Durham District School Board

ARCHITECTURAL SPECIFICATIONS
Henry Street High School
Culinary Classroom Renovation

600 Henry Street
Whitby, Ontario L1N 1L4

Project Number: 25-102
Issued for Tender: October 31, 2025

GOW HASTINGS
ARCHITECTS

DDSB
Ignite Learning

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Section 00 01 10
Table of Contents

Contents

Section 01 11 00
Summary of Work

Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work of this Contract comprises renovation of Henry Street High School, located at 600 Henry St, Whitby, ON L1N 1L4 ; and further identified as Culinary Classroom.

1.2 CONTRACT METHOD

.1 Construct Work under stipulated price contract.

1.3 WORK BY OTHERS

.1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Consultant.

.2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to Consultant, in writing, any defects which may interfere with proper execution of Work.

1.4 WORK SEQUENCE

.1 Construct Work in stages to accommodate Owner's continued use of premises during construction.

.2 Co-ordinate Progress Schedule and co-ordinate with Owner Occupancy during construction.

.3 Maintain fire access/control.

1.5 CONTRACTOR USE OF PREMISES

.1 Limit use of premises for access, to allow:

.1 Owner occupancy.

.2 Work by other contractors.

.3 Public usage.

.2 Co-ordinate use of premises under direction of Consultant.

.3 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

.4 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.

.5 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Consultant.

.6 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.6 OWNER OCCUPANCY

.1 Owner will occupy premises during entire construction period for execution of normal operations.

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

1.7 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

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

1.8 EXISTING SERVICES

.1 Notify, Consultant and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services, give 72 hours notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to tenant operations.

.3 Provide alternative routes for pedestrian and vehicular traffic.

.4 Establish location and extent of service lines in area of work before starting Work. Notify Consultant of findings.

.5 Submit schedule to and obtain approval from Consultant for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.

.6 Provide temporary services when directed by Consultant to maintain critical building and tenant systems.

.7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.

.8 Where unknown services are encountered, immediately advise Consultant and confirm findings in writing.

.9 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.

.10 Record locations of maintained, re-routed and abandoned service lines.

.11 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.9 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each document as follows:

- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Reviewed Shop Drawings.
- .5 List of Outstanding Shop Drawings.

.6 Change Orders.

.7 Other Modifications to Contract.

.8 Field Test Reports.

.9 Copy of Approved Work Schedule.

.10 Health and Safety Plan and Other Safety Related Documents.

.11 Other documents as specified.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Section 01 14 00
Work Restrictions

Part 1 General

1.1 ACCESS AND EGRESS

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

.2 Contractor to coordinate with College facilities to maintain access to grounds and equipment located adjacent to construction entrance.

1.2 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Consultant to facilitate work as stated.

.2 Maintain existing services to building and provide for personnel and vehicle access.

.3 Where security is reduced by work provide temporary means to maintain security.

.4 Use of College washroom facilities is note permitted. Contractor to provide temporary washroom facilities

.5 Use only elevators, existing in building for moving workers and material.

.1 Use of elevators must be coordinated with and receive owner's approval.

.2 Protect walls of passenger elevators, to approval of Owner prior to use.

.3 Accept liability for damage, safety of equipment and overloading of existing equipment.

.6 Closures: protect work temporarily until permanent enclosures are completed.

1.3 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

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

1.4 EXISTING SERVICES

.1 Notify, Consultant and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services, give 72 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.

.3 Provide for pedestrian and vehicular traffic.

.4 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.5 SPECIAL REQUIREMENTS

.1 Carry out noise generating Work that disrupts the Owner's day-to-day function on Monday to Friday from 23:00 to 07:00 hours, weekends and on statutory holidays at cost to contractor

.2 Submit schedule in accordance with Section 01 32 16.19 - Construction Progress Schedule - Bar (GANTT) Chart complete with critical path milestones.

.3 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

.4 Keep within limits of work and avenues of ingress and egress.

.5 Deliver materials outside of peak traffic hours 17:00 to 07:00 and 13:00 to 15:00 unless otherwise approved by Owner.

1.6 SECURITY

.1 Where security has been reduced by Work of Contract, provide temporary means to maintain security.

1.7 BUILDING SMOKING ENVIRONMENT

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Section 01 19 00
Specifications and Documents

Part 1 General

1.1 SECTION INCLUDES

.1 Words and terms.

.2 Complementary documents.

.3 Precedence of Documents.

.4 Specification grammar.

1.2 RELATED DOCUMENTS

.1 Document 00 52 10 - Agreement and Definitions: Precedence of documents.

.2 Document 00 72 13 - General Conditions - Stipulated Price.

.3 This section describes requirements applicable to all sections within Divisions 02 to 49.

1.3 WORDS AND TERMS

.1 Conform to definitions and their defined meanings in the Agreement and Definitions portion of …… for supplementary words and terms.

.2 The following words and terms are applicable to the Contract Documents for this project:

.3 Addendum: A document that amends the Bid Documents during the Bidding Period and becomes part of the Contract Documents when a Contract is executed. (Plural: Addenda).

.4 Agreement: The signed and sealed legal instrument binding parties in a Contract, describing in strict terms their mutual arrangement, roles and responsibilities, commencement, and completion responsibilities.

.5 Alternative Price: The amount stipulated by a Bidder for an Alternative and stated as an addition, a deduction, or no change to the Bid Price.

.6 Bid: To offer as a Bid stating for what price a Contractor will assume a Contract.

.7 Bid Documents: A set of documents consisting of the Instructions to Bidders, Bid Form, Contract Documents, and other information issued for the benefit of Bidders to prepare and submit a Bid.

.8 Bid Form: The specific and detailed form used to collect information about a Bid.

.9 Bidding: The process of preparing and submitting a Bid.

.10 Construction Documents: The Drawings and Project Manual. When combined with a Contract and Contract conditions, these documents form the Contract Documents.

.11 Contingency Allowance: An additional monetary amount added to a Project cost estimate and designated to cover unpredictable or unforeseen items of Work. The amount is usually based on some percentage of the estimated cost and expended and adjusted by Change Order. It is not intended to cover additions to the scope of Work.

.12 Cost Plus Contract: A Contract under which a Contractor is reimbursed for the direct and indirect costs for the performance of a Contract and, in addition, is paid a Fee for services. The Fee is usually stated as a stipulated price or as a percentage of cost.

.13 General Conditions: That part of the Contract Documents that sets forth many of the rights, responsibilities and relationships of the parties involved in a Contract.

.14 Instructions To Bidders: Instructions contained in the Bid Documents to convey an Owner's expectations and criteria associated with submitting a Bid.

.15 Section: A portion of a Project Specification covering one or more segments of the total Work or requirements. Sections are included in a Project manual as required to meet Project requirements.

.16 Standard: A document describing a grade or a level of quality, which has been established by a recognized agency or organization, utilizing an internal voting process.

.17 Separate Price: A separate price for work to be added to the base price if selected by the Owner. This price type is not a part of the base bid price.

.18 Stipulated Price: An amount set forth in a Stipulated Price Contract as the total payment for the performance of the Work. Sometimes referred to as a stipulated sum or a lump sum stipulated price.

.19 Tender: A term that was formally abandoned by CCDC and the Canadian Construction industry in the early 1980's in favour of the preferred term Bid.

.20 Unit Price: The amount payable for a single unit of Work as stated in a Schedule of Prices.

.21 Install: To remove from site storage, move or transport to intended location, install in position, connect to utilities, repair site caused damage, and make ready for use.

.22 Supply: To acquire or purchase, ship or transport to the site, unload, remove packaging to permit inspection for damage, re-package, replace damaged items, and safely store on-site.

1.4 COMPLEMENTARY DOCUMENTS

.1 Generally, drawings indicate graphically, the dimensions and location of components and equipment. Specifications indicate specific components, assemblies, and identify quality.

.2 Drawings, specifications, diagrams and schedules are complementary, each to the other, and what is required by one, to be binding as if required by all.

.3 Should any conflict or discrepancy appear between documents, which leaves doubt as to the intent or meaning, apply the Precedence of Documents article below or obtain guidance or direction from Consultant.

.4 Examine all discipline drawings, specifications, schedules, diagrams and related Work to ensure that Work can be satisfactorily executed.

.5 All specification sections of the Project Manual and Drawings are affected by requirements of Division 01 sections.

1.5 PRECEDENCE OF DOCUMENTS

.1 In the event of conflict within and between the Contract Documents, the order of priority within specifications and drawings for this project are - from highest to lowest:

.1 the Agreement and Definitions between the Owner and the Contractor;

.2 the Definitions;

.3 Supplementary Conditions;

.4 the General Conditions;

.5 Sections of Division 01 of the specifications;

.6 Sections of Divisions 02 through 49 of the specifications.

.7 Schedules and Keynotes:

.1 Material and finishing schedules within the specifications, then;

.2 Material and finishing schedules on drawings, then;

.3 Keynotes and definitions thereto, then;

.8 Diagrams.

.9 Drawings:

.1 Drawings of larger scale shall govern over those of smaller scale of the same date, then;

.2 Dimensions shown on drawings shall govern over dimensions scaled from drawings, then;

.3 Location of utility outlets indicated on architectural detail drawings takes precedence over positions or mounting heights located on mechanical or electrical Drawings.

.10 Later dated documents shall govern over earlier documents of the same type.

.2 In the event of conflict between documents, the decision of the Consultant shall be final.

1.6 SPECIFICATION GRAMMAR

.1 Specifications are written in the imperative (command) mode, in an abbreviated form.

.2 Imperative language of the technical sections is always directed to the Contractor identified as a primary constructor, as sole executor of the Contract, unless specifically noted otherwise.

.1 This form of imperative (command) mode statement requires the primary constructor to perform such action or Work.

.2 Perform all requirements of the Contract Documents whether stated imperatively or otherwise.

.3 Division of the Work among subcontractors, suppliers, or others is solely the prime constructor's responsibility. The Consultant(s) and specification authors assume no responsibility to function or act as an arbiter to establish subcontract scope or limits between sections or divisions of Work.

END OF SECTION

Section 01 21 00
Allowances

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2008, Stipulated Price Contract.

.2 Project Supplementary Conditions

1.2 CASH ALLOWANCES

.1 Refer to CCDC 2, GC 4.1.

.2 Include in Contract Price specified cash allowances.

.3 Cash allowances, unless otherwise specified, cover net cost to Contractor & Subcontractor of services, products, construction machinery and equipment, freight, handling, unloading, storage installation and other authorized expenses incurred in performing Work.

.4 Contract Price, and not cash allowance, includes Contractor's overhead and profit in connection with such cash allowance.

.5 Contract Price will be adjusted by written order to provide for excess or deficit to each cash allowance.

.6 Where costs under a cash allowance exceed amount of allowance, Contractor will be compensated for excess incurred and substantiated plus allowance for overhead and profit as set out in Contract Documents.

.7 Include progress payments on accounts of work authorized under cash allowances in Consultant's monthly certificate for payment.

.8 Prepare schedule jointly with Consultant and Contractor to show when items called for under cash allowances must be authorized by Consultant for ordering purposes so that progress of Work will not be delayed.

.9 Amount of each allowance, for Work specified in respective specification Sections is as follows:

.1 TBD

.2 Cash Allowance CA1: Inspection and Testing

.3 Cash Allowance CA2: AV equipment and wiring

.4 Cash Allowance CA2: PA and Security

.5 Cash Allowance CA3: Additional Unforeseen Cutting and Patching

.6 Cash Allowance CA4: BAS Controls

Section 01 31 00
Project Management and Coordination

Part 1 General

1.1 SECTION INCLUDES

.1 Coordination Work with other contractors and work by Owner under administration of Consultant.

.2 Scheduled progress meetings.

1.2 COORDINATION

.1 Perform coordination of progress schedules, submittals, use of site, temporary utilities, construction facilities and construction Work, with progress of Work of others and Work by Owner, under instructions of Consultant.

1.3 CONSTRUCTION ORGANIZATION AND START-UP

.1 Within fifteen (15) days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.2 Consultant, Owner, Contractor, major Subcontractors, field inspectors and supervisors are to be in attendance.

.3 Establish time and location of meeting and notify parties concerned minimum five (5) days before meeting.

.4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.

.5 Agenda to include following:

.1 Appointment of official representative of participants in Work.

.2 Schedule of Work, progress scheduling as specified in Section 01 32 16.19.

.3 Schedule of submission of shop drawings, samples, colour chips as specified in Section 01 33 00.

.4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences as specified in Section 01 51 00.

.5 Delivery schedule of specified equipment as specified in Section 01 32 00.

.6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.

.7 Owner-furnished Products.

.8 Record drawings as specified in Section 01 78 00, 01 79 00 and consultant specifications.

.9 Maintenance material and data as specified in Section 01 78 00, 01 79 00 and consultant specifications.

.10 Take-over procedures, acceptance, and warranties as specified Section 01 78 00, 01 79 00 and consultant specifications.

.11 Monthly progress claims, administrative procedures, photographs, and holdbacks.

.12 Appointment of inspection and testing agencies or firms as specified in Section 01 45 00.

.13 Insurances and transcript of policies.

.6 Comply with Consultant's allocation of mobilization areas of site; for field offices and sheds, for staging, access, traffic, and parking facilities.

.7 During construction, coordinate use of site and facilities through Consultant's procedures for intra-project communications: Submittals, reports and records, schedules, coordination of drawings, recommendations, and resolution of ambiguities and conflicts.

.8 Comply with instructions of Consultant for use of temporary utilities and construction facilities.

.9 Coordinate field engineering and layout work with Consultant.

1.4 CONTRACT ADMINISTRATION - WEB-BASED PROJECT SOFTWARE

.1 The Contract Administration process shall be hosted through rform; which is an online construction contract administration software platform, administered by Gow Hastings Architects. This software is to be used ot host and manage project documentation until final completion. All of the below project documents are to be issued via rform (www.rform.ca):

.1 Project Forms:

.1 Proposed Change Order (PCO)

.2 Change Order (CO)

.3 Change Directive (CD)

.4 Supplemental Instruction (SI)

.5 Request for Information

.6 Schedule of Values

.7 Certificates of Payment

.2 Project Files

.3 Submittals

.2 The project will be setup on rform by Gow Hastings Architects and the contractor will be invited to collaborate online.

1.5 ON-SITE DOCUMENTS

.1 Maintain at job site, one copy each of the following:

.1 Contract drawings.

.2 Specifications.

.3 Addenda.

.4 Reviewed shop drawings.

.5 Change orders.

.6 Other modifications to Contract.

.7 Online access to rform as referenced in section 1.4 above.

.8 Field test reports.

.9 Copy of approved Work schedule.

.10 Manufacturers' installation and application instructions.

.11 Labour conditions and wage schedules.

.12 Applicable current editions of municipal regulations and by-laws. Current building codes, complete with addenda bulletins applicable to the Place of the Work.

1.6 SCHEDULES

.1 Submit preliminary construction progress schedule as specified in Section 01 32 16.19 to Consultant coordinated with Consultant's project schedule.

.2 After review, revise and resubmit schedule to comply with revised project schedule.

.3 During progress of Work revise and resubmit as directed by Consultant.

1.7 CONSTRUCTION PROGRESS MEETINGS

.1 During course of Work schedule progress meetings biweekly unless otherwise requested by the Consultant or Owner.

.2 Contractor, major subcontractors involved in Work , Consultant and Owner are to be in attendance.

.3 Notify parties minimum of five days prior to meetings.

.4 Record minutes of meetings, and circulate to attending parties and affected parties not in attendance within two days after meeting.

.5 Agenda to include following:

.1 Review, approval of minutes of previous meeting.

.2 Review of Work progress since previous meeting.

.3 Field observations, problems, conflicts.

.4 Problems that impede construction schedule.

.5 Review of off-site fabrication delivery schedules.

.6 Corrective measures and procedures to regain projected schedule.

.7 Revision to construction schedule.

.8 Progress schedule, during succeeding work period.

.9 Review submittal schedules: expedite as required.

.10 Maintenance of quality standards.

.11 Review proposed changes for effect on construction schedule and on completion date.

.12 Review site safety and security issues.

.13 Other business.

1.8 SUBMITTALS

.1 Prepare and issue submittals to Consultant for review.

.2 Submit preliminary Shop Drawings, product data and samples as specified in Section 01 33 00 for review for compliance with Contract Documents; for field dimensions and clearances, for relation to available space, and for relation to Work of other contracts. After review, revise and resubmit for transmittal to Consultant.

.3 Submit requests for payment for review, and for transmittal to Consultant.

.4 Submit requests for interpretation of Contract Documents, and obtain instructions through Consultant.

.5 Process substitutions through Consultant.

.6 Process change orders through Consultant.

.7 Deliver closeout submittals for review and preliminary inspections, for transmittal to Consultant.

1.9 COORDINATION DRAWINGS

.1 Provide information required by Consultant for preparation of coordination Drawings.

.2 Review and approve revised Drawings for submittal to Consultant.

1.10 CLOSEOUT PROCEDURES

.1 Notify Consultant when Work is considered ready for Substantial Performance, Permit Reivew and Ready-For-Takeover.

.2 Accompany Consultant on preliminary inspection to determine items listed for completion or correction.

.3 Comply with Consultant's instructions for correction of items of Work identified as deficient, incomplete or missing.

.4 Notify Consultant of instructions for completion of items of Work determined in Consultant's final inspection.

END OF SECTION

Section 01 31 19
Project Meetings

Part 1 General

1.1 ADMINISTRATIVE

.1 Schedule and administer biweekly project meetings throughout the progress of the work.

.2 Prepare agenda for meetings.

.3 Distribute written notice of each meeting five days in advance of meeting date to Consultant.

.4 Provide physical space and make arrangements for meetings.

.5 Preside at meetings.

.6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.

.7 Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants , affected parties not in attendance and Consultant.

.8 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.2 PRECONSTRUCTION MEETING

.1 Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.2 Consultant, Owner representative, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.

.3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.

.4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.

.5 Agenda to include:

.1 Appointment of official representative of participants in the Work.

.2 Schedule of Work: in accordance with Section 01 32 16.19 - Construction Progress Schedules - Bar (GANTT) Chart complete with Critical Path Milestones.

.3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.

.4 Requirements for site access, laydown area, temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.

.5 Delivery schedule of specified equipment in accordance with Section 01 14 00 - Work Restrictions.

.6 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

.7 Proposed changes, change orders and site instructions procedures including approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.

.8 RFI and submittal procedures.

.9 Health and safety policies.

.10 Owner provided products.

.11 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.

.12 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.

.13 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.

.14 Monthly progress claims, administrative procedures, photographs, hold backs.

.15 Appointment of inspection and testing agencies or firms.

.16 Insurances, transcript of policies.

1.3 PROGRESS MEETINGS

.1 During course of Work and two weeks prior to project completion, schedule progress meetings biweekly or weekly as required to maintain communication between the stakeholders.

.2 Contractor, major Subcontractors involved in Work ,Owner and Consultant are to be in attendance.

.3 Set next meeting date at the end of each meeting and notify all stakeholders of changes in date/time min. 3 days in advance

.4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 3 days after meeting.

.5 Agenda to include the following:

.1 Review, approval of minutes of previous meeting.

.2 Review of Work progress since previous meeting.

.3 Field observations, problems, conflicts.

.4 Problems which impede construction schedule.

.5 Review of off-site fabrication delivery schedules.

.6 Corrective measures and procedures to regain projected schedule.

.7 Revision to construction schedule.

.8 Progress schedule, during succeeding work period.

.9 Review submittal schedules: expedite as required.

.10 Maintenance of quality standards.

.11 Review proposed changes for affect on construction schedule and on completion date.

.12 Other business.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Section 01 32 16.19
Construction Progress Schedule - Bar (GANTT) Chart

Part 1 General

1.1 DEFINITIONS

.1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.

.2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.

.3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.

.4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.

.5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.

.6 Master Plan: summary-level schedule that identifies major activities and key milestones.

.7 Milestone: significant event in project, usually completion of major deliverable.

.8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.

1.2 REQUIREMENTS

.1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.

.2 Plan to complete Work in accordance with owner provided milestones and time frame.

.3 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.

.4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

.5 Activities impacting programs must be scheduled after regular hours or during weekends. This work must be coordinated in advance with the Owner.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Submit to Consultant within 10 working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.

1.4 MASTER PLAN

.1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).

.2 Schedule to be submitted to Consultant for review and comment.

.3 Revise impractical schedule and resubmit within 5 working days.

.4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.5 PROJECT SCHEDULE

.1 Develop detailed Project Schedule derived from Master Plan.

.2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:

.1 Award.

.2 Shop Drawings, Samples.

.3 Permits.

.4 Mobilization.

.5 Interior Architecture (Walls, Floors and Ceiling).

.6 Plumbing.

.7 Lighting.

.8 Electrical.

.9 Piping.

.10 Controls.

.11 Heating, Ventilating, and Air Conditioning.

.12 Millwork.

.13 Testing and Commissioning.

.14 Supplied equipment long delivery items.

.15 Engineer supplied equipment required dates.

.16 Any tasks that will disrupt traffic i.e. RTU installation

1.6 PROJECT SCHEDULE REPORTING

.1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.

.2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

.3 Provide a schedule variance and a schedule performance index calculation at each progress meeting after the project is reaching 20% completion and discuss milestones on the critical path.

1.7 PROJECT MEETINGS

.1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.

.2 Weather related delays with their remedial measures will be discussed and negotiated.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Section 01 33 00
Submittal Procedures

Part 1 General

1.1 REFERENCE STANDARDS

.1 CCDC 2-2020, Stipulated Price Contract.

1.2 ADMINISTRATIVE

.1 Submit to Consultant submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Provide Owner with copies of shop drawing that are requested for prior verification.

.3 Do not proceed with Work affected by submittal until review is complete.

.4 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.5 Where items or information is not produced in SI Metric units converted values are acceptable.

.6 Review submittals prior to submission to Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

.7 Notify Consultant, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.8 Verify field measurements and affected adjacent Work are co-ordinated.

.9 Contractor's responsibility for errors and omissions in submission is not relieved by Consultant's review of submittals.

.10 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant review.

.11 Keep one reviewed copy of each submission on site.

1.3 SHOP DRAWINGS AND PRODUCT DATA

.1 Refer to CCDC 2 GC 3.11.

.2 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.3 Where requested in drawings and/or specifications, submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.

.4 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which

adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.5 Allow 10 days for Consultant's review of each submission.

.6 Adjustments made on shop drawings by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.

.7 Make changes in shop drawings as Consultant may require, consistent with Contract Documents. When resubmitting, notify Consultant in writing of revisions other than those requested.

.8 Accompany submissions with electronic and/or hard copy transmittal letter containing:

- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample.
- .5 Other pertinent data.

.9 Submissions include:

- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
  - .1 Subcontractor.
  - .2 Supplier.
  - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
  - .1 Fabrication.
  - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
  - .3 Setting or erection details.
  - .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.
  - .7 Operating weight.
  - .8 Wiring diagrams.
  - .9 Single line and schematic diagrams.
  - .10 Relationship to adjacent work.

.10 After Consultant's review, distribute copies.

.11 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Consultant may reasonably request.

.12 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Consultant where shop drawings will not be prepared due to standardized manufacture of product.

.13 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Consultant.

.1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.

.2 Testing must have been within 3 years of date of contract award for project.

.14 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Consultant.

.1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.

.2 Certificates must be dated after award of project contract complete with project name.

.15 Submit electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Consultant.

.1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

.16 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Consultant.

.17 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

.18 Submit 2 hard copies and 1 electronic copy of Operations and Maintenance data for requirements requested in specification Sections and as requested by Consultant.

.1 Refer to section 01 78 00 Closeout submittals.

.19 Delete information not applicable to project.

.20 Supplement standard information to provide details applicable to project.

.21 If upon review by Consultant, no errors or omissions are discovered or if only minor corrections are made, the submittal will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

1.4 SAMPLES

.1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.

.2 Deliver samples prepaid to Consultant's business address.

.3 Notify Consultant in writing, at time of submission of deviations in samples from requirements of Contract Documents.

.4 Where colour, pattern or texture is criterion, submit full range of samples.

.5 Adjustments made on samples by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.

.6 Make changes in samples which Consultant may require, consistent with Contract Documents.

.7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.5 MOCK-UPS

.1 Erect mock-ups in accordance with 01 45 00 - Quality Control.

1.6 PHOTOGRAPHIC DOCUMENTATION

.1 Submit electronic of colour digital photography in jpg format, standard resolution of all phases of construction compiled on a USB memory stick.

.2 Project identification: name and number of project and date of exposure indicated.

.3 Number of viewpoints: 2 locations.

.1 Viewpoints and their location as determined by Consultant.

.4 Frequency of photographic documentation: as directed by Consultant.

.1 Upon completion of: as directed by Consultant.

1.7 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, submit Workers' Compensation Board status.

.2 Submit transcription of insurance immediately after award of Contract.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Section 01 41 00
Regulatory Requirements

Part 1 General

1.1 SUMMARY

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

1.2 REFERENCES TO REGULATORY REQUIREMENTS

.1 Department of Justice Canada (Jus)

.1 SOR/2018-196 Prohibition of Asbestos and Products Containing Asbestos Regulations.

.2 Perform Work in accordance with the current Ontario Building Code including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.3 Specific design and performance requirements listed in specifications or indicated on Drawings may exceed minimum requirements established by referenced Building Code; these requirements will govern over the minimum requirements listed in Building Code

.1 Meet or exceed requirements of:

.1 Contract documents.

.2 Specified standards, codes and referenced documents.

1.3 HAZARDOUS MATERIAL DISCOVERY

.1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Consultant.

.2 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Consultant.

.3 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Consultant.

1.4 BUILDING SMOKING ENVIRONMENT

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

1.5 QUALITY ASSURANCE

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

.1 Regulatory requirements and fees in force on date of Bid submission, and

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

2.2 PERMITS

.1 Building Permit:

.1 Owner has applied for and will be paying for building permit. Constructor is responsible for obtaining or coordinating other permits required for Work and its various parts.

.2 Constructor will require that specific Subcontractor ’s obtain and pay for permits required by authorities having jurisdiction, where their Work is affected by Work requiring permits.

.3 Constructor shall display building permit and other permits in a conspicuous location at Place of Work.

.2 Occupancy Permits:

.1 Constructor shall apply for, obtain, and pay for occupancy permits, including partial occupancy permits where required by authority having jurisdiction.

.2 Consultant will issue appropriate instructions to Constructor for correction to Work where Contract Document deficiencies are required to be corrected in order to obtain occupancy permits, including partial occupancy permits.

.3 Constructor shall correct deficiencies in accordance with Consultant ’s instructions. Where deficiency is not corrected, Owner reserves the right to make correction and charge Constructor for costs incurred.

.4 Constructor shall turn occupancy permits over to Owner upon receipt from the Building Department verbal and /or in writing.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Section 01 45 00
Quality Control

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2020, Stipulated Price Contract.

1.2 INSPECTION

.1 Refer to CCDC 2, GC 2.3.

.2 Allow Consultant access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.3 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Consultant instructions, or law of Place of Work.

.4 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

.5 Consultant will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.

1.3 INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection/Testing Agencies will be engaged by the Contractor for purpose of inspecting and/or testing portions of Work. Cost of such services will be covered by the testing and inspections cash allowance. Refer to section 01 21 00 Allowances .

.2 Contractor to tender this scope of work to 3 recognized inspection/ testing agencies and present recommendations to Consultant and Owner prior to contract award.

.3 Provide equipment required for executing inspection and testing by appointed agencies.

.4 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.5 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Consultant at no cost to the Owner. Pay costs for retesting and reinspection.

1.4 ACCESS TO WORK

.1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.

.2 Co-operate to provide reasonable facilities for such access.

1.5 PROCEDURES

.1 Notify appropriate agency and Consultant in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.6 REJECTED WORK

.1 Refer to CCDC, GC 2.4.

.2 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Consultant as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.3 Make good other Contractor's work damaged by such removals or replacements promptly.

.4 If in opinion of Consultant it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Consultant.

1.7 REPORTS

.1 Submit electronic copies of inspection and test reports to Consultant.

.2 Provide copies to manufacturer or fabricator of material being inspected or tested.

.3 A copy of all test reports is to be included in the final O&M manuals

1.8 TESTS AND MIX DESIGNS

.1 Furnish test results and mix designs as requested.

.2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Consultant and may be authorized as recoverable.

1.9 MOCK-UPS

.1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.

.2 Construct in locations acceptable to Consultant and Owner.

.3 Prepare mock-ups for Consultant's review with reasonable promptness and in orderly sequence, to not cause delays in Work.

.4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.5 If requested, Consultant will assist in preparing schedule fixing dates for preparation.

.6 Remove mock-up at conclusion of Work or when acceptable to Consultant.

.7 Mock-ups may remain as part of Work pending approval by Consultant.

1.10 MILL TESTS

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

.2 Include in Operations and Maintenance Manuals Submittals

1.11 EQUIPMENT AND SYSTEMS

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

.2 Include in Operations and Maintenance Manuals Submittals

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Section 01 51 00
Temporary Utilities

Part 1 General

1.1 ACTION AND INFORMATIONAL SUBMITTALS

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

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.3 WATER SUPPLY

.1 The Owner will provide access to a hose bib located in the proximity of the construction area for water supply. GC will be responsible for all connections, maintenance and removal.

1.4 TEMPORARY HEATING AND VENTILATION

.1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.

.2 Construction heaters used inside building must be vented to outside or be flameless (vent free) type. Solid fuel salamanders are not permitted.

.3 Provide temporary heat and ventilation in enclosed areas as required to:

.1 Facilitate progress of Work.

.2 Protect Work and products against dampness and cold.

.3 Prevent moisture condensation on surfaces.

.4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.

.5 Provide adequate ventilation to meet health regulations for safe working environment.

.4 Maintain temperatures of minimum 10 degrees Celsius in areas where construction is in progress.

.5 Ventilating:

.1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.

.2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.

.3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.

.4 Ventilate storage spaces containing hazardous or volatile materials.

.5 Ventilate temporary sanitary facilities.

.6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

.6 Permanent heating system of building will not be permitted for use during construction. All air return ducts exposed to the construction area to be sealed to prevent dust infiltration. Be responsible for damage and cleaning of heating system used in error or without written permission.

.7 New RTU and heating system usage will not be permitted during construction. Final commissioning of RTU to be scheduled when all interior finishes generating dust, i.e. drywall sanding, etc. are complete.

.8 On completion of Work for which existing heating system is used, clean units and replace filters.

.9 Ensure Date of Substantial Performance and Warranties for heating system do not start until entire system is in as near original condition as possible and is certified by Consultant.

.10 Pay costs for maintaining temporary heat, when using permanent heating system.

.11 Maintain strict supervision of operation of temporary heating and ventilating equipment to:

.1 Conform with applicable codes and standards.

.2 Enforce safe practices.

.3 Prevent abuse of services.

.4 Prevent damage to finishes.

.5 Vent direct-fired combustion units to outside.

.12 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.5 TEMPORARY POWER AND LIGHT

.1 Owner will provide access to an existing electrical panel for temporary electrical panel connection during construction temporary lighting and operating of power tools, to a maximum supply of 230 volts 30 amps.

.2 Temporary power for electric cranes, welding machines and other equipment requiring in excess of above is responsibility of Contractor based on General Conditions of Contract.

.3 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 162 lx.

.4 Electrical power and lighting systems installed under this Contract may be used for construction requirements only with prior approval of Owner and Consultant provided that guarantees are not affected.

.1 Repair damage to electrical system caused by use under this Contract.

.2 Replace lamps which have been used for more than 3 months.

1.6 TEMPORARY COMMUNICATION FACILITIES

.1 Provide and pay for temporary telephone, fax and data hook up, lines and equipment necessary for own use and use of Consultant.

1.7 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction governing codes, regulations and bylaws.

.2 Burning rubbish and construction waste materials is not permitted on Site.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

END OF SECTION

Section 01 52 00
Construction Facilities

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2008, Stipulated Price Contract.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.

.2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.

.3 CSA Group (CSA)

.1 CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

.2 CSA-0121-M1978 (R2003), Douglas Fir Plywood.

.3 CAN/CSA-S269.2-M1987 (R2003), Access Scaffolding for Construction Purposes.

.4 CAN/CSA-Z321-96 (R2001), Signs and Symbols for the Occupational Environment.

.4 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as of: May 14, 2004.

.5 Ontario Environmental Protection Act

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

1.3 INSTALLATION AND REMOVAL

.1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.

.2 Identify areas which have to be gravelled to prevent tracking of mud.

.3 Indicate use of supplemental or other staging area.

.4 Provide construction facilities in order to execute work expeditiously.

.5 Remove from site all such work after use.

1.4 SCAFFOLDING

.1 Scaffolding in accordance with CAN/CSA-S269.2.

.2 Provide and maintain all required equipment.

1.5 HOISTING

.1 Provide, operate and maintain hoists cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.

.2 Hoists cranes to be operated by qualified operator.

1.6 SITE STORAGE/LOADING

.1 Refer to CCDC 2, GC 3.12.

.2 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.

.3 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.7 CONSTRUCTION PARKING

.1 Parking will be permitted on site only in designated areas and pre-approved by the Owner, at no additional charge.

.2 Provide and maintain adequate access to project site.

1.8 SECURITY

.1 Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays as necessary and as requested by Owner.

1.9 OFFICES

.1 Provide office heated to 22 degrees C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.

.2 Provide marked and fully stocked first-aid case in a readily available location.

.3 Maintain office in clean condition.

1.10 EQUIPMENT, TOOL AND MATERIALS STORAGE

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

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

1.11 SANITARY FACILITIES

.1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.

.2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

.3 College washroom facilities cannot be used by contractors during construction.

1.12 CONSTRUCTION SIGNAGE

.1 Provide proposed project sign and location for Owner’s approval. Erect project sign within three weeks of signing Contract in the approved location.

.2 Construction sign up to 4m x 2 m, of wood frame and plywood construction painted with exhibit lettering produced by a professional sign painter.

.3 Indicate on sign, name of Owner, Consultant Contractor and Subcontractor, of design style established by Owner.

.4 No other signs or advertisements, other than warning signs, are permitted on site.

.5 Direct requests for approval to erect Consultant/Contractor signboard to Consultant. For consideration general appearance of Consultant/Contractor signboard must conform to project identification site sign. Wording in both official languages.

.6 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.

.7 Maintain approved signs and notices in good condition for duration of project, and dispose of off site on completion of project or earlier if directed by Consultant.

1.13 PROTECTION AND MAINTENANCE OF TRAFFIC

.1 Follow Owner designated access routes to Construction area and provide temporary relocated roads as / if necessary to maintain traffic with Owner's prior written permission

.2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Consultant.

.3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs

.4 Protect travelling public from damage to person and property.

.5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.

.6 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.

.7 Construct access and haul roads necessary.

.8 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.

.9 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.

.10 Dust control: adequate to ensure safe operation at all times.

.11 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Consultant.

.12 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.

.13 Provide snow removal during period of Work.

.14 Remove, upon completion of work, haul roads designated by Consultant.

1.14 CLEAN-UP

.1 Remove construction debris, waste materials, packaging material from work site daily.

.2 Clean dirt or mud tracked onto paved or surfaced roadways.

.3 Store materials resulting from demolition activities that are salvageable.

.4 Stack stored new or salvaged material not in construction facilities.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

END OF SECTION

Section 01 56 00
Temporary Barriers and Enclosures

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian General Standards Board (CGSB)

.1 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.

.2 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.

.2 CSA Group (CSA)

.1 CSA-O121-M1978 (R2003), Douglas Fir Plywood.

.3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as Of: May 14, 2004.

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.3 HOARDING

.1 Erect temporary exterior site enclosures using painted metal fence panels with height of 1.8m by Modu-Loc or alternate.

.2 Erect temporary interior site enclosures using steel stud framing complete with taped and painted GWB finish. Hoarding wall to contain lockable pedestrian door access.

.3 Refer to drawings for suggestion hoarding layout. All hoarding locations are to be reviewed and approved by the Owner on site prior to erection.

.4 Provide one lockable truck entrance gate and at least one pedestrian door as directed and conforming to applicable traffic restrictions on adjacent streets. Equip gates with locks and keys.

.5 Erect and maintain pedestrian walkways including roof and side covers, complete with signs and electrical lighting as required by law.

.6 Paint public side of site enclosure in selected colours with one coat primer to CAN/CGSB 1.189 and one coat exterior paint to CGSB 1.59. Maintain public side of enclosure in clean condition.

.7 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

1.4 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs, and any other unsafe opening.

.2 Provide as required by governing authorities.

1.5 WEATHER ENCLOSURES

.1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.

.2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.

.3 Design enclosures to withstand wind pressure and snow loading.

1.6 DUST TIGHT SCREENS

.1 Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.

.2 Maintain and relocate protection until such work is complete.

1.7 ACCESS TO SITE

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

1.8 PUBLIC TRAFFIC FLOW

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

1.9 FIRE ROUTES

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

1.10 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

1.11 PROTECTION OF BUILDING FINISHES

.1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.

.2 Provide necessary screens, covers, and hoardings.

.3 Confirm with Consultant and Owner locations and installation schedule 3 days prior to installation.

.4 Be responsible for damage incurred due to lack of or improper protection.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Section 01 61 00
Common Product Requirements

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2020, Stipulated Price Contract.

.2 Within text of each specifications section, reference may be made to reference standards.

.3 Conform to these reference standards, in whole or in part as specifically requested in specifications.

.4 If there is question as to whether products or systems are in conformance with applicable standards, Consultant reserves right to have such products or systems tested to prove or disprove conformance.

.5 Cost for such testing will be born by Owner in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.2 QUALITY

.1 Refer to CCDC 2.

.2 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

.3 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.

.4 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

.5 Should disputes arise as to quality or fitness of products, decision rests strictly with Consultant based upon requirements of Contract Documents.

.6 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

.7 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.3 AVAILABILITY

.1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify

Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

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

1.4 STORAGE, HANDLING AND PROTECTION

.1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store cementitious products clear of earth or concrete floors, and away from walls.

.5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

.6 Store sheet materials, lumber and any other construction material safely on flat, solid supports and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Remove and replace damaged products at own expense and to satisfaction of Consultant.

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

1.5 TRANSPORTATION

.1 Pay costs of transportation of products required in performance of Work.

1.6 MANUFACTURER'S INSTRUCTIONS

.1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.

.2 Notify Consultant in writing, of conflicts between specifications and manufacturer's instructions, so that Consultant will establish course of action.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Consultant to require removal and re-installation at no increase in Contract Price or Contract Time.

1.7 QUALITY OF WORK

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

.2 Do not employ anyone unskilled in their required duties. Consultant reserves right to require dismissal from site, workers deemed incompetent or careless.

.3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Consultant, whose decision is final.

1.8 CO-ORDINATION

.1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.

.2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.9 CONCEALMENT

.1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

.2 Before installation inform Consultant if there is interference. Install as directed by Consultant.

1.10 REMEDIAL WORK

.1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.

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

1.11 LOCATION OF FIXTURES

.1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.

.2 Inform Consultant of conflicting installation. Install as directed.

1.12 FASTENINGS

.1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.

.2 Prevent electrolytic action between dissimilar metals and materials.

.3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.

.4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.

.5 Keep exposed fastenings to a minimum, space evenly and install neatly.

.6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.13 FASTENINGS - EQUIPMENT

.1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

.2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.

.3 Bolts may not project more than one diameter beyond nuts.

.4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.14 PROTECTION OF WORK IN PROGRESS

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

1.15 EXISTING UTILITIES

.1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and/or building occupants.

.2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Section 01 71 00
Examination and Preparation

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2020, Stipulated Price Contract.

.2 Owner's identification of existing survey control points and property limits.

1.2 EXISTING SERVICES

.1 Before commencing work, establish location and extent of service lines in area of Work and notify Consultant of findings.

.2 Remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by Consultant.

1.3 LOCATION OF EQUIPMENT AND FIXTURES

.1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.

.2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.

.3 Inform Consultant of impending installation and obtain approval for actual location.

.4 Submit field drawings to indicate relative position of various services and equipment when required by Consultant.

1.4 RECORDS

.1 Maintain a complete, accurate log of control and survey work as it progresses.

.2 Record locations of maintained, re-routed and abandoned service lines.

1.5 SUBSURFACE CONDITIONS

.1 Promptly notify Consultant in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.

.2 After prompt investigation, should Consultant determine that conditions do differ materially, instructions will be issued for changes in Work as provided in Changes and Change Orders.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Section 01 73 00
Execution

Part 1 General

1.1 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Submit written request in advance of cutting or alteration which affects:

- .1 Structural integrity of elements of project.
- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Efficiency, maintenance, or safety of operational elements.
- .4 Visual qualities of sight-exposed elements.
- .5 Work of Owner or separate contractor.

.3 Include in request:

- .1 Identification of project.
- .2 Location and description of affected Work.
- .3 Statement on necessity for cutting or alteration.
- .4 Description of proposed Work, and products to be used.
- .5 Alternatives to cutting and patching.
- .6 Effect on Work of Owner or separate contractor.
- .7 Written permission of affected separate contractor.
- .8 Date and time work will be executed.

1.2 MATERIALS

.1 Required for original installation.

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

1.3 PREPARATION

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of Work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

.4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

.5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.4 EXECUTION

.1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.

.2 Fit several parts together, to integrate with other Work.

.3 Uncover Work to install ill-timed Work.

.4 Remove and replace defective and non-conforming Work.

.5 Remove samples of installed Work for testing.

.6 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.

.7 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

.8 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

.9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.

.10 Restore work with new products in accordance with requirements of Contract Documents.

.11 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.12 Provide firestopping in accordance with Section 07 84 00 - Firestopping to maintain the integrity of fire separations, including:

.1 Protecting penetrations at fire-resistance rated wall, ceiling or floor construction.

.2 Using construction joint fire stops and building perimeter fire stops to protect gaps at fire separations and between fire separations and other construction assemblies.

.13 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

.14 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Section 01 74 00
Cleaning

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2020, Stipulated Price Contract.

1.2 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.

.2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Consultant. Do not burn waste materials on site, unless approved by Consultant.

.3 Clear snow and ice from access to building, and bank/pile snow in designated areas only.

.4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.5 Provide on-site bins/ containers for collection of waste materials and debris.

.6 Provide and use marked separate bins for recycling. Refer to Section 01 74 19 - Waste Management and Disposal.

.7 Dispose of waste materials and debris off site.

.8 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.

.9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

.11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

.12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.3 FINAL CLEANING

.1 Refer to CCDC 2, GC 3.14.

.2 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

.3 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

.4 Prior to final review remove surplus products, tools, construction machinery and equipment.

.5 Remove waste products and debris including that caused by Owner or other Contractors.

.6 Remove waste materials from site at regularly scheduled times or dispose of as directed by Consultant. Do not burn waste materials on site, unless approved by Consultant.

.7 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.8 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.

.9 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, glazing, door/frames, ceilings, floors and equipment.

.10 Clean lighting reflectors, lenses, and other lighting surfaces.

.11 Vacuum clean and dust building interiors, behind grilles, louvres and screens.

.12 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.

.13 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

.14 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.

.15 Remove dirt and other disfiguration from exterior surfaces.

.16 Clean and sweep roofs, gutters, areaways, and sunken wells.

.17 Sweep and wash clean paved areas.

.18 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.

.19 Clean roofs, downspouts, and drainage systems.

.20 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

.21 Remove snow and ice from access to building.

1.4 WASTE MANAGEMENT AND DISPOSAL

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Section 01 74 19
Waste Management and Disposal

Part 1 General

1.1 SUMMARY

.1 This Section includes requirements for management of construction waste and disposal, which forms the Contractor ’s commitment to reduce and divert waste materials from landfill and includes the following:

.1 Preparation of a Draft Construction Waste Management Plan that will be used to track the success of the Construction Waste Management Plan against actual waste diversion from landfill.

.2 Preparation of a Construction Waste Management Plan that provides guidance on a logical progression of tasks and procedures to be followed in a pollution prevention program to reduce or eliminate the generation of waste, the loss of natural resources, and process emissions through source reduction, reuse, recycling, and reclamation.

.3 Preparation of monthly progress reports indicating cumulative totals representing progress towards achieving diversion and reduction goals of waste materials away from landfill and identifying any special programs, landfill options or alternatives to landfill used during construction.

.4 Preparation of a Construction Waste Management Report containing detailed information indicating total waste produced by the project, types of waste material and quantity of each material, and total waste diverted and diversion rates indicated as a percentage of the total waste produced.

.2 Owner has established that this project shall generate the least amount of waste possible and that processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors be employed by the Contractor.

1.2 REFERENCE STANDARDS

.1 American Society for Testing and Materials (ASTM):

.1 ASTM E1609 01, Standard Guide for Development and Implementation of a Pollution Prevention Program

.2 Recycling Certification Institute (RCI):

.1 RCI Certification Construction and Demolition Materials Recycling

1.3 DEFINITIONS

.1 Clean Waste: Untreated and unpainted; not contaminated with oils, solvents, sealants or similar materials.

.2 Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, re modeling operations.repair and demolition

.3 Hazardous: Exhibiting the characteristics of hazardous substances including properties such as ignitability, corrosiveness, toxicity or reactivity.

.4 Non hazardous: Exhibiting none of the characteristics of hazardous substances, including properties such as ignitability, corrosiveness, toxicity, or reactivity.

.5 Non toxic: Not poisonous to humans either immediately or after a long period of exposure.

.6 Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

.7 Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

.8 Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form; recycling does not include burning, incinerating, or thermally destroying waste.

.9 Return: To give back reusable items or unused products to vendors for credit.

.10 Reuse: To reuse a construction waste material in some manner on the project site.

.11 Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

.12 Sediment: Soil and other debris that has been eroded and transported by storm or well production run off water.

.13 Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

.14 Toxic: Poisonous to humans either immediately or after a long period of exposure.

.15 Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

.16 Volatile Organic Compounds (VOC's): Chemical compounds common in and emitted by many building products over time through outgassing:

.1 Solvents in paints and other coatings;

.2 Wood preservatives; strippers and household cleaners;

.3 Adhesives in particleboard, fiberboard, and some plywood; and foam insulation.

.4 When released, VOC's can contribute to the formation of smog and can cause respiratory tract problems, headaches, eye irritations, nausea, damage to the liver, kidneys, and central nervous system, and possibly cancer.

.17 Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

.18 Construction Waste Management Plan: A project related plan for the collection, transportation, and disposal of the waste generated at the construction site; the purpose of the plan is to ultimately reduce the amount of material being landfilled.

1.4 ADMINISTRATIVE REQUIREMENTS

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

.2 Preconstruction Meeting: Arrange a pre-construction meeting in accordance with Section 01 31 19 – Project Meetings before starting any Work of the Contract attended by the Owner, Contractor, affected Subcontractor ’s and Consultant to discuss the Contractor ’s Construction Waste Management Plan and to develop mutual understanding of the requirements for a consistent policy towards waste reduction and recycling.

1.5 SUBMITTALS

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

.2 Action Submittals: Provide the following submittals before starting any work of this Section:

.1 Draft Construction Waste Management Plan (Draft CWM Plan): Submit to Consultant a preliminary analysis of anticipated site generated waste by listing a minimum of five (5) construction or demolition waste streams that have potential to generate the most volume of material indicating methods that will be used to divert construction waste from landfill and source reduction strategies; Consultant will provide commentary before development of Contractor ’s Construction Waste Management Plan.

.2 Construction Waste Management Plan (CWM Plan): Submit a CWM Plan for this project prior to any waste removal from site and that includes the following information:

.1 Material Streams: Analysis of the proposed jobsite waste being generated, including material types and quantities forming a part of identified material streams in the Draft CWM Plan ; materials removed from site destined for alternative daily cover at landfill sites and land clearing debris cannot be considered as contributing to waste diversion and will be included as a component of the total waste generated for the site.

.2 Recycling Haulers and Markets: Investigate local haulers and markets for recyclable materials, and incorporate into CWM Plan.

.3 Alternative Waste Disposal: Prepare a listing of each material proposed to be salvaged, reused, recycled or composted during the course of the project, and the proposed local market for each material.

.4 Landfill Materials: Identify materials that cannot be recycled, reused or composted and provide explanation or justification.

.5 Landfill Options: The name of the landfill where trash will be disposed of; landfill materials will form a part of the total waste generated by the project.

.6 Materials Handling Procedures: A description of the means by which any recycled waste materials will be protected from contamination, and a description of the means to be employed in recycling the above materials consistent with requirements for acceptance by designated facilities.

.7 Transportation: A description of the means of transportation of the recyclable materials, whether materials will be site separated and self hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site, and destination of materials.

1.6 PROJECT CLOSEOUT SUBMISSIONS

.1 Record Documentation: Submit as constructed information in accordance with Section 01 78 00– Closeout Submittals as follows:

.1 Construction Waste Management Report (CWM Report): Submit a CWM Report for this project in a format that includes the following information:

.1 Accounting: Submit information indicating total waste produced by the project.

.2 Composition: Submit information indicating types of waste material and quantity of each material.

.3 Diversion Rate: Submit information indicating total waste diverted from landfill as a percentage of the total waste produced by the project.

.4 Diversion Documentation: Submit copies of transportation documents or shipping manifests indicating weights of materials, and other evidence of disposal indicating final location of waste diverted from landfill and waste sent to landfill.

.5 Alternative Daily Cover (ADC): Submit quantities of material that were used as ADC at landfill sites, and that form a part of the total waste generated by the project.

.6 Multiple Waste Hauling: Compile all information into a single CWM Report where multiple waste hauling and diversion strategies were used for the project.

.7 Photographs: Submit photographs of waste diversion facilities documenting location and signage describing usage of waste separation containers.

1.7 QUALITY ASSURANCE

.1 Resources for Development of Construction Waste Management Report (CWM Report): The following sources may be useful in developing the Draft Construction Waste Management Plan:

.1 Recycling Haulers and Markets: Investigate local haulers and markets for recyclable materials, and incorporate into CWM Plan.

.2 Waste-to-Energy Systems: Investigate local waste-to-energy incentives where systems for diverting materials from landfill for reuse or recycling are not available.

.2 Certifications: Provide proof of the following during the course of the Work :

.1 Compliance Certification: Provide proof that recycling center is third party verified and is listed as a Certified Facility through the registration and certification requirements of the Recycling Certification Institute.

1.8 DELIVERY, STORAGE AND HANDLING

.1 Storage Requirements: Implement a recycling/reuse program that includes separate collection of waste materials as appropriate to the project waste and the available recycling and reuse programs in the project area.

.2 Handling Requirements: Clean materials that are contaminated before placing in collection containers and ensure that waste destined for landfill does not get mixed in with recycled materials:

.1 Deliver materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling process.

.2 Arrange for collection by or delivery to the appropriate recycling or reuse facility.

.3 Hazardous Waste and Hazardous Materials: Handle in accordance with applicable regulations.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 (CWM PLAN) IMPLEMENTATION

.1 Manager: Contractor is responsible for designating an on site party or parties responsible for instructing workers and overseeing and documenting results of the CWM Plan for the project.

.2 Distribution: Distribute copies of the CWM Plan to the job site foreman, each Subcontractor, the Owner, the Consultant and other site personnel as required to maintain CWM Plan.

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

.4 Separation Facilities: Lay out and label a specific area to facilitate separation of materials for potential recycling, salvage, reuse, composting and return:

.1 Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials.

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

.5 Progressive Documentation: Submit a monthly summary of waste generated by the project to ensure that waste diversion goals are on track with project requirements:

.1 Submission of waste summary can coincide with application for progress payment, or similar milestone event as agreed upon between the Owner, Contractor and Consultant.

.2 Monthly waste summary shall contain the following information:

.1 The amount in tonnes or $m^3$and location of material landfilled,

.2 The amount in tonnes or $m^3$and location of materials diverted from landfill, and

.3 Indication of progress based on total waste generated by the project with materials diverted from landfill as a percentage.

3.2 SUBCONTRACTOR'S RESPONSIBILITY

.1 Subcontractor 's shall cooperate fully with the Contractor to implement the CWM Plan.

.2 Failure to cooperate may result in the Owner not achieving their environmental goals, and may result in penalties being assessed by the Contractor to the responsible Subcontractor 's.

END OF SECTION

Section 01 77 00
Closeout Procedures

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2020, Stipulated Price Contract.

.2 Canadian Environmental Protection Act (CEPA)

.1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

1.2 ADMINISTRATIVE REQUIREMENTS

.1 Acceptance of Work Procedures:

.1 Contractor's Inspection: Contractor and all Subcontractors shall: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Consultant in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.

.2 Request Consultant's inspection.

.2 Consultant's Inspection:

.1 Consultant and Contractor to inspect Work and identify defects and deficiencies.

.2 Contractor to correct Work as directed.

.3 Completion Tasks: submit written certificates in English that tasks have been performed as follows:

.1 Work: completed and inspected for compliance with Contract Documents.

.2 Defects: corrected and deficiencies completed.

.3 Equipment and systems: tested, balanced, adjusted and fully operational.

.4 Certificates required by Fire Commissioner, Utility companies and Boiler Inspection Branch: submitted.

.5 Operation of systems: demonstrated to Owner's personnel.

.6 Work: complete and ready for final inspection.

.4 Final Inspection:

.1 When completion tasks are done, request final inspection of Work by Consultant, Owner, and Contractor.

.2 When Work incomplete according to Consultant and/or Owner, complete outstanding items and request re-inspection.

.5 Declaration of Substantial Performance: when Consultant considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.

.6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.

.7 Final Payment:

.1 When Consultant considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.

.2 Refer to CCDC 2: when Work deemed incomplete by Consultant, complete outstanding items and request re-inspection.

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

1.3 FINAL CLEANING

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

.1 Remove surplus materials, excess materials, rubbish, tools and equipment.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Section 01 78 00
Closeout Submittals

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

.1 Pre-warranty Meeting:

.1 Convene meeting two week prior to contract completion with Consultant and Owner, in accordance with Section 01 31 19 - Project Meetings to:

.1 Verify Project requirements.

.2 Review warranty requirements.

.2 Consultant to establish communication procedures for:

.1 Notifying construction warranty defects.

.2 Determine priorities for type of defects.

.3 Determine reasonable response time.

.3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.

.4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Two weeks prior to Substantial Performance of the Work, submit to the Consultant, three final copies of operating and maintenance manuals in English.

.3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.

.4 Provide evidence, if requested, for type, source and quality of products supplied.

1.3 FORMAT

.1 Organize data as instructional manual submitted in electronic USB key format (1 copy) and printed format (2 copies).

.2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.

.3 When multiple binders are used correlate data into related consistent groupings.

.1 Identify contents of each binder on spine.

.4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

.5 Arrange content by process flow, under Section numbers and sequence of Table of Contents.

.6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.7 Text: manufacturer's printed data, or typewritten data.

.8 Drawings: provide with reinforced punched binder tab.

.1 Bind in with text; fold larger drawings to size of text pages.

.9 Provide 1:1 scaled CAD files in DWG and PDF format on USB Key.

1.4 CONTENTS - PROJECT RECORD DOCUMENTS

.1 Table of Contents for Each Volume: provide title of project;

.1 Date of submission; names.

.2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.

.3 Schedule of products and systems, indexed to content of volume.

.2 For each product or system:

.1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

.5 Typewritten Text: as required to supplement product data.

.1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

.6 Training: refer to Section 01 79 00 - Demonstration and Training.

1.5 AS -BUILT DOCUMENTS AND SAMPLES

.1 Maintain, in addition to requirements in General Conditions, one record copy of:

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Change Orders and other modifications to Contract.

.5 Reviewed shop drawings, product data, and samples.

.6 Field test records.

.7 Inspection certificates.

.8 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction.

.1 Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.

.1 Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition.

.1 Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Consultant.

1.6 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

.1 Record information on set of black line opaque drawings, and in copy of Project Manual, provided by Consultant.

.2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress.

.1 Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: mark each item to record actual construction, including:

.1 Measured depths of elements of foundation in relation to finish first floor datum.

.2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

.3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.

.4 Field changes of dimension and detail.

.5 Changes made by change orders.

.6 Details not on original Contract Drawings.

.7 Referenced Standards to related shop drawings and modifications.

.5 Specifications: mark each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

.2 Changes made by Addenda and change orders.

.6 Other Documents: maintain manufacturer's certifications, field test records, inspection certifications, required by individual specifications sections.

.7 Provide digital photos, if requested, for site records.

1.7 EQUIPMENT AND SYSTEMS

.1 For each item of equipment and each system include description of unit or system, and component parts.

.1 Give function, normal operation characteristics and limiting conditions.

.2 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

.2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.

.3 Include installed colour coded wiring diagrams.

.4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.

.1 Include regulation, control, stopping, shut-down, and emergency instructions.

.2 Include summer, winter, and any special operating instructions.

.5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.6 Provide servicing and lubrication schedule, and list of lubricants required.

.7 Include manufacturer's printed operation and maintenance instructions.

.8 Include sequence of operation by controls manufacturer.

.9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.10 Provide installed control diagrams by controls manufacturer.

.11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.

.12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

.13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

.14 Include test and balancing reports as specified in Section 01 45 00 - Quality Control and other Consultant's Specifications.

.15 Additional requirements: as specified in individual specification sections.

1.8 MATERIALS AND FINISHES

.1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.

.1 Provide information for re-ordering custom manufactured products.

.2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.4 Additional requirements: as specified in individual specifications sections.

1.9 MAINTENANCE MATERIALS

.1 Spare Parts:

.1 Provide spare parts, in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to location as directed ; place and store.

.4 Receive and catalogue items.

.1 Submit inventory listing to Consultant.

.2 Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

.2 Extra Stock Materials:

.1 Provide maintenance and extra materials, in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to location as directed ; place and store.

.4 Receive and catalogue items.

.1 Submit inventory listing to Consultant.

.2 Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

.3 Special Tools:

.1 Provide special tools, in quantities specified in individual specification section.

.2 Provide items with tags identifying their associated function and equipment.

.3 Deliver to location as directed ; place and store.

.4 Receive and catalogue items.

.1 Submit inventory listing to Consultant.

.2 Include approved listings in Maintenance Manual.

1.10 DELIVERY, STORAGE AND HANDLING

.1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

.2 Store in original and undamaged condition with manufacturer's seal and labels intact.

.3 Store components subject to damage from weather in weatherproof enclosures.

.4 Store paints and freezable materials in a heated and ventilated room.

.5 Remove and replace damaged products at own expense and for review by Consultant.

1.11 WARRANTIES AND BONDS

.1 Develop warranty management plan to contain information relevant to Warranties.

.2 Submit warranty management plan, 10 days before planned pre-warranty conference, to Consultant approval.

.3 Warranty management plan to include required actions and documents to assure that Consultant receives warranties to which it is entitled.

.4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.

.5 Submit, warranty information made available during construction phase, to Consultant for approval prior to each monthly pay estimate.

.6 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:

.1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.

.4 Verify that documents are in proper form, contain full information, and are notarized.

.5 Co-execute submittals when required.

.6 Retain warranties and bonds until time specified for submittal.

.7 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.

.8 Conduct joint 4 month and 9 month warranty inspection, measured from time of acceptance, by Consultant.

.9 Include information contained in warranty management plan as follows:

.1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.

.2 Listing and status of delivery of Certificates of Warranty for extended warranty items.

.3 Provide list for each warranted equipment, item, feature of construction or system indicating:

.1 Name of item.

.2 Model and serial numbers.

.3 Location where installed.

.4 Name and phone numbers of manufacturers or suppliers.

.5 Names, addresses and telephone numbers of sources of spare parts.

.6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.

.7 Cross-reference to warranty certificates as applicable.

.8 Starting point and duration of warranty period.

.9 Summary of maintenance procedures required to continue warranty in force.

.10 Cross-Reference to specific pertinent Operation and Maintenance manuals.

.11 Organization, names and phone numbers of persons to call for warranty service.

.12 Typical response time and repair time expected for various warranted equipment.

.4 Contractor's plans for attendance at 4 and 9 month post-construction warranty inspections.

.5 Procedure and status of tagging of equipment covered by extended warranties.

.6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

.10 Respond in timely manner to oral or written notification of required construction warranty repair work.

.11 Written verification to follow oral instructions.

.1 Failure to respond will be cause for the Consultant to proceed with action against Contractor.

1.12 WARRANTY TAGS

.1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Consultant.

.2 Attach tags with copper wire and spray with waterproof silicone coating.

.3 Leave date of acceptance until project is accepted for occupancy.

.4 Indicate following information on tag:

.1 Type of product/material.

.2 Model number.

.3 Serial number.

.4 Contract number.

.5 Warranty period.

.6 Inspector's signature.

.7 Construction Contractor.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Section 01 79 00
Demonstration and Training

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

.1 Demonstrate scheduled operation and maintenance of equipment and systems to Owner's personnel two weeks prior to date of substantial performance.

.2 Owner: provide list of personnel to receive instructions, and co-ordinate their attendance at agreed-upon times.

.3 Preparation:

.1 Verify conditions for demonstration and instructions comply with requirements.

.2 Verify designated personnel are present.

.3 Ensure equipment has been inspected and put into operation in accordance with specifications.

.4 Ensure testing, adjusting, and balancing has been performed in accordance with specifications and equipment and systems are fully operational.

.4 Demonstration and Instructions:

.1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, warranty, servicing, and maintenance of each item of equipment at agreed upon times, at the equipment location.

.2 Instruct personnel in phases of operation and maintenance using operation and maintenance manuals as basis of instruction.

.3 Review contents of manual in detail to explain aspects of operation and maintenance.

.4 Prepare and insert additional data in operations and maintenance manuals when needed during instructions.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Consultant's approval.

.3 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.

.4 Give time and date of each demonstration, with list of persons present.

.5 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

1.3 QUALITY ASSURANCE

.1 When specified in individual Sections requiring manufacturer to provide authorized representative to demonstrate operation of equipment and systems:

.1 Instruct Owner's personnel.

.2 Provide written report that demonstration and instructions have been completed.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Section 04 20 00
Unit Masonry

Part 1 General

1.1 REFERENCE STANDARDS

.1 ASTM International

.1 ASTM A1064/A1064M- 17 Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.

.2 ASTM C73-14 Standard Specification for Calcium Silicate Face Brick (Sand-Lime Brick).

.2 CSA Group (CSA)

.1 CAN/CSA-A82-14, Fired Masonry Brick Made From Clay or Shale.

.2 CAN/CSA-A165 SERIES-04 (R2014), CSA Standards on Concrete Masonry Units (Consists of A165.1-04 Concrete Block Masonry Units, A165.2 Concrete Brick Masonry Units, A165.3 Prefaced Concrete Masonry Units).

.3 CAN/CSA-A179-04 (R2014), Mortar and Grout for Unit Masonry.

.4 CAN/CSA-A370-14, Connectors for Masonry.

.5 CAN/CSA A371-04 (R2014), Masonry Construction for Buildings.

.6 CSA G30.18-09 (R2014), Carbon Steel Bars for Concrete Reinforcement.

.7 CSA S304-14 - Design of masonry structures.

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

.1 Material Safety Data Sheets (SDS).

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for unit masonry products, mortar and grout, connectors, anchorage and reinforcing, and accessories. Include product characteristics, performance criteria, physical size, finish and limitations.

.3 Samples:

.1 Submit duplicate samples of each unit exposed in final construction for review and acceptance.

.2 Samples will be returned for inclusion into work.

1.3 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:

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

.2 Store and protect masonry products from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: As specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

1.4 COLD WEATHER REQUIREMENTS

.1 Supplement requirements of CAN3-A371 as follows:

.1 Maintain temperature of mortar between -5C and 50C until used.

1.5 HOT WEATHER REQUIREMENTS

.1 Supplement requirements of CAN3-A371 as follows:

.1 Protect freshly laid masonry from drying too rapidly by means of waterproof, non-staining coverings.

Part 2 Products

2.1 MASONRY UNITS

.1 Standard concrete block units: to CAN/CSA-A165.1.

.1 Normal Weight Classification:

.1 Hollow units: H/15/A/O, H/20/A/O and H/25/A/O

.2 Semi-solid units: SS/15/A/O, SS/20/A/O and SS/25/A/O

.3 Full solid units: SF/15/A/O, SF/20/A/O and SF/25/A/O

.2 Light Weight Classification:

.1 Hollow units: H/15/C/O

.2 Semi-solid units: SS/15/C/O

.3 Full solid units: SF/15/C/O

.3 Colour: Grey

.4 Size: Metric

.5 Special shapes: provide square units for exposed corners. Provide purpose-made shapes for lintels and bond beams. Provide additional special shapes as indicated.

2.2 REINFORCEMENT AND CONNECTORS

.1 Bar reinforcement: to CAN/CSA-A371, Grade 400.

.2 Wire reinforcement: wire to ASTM A 1064/A 1064M, truss type.

.3 Connectors: to CAN/CSA-A370.

.1 Corrosion resistance: to CAN/CSA-A370

2.3 MORTAR AND GROUT

.1 Mortar: to CAN/CSA-A179.

.1 Use aggregate passing 1.18 mm sieve where 6 mm thick joints are indicated.

.2 Colour: ground coloured natural aggregates or metallic oxide pigments, .

.2 Mortar Type:

.1 Exterior non-loadbearing walls and parapet walls: N based on proportion specifications.

.2 Interior non-loadbearing walls: Type N based on proportion specifications.

.3 Mortar for foundation walls, manholes, sewers, pavements, walks, patios and other exterior masonry at or below grade: type M based on proportion specifications.

.4 Following applies regardless of mortar types and uses specified above:

.1 Mortar for stonework: type N based on proportion specifications.

.2 Mortar for grouted reinforced masonry: type S based on proportion specifications.

.5 Grout: to CAN/CSA-A179, Table 3.

.6 Parging mortar: to CAN/CSA-A179.

2.4 ACCESSORIES

.1 Weep hole vents: purpose-made galvanized steel.

.2 Cavity screening: three dimensional random weave plastic mesh, thickness to match cavity, minimum height 3 brick masonry courses.

.3 Anchor Bolts: 12 mm diameter x 150 mm long with embedded ends bent 50 mm at 90 degrees, exposed ends threaded with washer and nut.

.4 Embedded Flexible Flashings: Self-adhering sheet 1.0 mm thick consisting of rubberized asphalt compound banded to high density cross laminated polyethylene film, complete with manufacturer’s recommended primer.

.1 Primers: VOC limit 50 g/L maximum to SCAQMD Rule 1113

.2 Coatings: VOC limit 275 g/L maximum to SCAQMD Rule 1113.

Part 3 Execution

3.1 EXAMINATION

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

3.2 INSTALLATION

.1 Do masonry work in accordance with CAN/CSA-A371 except where specified otherwise.

.1 Bond: running stretcher bond with vertical joints in perpendicular alignment and centred on adjacent stretchers above and below.

.2 Ensure coursing matches existing

.3 Jointing: tool where exposed or where paint or other finish coating is specified to provide smooth compressed surface.

.2 Build masonry plumb, level, and true to line, with vertical joints in alignment.

.3 Layout coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings, with minimum of cutting.

3.3 CONSTRUCTION

.1 Exposed masonry:

.1 Remove chipped, cracked, and otherwise damaged units, in exposed masonry and replace with undamaged units.

.2 Cut out for electrical switches, outlet boxes, and other recessed or built-in objects. Make cuts straight, clean, and free from uneven edges.

.2 Building-in:

.1 Install masonry connectors and reinforcement where indicated on drawings.

.2 Build in items required to be built into masonry.

.3 Prevent displacement of built-in items during construction. Check plumb, location and alignment frequently, as work progresses.

.4 Brace door jambs to maintain plumb. Fill spaces between jambs and masonry with mortar.

.5 Install loose steel lintels centered over openings where indicated, with minimum 200 end bearing.

.3 Concrete block lintels:

.1 Install reinforced concrete block lintels over openings in masonry where steel or reinforced concrete lintels are not indicated.

.2 End bearing: not less than 200 mm as indicated on drawings.

.4 Provision for movement:

.1 Leave 6 mm space below shelf angles.

.2 Leave 6 mm space between top of non-load bearing walls and partitions and structural elements. Do not use wedges.

.3 Built masonry to tie in with stabilizers, with provision for vertical movement.

.4 Build expansion and control joints where and as indicated.

.5 Interface with other work:

.1 Cut openings in existing work as indicated.

.2 Openings in walls: approved by Consultant.

.3 Make good existing work. Use materials to match existing.

.6 Build in flashings in masonry in accordance with CAN/CSA-A371.

.1 Install flashings under exterior masonry bearing on foundation walls, slabs, shelf angles, and steel angles over openings. Install flashings under weep hole courses and as indicated. Seal laps, penetrations and terminations to resist water penetration.

.2 In cavity walls and veneered walls, carry flashings from front edge of masonry, under outer wythe, then up backing not less than 150 mm, and as follows:

.1 For self-adhesive flashing, apply primer and firmly press sheet against backing. Lap under air-barrier membrane. Seal penetrations with recommended sealant or mastic. Installation shall be free of wrinkles, fish-mouths and punctures.

.2 Provided turned up end dams minimum 50 mm high at ends of all flashings.

.3 For masonry backing embed flashing 25 mm in joint.

.4 For concrete backing, insert flashing into reglets.

.5 For wood frame backing, staple flashing to walls behind sheathing paper.

.6 For gypsum board backing, bond to wall using manufacturer's recommended adhesive.

.3 Lap joints 150 mm and seal with adhesive or mastic.

.7 Install weep hole vents in vertical joints immediately over flashings, in exterior wythes of cavity wall and masonry veneer wall construction, at maximum horizontal spacing of 600 mm on center.

.8 Place drainage mesh in cavity as indicated as construction progresses.

3.4 REINFORCING AND CONNECTING

.1 Install masonry connectors and reinforcement in accordance with CAN/CSA-A370, CAN/CSA-A371 and CSA S304.1 unless indicated otherwise.

.2 Prior to placing concrete, obtain Consultant's approval of placement of reinforcement and connectors.

3.5 BONDING AND TYING

.1 Bond walls of two or more wythes using metal connectors in accordance with CAN/CSA-A371, and as indicated.

.2 Tie masonry veneer to backing in accordance with National Building Code of Canada (NBC) 2015, CAN/CSA-A371, CSA S304.1 and as indicated.

3.6 MODIFICATIONS TO EXISTING MASONRY

.1 Match existing bond and coursing height of adjacent masonry to remain.

.2 Tooth new masonry into existing masonry in run of wall and at intersections with existing partitions.

.3 At new openings in masonry walls, remove units, clean and re-install rotated to conceal cut and expose finish surface.

.4 Clean bond areas of adjacent masonry to remain, remove loose material and prepare masonry to receive new masonry toothed in.

.5 Install reinforcement as necessary to provide continuity of reinforcing and stability between existing and new masonry work.

.6 Provide repair anchors as necessary to stabilize existing masonry adjacent to and affected by the Work.

3.7 REINFORCED LINTELS AND BOND BEAMS

.1 Reinforce masonry lintels and bond beams as indicated.

.2 Place and grout reinforcement in accordance with CAN/CSA-A179, CAN/CSA-A371.

3.8 GROUTING

.1 Grout masonry in accordance with CAN/CSA-A179, CAN/CSA-A371 and as indicated.

3.9 ANCHORS

.1 Supply and install metal anchors as indicated.

3.10 LATERAL SUPPORT AND ANCHORAGE

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

3.11 SITE TOLERANCES

.1 Tolerances of CAN/CSA-A371 apply.

3.12 FIELD QUALITY CONTROL

.1 Inspection and testing will be carried out by Testing Laboratory designated by the client.

3.13 CLEANING

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

.1 Leave Work area clean at end of each day.

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

.3 Waste Management:

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

.2 Return pallets to masonry manufacturer for re-use.

.3 Return surplus masonry materials to manufacturer for recycling and/or re-use.

3.14 PROTECTION

.1 Keep masonry dry using waterproof, non-staining coverings that extend over walls and down sides sufficient to protect from wind-driven rain until masonry work is completed and protected by flashings or other permanent construction.

.2 Protect masonry and other work from marking and other damage. Protect completed work from mortar droppings. Use non-staining coverings.

.3 Repair damage to adjacent materials caused by masonry products installation.

END OF SECTION

Section 05 50 00
Metal Fabrications

Part 1 General

1.1 REFERENCE STANDARDS

.1 ASTM International (ASTM)

.1 ASTM A 53/A 53M-12, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.

.2 ASTM A269M-15a, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

.3 ASTM A307-14, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

.2 CSA Group (CSA)

.1 CSA G40.20-13 /G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.2 CAN/CSA G164-M92 (R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

.3 CSA S16-14, Design of Steel Structures.

.4 CSA W48-14, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).

.5 CSA W59-13, Welded Steel Construction (Metal Arc Welding) Metric.

.3 Green Seal Environmental Standards (GS)

.1 GS-11-2011, Paints and Coatings.

.4 The Master Painters Institute (MPI)

.1 Architectural Painting Specification Manual - current edition.

.5 ULC Standards (ULC)

.1 UL 2768-2011, Architectural Surface Coatings.

.2 UL 2760-2011, Surface Coatings - Recycled Water-borne.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for all materials and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:

.1 Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada.

.2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.3 QUALITY ASSURANCE

.1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.

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

1.4 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:

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

.2 Replace defective or damaged materials with new.

.4 Packaging Waste Management: remove for reuse and return of packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

.1 Steel sections and plates: to CSA G40.20/G40.21, Grade 300W.

.2 Welding materials: to CSA W59.

.3 Welding electrodes: to CSA W48 Series.

.4 Bolts and anchor bolts: to ASTM A307.

.5 Stainless steel (SS) to be type 304 (18-8), brushed S finish

.1 18 GA. for shelves, bent per drawings

.2 20 GA. for bases

.3 base to be scribed on site to suit floor condtions

.6 Steel supports for hood enclosures

.1 50mm x 50mm steel HSS

.7 Handrail

.1 40 x 40 HSS c/w welded mitred corners, steel base plate

.2 Painted finish

.8 Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours.

2.2 FABRICATION

.1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.

.2 Use self-tapping shake-proof flat headed screws on items requiring assembly by screws or as indicated.

.3 Where possible, fit and shop assemble work, ready for erection.

.4 Exposed welds continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

.1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m^{2}to CAN/CSA-G164.

.2 Chromium plating: chrome on steel with plating sequence of 0.009 mm thickness of copper 0.010 mm thickness of nickel and 0.0025 mm thickness of chromium.

.3 Shop coat primer: MPI- 5.1B.

.4 Zinc primer: zinc rich, ready mix to MPI-INT 5.2C in accordance with chemical component limits and restrictions requirements and VOC limits of ???.

2.4 ISOLATION COATING

.1 Isolate aluminum from following components, by means of bituminous paint:

.1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.

.2 Concrete, mortar and masonry.

.3 Wood.

2.5 SHOP PAINTING

.1 Primer: VOC limit 250 g/L maximum to UL 2768.

.2 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.

.3 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Paint when temperature minimum 7 degrees C.

.4 Clean surfaces to be field welded; do not paint.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts acceptable for metal fabrications installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Consultant.

.2 Inform Consultant of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions remedied and after receipt of written approval to proceed from Consultant.

3.2 ERECTION - GENERAL

.1 Do welding work in accordance with CSA W59 unless specified otherwise.

.2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

.3 Provide suitable means of anchorage acceptable to Consultant such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.

.4 Exposed fastening devices to match finish and be compatible with material through which they pass.

.5 Supply components for work by other trades in accordance with shop drawings and schedule.

.6 Weld field connection and Make field connections with bolts to CSA S16 as per indicated.

.7 Deliver items over for casting into concrete and building into masonry together with setting templates to appropriate location and construction personnel.

.8 Touch-up rivets, field welds, bolts and burnt or scratched surfaces with primer after completion of:

.1 Primer: maximum VOC limit 250 g/L to GS-11.

.9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

.1 Primer: maximum VOC limit 250 g/L to GS-11.

3.3 CLEANING

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

.1 Leave Work area clean at end of each day.

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

3.4 PROTECTION

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

.2 Repair damage to adjacent materials caused by metal fabrications installation.

END OF SECTION

Section 06 10 53
Miscellaneous Rough Carpentry

Part 1 General

1.1 REFERENCE STANDARDS

.1 American National Standards Institute/National Particleboard Association (ANSI/NPA)

.1 ANSI/NPA A208.1-2009 Particleboard.

.2 ASTM International

.1 ASTM A123/A123M-15, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.2 ASTM A153/A153M-09 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

.3 ASTM A307-14 Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60000 PSI Tensile Strength.

.4 ASTM A653/A653M-15, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.5 ASTM D 5055-13e1, Standard Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists.

.6 ASTM D 5456-14b, Standard Specification for Evaluation of Structural Composite Lumber Products.

.7 ASTM F1667-13 Standard Specification for Driven Fasteners: Nails, Spikes and Staples.

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-11.3-M87, Hardboard.

.2 CAN/CGSB-71.26-M88, Adhesive for Field-Gluing Plywood to Lumber Framing for Floor Systems.

.4 Canadian Wood Council

.1 Wood Design Manual 2010 (R2014) Edition

.2 Engineering Guide for Wood Frame Construction 2014

.5 CSA Group (CSA)

.1 CAN/CSA-A123.2-03 (R2013), Asphalt Coated Roofing Sheets.

.2 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.

.3 CSA O86-14 Engineered Design in Wood

.4 CSA O112.9-10, Evaluation of Adhesives for Structural Wood Products (Exterior Exposure).

.5 CSA O121-08 (R2013), Douglas Fir Plywood.

.6 CSA O141-05 (R2014), Softwood Lumber.

.7 CSA O151-09 (R2014), Canadian Softwood Plywood.

.8 CSA O153-13, Poplar Plywood.

.9 CSA O325-07 (R2012), Construction Sheathing.

.10 CAN/CSA-S406-92 (R2008), Construction of Preserved Wood Foundations.

.11 CAN/CSA-Z809-08, Sustainable Forest Management.

.6 Forest Stewardship Council (FSC)

.1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.

.7 National Lumber Grades Authority (NLGA)

.1 Standard Grading Rules for Canadian Lumber 2010.

.8 National Research Council Canada (NRC)

.1 National Building Code of Canada 2015 (NBC).

.9 South Coast Air Quality Management District (SCAQMD), California State (SCAQMD)

.1 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

.10 Sustainable Forestry Initiative (SFI)

.1 SFI-2015-2019 Standard.

.11 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S706-09, Standard for Wood Fibre Insulating Boards for Buildings.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for wood products and accessories and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Include manufacturer’s pre-engineered floor, ceiling and roof joist span charts, and manufacturer’s pre-engineered installation details.

.3 Submit certified test reports for prefabricated structural members from approved independent laboratory indicating compliance with specifications for specified performance characteristics and physical properties.

.4 Submit CCMC Product Evaluation Report for engineered wood products.

.5 Submit manufacturer’s installation instructions.

.3 Shop Drawings:

.1 For structural applications or conditions beyond the scope of the manufacturer’s pre-engineered design information, submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.

.2 Include on drawings:

.1 Design data in accordance with CAN/CSA-O86 and CWC Engineering Guide for Wood Frame Construction.

.2 Indicate configuration and spacing of joists, hanger and connector types, fasteners, locations and design values; bearing details.

.3 Submit stress diagrams or print out of computer design indicating design loads for members. Indicate allowable load and stress increase.

.4 Indicate arrangement of webs or other members to accommodate ducts and other specialties.

1.3 DELIVERY, STORAGE, AND HANDLING

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

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

.3 Storage and Handling Requirements:

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

.2 Store materials off ground with moisture barrier at both ground level and as a cover forming a well-ventilated enclosure, with drainage to prevent standing water.

.3 Replace defective or damaged materials with new.

Part 2 Products

2.1 FURRING AND BLOCKING

.1 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:

.1 Board sizes: "Standard" or better grade.

.2 Dimension sizes: "Standard" light framing or better grade.

.3 Post and timbers sizes: "Standard" or better grade.

.2 Where indicated, provide pressure treated materials for furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers

2.2 PANEL MATERIALS AND APPLICATION

.1 Electrical equipment mounting boards:

.1 Plywood, DFP, CSP or PP, square edge 19mm thick.

.2 Fire retardant treated.

.2 Plywood blocking

.1 Where indicated on drawings

.2 Plywood, DFP, CSP or PP square edge 19mm thick.

.3 Fire retardant treated

2.3 ACCESSORIES

.1 General purpose adhesive: to CSA O112.9.

.2 Nails, spikes and staples: to ASTM F1667.

.3 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.

.4 Fastener Finishes:

.1 Galvanizing: to ASTM A653, use galvanized fasteners for exterior work.

.2 Plated finish: use cadmium plated fasteners for interior work.

Part 3 Execution

3.1 FURRING AND BLOCKING

.1 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding electrical equipment mounting boards, and other work as required.

.2 Install furring to support siding applied vertically where there is no blocking and where sheathing is not suitable for direct nailing.

.1 Align and plumb faces of furring and blocking to tolerance of 1:600.

.3 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.

.4 Install wood cants, fascia backing, nailers, curbs and other wood supports as required and secure using galvanized fasteners.

3.2 CLEANING

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

.1 Leave Work area clean at end of each day.

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

3.3 WASTE MANAGEMENT

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

.2 Re-use scrap lumber to the greatest extent possible. Separate scrap lumber for use on site as accessory components, including: shims, bracing, and blocking.

.3 Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill. Prevent saw dust and wood shavings from entering the storm drainage system.

.4 Do not burn scrap lumber that has been pressure treated.

.5 Do not send lumber treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

3.4 PROTECTION

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

.2 Repair damage to adjacent materials caused by rough carpentry installation.

END OF SECTION

Section 06 20 00
Finish Carpentry

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 06 10 53 Miscellaneous Rough Carpentry

.2 Section 09 91 23 Interior Painting: Site finishing for finish carpentry.

.3 Section 06 40 00 Architectural Woodwork .

.4 Section 07 92 00 Joint Sealants

1.2 REFERENCE STANDARDS

.1 American National Standards Institute (ANSI)

.1 ANSI A208.1-09, Particleboard.

.2 ANSI A208.2-09, Medium Density Fibreboard (MDF) for Interior Applications.

.3 ANSI/HPVA HP-1-10, American National Standard for Hardwood and Decorative Plywood.

.4 ANSI/BHMA A156.16 Auxiliary Hardware.

.5 ANSI/ASME 18.6.1 1981 (R2012) Wood Screws (Inch Series).

.2 Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)

.1 Architectural Woodwork Quality Standards, 2nd edition, 2014.

.3 ASTM International

.1 ASTM A 153/A 153M-16, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

.2 ASTM E1333-14 Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber.

.3 ASTM F1667-13 Standard Specification for Driven Fasteners: Nails, Spikes and Staples.

.4 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-11.3-M87, Hardboard.

.5 CSA Group (CSA)

.1 CSA O121-08 (R2013), Douglas Fir Plywood.

.2 CSA O151-09 (R2014), Canadian Softwood Plywood.

.3 CSA O153-M13, Poplar Plywood.

.4 CAN/CSA-Z809-08 (R2013), Sustainable Forest Management.

.6 Forest Stewardship Council (FSC)

.1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.

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

.1 Material Safety Data Sheets (SDS).

.8 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards

.1 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

.9 Sustainable Forestry Initiative (SFI)

.1 SFI-2015-2019 Standard.

.10 Underwriters Laboratories of Canada (ULC)

.1 CAN/ULC-S104-10, Standard Method for Fire Tests of Door Assemblies.

.2 CAN/ULC-S105-09, Standard Specification for Fire Door Frames.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature, data sheets and catalogue pages for specified products. Include product characteristics, performance criteria, dimensions and profiles, finish and limitations on use.

.3 Shop Drawings:

.1 Indicate profiles and dimensions, assembly techniques, jointing, methods of fastening, terminations and other related details.

.2 Indicate materials, thicknesses, finishes and hardware.

.3 Where necessary, show location and type of blocking and backing required within supporting assemblies.

.4 Samples:

.1 Submit duplicate 300 mm x 300 mm long representative samples of all wood and wood veneer finishes

.2 Applied coating samples:

.1 For transparent finish, submit duplicate samples of each species and cut of wood veneer to be used, finished as specified.

.5 Certifications: submit certificates signed by manufacturer certifying materials comply with specified performance characteristics, physical properties and requirements of referenced standards.

1.4 QUALITY ASSURANCE

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

1.5 DELIVERY, STORAGE AND HANDLING

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

.2 Deliver finish carpentry materials only when area of work is enclosed, plaster and concrete work is dry, area is broom clean and site environmental conditions are acceptable for installation.

.3 Storage and Handling Requirements:

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

.2 Maintain indoor temperature and humidity within range recommended by AWS for location of the Work.

.3 Store products on site as specified for minimum 72 hours prior to installation.

.4 Store and protect finish carpentry products from moisture, nicks, scratches, and blemishes.

.5 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

.1 MDF (medium density fibreboard) core: to ANSI A208.2, density 769 kg/m3, 19 mm thick unless indicated otherwise.

.1 Use moisture resistant MR grade for countertops and splash-backs to receive plumbing fixtures.

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

.1 Use moisture resistant grade 2-M-2 or 2-M-3 for countertops and splash-backs to receive plumbing fixtures.

.3 Douglas fir plywood (DFP): to CSA O121, standard construction.

.4 Canadian softwood plywood (CSP): to CSA O151, standard construction.

.5 Hardwood plywood: to ANSI/HPVA HP-1.

.6 Poplar plywood (PP): to CSA O153, standard construction.

.7 Hardboard: to CAN/CGSB-11.3.

.8 Low density fibreboard: to CSA-A247M.

2.2 FLAME SPREAD RATING OF WOOD FINISHES

.1 Where wood material is used for wall finishes construction, the Flame Spread rating must be 150 or less on any exposed surface, or any surface that would be exposed by cutting through the material in any direction, unless noted otherwise. Use fire retardant spray to meet flame spread ratings required .

.2 Where wood material is used in ceiling construction, the Flame Spread rating must be 25 or less on any exposed surface, or any surface that would be exposed by cutting through the material in any direction, unless noted otherwise. Use fire retardant spray to meet flame spread ratings required.

.3 To achieve the above noted Flame Spread Rating, all the associated wood materials are to be finished with:

.1 Manufacturer: The Sansin Corporation

.2 coats of Firestop 99 and 1 final coat of Resolution

.3 All materials are to be applied as per manufacturer's specifications.

.4 Colour/Tint: Custom tint to be selected by architect from samples as requested.

.5 Provide finished samples of the wood material finished with the above noted system for review prior to proceeding with full scope of work.

.6 Alternates can be submitted for review and must be accepted by the architect prior to use.

2.3 FASTENINGS

.1 Provide screws, bolts, expansion shields and other fastening devices required for satisfactory installation.

.2 Exposed fasteners to match finish of hardware.

.3 Nails and staples: to ASTM F1677, stainless steel galvanized to ASTM A 153/A 153M for exterior work, interior humid areas; stainless steel finish elsewhere.

.4 Wood screws: to ANSI/ASME 18.6.1, countersunk flush type unless indicated otherwise, in sizes to suit application, galvanized to ASTM A 153/A 153M for exterior work, interior humid areas, stainless steel for other locations.

.5 Splines: metal wood.

.6 Panel adhesive: in accordance with Section 07 92 00 - Joint Sealants and as recommended by manufacturer.

.1 VOC limit 250 g/L maximum to GS-36.

.2 Use least toxic sealants, adhesives, sealers, and finishes necessary to comply with requirements of this section.

2.4 HARDWARE

.1 Use one manufacturer's product for all similar items.

.2 Hardware fastenings:

.1 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation of hardware.

.2 Exposed fastening devices to match finish of hardware.

.3 Use fasteners compatible with material through which they pass.

Part 3 Execution

3.1 EXAMINATION

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

.1 Visually inspect substrate.

.2 Proceed with installation only after unacceptable conditions have been remedied ..

3.2 PREPARATION

.1 Back prime woodwork before installation, to AWS.

3.3 INSTALLATION

.1 Install items of finish carpentry in accordance with AWMAC AWS grade specified for respective items.

.2 In case of conflict between Contract Documents and AWS grade requirements, Contract Documents govern.

.3 Install items of finish carpentry at locations shown on drawings.

.1 Position accurately, level, plumb straight.

.2 Fasten and anchor securely.

.4 Scribe and cut as required, fit to abutting walls, and surfaces, fit properly into recesses and to accommodate piping, columns, fixtures, outlets, or other projecting, intersecting or penetrating objects.

.5 Form joints to conceal shrinkage.

3.4 CONSTRUCTION

.1 Fastening:

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

.2 Design and select fasteners to suit size and nature of components being joined. Use proprietary devices as recommended by manufacturer.

.3 Set finishing nails to receive filler. Where screws are used to secure members, countersink screw in round smooth cut hole and plug with wood plug to match material being secured.

.4 Replace items of finish carpentry with damage to wood surfaces including hammer and other bruises.

.2 Panelling:

.1 Secure panelling and perimeter trim using adhesive recommended for purpose by manufacturer. Fill nail holes caused by temporary fixing with filler matching wood in colour.

.2 Secure panelling and perimeter trim using concealed fasteners.

.3 Secure panelling and perimeter trim using counter sunk screws plugged with matching wood plugs.

.3 Shelving:

.1 Install shelving on ledgers.

3.5 CLEANING

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

.1 Leave Work area clean at end of each day.

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

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

3.6 TOUCHUP AND PROTECTION

.1 Fill and retouch all nicks, chips and scratches in factory finishes and substrate materials to AWS standards. Replace damaged items that cannot be repaired to AWS standards.

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

.3 Repair damage to adjacent materials caused by finish carpentry installation.

.4 Leave work to be site finished ready for finishing by Section 09 91 23 - Interior Painting.

END OF SECTION

Section 06 40 00
Architectural Woodwork

Part 1 General

1.1 REFERENCE STANDARDS

.1 American National Standards Institute (ANSI)

.1 ANSI/ASME 18.6.1 1981 (R2012) Wood Screws (Inch Series).

.2 ANSI/BHMA A156.9-2010, Cabinet Hardware.

.3 ANSI/BHMA A156.11-2014, Cabinet Locks.

.4 ANSI/BHMA A156.16-2013, Auxiliary Hardware.

.5 ANSI/BHMA A156.18-2012, Materials and Finishes.

.6 ANSI/BHMA A156.20-2006, Strap and Tee Hinges and Hasps.

.7 ANSI A208.1-09, Particleboard.

.8 ANSI A208.2-09, Medium Density Fiberboard (MDF) for Interior Applications.

.9 ANSI/HPVA HP-1-10, Standard for Hardwood and Decorative Plywood.

.2 Architectural Woodwork Manufacturers Association of Canada (AWMAC)

.1 Architectural Woodwork Standards (AWMAC AWS), 2014.

.3 ASTM International

.1 ASTM A 153/A 153M-16, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

.2 ASTM E 1333-14, Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates From Wood Products Using a Large Chamber.

.3 ASTM F1667-13 Standard Specification for Driven Fasteners: Nails, Spikes and Staples.

.4 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-11.3-M87, Hardboard.

.2 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.

.3 CAN/CGSB-71.19-M88, Adhesive, Contact, Sprayable.

.5 CSA Group (CSA)

.1 CSA O112-M Series 1977 (R2006) Standards for Wood Adhesives.

.2 CSA O121-08 (R2013), Douglas Fir Plywood.

.3 CSA O141-05 (R2014), Softwood Lumber.

.4 CSA O151-14, Canadian Softwood Plywood.

.5 CSA O153-M1980 (R2014), Poplar Plywood.

.6 CAN/CSA-Z809-08 (R2013), Sustainable Forest Management.

.6 Forest Stewardship Council (FSC)

.1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.

.7 Green Seal Environmental Standards (GS)

.1 GS-11-2015, Paints, Coatings, Stains and Sealers.

.2 GS-36-2013, Adhesives for Commercial Use.

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

.1 Material Safety Data Sheets (SDS).

.9 National Electrical Manufacturers Association (NEMA)

.1 ANSI/NEMA LD-3-05, High-Pressure Decorative Laminates (HPDL).

.10 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards

.1 SCAQMD Rule 1113-A2011, Architectural Coatings.

.2 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

.11 Sustainable Forestry Initiative (SFI)

.1 SFI-2015-2019 Standard and Rules.

1.2 PRE-INSTALLATION MEETING

.1 Prior to enclosing framing, convene a meeting of contractor, casework fabricator, casework installer, framing subcontractor and Consultant.

.1 Review locations of backing required for casework installation as shown on shop drawings and as necessary for installation.

.2 Review method of attachment for backing to wall system.

.3 Review coordination with other affected sections.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Prepare and submit material list in accordance with AWMAC AWS, cross-referenced to specifications.

.2 Include manufacturer's instructions, printed product literature, data sheets and catalogue pages for all materials and products to be incorporated into architectural wood casework and include product characteristics, performance criteria, dimensions and profiles, finish and limitations on use.

.3 Hardware List:

.1 Include manufacturer’s specification sheets indicating name, model, material, function, finish, BHMA designations and other pertinent information.

.4 Shop Drawings:

.1 Prepare and submit shop drawings in accordance with AWMAC AWS and as follows.

.2 Indicate details of construction, profiles, jointing, fastening and other related details.

.3 Indicate materials, thicknesses, finishes and hardware.

.4 Indicate locations of service outlets in casework, typical and special installation conditions, and connections, attachments, anchorage and location of exposed fastenings.

.5 Show location on casework elevations of backing required in supporting structure for attachment of casework.

.6 Include color schedule of all casework items, including all countertop, exposed, and semi-exposed cabinet finishes, finish material manufacturer, pattern, and color.

.5 Samples:

.1 Apply sample finishes to specified substrate or core material minimum 300 x 300 mm . For veneers with transparent finish submit three samples to illustrate range and colour of grain expected.

.2 Shop applied coatings:

.1 For transparent finish, submit duplicate samples of each species and cut of wood to be used, finished as specified.

.2 For opaque finish, submit duplicate samples for each colour selection, finished as specified.

.3 Submit duplicate samples of laminated plastic for each specified colour selection.

.4 Certifications: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

1.4 QUALITY ASSURANCE

.1 Perform Work of this Section by single architectural wood casework fabricator with minimum 5 years of current architectural casework production experience and having completed minimum one project in the past 5 years with value within 20% of the cost of the work of this Section.

.2 Mock-ups:

.1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.

.2 When accepted, mock-up will demonstrate minimum standard for Work.

.3 Do not proceed with work prior to receipt of written acceptance of mock-up by Consultant.

.4 Accepted mock-up may not remain as part of finished work.

1.5 DELIVERY, STORAGE AND HANDLING

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

.2 Deliver wood casework only when area of work is enclosed, plaster and concrete work is dry, and area is broom clean and site environmental conditions are acceptable for installation.

.3 Protect millwork against dampness and damage during and after delivery.

.4 Store millwork in ventilated areas, protected from extreme changes of temperature and humidity, and within range recommended by AWMAC AWS for location of project.

.5 Store materials indoors in clean, dry, well-ventilated area.

.6 Protect architectural woodwork and hardware from nicks, scratches, and blemishes.

.7 Replace defective or damaged materials with new.

Part 2 Products

2.1 QUALITY GRADE

.1 Provide all materials and perform all fabrication in accordance with AWMAC AWS Premium Grade

2.2 FINISHES

.1 Sill and Cap Finish - Solid Polymer Fabrications (SO)

.1 (SO) Manufacturer: Corian, Colour: Modern White, Thickness: 13mm ,or approved equivalent

.2 All solid polymer panel (sills, counter, millwork, walls, etc.) joints are to be welded to be seamless and finished smooth to be invisible.

.3 Adhesives as recommended by manufacturer

.2 Metal (MTL) and Stainless steel (SS)

.1 Refer to 05 50 00 Metal Fabrications

.3 Perforated Aluminum Stair risers

.1 Perforated 1mm thick aluminum

.2 70% openings for total area of 0.52m2 perforated surface area

.3 PT finish

2.3 LUMBER

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

.2 Machine stress-rated lumber is acceptable for all purposes.

2.4 PANEL MATERIALS

.1 MDF (medium density fibreboard) core: to ANSI A208.2, density 769 kg/mý, Grade premium, 19 mm thick unless indicated otherwise

.1 Medium density fibreboard performance requirements to: ANSI A208.2.

.2 MDF resin to contain no added urea-formaldehyde.

.3 Fire Retardant MDF: 19mm thick typical unless otherwise indicated. Acceptable product: Purekor FSC Pyroblock MDF Plus. Contact Glen Lowe (Panel Source) 1-780-458-1007. email: lowe.glen@panelsource.net

.2 Canadian softwood plywood (CSP): to CSA O151, standard construction.

.1 Plywood resin to contain no added urea-formaldehyde.

.2 Fire Retardant Plywood: veneer core, softwood, 19mm thick typical unless otherwise indicated. Accepetable product: Purekor FCS Fire Retardant Plywood. Contact Glen Lowe (Panel Source) 1-780-458-1007, email lowe.glen@panelsource.net

.3 Hardboard: To CAN/CGSB-11.3.

2.5 FASTENERS AND ADHESIVES

.1 Nails and staples: to CSA B111.

.2 Screws: stainless steel, type and size to suit application.

.3 Splines: metal.

.4 Sealant: in accordance with Section 07 92 00 - Joint Sealants, type one part silicone: CAN /CGSB-19.22-M89.

.1 Sealants: VOC limit 250 g/L maximum to SCAQMD Rule 1168.

.5 Laminated plastic adhesive:

.1 Adhesives: VOC limit 30 g/L maximum to GS-36.

.2 Use least toxic sealants, adhesives, sealers, and finishes necessary to comply with requirements of this section.

.3 Clear Wood Finishes: VOC limit 350 g/L maximum to GS-11

.4 Paints: VOC limit 50 g/L maximum to SCAQMD Rule 1113.

2.6 FABRICATION

.1 Set nails and countersink screws apply stained wood filler to indentations, sand smooth and leave ready to receive finish.

.2 Obtain all on-Site dimensions before fabricating items. Obtain all relevant data and incorporate provisions for items of equipment enclosed by millwork.

.3 Verity wall alignment prior to proceeding with fabrication. Site conditions at variance with reviewed shop drawings shall be specifically noted on reviewed drawings and forwarded to Consultant. Variances, due to Site conditions necessitating revisions to shop drawings shall be accepted prior to fabrication.

.4 Fabricate running members in maximum standard lengths obtainable for the particular species wherever possible.

.5 Fit all joints tight. Locate joints at points which will not interfere with, affect strength or detract from appearance of materials.

.6 Securely fasten intersecting framing members together at corners in an approved manner. Reinforce as required for rigid assembly designed for applicable loads.

.7 Incorporate adequate provisions for scribing and fitting to adjoining surfaces in a manner acceptable to Consultant.

.8 Provide for and incorporate provisions to recognize inherent shrinkage characteristics of materials specified.

.9 Casework core material: 19 mm veneer core plywood unless otherwise noted.

.10 Casework edge trim: Plastic laminate with plastic laminate millwork

.11 Shelving to cabinetwork to be adjustable unless otherwise noted.

.12 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.

.13 Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings.

.14 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.

.15 Ensure adjacent parts of continuous laminate work match in colour and pattern.

.16 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 3000mm. Keep joints 600 mm from sink cutouts.

.17 Form shaped profiles and bends as indicated, using postforming grade laminate to laminate manufacturer's instructions.

.18 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not mitre laminate edge

.19 Apply laminate backing sheet to reverse side of core of plastic laminate work.

.20 Apply laminated plastic liner sheet to interior of cabinetry.

2.7 CABINET HARDWARE

.1 Hinges: Concealed Blum 110 degree or approved alternate

.2 Drawer Glides: Accuride #2037 Steel Roller Glides, Full Extension or approved alternate

.3 Millwork Cabinet Locks: Corbin 02067 x 7/8 x125 C15 or approved alternate.

.4 Millwork Cabinet and drawer D Pulls: Richelieu 0141 - funtional Stainless steel pull

.5 Adjustable Shelf Pins/Ferrules: Richelieu no. 2291180 & 2292180 nickel finish at 2" centres or approved alternate

.6 Bumpers: Richelieu 3M - Peel & Stick (2 per door) or approved alternate

.7 Sliding Door Hardware: Manufacturer: Hafele, Product: Hawa Divido 80H and 80H-DS1/DS2 Set

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for architectural woodwork installation in accordance with manufacturer's instructions.

.1 Inform Consultant Consultant of unacceptable conditions immediately upon discovery.

.2 Proceed with installation only after unacceptable conditions have been remedied ..

3.2 INSTALLATION

.1 Install architectural wood casework in accordance with AWMAC AWS grade for respective items.

.2 Install prefinished millwork at locations shown on drawings.

.1 Position accurately, level, plumb straight.

.3 Fasten and anchor millwork securely.

.1 Supply and install heavy duty fixture attachments for wall mounted cabinets.

.4 Countersink mechanical fasteners at exposed and semi-exposed surfaces, excluding installation attachment screws and screws securing cabinets end to end.

.5 Use draw bolts in countertop joints.

.6 Scribe and cut as required to fit abutting walls and to fit properly into recesses and to accommodate piping, columns, fixtures, outlets or other projecting, intersecting or penetrating objects.

.7 At junction of counter and adjacent wall finish, apply small bead of sealant in accordance with Section 07 92 00 - Joint Sealants.

.8 Apply moisture barrier between wood framing members and masonry or cementitious construction.

.9 Fit hardware accurately and securely in accordance with manufacturer's written instructions.

.10 Make cutouts for inset equipment and fixtures using templates provided.

3.3 CLEANING

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

.1 Leave Work area clean at end of each day.

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

.1 Clean millwork.

.2 Remove excess glue, pencil and ink marks from surfaces.

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

3.4 PROTECTION

.1 Protect millwork from damage until final inspection.

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

.3 Repair damage to adjacent materials caused by architectural woodwork installation.

END OF SECTION

Section 07 21 16
Blanket Insulation

Part 1 General

1.1 REFERENCE STANDARDS

.1 ASTM International

.1 ASTM C553-13, Standard Specification for Mineral Fibre Blanket Thermal Insulation for Commercial and Industrial Applications.

.2 ASTM C665-12, Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

.3 ASTM C1320-10, Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light Frame Construction.

.2 CSA Group

.1 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.

.2 CSA B149 PACKAGE-10, Consists of B149.1, Natural Gas and Propane Installation Code and B149.2, Propane Storage and Handling Code.

.3 Underwriters Laboratories of Canada (ULC)

.1 CAN/ULC-S604-2012, Standard for Factory-Built Type A Chimneys.

.2 CAN/ULC-S702-2012, Standard for Mineral Fibre Insulation for Buildings.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for blanket insulation and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Certificates:

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

.4 Test Reports:

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

.5 Sustainable Design Submittals:

.1 Construction Waste Management:

.1 Submit project Waste Management Plan highlighting recycling and salvage requirements.

1.3 DELIVERY, STORAGE AND HANDLING

.1 Storage and Handling Requirements:

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

.2 Store and protect specified materials from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

.2 Packaging Waste Management: remove for reuse and return of packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 INSULATION

.1 Batt and blanket mineral fibre: to CAN/ULC-S702.

.1 Type: 1.

.2 Thickness: as indicated on drawings.

2.2 ACCESSORIES

.1 Insulation clips:

.1 Impale type, perforated 50 x 50 mm cold rolled carbon steel 0.8 mm thick, adhesive back, spindle of 2.5 mm diameter annealed steel, length to suit insulation, 25 mm diameter washers of self locking type.

.2 Nails: galvanized steel, length to suit insulation plus 25 mm, to CSA B111.

.3 Staples: 12 mm minimum leg.

.4 Tape: as recommended by manufacturer.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for blanket insulation application in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Consultant.

.2 Inform Consultant of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.

3.2 INSULATION INSTALLATION

.1 Install insulation to maintain continuity of thermal protection to building elements and spaces and to ASTM C1320.

.2 Install insulation with factory applied vapour barrier facing warm side of building spaces and vapour permeable membrane facing cold side. Lap ends and side flanges of membrane over framing members. Retain in position with insulation clips installed as

recommended by manufacturer. Tape seal butt ends and lapped side flanges. Do not tear or cut vapour barrier.

.3 Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.

.4 Do not compress insulation to fit into spaces.

.5 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures, and minimum 50 mm from sidewalls of CAN/ULC-S604 Type A chimneys.

.6 Do not enclose insulation until it has been inspected and approved by Consultant.

3.3 CLEANING

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

.1 Leave Work area clean at end of each day.

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

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

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

Section 07 72 46.10
Roof Crossover Bridges

Part 1 General

1.1 SUMMARY

.1 Provide labour, materials, Products, equipment and services to complete the roof crossovers specified herein. This includes, but is not necessarily limited, to:

.1 Modular aluminum [crossover bridge] and platform ladder system.

.2 Auxiliary materials required for a complete installation.

.2 Related Requirements: Specifications throughout all Divisions of the Project shall be read as a whole, and may be directly applicable to this Section. Related requirements provided below are for convenience purposes only.

.1 Refer to Section [05 50 00, Metal Fabrications]: for miscellaneous metal fabrications at roof level.

.2 Refer to Section [07 62 00, Sheet Metal Flashing and Trim]: for metal flashing, and miscellaneous sheet metal trim and accessories.

.3 Refer to Section [07 72 00, Roof Accessories]: for miscellaneous accessories at roof level not specified in this Section.

1.2 REFERENCE STANDARDS

.1 Reference Standards: Unless otherwise indicated in this Section or the Building Code, the latest published editions of reference standards as of the Project's Bid Closing deadline apply.

.2 All materials, installation and workmanship shall comply with all applicable requirements and standards.

.3 ANSI/ASSE A1264.1: Safety Requirements For Workplace Walking/Working Surfaces And Their Access; Workplace, Floor, Wall And Roof Openings; Stairs And Guardrail/Handrail Systems

.4 ASTM B209/B209M: Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

.5 ASTM B221/B221M: Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes

1.3 ACTION SUBMITTALS

.1 Make Submittals in accordance with provisions indicated in [Section 01 33 00, Submittal Procedures.]

.2 Product Data: Submit Product information for the roof crossover work specified in this Section.

.1 Submit manufacturer's installation instructions.

.3 Shop Drawings: Submit Shop Drawings including dimensions that have been verified to be
suitable for the project and reviewed by the contractor prior to submission.

.1 Drawings to be stamped by an engineer allowed to practice in the province of installation
or as accepted by the approving authority once the dimensions of the project have been
finalized and approved.

1.4 CLOSEOUT SUBMITTALS

.1 General Requirements and Procedures for Closeout Submittals: in accordance with Section [01 78 00, Closeout Submittals].

1.5 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Provide Products for work of this Section by manufacturer with at least 10 years' experience manufacturing roof accessories and similar materials.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section [01 61 00 - Product Requirements] and in accordance with manufacturer's written instructions.

.2 Storage and Handling Requirements: Store materials in clean, dry, and well-ventilated area.

Part 2 Products

2.1 MANUFACTURERS

.1 Materials specified in this Section are based on products by Skyline Group; 19896 Hwy 7, Perth ON, K7H 3C9; web: www.skylinegroupintl.com as listed in this Specification; TEL: 613-267-4493.

.2 Consultant will consider requests for substitution if received [10] days before Bid Closing Deadline. Requests received after that time will be rejected. Consultant will consider requests for substitution when following conditions are satisfied:

.1 Requests for substitution include a list of at least five similar projects of equivalent size where products have been installed for a minimum of five years.

.2 Requested substitution does not require extensive revisions to the Contract Documents.

.3 Requested substitution is consistent with the Contract Documents and will produce indicated results.

.4 Requested substitution will not adversely affect construction schedule.

.5 Requested substitution provides specified warranty.]

2.2 REGULATORY REQUIREMENTS

.1 Applicable Building Code: [National Building Code of Canada, 2020]

.2 Applicable Health and Safety Regulation:

.1 [Ontario: Occupational Health and Safety Act Ontario Regulation 213/91] [Ontario:
Occupational Health and Safety Act R.R.O. 1990, Regulation 851, Industrial Establishments]

.2 [OSHA Part 1910 – Occupational Safety and Health Standards and ANSI/ASSE A1264.1]

2.3 ROOF CROSSOVER BRIDGES

.1 Description: Provide Crossover consisting of high strength profiled aluminum system with fully modular and adjustable componentry; capable of withstanding concentrated and uniformly distributed loads specified by applicable building codes and/or health and safety legislations.

.2 Crossover bridge system must consist of aluminum metal framing designed to provide access across parapets, changes in roof elevation, ductwork, and other obstacles on roof consisting of the following components:

.1 Handrails including handrail splices, elbows, end caps, and braces,

.2 Kneerails including knee rail splices, elbows, and end caps,

.3 Posts,

.4 Supports including bracing,

.5 Stairs

.6 Platform,

.7 Auxiliary materials required for a complete installation.

.3 Platform: manufacturer’s standard slip-resistant surface.

.4 Framing: Provide necessary support framing, brackets, connectors, and additional accessories and components for a complete installation.

.5 Treads: Provide treads at elevation changes. Wherever height of walkway or stairway necessitates safety railings.

.1 Angle: [38-degree max]

.6 Support Stands: Manufacturer's standard.

.7 Basis-of-Design: [Crossover Bridge] by Skyline Group.

2.4 METAL MATERIALS

.1 Aluminum Extrusions: to ASTM B221M (ASTM B221), 6061-T6 or 6106-T6 alloy unless indicated otherwise.

.2 Material substitutions of equal or greater properties are admissible.

2.5 AUXILIARY MATERIALS

.1 Provide materials and types of fasteners, protective coatings, and other auxiliary components
required by manufacturer for a complete installation.

.2 Fasteners: Manufacturer-recommended for application and metals specified. Unless otherwise indicated, Provide the following:

.1 Drilling screws: to ASTM A479/A479M; Type 410 or 18-8 Stainless Steel

.2 Machine screws: 18-8 Stainless Steel

2.6 FABRICATION

.1 Fabricate work square, true, and accurate. Deburr all cut edges. Properly fit and secure all
joints.

2.7 GENERAL FINISH REQUIREMENTS

.1 Unless otherwise specified, all aluminum components specified in this Section shall be mill finish or "as fabricated" aluminum.

Part 3 Execution

3.1 EXAMINATION

.1 Verify actual site conditions and location of adjacent materials prior to commencing work. Notify Consultant in writing of any conditions which would be detrimental to the installation. Proceed with installation only after unacceptable conditions have been remedied. Commencement of work implies acceptance of previously completed work.

3.2 INSTALLATION

.1 Assemble and install modular roof crossover system in accordance with manufacturer's instructions, and accepted shop drawings.

END OF SECTION

Section 07 81 00
Applied Fire Protection

Part 1 General

1.1 REFERENCE STANDARDS

.1 ASTM International (ASTM):

.1 ASTM E605/E605M-19, Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members

.2 ASTM E736/E736M-17, Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members

.3 ASTM E859/E859M-93, Standard Test Method for Air Erosion of Sprayed Fire-Resistive Materials (SFRMs) Applied to Structural Members

.4 ASTM G21-15, Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi

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

.1 Safety Data Sheets (SDS)

.3 ULC Standards (ULC):

.1 CAN/ULC-S101-14, Standard Methods of Fire Endurance Tests of Building Construction and Materials

.2 CAN/ULC-S102-10, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies

.3 ULC List of Equipment and Materials

1.2 ADMINISTRATIVE REQUIREMENTS

.1 Pre-Installation Meetings: Hold meeting one week before beginning Work of this Section with the Contractor, Subcontractor and Consultant in accordance with Section 01 31 19 – Project Meetings to

.1 verify Project requirements,

.2 review site conditions and substrate conditions,

.3 coordinate with other Subcontractors, and

.4 review manufacturer's application instructions and warranty requirements.

.2 Before start of work, arrange a site visit with the Consultant to examine the existing site conditions adjacent to demolition work.

.3 Coordination:

.1 Coordinate with Subcontractor’s responsible for steel and concrete surfaces to ensure accordance with manufacturer’s minimum surface preparation requirements for bond surface being free from wax, grease, incompatible primer, or other deleterious materials that could affect bond of materials specified in this Section.

.2 Coordinate installation of hangers, inserts, clips and similar items to surfaces needing protection before applying sprayed fire-resistive materials.

.3 Prohibit all roof traffic until application of fireproofing is completed and dry.

.4 Sequencing:

.1 Ducts, piping and other items that would interfere with the application of fireproofing shall not be installed, until application is completed.

.2 Install steel decks and associated concrete work on decks before applying fireproofing to steel decks.

.3 Install complete roofing, rooftop mechanical units, and related work on the roof before applying fireproofing to roof decks.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's product data and include product characteristics, performance criteria, dimensions, finishes, and limitations.

.2 Submit one electronic copy of WHMIS SDS - Safety Data Sheets.

.3 Samples:

.1 Submit duplicate 300 x 300-mm samples of exposed fireproofing for approval of texture and colour.

.4 Quality Assurance Submittals: Submit the following in accordance with Section 01 43 00 - Quality Assurance.

.1 Test Reports:

.1 Submit product data including certified copies of test reports that verify fireproofing applied to substrate as constructed on the project will meet or exceed the requirements of this Section.

.2 Submit test results in accordance with CAN/ULC-S101 for fire endurance and CAN/ULC-S102 for surface burning characteristics.

.3 For assemblies not tested and rated, submit proposals based on related designs using accepted fireproofing design criteria.

.2 Certificates: Submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.3 Manufacturer's Instructions: Submit manufacturer's application instructions, special handling criteria, minimum substrate preparation, application sequence, and cleaning warnings.

.4 Manufacturer's Site Reports: Submit manufacturer's written reports within 3 days of review, verifying compliance of this Section, as described in SITE QUALITY CONTROL in Part 3 of this Section.

1.4 CLOSEOUT SUBMITTALS

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

.2 Operation and Maintenance Data: Submit maintenance data for applied fireproofing and incorporate into manual.

1.5 QUALITY ASSURANCE

.1 Qualifications:

.1 Installer: Company specializing in spray-applied fireproofing approved by manufacturer and with five years minimum of documented experience.

.2 Mock-ups: Construct mock-up in accordance with Section 01 43 00 - Quality Assurance.

.1 Apply fireproofing to approximately 1 m^2 area of surface to be treated.

.2 Mock-up will be used to judge workmanship, substrate preparation, and material application.

.3 Consultant will require a minimum of 24 hours to review the mock-up.

.4 Approved mock-up may not remain as part of finished work.

.3 Site Meetings: As part of Manufacturer's Services described under SITE QUALITY CONTROL in Part 3 of this Section, schedule site visits to review the work at the following stages:

.1 After delivery and storage of products when preparatory work is complete, but before application begins.

.2 Upon completion of work, after cleaning is completed.

1.6 DELIVERY, STORAGE, AND HANDLING

.1 Perform in accordance with Section 01 61 00 - Common Product Requirements.

.2 Packing, Delivery, and Handling:

.1 Packaging to indicate shelf-life of materials.

.2 Deliver packaged materials in original unopened containers labeled with manufacturer, product name , and ULC markings.

.3 Damaged or opened containers will be rejected.

.3 Storage and Protection:

.1 Store materials off ground in a dry, well-ventilated indoor location, and in accordance with manufacturer’s recommendations.

.2 Provide temporary enclosures to prevent spray from contaminating air beyond application area.

1.7 SITE CONDITIONS

.1 When ambient temperatures are less than 5°C, maintain 5°C air and substrate temperature during and for 24 hours after application.

.2 Provide natural ventilation to properly dry the fireproofing during and after its application. In enclosed areas lacking openings for natural ventilation, circulate and exhaust interior air to the outside using forced air circulation providing a minimum of four air exchanges per hour.

.3 Maintain relative humidity within limits recommended by fireproofing manufacturer.

Part 2 Products

2.1 PERFORMANCE CRITERIA

.1 Adhesion: Provide materials that meet or exceed adhesion requirements in accordance with ASTM E736/E736M.

.2 Thickness and Weight: Determine application thickness and weight of applied fireproofing based on tests of assemblies in accordance with CAN/ULC-S101. Apply same thickness of fireproofing material to all structural components forming a part of the assembly including; but not limited to, cross bracing, support angles and hangers.

.3 Only assemblies that have been tested in accordance with Limit States Design method are acceptable. Assemblies that require use of a Load Restricted factor in accordance with Working Stress Design methods are not acceptable.

.4 Engineered Judgements: Provide engineered judgement acceptable to authority having jurisdiction (AHJ) where the protected assembly differs from the tested assembly used to determine thickness.

.5 Spray-applied fireproofing must not crack, spall or delaminate under downward deflection conditions over a 3 m clear span.

.6 Fungal Resistance: To ASTM G21, 28 days no growth.

.7 Air Erosion: To ASTM E859/E859M, maximum 0.25 gram loss per square metre in 24 hours.

.8 Provide materials containing no asbestos.

.9 Spray-applied fireproofing must not contribute to corrosion of test panels.

2.2 MATERIALS

.1 Sprayed Cementitious Fireproofing: ULC-certified, qualified for use in a ULC Design with fire-resistance rating times as indicated on Drawings for structure and floors at locations as indicated on Drawings, , designed for high contact potential.

.2 Sprayed Mineral Fibre Fireproofing: ULC-certified, asbestos-free, qualified for use in a ULC Design with fire-resistance rating times as indicated on Drawings for structure and floors at locations as indicated on Drawings.

.3 Fireproofing: Minimum dry density and cohesion/adhesion properties as follows:

.1 Fireproofing for structural components concealed above ceiling, within walls, chases, or furred spaces: Minimum applied dry density of 240 kg/m^3 and cohesion/adhesion strength of 9.57 kPa.

.2 Fireproofing for exposed structural components, except where otherwise specified or indicated: Minimum applied dry density of 350 kg/m^3 and cohesion/adhesion strength of 20.83 kPa.

.3 Fireproofing for structural components located in mechanical rooms and storage areas: Minimum applied dry density of 640 kg/m^3 and cohesion/adhesion strength of 350 kPa.

.4 Minimum compressive strength: 48 kPa.

.4 Water: Clean, fresh, suitable for domestic consumption, and free from such amounts of mineral or organic substances that would affect setting of fireproofing materials.

.5 Curing Compound: Type recommended by fireproofing manufacturer, qualified for use in the ULC Design submittal.

.6 Sealer: Type recommended by fireproofing manufacturer, qualified for use in the ULC Design submittal, designed to prevent surface dusting.

2.3 ACCESSORIES

.1 Reinforcement mesh, wire lath , mould inhibitors and other components necessary for a complete and functioning fireproof coating.

Part 3 Execution

3.1 EXAMINATION

.1 Check environmental conditions and examine surfaces to receive fire resistant material - report any conditions that would be detrimental to the application of material.

.2 Verification of Conditions: Verify that conditions of substrate previously installed are acceptable to begin fireproofing application in accordance with manufacturer's instructions:

.1 Visually inspect substrates.

.2 Proceed with installation only after unacceptable conditions have been remedied.

3.2 PREPARATION

.1 Where adjacent floors, walls and similar surfaces will be exposed, provide and maintain masking, drop cloths and polyethylene coverings for such surfaces to protect them during spraying operations.

.1 Protect adjacent surfaces and equipment from overspray, fall-out, and dusting of fireproofing materials.

.2 Provide complete enclosures and human protective devices when spraying hazardous materials.

.3 All surfaces to receive applied fire protection materials shall be free of oil, grease, dirt, loose paint, mill scale or any other matter that would impair bond, including paint unless test application of applied fire protection materials has been done to determine that paint formulation will not impair adhesion.

.4 Prime surfaces as required by ULC Design.

3.3 APPLICATION

.1 Apply bonding adhesive or primer to substrate if recommended by manufacturer.

.2 Apply fireproofing over substrate, building up to required thickness to cover substrate with monolithic blanket of uniform density and texture.

.3 Apply fireproofing directly to open web joists without use of expanded lath.

.4 Surface Finishing: Where indicated [on Drawings][on schedules], apply fireproofing to produce the following finishes:

.1 Manufacturer's standard finishes: Finish according to manufacturer's instruction for each finish specified.

.2 Spray-Textured Finish: Finish left as spray-applied with no further finishing.

.3 Rolled, Spray-Textured Finish: Even finish produced by rolling spray-applied finish with a damp paint roller to remove drippings and excessive roughness.

.4 Skip-Troweled Finish: Even leveled surface produced by troweling spray-applied finish to smooth the texture and neaten edges.

.5 Skip-Troweled Finish with Corner Beads: Even, leveled surface produced by troweling spray-applied finish to a smooth texture, without surface markings, and with square edges.

.5 Apply curing compound to surface of cementitious fireproofing as required by manufacturer.

.6 Apply sealer to surface of mineral fibre fireproofing as required by manufacturer where indicated on Drawings.

3.4 REPAIR

.1 Cut, patch, and repair materials which fail to meet requirements of this Section or which fail to attain properties stipulated in reports of tests used to determine fire-resistance rating of assembly.

.2 Repair damage to fireproofing caused by installation of subsequent work.

.3 Patch damage to fireproofing caused by testing or by other Subcontractors before fireproofing is concealed, or if exposed, before final review.

3.5 SITE QUALITY CONTROL

.1 Manufacturer's Services:

.1 Obtain report from manufacturer of applied fire protection materials verifying compliance of Work in applying, and protecting of Products. Submit manufacturer's site reports as described in SUBMITTALS in Part 1 of this Section in an acceptable format to verify compliance of this Work with Contract within three days of promptly after inspection.

.2 Provide manufacturer's site services consisting of periodic site visits for inspection of product application in accordance with manufacturer's instructions.

.3 Schedule site visits to review Work, as directed under QUALITY ASSURANCE in Part 1 of this Section.

.2 Inspection and Site Tests:

.1 Inspection and testing of applied fire protection will be carried out by a testing laboratory designated by Consultant to ASTM E605/E605M.

3.6 CLEANING

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

.1 Clean surfaces not indicated to receive fireproofing of sprayed material within 24 hours after application.

.2 Waste Management: Perform in accordance with Section 01 74 19 - Waste Management and Disposal.

3.7 PROTECTION

.1 Protect applied products from damage during construction.

END OF SECTION

Section 07 84 00
Fire stopping

Part 1 General

1.1 REFERENCE STANDARDS

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

.1 Material Safety Data Sheets (SDS).

.2 National Research Council Canada (NRC)

.1 National Building Code of Canada 2015 (NBC).

.3 Underwriter's Laboratories of Canada (ULC)

.1 ULC-S115-1995, Fire Tests of Fire stop Systems.

1.2 DEFINITIONS

.1 Fire Stop Material: device intended to close off opening or penetration during fire or materials that fill openings in wall or floor assembly where penetration is by cables, cable trays, conduits, ducts and pipes and poke-through termination devices, including electrical outlet boxes along with their means of support through wall or floor openings.

.2 Single Component Fire Stop System: fire stop material that has Listed Systems Design and is used individually without use of high temperature insulation or other materials to create fire stop system.

.3 Multiple Component Fire Stop System: exact group of fire stop materials that are identified within Listed Systems Design to create on site fire stop system.

.4 Tightly Fitted; (ref: NBC Part 3.1.9.1(1) and 9.10.9.6(1)): penetrating items that are cast in place in buildings of noncombustible construction or have "0" annular space in buildings of combustible construction.

.1 Words "tightly fitted" should ensure that integrity of fire separation is such that it prevents passage of smoke and hot gases to unexposed side of fire separation.

1.3 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, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two copies of WHMIS SDS - Material Safety Data Sheets in accordance with Section 02 81 01 - Hazardous Materials.

.3 Shop Drawings:

.1 Submit shop drawings to show location, proposed material, reinforcement, anchorage, fastenings and method of installation.

.2 Construction details should accurately reflect actual job conditions.

.4 Samples:

.1 Submit duplicate 300 x 300 mm samples showing actual fire stop material proposed for project.

.5 Quality assurance submittals: submit following in accordance with Section 01 45 00 - Quality Control.

.1 Test reports: in accordance with CAN-ULC-S101 for fire endurance and CAN-ULC-S102 for surface burning characteristics.

.1 Submit certified test reports from approved independent testing laboratories, indicating compliance of applied fire stopping with specifications for specified performance characteristics and physical properties.

.2 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.3 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures and maintenance guide.

.4 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.

1.4 QUALITY ASSURANCE

.1 Qualifications:

.1 Installer Qualifications: Perform Work of this Section by a company that has a minimum of five years proven experience in the installation of firestopping and smoke seal Work of a similar size and nature and that is approved by manufacturer. Submit to Consultant, applicator's current certificate of approval by the material manufacturer as proof of compliance.

.2 Manufacturer's direct representative and/or fire protection specialist shall be on-site during initial installation of firestop systems to train appropriate contractor personnel in proper selection and installation procedures conforming to manufacturer's written recommendations published in their literature and drawing details.

.2 Pre-Installation Meetings: convene pre-installation meeting one week prior to beginning work of this Section, with contractor's representative in accordance with Section 01 31 19 - Project Meetings 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.

.3 Site Meetings: as part of Manufacturer's Services described in PART 3 - FIELD QUALITY CONTROL, schedule site visits, to review Work, at stages listed.

.1 After delivery and storage of products, and when preparatory Work 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.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Packing, shipping, handling and unloading:

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

.2 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.3 Deliver materials to the site in undamaged condition and in original unopened containers, marked to indicate brand name, manufacturer, ULC markings.

.2 Storage and Protection:

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

.2 Replace defective or damaged materials with new.

.3 Waste Management and Disposal:

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

Part 2 Products

2.1 MATERIALS

.1 Fire stopping and smoke seal systems: in accordance with CAN-ULC-S115.

.1 Asbestos-free materials and systems capable of maintaining effective barrier against flame, smoke and gases in compliance with requirements of CAN-ULC-S115 and not to exceed opening sizes for which they are intended and conforming to specified special requirements described in PART 3.

.2 Fire stop system rating: 1 Hr or as indicated on drawings.

.2 Service penetration assemblies: systems tested to CAN-ULC-S115.

.3 Service penetration fire stop components: certified by test laboratory to CAN-ULC-S115.

.4 Fire-resistance rating of installed fire stopping assembly in accordance with NBC.

.5 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal.

.6 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.

.7 Primers: to manufacturer's recommendation for specific material, substrate, and end use.

.8 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.

.9 Damming and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.

.10 Sealants for vertical joints: non-sagging.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 PREPARATION

.1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials.

.1 Ensure that substrates and surfaces are clean, dry and frost free.

.2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.

.3 Maintain insulation around pipes and ducts penetrating fire separation without interruption to vapour barrier.

.4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

3.3 INSTALLATION

.1 Install fire stopping and smoke seal material and components in accordance with manufacturer's certified tested system listing.

.2 Seal holes or voids made by through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.

.3 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.

.4 Tool or trowel exposed surfaces to neat finish.

.5 Remove excess compound promptly as work progresses and upon completion.

3.4 SEQUENCES OF OPERATION

.1 Proceed with installation only when submittals have been reviewed byConsultant.

.2 Install floor fire stopping before interior partition erections.

.3 Metal deck bonding: fire stopping to precede spray applied fireproofing to ensure required bonding.

.4 Mechanical pipe insulation: certified fire stop system component.

.1 Ensure pipe insulation installation precedes fire stopping.

3.5 FIELD QUALITY CONTROL

.1 Inspections: notify Consultant when ready for inspection and prior to concealing or enclosing fire stopping materials and service penetration assemblies.

.2 Manufacturer's Field Services:

.1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.

.2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

.3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

3.6 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 Remove temporary dams after initial set of fire stopping and smoke seal materials.

3.7 SCHEDULE

.1 Fire stop and smoke seal at:

.1 Penetrations through fire-resistance rated masonry, concrete, and gypsum board partitions and walls.

.2 Edge of floor slabs at curtain wall and precast concrete panels.

.3 Top of fire-resistance rated masonry and gypsum board partitions.

.4 Intersection of fire-resistance rated masonry and gypsum board partitions.

.5 Control and sway joints in fire-resistance rated masonry and gypsum board partitions and walls.

.6 Penetrations through fire-resistance rated floor slabs, ceilings and roofs.

.7 Openings and sleeves installed for future use through fire separations.

.8 Around mechanical and electrical assemblies penetrating fire separations.

.9 Rigid ducts: greater than 129 cm^2: fire stopping to consist of bead of fire stopping material between retaining angle and fire separation and between retaining angle and duct, on each side of fire separation.

END OF SECTION

Section 07 92 00
Joint Sealants

Part 1 General

1.1 REFERENCE STANDARDS

.1 ASTM International

.1 ASTM C919-18, Standard Practice for Use of Sealants in Acoustical Applications.

.2 Canadian General Standards Board (CGSB)

.1 CGSB 19-GP-5M-1984, Sealing Compound, One Component, Acrylic Base, Solvent Curing (Issue of 1976 reaffirmed, incorporating Amendment No. 1).

.2 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.

.3 CGSB 19-GP-14M-1984, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).

.4 CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.

.5 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.

.3 General Services Administration (GSA) - Federal Specifications (FS)

.1 FS-SS-S-200-E(2)1993, Sealants, Joint, Two-Component, Jet-Blast-Resistant, Cold Applied, for Portland Cement Concrete Pavement.

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

.1 Safety Data Sheets (SDS).

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for joint sealants and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Manufacturer's product to describe:

.1 Caulking compound.

.2 Primers.

.3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.

.3 Samples:

.1 Submit 2 samples of each type of material and colour.

.2 Cured samples of exposed sealants for each colour where required to match adjacent material.

.4 Manufacturer's Instructions:

.1 Submit instructions to include installation instructions for each product used.

.5 Sustainable Design Submittals:

.1 Construction Waste Management:

.1 Submit project Waste Management Plan highlighting recycling and salvage requirements.

1.3 CLOSEOUT SUBMITTALS

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

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

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions.

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

.3 Storage and Handling Requirements:

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

.2 Store and protect joint sealants from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: remove for reuse and return of packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

1.5 SITE CONDITIONS

.1 Ambient Conditions:

.1 Proceed with installation of joint sealants only when:

.1 Ambient and substrate temperature conditions are within limits permitted by joint sealant manufacturer or are above 4.4 degrees C.

.2 Joint substrates are dry.

.3 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

.2 Joint-Width Conditions:

.1 Proceed with installation of joint sealants only where joint widths are more than those allowed by joint sealant manufacturer for applications indicated.

.3 Joint-Substrate Conditions:

.1 Proceed with installation of joint sealants only after contaminants capable of interfering with adhesion are removed from joint substrates.

1.6 ENVIRONMENTAL REQUIREMENTS

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Safety Data Sheets (SDS) acceptable to Health Canada.

Part 2 Products

2.1 SEALANT MATERIALS

.1 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.

.2 When low toxicity caulks are not possible, confine usage to areas which off gas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off gas time.

.3 Where sealants are qualified with primers use only these primers.

2.2 SEALANT MATERIAL DESIGNATIONS

.1 Polysulfide two part:

.2 Silicones one part: to CAN/CGSB-19.13.

.1 ASTM C920, Type S, Grade NS, Class 25; non-sag type, standard colours

.3 Acrylic latex one part: to CAN/CGSB-19.17.

.1 ASTM C834, paintable standard white colour.

.4 Acoustical sealant: to ASTM C919.

.5 Preformed compressible and non-compressible back-up materials:

.1 Polyethylene, urethane, neoprene or vinyl foam:

.1 Extruded closed cell foam backer rod.

.2 Size: oversize 30 to 50 %.

.2 Neoprene or butyl rubber:

.1 Round solid rod, Shore A hardness 70.

.3 High density foam:

.1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m^{3}density, or neoprene foam backer, size as recommended by manufacturer.

.4 Bond breaker tape:

.1 Polyethylene bond breaker tape which will not bond to sealant.

2.3 JOINT CLEANER

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

.2 Primer: in accordance with sealant manufacturer's written recommendations.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for joint sealants installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate 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 Consutlant.

3.2 SURFACE PREPARATION

.1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.

.2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair Work.

.3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.

.4 Ensure joint surfaces are dry and frost free.

.5 Prepare surfaces in accordance with manufacturer's directions.

3.3 PRIMING

.1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.

.2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.4 BACKUP MATERIAL

.1 Apply bond breaker tape where required to manufacturer's instructions.

.2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

3.5 MIXING

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

3.6 APPLICATION

.1 Sealant:

.1 Apply sealant in accordance with manufacturer's written instructions.

.2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.

.3 Apply sealant in continuous beads.

.4 Apply sealant using gun with proper size nozzle.

.5 Use sufficient pressure to fill voids and joints solid.

.6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.

.7 Tool exposed surfaces before skinning begins to give slightly concave shape.

.8 Remove excess compound promptly as work progresses and upon completion.

.2 Curing:

.1 Cure sealants in accordance with sealant manufacturer's instructions.

.2 Do not cover up sealants until proper curing has taken place.

3.7 CLEANING

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

.1 Leave Work area clean at end of each day.

.2 Clean adjacent surfaces immediately.

.3 Remove excess and droppings, using recommended cleaners as work progresses.

.4 Remove masking tape after initial set of sealant.

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

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

3.8 PROTECTION

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

.2 Repair damage to adjacent materials caused by joint sealants installation.

END OF SECTION

Section 08 11 00
Metal doors and frames

Part 1 General

1.1 REFERENCE STANDARDS

.1 American Society for Testing and Materials International (ASTM)

.1 ASTM A653/A653M-06a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.2 ASTM B29-03, Standard Specification for Refined Lead.

.3 ASTM B749-03, Standard Specification for Lead and Lead Alloy Strip, Sheet and Plate Products.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.

.2 CGSB 41-GP-19Ma-84, Rigid Vinyl Extrusions for Windows and Doors.

.3 CSA Group (CSA)

.1 CSA-G40.20-04 /G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.2 CSA W59-03, Welded Steel Construction (Metal Arc Welding).

.4 Canadian Steel Door Manufacturers' Association (CSDMA)

.1 CSDMA, Recommended Specifications for Commercial Steel Doors and Frames, 2000.

.2 CSDMA, Selection and Usage Guide for Commercial Steel Doors, 1990.

.5 National Fire Protection Association (NFPA)

.1 NFPA 80-99, Standard for Fire Doors and Fire Windows.

.2 NFPA 252-03, Standard Methods of Fire Tests of Door Assemblies.

.6 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S701-01, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.

.2 CAN/ULC-S702-97, Standard for Thermal Insulation, Mineral Fibre, for Buildings.

.3 CAN/ULC-S704-03, Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.

.4 CAN4-S104-M80, Standard Method for Fire Tests of Door Assemblies.

.5 CAN4-S105-M85, Standard Specification for Fire Door Frames Meeting the Performance Required by CAN4-S104.

1.2 SYSTEM DESCRIPTION

.1 Design Requirements:

.1 Maximum deflection for exterior steel entrance screens under wind load of 1.2 kPa not to exceed 1/175th of span.

.2 Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104 NFPA 80, NFPA 252 for ratings specified or indicated.

.3 Provide fire labelled frames for openings requiring fire protection ratings. Test products in conformance with CAN4-S104, NFPA 80, NFPA 252 and listed by nationally recognized agency having factory inspection services.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Provide product data: in accordance with Section 01 33 00 - Submittal Procedures.

.3 Provide shop drawings: in accordance with Section 01 33 00 - Submittal Procedures.

.1 Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada.

.2 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed, louvred, arrangement of hardware fire rating and finishes.

.3 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings ,reinforcing, fire rating and finishes.

.4 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

.5 Submit test and engineering data, and installation instructions.

.4 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.

1.4 DELIVERY, STORAGE AND HANDLING

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

.2 Waste Management and Disposal:

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

Part 2 Products

2.1 MATERIALS

.1 Hot dipped galvanized steel sheet: to ASTM A653M, ZF75, minimum base steel thickness in accordance with CSDMA Table 1 - Thickness for Component Parts.

.1 Minimum base steel thickness:

.1 Frames: 1.6mm

.2 Typical doors: 1.2mm

.3 Lock/strike reinforcements: 1.6mm

.4 Hinge reinforcements: 2.7mm

.5 All other reinforcements: 1.6mm

.6 Top and bottom channels: 1.2mm

.7 Glazing stops: 0.9mm

.8 Guard boxes: 0.9mm

.9 Jamb spreaders: 0.9mm

.2 Reinforcement channel: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653M, ZF75.

.3 Composites: balance of core materials used in conjunction with lead: in accordance with manufacturers' proprietary design.

2.2 DOOR CORE MATERIALS

.1 Stiffened: face sheets welded, insulated core.

.1 Interior Doors: Mineral fibre insulation with min. face density 24 kg/m^3.

.2 Fire Rated Doors: Mineral fibre insulation to CAN/ULC S702, Type 1A with min. face density 24 kg/m^3.

.2 Temperature rise rated (TRR): core composition to limit temperature rise on unexposed side of door to 250 degrees C at 60 minutes. Core to be tested as part of a complete door assembly, in accordance with CAN4-S104, NFPA 80, NFPA 252, covering Standard Method of Tests of Door Assemblies and listed by nationally recognized testing agency having factory inspection service.

2.3 ADHESIVES

.1 Honeycomb cores and steel components: heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.

.2 Polystyrene and polyurethane cores: heat resistant, epoxy resin based, low viscosity, contact cement.

.3 Lock-seam doors: fire resistant, resin reinforced polychloroprene, high viscosity, sealant/adhesive.

2.4 PRIMER

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

.1 Maximum VOC limit 50 g/L to GC-03.

2.5 PAINT

.1 Field paint steel doors and frames in accordance with Section 09 91 23 - Interior Painting. Protect weatherstrips, door silencers, labels and hardware from paint. Provide final finish free of scratches or other blemishes.

.1 Maximum VOC emission level 50 g/L to GS-11.

2.6 ACCESSORIES

.1 Door silencers: single stud rubber/neoprene type.

.2 Interior and Exterior bottom and top caps: steel.

.3 Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.

.4 Door bottom seal: In accordance with Door Hardware Schedule.

.5 Metallic paste filler: to manufacturer's standard.

.6 Fire labels: Brass plate, riveted to door and door frame, in accordance with ULC requirements..

.7 Sealant: In accordance with Section 07 92 00 .

.1 Maximum VOC limit 250 g/L to SCAQMD Rule 1168.

.8 Glazing: In accordance with Section 08 80 00.

.9 Make provisions for glazing as indicated and provide necessary glazing stops.

.1 Provide removable stainless steel glazing beads for use with glazing tapes and compounds and secured with countersunk stainless steel screws.

.2 Design exterior glazing stops to be tamperproof.

2.7 FRAMES FABRICATION GENERAL

.1 Fabricate frames in accordance with CSDMA specifications.

.2 Fabricate frames to profiles and maximum face sizes as indicated.

.3 Exterior frames: 1.6 mm thermally broken and welded type construction.

.4 Interior frames: 1.6 mm welded type construction.

.5 Blank, reinforce, drill and tap frames for mortised, templated hardware, electronic hardware using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.

.6 Protect mortised cutouts with steel guard boxes.

.7 Prepare frame for door silencers, 3 for single door, 2 at head for double door.

.8 Manufacturer's nameplates on frames and screens are not permitted.

.9 Conceal fastenings except where exposed fastenings are indicated.

.10 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

.11 Insulate exterior frame components with polyurethane insulation.

2.8 FRAME ANCHORAGE

.1 Provide appropriate anchorage to floor and wall construction.

.2 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.

.3 Provide 2 anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.

.4 Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm on centre maximum.

2.9 FRAMES: WELDED TYPE

.1 Welding in accordance with CSA W59.

.1 Finished product to have no visible seams or joints, square, true and free of distortion.

.2 Welding to be continuous meeting requirements of CSA W47.1, unless specified otherwise.

.2 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.

.3 Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.

.4 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.

.5 Securely attach floor anchors to inside of each jamb profile.

.6 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.

.7 Securely attach lead to inside of frame profile from return to jamb soffit (inclusive) on door side of frame only.

2.10 DOOR FABRICATION GENERAL

.1 Doors: swing type, flush, with provision for glass and/or louvre openings as indicated.

.2 Exterior doors: slab insulated hollow steel construction. Interior doors: insulated hollow steel construction.

.3 Fabricate doors with longitudinal edges welded. Seams: grind welded joints to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.

.4 Blank, reinforce, drill doors and tap for mortised, templated hardware electronic hardware.

.5 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.

.6 Reinforce doors where required, for surface mounted hardware. Provide flush steel top caps to exterior doors. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.

.7 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.

.8 Provide fire labelled doors for those openings requiring fire protection ratings, as scheduled. Test such products in conformance with NFPA 80, NFPA 252, CAN4-S104, ASTM E152 and list by nationally recognized agency having factory inspection service and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

.9 Manufacturer's nameplates on doors are not permitted.

2.11 HOLLOW STEEL CONSTRUCTION

.1 Form face sheets for exterior doors from 1.6 1.2 mm sheet steel.

.2 Form face sheets for interior doors from 1.2mm sheet steel.

.3 Reinforce doors with vertical stiffeners, securely welded to face sheets at 150 mm on centre maximum.

.4 Fill voids between stiffeners of exterior doors with rigid poly/isocyanurate core.

.5 Fill voids between stiffeners of interior doors with fibreglass core.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSTALLATION GENERAL

.1 Install labelled steel fire rated doors and frames to NFPA 80 except where specified otherwise.

.2 Install doors and frames to CSDMA Installation Guide.

3.3 FRAME INSTALLATION

.1 Set frames plumb, square, level and at correct elevation.

.2 Secure anchorages and connections to adjacent construction.

.3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built-in.

.4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.

.5 Caulk perimeter of frames between frame and adjacent material.

.6 Maintain continuity of vapour retarder.

3.4 DOOR INSTALLATION

.1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08 71 00 - Doors Hardware.

.2 Provide even margins between doors and jambs and doors and finished floorand thresholds as follows.

.1 Hinge side: 1.0 mm.

.2 Latchside and head: 1.5 mm.

.3 Finished floor, and thresholds: 13 mm.

.3 Adjust operable parts for correct function.

.4 Install louvres.

3.5 FINISH REPAIRS

.1 Touch up with primer finishes damaged during installation.

.2 Fill exposed frame anchors surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

3.6 GLAZING

.1 Install glazing for doors frames in accordance with Section 08 80 50 - Glazing.

END OF SECTION

Section 08 71 00
Door Hardware

Part 1 General

1.1 REFERENCE STANDARDS

.1 American National Standards Institute (ANSI)/Builders Hardware Manufacturers Association (BHMA)

.1 ANSI/BHMA A156.1-2000, American National Standard for Butts and Hinges.

.2 ANSI/BHMA A156.2-2003, Bored and Preassembled Locks and Latches.

.3 ANSI/BHMA A156.3-2001, Exit Devices.

.4 ANSI/BHMA A156.4-2000, Door Controls - Closers.

.5 ANSI/BHMA A156.5-2001, Auxiliary Locks and Associated Products.

.6 ANSI/BHMA A156.6-2005, Architectural Door Trim.

.7 ANSI/BHMA A156.8-2005, Door Controls - Overhead Stops and Holders.

.8 ANSI/BHMA A156.10-1999, Power Operated Pedestrian Doors.

.9 ANSI/BHMA A156.12-2005, Interconnected Locks and Latches.

.10 ANSI/BHMA A156.13-2002, Mortise Locks and Latches Series 1000.

.11 ANSI/BHMA A156.14-2002, Sliding and Folding Door Hardware.

.12 ANSI/BHMA A156.15-2006, Release Devices - Closer Holder, Electromagnetic and Electromechanical.

.13 ANSI/BHMA A156.16-2002, Auxiliary Hardware.

.14 ANSI/BHMA A156.17-2004, Self-closing Hinges and Pivots.

.15 ANSI/BHMA A156.18-2006, Materials and Finishes.

.16 ANSI/BHMA A156.19-2002, Power Assist and Low Energy Power - Operated Doors.

.17 ANSI/BHMA A156.20-2006, Strap and Tee Hinges and Hasps.

.2 Canadian Steel Door and Frame Manufacturers' Association (CSDMA)

.1 CSDMA Recommended Dimensional Standards for Commercial Steel Doors and Frames - 2009.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for door hardware and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Hardware List:

.1 Submit contract hardware list.

.2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.

.4 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.

1.3 CLOSEOUT SUBMITTALS

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

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

1.4 MAINTENANCE MATERIAL SUBMITTALS

.1 Extra Stock Materials:

.1 Supply maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Tools:

.1 Supply 2 sets of wrenches for locksets.

1.5 QUALITY ASSURANCE

.1 Regulatory Requirements:

.1 Hardware for doors in fire separations and exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.

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

1.6 DELIVERY, STORAGE AND HANDLING

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

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

.3 Package items of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.

.4 Storage and Handling Requirements:

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

.2 Store and protect door hardware from nicks, scratches, and blemishes.

.3 Protect prefinished surfaces with strippable coating.

.4 Replace defective or damaged materials with new.

Part 2 Products

2.1 HARDWARE ITEMS

.1 Refer to schedule attached in appendix.

Part 3 Execution

3.1 INSTALLATION

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

.2 Supply metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.

.3 Supply manufacturers' instructions for proper installation of each hardware component.

.4 Install hardware to standard hardware location dimensions in accordance with CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction).

.5 Where door stop contacts door pulls, mount stop to strike bottom of pull.

.6 Install key control cabinet.

.7 Use only manufacturer's supplied fasteners.

.1 Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.

.8 Remove construction cores when directed by Owner.

.1 Install permanent cores and ensure locks operate correctly.

3.2 ADJUSTING

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

.2 Lubricate hardware, operating equipment and other moving parts.

.3 Adjust door hardware to ensure tight fit at contact points with frames.

3.3 CLEANING

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

.1 Leave Work area clean at end of each day.

.2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacturer's instructions.

.3 Remove protective material from hardware items where present.

.4 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 or recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 DEMONSTRATION

.1 Keying System Setup and Cabinet:

.1 Set up key control system with file key tags, duplicate key tags, numerical index, alphabetical index and key change index, label shields, control book and key receipt cards.

.2 Place file keys and duplicate keys in key cabinet on their respective hooks.

.3 Lock key cabinet and turn over key to Owner.

.2 Maintenance Staff Briefing:

.1 Brief maintenance staff regarding:

.1 Proper care, cleaning, and general maintenance of projects complete hardware.

.2 Description, use, handling, and storage of keys.

.3 Use, application and storage of wrenches for locksets.

.3 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

3.5 PROTECTION

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

.2 Repair damage to adjacent materials caused by door hardware installation.

3.6 SCHEDULE

.1 See attached hardware schedule

END OF SECTION

Section 08 80 00
Glazing

Part 1 General

1.1 REFERENCE STANDARDS

.1 ASTM International

.1 ASTM C542-05, Standard Specification for Lock-Strip Gaskets.

.2 ASTM D790-07e1, Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

.3 ASTM D1003-07e1, Standard Test Method for Haze and Luminous Transmittance of Plastics.

.4 ASTM D1929-96 (R2001)e1, Standard Test Method for Determining Ignition Temperature of Plastics.

.5 ASTM D2240-05, Standard Test Method for Rubber Property - Durometer Hardness.

.6 ASTM E84-10, Standard Test Method for Surface Burning Characteristics of Building Materials.

.7 ASTM E330-02, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

.8 ASTM F1233-08, 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 Environmental Choice Program (ECP)

.1 CCD-045-95 (R2005), Sealants and Caulking Compounds.

.4 Glass Association of North American (GANA)

.1 GANA Glazing Manual - 2008.

.2 GANA Laminated Glazing Reference Manual - 2009.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for 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.

.4 Samples:

.1 Submit for review and acceptance of each unit.

.2 Samples will be returned for inclusion into work.

.3 Submit duplicate 300x300 mm size samples of and sealant material.

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

.6 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.

1.3 CLOSEOUT SUBMITTALS

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

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

1.4 QUALITY ASSURANCE

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

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions with manufacturer's written instructions.

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

.3 Storage and Handling Requirements:

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

.2 Store and protect glazing and frames from nicks, scratches, and blemishes.

.3 Protect prefinished aluminum surfaces with wrapping.

.4 Replace defective or damaged materials with new.

.4 Packaging Waste Management: remove for reuse and return of packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

1.6 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.

1.7 DESIGN REQUIREMENTS

.1 Glass Design:

.1 Design glass using a probability of breakage of 8 lites per 1000 at the first application of design load.

.2 Design glass to CAN/CGSB-12.20-M. Perform stress analysis. Design units to accommodate live, dead, lateral, wind, seismic, handling, transportation, and erection loads.

.3 Perform a thermal stress analysis on each glass unit with Low-E coating and provide heat strengthening and/or tempered units as necessary to prevent thermal breakage.

.4 Perform a thermal stress analysis on each insulating thermal unit and provide heat strengthening and/or tempered units as necessary to pervent themal breakage.

.5 Where required, design glazing units so as not to allow thermal stress fracture due to heat build-up behind insulating units.

.2 Structural Glazing:

.1 Carry out design of structural silicone joints by rational analysis including all movements specified herein. Maximum stress shall not exceed 138 kPa (20 psi) in tension or shear for short term loading. Maximum stress in shear for long term loading due to the dead load of glass shall not exceed 7 kPa (1 psi) or the limit imposed by sealant manufacturer, whichever is less.

.2 The joint shall be essentially rectangular in shape and shall include no internal corners which could precipitate tearing or create high local stresses.

.3 Single Source Responsibility for Sealants, Gaskets and Other Glazing Accessories: In order to ensure consistent quality of performance, provide all glazing sealants and seals from a single manufacturer.

.4 Preconstruction Compatibility and Adhesion Testing: Submit to sealant manufacturer, samples of each glass, gasket, glazing accessory and glass-framing member that will contact or affect glazing sealants for compatibility and adhesion testing. Schedule submission of test samples to provide sufficient time for testing and analysis of results to prevent delay in the progress of work.

.3 Limit glass deflection to flexural limit of glass with full recovery of glazing materials.

.4 Utilize inner light of multiple light sealed units for continuity of air and vapour seal.

.5 Design window glazing with the following properties:

.1 U-Value: R3.

.2 Solar heat gain: 0.38.

.3 Shading Coefficient: 0.44.

Part 2 Products

2.1 MATERIALS

.1 Flat Glass:

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

.2 (GL1) Glass in doors, side lights screens to be fire -rated, impact-rated, transparent

.1 Fire resistance rating : as indicated on Door Schedule

.2 Acceptable Product: 8mm FireLite Plus by TGP or 9mm Pyran Platinum L by Schott AG or approved equivalent

.3 Safety glass: to CAN/CGSB-12.1, transparent, 12.7 mm thick.

.1 Type tempered.

.2 Class B-float.

.3 Category 11.

.4 Edge treatment: Polished.

.4 (GL2) Fire Rated impact-rated Glass : transparent, 27 mm thick.

.1 STC:44

.2 Fire Barrier

.3 Acceptable Product: FIREGLASS by Pilkinton Pyrostop.

.2 Plastic Film: in accordance with Section 08 87 53 - Security Films.

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

.1 VOC limit 250 g/L maximum to SCAQMD Rule 1168.

.1 VOC limit: 5 % maximum by weight to CCD-045.

.2 Ensure sealant does not contain chemical restrictions to CCD-045.

2.2 ACCESSORIES

.1 Setting blocks (regular): EPDM, 80- 90 Shore A durometer hardness to ASTM D2240, to suit glazing method, glass light weight and area.

.2 Setting blocks (structural): Silicone setting blocks with Shore, Type A durometer hardness of 85, plus or minus 5 to ASTM D2240, sized to suit glazing method, glass unit weight and area.

.3 Edge blocks: EPDM, 60-70 Shore A Durometer hardness, sized with 3 mm clearance from glass edge and spanning glass thickness(es). Capable of withstanding weight of glass unit, self adhesive on face.

.4 Spacer shims: EPDM, 50-60 Shore A durometer hardness to ASTM D2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.

.5 Glazing and rebate primers, sealants, sealers, and cleaners: Compatible with each other. Type as recommended by glass manufacturer.

.6 Glazing Sealant (regular): Silicone sealant as recommended by glazing manufacturer. Verify compatibility with insulating glass unit secondary sealant.

.7 Glazing Sealant (structural):

.1 Silicone, One Part in accordance with ASTM C920, Type S or M, Grade NS, Class 25.

.2 Structural glazing tensile bead: 'Spectrem 2 Sealant' by Tremco or 'Dow 795' by Dow Corning.

.3 Structural glazing weather bead:'Spectrem 2 Sealant' by Tremco or 'Dow 795' by Dow Corning.

.4 Structural glazing (factory glazed): Two-part, neutral cure silicone sealant, 'Proglaze II' by Tremco or 'Dow 983' by Dow Corning.

.5 Colour to be selected by Consultant.

.8 Glazing gasket: 'Visionstrip' by Tremvo Ltd., extruded composite glazing seal, size as recommended by manufacturer.

.9 Heel & toe bead: Silicone sealant as recommended by glazing manufacturer.

.10 Glazing tape:

.1 'Polyshim II' glazing tape EPDM shim.

.11 Glazing splines: resilient EPDM or neoprene, extruded shape to suit glazing channel retaining slot, black colour as selected by consultant.

.12 Glazing clips: manufacturer's standard type.

.13 Lock-strip gaskets: to ASTM C542.

.14 Glass presence markers: Easily removable, non-residue depositing.

.15 Screws, bolts and fasteners: Type 304 stainless steel.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for glazing installation in accordance with manufacturer's written instructions.

.1 Verify that openings for glazing are correctly sized and within tolerance.

.2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

.3 Visually inspect substrate in presence of Consultant.

.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.

3.2 PREPARATION

.1 Clean contact surfaces with solvent and wipe dry.

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

.3 Prime surfaces scheduled to receive sealant.

3.3 INSTALLATION: INTERIOR - DRY METHOD (TAPE AND TAPE)

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

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

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

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

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

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

.7 Knife trim protruding tape.

3.4 INSTALLATION: MIRRORS

.1 Set mirrors with adhesive, applied in accordance with adhesive manufacturer's instructions.

.2 Set mirrors with clips. Anchor rigidly to wall construction.

.3 Set in frame.

.4 Place plumb and level.

3.5 INSTALLATION: PLASTIC FILM

.1 Install plastic film with adhesive, applied in accordance with film manufacturer's instructions.

.2 Place without air bubbles, creases or visible distortion.

.3 Fit tight to glass perimeter with razor cut edge.

3.6 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 or recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.7 PROTECTION

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

.2 After installation, mark each light with an "X" by using removable plastic tape or paste.

.1 Do not mark heat absorbing or reflective glass units.

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

END OF SECTION

Section 08 87 23
Surface films

Part 1 General

1.1 SUMMARY

.1 Section Includes:

.1 Glazing film for interior screens

.2 Graphic wallpaper applied to Drywall surface

1.2 REFERENCE STANDARDS

.1 International Window Film Association (IWFA)

.1 IWFA Visual Quality Standard for Applied Window Film 1999.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Shop Drawings

.1 Indicate dimension, seams, colours and film type

.3 Samples

.1 For non-custom films, provide 300mm x300mm sample for reach film type.

.2 For custom printed films, Provide test print of a representative area of the graphic for each film type/unique graphic.

1.4 QUALITY ASSURANCE

.1 Perform work in accordance with manufacturer’s instructions.

.2 Film to be installed by a Certified Applicator in order for a full manufacturer’s warranty to apply.

1.5 WARRANTY

.1 Contractor hereby warrants that Films will stay in place without delaminating, peeling or blistering in accordance with CCDC 2 GC24, but for 10 years.

.2 Ensure warranty includes items as follows:

.1 Maintaining adhesion properties without blistering, bubbling or delaminating from glass surface.

.2 Maintaining appearance without discolouration.

.3 Removing, replace and reapply defective materials.

.4 In event of product failure under warranty terms, remove and re-apply film without glass replacement at no cost to Owner.

Part 2 Products

2.1 MATERIALS

.1 Frosted film for interior Glazing (FLM1)

- .1 3M Fasara, frosted Matte
- .2 See drawings for location of glazing film. Account for 100% coverage on glazing surfaces indicated

.2 Transparent Coloured Film (FLM2)

- .1 Manufacturer: Solar Graphics
- .2 Colour: Sky Blue

.3 Transparent Coloured Film (FLM3)

- .1 Manufacturer: Solar Graphics
- .2 Colour: Steel Blue

.4 Transparent Coloured Film (FLM4)

- .1 Manufacturer: Solar Graphics
- .2 Colour: Amber

.5 Custom Vinyl Graphic wall paper (FLM6)

- .1 Colour: White

.6 Custom Vinyl Graphic wall paper (FLM5)

- .1 Colour: Dark Blue

Part 3 Execution

3.1 PREPARATION

.1 Examine glass and wall surfaces to receive a new film and verify that they are free from defects and imperfections.

.2 The window and window framing will be cleaned thoroughly with a neutral cleaning solution. The surface of the window glass where the film is to be applied shall be bladed with industrial razors to ensure safe removal of any foreign contaminants.

.3 Toweling or other absorbent material shall be placed in the window will or sash to absorb moisture generated by the installation of the film

3.2 INSTALLATION

.1 The film must be applied as to the specifications of the Manufacturer by a Certified Dealer/Applicator.

.2 Materials will be delivered to the job site with the manufacturer’s labels intact and legible.

.3 To minimize waste, the film will be cut to specification. Film edges shall be cut neatly and squarely at a uniform distance of 1/8” to 1/16” from the window sealing device.

.4 Clear, clean water with a small amount of slip solution will be used to activate the pressure sensitive adhesive and facilitate the proper positioning of the film on the glass.

.5 To ensure efficient removal of excess water from the underside of the film and to maximize the bonding of the pressure sensitive adhesive, polyplastic bladed squeegees will be utilized.

.6 Upon completion, the film may have a dimpled appearance from residual moisture. Said moisture, shall dry flat with no moisture dimples within a period of 30 days under reasonable weather conditions.

.7 After application, any leftover material will be removed and work area will be returned to at least the original condition. All necessary means will be used to protect the film before, during and after installation.

3.3 FINAL CLEANING

.1 The film can be washed using common window cleaning solutions, including ammonia based cleaners. Abrasive type cleaning agents and bristle brushes that could scratch the film must not be used. Synthetic sponges or soft cloths are recommended.

END OF SECTION

Section 09 21 16
Gypsum Board Assemblies

Part 1 General

1.1 REFERENCE STANDARDS

.1 Aluminum Association (AA)

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

.2 American Society for Testing and Materials (ASTM)

.1 ASTM C475-02 (2015), Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.

.2 ASTM C514-04 (2014), Standard Specification for Nails for the Application of Gypsum Board.

.3 ASTM C557-03 (2009)e1, Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.

.4 ASTM C840-16, Standard Specification for Application and Finishing of Gypsum Board.

.5 ASTM C954-15, Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.

.6 ASTM C1002-14, Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

.7 ASTM C1047-14a, Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.

.8 ASTM C1177/C1177M-13, Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.

.9 ASTM C1178/C1178M-13, Standard Specification for Glass Mat Water-Resistant Gypsum Backing Board.

.10 ASTM C1280-13a, Standard Specification for Application of Gypsum Sheathing.

.11 ASTM C1396/C1396M-14a, Standard Specification for Gypsum board.

.3 Association of the Wall and Ceilings Industries International (AWCI)

.1 AWCI Levels of Gypsum Board Finish-GA-214-2015.

.4 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.34-M86 (R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

.2 CAN/CGSB-71.25-M88, Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.

.5 Green Seal Environmental Standards (GS)

.1 GS-11-2008, 2nd Edition, Paints and Coatings.

.6 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards

.1 SCAQMD Rule 1113-A2007, Architectural Coatings.

.2 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

.7 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S102-10, Standard Method of Test of Surface Burning Characteristics of Building Materials and Assemblies.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for gypsum board assemblies and include product characteristics, performance criteria, physical size, finish and limitations.

1.3 DELIVERY, STORAGE AND HANDLING

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

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

.3 Exercise care in unloading gypsum board materials shipment to prevent damage.

.4 Storage and Handling Requirements in accordance with ASTM C 840–16:

.1 Store gypsum board assemblies materials level flat indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect gypsum board assemblies from nicks, scratches, and blemishes.

.3 Protect gypsum board from direct exposure to rain, snow, sunlight, or other excessive weather conditions.

.4 Protect ready mix joint compounds from freezing, exposure to extreme heat and direct sunlight.

.5 Protect from weather, elements and damage from construction operations.

.6 Handle gypsum boards to prevent damage to edges, ends or surfaces.

.7 Protect prefinished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather.

.8 Replace defective or damaged materials with new.

1.4 AMBIENT CONDITIONS

.1 Maintain temperature 10 °C minimum, 21 °C maximum for 48 hours prior to and during application of gypsum boards and joint treatment, and for 48 hours minimumafter completion of joint treatment.

.2 Apply board and joint treatment to dry, clean, frost free surfaces.

.3 Ventilation: ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

Part 2 Products

2.1 MATERIALS

.1 Standard board: to ASTM C1396/C1396M–14 Type X, 15.9mm thick, 1200 mm wide x maximum practical length, ends square cut, edges squared.

.2 Impact Resistant Gypsum Board; Heavy duty glass mat facers with dense water resistant treated gypsum core ans embedded fiberglass mesh enforcement, to ASTM C1658 and ASTM C1629, Type X 15.9mm thick, 1200mm wide x maximum practical length. Score of 10 (no mould growth) as per ASTM D3273)

.3 Glass mat water-resistant gypsum backing board: to ASTM C1178/C1178M-13, 16 mm thick, 1200 mm wide x maximum practical length.

.4 Metal furring runners, hangers, tie wires, inserts, and anchors: to ASTM C840.

.5 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.

.6 Resilient drywall furring: 0.5 mm base steel thickness galvanized steel for resilient attachment of gypsum board.

.7 Nails: to ASTM C514-14.

.8 Steel drill screws: to ASTM C1002-14.

.9 Stud adhesive: to CAN/CGSB-71.25.

.10 Laminating compound: as recommended by manufacturer, asbestos-free.

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

.12 Shadow gap: Bailey D300 Metal trim, CGC Dur-a-bead or Nicolson Rollforming No 114, fillable edge trim, 0.55mm (0.022") base thickness commercial grade sheet steel with zinc wiped coating to ASTM A 525-93; perforated flanges; one piece length per location. To be used at the junction of all dissimilar materials.

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

.1 VOC limit 250 g/L maximum to SCAQMD Rule 1168.

.2 Acoustic sealant: in accordance with Section 07 92 00 - Joint Sealants.

.14 Polyethylene: to CAN/CGSB-51.34, Type 2.

.15 Insulating strip: rubberized, moisture resistant, 3 mm thick cork strip, 12 mm wide, with self-sticking permanent adhesive on one face, lengths as required.

.16 Joint compound: to ASTM C475, asbestos-free.

.17 Tapable Access Panels for GWB ceilings: Manufacturer: T.A.P. Thickness: 16mm, sizes 610x610, 305x305

.18 Access doors (non-fire rated walls and ceilings) Allow for 10 access doors in project area

.1 Seamless access panel for gypsum board with concealed aluminum frame with continuous factory installed perimeter EPDM gasket, galvanized steel hardware, pivoting hinge and steel safety cable with clip for ceiling operation

.2 Provide concealed mechanical touch-latch for ceiling access doors and screwdriver operated cam latch locks for wall applications

.3 Door size as approved by the Consultant for intended applications

.4 Access doors, 'Bauco Plus II' by Access Panel Sollutions Inc. or approved alternative

.19 Access doors (tiled insert-walls)

.1 Recessed, zinc coated 0.06" (16ga) thick access door and press bent frame to accept tile and grout, capable of blending in with surrounding wall finish, complete with continuous concealed heavy duty hinge and screwdriver operated cam latch lock. Metal components to consist of manufacturer's standard powder oat finish.

.2 Coordinate with Section 06 20 00 as required for MDF or plywood infill and adhesive for door

.3 Door size as approved by the Consultant for intended applications

.4 Access doors, 'Model TD-5025' by Acudor Access Doors or approved alternative

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for gypsum board assemblies installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Consultant.

.2 Inform Consultant of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from consultant.

3.2 ERECTION

.1 Do application and finishing of gypsum board to ASTM C840-16 except where specified otherwise.

.2 Do application of gypsum sheathing to ASTM C1280-13a.

.3 Erect hangers and runner channels for suspended gypsum board ceilings to ASTM C840-16 except where specified otherwise.

.4 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.

.5 Install work level to tolerance of 1:1200.

.6 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles, etc.

.7 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.

.8 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.

.9 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.

.10 Install wall furring for gypsum board wall finishes to ASTM C840–16, except where specified otherwise.

.11 Furr openings and around built-in equipment, cabinets, access panels, etc, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.

.12 Furr duct shafts, beams, columns, pipes and exposed services where indicated.

.13 Erect drywall resilient furring transversely across studs, spaced maximum 600 mm on centre and not more than 150 mm from ceiling/wall juncture. Secure to each support with 25mm drywall screw.

.14 Install 150 mm continuous strip of 12.7 mm gypsum board along base of partitions where resilient furring installed.

3.3 APPLICATION

.1 Apply gypsum board after bucks, anchors, blocking, sound attenuation, electrical and mechanical work have been approved.

.2 Apply double layer gypsum board to metal furring or framing using stud adhesive screw fasteners for the first layer, and laminating adhesive for second layer. Maximum spacing of screws 300 mm on centre.

.1 Single-Layer Application:

.1 Apply gypsum board on ceilings prior to application of walls to ASTM C840-16.

.2 Apply gypsum board on walls vertically or horizontally, providing sheet lengths that will minimize number of board edges or end joints.

.2 Double-Layer Application:

.1 Install gypsum board for base layer and exposed gypsum board for face layer.

.2 Apply base layer to ceilings prior to base layer application on walls; apply face layers in same sequence. Offset joints between layers at least 250 mm.

.3 Apply base layers at right angles to supports unless otherwise indicated.

.4 Apply base layer on walls and face layers vertically with joints of base layer over supports and face layer joints offset at least 250 mm with base layer joints.

.3 Apply single layer gypsum board to concrete concrete block surfaces, where indicated, using laminating adhesive.

.1 Comply with gypsum board manufacturer's recommendations.

.2 Brace or fasten gypsum board until fastening adhesive has set.

.3 Mechanically fasten gypsum board at top and bottom of each sheet.

.4 Exterior Soffits and Ceilings: install exterior gypsum board perpendicular to supports; stagger end joints over supports. Install with 6 mm gap where boards abut other work.

.5 Apply water-resistant gypsum board where wall tiles to be applied. Apply water-resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads. Do not apply joint treatment on areas to receive tile finish.

.6 Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, and, in partitions where perimeter sealed with acoustic sealant.

.7 Install ceiling boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.

.8 Install gypsum board on walls vertically to avoid end-butt joints. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs, except where local codes or fire-rated assemblies require vertical application.

.9 Install gypsum board with face side out.

.10 Do not install damaged or damp boards.

.11 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

3.4 INSTALLATION

.1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure using contact adhesive for full length.

.2 Install casing beads around perimeter of suspended ceilings.

.3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.

.4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.

.5 Install shadow mould at gypsum board/ceiling juncture as indicated. Minimize joints; use corner pieces and splicers.

.6 Construct control joints of two back-to-back casing beads set in gypsum board facing and supported independently on both sides of joint.

.7 Provide continuous polyethylene dust barrier behind and across control joints.

.8 Locate control joints at changes in substrate construction.

.9 Install control joints straight and true.

.10 Ensure that screws or nails are properly applied in process of attaching gypsum board to framing without damaging of gypsum board edges and ends.

.11 Construct expansion joints as detailed, at building expansion and construction joints. Provide continuous dust barrier.

.12 Install expansion joint straight and true.

.13 Install cornice cap where gypsum board partitions do not extend to ceiling.

.14 Fit cornice cap over partition, secure to partition track with two rows of sheet metal screws staggered at 300 mm on centre.

.15 Splice corners and intersections together and secure to each member with 3 screws.

.16 Install access doors to electrical and mechanical fixtures specified in respective sections.

.1 Rigidly secure frames to furring or framing systems.

.17 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.

.18 Gypsum Board Finish: finish gypsum board walls and ceilings to following levels in accordance with AWCI Levels of Gypsum Board Finish:

.1 Levels of finish:

.1 Level 3: embed tape for joints and interior angles in joint compound and apply two separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.

.2 Level 5: embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; apply a thin skim coat of joint compound to entire surface; surfaces smooth and free of tool marks and ridges.

.19 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.

.20 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board, invisible after surface finish is completed.

.21 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.

.22 Completed installation smooth, level or plumb, free from waves and other defects and ready for surface finish.

.23 Apply one coat of white primer sealer over surface to be textured. When dry apply textured finish in accordance with manufacturer's instructions.

.24 Mix joint compound slightly thinner than for joint taping.

.25 Apply thin coat to entire surface using trowel or drywall broad knife to fill surface texture differences, variations or tool marks.

.26 Allow skim coat to dry completely.

.27 Remove ridges by light sanding or wiping with damp cloth.

3.5 CLEANING

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

.1 Leave Work area clean at end of each day.

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

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

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.6 PROTECTION

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

.2 Repair damage to adjacent materials caused by gypsum board assemblies installation.

3.7 SCHEDULES

.1 Construct fire rated assemblies where indicated.

END OF SECTION

Section 09 22 16
Non-Structural Metal Framing

Part 1 General

1.1 REFERENCE STANDARDS

.1 ASTM International

.1 ASTM C645-14e1, Standard Specification for Nonstructural Steel Framing Members.

.2 ASTM A653/A653M-07, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanized) by the Hot-Dip Process.

.3 ASTM C754-15, Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.

.2 Underwriter’s Laboratories (UL) Environmental Standards

.1 UL-2768–2011, Architectural Surface Coatings.

.2 , Surface Coatings - Recycled Water-Borne. UL-2760–2011

.3 The Master Painters Institute (MPI)

.1 Architectural Painting Specification Manual - current edition.

.1 MPI #26, Primer, Galvanized Metal, Cementitious.

.4 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards

.1 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for metal framing and include product characteristics, performance criteria, physical size, finish and limitations.

1.3 QUALITY ASSURANCE

.1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.

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

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with manufacturer's written instructions.

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

.3 Storage and Handling Requirements:

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

.2 Store and protect metal framing from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

.1 Non-load bearing channel stud framing: to ASTM C645, 92 mm stud size, roll formed from 0.91 mm thickness hot dipped zinc-coated (galvanized) steel sheet in accordance with ASTM A653, Z180, for screw attachment of gypsum board.

.1 Knock-out service holes at 460 mm centres.

.2 Floor and ceiling tracks: to ASTM C645, in widths to suit stud sizes, and as follows:

.1 Slotted Deflection Track for Fire Separations: Premanufactured slotted top runner with 63 mm down standing legs and having 6 mm wide x 38 mm high slots spaced at 25 mm on centre along length of runner; tested and certified for use in fire rated wall construction.

.2 Double Runner Deflection Track: Outside runner using 50 mm flanges; inner runner 33 mm; maintaining 25 mm minimum deflection space.

.3 Deep Leg Deflection Track: Top runner having 50 mm down standing legs; maintaining 13 mm minimum deflection space.

.4 Base Runner: Bottom track with 33 mm upstanding legs.

.3 Non-load bearing truss stud framing system: to consist of:

.1 Studs: 92 mm size; truss-type bent rod web with double rod chords ; welded together at contact points.

.1 Make rod of minimum 4.5 mm diameter cold drawn steel wire having tensile strength of 620 MPa.

.2 Design studs for clip attachment of gypsum lath or wire tying of metal lath.

.2 Floor track: snap-in type formed to hold studs securely in place at 50 mm intervals; fabricated from 0.5 mm thick steel sheet; size to suit studs.

.3 Ceiling track: channel shaped track for use with stud shoes and 1.2 mm diameter double wire ties; size to suit studs.

.4 After fabrication apply one shop coat of MPI #26 primer to steel surfaces.

.1 Descale and clean surfaces before painting.

.4 Furring Channels: Commercial steel sheet in accordance with ASTM A653, Z180, hot dipped zinc-coated (galvanized), as follows:

.1 Hat Shaped, Rigid Furring Channels: ASTM C645, 0.75 mm thickness x 22 mm deep.

.2 Resilient Furring Channels: 0.46 mm thickness x 13 mm deep members designed to reduce sound transmission having asymmetrical face attached to single flange by a slotted leg (web).

.5 Acoustical sealant: in accordance with Section 07 92 00 - Joint Sealants.

.6 Sealants: VOC limit 30 g/L maximum to SCAQMD Rule 1168.

.7 Insulating strip: rubberized, moisture resistant 3 mm thick cork foam strip, 12 mm wide, with self sticking adhesive on one face, lengths as required.

.8 Shaft Wall Framing: 102mm CH studs

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for non-structural metal framing application in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Consultant.

.2 Inform Consultant of unacceptable conditions immediately upon discovery.

.3 Proceed with installation after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.

3.2 ERECTION

.1 Erect partitions in accordance with framing requirements of ASTM C754.

.2 Align partition tracks at floor and ceiling and secure at 600 mm on centre maximum.

.3 Install damp proof course under stud shoe tracks of partitions on slabs on grade.

.4 Place studs vertically at 400 mm on centre and not more than 50 mm from abutting walls, and at each side of openings and corners.

.1 Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.

.5 Erect metal studding to tolerance of 1:1000.

.6 Attach studs to ceiling track using pop rivets.

.7 Co-ordinate simultaneous erection of studs with installation of service lines. Align web openings when erecting studs.

.8 Co-ordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other Sections.

.9 Provide two studs extending from floor to ceiling at each side of openings wider than stud centres specified.

.1 Secure studs together, 50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.

.10 Install heavy gauge single jamb studs at openings.

.11 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs.

.1 Secure track to studs at each end, in accordance with manufacturer's instructions.

.2 Install intermediate studs above and below openings in same manner and spacing as wall studs.

.12 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.

.13 Provide 40 mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.

.14 Install steel studs or furring channel between studs for attaching electrical and other boxes.

.15 Extend partitions to ceiling height except where noted otherwise on drawings.

.16 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs.

.1 Use 50 mm leg ceiling tracks. Use double track slip joint as indicated.

.17 Install continuous insulating strips to isolate studs from uninsulated surfaces.

.18 Install two continuous beads of acoustical sealant under studs and tracks around perimeter of sound control partitions.

3.3 CLEANING

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

.1 Leave Work area clean at end of each day.

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

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

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 PROTECTION

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

.2 Repair damage to adjacent materials caused by non-structural metal framing application.

END OF SECTION

Section 09 30 13
Ceramic Tiling

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 06 40 00 Architectural Woodwork

.2 Section 09 21 16 Gypsum Board Assemblies.

1.2 REFERENCE STANDARDS

.1 American National Standards Institute (ANSI)/Ceramic Tile Institute (CTI)

.1 ANSI A108.1-99, Specification for the Installation of Ceramic Tile (Includes ANSI A108.1A-C, 108.4-.13, A118.1-.10, ANSI A136.1).

.2 CTI A118.3-92, Specification for Chemical Resistant, Water Cleanable Tile Setting and Grouting Epoxy and Water Cleanable Tile Setting Epoxy Adhesive (included in ANSI A108.1).

.3 CTI A118.4-92, Specification for Latex Cement Mortar (included in ANSI A108.1).

.4 CTI A118.5-92, Specification for Chemical Resistant Furan Resin Mortars and Grouts for Tile Installation (included in ANSI A108.1).

.5 CTI A118.6-92, Specification for Ceramic Tile Grouts (included in ANSI A108.1).

.2 American Society for Testing and Materials International (ASTM)

.1 ASTM C144-04, Specification for Aggregate for Masonry Mortar.

.2 ASTM C207-06, Specification for Hydrated Lime for Masonry Purposes.

.3 ASTM C847-06, Specification for Metal Lath.

.4 ASTM C979-05, Specification for Pigments for Integrally Coloured Concrete.

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.34-M86 (R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

.2 CGSB 71-GP-22M-78 (AMEND.), Adhesive, Organic, for Installation of Ceramic Wall Tile.

.3 CAN/CGSB-75.1-M88, Tile, Ceramic.

.4 CAN/CGSB-25.20-95, Surface Sealer for Floors.

.4 CSA Group (CSA)

.1 CSA A123.3-05, Asphalt Saturated Organic Roofing Felt.

.2 CAN/CSA-A3000-03 (R2006), Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

.5 South Coast Air Quality Management District (SCAQMD), California State

.1 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Provide product data in accordance with Section 01 33 00 - Submittal Procedures.

.1 Include manufacturer's information on:

.1 Ceramic tile, marked to show each type, size, and shape required.

.2 Chemical resistant mortar and grout (Epoxy and Furan).

.3 Cementitious backer unit.

.4 Dry-set cement mortar and grout.

.5 Divider strip.

.6 Elastomeric membrane and bond coat.

.7 Reinforcing tape.

.8 Levelling compound.

.9 Latex cement mortar and grout.

.10 Commercial cement grout.

.11 Organic adhesive.

.12 Slip resistant tile.

.13 Waterproofing isolation membrane.

.14 Fasteners.

.3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.

.1 Wall tile: submit duplicate, full size tile of each colour, texture, size, and pattern of tile.

.2 Trim shapes, each type, colour, and size.

1.4 QUALITY ASSURANCE

.1 Quality Assurance Submittals:

.1 Manufacturer's Instructions: manufacturer's installation instructions.

.2 Manufacturer's Field Reports: manufacturer's field reports specified.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Packing, shipping, handling and unloading:

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

1.6 AMBIENT CONDITIONS

.1 Maintain air temperature and structural base temperature at ceramic tile installation area above 12 degrees C for 48 hours before, during, and 48 hours after, installation.

.2 Do not install tiles at temperatures less than 12 degrees C or above 38 degrees C.

.3 Do not apply epoxy mortar and grouts at temperatures below 15 degrees C or above 25 degrees C.

1.7 MAINTENANCE

.1 Extra Materials:

.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide minimum 2% of each type and colour of tile required for project for maintenance use. Store where directed.

.3 Maintenance material same production run as installed material.

Part 2 Products

2.1 WALL TILE

.1 CER1
Supplier: Daltile
Collection: ColorStory
Colour: Ice White
Size: 4"x16"
Installation: Horizontal stack bond

.2 CER2
Supplier: Daltile
Collection: ColorMatch
Size: 4"x16"
Colour: Daisy
Installation: Horizontal Stack bond

.3 CER3
Supplier: Daltile
Collection: ColorMatch
Size: 4"x16"
Colour: Iceberg
Installation: Horizontal Stack bond

2.2 MORTAR AND ADHESIVE MATERIALS

.1 Cement: to CSA-A5, type 10.

.2 Sand: to ASTM C144, passing 16 mesh.

.3 Hydrated lime: to ASTM C207, Type SA.

.4 Latex additive: formulated for use in cement mortar and thin set bond coat.

.5 Water: potable and free of minerals and chemicals which are detrimental to mortar and grout mixes.

2.3 BOND COAT

.1 Dry set cement mortar: to ANSI A108.1.

.2 Organic adhesive: to ANSI A136.1.

.1 Maximum VOC limit 65 g/L to SCAQMD Rule 1168.

.3 Latex Cement mortar: to ANSI A108.1, two-component universal dry-set mortar.

.4 Epoxy bond coat: non-toxic, non-flammable, non-hazardous during storage, mixing, application, and when cured. To produce shock and chemical resistant mortars having the following physical characteristics:

.1 Compressive Strength: 246 kg/cm^2.

.2 Bond Strength: 53 kg/cm^2.

.3 Water Absorption: 4.0% Max.

.4 Ozone Resistance, 200 hours @ 200 ppm: no loss of strength.

.5 Smoke Contribution Factor: 0.

.6 Flame Contribution Factor: 0.

.7 Finished mortar and grout to be resistant to urine, dilute acid, dilute alkali, sugar, brine and food waste products, petroleum distillates, oil and aromatic solvents.

.8 Bond Coat: maximum VOC limit 65 g/L to SCAQMD Rule 1168.

.5 Chemical-Resistant Bond Coat:

.1 Epoxy Resin Type: CTI A118.3.

.2 Furan Resin Type: CTI A118.5.

.3 Bond Coat: maximum VOC limit 65 g/L to SCAQMD Rule 1168.

2.4 GROUT

.1 Colouring Pigments:

.1 Pure mineral pigments, limeproof and nonfading, complying with ASTM C979.

.2 Colouring pigments to be added to grout by manufacturer.

.3 Job coloured grout are not acceptable.

.4 Use in Commercial Cement Grout, Dry-Set Grout, and Latex Cement Grout.

.2 Cement Grout: to ANSI A108.1.

.1 Use one part white cement to one part white sand passing a number 30 screen.

.3 Commercial Cement Grout: to CTI A118.6.

.4 Dry-Set Grout: to CTI A118.6.

.5 Latex Cement Grout: to ANSI A108.1, fast curing, high early strength, polymer-modified, stain resistant, sanded mix for floors, unsanded mix for walls and floors with polished tiles commercial tile grout.

.6 Chemical-Resistant Grout:

.1 Epoxy grout: to ANSI A108.1, having quality, colour and characteristics to match epoxy bond coat. Adhesive and grout by same manufacturer.

.2 Furan grout: to CTI A118.5.

2.5 ACCESSORIES

.1 Reinforcing mesh: 50 x 50 x 1.6 x 1.6 mm galvanized steel wire mesh, welded fabric design, in flat sheets.

.2 Divider strips:

.1 For transitions between materials and at corners/edges on all wall applications always use a flush anodized aluminum metal edging similar to Schluter Schiene. Exact model number to be determined by the contractor based on site conditions and height differential and to be approved by architect prior to installation.

.3 Cleavage plane: polyethylene film to CGSB 51-34.

.4 Metal lath: to ASTM C847 galvanized finish, 10 mm rib at 2.17 kg/m^2.

.5 Transition Strips: purpose made metal extrusion; anodized aluminum type.

.6 Reducer Strips: purpose made metal extrusion; anodized aluminum type; maximum slope of 1:2.

.7 Prefabricated Movement Joints: purpose made, having a Shore A Hardness not less than 60 and elasticity of plus or minus 40 percent when used in accordance to TTMAC Detail 301EJ.

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

.1 Sealants: maximum VOC limit 250 g/L to SCAQMD Rule 1168.

2.6 MIXES

.1 Cement:

.1 Scratch coat: 1 part cement, 1/5 to 1/2 parts hydrated lime to suit job conditions, 4 parts sand, 1 part water, and latex additive where required. Adjust water volume depending on water content of sand.

.2 Slurry bond coat: cement and water mixed to creamy paste. Latex additive may be included.

.3 Mortar bed for walls and ceilings: 1 part cement, 1/5 to 1/2 parts hydrated lime to suit job conditions, 4 parts sand and 1 part water. Adjust water volume depending on water content of sand. Latex additive may be included.

.4 Levelling coat: 1 part cement, 4 parts sand, minimum 1/10 part latex additive, 1 part water including latex additive.

.5 Bond or setting coat: 1 part cement, 1/3 part hydrated lime, 1 part water.

.6 Measure mortar ingredients by volume.

.2 Dry set mortar: mix to manufacturer's instructions.

.3 Organic adhesive: pre-mixed.

.1 Adhesives: maximum VOC limit 65 g/L to SCAQMD Rule 1168.

.4 Mix bond and levelling coats, and grout to manufacturer's instructions.

.5 Adjust water volumes to suit water content of sand.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 WORKMANSHIP

.1 Do tile work in accordance with TTMAC Tile Installation Manual 2006/2007, "Ceramic Tile", except where specified otherwise.

.2 Apply tile or backing coats to clean and sound surfaces.

.3 Fit tile around corners, fitments, fixtures, drains and other built-in objects. Maintain uniform joint appearance. Cut edges smooth and even. Do not split tiles.

.4 Maximum surface tolerance 1:800.

.5 Make joints between tile uniform and approximately 1.5 mm wide, plumb, straight, true, even and flush with adjacent tile. Ensure sheet layout not visible after installation. Align patterns.

.6 Lay out tiles so perimeter tiles are minimum 1/2 size.

.7 Sound tiles after setting and replace hollow-sounding units to obtain full bond.

.8 Install divider strips at junction of tile flooring and dissimilar materials.

.9 Allow minimum 24 hours after installation of tiles, before grouting.

.10 Clean installed tile surfaces after installation and grouting cured.

.11 Make control joints where indicated. Make joint width same as tile joints. Fill control joints with sealant in accordance with Section 07 92 00 - Joint Sealants. Keep building expansion joints free of mortar and grout.

3.3 WATERPROOFING

.1 Apply in accordance with manufacturer's instructions.

.2 Apply Schluter-Kerdi waterproofing membrane system along floors and full height of shower walls. In all corridor areas, the waterproofing membrane is to be applied along the floor and on the walls up to 900mm AFF. Apply system as per manufacturer's instructions complete with the following:

.1

- Thin-set mortar
- Kerdi-Kereck-F and Kerdi-Band preformed corners
- Kerdi-Seal-PS and Kerdi-Seal-MV at all pipe and valve penetrations
- Kerdi-Fix bonding and sealing compound

.3 All existing drains are to remain. Tie new waterproofing membrane to existing drains.

3.4 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.

3.5 CLEANING

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

.2 Waste Management: Separate waste material for reuse or recycling in accordance with section 01 74 19 - Waste Management and Disposal.

END OF SECTION

Section 09 51 13
Acoustical Panel Ceilings

Part 1 General

1.1 REFERENCE STANDARDS

.1 ASTM International

.1 ASTM C423-09, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method

.2 ASTM E580/E580M-14 Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions.

.3 ASTM C635/C635M-13a, Standard Specifications for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.

.4 ASTM C636/C636M-08, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.

.5 ASTM E1264-14, Standard Classification for Acoustical Ceiling Products.

.6 ASTM E1414/E1414M 11ae1 Standard Test Method for Sound Attenuation between Rooms Sharing a Common Ceiling Plenum.

.7 ASTM E1477-98a(2013), Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.

.8 ASTM F1667-15 Standard Specification for Driven Fasteners: Nails, Spikes and Staples.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet, for Use in Building Construction and Amendment No. 1 1988.

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

.1 Material Safety Data Sheets (SDS).

.4 Underwriter's Laboratories of Canada (ULC)

.1 CAN/ULC-S102-2003, Surface Burning Characteristics of Building Materials and Assemblies.

1.2 COORDINATION

.1 Do not begin erection of ceiling suspension system until work above ceiling has been inspected by Consultant.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for acoustical suspension, acoustic panels, acoustic tiles, and system accessories. Include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:

.1 Submit reflected ceiling plans for special grid patterns in the Active Classrooms.

.2 Indicate lay-out, insert and hanger spacing and fastening details, splicing method for main and cross runners, change in level details.

.4 Samples:

.1 Submit duplicate 150 mm x 100 mm samples of each type of acoustical unit.

1.4 CLOSEOUT SUBMITTALS

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

.2 Submit operation and maintenance data for acoustical suspension for incorporation into manual.

1.5 MAINTENANCE MATERIALS

.1 Provide extra acoustical units in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide acoustical units amounting to 2 % of gross ceiling area for each pattern and type of acoustical panel or tile, suspension system and trim required for project, minimum 1 complete factory-sealed package of each.

.3 Ensure extra materials are from same production run as installed materials.

.4 Deliver extra materials for each type of acoustical unit in original unopened packages clearly identified, including colour and texture.

.5 Deliver to Owner, upon completion of the work of this section.

1.6 CERTIFICATIONS

.1 Fire-resistance rated suspension system: certified by a Canadian Certification Organization accredited by Standards Council of Canada.

1.7 MOCK-UPS

.1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.

.2 Construct mock-up where directed.

.3 Allow 24 hours for inspection of mock-up by Consultant before proceeding with ceiling work.

.4 When accepted, mock-up will demonstrate minimum standard for this work. Mock-up may remain as part of the finished work.

1.8 DELIVERY, STORAGE AND HANDLING

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

.2 Deliver, store and handle materials in accordance with manufacturers recommendations.

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

.4 Storage and Handling Requirements:

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

.2 Store and protect acoustical ceiling tiles suspension grid components from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

.4 Store extra materials required for maintenance, where directed by Owner.

1.9 ENVIRONMENTAL REQUIREMENTS

.1 Permit wet work to dry before beginning to install.

.2 Maintain uniform minimum temperature of 15 degrees C and humidity of 20 % before and during installation.40

.3 Store materials in work area 48 hours prior to installation.

Part 2 Products

2.1 MATERIALS

.1 ACT1: Acoustic ceiling tile in Kithcen
Maunfacturer: Armstrong
Tile: Calla Health Health Zone
Size: 24"x48"
Colour: White
Edge Profile: Square Lay-in
Suspension Grid:Prelude XL 15/16
Grid Colour: White

.2 ACT2: Acoustic ceiling tile
Maunfacturer: Armstrong
Tile: Optima lay-in
Size: 24"x48"
Colour: White
Edge Profile: Square Lay-in
Suspension Grid:Prelude XL 15/16
Grid colour: White

Part 3 Execution

3.1 EXAMINATION

.1 Verify conditions of substrates previously installed under other Sections or Contracts are acceptable for acoustical ceiling tile and track installation in accordance with manufacturer's written instructions.

.1 Inform Consultant of unacceptable conditions immediately upon discovery.

.2 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from consultant.

3.2 INTERFACE WITH OTHER WORK

.1 Co-ordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, sprinkler heads, to be built into acoustical ceiling components.

3.3 SUSPENSION SYSTEM INSTALLATION

.1 Comply with manufacturer's written installation instructions and recommendations, including product technical bulletins, product carton installation instructions, and data sheets.

.2 Install suspension system in accordance with accepted shop drawings, Certification Organizations tested design requirements and ASTM C636/C636M except where specified otherwise.

.3 Lay out system according to reflected ceiling plan.

.4 Finished ceiling system to be square with adjoining walls and level within 1:1000.

.5 Secure hangers to overhead structure as per manufacturer's directions

.6 Install hangers spaced at maximum 1200 mm centres and within 150 mm from ends of main tees.

.7 Ensure suspension system is coordinated with location of related components. Provide carrying channels as necessary to bridge at unavoidable interference between suspension system and other work above ceiling.

.8 Install wall moulding to provide correct ceiling height.

.9 Completed suspension system to support super-imposed loads, such as lighting fixtures ,grilles, diffusers and speakers.

.10 Support at diffusers and light fixtures with additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.

.11 Attach cross member to main runner to provide rigid assembly.

.12 Frame at openings for light fixtures, air diffusers, speakers and at changes in ceiling heights.

.13 Install perimeter trim at floating installations securely anchored to suspension system, in accurate alignment with adjacent assemblies. Install curved trim members in smooth curves to radius indicated.

3.4 ACOUSTICAL CEILING PANEL INSTALLATION

.1 Install lay-in acoustical panels in ceiling suspension system in accordance with manufacturer’s instructions and as indicated.

.2 Install fibrous acoustical media and spacers over entire area above suspended metal panels.

3.5 SITE QUALITY CONTROL

.1 Arrange for periodic site visits by design professional responsible for delegated ceiling design work to review installed work for conformity to design.

.2 Arrange for periodic site visits by manufacturer’s representative to review installed work for conformity to manufacturer’s installation instructions and recommendations.

.3 Submit written site reports by designer to Consultant within 3 days of visit.

3.6 CLEANING

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

.1 Leave Work area clean at end of each day.

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

.1 Touch up scratches, abrasions, voids and other defects in painted surfaces.

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

3.7 PROTECTION

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

.2 Repair damage to adjacent materials caused by acoustical suspension installation.

END OF SECTION

Section 09 65 16.23
Resilient Vinyl Sheet Flooring

Part 1 General

1.1 SUMMARY

.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section

.2 Related Documents
Section Includes: This section includes labor, materials and other services necessary to complete resilient safety sheet vinyl flooring systems and accessories work. Conform with requirements of all Sections of Division 1, General Requirements, as it applies to the work of this Section, including but not limited to the following:

.1 Coordination of start date and timeframe.

.2 Coordination of substrate preparation.

.3 Coordination of moisture and pH testing.

.4 Coordination with moisture mitigation if required.

.5 Coordination of proper plumbing fixtures for connections with flooring.

.6 Floor installation and heat welding of all seams, horizontal and vertical.

.3 Related Section

.1 Section 014500 – Testing and Inspection Services

.2 Section 024100 - Selective Demolition

.3 Section 033000 - Cast-in-Place Concrete: Concrete finishing.

.4 Section 061000 - Rough Carpentry: Plywood floor sheathing.

.5 Section 072600 – Underslab Vapor Retarders

.6 Division 15 – Plumbing & HVAC.

.7 Division 22 - Plumbing

1.2 REFERENCES

.1 **ASTM D 2047**, Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.

.2 **ASTM E 648/NFPA 253**, Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.

.3 **ASTM E662**, Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.

.4 **ASTM F710**, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.

.5 **ASTM F 970**, Standard Test Method for Static Load Limit.

.6 **ASTM F1482**, Standard Guide to Wood Underlayment Products Available for Use Under Resilient Flooring.

.7 **ASTM F1303**, Standard Specification for Sheet Vinyl Floor Covering with Backing.

.8 **ASTM F2170**, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

.9 **(RFCI)** Resilient Floor Covering Institute
RFCI Standard Slab Moisture Test Method (Calcium Chloride Method) as a supplementary test method to ASTM F2170.

.10 **Underwriters Laboratories of Canada (ULC)**
CAN/ULC-S102.2, Surface Burning Characteristics of Flooring, Floor Covering and Miscellaneous Materials and Assemblies

.11 **ASTM F 3010** Standard Practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings

.12 **DIN 51130** Slip Resistance Test

.13 **ACI 302.2R-06** Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials

.14 **RFCI** Recommended Work Practices for Removal of Resilient Floor Covering

.15 **ANSI/ICPA SS-1 2001** Performance standard for Solid Surface Materials

.16 **IAPMO PS 106-2015e1** Tileable Shower Receptors and Shower Kits

.17 **2021, 2018, 2015, 2012 and 2009 International Plumbing Code (IPC)**

.18 **2021, 2018, 2015, 2012 and 2009 International Residential Code (IRC)**

.19 **2021, 2018, 2015, 2012 and 2009 Uniform Plumbing Code (UPC)**

.20 **2017 Uniform Illustrated Plumbing Code – India (UIPC-I)**

.21 **2020, 2015, 2010 and 2005 National Plumbing Code of Canada**

1.3 SUBMITTALS

.1 Product Data: Submit manufacturer’s current printed product literature, specifications, installation instructions, and field reports in accordance with Section 01330 - Submittal Procedures.

.2 Shop Drawings: Submit shop drawings to indicate materials, details, and accessories in accordance with Section 01330 - Submittal Procedures including but limited to the following:

.1 Submit a cut diagram indicating seam locations and roll direction. Use mitered seam layouts for corners when changing directions 180 degrees (e.g. when running material down corridors which bisect at a right angle), unless approved otherwise.

.3 Samples: Submit duplicate 8" x 10” (203 mm x 254 mm) sample pieces of sheet material, 6" (152 mm) long [gulley edge] [cap strip] [joint cover strip] [cove former] in accordance with Section 01330 - Submittal Procedures.

.4 Closeout Submittals: Submit the following:

.1 Operation and Maintenance Data: Submit manufacturer’s operation and maintenance data for incorporation into manual specified in accordance with

Section 01780 – Closeout Submittals. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.

1.4 QUALITY ASSURANCE

.1 Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

.1 Training: Installer who has attended an Altro flooring installation training clinic or who has successfully installed Altro in three previous kitchens.

.2 Awarded flooring contractor must use in-house installers.

.3 Awarded flooring contractor must be able to provide recent Altro references with contacts.

.2 Mock-ups: Install at project site a job mock-up using acceptable products and manufacturer approved installation methods, including concrete substrate testing.

.1 Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.

.2 Incorporation: Mock-up may be incorporated into final construction upon Owner's approval.

.3 Pre-installation Meeting: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, manufacturer's warranty requirements, and installer qualifications.

.4 Bond Test: Install multiple bond tests using 3' x 3' pieces of material adhered with the appropriate adhesive to verify quality of adhesion. Remove half of each piece after 24 hours, then the other half after 48 hours. To help assess resistance to indentation, place end user equipment onto a sample for 72 hours. Document all results.

.5 Regulatory Requirements: Provide slip resistant sheet vinyl safety flooring in compliance with the following:

.1 Americans with Disabilities Act Architectural Guidelines (ADAAG)

.2 Occupational Safety and Health Administration (OSHA)

1.5 SITE CONDITIONS

.1 Temperature Requirements: If storage temperature is below 68F (20C) or the floor temperature is below 65F (18C), the Altro Classic 25 flooring product must be moved to a warmer place and allowed to reach this temperature before unrolling or installation. For further information, refer to current Altro Installation Practices and Quick Facts.

.2 Maintain air temperature and structural base temperature at flooring installation area between 68F (20C) and 80F (26C) for 72 hours before, during and 24 hours after installation.

.3 Maintain the ambient relative humidity between 40 percent and 60 percent during installation.

.4 Allow sufficient time for proper preparation, installation and curing.

.5 Close spaces to traffic during resilient flooring installation until the installer is satisfied the adhesive has set.

.6 Verify permanent HVAC is operational. If temporary heat is required, use electric or indirect heat sources**. Do not use kerosene or propane in direct contact with the ambient air.**

.7 Verify other finishing operations, including painting, have been completed.

.8 Where demountable partitions and other items are indicated for installation on top of sheet resilient flooring material, install flooring material before these items are to be installed.

.9 Coordinate with plumbing subcontractor that approved surface membrane clamping drainage connections will be used, including but not limited to, surface clamping round drains, surface clamping trench drains, surface clamping floor sinks, surface clamping grease traps, or use of Altro Gulley Edge/Angle, or employment of Altro's Modified Surface Clamping Drain System if existing drains cannot be removed.

.10 Conform to all pertinent ASTM, ACI, plumbing and Altro Standards listed in, but not limited to, this specification.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Ordering: Comply with manufacturer’s ordering instructions and lead time requirements to avoid construction delays.

.2 Deliver, store and handle resilient flooring materials in accordance with Section 01610 - Basic Material Requirements.

.3 Deliver materials in manufacturer’s original, unopened, undamaged containers with identification labels intact.

.4 Store materials protected from exposure to harmful weather conditions, at temperature and humidity conditions recommended by manufacturer.

.5 Store rolls in dry locations. Stand rolls on end. Protect and secure rolls from falling.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Deposit all packaging materials in an appropriate container on site for recycling or reuse.

.2 Avoid using landfill waste disposal procedures when recycling facilities are available.

.3 Keep all discarded packaging away from children.

1.8 WARRANTY

.1 Warranty period for Altro Classic 25 shall be 12 years commencing on date of substantial completion.

.2 A Labour Warranty period of 2 years to be supplied by the Sub-Contractor.

Part 2 Products

2.1 HEAVY DUTY SAFETY SHEET FLOORING

.1 **Heavy Duty Safety Sheet Manufacturer: Classic 25 by Altro**

.1 CANADA. : 6221 Kennedy Rd, Unit 1, Mississauga ON, L5T 2S8
Toll Free: 800.565.4658 Tel: 905.564.1330 Fax: 905.564.0750

.2 **Acceptable material**: Altro Classic 25; ASTM D2047 .9 Dry, 1.0 Wet; Thickness: 2.5 mm (0.10"); Roll Width: 2 m (6' 7"); Roll Length: 20 m (66'); Roll Weight: 125 kg (275 lbs).

Minimum operating temperatures should not drop below -20ºC (-4ºF).
COLOUR: X2539R11 Pewter Grey

2.2 ACCESSORIES

.1 Including but not limited to: **Vinyl welding rod**: Acceptable material:

.1 Altro Weld Rod

.2 **Cove former**: Acceptable material, sized to suit application:

.1 Altro Cove former [20R - 24 mm (1") radius]

.3 **Gulley edge**: Acceptable material, vinyl, sized to suit application:

.1 Altro Gulley Edge [GA 35/25] [GE 35RE] [GE 25RE].

.4 .**Cap strip**: Acceptable material, sized to suit application, [stainless steel]:

.1 Altro Cap Strip [C4] [C7] [C8] [C11].

.5 **Subfloor Filler and Leveler**: Use only grey Portland cement-based “moisture tolerant” underlayments, and patching compounds. Use for filling cracks, holes or leveling. White gypsum materials are not acceptable.

.6 **Metal edge strips**:

.1 Aluminum extruded, smooth, [mill finish]

.7 **Adhesives**

.1 **Leveling and Patching Compounds**:Latex-modified, moisture resistant, silicate free, Portland cement based or blended hydraulic-cement-based formulation.

.2 .**Adhesives**

.1 Altrofix 30- 2-part polyurethane

.2 Altrofix 31- 2-part polyurethane fast set adhesive (for small areas/repairs only)

.3 MP600 – caulking adhesive for use with Altro Gulley Edge

.8 **Caulking:** AltroMastic 100 caulking compound (colour match flooring) for use where Altro floors abuts edges, skirtings, wall surfaces or where the flooring is cut around pipes and door frames.

.9 **Flash Cove Corner Guard**: available in 3” height and 5” height

.10 **Stainless Steel Deflector Plate**: for use under stove equipment not fitted with such; 22”x22”

Part 3 Execution

3.1 EXAMINATION

.1 Compliance: Comply with manufacturer’s product data, including product technical bulletins, product catalog, installation instructions found at www.altrofloors.com.

.2 Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer’s instructions.

3.2 PREPARATION

.1 Remove substrate paint, coatings and other substances that are incompatible with adhesives or contain soap, wax, oil, solvents, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.

.2 Verify permanent HVAC is operational. If temporary heat is required, use electric or indirect heat sources. **Do not use kerosene or propane in direct contact with the ambient air**.

.3 Verify other finishing operations, including painting, have been completed.

.4 Permanent and non-permanent markers, pens, crayons, and paint shall not be used to write on the back of the flooring material or used to mark the substrate as they could bleed through and stain the flooring material.

.5 Safety flooring shall be installed over subfloors conforming to ASTM F710 for concrete and other monolithic floors or ASTM F1482 for wood subfloors.

.6 Always conduct moisture tests per ASTM F-2170 on all concrete slabs regardless of age or grade level. ASTM F-2170 Internal Relative Humidity (IRH) test results must not exceed 90%. Alkalinity Testing per ASTM F710 with an acceptable range of 7-9.9 pH.

.7 Do not proceed with work until results of moisture condition tests are acceptable.

.8 When patching, a ***moisture tolerant*** patching compound must always be used

.9 Contingency for High Moisture Readings in Concrete:

.1 If at the time of installation the moisture readings are in excess of Altro's recommendations, the General Contractor shall employ a means of Moisture Mitigation. This includes, but is not limited to, the following methods:

.1 Application of a Moisture Reduction Barrier (MRB)

.2 Temporary use of dehumidification equipment.

.3 Postponing of the flooring installation start time.

.4 A budget should be provided to the general contractor for use of an MRB

.10 Wood Subfloors:Confirm wood subfloors meet the following requirements.

.1 Must conform to ASTM F-1482 Standard Guide to Wood Substrates.

.2 Wood subfloors shall have a minimum 18 inch (45.7 cm) of cross-ventilated space beneath the bottom of the joist. The floor must be rigid, free of movement.

.3 Single wood and tongue and groove subfloors shall be covered with a minimum 1/4 inch (6.4 mm), 3/8 inch (9mm) or 1/2 inch (12.7 mm) APA approved underlayment plywood as follows.

.4 Use 1/4 inch (6.4 mm) thick underlayment panels for boards with a face width of 3 inches (76 mm) or less.

.5 Use 1/2 inch (12.7 mm) thick underlayment panels for boards with a face width wider than 3 inches (76 mm).

.6 .Do not install directly on OSB (Oriented Strand Board), particleboard, chipboard, luan or composite type panels unless specifically designed and approved by the panel manufacturer for use as a resilient flooring underlayment.

3.3 INSTALLATION

.1 Installation: Install Altro flooring in accordance with the current posted Altro Installation Practices at www.altrofloors.com, Technical, Installation Guides. All Seams shall be heat welded with Altro Weldrod™ only. Failure to install Altro Classic 25 flooring in accordance with recommended procedures will void the Altro Limited Product Warranty.

.2 Detailing Guide for Commercial Kitchens: can be found on our website at www.altrofloors.com, Technical, Installation Guides. The installation of Altro Classic 25 in a wet environment is a system installation. All circular drain covers must be modified in the field or specified by the architect to be Surface-Membrane Clamping Style Drains and installed per the instructions in the Altro Flooring installation guide. The Gulley Edge/Angle, AltroMastic, Cove Former, and Cap Strip Accessories are necessary accessories for a water-tight and manufacturer-compliant installation.

.3 Drains: Fit Altro Safety Flooring and mechanically fasten to drain outlets to ensure a permanent, watertight installation. The floor drain must have a surface membrane clamp and shall comply with ASME A112.18.2/CSA B125.2 as applicable.

.1 **New Round Drains**: Install round **flash clamping ring type drains** to accommodate Altro safety flooring. Install drains to fit flush with surrounding floor surface**. Please refer to Altro's current Installation Guide for approved drain manufacturers and styles,** www.altrofloors.com, Technical, Installation Guides. If the drain body specified has weep holes that they be sealed so as not to allow moisture from inside the drain itself to leak back up and out of the weep holes. **If Surface-Clamping Style Drains are not utilized, the drain covers must be modified to mechanically fasten flooring to drain outlets as per Altro's guidelines to drain modifications.**

.2 **Existing Drains:** When existing drains are to be used, provide mechanically fastened stainless steel drain rings over all-round drain outlets as per Altro's guidelines to drain modifications. Fit rings over slip resistant sheet vinyl and permit inside diameter that will allow clean-out plate to be removed after installation. Drill into concrete to accommodate lead or plastic anchors. Screw drain rings to create a tight seal with beveled head stainless steel screws.

.3 **Square and Rectangular Drains and Floor Sinks**: Install Altro Gully Edge GE25RE or GE35RE around perimeter of drain which has been set in concrete in accordance with Altro Installation Guide. **Do not use Altro Gully Edge around drains set in wood floors**. Provide stainless steel strips, mechanically fastened with stainless steel screws. Use stainless steel strips in other areas where it is not practical to use Altro Gully Edge.

.4 Coved Installation: Where Altro flooring is coved up wall surfaces and other abutments, installation shall be in accordance with Altro Installation Practices using the following accessories:

.1 At standard wall finishes: Use Altro C7 vinyl cap strip to accommodate sheet vinyl to a height as indicated; adhere with contact tape.

.2 At ceramic tile, Altro Puraguard wall cladding or FRP paneling: Use Altro C8 Vinyl Cap Tile Strip or C4 cap, respectively.

.3 When coving up the wall; at juncture of vertical and horizontal surfaces: Use Altro Vinyl Cove Former and install with contact tape.

.4 Top set cove base: Install in accordance with manufacturer's instructions.

3.4 CLEANING

.1 Cleaning: Remove non-staining temporary coverings and protection (reusable textured plastic sheeting) of adjacent work areas. Never use tapes on the surface on the finish flooring, Sharpies, pens, crayons or construction markers on either the finish flooring or the substrate.

.2 Repair or replace damaged installed products.

.3 Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance.

.4 Current recommended maintenance procedures can be found on the Altro website at www.altrofloors.com, Technical, Maintenance Guides, including the Illustrated Cleaning Guide.

.5 Sweep or vacuum all construction debris and dust first, then clean the flooring with AltroClean 44 /AltroClean 44 Plus using an auto scrubber.

.6 Cover and protect finished installation from damage from other trades using a non-staining, temporary floor protection system, such as reusable textured plastic sheeting.

.7 No traffic for 24 hours after installation, unless approved by Altro technical.

.8 No heavy traffic, rolling loads, or furniture placement for 72 hours after installation.

.9 Wait 72 hours after installation before performing initial cleaning. Start a regular maintenance program after the initial cleaning as recommended by manufacturer.

3.5 PROTECTION

.1 **Cover and protect finished installation from damage from other trades using a non-staining, temporary floor protection system, such as a reusable textured plastic sheeting**.

.2 Altro Classic 25 should be covered and protected from all other trades during construction with a suitable non-staining protective covering **without taping to the surface of the flooring.**

END OF SECTION

Section 09 65 19
Resilient Tile Flooring

Part 1 General

1.1 REFERENCE STANDARDS

.1 ASTM International

.1 ASTM F1066-04 (2010)e1, Standard Specification for Vinyl Composition Floor Tile.

.2 ASTM F1344-12e1, Standard Specification for Rubber Floor Tile.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-25.20-95, Surface Sealer for Floors.

.2 CAN/CGSB-25.21-95, Detergent-Resistant Floor Polish.

.3 South Coast Air Quality Management District (SCAQMD)

.1 SCAQMD Rule 1168-A2011, Adhesive and Sealant Applications.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for resilient tile flooring and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Samples:

.1 Submit duplicate tile in size specified, .

1.3 MAINTENANCE MATERIAL SUBMITTALS

.1 Extra Materials:

.1 Provide maintenance materials of resilient tile flooring, base and adhesive in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide 10 $m^2$of each colour, pattern and type flooring material required for this project for maintenance use.

.3 Extra materials from same production run as installed materials.

.4 Identify each container of floor tile and each container of adhesive.

.5 Deliver to Owner, upon completion of the work of this section.

.6 Store where directed by Owner.

1.4 DELIVERY, STORAGE AND HANDLING

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

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

.3 Storage and Handling Requirements:

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

.2 Store and protect specified materials from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

1.5 SITE CONDITIONS

.1 Ambient Conditions:

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

Part 2 Products

2.1 MATERIALS

.1 Vinyl Composition TIle.

.1 **VCT1**
Manufacturer: Armstrong
Colour: 51941 Polar White

.2 **VCT2A Stair Tread and Riser**

.1 Manufacturer: Johnsonite

.2 Product: Tread/Riser Visually Impaired VIHNTR

.3 Grit Tape Colour: Black

.4 Colour: TBD

.5 Finish: Hammered

.3 **VCT2B Tactile Warning Surface**

.1 Manufacturer: Johnsonite

.2 Product: Vinyl Tactile Warning surface

.3 Colourt: TBD

.4 **VCT2C Rubber Landing Tile**

.1 Manufacturer: Johnsonite

.2 Product: Rubber Landing tile for use with Vinyl Stair treads

.3 Colour: TBD

.4 Finish: Hammered

.5 **Nosting at Cafetorium 1139 Stage Stair**

.1 Manufacturer: KINESIK Engineered Products

.2 Product: RF7136 Flat Stair Nosing

.3 Contrasting Colour: Grey

.4 Aluminum Finish: Black

.6 Primers and adhesives: waterproof, recommended by flooring manufacturer for specific material on applicable substrate, above, at or below grade.

.1 Flooring adhesives:

.1 Adhesive: maximum VOC limit 50 g/L to SCAQMD Rule 1168.

.2 Cove base adhesives:

.1 Adhesive: maximum VOC limit 50 g/L to SCAQMD Rule 1168.

.7 Sub-floor filler and leveller: white premix latex requiring water only to produce cementitious paste as recommended by flooring manufacturer for use with their product.

.8 Metal edge strips: aluminum extruded, smooth, mill finish with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for resilient tile flooring installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Consultant.

.2 Inform Consultant of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.

3.2 INSPECTION

.1 Ensure concrete floors are dry, by using test methods recommended by tile manufacturer.

3.3 SUB-FLOOR TREATMENT

.1 Remove or treat old adhesives to prevent residual, old flooring adhesives from bleeding through to new flooring and/or interfering with the bonding of new adhesives.

.2 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.

.3 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.

.4 Prime to flooring manufacturer's printed instructions.

3.4 TILE APPLICATION

.1 Provide high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to outside. Do not let contaminated air recirculate through district or whole building air distribution system. Maintain extra ventilation for at least one month following building occupation.

.2 Apply adhesive uniformly using recommended trowel in accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.

.3 Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half tile width.

.4 Install flooring to ashlar/staggered pattern with continuous joints flowing with direction of mottle.

.5 As installation progresses, and after installation, roll flooring in 2 directions resilient tile with 45 kg minimum roller to ensure full adhesion.

.6 Cut tile and fit neatly around fixed objects.

.7 Install feature strips and floor markings where indicated. Fit joints tightly.

.8 Install flooring in pan type floor access covers. Maintain floor pattern.

.9 Continue flooring through areas to receive movable type partitions without interrupting floor pattern.

.10 Terminate flooring at centerline of door in openings where adjacent floor finish or colour is dissimilar.

.11 Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.5 BASE APPLICATION

.1 Lay out base to keep number of joints at minimum. Base joints at maximum length available or at internal or premoulded corners.

.2 Clean substrate and prime with one coat of adhesive.

.3 Apply adhesive to back of base.

.4 Set base against wall and floor surfaces tightly by using 3 kg hand roller.

.5 Install straight and level to variation of 1:1000.

.6 Scribe and fit to door frames and other obstructions. Use premoulded end pieces at flush door frames.

.7 Cope internal corners. Use premoulded corner units for right angle external corners. Use formed straight base material for external corners of other angles, minimum 300 mm each leg. Wrap around toeless base at external corners.

.8 Install toeless type base before installation of carpet on floors.

3.6 CLEANING

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

.1 Leave Work area clean at end of each day.

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

.1 Clean flooring base surfaces to flooring manufacturer's printed instructions.

.3 Remove excess adhesive from floor, base and wall surfaces without damage.

.4 Clean, seal and wax floor and base surface to flooring manufacturer's instructions. In carpeted areas clean, seal and wax base surface before carpet installation.

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

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.7 PROTECTION

.1 Protect new floors from time of final set of adhesive until final inspection.

.2 Prohibit traffic on floor for 48 hours after installation.

END OF SECTION

Section 09 72 00
Hygienic Vinyl Wall Covering

Part 1 General

1.1 SUBMITTALS FOR REVIEW

.1 Submit duplicate 300 x 300mm sample piece of wall covering material, along with sample of any accessories.

.2 Submit shop drawings to show layout, treatment at joints, and proposed treatment where wall cladding finishes up to door and window trims.

1.2 MAINTENANCE DATA

.1 Provide maintenance data for wall cladding, for incorporation into Operation and Maintenance Manual specified.

1.3 ENVIRONMENTAL REQUIREMENTS

.1 Install panels in temperature and humidity conditions approximating the operating environment of the finished room.

1.4 QUALIFICATIONS

.1 Installation contractor to have two years experience installing rigid PVC wall cladding.

Part 2 Products

2.1 MATERIALS

.1 Altro Whiterock Chameleon Wall Cladding: or approved equivalent

.1 Supply and install Altro Whiterock – Colour:

.1 HWP1: White

.2 HWP2: Whiterock Whiteboard W104/WB

.3 HWP3: Honeydew

.4 HWP4: Twilight

.5 HWP5: Flint

.6 HWP6: Breeze

.2 Extruded 3.0Mx1.22Mx2.0mm sheets

.3 By Altro Floor and Wall Systems
6221 Kennedy Road, Unit 1, Mississauga, ON, L5T 2S8
Contact: Arla Weiner, Phone: (905) 564-1330, Fax: (905) 564-0750

.2 Adhesive

.1 The adhesive for the Hygienic Vinyl Wall Covering is to be W157 one part acrylic and W39 two-partpolyurethane as per manufacturer's accepted method of installation.

.3 Accessories (Including but no limited to.)

.1 Thermoformed Corners 150mm x 150mm

.2 Extruded: 2.0mm x 3.0M length

.3 Joint Strip 3.0M length

.4 Altro cut tile strip 3.0M length

.5 #606 Edge cap strip

.6 Altro Welding Rod (matching)

.7 CSL-535 Mastic Sealant (matching)

Part 3 Execution

3.1 PREPARATION

.1 Ensure wall substrates are smooth and level to within 3mm (1/8") in 3M (10').

.2 Ensure concrete walls are dry, by using test methods recommended by wall-covering manufacturer, and exhibit negative alkalinity, carbonization, or dusting. Concrete sealers, hardeners, curing agents, and other treatments are
not recommended. Check moisture content does not exceed 2.5%. It shall be the responsibility of the owner, or his agent, to provide adequate moisture testing by an independent agency acceptable to the floor-covering manufacturer for products specified.

.3 Inspect and check existing wall tiles for soundness, and replace or fill any loose or defected tiles that have lost bond.

.4 Degrease existing tiles by acid etching, and allow to dry.

.5 Fair faced blockwork or brickwork must exhibit flush joints and be nub free.

.6 Scarify existing sound painted surfaces and test for adhesive compatibility.

.7 Remove existing surface paint.

.8 Remove existing wall tiles and line substrate with 3/8" (9mm) COFI exterior grade plywood fixed at no less than 16" (40cm) centres.

.9 Install drywall, minimum thickness 1/2" (13mm) fastened to studs or battens at centres not greater than 16" (40cm). Fill joints and sand smooth.

.10 Line walls with 3/8" (9mm) COFI exterior grade plywood fixed to studs or battens at centres no greater than 16" (40cm).

3.2 INSTALLATION

.1 Dry-fit sheet prior to fixing.

.2 Bevel leading edges of sheet prior to welding seams or fitting joint and cap strips.

.3 Apply adhesive to back of sheet uniformly using a 3/16" V notched trowel. Allow adhesive to dry tacky to the touch.

.4 Offer sheet to wall substrate. Roll sheet thoroughly with a wall roller to ensure full adhesion.

.5 Offer sheet to wall substrate allowing for a 1mm gap. Roll sheet thoroughly with a wall roller to ensure full adhesion.

.6 Offer sheet to wall substrate allowing for a 3mm gap. Roll sheet thoroughly with a wall roller to ensure full adhesion.

.7 Fix sheets by method of pin-fixing following procedures outlined by Altro Whiterock manufacturer.

.8 Cut Sheet neatly to accommodate pipes, electrical boxes etc., providing a 3mm gap for expansion.

.9 Fit sheets neatly at door and window trim providing a 3mm gap for expansion.

.10 Thermoform all inside and outside corners and specific shapes to fit building contours.

.11 Apply CSL-535 sealant to joint.

.12 Install joint strips to each sheet as installation progresses.

.13 Apply CSL-535 sealant to Altro cap tile.

.14 Install Altro cap tile to bottom edge of sheet.

.15 Heat weld all joints.

.16 Mask each side of joint and apply CSL-535 sealant. Remove excess sealant and remove masking immediately.

.17 Cap off top edge with No. 606 edge cap (matching).

.18 Provide water tight seal to all pipes, projections, door and window trims using CSL-535 sealant (matching).

.19 Upon completion of the installation, remove the protective film.

.20 Wash with dilute soap/detergent solution and rinse with clean water.

3.3 CLEANING

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

END OF SECTION

Section 09 91 23
Interior Painting

Part 1 General

1.1 REFERENCE STANDARDS

.1 Environmental Protection Agency (EPA)

.1 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, EPA Method 24 - Surface Coatings.

.2 SW-846, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.

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

.1 Material Safety Data Sheets (SDS).

.3 Master Painters Institute (MPI)

.1 The Master Painters Institute (MPI)/Architectural Painting Specification Manual (ASM) - current edition.

.2 Standard GPS-1-12, MPI Green Performance Standard.

.3 Standard GPS-2-12, MPI Green Performance Standard.

.4 National Research Council Canada (NRC)

.1 National Fire Code of Canada 2015 (NFC).

.5 Society for Protective Coatings (SSPC)

.1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Provide manufacturer's instructions, printed product literature and data sheets for paint and paint products and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Samples:

.1 Submit full range colour sample chips to indicate where colour availability is restricted.

.2 Submit 200x300 mm sample panels of each coating with specified paint or coating in colours, gloss/sheen and textures required to MPI Architectural Painting Specification Manual standards submitted on a drawdown card.

.3 Retain reviewed samples on-site to demonstrate acceptable standard of quality for appropriate on-site surface.

1.3 CLOSEOUT SUBMITTALS

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

.2 Operation and Maintenance Data: Provide operation and maintenance data for painting materials for incorporation into manual.

.3 Include:

.1 Product name, type and use.

.2 Manufacturer's product number.

.3 Colour numbers.

.4 MPI Environmentally Friendly classification system rating.

1.4 MAINTENANCE MATERIAL SUBMITTALS

.1 Extra Stock Materials:

.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Submit one 3.78 litre can of each type and colour of finish coating. Identify colour and paint type in relation to established colour schedule and finish system.

1.5 QUALITY ASSURANCE

.1 Qualifications:

.1 Contractor: to have a minimum of 5 years proven satisfactory experience. When requested, provide list of last 3 comparable jobs including, job name and location, specifying authority, and project manager.

.2 Qualified journeypersons as defined by local jurisdiction to be engaged in painting work.

.3 Apprentices: may be employed provided they work under direct supervision of qualified journeyperson in accordance with trade regulations.

.4 Conform to latest MPI requirements for exterior painting work including preparation and priming.

.5 Materials: in accordance with MPI Painting Specification Manual "Approved Product" listing and from a single manufacturer for each system used.

.6 Retain purchase orders, invoices and documents to prove conformance with noted MPI requirements when requested by Consultant.

.7 Standard of Acceptance:

.1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.

.2 Soffits: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.

.3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

1.6 DELIVERY, STORAGE AND HANDLING

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

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

.1 Labels: to indicate:

.1 Type of paint or coating.

.2 Compliance with applicable standard.

.3 Colour number in accordance with established colour schedule.

.3 Storage and Handling Requirements:

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

.2 Observe manufacturer's recommendations for storage and handling.

.3 Store materials and supplies away from heat generating devices.

.4 Store materials and equipment in well ventilated area with temperature range 7 degrees C to 30 degrees C.

.5 Keep areas used for storage, cleaning and preparation, clean and orderly. After completion of operations, return areas to clean condition.

.6 Remove paint materials from storage only in quantities required for same day use.

.7 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.

.8 Fire Safety Requirements:

.1 Provide 9 kg dry chemical fire extinguisher adjacent to storage area.

.2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.

.3 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada (NFC).

1.7 SITE CONDITIONS

.1 Ambient Conditions:

.1 Heating, Ventilation and Lighting:

.1 Provide heating facilities to maintain ambient air and substrate temperatures above 10 degrees C for 24 hours before, during and after paint application until paint has cured sufficiently.

.2 Provide continuous ventilation for 7 days after completion of application of paint.

.3 Co-ordinate use of existing ventilation system with Owner and ensure its operation during and after application of paint as required.

.4 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.

.5 Provide minimum lighting level of 323 Lux on surfaces to be painted.

.6 Temperature, Humidity and Substrate Moisture Content Levels:

.1 Unless pre-approved written approval by Paint Inspection Agency Authority and product manufacturer, perform no painting when:

.1 Ambient air and substrate temperatures are below 10 degrees C.

.2 Substrate temperature is above 32 degrees C unless paint is specifically formulated for application at high temperatures.

.3 Substrate and ambient air temperatures are not expected to fall within MPI or paint manufacturer's prescribed limits.

.4 The relative humidity is under 85 % or when the dew point is more than 3 degrees C variance between the air/surface temperature. Paint should not be applied if the dew point is less than 3 degrees C below the ambient or surface temperature. Use sling psychrometer to establish the relative humidity before beginning paint work.

.5 Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.

.6 Ensure that conditions are within specified limits during drying or curing process, until newly applied coating can itself withstand 'normal' adverse environmental factors.

.2 Perform painting work when maximum moisture content of the substrate is below:

.1 12 % for concrete and masonry (clay and concrete brick/block). Allow new concrete and masonry to cure minimum of 28 days.

.2 15 % for hard wood.

.3 17 % for soft wood.

.4 12 % for plaster and gypsum board.

.3 Test for moisture using calibrated electronic Moisture Meter. Test concrete floors for moisture using "cover patch test".

.4 Test concrete, masonry and plaster surfaces for alkalinity as required.

.7 Surface and Environmental Conditions:

.1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.

.2 Apply paint to adequately prepared surfaces and to surfaces within moisture limits.

.3 Apply paint when previous coat of paint is dry or adequately cured.

.8 Additional interior application requirements:

.1 Apply paint finishes when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

.2 Apply paint in occupied facilities during silent hours only. Schedule operations to approval of Owner such that painted surfaces will have dried and cured sufficiently before occupants are affected.

Part 2 Products

2.1 MATERIALS

.1 Only Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.

.2 Provide paint materials for paint systems from single manufacturer.

.3 Only qualified products with E2 "Environmentally Friendly" rating are acceptable for use on this project.

.4 Conform to latest MPI requirements for interior painting work including preparation and priming.

.5 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids to be:

.1 Water-clean-able.

.2 non-flamable.

.3 Be manufactured without compounds which contribute to ozone depletion in the upper atmosphere.

.4 Be manufactured without compounds which contribute to smog in the lower atmosphere.

.5 Do not contain methylene chloride, chlorinated hydrocarbons, toxic metal pigments.

.6 Ensure manufacture and process of both water-borne surface coatings and recycled water-borne surface coatings does not release:

.1 Matter in undiluted production plant effluent generating 'Biochemical Oxygen Demand' (BOD) in excess of 15 mg/L to natural watercourse or sewage treatment facility lacking secondary treatment.

.2 Total Suspended Solids (TSS) in undiluted production plant effluent in excess of 15 mg/L to natural watercourse or a sewage treatment facility lacking secondary treatment.

.7 Water-borne paints and stains, recycled water-borne surface coatings and water borne varnishes to meet minimum "Environmentally Friendly" E2 rating.

.8 Recycled water-borne surface coatings to contain 50 % post-consumer material by volume.

.9 Recycled water-borne surface coatings must not contain:

.1 Lead in excess of 600.0 ppm weight/weight total solids.

.2 Mercury in excess of 50.0 ppm weight/weight total product.

.3 Cadmium in excess of 1.0 ppm weight/weight total product.

.4 Hexavelant chromium in excess of 3.0 ppm weight/weight total product.

.5 Organochlorines or polychlorinated biphenyls (PCBS) in excess of 1.0 ppm weight/weight total product.

2.2 COLOURS

.1 Selection of colours will be from manufacturers full range of colours.

.2 Where specific products are available in restricted range of colours, selection based on limited range.

.3 For deep and ultra deep colours; 4 coats may be required.

.4 Accent walls: The following colours are to be coordinated and confirmed with the project colour Schedule.

.1 Field colour walls and ceilings:
(**PT1**)- Chantilly Lace OC-65

2.3 MIXING AND TINTING

.1 Perform colour tinting operations prior to delivery of paint to site. Obtain written approval from Consultant for tinting of painting materials.

.2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.

.3 Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin water-based paints.

.4 Thin paint for spraying in accordance with paint manufacturer's instructions.

.5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity. Strain as necessary.

2.4 GLOSS/SHEEN RATINGS

.1 Paint gloss is defined as sheen rating of applied paint, in accordance with following values:

.1 Level 1 - Matte(Flat) Finish
Gloss @ 60 degrees: Max. 5
Gloss@ 85 degrees: Max 10

.2 Level 2 - Velvet Finish
Gloss @ 60 degrees: Max. 10
Gloss@ 85 degrees: 10-35

.3 Level 3 - Eggshell Finish
Gloss @ 60 degrees: 10-25
Gloss@ 85 degrees: 10-35

.4 Level 4 - Satin (Pearl) Finish
Gloss @ 60 degrees: 20-35
Gloss@ 85 degrees: min 35

.5 Level 5 - Semi-gloss Finish
Gloss @ 60 degrees: 35-70

.6 Level 6 - Gloss Finish
Gloss @ 60 degrees: 70-85

.7 Level 7 - High Gloss Finish
Gloss @ 60 degrees: More than 85

.2 Gloss level ratings of painted surfaces to be provided on colour schedule.

2.5 INTERIOR PAINTING SYSTEMS

.1 Interior dry fall paint for mechanical equipment and open ceiling areas. Benjamin Moore Latex Dry Fall, Flat or Architect approved similar.

.2 Concrete masonry units: smooth and split face block and brick:

.1 INT 4.2D - High performance architectural latex (over latex block filler) Eggshell finish.

.3 Structural steel and metal fabrications: columns, beams, joists:

.1 INT 5.1Q - Latex Eggshell finish (over Q.D. alkyd primer).

.4 Galvanized metal: doors, frames, railings, misc. steel, pipes, overhead decking, and ducts.

.1 INT 5.3M - High performance architectural latex semi-gloss (over W.B. galvanized primer) finish.

.5 Dressed lumber: including doors, door and window frames, casings, mouldings:

.1 INT 6.3Z - Polyurethane, Clear, 2 component finish.

.6 Wood paneling and casework: partitions, panels, shelving, millwork:

.1 INT 6.4J - Polyurethane varnish satin finish.

.2 INT 6.4Q - Fire Retardant, Clear, S.B. Eggshell coating (ULC rated).

.7 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock type material", and textured finishes:

.1 INT 9.2B - High performance architectural latex Eggshell (over latex primer/sealer) finish.

2.6 SOURCE QUALITY CONTROL

.1 Perform following tests on each batch of consolidated post-consumer material before surface coating is reformulated and canned. Testing by laboratory or facility which has been accredited by Standards Council of Canada.

.1 Lead, cadmium and chromium are to be determined using ICP-AES (Inductively Coupled Plasma - Atomic Emission Spectroscopy) technique no. 6010 as defined in EPA SW-846.

.2 Mercury is to be determined by Cold Vapour Atomic Absorption Spectroscopy using Technique no. 7471 as defined in EPA SW-846.

.3 Organochlorines and PCBs are to be determined by Gas Chromatography using Technique no. 8081 as defined in EPA SW-846.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 GENERAL

.1 Perform preparation and operations for interior painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.

.2 Apply paint materials in accordance with paint manufacturer's written application instructions.

3.3 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable to be painted 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.

.2 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test". Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

.3 Maximum moisture content as follows:

.1 Stucco, plaster and gypsum board: 12 %.

.2 Concrete: 12 %.

.3 Clay and Concrete Block/Brick: 12 %.

.4 Hard Wood: 15 %.

.5 Soft Wood: 17%.

3.4 PREPARATION

.1 Protection (not applicable to new painting work):

.1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Consultant.

.2 Protect items that are permanently attached such as Fire Labels on doors and frames.

.3 Protect factory finished products and equipment.

.4 Protect passing pedestrians, building occupants in and about the building.

.2 Surface Preparation (not applicable to new painting work):

.1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.

.2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.

.3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of Consultant.

.3 Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:

.1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.

.2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.

.3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.

.4 Allow surfaces to drain completely and allow to dry thoroughly.

.5 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.

.6 Use trigger operated spray nozzles for water hoses.

.7 Many water-based paints cannot be removed with water once dried. Minimize use of mineral spirits or organic solvents to clean up water-based paints.

.4 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.

.5 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.

.1 Apply sealer to MPI #36 over knots, pitch, sap and resinous areas.

.2 Apply wood filler to nail holes and cracks.

.3 Tint filler to match stains for stained woodwork.

.6 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

.7 Carried out during shop priming: clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes and vacuum cleaning.

.8 Touch up of shop primers with primer as specified.

.9 Do not apply paint until prepared surfaces have been accepted by Consultant

3.5 EXISTING CONDITIONS

.1 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test" and report findings to Consultant. Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

.2 Maximum moisture content as follows:

.1 Stucco: 12 %.

.2 Concrete: 12 %.

.3 Clay and Concrete Block/Brick: 12 %.

.4 Hard Wood: 15 %.

.5 Soft Wood: 17%.

3.6 APPLICATION

.1 Method of application to be as approved by Consultant. Apply paint by air sprayer, brush, airless sprayer and/or roller. Conform to manufacturer's application instructions unless specified otherwise.

.2 Brush and Roller Application:

.1 Apply paint in uniform layer using brush and/or roller type suitable for application.

.2 Work paint into cracks, crevices and corners.

.3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.

.4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple.

.5 Remove runs, sags and brush marks from finished work and repaint.

.3 Spray application:

.1 Provide and maintain equipment that is suitable for intended purpose, capable of atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.

.2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.

.3 Apply paint in uniform layer, with overlapping at edges of spray pattern. Back roll first coat application.

.4 Brush out immediately all runs and sags.

.5 Use brushes and rollers to work paint into cracks, crevices and places which are not adequately painted by spray.

.4 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access.

.5 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

.6 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

.7 Sand and dust between coats to remove visible defects.

.8 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.

.9 Finish inside of cupboards and cabinets as specified for outside surfaces.

.10 Finish closets and alcoves as specified for adjoining rooms.

.11 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

.12 Wood, drywall, plaster, stucco, concrete, concrete masonry units and brick; if sprayed, must be back rolled.

3.7 MECHANICAL/ELECTRICAL EQUIPMENT

.1 Paint finished area exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as indicated.

.2 Boiler room, mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.

.3 Other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.

.4 Do not paint over nameplates.

.5 Keep sprinkler heads free of paint.

.6 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.

.7 Paint fire protection piping red.

.8 Paint disconnect switches for fire alarm system and exit light systems in red enamel.

.9 Paint natural gas piping yellow.

.10 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

.11 Do not paint interior transformers and substation equipment.

3.8 SITE TOLERANCES

.1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.

.2 Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.

.3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

3.9 FIELD QUALITY CONTROL

.1 Standard of Acceptance:

.1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.

.2 Ceilings: no defects visible from floor at 45 degrees degrees to surface when viewed using final lighting source.

.3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

3.10 CLEANING

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

.1 Leave Work area clean at end of each day.

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

3.11 RESTORATION

.1 Clean and re-install hardware items removed before undertaken painting operations.

.2 Remove protective coverings and warning signs as soon as practical after operations cease.

.3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.

.4 Protect freshly completed surfaces from paint droppings and dust to approval of Consultant. Avoid scuffing newly applied paint.

.5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Consultant.

END OF SECTION

Section 12 24 13
Roller window shades

Part 1 General

1.1 SECTION INCLUDES

.1 Manual, chain operated, Roller shades

1.2 RELATED REQUIREMENTS

.1 Section 06 10 00 - Rough Carpentry: Wall opening head support blocking.

1.3 SUBMITTALS

.1 Section 01 33 00: Submission procedures.

.2 Product Data: Provide manufacturer's data sheets describing components, accessories, dimensions, tolerances for window openings required, colours and textures, and typical wiring diagrams including integration of motor controllers

.3 Shop Drawings: Indicate dimensions in relation to window jambs, operator details, top rail, anchorage details, hardware and accessory details, and wiring diagrams.

.4 Samples: For each finish product specified, submit two complete sets of shade components.

1.4 CLOSEOUT SUBMITTALS

.1 Section 01 78 00: Submission procedures.

.2 Operation and Maintenance Data: For roller shades, motor operators, and control systems.

1.5 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Company specializing in manufacturing of centralized and distributed lighting control systems with a minimum of 15 years documented experience.

.2 Installer Qualifications: Company certified by the manufacturer and specializing in installation of networked lighting control products with minimum 3 years documented experience.

.3 System Components: Demonstrate that individual components have undergone quality control and testing prior to shipping.

.4 NFPA Flame-Test: Passes NFPA 701. Materials tested shall be identical to products proposed for use.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver products in factory packages, marked with manufacturer, product name, and location of installation using same designations indicated on Drawings.

.2 Store fabric, tube and motor units flat, on a flat horizontal surface to prevent sagging and deformation/twisting of contents, until ready for installation.

.3 Store products in a clean, dry space in original manufacturer's packaging in accordance with manufacturer's written instructions until ready for installation.

1.7 PROJECT CONDITIONS

.1 Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

.2 Do not install shade units until interior painting, wet work, ceilings, window pockets, and mechanical/electrical work above window site is complete before installation.

1.8 WARRANTY

.1 For all hardware including shade brackets, metal extrusions, and manual clutches: twenty-five (25) years.

.2 For all fabrics five (5) years

Part 2 Products

2.1 MANUFACTURERS

.1 Acceptable Manufacturer: Legrand: Wattstopper/Solarfective, which is located at: 2700 Zanker Rd. Suite 168; San Jose, CA 95134; Tel: 408-988-5331; Fax: 408-988-5373; Email:request info (jon.null@legrand.us); Web:https://www.legrand.us/wattstopper.aspx

.2 Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 MANUAL ROLLER SHADES (RS1, RS2)

.1 Legrand Solarfective Teleshade TS Series Shading System: System shall be a smooth operating chain and sprocket roller shade system sunscreen or opaque roll or double type contained in a factory assembled shade cassette unit.

.2 SF-T1: Manual Teleshade 4 Cassette with front fascia. Cassette size 3-1/16 inches D by 3-15/16 inches H. Maximum shade size up to 129 in (3.28 m) H by 110 in (2.79 m) W.

.3 Chain Operation:

.1 Cluchless, Easy-Lift Action, chain operated with infinite positioning, the shade could be closed at any point across its length of travel. Left hand, right hand or both sides operation

.2 Manual Teleshade shall include a "manual override" requirement that allows the shade to be pulled down by the hembar without using the chain or damaging the shade system.

.4 Assembly:

.1 Fully factory assembled and pre-tested shade cassette unit consisting of two end brackets, chain installed as required, shade tube, extruded aluminum fascia, hembar, fabric shade material, regular or reverse roll of shade material, and cassette mounting attachment brackets for on-site installation. Brackets for the shade cassette unit shall be adjustable to level the unit for building irregularities and to minimize light gap above the shade cassette unit. Provide shade cassette unit ready for installation using attachment brackets fabricated from aluminum, included with each unit.

.2 Attachment Brackets: T5 6005 Aluminum Brackets shall be designed and fabricated to allow for simple direct installation of the shade cassette unit to the

building structure. Four types, as follows shall be standard and offered by the manufacturer:

.1 Mounting Type: Between Mullions

.2 Mounting Type: Face of Mullions.

.3 Mounting Type: Ceiling.

.4 Above-the-ceiling, inherently vented PUSH-UP for use with vented pocket assemblies for pre-assembled shade cassette units.

.3 Removal of shade cassette unit shall not require disassembly of the shade unit or roller shade tube

.4 End Bracket within Cassette Unit: 3 inches by 3-3/4 inches (77 by 96 mm), zinc plated steel, end bracket shall be two-piece molded ABS construction with 2-1/2 inches (64 mm) diameter nylon drive sprocket pop-riveted onto the bracket. Brackets color shall co-ordinate with the fascia color.

.5 Shade Tube: Extruded T5 6005 aluminum shade tube shall be 1/16 inch (1.52mm) thick, complete with continuous screw fins 3/16 inch (4.82 mm) high; for strength and drive capabilities when attached to the nylon sprocket. Fins shall be spaced equidistant on tube and placed according to the weight and sizing characteristics necessary for the intended shade to be supported. Manufacturer to select tube with sufficient diameter size so deflection caused by weight of shade material and shade size is not visible and good performance is assured.

.6 Fascia and End Caps: Extruded T6 6063 or 6360 aluminum fascia with front towards room interior, shall be 1/16 inch (1.7 mm) thick, complete with two continuous screw flutes, anodized, powder coated or custom painted. Attachment of fascia is to be two-part process: first, a friction fit of fascia into cassette shade unit, then step two is mechanical by a hidden/concealed screw lock-down of fascia to cassette shade unit. Fascia shall be secured by eight #6, 3/4 inch screws to the shade cassette unit. Fascia shall be suitable for regular or reverse roll. Reverse fascia with back towards window, is also available as an option. Fascia end caps shall be T6 6063 or 6360 aluminum and fabricated via a press fit and a secure mechanical fastener.

.1 Fascia and End Cap Colors: Extruded aluminum with plastic end finials. Colour as selected by architect

.7 Shade Drive Assembly:

.1 Factory set for size and travel of shades; chain installed.

.2 Unit can be field adjusted from the exterior of the cassette shade unit without having to disassemble the hardware. No field servicing or lubrication of the bi-directional drive assembly is required. Operation and pulling of chain shall be free and without binding inside the assembly and permitting shade to stop at any point that chain is stopped and no longer being pulled.

.3 Provided with a built-in shock absorber to prevent chain breakage, under normal usage conditions.

.4 Factory installed upper bead stop to prevent shade from rolling beyond preset upper limit. The lower bead stop is to be installed in field after consultation with project Architect. Bead stops can be removed in the field and adjusted as required without disassembly of cassette shade unit. The purpose of bead stops is to prevent shade from being raised or lowered too far thereby preventing damage to shade and/or mechanism.

.5 Compliant child-safety active-spring-loaded tensioning chain retainer supplied with all cassette shade units with one retainer per chain drive. Design is to be as specified by Window Covering Materials Association (WCMA).

.6 Manufacturer shall include and fabricate with roller shade, a Lift Assist Mechanism (LAM), sized according to shade weight and consisting of a spring device installed in the roller shade tube. The Manufacturer shall install a LAM spring on all very large or heavy shades.

.7 Drive Chain: shall be No. 10 Stainless Steel bead chain formed in a continuous loop. Chain with 90-pound tensile strength. Plastic type or Nickel-plate chain is not acceptable.

.8 Exterior Hembar: Extruded T6 6360 aluminum with plastic end finials, attached in factory to shadeband fabric material. Exposed hembar and shadeband wrapped and sealed hembars are supplied with both ends of hembar sealed. Colour as selected by Architect

.9 Shadeband Material Attachment: Attach shadeband material to roller shade tube in factory. Manufacturer shall have capability for attachment via double sided tape for insuring shadeband material lays flat, or by hidden spline with lightweight small profile plastic extrusion attached to shadeband material and inserted into a groove machined into roller tube. Selection of attachment method can be determined by Specifier preference or depending on project requirements and size of finished shade cassette unit. All finished shades must be fabricated with one complete wrap of material minimum, to cover the attachment of the shade and material to the shade tube. This wrap length will vary due to size of shade and size of tube and factory assembly conditions.

.10 Light Gap: All Cassette Shade Units must maintain equivalent and symmetrical light gaps on both sides. Gap width to be 3/4 inch (19.5 mm) or 7/8 inch (22.23 mm) depending on manual or motorized shade or other factory assembly condition.

.11 Shadeband Assembly Details:

.1 Shade Cassette Unit manufacturer to assemble roller shade with specified shadeband material to fill window opening from sill to head and from jamb to jamb unless project Architect has specified differently.

.2 Manufacturer shall assemble roller shade with the indicated front side of shadeband fabric material facing the interior of the room when roller shade is in down position. Project Architect can specify shadeband material reversed, or turned so face is now visible from window, as project needs require.

.3 All shadeband material to hang flat without buckling, puckering, or distortion.

.4 Manufacturer to provide T6 6061 aluminum battens in standard roller shades as necessary to insure proper rolling of roller shades and for proper tracking. The installing contractor and manufacturer shall fabricate roller shades with a width-to-height ratio that shall not exceed manufacturer's published guidelines. The batten shall be selected at manufacturers discretion based on size of shade and shadeband material selected. All locations of seams to be approved by project Architect.

.5 Manufacturer shall provide Railroaded type shadebands with seams as required to meet size requirements and to match other seams. All locations of seams to be approved by project Architect. Manufacturer shall utilize battens in accordance with their published guidelines to minimize tracking distortion and for proper rolling of the shadeband material on the tube

.12 Shade Fabric

.1 Sheerweave Style 2703

.2 3% opening

.3 Colour: P14 Oyster/Pearl Gray

.4 Performance – As a “shade cloth” the fabric shall hang flat without buckling or distortion. The edge, when trimmed, shall hang straight without raveling. An unguided roller shade Cloth shall roll true and straight, without shifting sideways more than +1/8” in either direction due to warp distortion, or weave design.

.5 Flame Retardance - Fabric shall be certified by an Independent Laboratory to pass the Small Scale Vertical Burn Requirements test CAN and ULC-S109-M87 and NFPA 701.

Part 3 Execution

3.1 EXAMINATION

.1 Do not begin installation until substrates have been properly prepared.

.2 Examine areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, blocking.

.3 Identify locations of connections to building electrical system, and other conditions affecting performance of the Work.

.4 If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

.1 Coordinate requirements for blocking and structural supports to ensure adequate means for installation of window shades.

.2 Coordinate requirements for power supply conduit, and wiring required for window shade motors and controls.

3.3 INSTALLATION

.1 Install units and their accessories to manufacturer's instructions.

.2 Install roller shades level, plumb, square, and true. Allow proper clearances for window operation hardware.

.3 Install Fascias to conceal roller and operating mechanism. Do not use exposed fasteners.

.4 Install headbox, side channels, and sill channel with sealant specified in Section 07 90 00 - Joint Protection.

.5 Position shades level, plumb, and at proper height relative to adjacent construction. Secure with fasteners recommended by manufacturer.

.6 Comply with NECA 1 and NECA 130.

.7 1.1.1 Comply with FCC guidelines.

3.4 ADJUSTING

.1 Adjust and balance roller shades and motorized equipment to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

.1 Program each motor-operator control system to Owner-provided program settings.

.2 Commissioning Control Systems: Perform commissioning of integrated automation control systems performed by Solarfective/WattStopper Factory Authorized Tech.

3.5 TESTING

.1 Test window shades to verify that operating mechanism, fabric retainer, and other operating components are functional. Correct deficiencies.

.2 Demonstrate operation of shades to Owner's designated representatives.

3.6 CLEANING AND PROTECTION

.1 Clean roller shade surfaces, after installation, according to manufacturer's written instructions.

.2 Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure that roller shades are without damage or deterioration at time of Substantial Completion.

.3 Replace damaged roller shades that cannot be repaired, in a manner approved by Architect, before time of Substantial Completion.

END OF SECTION

Rivett Architectural Hardware Ltd.

Door Listing

HENRY ST H.S- CULINARY RM RENO - 600 HENRY ST, WHITBY, L1N 1L4

Schedule 200786
Date Oct 09/25

Door Number	Set Number
D1100B	1
D1106A	2
D1106B	3
D1142	4
D3318	5
EX-D1106	6

Rivett Architectural Hardware Ltd.

Hardware Schedule

HENRY ST H.S- CULINARY RM RENO - 600 HENRY ST, WHITBY, L1N 1L4

Schedule 200786
Date Oct 09/25

Set # 1

1 SGLE. DR. # D1100B CORRIDOR 1100A TO A.V ROOM 1100B LH

1 - 965 x 2134 x 45 x PSF x HMD

		Qty			
:	:	3	EA	HINGE	BB1168-114 X 101- 626
:	:	1	EA	CLASSROOM LOCK	L9070P X 03B X 626
:	:	1	EA	CLOSER	4040XP X 689
:	:	1	EA	WALL STOP	232W X 626
:	:	1	EA	KICKPLATE	190S X 203 X 914 X 630

Set # 2

1 SGLE. DR. # D1106A CAFETORIUM 1139 TO CLASSROOM 1106 RHR

1 - 1220 x 2134 x 45 x PSF x HMD x 45 MIN RATED

		Qty			
:	:	3	EA	HINGE	BB1168-114 X 101-NRP-626
:	:	1	EA	CLASSROOM LOCK C/W INDICATOR	L9071P X 03B X IS-LOC 626
:	:	1	EA	DOOR OPERATOR	SW200i X SINGLE HSG X 628
:	:	2	EA	ALL ACTIVE WALL MOUNT SWITCH	#CM-7536-4X 36" H/C PUSH X 628
:	:	1	EA	ELECTRIC STRIKE	1600CLB X 630
:	:	1	EA	SURFACE BOX SINGLE	#CM-34BL
:	:	1	EA	KEYSWITCH WITH LED	#CM-1110-7224
:	:	1	EA	MORTISE CYL.	20-001 X 1.125 X 626
:	:	1	EA	CONCEALED STOP	106S X 630
				OVERHEAD STOP @ 110 DEG OPEN	
:	:	1	EA	KICKPLATE	190S X 813 X 1165 X 630
:	:	1	EA	WEATHERSTRIPPING	W22 X 18'-0"

Rivett Architectural Hardware Ltd.

Hardware Schedule

HENRY ST H.S- CULINARY RM RENO - 600 HENRY ST, WHITBY, L1N 1L4

Schedule **200786**
Date **Oct 09/25**

Set # **3**

1 SGLE. DR. # D1106B CLASSROOM 1106 TO CLOSET 1106B LHR

1 - 965 x 2134 x 45 x PSF x HMD

		Qty			
:	:	3	EA	HINGE	BB1168-114 X 101-NRP-626
:	:	1	EA	CLASSROOM LOCK	L9070P X 03B X 626
:	:	1	EA	CONCEALED CLOSER -100 DEG HOLD	3133 X H-OPEN TRACK X RH X 689
:	:	1	EA	UNIVERSAL FLOOR STOP	242F X 626
:	:	1	EA	KICKPLATE	190S X 813 X 914 X 630

Set # **4**

1 SGLE. DR. # D1142 CORRIDOR 1100A TO OFFICE 1142 RH

1 - 965 x 2134 x 45 x PSF x HMD

		Qty			
:	:	3	EA	HINGE	BB1168-114 X 101- 626
:	:	1	EA	OFFICE LOCK	L9050P X 03B X 626
:	:	1	EA	CLOSER	4040XP X 689
:	:	1	EA	WALL STOP	232W X 626

Set # **5**

1 SGLE. DR. # D3318 PREP ROOM 3318 TO SCIENCE LAB 3306 LHR

1 - DOOR SIZE REQUIRED TO BE VERIFIED ON SITE x 45 MIN RATED

		Qty			
:	:	3	EA	HINGE	BB1168-114 X 101-NRP-626
:	:	1	EA	CLASSROOM LOCK	L9070P X 03B X 626
:	:	1	EA	CLOSER	4040XP X 689
:	:	1	EA	CONCEALED STOP OVERHEAD STOP @ 100 DEG OPEN	104S X 630
:	:	1	EA	KICKPLATE	190S X 203 X 863 X 630
:	:	1	EA	WEATHERSTRIPPING	W22 X 18'-0"

Rivett Architectural Hardware Ltd.

Hardware Schedule

HENRY ST H.S- CULINARY RM RENO - 600 HENRY ST, WHITBY, L1N 1L4

Schedule 200786
Date Oct 09/25

Set # 6

1 SGLE. DR. # EX-D1106 CORRIDOR 1100 TO CLASSROOM 1106 LHR

1 - 915 x 2134 x 45 x PSF x HMD

	Qty			
: :	1	EA	ALL EXISTING HARDWARE	REMAINS

PRODUCT SPECIFICATIONS

For more information visit www.hagerco.com

BB1168

BB1168

SPECIFICATIONS

Applications	For use on heavy weight doors and doors requiring high frequency service
Box Quantity	3
Case Quantity	24
Certifications	ANSI A8111
Electric Modifications	EMN (Electric Monitor Only), ETW (Electric Through-Wire Only), ETM (Electric Through-Wire with Monitoring), Quick Connect
Features	• Four ball bearings • Removable or non-removable pin with button tip and plug • Available in two different leaf sizes
Finishes	• LS, USP, US3, US10, US10A, US10B, US15, US26, US26D • Additional finishes may be available, please contact Hager for availability and lead time.
Fire Rating	Complies with NFPA80 requirements for use on fire rated door assemblies
Gauge	See Sizing Chart Options
Height	See Sizing Chart Options
Knuckles	5
Material	Steel with Steel Pin
Options	• Stamped with UL logo when ordered for export • Unequal top/bottom available in non-removable or removable pin
Product Description	Full Mortise, Ball Bearing, Heavy Weight
Width	See Sizing Chart Options

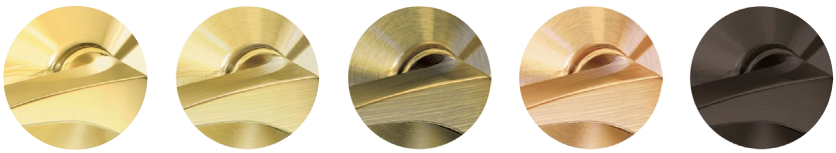
L Series

Grade 1, Mortise Locks

OVERVIEW

The Schlage® L Series has long been the benchmark for Grade 1 mortise locks. Beyond strength and security–it offers flexibility to meet most needs. 67 mechanical functions include ten non-levered small- and large-case deadbolt functions and 15 electrified functions regularly used as part of electronic access control systems, six of which feature motorized latch retraction. L Series locks have the ability to suite across electronic, tubular, exit trim, and multi-point locks to integrate seamlessly into any environment. The series features an array of security options including patented, 180-degree high visibility lock status indication trim, key override of a thumbturn being held, and support for multiple keyway families and cylinder types including Primus® XP high-security cylinders.

FINISHES



605
Bright Brass

606
Satin Brass

609
Antique Bronze

612[1]
Satin Bronze

613[1]
Oil Rubbed Bronze

619
Satin Nickel

622
Matte Black

625
Bright Chrome

626
Satin Chrome

626AM
Satin Chrome Antimicrobial

629[2]
Bright Stainless Steel

630[2]
Satin Stainless Steel

630AM[2]
Satin Stainless Steel Antimicrobial

643e
Aged Bronze

1. Available on standard levers only, not available on Latitude, Longitude, Accent, Asti, or Merano.
2. Not available on Accent, Asti, or Merano.

STANDARD LEVER AND KNOB STYLES

01
801 - Milled tactile warning

02
802 - Knurled tactile warning[1]

03 (Tubular)
803 - Knurled tactile warning[1]

05
805 - Milled tactile warning

06 (Rhodes)
806 - Milled tactile warning

07 (Athens)
807 - Milled tactile warning

12
812 - Milled tactile warning
Handed

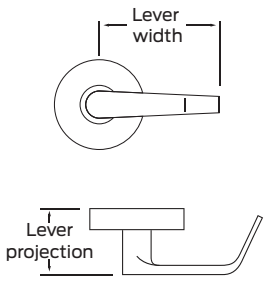
17 (Sparta)
817 - Milled tactile warning

18
818 - Milled tactile warning

Dimensions

Lever	Width	Projection
01	3.88"	2.69"
02	4.75"	2.81"
03 (Tubular)	4.75"	2.81"
05	3.75"	2.88"
06 (Rhodes)	4.63"	2.5"
07 (Athens)	4.63"	2.88"
12	4.63"	3.06"
17 (Sparta)	4.75"	3"
18	4.88"	2.69"

Return to door meets 1/2" requirement for 03, 06 and 17 levers.



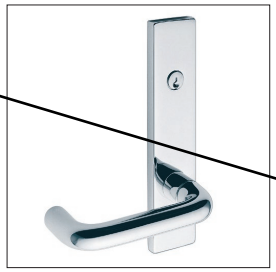
1. Knurled tactile warning available on 609, 612, 613, 625, 626, 629, and 630 finishes only.

Note: Images shown with Schlage L mortise 'A' rose; additional rose and escutcheon designs available.

ESCUTCHEONS

L full face
Specify by adding 'L' after lever design.

Finishes: available in all L Series finishes.



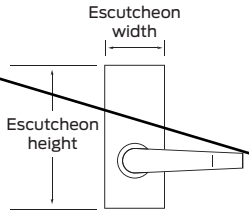
L concealed
Specify by adding 'C' suffix to function and by adding 'L' after lever design.

Finishes: available in all L Series finishes.

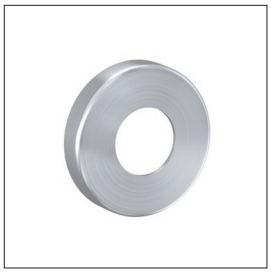
N full face
Specify by adding 'N' after lever design.

Finishes: available in all L Series finishes.

Escutcheon	Width	Height
L full face	1.75"	7.938"
L concealed	1.75"	7.938"
N full face	2.5"	7.875"

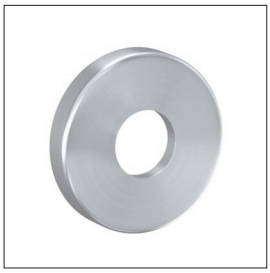


ROSES



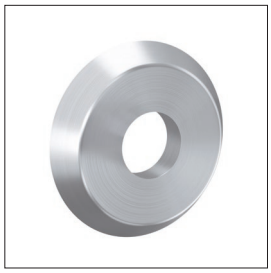
A rose
Available for use on L Series knob and lever designs. Specify by adding 'A' after lever design.

Finishes: available in all L Series finishes.



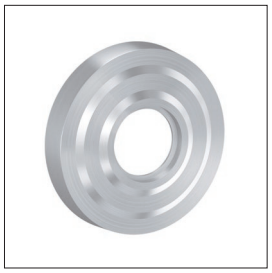
B rose
Available for use on L Series knob and lever designs. Specify by adding 'B' after lever design.

Finishes: available in all L Series finishes.



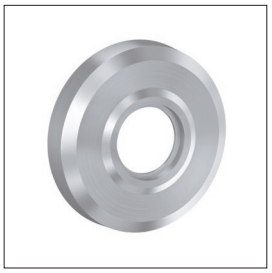
C rose
Available for use on L Series knob and lever designs. Specify by adding 'C' after lever design.

Finishes: 605, 606, 609, 619, 622, 625, 626, 629, 630, 643e.



AVA rose
Available for use with AST lever only. Specify as ASTAVA.

Finishes: 605, 606, 609, 619, 622, 625, 626, 643e.



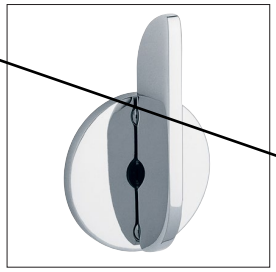
MER rose
Available for use with MER lever only. Specify as MERMER.

Finishes: 605, 606, 609, 619, 622, 625, 626, 643e.

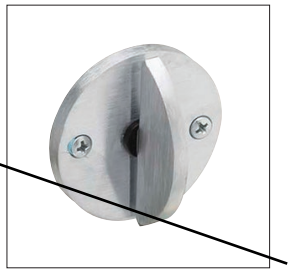
Rose	Diameter
A	2.125"
B	2.562"
C	2.625"
AVA	2.625"
MER	2.625"

THUMBTURNS

ADA thumbturn (standard)
09-544



Large ADA thumbturn
09-509 x L583-363
Not available with L9463 and L463



Basic thumbturn

INDICATORS

Inside Trims

Thumbturn

Key cylinder

Chevron

Standard for lock functions L9486, L9496 and L496, used with A or B roses only. Available messages: "OCCUPIED", "DO NOT DISTURB" or "LOCKED".

Outside Trims

Emergency key

Coin turn

Key cylinder

Available messages

	LOCKED	OCCUPIED	DO NOT DISTURB	
	UNLOCKED	VACANT		
Inside trim	IS-LOC	IS-OCC	IS-DND	IS-SYM
Outside trim	OS-LOC	OS-OCC	OS-DND	OS-SYM
Inside trim	IS-LOCFR	IS-OCCFR	–	–
Outside trim	OS-LOCFR	OS-OCCFR	–	–

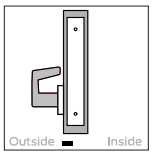
Note: Spanish language options available via RFQ.

Dimensions

	Width	Height
Escutcheon	2.6"	9.7"
Sectional	2.6"	6.1"
Main window	2"	0.6"
Side windows	0.3"	0.6"

NON-KEYED DUMMY FUNCTIONS

Schlage **ANSI**
L9175 **-**



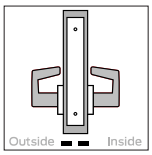
Half dummy trim with lock case

- Lever (or knob) only-one side; blank armor front without latchbolt
- Lever always fixed

Note: Includes blank armor front and lock case.

Door handing must be specified. May be ordered with optional XL11-743 armor front with cutout to receive deadbolt.

Schlage **ANSI**
L9176 **-**



Full dummy trim with lock case

- Levers (or knobs) only-both sides; blank armor front without latchbolt
- Both levers always fixed

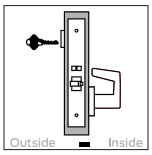
Note: Includes blank armor front and lock case.

May be ordered with optional XL11-743 armor front with cutout to receive deadbolt.

Ordering: In a double-door application where dummy is used as the strike, order 10-091 armored front strike separately.

SINGLE CYLINDER NON-DEADBOLT FUNCTIONS

Schlage **ANSI**
L9026 **-**



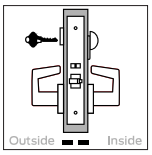
Exit lock with cylinder

- Key cylinder only, no lever (or knob) outside; lever only-inside; latchbolt and deadlocking auxiliary latch
- Latchbolt retracted by lever from inside
- Key outside retracts latchbolt
- Inside lever always free for immediate egress

Note: Available in rose or L escutcheon trim only.

When ordering, specify door handing.

Schlage **ANSI**
L/LV9050 **F04**



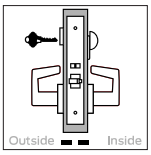
Entrance/office lock

- Key cylinder outside; thumbturn inside; latchbolt and deadlocking auxiliary latch
- Latchbolt retracted by lever (or knob) from either side
- Outside lever is made inoperative by key outside or by turning inside thumbturn; Vandlgard® option allows both levers to rotate freely down while locked
- Key outside unlocks outside lever and retracts latchbolt
- Rotating inside thumbturn unlocks outside lever; turning inside lever retracts latchbolt but does not unlock
- Inside lever always free for immediate egress

Caution: Egress without fully rotating the thumbturn to vertical position can result in lock-out situations.

Note: Hospital latch and ligature-resistant trims not available with Vandlgard option.

Schlage **ANSI**
L/LV9056 **-**
L/LV9056 with XL13-439 key override



Entrance/office lock with automatic unlocking

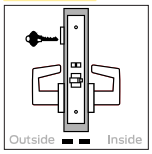
- Key cylinder outside; thumbturn inside; latchbolt and deadlocking auxiliary latch
- Latchbolt retracted by lever (or knob) from either side
- Outside lever is made inoperative by key outside or by turning inside thumbturn; Vandlgard® option allows outside lever to rotate freely down while locked
- Key outside unlocks outside lever and retracts latchbolt; XL13-439 option allows key to retract latchbolt overriding thumbturn if being held in locked position
- Rotating inside thumbturn unlocks outside lever; turning inside lever retracts latchbolt and unlocks outside lever; closing door also unlocks preventing lock-out
- Inside lever always free for immediate egress

Note: Ligature-resistant trims not available with Vandlgard option.

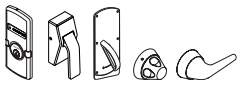
To order with key override, specify function and note XL13-439 as a special option.

SINGLE CYLINDER NON-DEADBOLT FUNCTIONS

Schlage **L/LV9070** | **ANSI** **F05**



Classroom lock, exterior lockdown only

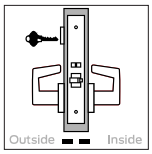


- Key cylinder outside with lever (or knob); lever only-inside; latchbolt and deadlocking auxiliary latch
- Latchbolt retracted by lever from either side
- Outside lever is made inoperative by key outside; Vandlgard® option allows outside lever to rotate freely down while locked
- Key outside unlocks outside lever and retracts latchbolt
- Inside lever always free for immediate egress

Note: Outside lever remains inoperative until unlocked by key.

Note: Hospital latch and ligature-resistant trims not available with Vandlgard option.

Schlage **L/LV9076** | **ANSI** **F06**



Classroom holdback lock, exterior lockdown only

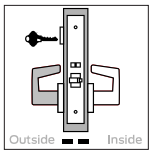
- Key cylinder outside with lever (or knob); lever only-inside; latchbolt and deadlocking auxiliary latch
- Latchbolt retracted by lever from either side
- Outside lever is made inoperative by key outside; Vandlgard® option allows outside lever to rotate freely down while locked
- Key outside unlocks outside lever and retracts latchbolt
- Rotate inside lever while turning key 360° to activate retracted latch holdback feature; to deactivate, reverse key rotation 360°
- Inside lever always free for immediate egress

Note: Outside lever remains inoperative until unlocked by key.

Note: Locks with holdback feature are not UL listed. Installation should be in accordance with existing codes only.

Note: Ligature-resistant trims not available with Vandlgard option.

Schlage **L/LV9080** | **ANSI** **F07**

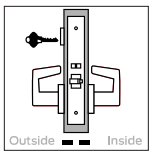


Storeroom lock

- Key cylinder outside with lever (or knob); lever only-inside; latchbolt and deadlocking auxiliary latch
- Outside lever always fixed; latchbolt retracted by inside lever; Vandlgard® option allows outside lever to rotate freely down while locked
- Key outside retracts latchbolt
- Inside lever always free for immediate egress

Note: Hospital latch and ligature-resistant trims not available with Vandlgard option.

Schlage **L/LV9081** | **ANSI** **-**



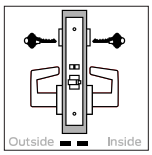
Accessible storeoom lock

- Key cylinder outside with lever (or knob); lever only-inside; latchbolt and deadlocking auxiliary latch
- Latchbolt retracted by lever from either side
- Outside lever is made inoperative by key outside; Vandlgard® option allows outside lever to rotate freely down while locked
- Key outside inserted and turned 280° unlocks allowing outside lever to retract latchbolt
- Inside lever always free for immediate egress

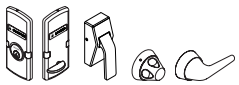
When ordering, specify door handing.

DOUBLE CYLINDER NON-DEADBOLT FUNCTIONS

Schlage L/LV9060 — **ANSI** F09



Apartment entrance lock

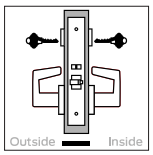


- Key cylinder both sides; latchbolt and deadlocking auxiliary latch
- Latchbolt retracted by lever (or knob) from either side
- Outside lever is made inoperative by key inside; Vandlgard® option allows outside lever to rotate freely down while locked
- Key outside retracts latchbolt but cannot lock or unlock outside lever
- Rotating inside lever retracts latchbolt; key inside retracts latchbolt and unlocks outside lever
- Inside lever always free for immediate egress

Note: Outside lever remains inoperative until unlocked by key inside.

Note: Hospital latch and ligature-resistant trims not available with Vandlgard option.

Schlage L9066 — **ANSI** -



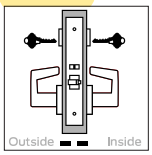
Store lock

- Key cylinder both sides; latchbolt and deadlocking auxiliary latch
- Latchbolt retracted by lever (or knob) from either side
- Both levers are made inoperative by key from either side
- Key use on either side unlocks both levers and retracts latchbolt

Caution: Double cylinder locks on any door, in any structure which is used for egress are a life safety hazard in times of emergency and their use is not recommended. Installation should be in accordance with existing codes only.

Note: Ligature-resistant trims not available with Vandlgard option.

Schlage L/LV9071 — **ANSI** F32



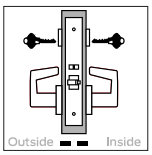
Classroom security lock, interior/exterior lockdown

- Key cylinder both sides; latchbolt and deadlocking auxiliary latch
- Latchbolt retracted by lever (or knob) from either side
- Outside lever is made inoperative by key from either side; Vandlgard® option allows outside lever to rotate freely down while locked
- Rotating inside lever retracts latchbolt; key on either side unlocks outside lever and retracts latchbolt
- Inside lever always free for immediate egress

Note: Outside lever remains inoperative until unlocked by key.

Note: Ligature-resistant trims not available with Vandlgard option.

Schlage L/LV9077 — **ANSI** -



Classroom security holdback lock, interior/exterior lockdown

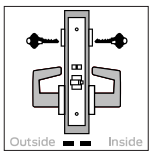
- Key cylinder both sides; latchbolt and deadlocking auxiliary latch
- Latchbolt retracted by lever (or knob) from either side
- Outside lever is made inoperative by key from either side; Vandlgard® option allows outside lever to rotate freely down while locked
- Key outside retracts latchbolt but cannot unlock outside lever
- Rotating inside lever retracts latchbolt; key inside retracts latchbolt and unlocks outside lever
- Rotate inside lever while turning key 360° to activate retracted latch holdback feature; to deactivate, reverse key rotation 360°
- Inside lever always free for immediate egress

Note: Outside lever remains inoperative until unlocked by key inside.

Note: Locks with holdback feature are not UL listed. Installation should be in accordance with existing codes only.

Note: Ligature-resistant trims not available with Vandlgard option.

Schlage L/LV9082 — **ANSI** F30



Institution lock

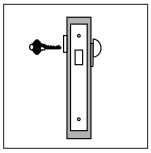
- Key cylinder both sides; latchbolt and deadlocking auxiliary latch
- Both levers (or knobs) always fixed; Vandlgard® option allows both levers to rotate freely down while locked
- Key on either side retracts latchbolt

Caution: Double cylinder locks on any door, in any structure which is used for egress are a life safety hazard in times of emergency and their use is not recommended. Installation should be in accordance with existing codes only.

Note: Hospital latch and ligature-resistant trims not available with Vandlgard option.

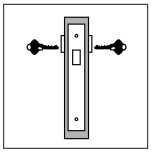
Mortise Deadbolt Functions

Schlage **ANSI**
L9460 **F17**



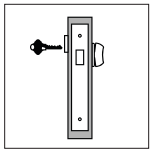
Cylinder x thumbturn mortise deadbolt

Schlage **ANSI**
L9462 **F16**



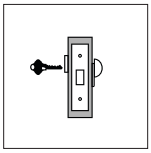
Double cylinder mortise deadbolt

Schlage **ANSI**
L9463 **F29**



Cylinder x cylinder thumbturn mortise deadbolt

Schlage **ANSI**
L460 **E06071**



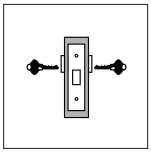
Cylinder x thumbturn small case mortise deadbolt

- Key cylinder only, no lever (or knob) outside; thumbturn only, no lever inside; deadbolt only
- Deadbolt thrown or retracted by key outside or by inside thumbturn

Note: L9000 mortise deadbolts available in L escutcheon or sectional trim only.

Note: L400 small case not available with escutcheon trim.

Schlage **ANSI**
L462 **E06061**



Double cylinder small case mortise deadbolt

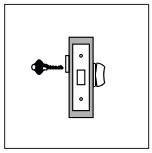
- Key cylinder both sides, no levers (or knobs); deadbolt only
- Deadbolt thrown or retracted by key from either side

Caution: Double cylinder locks on any door, in any structure which is used for egress are a life safety hazard in times of emergency and their use is not recommended. Installation should be in accordance with existing codes only.

Note: L9000 mortise deadbolts available in L escutcheon or sectional trim only.

Note: L400 small case not available with escutcheon trim.

Schlage **ANSI**
L463 **E06091**



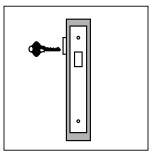
Cylinder x cylinder thumbturn small case mortise deadbolt

- Key cylinder only, no lever (or knob) outside; cylinder thumbturn only, no lever inside; deadbolt only
- Deadbolt thrown or retracted by key outside
- Rotating inside thumbturn retracts deadbolt but cannot project it

Note: L9000 mortise deadbolts available in L escutcheon or sectional trim only.

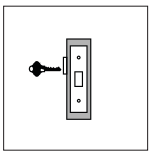
Note: L400 small case not available with escutcheon trim.

Schlage **ANSI**
L9464 **F18**



Cylinder only mortise deadbolt

Schlage **ANSI**
L464 **E06081**



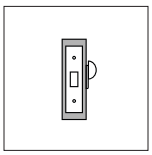
Cylinder only small case mortise deadbolt

- Key cylinder only, no lever (or knob) outside; no interior trim; deadbolt only
- Deadbolt thrown or retracted by key

Note: L9000 mortise deadbolts available in L escutcheon or sectional trim only.

Note: L400 small case not available with escutcheon trim.

Schlage **ANSI**
L480 **-**



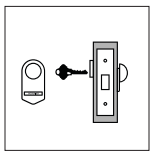
Thumbturn only small case mortise deadbolt

- No outside trim; thumbturn only, no lever inside; deadbolt only
- Deadbolt thrown or retracted by rotating inside thumbturn

Note: When ordered with indicator, the indicator is applied to the thumbturn side.

Note: L400 small case not available with escutcheon trim.

Schlage **ANSI**
L496 **-**

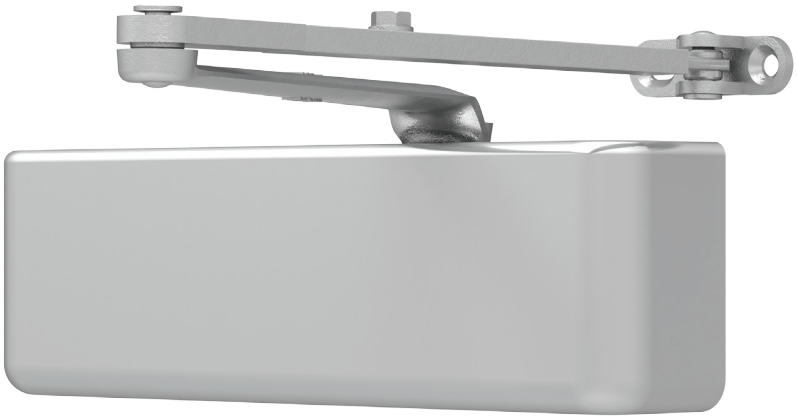


Cylinder x thumbturn small case mortise deadbolt with chevron indicator

- Key cylinder only, no lever (or knob) outside; thumbturn only, no lever inside; deadbolt only
- Deadbolt thrown or retracted by key outside or by inside thumbturn, when thrown-indicator message changes from blank to "OCCUPIED"

4040XP Series

Features

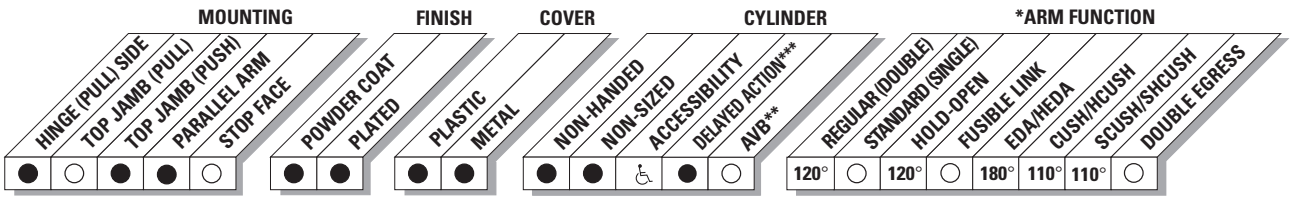


The 4040XP is LCN's most durable and flexible heavy duty closer designed for institutional and other demanding high traffic applications.

Certifications	Grade 1 - ANSI A156.4, UL 10C, ADA, 100 Hour Salt Spray, Meets BAA - Buy American Act
Body Construction	■ Cast Iron Body ■ Full Complement Bearings ■ 1-1/2″ Diameter Piston ■ 3/4″ Diameter Double Heat Treated Pinion Journal
Fluid	All Weather Liquid X Fluid
Handing	Non-Handed
Templating	Peel-n-Stick templates - 2-1/4″ x 5″ Mounting Hole Pattern
Size	Adjustable Spring Size 1-6, includes Patented Green Dial
Warranty	30 years

Cover	■ Plastic, Standard ■ Metal, Optional
Fasteners	Self Reaming and Tapping Screws (SRT)
Mounting	Hinge (Pull Side), Top Jamb (Push Side), Parallel Arm (Push Side)
Arms	Regular Arm
Finishes/Colors/ Powder Coat	■ Aluminum (689) ■ Statuary Bronze (690) ■ Light Bronze (691) ■ Black (693) ■ Dark Bronze (695) ■ Brass (696) ■ Custom colors optional ■ Optional SRI primer - powder coat only ■ Optional plated finishes

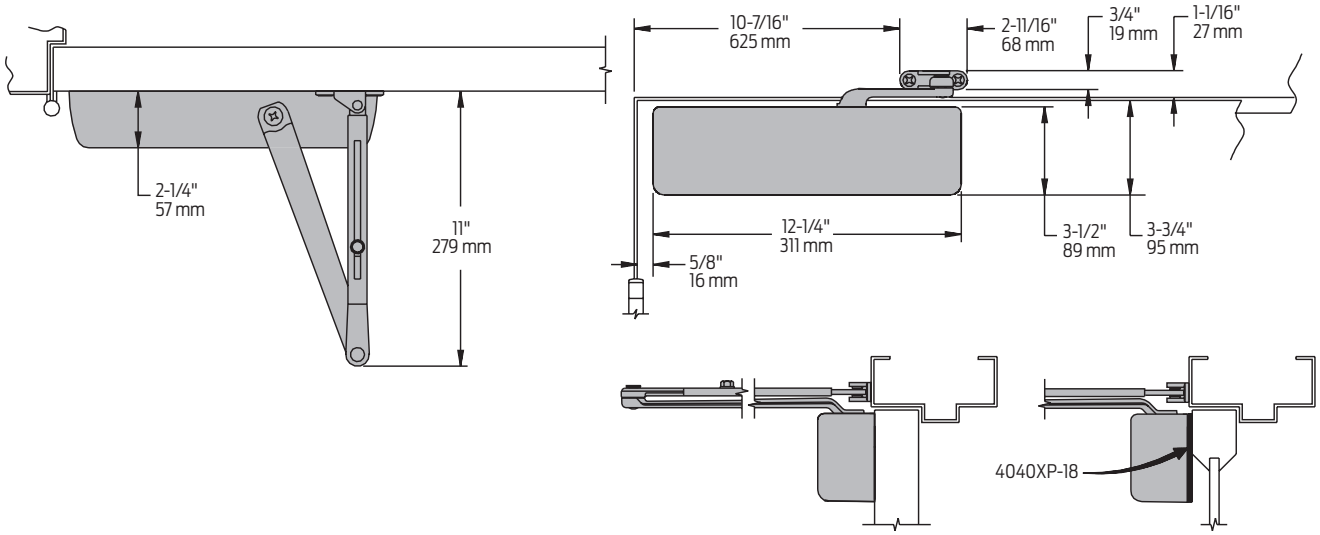
Special Templates | Customized installation templates or products may be available to solve unusual applications. Contact LCN Product Support for assistance.



● AVAILABLE
○ NOT AVAILABLE

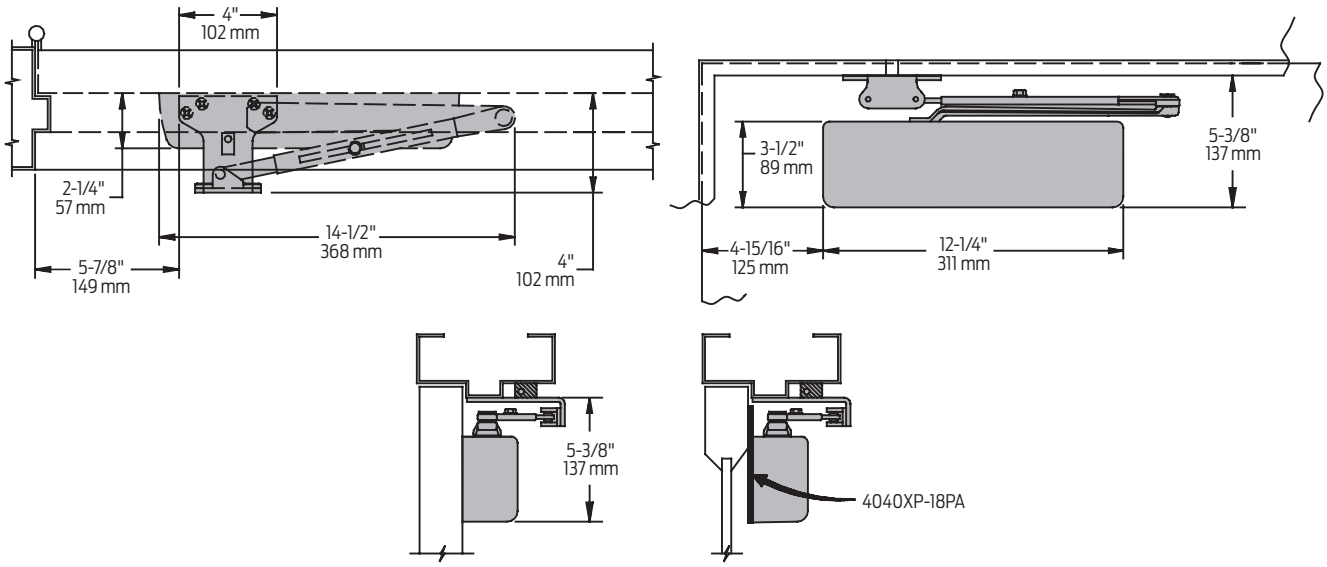
♿ *Closer available with less than 5.0 lbs. opening force on 36″ door.*
* *Maximum opening/hold-open point with standard template.*
** *Advanced Variable Backcheck.*
*** *Delay feature incorporates standard 4040 cylinder (not XP).*

Hinge (Pull Side) Mounting



Butt Hinges	■ Should not exceed 5″ (127 mm) in width
Auxiliary Stop	■ Recommended at hold-open point or where a door cannot swing beyond 120°
Reveal	■ Should not exceed 3/4″ (19 mm) for regular arm or hold-open arm
Top Rail	■ Less than 3-3/4″ (95 mm) requires PLATE, 4040XP-18. Plate requires 2″ (51 mm) minimum
Clearance	■ 2-3/8″ (60 mm) behind door required for 90° installation
Delayed Action	■ Incorporates standard 4041 cylinder, without XP cylinder ■ Delays closing from 120° to 70° ■ Delay time adjustable up to approximately 1 minute
Maximum Opening	■ Templating allows up to 120°. ■ Hold-open points 90° up to 120° with hold-open arm.

Parallel Arm (Push Side) Mounting



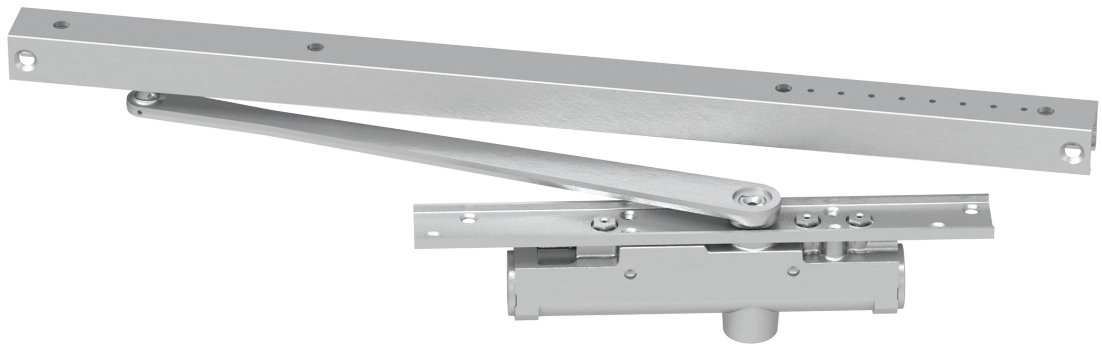
Butt Hinges	Should not exceed 5″ (127 mm) in width
Auxiliary Stop	Recommended at hold-open point, where the door cannot swing 180º, or where CUSH-N-STOP arm is not used
Reveal	Should not exceed 7/32″ (6 mm)
Top Rail	Less than 5-3/8″ (137 mm) measured from the stop requires PLATE, 4040XP-18PA. Plate requires 2″ (51 mm) minimum from the stop
Head Frame	Flush or rabetted requires PA SHOE ADAPTER, 4040XP-419
Stop Width	Minimum 1″ (25 mm). CUSH arm requires minimum 1-1/2″ (38 mm)
Blade Stop	Clearance requires 1/2″ (13mm) BLADE STOP SPACER, 4040XP-61.
Clearance	■ 4040XP-62PA shoe is 4″ (102 mm) from door face. ■ EDA shoe projects 5-1/2″ (140 mm) from door face. ■ CUSH shoe projects 6″ (152 mm) from door face
Delayed Action	■ Incorporates standard 4041 cylinder, without XP cylinder ■ Delays closing from 120º to 70º. ■ Delay time adjustable up to approximately 1 minute.
Maximum Opening	■ 180º opening/hold-open points with all except CUSH arms ■ 110º opening/hold-open with CUSH arms

Notes:

• Optional mounting requires PA SHOE, 4040XP-62PA for regular or HOLD-OPEN arms

• Add prefix "P" to closer description (eg. P4040XP)

• P4040XP closer includes 4040XP-201 FIFTH HOLE SPACER to support PA SHOE

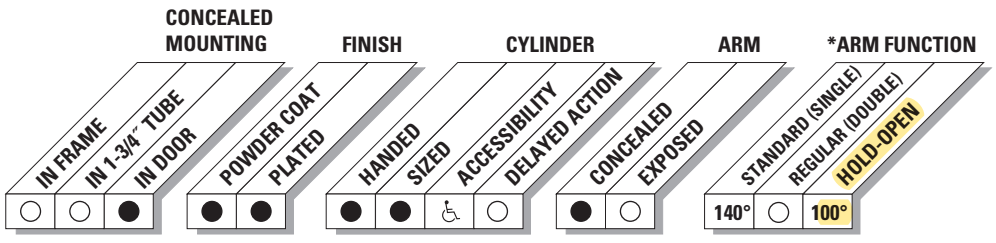


The concealed 3130 Series is designed to mount in a 1-3/4″ interior door. The single lever arm and roller assembly provides complete concealment and the choice of finishes and track functions meet virtually all architectural requirements.

Certifications	Grade 1 - ANSI A156.4, UL 10 C, ADA, 100 Hour Salt Spray, Meets BAA - Buy American Act
Body Construction	■ Cast Iron Body ■ Full Complement Bearing ■ 1-1/8″ Diameter Piston ■ 1/2″ Diameter Double Heat Treated Pinion Journal
Fluid	All Weather Fluid
Handing	Handed
Size	Sized 1-3
Warranty	15 years

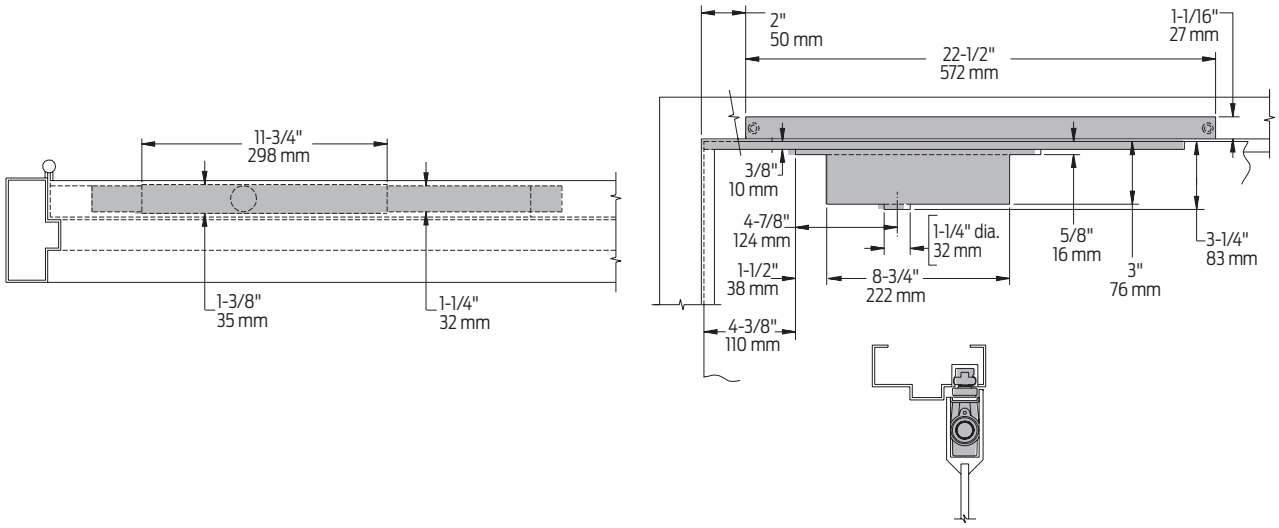
Fasteners	Wood Screws and Torx Security Screws (optional)
Mounting	Concealed (in door); consult factory for installation with pivots
Arms	Standard arm and track
Finishes/Colors/ Powder Coat	■ Aluminum (689) ■ Statuary Bronze (690) ■ Light Bronze (691) ■ Black (693) ■ Dark Bronze (695) ■ Brass (696) ■ Custom colors optional
	■ Optional SRI primer - powder coat only ■ Optional plated finishes

Special Templates | Customized installation templates or products may be available to solve unusual applications. Contact LCN Product Support for assistance.



● AVAILABLE
○ NOT AVAILABLE

♿ Closer available with less than 5.0 lbs. opening force on 36″ door.
* Maximum opening/hold-open point with standard template. See individual closer series for degrees of opening per installation.



Butt Hinges	Should not exceed 5″ (127 mm) in width
Auxiliary Stop	■ Recommended at hold-open point or where a door cannot swing 140º ■ Optional track bumper assembly assists backcheck in cushioning the opening swing of the door. It is not intended to replace an auxiliary stop
Top Rail	Minimum 4″ (102 mm) required
Door Thickness	■ 1-3/4″ (44 mm) minimum. ■ Please consult the door manufacturer to assure that the door integrity and warranty is maintained after installing the 3130 Series door closer in a 1-3/4″ thick wood door
Door Width	2′2″ (660 mm) minimum
Maximum opening	■ Templating allows 140º, trim permitting. 100º with optional bumper installed ■ Adjustable hold-open points from 85º to 100º, with hold-open track

Notes:

- *For interior doors*
- *Single acting cylinder and standard arm in top rail of door*
- *Concealed track in head frame*
- *Consult factory for installations with pivots.*

Cylinder

3131(2)(3)-3071
Cast Iron Cylinder Assembly

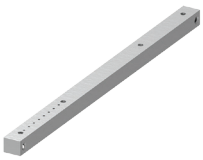
- Handed
- With mounting plate
- Standard

Arm

3130-3077T
Standard Arm

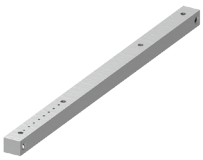
- Handed
- Track roller not included with arm
- Standard

Tracks



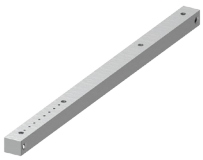
3130-3038
Track

- Non-handed
- Non hold-open
- Will accept hold-open clip and/or bumper assembly
- Standard



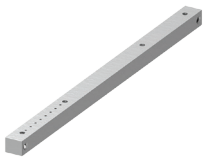
3130-3038B
Standard Track with Bumper

- Non-handed
- Non hold-open
- Will accept hold-open clip
- Optional



3130-3038H
Hold-Open track

- Non-handed
- Will accept bumper assembly
- Optional



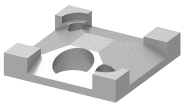
3130-3038HB
Hold-Open Track with Bumper

- Non-handed
- Optional

Installation Accessories

3130-169
Track Bumper

- Mounts in track to assist backcheck, does not replace auxiliary stop
- Limits maximum opening
- Consists of bumper, bumper post, and mounting screw



3130-3054
Hold-Open Clip

- Mounts in track to provide hold-open function
- Hold-open point controlled by clip location
- Requires 3130-3034H Hold-Open Track Roller

3130-3034
Track Roller

- Quiet, low friction roller assembly
- Shoulder dimension "X" = 1/8″ (3mm)

3130-3034H
Hold-Open Track Roller

- Quiet, low friction roller assembly
- Shoulder dimension "X" = 1/8″ (3mm)

How-to-order 3130 Series closers

Select cylinder size
- ☐ 3131
- ☐ 3132
- ☐ 3133

Select hand
- ☐ RH
- ☐ LH

Specify finish
- ☐ Standard Powder Coat _____
  Aluminum, Dark Bronze, Statuary, Light Bronze, Black, Brass.

Closer will be shipped with:
- Standard cylinder with mounting bracket
- Standard arm wtih finish plate
- Standard track
- Wood and machine screw pack

unless options listed below are selected.

Closer options

Track
- ☐ Standard with Bumper (BUMPER)
- ☐ Hold-open (H)
- ☐ Hold-open with Bumper (HBUMPER)

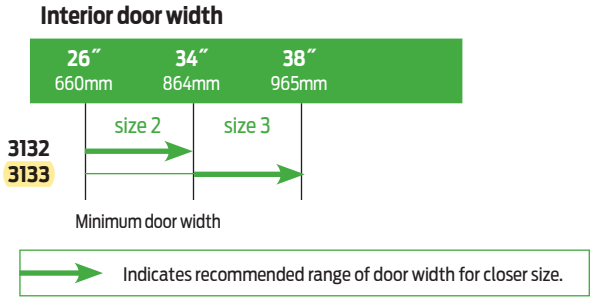
Finishes
- ☐ Custom Powder Coat (RAL)_____
- ☐ Plated Finish, US _____
- ☐ SRI primer (use with powder coat finishes only)

Screw pack
- ☐ TORX Machine Screw (TORX)

Special template
- ☐ ST-_____

Table of sizes

- Select closer based on width of door.
- 3130 Series cylinders available in size 1, 2, or 3.
- Closing power of 3130 Series closers is not adjustable



Reduced opening force 3130 Series closers

CAUTION ! Any manual door closer, including those certified by BHMA to conform to ANSI Standard A156.4, that is selected, installed and adjusted based on ADA or other reduced opening force requirements may not provide sufficient power to reliably close and latch a door.

Refer to POWER OPERATORS section for information on systems that meet reduced opening force requirements without affecting closing power.

** Maximum opening force.*

	DOOR WIDTH	36″	42″	48″
	8.5* lbs.	N/A	N/A	N/A
	5.0* lbs.	3131	3131	3132

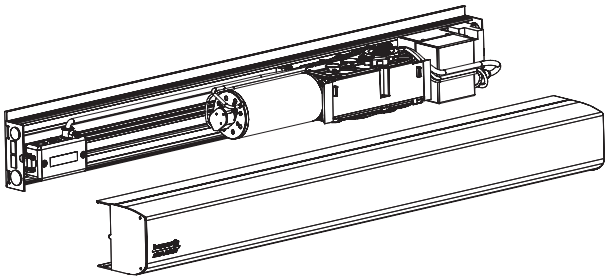
Swing Door
Besam SW200i™

ASSA ABLOY

ASSA ABLOY Entrance Systems

The global leader in door opening solutions

Technical Data Sheet



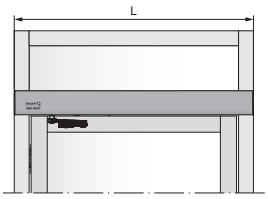
SW200i Swing Door Operator

The Besam SW200i automatic swing operator is intended for use in exterior or interior entryways, corridors and a variety of applications. The Besam SW200i heavy duty (HD) electro-mechanical operator is suitable for use on large heavy doors, yet adaptable enough to be used in low energy (LE) applications. The product can be either surface mounted or overhead concealed, on either side of the door, for pull or push applications. It is suitable for single doors, double doors and double egress doors fitted with swing clear hinges, offset pivots or center pivots. The operator is connected to the door leaf with a range of different arm systems.

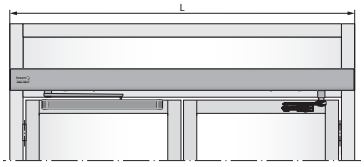
Besam SW200i is designed to offer continuous use, a high degree of safety and maximum performance over the lifetime of your entrance. The Besam SW200i ensures all-around safety and can be equipped with a full range of sensor products providing swing door safety that meets or exceeds ANSI A156.10 standard.

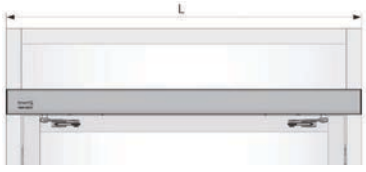
Operator Features and Performance

- Operator: electro-mechanical, non-handed operator, 24 volt, 5/16 hp motor
- ANSI Compliance: Field selectable full pedestrian usage (ANSI A156.10) and low energy (ANSI A156.19)
- Door Weight: up to 700 pounds (315 kg) per operator
- Door Size: up to 48" (consult for wider sizes)
- Manual Push Force: adjustable from 5 lbf – 15 lbf
- Hold Open Time: adjustable from 1.5 seconds to 30 seconds
- Wind Force Dampening: operator mechanically counteracts to wind forces, slowing down the opening or closing of the door
- Stack Pressure Compensation: operator counteracts to positive stack pressures, negative stack pressures, and sudden changes of stack pressures to maintain consistent door speeds
- Intelligent Trajectory Control: operator knows where the door should be at all times and adjusts torque accordingly. Dynamic braking helps cushion the door during opening to prevent going past 90 degrees, or during closing to prevent slamming.
- Extended Closing Torque (ECT): exclusive Extended Closing Torque (ECT) functionality provides extra torque in the last 10 degrees of closing, if needed, to close and latch the door. Speed remains constant so the door stays within ANSI standards.
- Latch Retry: if the door does not latch when closing, the SW200i will detect this condition and immediately open the door to 10 degrees and execute two attempts to latch the door.
- On-board timing sequencer
- On-board 12V or 24V transformer
- Low pass filter (i.e. "delay on make")
- Door position relay
- Kill input to close doors immediately
- Self-learning set-up – measures inertia and door weight
- Low Power Consumption (300 watts, 2.5 amp (max)



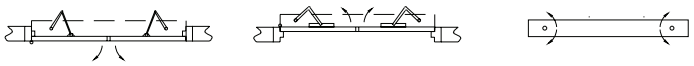
Door Set-ups:
Left: Single
Below Left: Simultaneous Pair
Below Right: Pair Egress





Operation

- Automatic sensor activation (ANSI A156.10)
- Push plate activation (ANSI A156.19 or A156.10)
- Push and go feature allowing door to open automatically when operator senses movement of door (ANSI A156.19)
- Power assist open – provides easy to open push forces (ANSI A156.19)
- Internal, push to open, push to close (i.e., ratchet relay) (ANSI A156.19)
- Speed controlled Extended Closing Torque (ECT) to provide power assist close with on-board functionality to automatically adjust torque without increasing speed
- Loss of Power: the operator controls the door closing, preventing slamming of door
- Torque Limiting: if positive air pressure condition is removed, operator compensates accordingly and will not slam



Door Operator Handings

Electric Lock Management

- Lock monitoring prevents operator(s) from opening door(s) until release of electrified lock
- Operator pulls door closed before opening, unjamming electric latch hardware
- Sequenced operation between operators for pairs of doors allowing lock release and astragal coordination
- Electric Lock Output: selectable 12 VDC, maximum 1200 mA / 24 VDC, maximum 600 mA

Sensor Monitoring

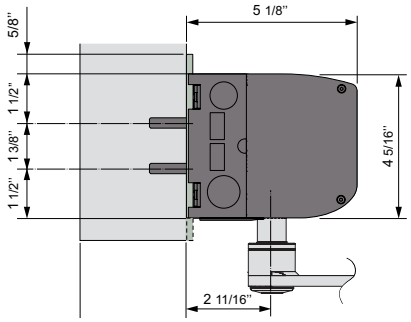
- Monitored Door Mounted Presence Sensors – upon detection of sensor failure, the operator will automatically revert to low energy mode
- Blanking Potentiometer: tells sensors on swing side of door when to shut off
- Sensor Recognition – learn process
- Torque Cancellation – Extended Closing Torque (ECT) is deactivated if signal is received from door mounted presence sensors of a possible obstruction

Aesthetics

- Aesthetically pleasing, low profile appearance: 4-5/16" (109mm) high by 5-1/8" (130mm) deep
- Continuous header for full width of door
- Same header/housing as Besam PowerSwing and Besam SW100 for consistent sightlines in your facility
- Finishes: anodized, powder coat, Kynar, clad

Configurations

- Surface Applied
- Overhead Concealed – center pivoted or offset pivoted doors
- Overhead Concealed – with emergency breakaway
- Side Load
- Bottom Load



Authorities

- UL/CUL approved
- UL Listed Fire Door Operator
- UL10C, UL325, UL991, UL244A, UL1998, UL1310
- IBC and CBC
- ANSI A156.10 / ANSI A156.19
- CAN/CSA-C22.2 NO 223-M91 and CAN/CSA-C22.2 NO 223-M92
- California State Fire Marshall

Sensor Packages

- Sensor Packages as follows:

ANSI A156.19

- Activation: push plates per your selection
- Safety devices: not required per ANSI. Optional door mounted presence sensors (DMPS) are available

ANSI A156.10

- Activation: push plates per your selection (motion sensors or push plates)
- Choice of Besam i-Adapt™ door mounted presence sensor system:
- A202 – Besam i-Adapt Premium – stand alone, adapted field, door mounted presence sensors (DMPS)
- A102– Besam i-Adapt Flex – overhead presence sensor (OPS) and two door mounted presence sensors (DMPS) per leaf (approach and safety)
- A101 – Besam i-Adapt Flex - overhead presence sensor (OPS) and one door mounted presence sensors (DMPS) per leaf (safety)
- A100 – Besam i-Adapt Flex – Knowing Act applications – pair egress only – motion sensor approach and safety side for secondary activation per ANSI A156.10

Authorities	
Operator type	Electro-mechanical
Door width	36" – 48" (914 – 1219mm)
Door weight	100 – 700 lb (45 – 315 kg)
Power supply	120 V AC +10/-15%, 50/60 hz
Power consumption	Max. 300W
Auxiliary voltage	24 V DC, max. 700 mA
Internal control fuse	2 x T 6, 3 AH 250 V
Electro-mechanical locking device	Selectable: 12V DC, max. | 1200 mA / 24 V DC, max. 600 mA
Door opening	**Push:** 80 – 110° with reveal 0 – 12" (0 – 305mm) **Pull:** 80 – 110o with reveal 0 – 5-1/8" (0 – 130mm) **PAS:** 80 – 95° (concealed application)
Opening time (0 – 80°)	Variable between 2 – 12 seconds
Closing time (90 – 100°)	Variable between 4 – 12 seconds
Hold open time	1,5-30 seconds
Ambient temperature	-31° F to 160° F (-35° C to 71° C)
Relative humidity	Max. 85%
Drive weight unit (non-condensing)	19.8 lb (9 kg)
This product is to be installed internally or externally with suitable weather protection.	
Class of protection	IP 20.
Complies with: ANSI/BHMA A156.19, ANSI/BHMA A156.10, UL325, UL 991, UL 244A, UL 1998, UL 1310, UL 10C, CAN/CSA-C22.2 NO 223-M91, CAN/CSA-C22.2 NO 247-92 and CA State Fire Marshall	

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info.na.besam@assaabloy.com
assaabloyentrance.us • assaabloyentrance.ca

COLUMN™

CM-75

36" & 9" PUSH PLATE SWITCHES

ADA

FEATURES

- HEAVY DUTY CONSTRUCTION, ADA COMPLIANT
- LOW PROFILE CONTOURED DESIGN WITH EASY ACTIVATION FROM SIDE ANGLES
- EXCEEDS CALIFORNIA BUILDING CODE, SECTION 1117B.6 REQUIREMENTS
- OVER 94 SQUARE INCHES TOTAL ACTIVATION AREA (CM-7536)
- (2) FULLY REDUNDANT SPDT,15 AMP., UL LISTED SWITCHES (CM-7536)
- CHOICE OF CLEAR ALUMINUM AND DARK BRONZE ARCHITECTURAL FINISHES
- CHOICE OF 4 DIFFERENT STOCK GRAPHICS
- OPTIONAL 'SNAP-IN' LAZERPOINT RF™ WIRELESS TRANSMITTERS
- ADJUSTABLE LEVELING SCREWS FOR EASY INSTALLATION ON UNEVEN WALLS
- NO INTERNAL WIRES EXPOSED TO MOVING PARTS

CM-7536/4

CM-7536/4BRZ

DESCRIPTION

Camden Door Controls CM-75 Series Column™ push plate switches offer the latest word in rugged and attractive ADA compliant switch design that are easy to install (wired or wireless), easy to activate (from any angle) and provide years of trouble free operation. CM-75 are the only models in the industry that provide (2) fully redundant, heavy duty, 15 Amp switches. The switch components are UL Listed.

With a profile of less than 1.5" (38mm), Column™ push plate switches offer an elegant design that is both attractive and offers easier activation. Models are available in anodized aluminum finish (epoxy printed blue graphics) or dark bronze anodized finish (epoxy printed white graphics).

The innovative end caps are made of impact and flame resistant polycarbonate, designed for easy 'snap-in' installation and service of Lazerpoint RF™ wireless transmitters and batteries.

CM-7509/4

APPLICATION

Camden Door Controls, Column™ series push plate switches are ADA compliant and exceed the requirements of the California Building Code, Section 1117B.6., where activation switches for automatic doors are located not more than 48 inches (1219 mm) nor less than 15 inches (381 mm) to the level of a finish floor or working platform. CM-75 Column™ switches are designed to eliminate the need to install two activation switches to meet this code requirement.

CM-75 Column™ switches are easily mounted on exterior or interior surfaces and offer 4 leveling screws to accommodate uneven walls, such as brick or concrete. For installations that require an exterior freestanding switch, CM-75 series switches are compatible with color matched Camden CM-42 and CM-48 Series anodized aluminum and dark bronze bollards.

The (2) fully redundant SPDT momentary switches rated 15 Amps, are hardwired to the automatic door controller, or to a field installed Lazerpoint RF™ CM-TX-9 transmitter. Lazerpoint RF™ transmitters offer superior range, stuck switch alarm, battery test gauge and up to 500,000 activations utilizing standard AAA alkaline batteries.

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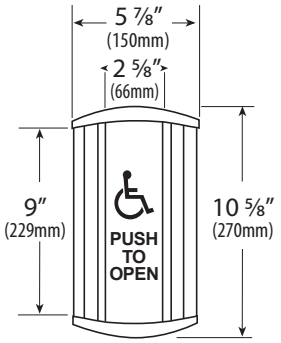
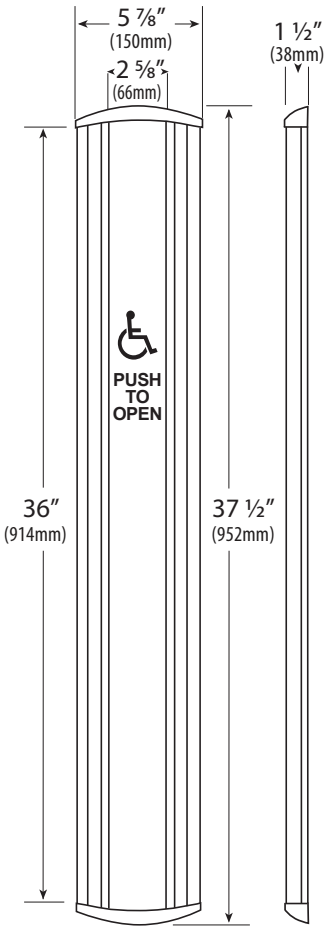
COLUMN™

SPECIFICATIONS

DIMENSIONS:	**CM-7536:** 37 1/2"H x 5 7/8"W x 1 1/2"D OVERALL (952mm x 150mm x 38mm) **CM-7509:** 10 5/8"H x 5 7/8"W x 1 1/2"D OVERALL (270mm x 150mm x 38mm)
CONSTRUCTION:	HEAVY DUTY EXTRUDED ALUMINUM
FINISH:	**CM-75:** ANODIZED CLEAR ALUMINUM **CM-75/BRZ:** ANODIZED DARK BRONZE
OPERATING VOLTAGE:	12 OR 24V AC/DC
CONTACT TYPE:	**CM-7536:** (2) SPDT MOMENTARY, FORM 'C' **CM-7509:** (1) SPDT MOMENTARY, FORM 'C'
CONTACT RATING:	15 AMPS @ 30V
COMPLIANCE:	UL LISTED SWITCH COMPONENTS, ADA COMPLIANT, MEETS CALIFORNIA STATE BUILDING CODE, 1117B.6
OPTIONAL WIRELESS:	'SNAP-IN' LAZERPOINT RF™ WIRELESS TRANSMITTER (SEE SEPARATE SPEC SHEET FOR DETAILS)



CM-7509/4



CM-7536/4

ORDERING INFORMATION

MODEL	DESCRIPTION
CLEAR ALUMINUM ANODIZED FINISH	
36" MODELS	
CM-7536/1	36" LONG, NO GRAPHICS
CM-7536/2	36" LONG, WHEELCHAIR SYMBOL ONLY
CM-7536/3	36" LONG, 'PUSH TO OPEN'
CM-7536/4	36" LONG, 'PUSH TO OPEN' AND WHEELCHAIR SYMBOL
9" MODELS	
CM-7509/2	9" LONG, WHEELCHAIR SYMBOL ONLY IN BLUE
CM-7509/4	9" LONG, 'PUSH TO OPEN' AND WHEELCHAIR SYMBOL IN BLUE
DARK BRONZE ANODIZED FINISH	
CM-7536/1BRZ	36" LONG, NO GRAPHICS IN BLUE
CM-7536/2BRZ	36" LONG, WHEELCHAIR SYMBOL ONLY IN BLUE
CM-7536/3BRZ	36" LONG, 'PUSH TO OPEN' IN BLUE
CM-7536/4BRZ	36" LONG, 'PUSH TO OPEN' AND WHEELCHAIR SYMBOL IN BLUE
CM-75 WITH FACTORY SUPPLIED WIRELESS TRANSMITTER	
/TX	LAZERPOINT RF™ 915MHZ. TRANSMITTER WITH BATTERIES, SUFFIX 'TX' TO ABOVE MODEL NUMBERS
COMPATIBLE 48" AND 42" TALL BOLLARDS (MOUNTING POSTS)	
CM-48-DSU-CLR 48"	EXTRUDED ALUMINUM BOLLARD, CLEAR ALUMINUM FINISH
CM-48-DSU-BRZ 48"	EXTRUDED ALUMINUM BOLLARD, DARK BRONZE FINISH
CM-42-DSU-CLR 42"	EXTRUDED ALUMINUM BOLLARD, CLEAR ALUMINUM FINISH
CM-42-DSU-BRZ 42"	EXTRUDED ALUMINUM BOLLARD, DARK BRONZE FINISH

Contact factory for custom CM-75 switch orders including different lengths, finishes, graphics and LED indicators.

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BSI FS 541752 Certified ISO 9001: 2008

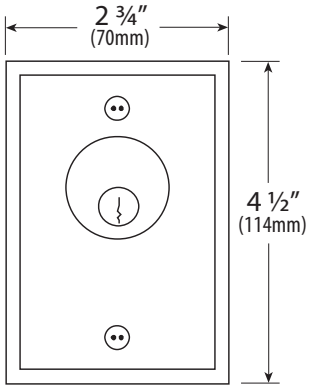
CM-1100/2000

CAST ALUMINUM KEY SWITCH CONTROLS

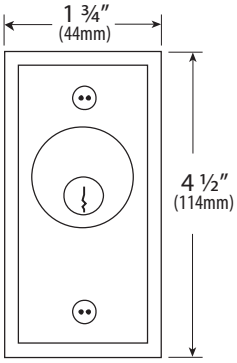
CM-1100

CM-2000

Shown with mortise cylinder (sold separately)



CM-1100



CM-2000

FEATURES

- SINGLE GANG AND NARROW STYLE MODELS
- ACCEPTS STANDARD MORTISE CYLINDERS, 1" – 1 1/4"
- HEAVY DUTY 1/4" THICK ALUMINUM PLATE
- 1 PIECE DIE CAST CONSTRUCTION
- LOCATORS PREVENT CYLINDER FROM SPINNING
- NO SET SCREWS REQUIRED
- VANDAL RESISTANT
- CYLINDER SITS FLUSH TO FACEPLATE
- TAMPER PROOF SCREWS & DRIVER PROVIDED
- INDOOR OR OUTDOOR APPLICATIONS
- UL/CSA APPROVED SWITCHES
- 1 OR 2 SWITCHES MAY BE INSTALLED
- LEFT AND/OR RIGHT OPERATION
- WIDE RANGE OF SWITCH CONFIGURATIONS
- COLOR CODED 18 AWG SOLDERED LEADS
- HEAT SHRINK PROTECTIVE SLEEVE OVER CONTACTS
- CASTED CENTRE RIB PROTECTS SWITCHES FROM DAMAGE
- BRUSHED ALUMINUM FINISH
- CUSTOM COLOR FINISHES & ENGRAVING AVAILABLE
- OPTIONAL LED INDICATORS
- FAST & EASY TO INSTALL

DESCRIPTION

Camden Door Controls, CM-1100 and CM-2000 Series flush mount key switches meet the stringent demands of key switch controls. They are designed for use with standard 1", 1 1/8", or 1 1/4" mortise cylinders. Fabricated from 1/4" thick aluminum, into a one piece die cast construction, with unique Camden Manufacturing features.

CM-1100 is single gang (2 3/4") width, CM-2000 is only 1 3/4" wide, perfect for door frames or narrow areas. Both models accept one or two switches, and have a counter sunk cylinder opening, in a one piece casted assembly. A brass cylinder lock ring, 2 socket/slotted screws, and 2 tamperproof screws with driver, are also supplied. (The mortise cylinder is available separately from Camden Door Controls.) The design and construction makes it ideal for all-weather environments. The assembly is tamper and vandal resistant.

CM Key Switches are flexible, and can be supplied in numerous switch configurations to suit varied commercial and industrial applications, and functions. Camden Key Switches provide a practical, cost effective means for authorized personnel to control and signal various functions within a complex.

APPLICATION

CM-1100 and CM-2000 Series Key Switches will control overhead doors, electric locks, electro-magnetic locks, electric strikes, and motors. They are also used for shunting, bypassing, timed functions, activating and deactivating CCTV and access control equipment, and other applications. They are constructed for high frequency use, and will accept a standard mortise cylinder.

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Tel: (905) 366-3377 • Fax: (905) 366-3378 • E-mail: info@camdencontrols.com • www.camdencontrols.com

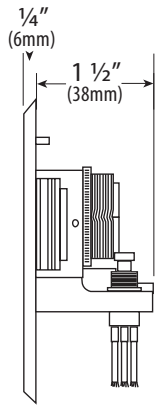
ARCHITECTS / ENGINEERS SPECIFICATIONS

Key Switch Controls to be used throughout the site, or complex will be supplied exclusively by Camden Door Controls. The CM-1100 and CM-2000 Series key switches shall be used for all flush mount applications.

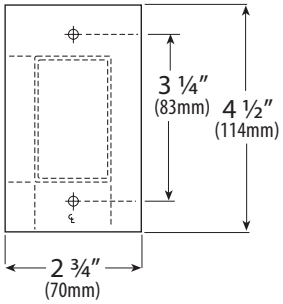
The faceplate will incorporate a mounting platform for both the cylinder and switches, in a single piece construction. The faceplate will have 180° locators so that set screws shall not be required to prevent the cylinder from rotating. Only a brass cylinder lock ring will be employed to hold the mortise cylinder to the faceplate. The one piece 1/4" thick aluminum assembly shall be tamper and vandal resistant, with a countersunk cylinder opening, and the edges beveled. The key switch shall be supplied with stainless steel Torx or snake eye security screws.

The one piece faceplate with casted mounting platform, will have two holes for switch mounting. It shall be possible to select either left or right operation. In areas requiring dual control, two switches shall be used offering bi-directional operation from the same key switch.

The switch component used will be a UL/CSA approved type, rated for 6A/30VDC. Switches are to be supplied with color coded soldered leads, encased in heat shrink tubing. The switch must be protected from accidental damage from the cylinder cam, by having an integral metal centre rib incorporated into the design of the faceplate.



CM-1100



CM-1100

ORDERING INFORMATION

All CM-1100 and CM-2000 Series Key Switches are supplied with a brushed aluminum cast faceplate, cylinder lock ring, 2 socket/slotted screws, and 2 tamperproof screws with driver. (The mortise cylinder is not included, but is available from Camden Door Controls.)

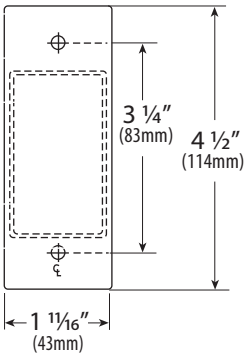
MODEL	MODEL	DESCRIPTION
SINGLE GANG	**NARROW STYLE**	
CM-1100	CM-2000	1 SPST MOMENTARY SWITCH, N/O
CM-1105	CM-2005	1 SPST MOMENTARY SWITCH, N/C
CM-1110	CM-2010	1 SPST MAINTAINED SWITCH
CM-1120	CM-2020	1 SPDT N.O. & N.C. MOMENTARY
CM-1130	CM-2030	1 SPDT N.O. & N.C. MAINTAINED
CM-1150	CM-2050	2 SPDT MOMENTARY SWITCHES
CM-1160	CM-2060	2 SPDT MAINTAINED SWITCHES
CM-1170	CM-2070	1 SPDT MAINTAINED, + 1 SPDT MOMENTARY
CM-1180	CM-2080	1 DPDT MOMENTARY SWITCH
CM-1182	CM-2082	2 DPDT MOMENTARY
CM-1190	CM-2090	1 DPDT MAINTAINED SWITCH
CM-1192	CM-2092	2 DPDT MAINTAINED SWITCH

FOR LED INDICATORS, ADD:

-7012	RED 12V LED
-7112	GREEN 12V LED
-7212	RED & GREEN 12V LED'S
-7024	RED 24V LED
-7124	GREEN 24V LED
-7224	RED & GREEN 24V LED'S
-7412	AMBER 12V LED
-7424	AMBER 24V LED
-7612	BI-COLOR 12V LED
-7624	BI-COLOR 24V LED

FOR FINISHES, ADD:

'BZ'	DARK BRONZE FINISH (BHMA 710, 313AN)



CM-2000

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BSI FS 541752 Certified ISO 9001: 2015

1600 Series™ Electric Strike

Works with all brands of cylindrical and mortise locksets, with or without a deadbolt

Also available in a Complete One Box Solution

The 1600 Series electric strike accommodates up to a 1" deadbolt with enhanced vertical cavity spacing.

The 1600 Series Electric Strike sets a new standard in the industry by offering dynamic integrated adjustability and field configurable options compatible with any cylindrical or mortise lock. The modular design of the platform makes stocking and installing easier with interchangeable faceplates and accessories. For the first time, the aesthetics of an electric strike are complementary to other surrounding door hardware and blend in with the opening due to the fully finished design, available in eight finishes.

Features

Standard Features

- Stainless steel construction
- Tamper resistant
- Static strength 1,500 lbs
- Dynamic strength 70 ft-lbs
- Endurance 1 million cycles
- Field selectable fail safe/fail secure
- Non-handed
- Interchangeable faceplates and accessories
- Field replaceable components
- Fully finished faceplate, keeper, case and trim
- Field adjustable integrated shim
- Strike body depth 1-5/8" [41.3mm]
- SecuriCare five-year, no-fault, no questions asked warranty

Optional Features

- **LM** Lock monitor
- **DLM** Dual lock monitors
- **LMS** Lock monitor and strike monitor
- **DLMS** Dual lock monitors and strike monitor

Accessories

- **157** Torx screws
- **HESCUT-MTK** Metal template kit
- **1600-104-xxx** Lip extension trim adapter (finish to match)
- **1600-106-xxx** 1006 adapter and trim enhancer kit (finish to match)
- **OPT-1SRK** Spring replacement kit
- **OPT-1LM** Single lock monitor
- **OPT-1DLM** Dual lock monitors
- **MOD-1SOL** Solenoid replacement module

For easy 3D instructions, download the BILT mobile app

BILT

CERTIFIED

UL CERTIFIED

Grade 1 | SecuriCare 5 Year Warranty | Mortise Locks with Deadbolt | Mortise Locks without Deadbolt | Cylindrical Locksets | Field Selectable (Fail secure /Fail safe) | Dual Voltage 12/24 | PoE Friendly | Fire Rated | Windstorm Resistant | Outdoor Rated | Burglary Rated

Specifications

Certifications

- ANSI/BHMA A156.31, Grade 1
- UL 1034 burglary-resistant listed and suitable for outdoor use
- UL 294 listed
- RoHS compliant
- UL 10C fire rated, 3-hour single door (fail secure only)
- UL 10C fire rated, 1-1/2 hour double door (fail secure only)
- CAN/ULC-S104 fire door conformant
- NFPA-252 fire door compliant
- ASTM-E152 fire door compliant
- California Fire Marshal listed
- ANSI/SDI A250.13 windstorm resistant
- Florida Building Code approved TAS 201, 202, 203
- ANSI-ASTM E330

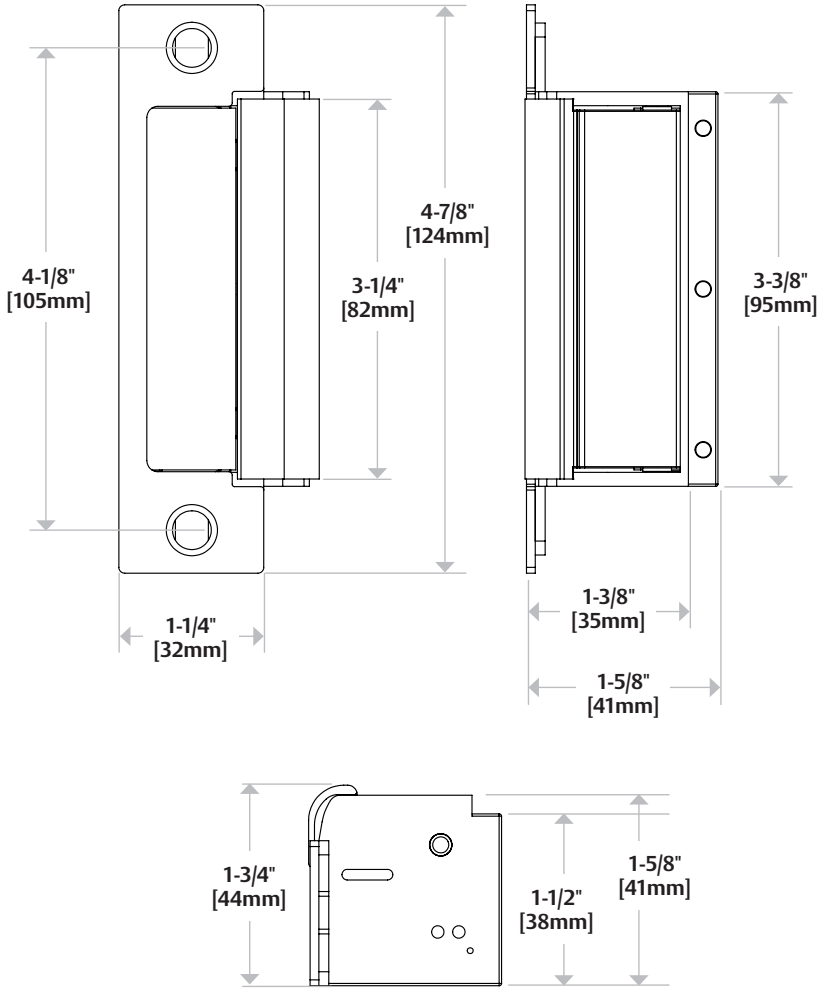
Frame Application

- Metal
- Wood

Electrical (DC Continous Duty)

- Dual voltage 12/24 VDC/VAC
- 240 mA at 12 VDC/120 mA at 24 VDC
- PoE friendly

Dimensions



How to Order

SERIES	MODEL	FINISH*	OPTION (S)
1600	– CS	– 630	– LM
1600 Universal Electric Strike	**(blank)** Electric strike body only, faceplates ordered separately	**605** Bright Brass	**(blank)** No Monitor
	CS* Complete Electric Strike; includes 1LB faceplate kit for latchbolts and 1DB faceplate kit for deadbolts	**606** Satin Brass	**LM** Lock Monitor
		612 Satin Bronze	**DLM** Dual Lock Monitor
		613 Bronze Toned	**LMS** Lock Monitor and Strike Monitor
		613E Dark Oxidized Satin Bronze Powder	
	CLB* Complete Electric Strike for Latchbolt Locks; includes 1LB faceplate kit for latchbolts	**629** Bright Stainless Steel	**DLMS** Dual Lock Monitors and Strike Monitor
		630 Satin Stainless Steel	
	CDB* Complete Electric Strike for Deadbolt Locks; includes 1DB faceplate kit for deadbolts	**BSP** Black Suede Powder	

**Complete Pacs are only available in the 630 finish*

NOTE: Electric strike compatibility is determined at time of electric strike product release. ASSA ABLOY is not responsible for incompatibility of products that have changed in design or craftsmanship by their respective manufacturers. When compatibility is a concern, contact Customer Support for application assistance.

100 Series Concealed Overhead Door Holders/Stops

100 Series Heavy-Duty

Glynn-Johnson offers a complete line of overhead door holders and stops, accommodating virtually all openings with solutions for even the most complex door control problems. These concealed holders and stops provide the most attractive and reliable heavy-duty door control available.

Glynn-Johnson 100 series holders and stops provide the most reliable and versatile concealed overhead door control. They are designed for installation on virtually all types of doors mounted on conventional type butt hinges, pivots, continuous hinges, swing clear hinges and numerous other specialty hinges. When used in conjunction with many surface-applied door closers, 100 series holders and stops provide the most effective control for entrance doors and vestibule doors of all types, as well as heavy or often used interior doors. Templates provided allow for variable mounting positions, ranging from 85° - 110° of opening.

Five Models:
- 100H Series Hold-Open Model
- 100HP Series Internal Hold-Open Model
- 100F Series Friction Hold-Open Model
- 100S Series Stop-Only Model
- 100SE Series Special Stop-Only Model

Six Sizes:
- Each model comes in six sizes.
- Simple
- Standardized

Three Options:
- ADJ—Adjustable Jamb Bracket
- CJ—Jamb Bracket for use with LCN5030 Closer
- SOC—Pin-in-Socket Security Screw Package

Unmatched Convenience:
- Non-handed
- Improved Compatibility with Door Closers
- Single/Double-Acting Doors
- Interior/Exterior Applications
- Reduced Door Prep
- Durable
- Improved Corrosion Resistance
- Function Conversion Kits are Available.

Materials and Finishes:
In Heavy Gauge Brass or 300 Series Stainless Steel, these models offer the broadest range of finishes in the industry, complementing any design and offering the highest resistance to corrosion. Available in the following finishes:

Finishes	Description
US3	Polished Brass
US4	Satin Brass
US10	Satin Bronze
US10B	Oil Rubbed Bronze
US32	Polished Stainless Steel
US32D	Satin Stainless Steel
SP4	Powder Coat Brass
SP10	Powder Coat Bronze
SP28	Powder Coat Aluminum
SP313	Powder Coat Dark Bronze
SPBLK	Powder Coat Black

Models

These models provide a wide range of optional features, and are ideal for use on entrance and vestibule doors, large doors, doors opened frequently, or doors subject to abuse. These models are also furnished with an offset-style jamb bracket.

Designed for heavy-duty applications, 100 series models will provide long-lasting protection to doors, frames, hinges, related hardware and surrounding walls or obstructions.

100H Series Hold-Open

(Suffix H) The Hold-Open function should be used where it is desired to hold a door open at a predetermined position for short or long periods of time, permitting an unobstructed traffic flow through the opening.

These models are both selective and adjustable, featuring the most reliable Hold-Open mechanism available. They feature a control knob which protrudes from the face of the door and turns the Hold-Open function on or off. Set in the inactive position, the unit acts as a stop and shock absorber. The tension on the Hold-Open mechanism can be adjusted using an allen wrench to offset air currents or other exterior conditions. The Hold-Open tension adjustment is located in the bottom of the track in the top of the door.

100HP Series Internal Hold-Open

These models provide a Hold-Open unit with the Hold-Open mechanism built into the channel, thus reducing the door prep. The 100HP have a preset Hold-Open force that is not adjustable. The Hold-Open feature is not selectable in these units, so the doors are always held open.

100F Series Friction Hold-Open

(Suffix F) Friction Hold-Open models provide an alternative holding method, ideal for heavy patient room doors, closet doors or similar applications where multiple Hold-Open positions are desired. The friction tension is adjusted using an allen wrench and an open end wrench. The friction tension adjustment is located on the top of the slider in the channel.

100S Series Stop-Only

(Suffix S) When the Hold-Open function is not required, the Stop-Only function provides the same effective door control minus the Hold-Open feature. The Stop-Only model may be used on fire doors.

100SE Series Special Stop-Only

(Suffix SE) When Stop-Only models are used in conjunction with single point Hold-Open electronic door closers, they may be ordered without the shock-absorbing mechanism. Used as an auxiliary stop with these closers, they will prolong the life of the closer. The stop location is adjusted using an allen wrench on the stop block located in the channel.

Note: Caution should be used when using this option in other applications, as the elimination of the shock-absorbing spring can put added stress on door and frame if used improperly.

Application Information

UL Classification

The 100 series Stop-Only models are classified by Underwriters Laboratories (UL) as Miscellaneous Fire Door Accessories. This classification applies to use on either Hollow Metal Fire Doors or Wood Fire Doors. Where Wood Door manufacturer's listing allows for the cutout required for installation, concealed overhead stops may be used on those wood fire doors. These units may be used on doors of any rating. As a reminder, the Miscellaneous Fire Door Accessories (GVUX) section is defined by UL as: "Miscellaneous fire door accessories are intended in the individual Listings. The accessories have been investigated to determine that when installed in accordance with the manufacturer's instructions, the accessories do not adversely affect the fire rating of the fire door and/or fire door frames."

Dead Stop Templating:

If a wall or similar obstruction is in place at 110° or less opening angle (i.e. doors that open back-to-back), Dead Stop Templating should be used. This includes all Hold-Open, Friction and Stop-Only models, except when the "SE" Option is used. The Dead Stop position is reached when the shock-absorbing spring is fully compressed, the initial degree of opening will be 5° to 7° less than the Dead Stop opening.

Example: If the holder is templated to 100° Dead Stop, the door will hold open somewhere between 93° and 95°, but no further than 100°.

Note: Do not use dead-stop templating on the 100SE Series since there is no shock-absorbing spring.

Environmental Considerations:

Environmental factors should always be considered when specifying overhead holders and stops. Doors that are positioned on a building's exterior or subject to corrosive conditions should be equipped with a holder constructed primarily of stainless steel or brass materials. For interior applications, steel is acceptable, though brass substrates generally provide a more attractive architectural-grade finish.

Function Conversion Kits

- FK100F—Converts a 100H or 100S unit into a 100F unit. To order specify FK100F.
- FK100H—Converts a 100F or 100S unit into a 100H unit. To order specify FK100H.
- No kit is needed to convert a 100H or 100F unit into a 100S unit.

Options

Suffix ADJ (Adjustable Jamb Bracket):

An additional option on the 100 series is the adjustable jamb bracket, which allows the degree of Hold-Open or Stop angle to be adjusted after installation. Suffix "ADJ" is available in all functions, but only in sizes 3, 4, 5 & 6. ADJ jamb bracket requires additional frame prep. The ADJ option cannot be added to an existing unit, it must be factory ordered.

Suffix CJ (Closer Jamb Bracket):

Provides a special jamb bracket needed for 100 series units used with LCN5030 closers. These special jamb brackets are handed, so handing will need to be specified when ordering the "CJ" option, CJLH for a left hand door and CJRH for a right hand door. The CJ option cannot be added to an existing unit, it must be factory ordered.

Suffix SOC (Pin-in-Socket Security Screw Package):

A screw package with pin-in-socket screws for mounting the jamb bracket to the frame is provided instead of the standard screw package.

242F
Dome Stop - Universal

Notes:

- For use with wood or concrete floors

PRODUCT SPECIFICATIONS

CERTIFICATIONS:
- Meets ANSI A156.16 for L02141

DIAMETER:
- 1-11/16" (43 mm)

BASE THICKNESS:
- 7/32" (6 mm)

OVERALL HEIGHT:
- 1 5/8" (41 mm)

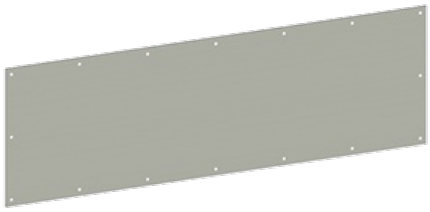
MATERIAL:
- Brass with grey rubber bumper

FINISHES:
- US3, US4, US10B, US15, US26, US26D

FASTENERS:
- One (1) #14 x 1-1/2" FPHWS, one (1) 1/4-20 x 3/4" FPHMS, one (1) 1/4-20 lead anchor and one (1) plastic anchor

190S

Door Protection Plate
0.050" gauge with four beveled edges



NFPA Notes:

- NFPA 80 Standards
- 6.4.5 Protection Plates 6.4.5.1
- Factory installed protection plates shall be installed in accordance with the listing of the door. 6.4.5.2
- Field installed protection plates shall be labeled and installed in accordance with their listing. 6.4.5.3
- Labeling shall not be required where the top of the protection plate is not more than 16" (406mm) above the bottom of the door.
- Note: If needing the 190S with rounded corners, please order the 196R.

PRODUCT SPECIFICATIONS

GAUGE:
- 0.050" (1 mm)

MATERIALS:
- Aluminum, Brass, Bronze, Stainless Steel

FINISHES:
- US3, US4, US10, US10B, DBZ, US28, US32, US32D

BEVEL:
- 4 edges

ORDER:
- Furnish item #, height, width, and finish (i.e., 190S – 6" x 30", US32D).
- Plates are sized on even inches. Odd size available and priced to next larger size.
- May be ordered with countersunk holes (specify "CSK") at extra charge.

OPTIONS:
- UL listed for US32 and US32D with screw fasteners (must specify UL stamp)
- Self-adhesive tape available on all plates
- Spanner head screws
- Torx head screws
- Round corners - specify 196R
- Wrap around side and bottom return
- 0.125" material

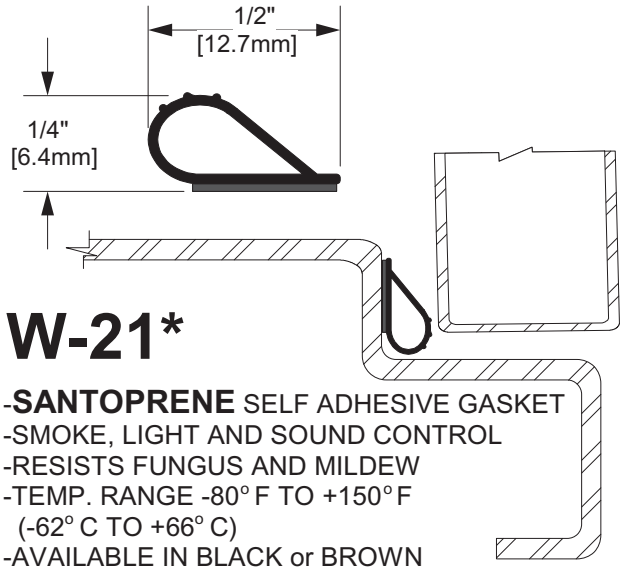
CERTIFICATION:
- Meets ANSI A156.6 for J101 Metal Armor Plate, J102 Metal Kickplate, and J103 Metal Mop Plate

EPD:
- Door Protection Plates Environmental Product Declaration

PRODUCT SIZE OPTIONS

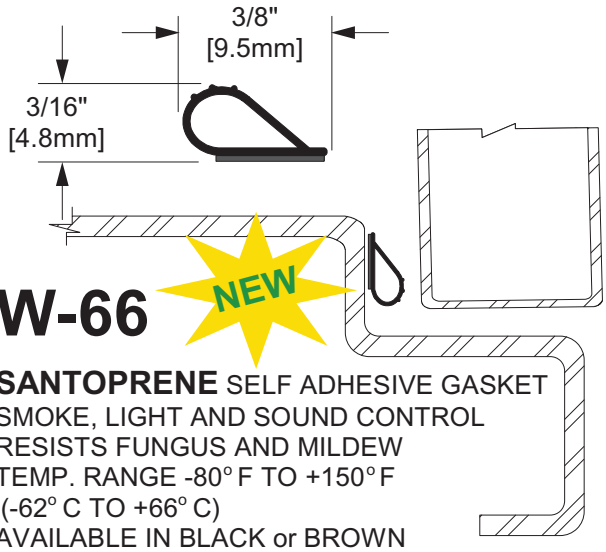
ITEM #	B&S GAUGE	US GAUGE	BEVEL	FASTENERS	QUANTITY BAG	QUANTITY CASE
190S	16	18	B4E	#6 x 5/8 truss head screws	1 each	- - -
196R	16	18	none	#6 x 5/8 truss head screws	1 each	- - -
198S	- - -	20	none	#6 x 5/8 truss head screws	1 each	- - -
199B	- - -	20	none	#6 x 5/8 truss head screws	1 each	- - -
220S	14	16	B4E	#6 x 5/8 truss head screws	1 each	- - -

SELF ADHESIVE WEATHERSTRIP



W-21*

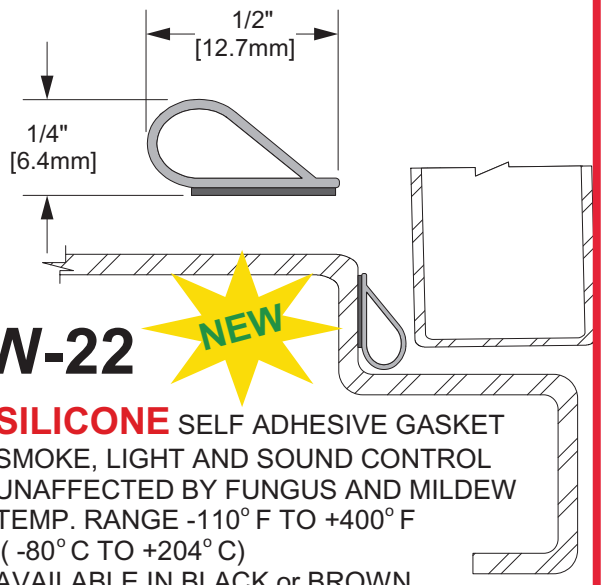
-**SANTOPRENE** SELF ADHESIVE GASKET
-SMOKE, LIGHT AND SOUND CONTROL
-RESISTS FUNGUS AND MILDEW
-TEMP. RANGE -80° F TO +150° F
(-62° C TO +66° C)
-AVAILABLE IN BLACK or BROWN



W-66

NEW

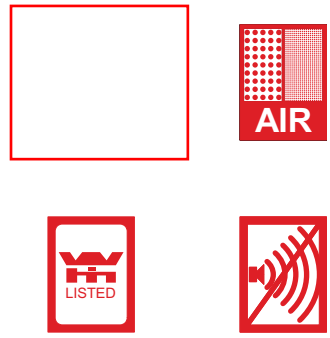
-**SANTOPRENE** SELF ADHESIVE GASKET
-SMOKE, LIGHT AND SOUND CONTROL
-RESISTS FUNGUS AND MILDEW
-TEMP. RANGE -80° F TO +150° F
(-62° C TO +66° C)
-AVAILABLE IN BLACK or BROWN



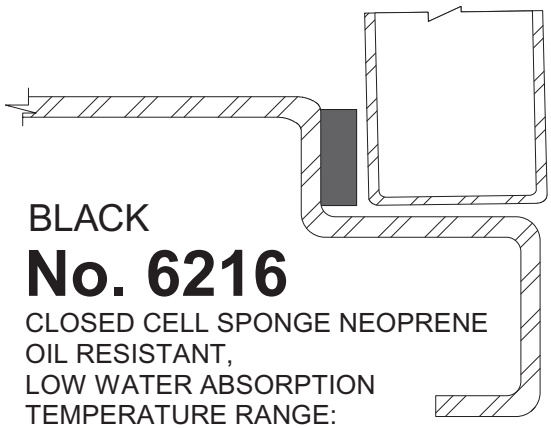
W-22

NEW

-**SILICONE** SELF ADHESIVE GASKET
-SMOKE, LIGHT AND SOUND CONTROL
-UNAFFECTED BY FUNGUS AND MILDEW
-TEMP. RANGE -110° F TO +400° F
(-80° C TO +204° C)
-AVAILABLE IN BLACK or BROWN



*W-21 is approved for use with 90 minute rated mineral core wood, plastic lamfaced fire doors & wood veneered steel frames.



BLACK

No. 6216

CLOSED CELL SPONGE NEOPRENE
OIL RESISTANT,
LOW WATER ABSORPTION
TEMPERATURE RANGE:
-70° TO +250° F (-57° C TO +121° C)

ADHESIVE BACKED NEOPRENE WEATHERSTRIP

1/16" x 3/8"	3/16" X 1/4"	3/8" X 1/2"
1/16" x 1/2"	3/16" X 3/8"	3/8" X 3/4"
1/8" x 1/4"	3/16" X 1/2"	1/2" X 1/2"
1/8" x 3/8"	1/4" X 3/8"	1/2" X 3/4"
1/8" x 1/2"	1/4" X 1/2"	
	1/4" X 3/4"	

OTHER SIZES/COLOURS, SPECIAL ORDER: CONTACT OFFICE