not recommended by the manufacturer.
- 1.7.8 Comply with manufacturer's prescribed tolerances.

1.8 WARRANTIES

- 1.8.1 Ensure two (2) year warranty beginning after the date of substantial completion. Warranty shall include replacement and repair of defective units or hardware installed.
- 1.8.2 In case of breakage of glass due to improper safety management, the contractor shall replace all breakage.

2. PART 2 PRODUCTS

2.1 ENTRANCE DOORS

- 2.1.1 Use aluminum frames compliant with ASTM B221; 6063-T5 and T6 alloy and temper. Major load-supporting aluminum sections shall be of minimum 3mm nominal thickness. No aluminum section with a supporting function in the assembly shall be less than 1.2mm thick, unless otherwise approved by the architect.
- 2.1.2 All storefront doors shall comply as indicated on technical working drawings.
- 2.1.3 All storefront doors situated along the faculty rooms shall be standard pre-assembled storefront system complete with narrow door stiles.

2.2 GLAZING

- 2.2.1 All glazing shall be minimum 6mm thick, shall be impact-resistant, and adhered with weatherproof silicone sealants, and weatherproofed extruded EPDM glazing gaskets.
- 2.2.2 All glazing shall be free of warp and twist
- 2.2.3 Refer to Section 08810 Glass and Glazing requirements.

2.3 ACCESSORIES

- 2.3.1 DOOR STOPS: Install heavy duty flooring door stops to match all operable door leaves. Use heavy duty floor stops of steel chrome, hairline finish installed at flooring.
- 2.3.2 DOOR SWEEPS AND DRIP CAPS: Equip all aluminum storefront doors with door sweeps and drip caps.

- 2.3.3 WEATHERSTRIPPERS/ JAMB SEALS: Install weather strippers to seal doors at meeting stiles for pairs of doors, door tubing, and astragals.
- 2.3.4 LATCH HANDLES: Only use lever-type door handles with finish matching the storefront finish. Submit samples and brochures of cylinder locks to be used to the architect for approval.
- 2.3.5 CYLINDER LOCKS: Only use cylinder locks as locking mechanisms unless otherwise approved by the architect. Submit samples and brochures of cylinder locks to be used to the architect for approval.
- 2.3.6 HINGES: Only use offset-pivot hinges installed according to manufacturer's prescriptions.

3. PART 3 EXECUTION

3.1 INSTALLATION AND PREPARATION

- 3.1.1 Only uncrate/unpack delivered door assemblies upon commencement of installation. Check labels to match indicated location and orientation.
- 3.1.2 Check plumb-ness of receiving door unit. Inspect gaps and allowable tolerances to match manufacturer's requirements.
- 3.1.3 Examine and verify all actual field measurements prior to fabrication. Reflect recorded measurements on shop drawings.
- 3.1.4 Clean and prepare all substrates prior to installation.
- 3.1.5 Follow manufacturers' approved standard installation procedures for aluminum door installation.
- 3.1.6 Align all assemblies and ensure smooth operation of all operable windows and adjust accordingly. Door assemblies shall be free of warp and twists of any kind.
- 3.1.7 Test doors in locked conditions to withstand static air pressure at 1.57 psf. Test in accordance to ASTM E 283.

3.2 PROTECTION

- 3.2.1 Protect all areas adjacent to area of work to avoid damages.
- 3.2.2 Protect installed products until completion of project.
- 3.2.3 Upon completion of project, remove temporary coverings and protection of adjacent areas.
- 3.2.4 Remove all construction debris from the project site in a safe and proper manner. Dispose debris properly.
- 3.2.5 Clean all installed products in accordance to manufacturer's prescriptions.
- 3.2.6 Touch-up, repair, and replace damaged products prior to Substantial Completion.

END OF SECTION

08 00 00	DIVISION 8 DOORS, WINDOWS, and OPENINGS
08 51 00	Metal Windows

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

- 1.1.1 Technical Architectural Drawings
- 1.1.2 Specifications
- 1.1.3 Requests for Interpretation
- 1.1.4 Product Samples and Brochures
- 1.1.5 Manufacturer's Data Sheets and Certificates
- 1.1.6 Material Safety Data Sheets
- 1.1.7 Work Program and Methodology Submittals

1.2 SUMMARY

- 1.2.1 This section includes provisions on all metal windows as specified on technical working drawings.

1.3 RELATED SECTIONS

- 1.3.1 Hardware
- 1.3.2 Glazing

1.4 GENERAL PROVISION

- 1.4.1 All metal windows of jalousie type, fixed, casement, or awning types shall be powder coated aluminum finish, white-colored.
- 1.4.2 Submit brochures, samples/ shop drawings window door assemblies drawn to scale for the approval of the architect. No material can be installed on site without the approval of the architect. All materials shall be approved prior to mass fabrication.
- 1.4.3 Refer to technical working drawings and Division 8 Hardware for details on metal window hardware specifications.
- 1.4.4 All aluminum frame members shall withstand minimum 25psf wind load and shall be provided with internal reinforcing if necessary.
- 1.4.5 Use EPDM Rubber between glazing and framing.
- 1.4.6 Only use lever-type handles and latch type locking mechanisms for casement and awning windows.
- 1.4.7 Comply with manufacturer's standards for the structural attachment of framing members.
- 1.4.8 Use standard side hung hinges for casement windows opening from 0 to 30 degrees.
- 1.4.9 Use standard top hung hinges for awning windows, opening from 0 to 80 degrees.
- 1.4.10 All exposed areas shall be finished with Class 1 electrolytically deposited color in clear anodized finish.
- 1.4.11 Comply with gravity, wind, and earthquake load requirements as per the National Structural Code of the Philippines (NSCP).
- 1.4.12 Consider thermal movements from ambient and surface temperature changes.

1.5 MAINTENANCE, DELIVERY, STORAGE, AND HANDLING

- 1.5.1 Protect installed and finished window assemblies with strippable membrane, with proper markings for safety. Keep membrane on glass until substantial completion of project.
- 1.5.2 All window assemblies shall be safely stacked horizontally with heavy duty spacers unless otherwise specified by the manufacturer.
- 1.5.3 Upon substantial completion, restore glazing and thoroughly clean glass surface.
- 1.5.4 Comply with manufacturer's lead-time requirements for fabrication and delivery so as not to disrupt construction schedule.
- 1.5.5 All materials shall be delivered in protective packaging, sealed, undamaged, and properly labeled. All labels shall indicate precise location and orientation of window assemblies. Handle all deliveries with care.
- 1.5.6 Maintain temperature, humidity, and ventilation on site and storage area within recommended limits by the manufacturer.
- 1.5.7 Adjust all moveable parts until operation is ensured smooth and safe prior to acceptance.

1.6 SUBMITTALS

1.6.1 PRODUCT APPROVAL ATTACHMENTS

- 1.6.1.1 Submit data on manufacturing and installation details, indicating step by step work methodology and substrate preparation requirements.
- 1.6.1.2 Submit product data on fasteners and sealants.
- 1.6.1.3 Submit sample section cuts showing final finish and profile of framing material. Do not manufacture and install on site without approval from the architects. Sample profiles shall be cut in 200mm lengths. The sample profile should be submitted as a complete assembly showing the corners of the window assembly. Do not submit disintegrated samples.
- 1.6.1.4 Submit sample cuts of glazing material at least 200mm X 200mm. Show true color and make of glazing. Only approved glazing can proceed with fabrication and site installation.
- 1.6.1.5 Submit shop drawings of all profiles cut at the jamb, head, lock-stile. Indicate nominal thickness of all aluminum sections to be used in the assembly. No aluminum section shall be less than 1.2mm thick.

1.6.2 EXECUTION APPROVAL ATTACHMENTS

- 1.6.2.1 Submit design calculations and shop drawings. Properly label dimensions and material specifications for each part. Indicate location and specification of all hardware and fastener. Indicate window assembly labels and areas of installation. Shop drawings must show corrected dimensions of openings to receive the window assembly.
- 1.6.2.2 Submit detailed work methodology indicating order of installation of the assembly.
- 1.6.2.3 Submit restoration procedures upon completion of work.

1.7 QUALITY ASSURANCE

- 1.7.1 Only source assemblies from experienced manufacturers with good records in timely delivery and quality installation. Manufacturer shall be capable of providing field services during and after construction.
- 1.7.2 Only source aluminum window assemblies from one manufacturer/ a single source to ensure uniformity of material as specified on technical working drawings.
- 1.7.3 Only engage installers with specialized expertise in the installation of window assemblies in a project size and scope similar to the project.
- 1.7.4 Conduct pre-installation walk thru meetings to inspect readiness of installation area. Comply with manufacturer's requirements.
- 1.7.5 Provide a mock-up installation complete with surface preparation techniques. Have the mock-up approved prior to complete installation.
- 1.7.6 Do not proceed with work when assemblies delivered have defects due to workmanship, color, finish, sheen, and other conditions degrading the quality and appearance of the material.
- 1.7.7 Do not conduct installation works in environmental conditions not recommended by the manufacturer.
- 1.7.8 Comply with manufacturer's prescribed tolerances.

1.8 WARRANTIES

- 1.8.1 Ensure two (2) year warranty beginning after the date of substantial completion. Warranty shall include replacement and repair of defective units or hardware installed.
- 1.8.2 In case of breakage of glass due to improper safety management, the contractor shall replace all breakage.

2. PART 2 PRODUCTS

2.1 FIXED, TOP-HUNG, AND CASEMENT WINDOWS

- 2.1.1 Use aluminum frames compliant with ASTM B221; 6063-T5 and T6 alloy and temper. Major load-supporting aluminum sections shall be of minimum 3mm nominal thickness. No aluminum section with a supporting function in the assembly shall be less than 1.2mm thick, unless otherwise approved by the architect.
- 2.1.2 All window assemblies shall comply with make and design as specified in the technical working drawings. Validate and verify measurements as per actual conditions on site prior to fabrication and installation.
- 2.1.3 All metal windows of jalousie type, fixed, casement, or awning types shall be of anodized aluminum finish, silver-colored, hairline finish aluminum metal in its metal parts, unless otherwise approved by the architects. No material can be installed on site without the approval of the architect.

2.2 GLAZING

- 2.2.1 All glazing shall be minimum 6mm thick, shall be impact-resistant, and adhered with weatherproof silicone sealants, and weatherproofed extruded EPDM glazing gaskets.
- 2.2.2 All glazing shall be free of warp and twist
- 2.2.3 Refer to Section 08810 Glass and Glazing requirements.

2.3 ACCESSORIES

- 2.3.1 WEATHERSTRIPPERS/ JAMB SEALS: Install weather strippers to seal doors at meeting stiles for pairs of doors, door tubing, and astragals.
- 2.3.2 LATCH HANDLES: Only use lever-type door handles with finish matching the storefront finish. Submit samples and brochures of locks to be used to the architect for approval.
- 2.3.3 HINGES: Use standard friction hinges for top-hung and casement windows. For top-hung windows, hinges shall be unhandled. Refer to technical working drawings to determine handedness for casement windows. Comply with technical working drawings. Comply with manufacturer's recommendations for maximum allowable weight capacity of hinges. Only use stainless steel grade 430 for all hinges.
- 2.3.4 FASTENERS AND ACCESSORIES: Use fasteners and accessories of the same fastened metal as the aluminum

3. PART 3 EXECUTION

3.1 INSTALLATION AND PREPARATION

- 3.1.1 Only uncrate/unpack delivered window assemblies upon commencement of installation. Check labels to match indicated location and orientation.
- 3.1.2 Check plumb-ness of receiving window units. Inspect gaps and allowable tolerances to match manufacturer's requirements.
- 3.1.3 Examine and verify all actual field measurements prior to fabrication. Reflect recorded measurements on shop drawings for approval.
- 3.1.4 Clean and prepare all substrates prior to installation. Comply with manufacturer's cleanliness requirements.
- 3.1.5 Follow manufacturers' approved standard installation procedures for installation.
- 3.1.6 Align all assemblies and ensure smooth operation of all operable windows and adjust accordingly. All assemblies shall be free of warp and twists of any kind.
- 3.1.7 Test windows in locked conditions to withstand static air pressure at 1.57 psf. Test in accordance to ASTM E 283.

3.2 PROTECTION

- 3.2.1 Protect all areas adjacent to area of work to avoid damages.
- 3.2.2 Protect installed products until completion of project.
- 3.2.3 Upon completion of project, remove temporary coverings and protection of adjacent areas.
- 3.2.4 Remove all construction debris from the project site in a safe and proper manner. Dispose debris properly.
- 3.2.5 Clean all installed products in accordance to manufacturer's prescriptions.
- 3.2.6 Touch-up, repair, and replace damaged products prior to Substantial Completion.

END OF SECTION

08 00 00	DIVISION 8 DOORS, WINDOWS, and OPENINGS
08 70 00	Hardware

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

- 1.1.1 Technical Architectural Drawings
- 1.1.2 Specifications
- 1.1.3 Requests for Interpretation
- 1.1.4 Product Samples and Brochures
- 1.1.5 Manufacturer's Data Sheets and Certificates
- 1.1.6 Material Safety Data Sheets
- 1.1.7 Work Program and Methodology Submittals

1.2 SUMMARY

- 1.2.1 This section includes provisions for finish hardware for doors and windows where intended for this project.

1.3 RELATED SECTIONS

- 1.3.1 Section Steel Doors and Frames
- 1.3.2 Flush Wood Doors
- 1.3.3 Interior Architectural Woodwork
- 1.3.4 Rough Carpentry

1.4 GENERAL PROVISION

- 1.4.1 Comply with specifications as indicated in the door hardware schedule.
- 1.4.2 The contractor shall provide a key-cabinet of a hinged-panel type that can be secured by a lockset. The Key cabinet shall house all keys to all portions requiring a locking mechanism. Situate the key cabinet in an secure area, not exposed to the public, and accessible only to the owner's administrators.
- 1.4.3 Use appropriate hardware size in proportion to the door/window/panel/any surface requiring the hardware. Check load capacity of hardware, especially hinges to match the load requirements of the door/window/panel/any surface requiring the hardware mechanism.
- 1.4.4 The contractor shall provide and install all necessary hardware intended for the project. This includes the following but not limited to:
- 1.4.4.1 Hinges
 - 1.4.4.2 Locks and Dummy Trims
 - 1.4.4.3 Cylindrical locks with lever handle
 - 1.4.4.4 Tubular locks with lever handle
 - 1.4.4.5 Deadbolts
 - 1.4.4.6 Fire Exit and Panic Exit Devices
 - 1.4.4.7 Door Closers
 - 1.4.4.8 Floor Closers
 - 1.4.4.9 Door stops
 - 1.4.4.10 Door trims
 - 1.4.4.11 Silencers
 - 1.4.4.12 Door pulls
 - 1.4.4.13 Push plates
 - 1.4.4.14 Armor Plates
 - 1.4.4.15 Kick Plates
 - 1.4.4.16 Flush bolts
 - 1.4.4.17 Door Viewers
 - 1.4.4.18 Door Coordinators
 - 1.4.4.19 Flush pull
 - 1.4.4.20 Door seals and weather-stripping

1.4.4.21 Other required hardware finish

1.5 MAINTENANCE

- 1.5.1 Store all hardware in properly labeled containers, with complete sets to match appropriate installation procedures.
- 1.5.2 Secure all hardware storage and secure all hardware keys.
- 1.5.3 Only deliver the keys directly to the owner and/or bonafide representative of the owner upon substantial completion of the project.
- 1.5.4 Tag each hardware item and its completed set properly for appropriate identification of pieces. Match tags/ identifications with related hardware. Include basic installation instructions in all labels.
- 1.5.5 Store hardware in cool and dry areas.

1.6 SUBMITTALS

1.6.1 PRODUCT APPROVAL ATTACHMENTS

- 1.6.1.1 Submit product brochures detailing the mechanisms and handedness of hardware to match the doors and windows it is specified for. Brochures should include complete hardware codes and a list/code of areas of installation.

1.6.2 EXECUTION APPROVAL ATTACHMENTS

- 1.6.2.1 Submit detailed work methodology indicating installation requirements and procedures.
- 1.6.2.2 Indicate on shop drawings the proper labels and codes to match the hardware specifications as indicated on technical working drawings.
- 1.6.2.3 Deliver keys directly to Owner complete with proper labels.

1.7 QUALITY ASSURANCE

- 1.7.1 Source all hardware type from a single manufacturer to ensure uniform quality.
- 1.7.2 Suppliers shall be recognized architectural hardware suppliers with manufacturing capability suitable to the quantity and quality required by the project.
- 1.7.3 Tag all hardware with proper identifying labels related to hardware schedule. Include installation requirements.

1.8 WARRANTIES

- 1.8.1 Manufacturer/ contractor shall agree to replace all defective hardware within two (2) years from date of substantial completion.

2. PART 2 PRODUCTS

2.1 GENERAL PRODUCTS

- 2.1.1 Provide Panic Exit Devices for Fire Rated applications/means of egress intended for fire.
- 2.1.2 All hardware finishes shall be in satin stainless steel finish. Be sure that all hardware are of consistent finishes.
- 2.1.3 Use hardware that is compliant with UL requirements and conforming to NFPA No. 80 requirements.
- 2.1.4 Use hardware compliant to the following:
 - 2.1.4.1 Mortise Hinges: Mortise Hinges: ANSI / BHMA A156.1.
 - 2.1.4.2 Locks and Latches: ANSI / BHMA A156.2
 - 2.1.4.3 Tubular locks: Grade 3 type tubular locks shall not have less than 5 pin tumblers.
 - 2.1.4.4 Cylindrical locks: Grade 2 cylindrical locks shall not have less than 6 pin tumblers.
 - 2.1.4.5 Deadbolts: ANSI / BHMA A156.5; Grade 2.
 - 2.1.4.6 Door Closers: UL Listed.
 - 2.1.4.7 Fire Exit Devices: BHMA / ANSI A156.3, Grade 1, UL Listed.
 - 2.1.4.8 Door Coordinators: ANSI/BHMA A156.3, Type 21A; UL Listed for installation on labeled frame
 - 2.1.4.9 Seals and Weather stripping: BHMA / ANSI A156.22
 - 2.1.4.10 Aluminum Extrusions: B6060+5.
 - 2.1.4.11 Neoprene with service temperature of 40°C to 70°C.
 - 2.1.4.12 PVC extrusions with service temperature of -5°C to 70°C.
 - 2.1.4.13 Silicone with service temperatures of -60°C to 230°C.
 - 2.1.4.14 EPDM with service temperature of -40°C to 100°C.
 - 2.1.4.15 Threshold: BHMA / ANSI A156.21.

2.2 DOOR HARDWARE FOR METAL/ALUMINUM FRAMED STOREFRONT DOORS

- 2.2.1 Coordinate with requirements of manufacturers.
- 2.2.2 Comply with required hardware as specified in the technical working drawings.
- 2.2.3 Only install cylindrical deadbolts with keying mechanisms on the lower rails of doors.
- 2.2.4 Use heavy-duty UL Listed cylindrical deadbolts to be installed on bottom rail of door.
- 2.2.5 Install heavy-duty door closers on the top rail.

2.3 DOOR HARDWARE FOR WOOD PANEL DOORS

- 2.3.1 Coordinate with requirements of manufacturers.
- 2.3.2 Comply with required hardware as specified in the technical working drawings.
- 2.3.3 Verify installation and hardware mechanisms and secure fit with door panels.
- 2.3.4 Use heavy duty cylindrical locks with lever-type handles. Verify handedness of each lever-type installation.
- 2.3.5 Use heavy-duty UL Listed cylindrical deadbolts to be installed on bottom rail of door.
- 2.3.6 Install heavy-duty door closers on the top rail.
- 2.3.7 Install heavy-duty door closers alongside top rail.

2.4 DOOR HARDWARE FOR TOILETS

- 2.4.1 Use heavy-duty privacy locksets, lever-type handles. Verify handedness of each lever-type installation.

2.5 KEYING SYSTEM

- 2.5.1 Provide at least three sets of keys for every lock, group, or set of locks. Test all key sets and verify matching locks. Label properly and store all key sets in key cabinet to be provided by contractor.
- 2.5.2 Provide a master key for all utility spaces.
- 2.5.3 Situate all keys in hinged key cabinet, wall mounted key cabinet. Situate key cabinet in a secure area accessible to administrative staff or security personnel only. Provide extra 50% capacity in the key cabinet on top of all required keysets. Label key sets accordingly.

3. PART 3 EXECUTION

3.1 GENERAL INSTRUCTIONS

- 3.1.1 Comply with manufacturer's instructions for lockset installations.

3.2 GENERAL INSTALLATION

3.2.1 NUMBER OF HINGES REQUIRED:

Comply with the following quantities of hinges, unless otherwise specified in the technical working drawings and/or as needed/recommended by the manufacturer to comply with warranties.

Provide two (2) pieces hinge for doors with heights up to 1500mm.

Provide three (3) pieces hinge for doors with heights over 1500mm but not over 2290mm.

Provide four (4) pieces hinge for doors with heights over 2290mm but not over 3000mm.

For doors over 3000mm in height, provide additional hinge for each additional 750mm of door height or fraction thereof.

3.2.1.1

LOCATION OF HINGES:

TOP HINGE: Not over 244mm from inside of frame rabbet at head to center line of hinge.

BOTTOM HINGE: Not over 264mm above bottom of door frame to center line of hinge

CENTER HINGE: Located at equal distances between top and bottom hinges.

3.3 CLEANING AND PROTECTION

- 3.3.1 Protect hardware from damages by covering.
- 3.3.2 Ensure all hardware are working and operating smoothly at the time of substantial turnover.

END OF SECTION

08 00 00	DIVISION 8 DOORS, WINDOWS, and OPENINGS
08 80 00	Glazing

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

- 1.1.1 Technical Architectural Drawings
- 1.1.2 Specifications
- 1.1.3 Requests for Interpretation
- 1.1.4 Product Samples and Brochures
- 1.1.5 Manufacturer's Data Sheets and Certificates
- 1.1.6 Material Safety Data Sheets
- 1.1.7 Work Program and Methodology Submittals

1.2 SUMMARY

This section includes provisions on glazing requirements as specified above the ring beam of the project, central to the atrium/entrance lobby. Also included in this section are glazing requirements in all other areas of the project as indicated, i.e. wall partitions, clerestory windows, specialized glazing as instruction boards, or as indicated on drawings.

1.3 RELATED SECTIONS

- 1.3.1 Metal Windows
- 1.3.2 Louvers and Screens
- 1.3.3 Metal Fabrications

1.4 GENERAL PROVISION

- 1.4.1 Only use tempered/heat-treated glass on all portions of the project site.
- 1.4.2 Comply with combined printed recommendations of glass manufacturers, of manufacturers of sealants, gaskets and other glazing materials, except where more stringent requirements are indicated, including those of referenced glazing standards.

1.5 MAINTENANCE, DELIVERY, STORAGE AND HANDLING

- 1.5.1 Protect glazing materials from damage. Wrap delivered glazing in protective film to protect it from scratches and breakage.
- 1.5.2 Use wood blocks to separate glass panes and avoid breakage.
- 1.5.3 Protect glass from edge damage during handling and installation. Remove from project and dispose of glass units with edge damage or other imperfections of kind that, when installed, weakens glass and impairs performance and appearance.
- 1.5.4 Apply primers to joint surfaces where required for adhesion of sealants, as determined by pre-construction sealant-substrate testing.

1.6 SUBMITTALS

1.6.1 PRODUCT APPROVAL ATTACHMENTS

- 1.6.1.1 SAMPLE: Submit 300mm X 300mm sample glazing with sealant samples showing actual thickness and color of glaze and sealant.
- 1.6.1.2 PRODUCT DATA OF SEALANT: Include manufacturer's standard curing procedures, installation requirements, Type, Grade, and Class.

1.6.2 EXECUTION APPROVAL ATTACHMENTS

- 1.6.2.1 Complete shop drawings, i.e. elevations, sections, and key plans showing exact area of installation.

1.7 QUALITY ASSURANCE

Source all glazing from a single manufacturer to ensure uniformity.

1.8 WARRANTIES

Comply with manufacturer's requirements for warranties. Warrant glazing for at least two (2) years from substantial completion of project.

2. PART 2 PRODUCTS

2.1 GENERAL PRODUCTS

- 2.1.1 FLAT GLASS: Compliant to ASTM C 1036 "Standard Specification for Flat Glass".
- 2.1.2 HEAT-TREATED GLASS STANDARD: Compliant to ASTM C 1048 requirements.
- 2.1.3 CLEAR FLOAT GLASS: Type

2.2 SILICON SEALANT, AND OTHER GLAZING ACCESSORIES

- 2.2.1 Only use clear sealants.
- 2.2.2 Select glazing compatibility of sealant with other materials on the assembly, namely frames and glass and other parts of the system.
- 2.2.3 GASKETS: Neoprene extrusions of size and shape as needed by the assembly. Use color intended for the project. Comply with ASTM C 542.
- 2.2.4 SETTING BLOCKS: Neoprene, EPDM or silicone blocks as required for compatibility with glazing sealants, 80 to 90 Shore A durometer hardness
- 2.2.5 SPACERS: Neoprene, EPDM or silicone blocks, or continuous extrusions, as required for compatibility with glazing sealant, of size, shape and hardness recommended by glass and sealant manufacturers for application indicated.
- 2.2.6 EDGE BLOCKS: Neoprene, EPDM or silicone blocks, as required for compatibility with glazing sealants, of size and hardness required to limit lateral movement (side-walking) of glass.
- 2.2.7 COMPRESSIBLE FILLER RODS: Closed-cell or waterproof-jacketed rod stock of synthetic rubber or plastic foam, flexible and resilient, with 5-10 psi compression strength for 25 percent deflection.

3. PART 3 EXECUTION

3.1 GENERAL EXECUTION

- 3.1.1 Do not proceed with glazing works when glazing is wet due to rain and/or subject to condensation due to ambient weather conditions.
- 3.1.2 Install setting blocks of proper size in sill rabbet, located one quarter of glass width from each corner, but with edge nearest corner not closer than 150mm (6") from corner, unless otherwise required. Set blocks in thin course of sealant which is acceptable for heel bead use.
- 3.1.3 Provide spacers inside and out, of correct size and spacing to preserve required face clearances, for glass sizes larger than 50 united inches (length plus height), except where gaskets or glazing tapes with continuous spacer rods are used for glazing. Provide 3.175mm (1/8") minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compressed thickness of tape.
- 3.1.4 Provide edge blocking to comply with requirements of referenced glazing standard, except where otherwise required by glass unit manufacturer.
- 3.1.5 Set units of glass in each series with uniformity of pattern, draw, bow and similar characteristics.
- 3.1.6 Tempered Glass: Glass shall have clean-cut, factory fabricated edges. Field cutting will not be permitted.
- 3.1.7 Provide compressible filler rods of equivalent back-up material, as recommended by sealant and glass manufacturers.
- 3.1.8 Force sealant into glazing channels to eliminate voids and to ensure complete "wetting" or bond of sealant to glass and channel surfaces.
- 3.1.9 Tool exposed surfaces of sealant to provide a substantial "wash" away from glass. Install pressurized tapes and gaskets to protrude slightly out of channel, so as to eliminate dirt and moisture pockets.
- 3.1.10 Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage to ensure that gasket will not "walk" out when installation is subjected to movement.
- 3.1.11 Miter cut wedge-shaped gaskets at corners and install gaskets in manner recommended by gasket manufacturer to prevent pull away at corners; seal corner joints and butt joints with sealant recommended by gasket manufacturer.
- 3.1.12 Lock-Strip Glazing: Comply with ASTM C 716 and gasket manufacturer's printed recommendations. Provide supplementary wet seal and weep system unless otherwise indicated.

3.2 EXAMINATION

- 3.2.1 Conduct pre-fabrication on-site meetings to inspect actual site conditions prior to fabrication. Inspections shall be in the presence of manufacturing.
- 3.2.2 Check installation tolerances, including size, squareness, and offsets at corners. Check if functionality of weep systems will not be impeded.
- 3.2.3 Do not commence glazing works until unacceptable conditions are corrected.

3.3 FABRICATION

- 3.3.1 Verify actual dimensions of frames and receiving areas on site prior to fabrication of glazing.
- 3.3.2 Fabricate glass according to exact measurements needed on site. FIELD CUTTING IS NOT ALLOWED.

3.4 PROJECT CONDITIONS

- 3.4.1 Do not proceed with glazing works when glazing is wet due to rain and/or subject to condensation due to ambient weather conditions.

3.5 PROTECTION & CLEANING

- 3.5.1 Affix non-permanent labels on installed glass surfaces for safety purposes. Use DO NOT CROSS streamers. DO NOT PAINT or use permanent markers on the glass. Ensure safety labels are non-permanent.
- 3.5.2 Remove non-permanent labels and clean surfaces upon substantial turnover.
- 3.5.3 Examine installed glazing at every key point of construction. Remove and replace broken, chipped, cracked, abraded, or any form of damages on glass, including vandalism and damages caused by natural conditions.
- 3.5.4 Wash glass on both surfaces prior to date of inspection for turnover.
- 3.5.5 Comply with manufacturer's methods for glass cleaning.

END OF SECTION

08 00 00	DIVISION 8 DOORS, WINDOWS, and OPENINGS
08 81 4	Mirrors

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

- 1.1.1 Technical Architectural Drawings
- 1.1.2 Specifications
- 1.1.3 Requests for Interpretation
- 1.1.4 Product Samples and Brochures
- 1.1.5 Manufacturer's Data Sheets and Certificates
- 1.1.6 Material Safety Data Sheets
- 1.1.7 Work Program and Methodology Submittals

1.2 SUMMARY

This section includes provisions on mirrors as installed in toilet areas and other areas as indicated on the drawings.

1.3 RELATED SECTIONS

- 1.3.1 Rough Carpentry
- 1.3.2 Toilet and Bath Accessories

1.4 GENERAL PROVISION

- 1.4.1 Mirrors installed in Toilets and Baths shall be adhered to the backing material using prescribed adhesives. No bolts and screws shall protrude or be reflected on the mirror.
- 1.4.2 Unless otherwise indicated on the technical working drawings, all mirrors in toilet areas shall be mounted 150mm above the top of the lavatory.
- 1.4.3 Align and flush all mirrors with the wall tile layout. Indicate in shop drawings and secure mounting height approvals from the architect.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

- 1.5.1.1 Sample showing final finish edges of the material. Sample size shall be 300mm x 300mm, adhered to backing material. Samples shall be properly labeled indicating thickness and grade/quality of mirror.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

- 1.5.2.1 Submit shop drawings showing mounting height of mirrors. Reflect actual heights of lavatory, and neighboring finishes as seen on site. Reflect distances from existing finishing grooves such as tiles and similar items.

1.6 QUALITY ASSURANCE

Glazing Standards: Comply with recommendations of Flat Glass Marketing Association (FGMA) "Glazing Manual" and National Association of Mirror Manufacturers (NAMM) in its publication "MIRRORS, Handle with Extreme Care, Tips for the Professional on the Care and Handling of Mirrors", unless more stringent requirements are indicated.

1.7 WARRANTIES

- 1.7.1 Warranties shall include replacement of item in case of cracks or defects in mirror silver coatings and other damages occurring due to undue cause, i.e. changes in ambient temperature, that damage the final quality of the mirror.
- 1.7.2 Warranties shall be in effect after installation, during construction and one (1) year from substantial completion of project.

2. PART 2 PRODUCTS

2.1 GLASS

- 2.1.1 Compliant to ASTM C 1503, must be low in lead content and shall be copper free.