| All above Sections by Invizij Architects unless noted otherwise. | | No. of Pages | Date (Y/M/D) |
|---|---|---|---|
| DIVISION 00 – BIDDING AND CONTRACT REQUIREMENTS | | | |
| 00 01 10 | Specification Index | 2 | 2025/01/21 |
| 00 01 15 | List of Drawings | 2 | 2025/01/08 |
| DIVISION 01 – GENERAL REQUIREMENTS | | | |
| 01 10 10 | General Instructions | 8 | 2025/01/21 |
| 01 26 00 | Valuation of Changes to Work | 2 | 2025/01/21 |
| 01 29 73 | Schedule of Values | 2 | 2025/01/21 |
| 01 31 19 | Meeting and Progress Records | 2 | 2025/01/21 |
| 01 32 16 | Construction Schedule | 2 | 2025/01/21 |
| 01 33 00 | Submittals | 2 | 2025/01/08 |
| 01 33 23 | Shop and Interference Drawings | 2 | 2025/01/08 |
| 01 42 13 | Abbreviations | 4 | 2025/01/08 |
| 01 45 00 | Quality Control | 2 | 2025/01/08 |
| 01 52 00 | Temporary Facilities and Controls | 4 | 2025/01/21 |
| 01 60 00 | Products and Workmanship | 2 | 2025/01/08 |
| 01 62 00 | Substitutions and Product Options | 2 | 2025/01/08 |
| 01 74 00 | Environmental Protection and Cleaning | 2 | 2025/01/08 |
| 01 77 00 | Contract Closeout and Take-over Procedures | 2 | 2025/01/08 |
| DIVISION 02 – SITEWORK | | | |
| 02 41 00 | Demolition | 4 | 2025/01/08 |
| DIVISION 03 – CONCRETE – NOT USED | | | |
| DIVISION 04 – MASONRY – NOT USED | | | |
| DIVISION 05 – METALS | | | |
| 05 51 00 | Handrails and Guards | 4 | 2025/01/21 |
| DIVISION 06 – WOOD AND PLASTIC – NOT USED | | | |
| DIVISION 07 – THERMAL AND MOISTURE PROTECTION | | | |
| 07 92 00 | Sealants | 4 | 2025/01/21 |
| DIVISION 08 – DOORS AND WINDOWS – NOT USED | | | |
| DIVISION 09 – FINISHES | | | |
| 09 21 16 | Gypsum Board | 6 | 2025/01/21 |
| 09 65 13 | Resilient Base | 2 | 2025/01/21 |
| 09 64 53 | Resilient Wood Flooring System (RWFS) | 4 | 2025/01/21 |
| DIVISIONS 10 Through 14, 31, 32 & 33 – NOT USED | | | |

APPENDIX A: Additional Owner Directed Work

1. Pre-Construction Designated Substances and Hazardous Materials Survey, dated 2024/10/15 Prepared by MTE.
2. Designated Substances and Hazardous Materials – Scope, dated 2024/10/15 prepared by MTE

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| | | Date (Y/M/D) |
|---|---|---|
| **ARCHITECTURAL DRAWINGS – by Invizij Architects** | | |
| A0.01 | Cover Page, General Notes, Assemblies and O.B.C. Matrix | 2025/01/08 |
| A1.00 | Ground Floor - Context Plan | 2025/01/08 |
| A1.01 | Stage Extension - Floor Plan | 2025/01/08 |
| A2.00 | Stage Elevation | 2025/01/08 |
| A3.00 | Stage Access – Stair Details | 2025/01/08 |
| A3.01 | Stage Access – B.F. Lift Details | 2025/01/08 |
| AD1.00 | Existing Stage - Demo Plan | 2025/01/08 |
| **STRUCTURAL DRAWINGS by Kalos Engineering** | | |
| S0.01 | Cover Sheet & General Notes | 2025/01/08 |
| S1.01 | Proposed Stage Floor Plan | 2025/01/08 |
| **MECHANICAL DRAWINGS by E&M Engineering** | | |
| M0-0 | Mechanical Legend & Drawing List | 2025/01/08 |
| M1-0 | Auditorium HVAC System Layout – Demo – Ground Floor | 2025/01/08 |
| M2-0 | Auditorium HVAC System Layout – New – Ground Floor | 2025/01/08 |
| M3-0 | Specification | 2025/01/08 |
| M3-1 | Specification | 2025/01/08 |
| **ELECTRICAL DRAWINGS by E&M Engineering** | | |
| E0-0 | Electrical Legend & Drawing List | 2025/01/08 |
| E1-0 | Electrical – Basement Part Plan | 2025/01/08 |
| E2-0 | Electrical – Ground Floor Part Plan | 2025/01/08 |
| E3-0 | Electrical Schedules | 2025/01/08 |
| E4-0 | Specification | 2025/01/08 |
| E4-1 | Specification | 2025/01/08 |

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1.1 GENERAL REQUIREMENTS

1. Unless specified otherwise, the provisions of this Section shall apply to all Sections of the Specifications.

1.2 SUBDIVISION OF WORK

1. The Specifications have generally been divided into trade divisions, and the trade divisions into sections for the purpose of ready reference, but a section may consist of more than one Subcontractor or supplier. The responsibility for determining which Subcontractor or supplier shall provide labour, materials, products, equipment and services to complete the work rests solely with the General Contractor.

1.3 STANDARDS AND DEFINITIONS

1. The term "Consultant" and the term "Architect" which appears elsewhere in the Bidding Documents, shall be interchangeable, and shall, in both cases, refer to Invizij Architects Inc.
2. Where a reference is made to specification standards produced by various organizations, conform to latest edition of standards as amended and revised to date of Contract.
3. Wherever the words "acceptable", "approved", "approved as equal", "satisfactory", "directed", "submit", "selected", or similar words or phrases are used in standards or elsewhere in the RFT Documents, it shall be understood that they mean, unless the context provides otherwise, "acceptable to the Consultant:, "approved by the Consultant:, "approved as equal by the Consultant", "satisfactory to the Consultant", "directed by the Consultant", "submit to the Consultant", "selected by the Consultant".
4. The only means by which something shown or specified shall be indicated as not being in the Contract is by the initials "NIC", or words "Not in Contract", "By Owner", or "By Others".
5. Where the word "Provide" occurs, it shall be interpreted to mean "Furnish all labour, products, materials, and equipment necessary to install."

1.4 EXAMINATION OF TENDER DOCUMENTS

1. Study all RFT Documents to determine work required by all Sections, and the inter-dependency of each Section.
2. Questions arising as to the meaning or intent of the Tender Documents shall be asked at the time of tendering. They shall be submitted to the Consultant in writing, and answers, in written form, will be issued by the Consultant.
3. Bidders are advised that all conditions are not portrayed on Drawings. It is the responsibility of Bidders to fully determine the scope of the work through examination of the Site.

1.5 EXAMINATION OF SITE & OWNER'S RECORD DRAWINGS

1. Examine the site and Owner's Record Drawings, and be aware of all conditions affecting the Work. No claims will be entertained at any time, which would properly have been avoided by a thorough examination of the site and the Owner's Record Drawings.
2. All Bidders, Subcontract Bidders and Suppliers will be allowed to examine the Site and Owner's Record Drawings.

1.6 SITE CONDITIONS

1. Refer to Appendices for additional Owner directed work scope.

1.7 EXAMINATION BEFORE EXECUTION OF WORK

1. Make good defects in the Work on which further execution of work depends.
2. Verify dimensions of prepared work before fabrication of that work which is dependent on the prepared work.
3. Do not proceed with the execution of the work unless the work which is to receive it and site conditions are satisfactory. Commencement of all work of all sections shall imply that prepared work and site conditions are satisfactory.

1.8 PASSIVE HOUSE CERTIFICATION – **Not being pursued**

1.9 PUBLIC UTILITIES AND SERVICES

1. Verify limitations imposed on project work by presence of utilities and services, and ensure no damage occurs to them.
2. Notify service authorities concerned so that they protect, remove, relocate or discontinue utilities and services, as required.
3. Make arrangements and pay for connection charges for services required for project work.
4. Locate poles, pipes, conduit, wires, fill pipes, vents, regulators, meters, and sanitary service work in inconspicuous locations. If not shown on drawings, verify location of service work with Consultant before commencing installation.

1.10 VERIFICATION OF INVERTS – NOT USED

1.11 COOPERATION AND COORDINATION

1. The General Contractor and Subcontractors shall cooperate and coordinate with work of their respective Trades so as to facilitate the continuous and expeditious progress of the Work.
2. The General Contractor and Subcontractors shall provide each other adequate time with all necessary instruction, information, inserts, anchors, templates, sleeves and accessories required to be fixed to, or inserted in, the Work.
3. Pay the cost of extra work caused by, and make up the time lost as the result of, failure to provide the necessary cooperation and coordination in adequate time.
4. Products specified in certain Sections of the Specifications, or indicated on the Drawings, will or will not require installation by supplier. Assign responsibility for installation of items not normally installed by supplier, and for unloading from Carrier and placing into final position of the Work.
5. Cooperate with Other Contractors and Trades and Subcontractors contracted to provide goods and services through the execution of Cash Allowances.

1.12 PROTECTION

1. Adequately protect from damage trowelled concrete surfaces and finished flooring. Take special measures when moving heavy loads or equipment on them. Keep floors free of oils, grease or other materials likely to discolour them or affect bond of applied surfaces.
2. While working, each Section shall protect work of other Sections from damage.
3. Damaged work shall be made good by Trades which performed original work, but at the expense of those who caused the damage.
4. Protect work and existing property. If damaged, repair or replace to Consultant's satisfaction. Take all necessary reasonable precautions to guard site, premises, materials, and public when supervised work is in progress, and at all other times.
5. Adequately protect landscaping, trees, and shrubs which are to remain and could be subject to damage from construction. Box-in and fence-in growth to be protected prior to commencement of the Work.
6. Provide necessary protection from adverse weather damage to persons, materials, and equipment during and after cutting through existing work.

1.13 CUTTING AND PATCHING

1. Each Section shall be responsible for cutting and patching and making good to execute their work properly. In each case, Tradesmen qualified in the work being cut and patched shall be employed to ensure that it is correctly and neatly done.
2. Assess requirements for sleeving the structural elements for passing of pipes, conduits and other mechanical or electrical components, and include all work required for approved interfacing between the structure, all mechanical and electrical work, and other components of the work. The Section requiring cuts, holes, sleeves or anchors for their work shall locate them.

3. To completely prevent the passage of air, tightly fit all construction to pipes, ducts and conduits which pass through construction. Pay particular attention where fire separations are penetrated with such objects. Build separations tightly to materials penetrating separations, or provide other materials for packing around perimeters which are specifically manufactured for such conditions. Packing materials

shall be of the equivalent fire resistance rating of the penetrated construction. Obtain Consultant's approval prior to the use of packing materials.

4. Cutting, patching and making good of large openings shall be by the General Contractor. Large openings are defined as openings of area equal to or greater than 150 mm (6") diameter or 175 cm2 (27 in2).
5. Patching and making good shall be carried out with materials and systems equivalent to the existing condition.

1.14 CONCEALMENT OF PIPES, DUCTS, TUBING AND WIRING

1. Pipes, ducts, tubing and wiring shall be concealed wherever possible. If any doubt arises as to the means of concealment, or the intention of the RFT Documents in this connection, request clarification from the Consultant before proceeding with the portion of the work in question.
2. Arrangements shall be made to have the mechanical and electrical work laid out well in advance of concrete placement and furring installation so that provision will be made for proper concealment. All such work shall be tested, inspected and pipe covering applied where applicable before being concealed.
3. Include work required to modify indicated location of pipes, ducts, conduits, and other mechanical or electrical components to fully conceal such components from view in finished spaces.

1.15 DRAINAGE – Not Used

1.16 AIR LEAKAGE AND EXPANSION CONTROL – Not Used

1.17 WINDLOAD FOR EXTERIOR APPLICATION – Not Used

1.18 LOCAL LABOUR AND FAIR WAGES

1. Wherever possible, the General Contractor shall give preference to the use of local labour, building mechanics, suppliers and subtrades. Rates of wages, hours and conditions of work of persons employed on the work shall be in accordance with Provincial Codes, and as generally recognized and accepted in the locality.

1.19 SCAFFOLDING – Not Used

1.20 LINES, LEVELS AND EXISTING SURVEY

1. Existing grades and other known conditions of site are shown on the survey provided by the Owner in Appendix B. This survey information has been established by personnel engaged by the Owner. No responsibility is assumed by the Owner or Consultant for accuracy of this survey information.
2. The General Contractor shall establish other necessary lines and levels, and erect substantial batter boards and maintain their accurate position.
3. The General Contractor shall employ an Ontario Land Surveyor to:
    1. Lay out new building on site and establish a permanent bench mark or widely separated bench marks, as required by building configuration.
    2. Verify elevations established for each floor as construction proceeds.
    3. Verify relation of building floor elevations to permanent bench marks.
    4. Verify that no restrictions in force, or probable in the near future, are violated by the placement of construction on the site, or lines of traverse to all public utilities.
    5. Correlate geodetic elevation of bench mark with the elevations in use by all public utilities adjacent to the project.
    6. Verify accuracy of all site dimensions shown on Drawings.
    7. Provide to the Consultant a survey plan indicating location of building on site.
    8. Provide to the Consultant a survey certificate, verifying location of all footings relative to property lines, before construction proceeds on the footings.
    9. Provide to the Consultant, in a form acceptable to the City, a survey certificate verifying that site grades have been constructed in accordance with the RFT Documents.

Upon completion of the work, provide to the Consultant, in a form acceptable to City, a survey by an Ontario Land Surveyor of the limits of the lands affected by the work. This will be provided to the County for review as a condition of Site Plan Approval

1.21 BUILDING DIMENSIONS & COORDINATION

1. Ensure that all necessary job dimensions are taken and all trades are coordinated for the proper execution of the work. Assume complete responsibility for the accuracy and completeness of such dimensions, and for coordination.
2. Verify that all work, as it proceeds, is executed in accordance with dimensions and positions indicated which maintain levels and clearances to adjacent work, as set out by requirements of the drawings, and ensure that work installed in error is rectified before construction resumes.
3. Check and verify all dimensions referring to the work and the interfacing of all services. Verify all dimensions, with the trade concerned when pertaining to the work of other trades. Be responsible to see that Subcontractors for various trades co-operate for the proper performance of the Work.
4. Avoid scaling directly from the drawings. If there is ambiguity or lack of information, immediately inform the Consultant. Be responsible for any change through the disregarding of this clause.
5. All details and measurements of any work which is to fit or to conform with work installed shall be taken at the building.
6. Advise Consultant of discrepancies and if there are omissions on drawings, particularly reflected ceiling plans and jointing patterns for paving, ceramic tile, or carpet tile layouts, which affect aesthetics, or which interfere with services, equipment or surfaces. DO NOT PROCEED without direction from the Consultant.
7. Ensure that each Subcontractor communicates requirements for site conditions and surfaces necessary for the execution of the Subcontractor's work, including the provision of setting drawings, templates and all other information necessary for the location and installation of material, holes, sleeves, insets, anchors, accessories, fastenings, connections and access panels. Inform other Subcontractors whose work is affected by these requirements and preparatory work.
8. Prepare interference drawings to properly co-ordinate the work where necessitated. Refer to Section 01 33 23 (Shop and Interference Drawings)

1.22 METRIC AND IMPERIAL DIMENSIONS

1. Dimensioning shown on the Drawings and Specifications is in metric measurements.
2. Where manufactured products are available in Imperial sizes which differ slightly from dimensions shown on the Drawings or in the Specifications, the Consultant will consider acceptance of such products if they do not, in their opinion, adversely affect the performance of the Work.

1.23 PERMANENT SYSTEM

1. Do not use permanent heating and ventilation systems for temporary heating and ventilation without obtaining prior approval from Consultant and Owner. Refer also to Mechanical and Electrical RFT Documents for additional specific instructions, and conform to requirements set-out therein.
2. Do not use permanent drains including floor drains for any purpose other than their intended permanent use. In particular, do not clean tools into floor drains or wash any type of construction debris or residue into floor drains. Cover and protect floor drains except as required for testing and verification of plumbing systems.

1.24 FIELD OFFICES AND DOCUMENTS AT JOB SITE

1. Refer to Section 01 52 00 – Temporary Facilities and Controls.
2. Maintain field office until Work is declared Substantially Performed.
3. Maintain at job site, one copy each of the following and make same available to the Consultant upon request:
    1. Contract drawings.
    2. Specifications.
    3. Addenda.
    4. Reviewed shop drawings.

5. Change orders.
6. Other modifications to Contract.
7. Field test reports.
8. Copy of approved work schedule.
9. Manufacturer's installation and application instructions.
10. Standards referred to in Specifications.
11. Ontario Building Code and Guide to the Ontario Building Code, 2012 (current) edition.

1.25 HOARDING AND BARRIERS

1. Prior to commencing construction, consult with relevant Authorities having jurisdiction and comply with their regulations governing hoarding and boarding around the construction area. place within existing buildings. Erect in consultation with Owner and Consultant.
2. Provide adequate temporary directional signage, barriers and night and day illumination.
3. Provide Flagpersons to obtain adequate traffic control.
4. Obtain Municipal approval for any traffic blockages or reductions. Pay costs.
5. Refer also to Section 01 52 00 – Temporary Facilities and Controls.

1.26 COLD WEATHER WORKING

1. Particular attention is drawn to the requirement that construction shall commence immediately after the Contract is awarded and shall continue throughout the Winter months and thereafter until the Work is completed.

2. The Contract Price shall include sufficient funds for the provision of temporary heating units, shelters and all other necessary cold weather measures to enable all work to proceed without delay regardless of weather.
3. Refer also to Section 01 52 00 – Temporary Facilities and Controls.

1.27 DEMONSTRATION OF SYSTEMS

1. Upon certification of Substantial Performance or, if called upon earlier, demonstrate complete operation of mechanical and electrical systems and equipment.
1. Demonstration shall take place in the presence of Owner's appointed personnel and shall be conducted by responsible personnel whose work is being demonstrated.
2. Refer also to Section 01 45 00 – Quality Control.

1.28 REGULATORY REQUIREMENTS

1. Conform to the latest published requirements of the Ontario Building Code, together with all related Supplements. If a conflict arises between specific sections of the Code, follow the most stringent requirements.
2. Minimum Standard: Unless reference is made in the RFT Documents to other standards, all work shall conform to or exceed the minimum applicable standards of The Building Code, and/or the governing Jurisdictional Authorities.
3. Where reference is made to published standards and codes, such references shall be considered to refer to the current edition of The Ontario Building Code for standards.
4. Construction Safety: Include all provisions for construction safety, such as fences, barricades, bracing supports, storage facilities, sanitation facilities, fire protection, standpipes, electrical supply, temporary heat, steam supply, ventilation, construction equipment with its supports and guards, stairs, ramps, platforms, runways, ladders, scaffolds, guardrails, temporary flooring, rubbish chutes, walkway lighting, and morality lighting, all as required by the Occupational Health and Safety Act, and amendments thereto and the Fire Code Ontario Regulation 388/97 as well as all other applicable regulations of Jurisdictional Authorities.

1.29 LIFE AND FIRE SAFETY

1. Enforce all requirements established by Jurisdictional Authorities and Underwriters for life safety, fire prevention, and fire protection.

1.30 NO SMOKING POLICY

1. Smoking is not permitted within the Building and on the Site in accordance with applicable legislation.

1.31 PROMOTIONAL SIGNAGE – Not Used

1.32 CLEAN-UP

1. Further to the General Conditions, maintain the work in a tidy condition and free from the accumulation of waste products and debris, other than that caused by the Owner, other Contractors or their employees.
2. Conform to all requirements established by jurisdictional authorities for environmental and pollution control.
3. Prevent dust from spreading to adjoining properties.
3. Keep roads and sidewalks free from excavated materials, dirt and debris, snow, and ice.

1.33 USE OF PREMISES BEFORE SUBSTANTIAL PERFORMANCE

1. The Owner shall have the right to enter and occupy the building in whole or part for the purpose of placing fittings and equipment, or for other use, prior to certification of Substantial Performance if, in the opinion of the Owner, such entry and occupancy does not prevent, or interfere with, the General Contractor in the performance of the Contract.
2. Despite the presence of the Owner's separate contractors on site, this General Contractor shall retain complete responsibility for all Work under this Contract including construction safety and applicable payments to the Workplace Safety and Insurance Board.

1.34 SILTATION PROTECTION – Not Used

1.35 PRODUCT & SYSTEM UPGRADES

1. Where upgraded or newer versions or models of systems or products in this Contract are available, become available, or are anticipated to become available within the Project Schedule, the General Contractor shall provide the Owner with a proposal for consideration of a change to such products

1.36 MAKE GOOD EXISTING CONDITIONS

1. The General Contractor is responsible for making good, to the same level of quality as that prior to construction, any and all existing surfaces damaged by work under this contract.

1.37 EXITS, ENTRIES AND PARKING

1. General Contractor vehicular parking is restricted to within the existing site only. General Contractor to note the existing parking restrictions in the adjacent parking lots and neighborhood and encourage all of the trades to abide by them.

- **END OF SECTION –**

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1. GENERAL

1.1 Apply Separate and Alternate Prices to Work as directed by the Consultant in accordance with the stipulations in this Section and the General Conditions of the Contract.

1.2 All prices described in this Section shall include the total cost of materials, labour, tools, equipment, fees, insurance, testing, preparation of Drawings, submittals, calculations, supervision, inspections, deliveries, travelling, out-of-town accommodations, rentals, duties, taxes, head office and site office overheads, profits, and all other direct and indirect expenses required to fully perform the specified Work.

1.3 Separate and Alternate Prices shall be valid until the latest possible date by which they could be implemented without affecting the date of Substantial Performance.

1.4 Changes to Work not covered by Separate or Alternate Prices shall be established by using current labour rates, including mandatory benefits, prevailing local market prices of materials and/or equipment, taxes, specific fees related to the change only, and overhead costs as defined below.

1.5 Overhead shall include all costs of:

1. Operating head office and site facilities.
2. Head office and site personnel.
3. Custom duties, basic permits and other licences required by jurisdictional authorities.
4. Insurance.
5. All services defined in Division 01.
6. Calculations, inspections, testing.
7. Deliveries, travelling, out-of-town accommodations.
8. Hand and small power tools required for the efficient completion of the Work.

2. UNIT PRICES – Not Used

3. SEPARATE PRICES – Not Used

4. ALTERNATE PRICES – Not Used

5. CHANGES TO THE WORK

1. Conform to the requirements of the General Conditions, and Section 01 26 00 for pricing contemplated and or changes to the Work.
2. Any costs related to preparation of the necessary documentation for changes/contemplated changes are deemed to be included in the specified overhead and profit.

**- END OF SECTION –**

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1. GENERAL
    1. Submit an initial Schedule of Values to the Consultant immediately after award of contract.
    2. Upon request by Consultant, support values given with data that will substantiate their correctness.
    3. Submit quantities of designated materials.
    4. Schedule of Values will be used only as basis for future Contractor's Application for payment.

2. FORM OF SUBMITTAL
    1. Submit typewritten Schedule of Values in electronic .pdf or hard copy format, for printing in 8½" x 11" size maximum in accordance with sample schedule included in this Section.
    2. Use Table of Contents of this Specification as basis for the order for listing costs of work for sections under Division 1-16.
    3. Identify each line item with number and title as listed in Table of Contents of this Specification.

3. PREPARING SCHEDULE OF VALUES
    1. Itemize separate line item cost for each of the following general cost items:
        1. Bonds.
        2. Field Supervision and Layout.
        3. Temporary Facilities and Controls.
    2. Subdivide costs of products to be installed during several stages of construction into separate line items under each Section listing.
    3. Break down installed costs into:
        1. Delivered cost of product, with taxes paid (except HST).
        2. Total installed cost, with overhead and profit.
    4. Make sum of total costs of all items listed in schedule equal to total Contract Price excluding HST.

4. PREPARING SCHEDULE OF UNIT MATERIAL VALUES
    1. Submit separate schedule of unit prices for materials to be stored for which progress payments will be claimed.
    2. Make form of submittal parallel to Schedule of Values, with each line item identified same as line item in Schedule of Values.
    3. Include in unit price only:
        1. Cost of material.
        2. Delivery and unloading at site.
        3. Sales taxes except HST.
    4. Make sure that unit prices multiplied by quantities equal given material cost of that item in Schedule of Values.

5. REVIEW AND RESUBMITTAL
    1. After review by Consultant, revise and resubmit Schedule (and Schedule of Material Values), as required.
    2. Resubmit revised schedule in same manner.
    3. **Breakdown is only considered complete once Consultant is satisfied with breakdown provided**

**END OF SECTION**

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1. PROJECT MEETINGS FOR COORDINATION

    1. In consultation with the Consultant during the second week of construction, arrange for project job site meetings weekly or every 2 weeks as appropriate to the stage of construction, for project coordination. Such meetings shall fall at the same time each week the meeting is scheduled.

    2. Responsible representatives of the Contractor's and Subcontractor's office and field forces and suppliers shall be obliged to attend.

    3. Inform the Owner, Consultant, and those others whose attendance is obligatory, of the date of each meeting, in sufficient time to ensure their attendance.

    4. Provide physical space for meetings, prepare an agenda, chair and record the minutes of each meeting. Relevant information must be made available to all concerned, in order that problems to be discussed will be expeditiously resolved. Identify "action by: _____".

    5. Within three days after each meeting, distribute a copy of the minutes to each invited person by e-mail.

2. PRECONSTRUCTION MEETING

    1. Within 5 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

    2. Include in the agenda items determined necessary by the HWDSB at the first start up meeting.

3. PROJECT MEETINGS FOR PROGRESS OF WORK

    1. Conduct progress meetings in accordance with the schedule and/or decisions made at Preconstruction Meeting.

    2. Inform the Owner, Consultant, Project Subconsultants, Subcontractors and suppliers and those whose attendance is obligatory, of the date of the meeting, in sufficient time to ensure their attendance.

    3. Include in the agenda 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. Revisions to construction schedule.

        8. Progress during succeeding work period.

        9. Review submittal schedules: expedite as required.

10. Maintenance of quality standards.

11. Pending changes and substitutions.

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

13 Passive House quality assurance processes – air barrier, insulation, windows installations, etc.

14. Other business.

4. PROGRESS RECORDS

1. Maintain a permanent written record, on the Site, of the progress of the Work using standard OGCA form. This record shall be available to the Consultant at the site, and a copy shall be furnished to same on request. The record shall contain:

1. Daily weather conditions, including maximum and minimum temperatures.

2. Dates of the commencement and completion of stage or portion of the work of each trade in each area of the project.

3. Conditions encountered during excavation.

4. Dates of erection and removal of formwork, in each area of the project.

5. Dates of pouring the concrete in each area of the project, with quantity and particulars of the concrete.

6. Work force on project daily per trade.

7. Visits to site by personnel of Consultant, Jurisdictional Authorities and testing companies.

**- END OF SECTION –**

1. GENERAL REQUIREMENTS

    1. Submit projected construction schedule for entire Work. Revise schedule when it cannot readily be related to the actual stage of construction.

2. FORMS OF SCHEDULES

    1. Prepare in form of horizontal bar chart or C.P.M. network. Provide separate horizontal bar column for each trade or operation, or separate activity for each operation that can be completed independently of other operations or trades. Provide as follows:

        1. Order: Chronological order of beginning of each item of work.

        2. Identification: Identify each column by distinct graphic delineation.

        3. Horizontal Time Scale: Identify first workday of each week.

        4. Scale and Spacing: To allow space for updating.

        5. Minimum Printed Sheet Sizing: 11" x 17".

3. CONTENT OF SCHEDULES

    1. Submit complete sequence of construction by activity, as follows:

        1. Shop Drawings - Submittal dates, dates reviewed copies will be required.

        2. Interference Drawings - Submittal dates, dates reviewed copies will be required.

        3. Decision dates for products specified by allowances, selection of finishes and colours, and any other Consultant required decisions.

        4. Fabrication and delivery lead time.

        5. Dates for beginning and completion of each element of construction, specifically: concrete placement, subcontractor work, equipment installations and equipment tests.

    2. Identify work of separate floors or separate phases, or other logically grouped activities.

    ,

    3. Show projected percentage of completion for each item of work as of first day of each month.

    4. Submit separate sub-schedule showing submittals, review times, procurement schedules, and delivery dates.

    5. Submit sub-schedules to define critical portions of entire schedule.

4. UPDATING

    1. Show all changes occurring since previous submission of updated schedule.

    2. Indicate progress of each activity, and show completion dates.

    3. Include major changes in scope, activities modified since previous updating, revised projections due to changes, and other identifiable changes.

4. Provide narrative report including discussion of problem areas, including current and anticipated delay factors and their impact; corrective action taken or proposed, and its effect; effect of change in schedules of any work being done by the Owner or other parties for the Owner; and description of revisions (effect on schedule due to change of scope, revisions in duration of activities, and other changes that will affect schedule).

5. SUBMITTALS

1. Submit initial schedules within 15 days after date of Notice to Proceed. Consultant will review schedules and return review copy within 10 days after receipt. If required, resubmit within 7 days after return of review copy.

2. Submit updated schedules with monthly application for payment, accurately depicting progress to first day of each month.

3. If hardcopy is submitted ensure that it is reproducible in 11"x17" (maximum) format.

6. DISTRIBUTION

1. Distribute copies of reviewed schedules to job-site file, subcontractors, and other concerned parties e.g. Owner's Independent Testing & Inspection Agents.

2. Instruct recipients to report any liability to comply and provide detailed explanation with suggested remedies.

**- END OF SECTION -**

1. SUBMITTALS AFTER RECEIPT OF NOTICE TO PROCEED
    1. Submit the following:
        1. Initial Construction Schedule in accordance with Section 01 32 16, within 10 working days of receipt of Notice to Proceed with Work.

2. SUBMITTALS PRIOR TO COMMENCEMENT OF WORK – NOT USED

3. SUBMITTALS PRIOR TO FIRST APPLICATION FOR PAYMENT
    1. Submit the following:
        1. Workplace Safety & Insurance Board (WSIB) Clearance Certificate
        2. schedule, in accordance with CCDC 2 and Section 01 32 16 of the Specifications.
        3. Schedule of Shop Drawing and sample submissions.
        4. Product delivery schedule.
        5. Breakdown of Progress Claim, to Consultant's standard.
        7. Documentation required by OAA/OGCA Take Over Procedures Document No. 100.

4. SUBMITTALS DURING PROGRESS OF CONSTRUCTION
    1. Submit the following during the course of construction:
        1. Construction Schedule updates.
        2. Report on any damage, on conditions or problems arising out of receipt of Owner's equipment on site.
        3. Samples
            1. The Contractor shall submit for the Consultant's approval such standard manufacturers' samples as the Consultant requires. Samples shall be labelled as to origin and intended use in the work and shall conform to the requirements of the contract documents.
            2. Submit samples where specified in each applicable trade section of the Specifications. Unless specified otherwise make samples of adequate size to represent the material intended for use on this project.
            3. Where the degrees of marking or colour cannot be adequately shown in a single sample, submit a range of samples to show the extremes of colour and marking. Identify samples with project number, date, and name of Contractor. Materials used in building shall correspond to approved samples for quality, colour, texture, finish, and thickness.
            4. Submit two samples of each item required unless specified otherwise.
        4. Record Drawings and Record Specifications
            1. Maintain, as the work progresses, until project duration, 1 set of project Record Drawings and Specifications. The full-size drawings shall be in white prints while the 8-1/2" x 11" detail drawing sheets and Specifications shall be in photocopies. Refer to mechanical and electrical for their requirements.
            2. Record accurately, on the Record Drawings and Specifications, all changes to the Contract Documents as constructed, such as Consultant/Engineer-originated changes, Contractor/Subcontractor-originated changes, Site Instructions, Supplementary Instructions, Addenda, instructions by correspondence and Jurisdictional Authority approvals. Carefully record location of concealed elements as required for future maintenance, alteration work, and building additions. Delete information made obsolete by changes, and accurately draw or duplicate instructions and indicate all changes listed herein. Refer to Mechanical and Electrical Specification Divisions for additional requirements.
            3. Record exact location of all services with dimensions to the Grid Lines and Datum Lines, and show on Record Drawings prior to placing concrete. DO NOT place concrete until this is done. Coordinate Mechanical, Electrical, and concrete trades.

4. Clearly mark each of the project Record Drawings and Specifications "Project Record Copy". Maintain in good condition. Make the File Copy available at all times for inspection or use by the Consultant.
5. Keep the File Record Drawings and Specifications current and do not record irrelevant information. Do not permanently conceal any work until the required information has been recorded.
6. Submit to the Consultant, the Record Drawings, 1 bound photocopy of the Drawing Detail Sheets and 1 bound copy of the Record Specifications with the application for Substantial Performance of the Project.
7. Upon completion and submission of the Consultants "Electronic Data Transfer Request" the Consultant shall provide, to the Contractor, an electronic copy of the Contract Drawings in AutoCAD format. The Contractor, using as-built information recorded on Record Drawings, shall revise these files to 'as-built' status and provide an electronic copy to the Consultant with the application for Substantial Performance of the Project.
8. The 'as-built' electronic drawings prepared by the Contractor must have the as built changes bubbled on a separate layer indicating they are as built changes. The Contractor must include their own title logo in the title block provided by the consultants. The revision list is to indicate "As Built Drawings" Theare to be provided in both AutoCAD .dwg & .pdf formats..

5. SUBMITTALS WHEN PROJECT IS SUBSTANTIALLY PERFORMED

1. Final Electrical Safety Association Inspection Certificates/Approval Certificates: Collect the following from each trade whose work requires Hydro inspection/approval certificates and submit to the Consultant:
    1. Original, final Electrical Safety Association Inspection Certificates.
    2. Original approval certificates (CSA, ULC) for specified equipment

2. Extended Warranties: Provide the extended warranties specified. These extended warranties shall commence immediately after the expiration of the standard one-year warranty included in the Contract under Article GC 12.3, Warranty, the General Conditions of the Contract. The Contractor shall submit them on the Form of Warranty, a sample of which is included in this Section.
3. Plumbing, Heating and Building Inspection Certificates: Submit to the Consultant certificates of Plumbing, Heating and Building Inspection.
4. Elevating Inspection Branch License (For Lift): Contractor is to ensure the Lift is fully operational prior to turnover to Owner. Provide to Owner copies of all applications, proof of payment(s) and all final licensing information.
5. Record Drawings: Refer to "Record Drawings" and "Record Specifications" articles in this section. For information to be recorded, submit two copies of "as constructed" drawings showing all changes from the original contract documents.

**- END OF SECTION -**

1. SHOP DRAWING GENERAL REQUIREMENTS

1. Where specified or where deemed to be required by the Consultant, submit shop drawings to the Consultant in the following manner:

1. Submit .pdf files only.

2. The use of photographed or photocopied Consultant's Drawings for shop drawing purposes is not acceptable.

3. Prior to submission to the Consultant, the Contractor shall review all shop drawings. By this review the Contractor represents that all field measurements, field construction criteria, materials, catalogue numbers, and similar data have been determined and verified, or will done, and that each shop drawing has been checked and coordinated with the requirements of the work and of the Contract Documents. The Contractor's review of each shop drawing shall be indicated by stamp, date, and signature of a responsible person. The Shop Drawing shall clearly indicate whether it is for review or for record purposes.

4. The Contractor (and Subcontractor(s) where appropriate), shall mark any information requested by the fabricator, confirm any matters in doubt, check and sign each trade shop drawing, and make any other notations considered necessary before submitting to the Consultant for review.

5. Drawings requiring several or extensive changes will be marked "REVISE AND RESUBMIT", otherwise one (1) white print and sepia will be returned marked "REVIEWED" or "REVIEWED WITH COMMENTS" and shall not be returned to the Consultant. Drawings marked "NOT REVIEWED" are either not required, or from an unacceptable supplier.

6. Manufacturer's catalogue cuts will be acceptable, providing they are 8½" x 11" originals, and they indicate all choices including sizes, colours, model number, options, and other pertinent data. Only one copy need be submitted to the Consultant, except for colour sample sheets.

2. Shop drawings shall show:

1. The name of the project.

2. Kinds of material and finishes.

3. Sections, arrangements and details which indicate complete construction, as well as all interconnections with other work.

4. Fabrication and erection dimensions, together with quantities and/or locations.
5. Assumed design loadings, all dimensions of elements and material specifications for all load-bearing members.

6. Data verifying that superimposed loads will not affect function, appearance and safety of work shown on shop drawings, as well as other work interconnected.

7. Proposed chases, sleeves, cuts, and holes in structural members.

8. The time that the fabricator considers necessary from the date that the Contractor's authority to proceed is received (and shop drawing is returned) until the fabricated work will be delivered to the site, and for installation, if appropriate.

9. A 4½" x 3" high block for Consultant's review stamp, and another block of the same size for review stamp of Contractor's Engineer.

3. The review by the Consultant is for the sole purpose of ascertaining conformance with the general design concept. The review shall not mean that the Consultant approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor submitting same, and such review shall not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of responsibility for meeting all requirements of the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation, and for coordination of the work of all trades.

4. The review of this drawing and/or any notes added to it, does not constitute authorization to proceed with any work which, in the Contractor's or Supplier's opinion, will involve extra cost to the Owner.

5. In the event of any conflict between the Contract Documents and a shop drawing, the Contract Documents shall govern.

6. Keep copies of "reviewed" and "reviewed with comments" shop drawings on site for Consultant's review.

2. INTERFERENCE DRAWINGS

1. The Contractor shall prepare colour-coded interference drawings in order to properly coordinate the work of all trades, such as, but not restricted to, plumbing and fire protection, sheet metal and air conditioning, electrical and building structure.

2. Bear all costs involved for the preparation of these drawings and the changes necessitated due to interference discovered by their preparation. Advise all trades and the Consultant of any rerouting or relocation required.

3. If interferences are discovered, advise Consultant immediately and do not proceed until adjustments are accepted.

4. Submit copies of drawings for the Consultant's records.

**- END OF SECTION -**

USE OF ABBREVIATIONS

1.1 Many words or expressions that are repeated frequently on the Drawings and Schedules are abbreviated to reduce the amount of wording that might obscure the detailing. To avoid misinterpretation, these abbreviations are listed, with their full meaning, in this Section.

1.2 In addition to those noted in paragraph 1.4, some other abbreviations, commonly used in Specifications, are separately listed, in paragraph 1.5. Refer also to structural, mechanical and electrical drawings and specifications for other abbreviations used in structural, mechanical and electrical documents.

1.3 Abbreviations listed here shall / will be used in technical Sections of the Specifications.

1.4 **List of Drawing Abbreviations**

| | |
|---|---|
| @ | at |
| ACP | aluminum composite panel(s) |
| ACT | acoustic ceiling tile |
| ADJ | adjustable |
| ADO | automatic door operator |
| ADOPB | automatic door operator push button |
| AFF | above finished floor |
| AH | access hatch |
| ALUM | aluminum |
| ANOD | anodized |
| ANSI | American National Standards Institute |
| ARCH | architect/architectural |
| AS | acoustic seal |
| ATT | air tightness test |
| AVB | air/vapour barrier |
| AWP | acoustic wall panels |
| BD | board |
| BEN | bench |
| B/F | barrier-free |
| BFDG | City of Hamilton Barrier Free Design Guidelines |
| BKHD | bulkhead |
| BLDG | building |
| BLK | block |
| BN | bullnose |
| BRK | brick |
| B/S | both sides |
| C | channel |
| CAB | cabinet |
| CB | catch basin |
| CBD | cork board |
| CDPH | California Department of Public Health |
| CEIP | cont. exterior insulated panels |
| CG | corner guard |
| CH | coat hook |
| CHC | colour hardened concrete |
| CJ | control joint |
| CL | centre line |
| CLAD | cladding |
| CLG | ceiling |
| CMT | ceramic mosaic tile |
| CMU | concrete masonry unit |
| CO | cleanout |
| COL | colour |
| CONC | concrete |
| COND | condition(ing) |
| CONST | construction |
| CONT | continuous |
| CORR | corridor |
| CPT | carpet |
| CR | card reader |
| CRI | Carpet & Rug Institute |
| CRS | course(s) |
| CSA | Canadian Standards Association |
| CT | ceramic tile |
| CUP'D | cupboard |
| CU | condensing unit |
| C/W | complete with |
| DB | decibels |
| DBL | double |
| DBN | double bullnose |
| DC | door closer |
| DET | detail |
| DF | drinking fountain |
| DIA | diameter |
| DIM(s) | dimension(s) |
| DIV | division |
| DMH | double manhole |
| DN | down |
| DOPB | door operator push-button |
| DP | deep |
| DPC | dampproof course |
| DR | door |
| DW | dishwasher |
| DWG | Drawing |
| EA | each |
| EAP | Extruded Aluminum Profile |
| ECC | Eco-Certified Composite |
| ECS | Emergency Call System |
| ELEV | elevation |
| ELEC | electrical |
| ENCL | enclosure |
| EPA | US Environmental Protection Agency |
| EPS | expanded polystyrene |
| EPXY | epoxy |
| EQ | equal |
| EQUIP | equipment |

| | |
|---|---|
| ERV | energy recovery ventilator |
| ES | electric strike |
| ESB | exterior stretching bar |
| EXH | exhaust |
| EXIST (E) | existing |
| EXP | expansion |
| EXT | exterior |
| F | refrigerator |
| FA | Floor anchors |
| FAP | wood fibre acoustic panels |
| FBGL | fibreglass |
| FC | fibre cement |
| FCT | folding diaper change table |
| FD | floor drain |
| FDN | foundation |
| FE | fire extinguisher (wall mounted) |
| FEC | fire extinguisher cabinet |
| FFE | finished floor elevation |
| FFL | finish(ed) floor level |
| FG | finish(ed) grade |
| FRG | fire rated glazing |
| FHC | fire hose cabinet |
| FIN | finish(ed) |
| FIXT | fixture |
| FL | floor(ing) |
| FLUOR | fluorescent |
| FR | freezer |
| FRPLYWD | fire retardant treated plywood |
| FRR | fire resistance rating |
| FSS | folding shower seat |
| FTG | footing |
| F/O | face of |
| GALV | galvanized |
| GB | grab bar |
| GC | general contractor |
| GFA | gross floor area |
| GH | glass handrail |
| GL | glass, glazing |
| GLT | glazing, tempered |
| GR | grommet |
| GWG | georgian wire glass |
| GWB | gypsum wallboard |
| GRD | gridline |
| H | high |
| HC | hollow core |
| HCWD | hollow core wood |
| HD | electric hand dryer |
| HDWD | hardwood |
| HM | hollow metal |
| HORIZ | horizontal |
| HQT | homogenous quartz tile |
| HR | hour |
| HSS | hollow structural section |
| HT | height |
| HVAC | heating, ventilation & air conditioning |
| HYD | hydrant |
| IGU | insulated glass unit |
| INSUL | insulat(ed)(ing)(ion) |
| INT | interior |
| INTUM FP | intumescent fireproof |
| JAN | janitorial |
| JT | joint |
| KCMA | Kitchen Cabinet Manufacturers Association |
| KP | key pad |
| L | angle |
| LAM | laminated glazing |
| LG | long |
| LIN | linear |
| L/S | light standard |
| LS | lock set |
| LVT | luxury vinyl tile |
| M, m | metre(s) |
| MACH | machine |
| MAS | masonry |
| MANUF | manufacture(r) |
| MAX | maximum |
| MECH | mechanical |
| MED | medium |
| MEL | melamine |
| MET | metal |
| MIN | minimum |
| MINS | minutes |
| MH | manhole |
| ML | magnetic lock |
| ML-## | millwork (refer to millwork drawings) |
| MM, mm | millimetre(s) |
| MO | masonry opening |
| MTD | mounted |
| MTL | material |
| MW | microwave oven |
| NBC | National Building Code |
| NFPA | National Fire Protection Association |
| NIC | not in contract |
| NO., # | number |
| NTS | not to scale |
| OA | overall |
| OBC | Ontario Building Code |
| OC, O/C, O.C. | on centre(s) |
| OH | overhead |
| OPNG | opening |
| OSB | oriented strand board |
| OWSJ | open-web steel joist |
| PB | pushbutton |
| P/C | precast |
| PCF | polished concrete finish |
| PCT | porcelain tile |
| PD | panic device |
| PDO | power door operator |
| PDOPB | power door operator push button |
| PH | Passive House |
| PHI | Passive House Institute |
| PHEN | phenolic |

| | |
|---|---|
| PHPP | Passive House Planning Package |
| PL | plaster |
| PLAM | plastic laminate |
| PLYWD | veneer core plywood |
| PLYWD150 | plywood with a *documented* flame spread rating of not more than 150 |
| PMT | Porcelain Mosaic Tile |
| PP | push/pull |
| PREFIN | prefinished |
| PRT | porcelain tile |
| PT, PTD | paint(ed) |
| PTDW | recessed paper towel dispenser |
| PTDS | surface-mounted paper towel dispenser |
| PTLB | push to lock button |
| PTRD | paper towel/refuse disposal |
| PT | pressure-treated wood |
| PV | photovoltaic |
| PVC | polyvinylchloride |
| QT | quartz tile |
| R | radius |
| RAD | radiator |
| RB | resilient base |
| R/C | reinforced concrete |
| RCB | cement board |
| RCP | reflected ceiling plan |
| RD | roof drain |
| REC | recessed |
| REINF | reinforced |
| REQD | required |
| RESFL | resinous flooring |
| RF | rubber flooring |
| RM | room |
| RMO | rough masonry opening |
| RO, R.O. | rough opening |
| RSD | recessed soap dish |
| RSI | thermal resistance system (international) |
| S | stove |
| SAN | sanitary (sewer, drain) |
| SC | solid core |
| SCF | sealed concrete finish |
| SCHED | schedule(d) |
| SCR | shower curtain & rod |
| SCS | Scientific Certification Systems |
| SCT | Special Needs Change Table |
| SCWD | solid core wood |
| SD | soap dispenser |
| SDW | wall-mounted soap dispenser |
| SEAL | sealant |
| SECT | section |
| SGB | siliconized gypsum board |
| SH | shelf |
| SHLF | shelf |
| SHO | shower seat |
| SHT | sheet |
| SIM | similar |
| SND | sanitary napkin disposal |
| SNV | sanitary napkin vendor |
| SPEC(s) | specifications(s) |
| SQ | square |
| SS, SST | stainless steel |
| ST | stained |
| STC | sound transmission co-efficient |
| STL | steel |
| STM | steam |
| STOR | storage |
| STRUCT | structural |
| SUPP | supplement |
| SUSP | suspended |
| SV | shower valve |
| SVF | sheet vinyl flooring |
| TB | towel bar |
| TERR | terrazzo |
| T/O | top of |
| TOC | top of curb |
| TEMP | tempered |
| TH | towel hook |
| THK | thick |
| T/P | top of paving |
| T/S | top of slab |
| TTD | toilet tissue dispenser |
| T/W | top of walk |
| TYP | typical |
| ULC | Underwriter Laboratory of Canada |
| U/S | underside |
| UNFIN | unfinished |
| UNO | unless noted otherwise |
| VB | vapour barrier |
| VCJT | veneer control joint |
| VERT | vertical |
| VEST | vestibule |
| VCT | vinyl composite tile |
| VNR | veneer (wood) |
| VRF | variable refrigerant flow |
| W/ | with |
| WC | water closet/washroom |
| WD | wood |
| W/O | without |
| WP | waterproof |
| WR | waste receptacle |
| WSH | window shade |
| WV | water valve |
| XPS | expanded polystyrene |

## 1.5 List of Additional Specification Abbreviations

| | |
|---|---|
| AA | The Aluminum Association |
| ACI | American Concrete Institute |
| AISC | American Institute of Steel Construction |
| ANSI | American National Standards Institute |
| ASTM | American Society of Testing and Materials |
| AWI | Architectural Woodwork Institute |
| AWMAC | Architectural Woodwork Manufacturers Association of Canada |
| CCDC | Canadian Construction Documents Committee |
| CEC | Canadian Electrical Code (published by CSA) |
| CEMA | Canadian Electrical Manufacturers Association |
| CGSB | Canadian Government Standards Board |
| CISC | Canadian Institute of Steel Construction |
| CLA | Canadian Lumbermen's Association |
| CPCA | Canadian Paint and Coatings Association |
| CPCI | Canadian Precast Prestressed Concrete Institute |
| CRCA | Canadian Roofing Contractors' Association |
| CSA | Canadian Standards Association |
| FM | Factory Mutual Insurance Company |
| IEEE | Institute of Electrical and Electronic Engineers |
| ICEA | Insulated Cable Engineers Association |
| MFMA | Maple Flooring Manufacturers Association |
| NAAMM | National Association of Architectural Metal Manufacturers |
| NBC | National Building Code |
| NEMA | National Electrical Manufacturer's Association |
| NRC | National Research Council |
| OBC | Ontario Building Code |
| OGCA | Ontario General Contractors Association |
| OPSS | Ontario Provincial Standard Specifications |
| PHIUS+ 2021 | Passive House Institute US Passive Building Standard (2021) |
| SCC | Standards Council of Canada |
| SSPC | Steel Structures Painting Council |
| TTMAC | Terrazzo, Tile and Marble Association of Canada |
| ULC | Underwriters' Laboratories of Canada |

Conform to these standards of these organizations and documents, in whole or in part, as specifically requested in the Specifications.

**- END OF SECTION -**

1. RELATED REQUIREMENTS
    1. Section 01 60 00: Material and workmanship quality - reference standards.

2. INDEPENDENT TESTING AND INSPECTION COMPANIES
    1. Naming of Companies
        1. The Consultant will name independent inspection and testing companies to inspect and report on compliance of Work with the Specifications. For simplicity, independent inspection and testing companies are referred to in the documents as "Inspector(s)".
        2. Inspection and testing by Inspector(s) is carried out for the Consultant's information and does not relieve the Contractor from its responsibility to perform Work in accordance with the Contract Documents.
    2. Payment: Unless specified otherwise, payment for inspection and testing will be paid directly by the Owner.
    3. Work to be Tested and/or Inspected: As identified in individual Specification Sections.
    4. Access to the Work: Representatives of the Inspector(s) shall have access to the Work at all times. The Contractor shall provide assistance and facilities for such access in order that the Inspector(s) can properly perform its (their) function.
    5. Extent of Testing: The extent of testing and inspection and the number of tests, if not specified in the applicable technical section of the Specifications, shall be verified with the Consultant before proceeding. Extra payment for testing and inspection beyond what the Consultant intends will be the Contractor's responsibility.
    6. Notification of Work to be Tested: Be responsible for notifying all Inspector(s) as to when they will be required to inspect the work. Notify Inspector(s) at least 48 hours prior to testing.
    7. Materials for Testing and Mock-Ups
        1. Submit samples and/or materials required for testing. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in the Work.
        2. Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.
    8. Reports: Inspector(s) will submit copies of inspection and test reports promptly to the Consultant, the Owner, the Contractor, other applicable Consultants, and jurisdictional authorities.

3. CONTRACTOR'S QUALITY CONTROL
    1. Obtaining and payment of inspections, tests, or Engineer's stamps required by Code or Ordinances, or by a plan approval authority and made by a legally constituted authority, shall be the responsibility of the Contractor, unless otherwise provided by the Contract Documents.
    2. Be responsible for inspection or testing performed exclusively for own quality control and convenience, and testing, adjustment and balancing of mechanical and electrical systems, and pay all costs associated therewith.

4. REVIEW BY CONSULTANT
    1. Give the Consultant advance notice of shop fabrication, field erection and other phases of the Work so as to afford reasonable opportunity to review the Work for compliance with contract requirements. Failure to meet this requirement will be cause for the Consultant to classify the Work as defective.
    2. Uncover any Work that has been designated for special tests, inspections or approvals before such is made, have the inspections or tests satisfactorily completed and make good such Work.
    3. The Consultant can order any part of the Work to be examined if such Work is suspected to be not in accordance with the Contract Documents. If, upon examination such Work is found not in accordance with the Contract Documents, correct such Work and pay the cost of examination and correction. If such Work is found in accordance with the Contract Documents, the Owner will pay the cost of examination and replacement.

5. MOCK-UPS
    1. General
        1. Prior to proceeding with the Work, prepare mock-ups as requested in the individual sections of the specifications and in this section.
        2. Construct in specified locations or as selected by the Consultant.
        3. Prepare mock-ups for Consultant's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in the Work.
        4. Failure to prepare mock-ups in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
        5. Remove mock-ups at conclusion of Work or when acceptable to Consultant.

6. CONSTRUCTION TOLERANCES
    1. Unless more restrictive/demanding requirements are specified in other Sections, the following construction tolerances could be accepted:
        1. "plumb and level" - 3 mm in 3 m.
        2. "square" - 10 seconds more or less than 90 degrees.
        3. "straight" - 3 mm under a 3 m long straight edge.
        4. Tolerances shall not be cumulative.

7. NON-COMPLIANCE WITH INSPECTIONS AND TESTS
    1. If the initial inspections and tests, required to establish compliance with the Contract Documents, indicates non-compliance with the Contract Documents, subsequent testing or re-inspection occasioned by non-compliance shall be performed by the same Inspector(s) and the cost thereof borne by the Contractor.
    2. Where factual evidence exists that defective workmanship has occurred or that work has been carried out incorporating defective materials, the Consultant may have tests, inspections or surveys performed, analytical calculation of structural strength made and the like in order to help determine whether the work must be replaced. Tests, inspections or surveys carried out under these circumstances will be made at the Contractor's expense, regardless of their results.
    3. All testing shall be conducted in accordance with the requirements of the Ontario Building Code, except where this would in the Consultant's opinion cause undue delay or give results not representative of the rejected material in place. In this case, the tests shall be conducted in accordance with the standards given by the Consultant.
    4. Materials or workmanship which fail to meet specified requirements will be rejected by the Consultant whenever found at any time prior to final acceptance of the work regardless of previous inspection. If rejected, defective materials or work incorporating defective materials or workmanship shall be promptly removed and replaced or repaired to the satisfaction of the Consultant, at no expense to the Owner.

8. TESTING AND DEMONSTRATION OF OPERABLE EQUIPMENT AND SYSTEMS

    1. Ensure that the Owner's representatives are adequately instructed, to the Owner’s satisfaction, in all aspects of operation and maintenance of manual and automated systems and/or equipment, and all tests and adjustments have been performed to ensure smooth, trouble free operation is achieved, in compliance with Contract Documents.

**- END OF SECTION –**

1. FIELD OFFICE AND SHEDS
    1. Construction Office (Trailer)
        1. Provide a secure, weathertight office for Contractor's and Consultant's use. It shall contain, besides furniture for Contractor's needs, a conference table and chairs for site meetings. Provide an office desk, a drawing rack, bookshelves, a two-drawer filing cabinet, operable windows overlooking construction, and lighting and heating.
        2. Maintenance shall include periodic janitor service for removal of rubbish, dusting, floor cleaning, and window cleaning.
    2. Telephone and E-mail
        1. Phone and internet costs shall be borne by the Contractor.
    3. Storage Sheds
        1. Provide secure, weather-tight sheds for storing materials that require protection.
        2. Sheds shall be of type to provide protection to materials, with floors raised a minimum 300mm.
        3. Provide lighting in all sheds and heat in those sheds containing materials requiring heated storage.

2. UTILITIES
    1. Existing Services
        1. Exercise extreme caution when working near existing utilities, whether above or below ground and damage to any nature or from any cause shall be the complete responsibility of the Contractor. The Contractor shall also be responsible for notifying the various utilities and arranging for proper stakeouts. The bracing of any poles, if necessary, will be done by the Contractor at the Contractor’s expense.
        2. The Owner will not be responsible for delays in construction (if any) resulting from interference with utility relocations.
    2. Heat
        1. Heat construction areas of building during construction only by a method approved by the Consultant and which meets the requirements of Jurisdictional Authorities. Maintain temperature within construction areas of building during construction to ensure proper finishing and curing of all specified materials. Salamanders will not be permitted.
        2. Maintain temperatures in construction areas of building at minimum 10 degrees C unless specified otherwise.
        3. Place temporary heating units so that formwork and its supports are not endangered, and that no material gets damaged because of the excessive heat from the units.
        4. The permanent heating system or portions thereof can be used for temporary heating of construction areas of building provided:
            a. For new systems, the Contractor shall provide the Owner with written evidence of interim service agreements, which do not affect the warranty provisions under GC 12.3 and guarantee that the systems will be turned-over to the Owner in "new condition".
            b. For new and existing systems, the Contractor shall cap-off or filter return air ducts to prevent dust contamination.
            c. For new and existing systems, the Contractor shall replace filters regularly during construction and immediately prior to Owner occupancy.
            d. The Contractor shall provide check meters installed in piped connections between the Owner’s existing natural gas supply system and new gas-fired equipment. Such meters shall be suitable to monitor gas usage by the equipment during construction and following Owner occupancy.
        6. All costs for temporary heat shall be borne by the Contractor
        7. To prevent carbon dioxide build-up, ventilation of heating units to exterior is particularly important.

3. Water
    1. The Contractor can use the Owner's existing water supply system for construction requirements limited to clean-up and mixing of materials for the work of Divisions 4 and 9. The Contractor's use of the existing water supply is limited to janitor sinks and exterior hose bibs.
    2. For all other construction requirements, the Contractor shall supply its own water and arrange for connections with the utility company.
    3. All costs for installation, water supply, maintenance and removal shall be borne by the Contractor.
4. Electric Power
    1. The Contractor shall supply electrical service and wiring, and arrange for connection with the utility company.
    2. Provide temporary lighting throughout the building. Maintain not less than 160 LUX level.
    3. Provide all necessary connections and extensions from temporary source to locations of work.
    4. All costs for temporary electrical service and energy including power requirements in excess of normal electrical loads shall be borne by the Contractor
    5. Temporary power distribution wiring shall comply with the Ontario Hydro Electrical Safety Code. Obtain inspection certificates and approvals for temporary electrical work.
5. Sanitary Facilities
    1. Provide portable washroom units of the chemical type for use during construction. Maintain in clean condition.
    2. All costs for washroom units and their maintenance shall be borne by the Contractor.
    3. Sanitary facilities forming part of the construction and the existing building shall not be used by the Contractor.
6. Building Enclosure
    1. Work shall include temporary enclosure for building as required to protect it, in its entirety, or its parts, against all vandals, the elements, and to maintain temperatures which ensure conditions for installation that prevent harm to all materials.
    2. Erect temporary enclosures to allow accessibility for the installation of all materials during the time the enclosures remain in place.
    3. Design temporary enclosures to withstand all wind pressures. Structural framing of the building can be used within load limits for which the framing is designed, for support of temporary enclosures. Keep surfaces of temporary enclosures free of snow and ice, to avoid overloading of building framing.

3. BARRIERS AND PROTECTION
    1. Dust Nuisance, Mud, Snow and Ice Removal
        1. Prevent nuisance to adjacent properties near the works from dust raising and mud deposits, by taking appropriate anti-dust and mud measures, at such times as found necessary, and as directed by the Consultant, or Local Jurisdictional Authorities, or at any times complaints of dust or mud are received from the public by either the Contractor, the Consultant, or the Local Jurisdictional Authorities.
        2. Keep walkways free of snow and ice, both on and adjacent to site. Replace paving surfaces, grass and landscaping damaged by use of rock salt.
        3. Remove mud deposits from all pavement.
    2. Hoarding
        1. Provide exterior hoarding of construction areas. Exterior hoarding shall be 2.29 m (7'-6") high welded round steel wire mesh panels, 6 gauge wire, 50 mm horizontal x 200 mm vertical (2" x 8") spacing mounted on 50 mm x 1.65 mm (2" x 0.065") steel tube vertical supports and 40 mm x 1.65 mm (1-1/2" x 0.065") steel tube horizontal supports, "Insta-Fence" portable temporary security system, Stoney Creek, (905) 662-3956, or approved equal.

4. CONSTRUCTION AIDS – Not Used.

5. PROJECT SIGN – Not Used

6. LOCAL STREETS AND TRAFFIC
    1. Provide all necessary flagpersons, detour signs, warning lights, signs and barricades necessary to direct and protect pedestrian and vehicular traffic in accordance with the requirements of authorities having jurisdiction.
    2. Strengthen, repair and maintain the shoulders of the roads in order to accommodate traffic.
    3. During the duration of construction, keep all fire hydrants free from obstruction of any kind.

7. SAFEGUARDS
    1. In addition to the requirements of the Occupational Health and Safety Act provide temporary safeguards and protection adequate to maintain standard safety practices and to protect against:
        1. Accident or injury to any worker and other persons on the site, adjacent work and property, roads and walks.
        2. Damage to any part of the work and to any adjoining or adjacent structure, property, pavement, walks, services and other similar items by frost, weather, overloading, and any other cause resulting from the execution of the work.
        3. Particular attention shall be paid to the prevention of fire and elimination of fire hazards which would endanger the work or adjacent buildings and premises.
        4. Particular attention shall be paid to the prevention of spills or releases of toxic or hazardous materials or substances which would endanger the work at the site and at adjacent buildings and premises.
    2. If any part of the work or any buildings, pavements, trees, poles, hydrants, cultivated, grassed area or other site items on or surrounding the site and adjacent to any road leading thereto, become damaged or disfigured due to lack of failure of such protection, make good with material identical with existing and adjoining surfaces, or compensate the Owner for value of same.
    3. Provide all necessary temporary enclosures, hoardings, fences, gates, guardrails, hoists, stairs, ladders, scaffolding, staging, runways, night-lights, and barriers as necessary for the work. Conform to all such requirements of the Labour Laws and other Provincial or local labour safety laws, applicable thereto. Be responsible for all scaffolding, formwork, or other temporary supports used during the work. Where such structures are of a complicated nature, employ the services of a Registered Professional Engineer to design such scaffolding, framework, or other temporary supports. Support all scaffolding independently of the building's finished surfaces. Arrange to avoid when not in use to permit work to proceed unimpeded, and promptly remove when no longer required.
    4. Provide temporary fire standpipes and hose, or other approved fire extinguishing equipment in the building until the permanent fire protection system in the building is available.
    5. If work is stopped for any cause, provide protection for the work and all necessary temporary cold weather heating during all such periods of work stoppages.
    6. Keep all portions of the work properly and efficiently drained during construction and until completion, and the Contractor will be held responsible for all damage which are caused or result from water backing up or flowing over, through, from, or along any part of the works, whether such damage is to the works, to the existing building, or to neighbouring properties.
    7. Underground Electrical Services: provide safeguards to existing underground electrical services.

**- END OF SECTION –**

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1. GENERAL

    1. Obtain specified construction materials and equipment from suppliers in the same locality as the project as much as possible.

    2. Do not substitute materials, equipment or methods different from that shown on Drawings and specified, without written approval of Consultant. Make application for approval of substitution to Consultant.

    3. Use only materials, components and equipment which are in production. If so requested provide a precise model and shop drawings for viewing by Consultant.

    4. Manufacture, pack, ship, deliver and store materials and equipment so that no damage occurs to structural and functional qualities and finished appearances.

    5. Ensure that materials, while transported, stored, or installed, are not exposed to an environment which would increase their moisture content beyond the maximum specified, or in a manner detrimental to their function or appearance, or both.

2. TRANSPORTATION AND HANDLING OF MATERIALS

    1. Schedule early deliveries of materials to enable work to be executed without delay. Before delivery, arrange for receiving at site.

    2. Deliver packaged materials and equipment and store until use, with manufacturer's seals and labels intact.

    3. Label packaged goods to describe contents, quantities, and other information as specified.

3. STORAGE AND PROTECTION OF MATERIALS

    1. Store materials on site or in storage sheds with secure protection against all harmful environmental conditions. Prevent damage, adulterations, staining, and soiling of materials while stored.

    2. Store manufactured materials in accordance with manufacturer's instructions.

    3. Store steel, lumber, masonry units, precast concrete work, and similar materials on platforms raised clear of ground.

    4. Store finished materials and woodwork under cover at all times.

    5. All damaged materials will be rejected for use and thereupon shall be immediately removed from site.

    6. Note: DO NOT store any material on roofing which will cause damage to membrane. This applies to lumber, steel, wood cases, pipes, conduits, insulation, concrete block or any other materials.

4. ANCHORING DEVICES

    1. In addition to requirements for fastening devices specified in the technical Sections of the Specifications, include for all fastenings, inserts, anchors, and accessories required for execution of work, and be entirely responsible for their installation.

    2. Unless specified otherwise in the technical sections of the Specifications, use metal fastenings of same material as the metal component they are anchoring, of metal which will not set up

electrolytic action which could cause damage to fastenings or components under moist conditions. In general, use non-corrosive or hot-dipped galvanized steel as exterior anchors for windows, roofing, sheet metal, and anchors occurring on or in an exterior wall or slab, and stainless steel as anchors occurring on or in interior wet areas such as ~~pools~~, showers, janitors, garbage rooms, kitchens, or similar spaces where moisture will be present.

3. If exposed fastenings and accessories are allowed by the Documents in finished areas, use fastenings and accessories of same texture, colour and finish as base metal on which they occur. Keep such exposed fastenings and accessories to a minimum, spaced and laid out evenly and neatly and cut off to make them as inconspicuous as possible, but still provide necessary securement.

4. Install anchoring devices in such a manner as to provide positive, permanent anchorage of unit to be anchored in position. Space anchors within limits of their capacities. Select all anchoring devices to have a safety factor of 4 against failure for their design load.

5. Install fastenings of permanent type. Do not install wood plugs.

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

7. The use of explosive power tools will not be permitted under any circumstances unless equipped with a device which positively prevents free flight of the stud.

5. WORKMANSHIP AND QUALIFICATIONS OF WORKERS

1. Use competent experienced workers, thoroughly skilled in the trade in which they are performing work.

2. Strictly follow manufacturer's written instructions, directions and specifications when performing the work. If instructions are not available, obtain directions from the manufacturer in writing before proceeding. The proceeding of work without this direction is the Contractor's responsibility. It is the Contractor's responsibility to conform to Code requirements in the event that manufacturer's instructions and directions conflict with the Ontario Building Code.

3. Be responsible for obtaining up-to-date changes in manufacturer's application procedures.

6. WORKMANSHIP

1. Notify the Consultant in writing if these Specifications and/or Drawings conflict in any way with manufacturer's instructions. The Consultant will then rule which specifications shall be followed. If applicable, a copy of those instructions shall be made available at job site.

**- END OF SECTION -**

1. RELATED REQUIREMENTS SPECIFIED ELSEWHERE

    1. Section 01 33 23: Shop and Interference Drawings
    2. Section 01 29 73: Schedule of Values.

2. SUBSTITUTIONS

    1. During bidding, Consultant will consider written requests from prime bidders for substitutions, received at least 7 working days prior to bid closing date; requests received after that time will not be considered. No substitutions will be allowed after contract award unless agreed to by Consultant.

    2. All requests for substitution shall include complete data substantiating compliance with the Contract Documents.

        1. For products:
            1. Product identification, including manufacturer's name and address.
            2. Manufacturer's literature:
                1. Product description
                2. Performance test data
                3. Reference standards.
                4. Itemized comparison of proposed product with documented product
                5. Any impact in construction schedule
            3. Samples.
            4. Name and address of similar projects on which product was used, and date of installation.

        2. For construction methods (execution):
            1. Detailed description of proposed method.
            2. Drawings illustrating methods.
            3. Itemized comparison of proposed substitution with documented method.
            4. Any impact in construction schedule.
            5. Relation to separate contracts.

        3. In making request for substitution, Contractor represents:

            1. Proposed product or method has been generally investigated and determined to be equal or superior in all respects to that specified.
            2. The substitution will be provided with the same guarantee as that for product or method documented.
            3. Installation of accepted substitution will be coordinated into the Work, making such changes as required for the Work to be complete in all respects.
            4. Requests for substitutions during construction shall state what cost difference if any, will be made in the Contract Price for each substitution, if accepted,

        4. Substitutions will not be considered if:

            1. They are indicated or implied on shop drawings or project data submittals without any request.
            2. Acceptance will require revision of Contract Documents, unless agreed to by Consultant

3. PRODUCTS LIST

    1. Within thirty days after date of Contract, submit to Consultant one complete list of all products which are proposed for installation. List shall be provided in either .pdf form or hard copy not exceeding 11″ x 17″ in output size.

    2. Tabulate list by each specification section.

    3. For products specified under reference standards, include with listing of each product:
        1. Name and address of manufacturer.
        2. Trade name.
        3. Model or catalogue designation.
        4. Manufacturer's data:
            1. Performance and test data.
            2. Reference standards.
        5. Material safety data sheets.

4. CONTRACTOR'S OPTIONS

    1. For products specified only by reference standards, select any product meeting standards, by any manufacturer.

    2. In order to establish standards of quality, the Consultant has in the detailed Specifications, referred to certain products by name and catalogue number. Where the drawings have shown specific detailing, dimensions, ratings, characteristics and other performance criteria the details are based on one specific manufacturer and not combinations of more than one.

    3. For products specified by naming several products or manufacturer's, select any product and manufacturer named.

    4. For products specified by naming one or more products, but indicating the phrase "or approved equivalent" after specified product, Contractor must follow process described in item 2. Substitutions, above.

    5. For products specified by naming only one product and manufacturer and without the phrase "or approved equivalent", there is no option, and no substitution will be allowed.

**- END OF SECTION -**

## PART 1 - GENERAL

1.1 DUST AND CLEANING REQUIREMENTS

1. Standards: Maintain project in accordance with the latest edition of The Occupational Health and Safety Act.
2. Hazards Control
    1. Store volatile wastes in covered metal containers, and remove from premises daily.
    2. Prevent accumulation of wastes which create hazardous conditions.
    3. Provide adequate ventilation during use of volatile or noxious substances.
3. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws:
    1. Do not burn or bury rubbish and waste materials on project site.
    2. Do not dispose of volatile wastes such as mineral spirits, oil, paint thinner, excavated material or debris in storm, sanitary drains, streams or waterways.

1.2 WASTE AND MATERIALS MANAGEMENT

Refer to section 01 77 00 – Waste Management and Disposal

## PART 2 - PRODUCTS

2.1 CLEANING MATERIALS

1. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
2. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

## PART 3 - EXECUTION

3.1 CLEANING DURING CONSTRUCTION

1. Refer to 01352 – Temporary Indoor Air Quality Control for additional housekeeping and indoor air quality control measures.
2. Execute cleaning to ensure that building, grounds, and public properties are maintained free from accumulations of waste materials and rubbish. Keep site clear of snow, mud and pooling of water due to severe rain. Ensure that work is not stopped because of failure to provide access to site.
3. Wet down dry materials and rubbish to prevent blowing dust.
4. At reasonable intervals during progress of Work, clean site and public properties and dispose of waste materials, debris and rubbish.
5. Provide on-site containers for collection of waste materials, debris and rubbish.
6. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.
7. Vacuum-clean interior building areas when ready to receive finish painting and continue vacuum cleaning on an as-needed basis until building is ready for Substantial Performance or occupancy.
8. Obtain from each Subcontractor, instructions which designate proper methods and materials to be use in final cleaning, and submit such instructions to the Consultant. Include instructions in Operation and Maintenance Manual specified in Section 01300.
9. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.
10. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly-painted surfaces.

3.2 FINAL CLEANING

1. Prior to Substantial Performance of the Work, remove waste materials, rubbish, tools, equipment, machinery, and surplus materials, and clean all surfaces exposed to view; leave project clean and ready for occupancy.
2. Employ experienced workers, or professional cleaners, for final cleaning.
3. In preparation for Substantial Performance or occupancy, conduct final inspection of interior and exterior surfaces exposed to view, and of concealed spaces.

4. Remove dust and soil from all surfaces affected by the Work by vacuuming, damp mopping, washing or scrubbing as required. All necessary safety equipment is to be used.
5. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from all exposed interior and exterior finished surfaces; polish resilient and ceramic surfaces so designated to shine finish. Vacuum carpet.
6. All high level and inaccessible surfaces including ventilation duct interiors are to be clean of construction debris and dust.
7. Clean and polish glass and mirrors.
8. Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces.
9. Remove all surplus materials from site and clear all construction debris from anywhere on site including roofs, steps, ramps, platforms, walks, roads, and all site areas. Broom-clean paved surfaces; rake clean other surfaces of grounds. Hose down all exterior platforms, steps, and ramps. Remove snow and ice from access to building.
10. Clean filters, exposed ductwork, and structure. Clean all equipment, fixtures, ductwork, piping and accessories,
11. Clean bulbs and lamps and replace those burned out.
12. Clean diffusers and grilles.
13. Clean sinks, faucets, and water closets and controls.
14. Remove all temporary labels, protective coating, markings and tags, and thoroughly clean adhesive off surfaces.
15. Avoid contamination of surrounding surfaces with cleaning fluids. Install temporary protection, if required, and remove same immediately upon completion of cleaning operation involved.
16. Methods of cleaning shall be in accordance with the manufacturer's recommendations of the finishes involved.
17. Soaps, detergents, waxes, and other cleaning materials and methods shall be as recommended by the manufacturer for finish surface material involved.
18. Use a heavy-duty type industrial machine for all vacuum cleaning.
19. Exercise extreme care with abrasive and chemical cleaning agents and verify their compatibility with finish and material to be cleaned.
19. Maintain cleaning until project is occupied by Owner.

3.3 REMOVAL OF TEMPORARY FACILITIES

1. Completely remove temporary facilities from site, including signs and foundations, making good any damage when no longer required.

**- END OF SECTION -**

1.1 SECTION INCLUDES

1. General
2. Spare Parts
3. Cleaning
4. Take over procedures.

1.2 RELATED SECTIONS

1. Section 01 33 00 – Submittals

1.3 GENERAL

1. When the Consultant has deemed the project to be Substantially Performed, the Owner will take-over the project for occupancy. In taking-over the project, the Owner will assume responsibility for security and housekeeping of the same.

2. There shall be only one date for Substantial Performance of the Work. Certification of early completion of subcontracts will not be considered. Certification of substantial performance of any individual Stages of the Work will not be considered.

3. If an only when the Owner agrees, the Contractor shall establish interim service agreements with relevant manufacturers and subcontractors to maintain all systems and components with moving parts such as fans and pumps from the date of Owner occupancy of any individual Stage of the Work until the date of Substantial Performance of the Work.
On the date of Substantial Performance of the Work, such systems and pumps shall be turned-over to the Owner in "as-new" condition and the specified warranty periods shall begin. Maintenance of such systems shall include regular replacement of ventilation filters during the interim service period and immediately prior to Owner take-over.

4. Forty-five days prior to the Contractor's projected date of Substantial Performance, set up a meeting with Subcontractors and Suppliers to go over their various disciplines with the Owner. Prior to Substantial Performance and as scheduled with the Consultant, provide instructional sessions for HVAC and refrigeration, for plumbing and drains and for electrical. At this time, one copy of the approved brochures and operating manuals shall be given to the Owner. Instructional period shall be in as many sessions as required to properly disseminate information to Owner's technical staff.

5. At the close of each working day, all equipment and material shall be stored in a neat and orderly manner so as not to constitute hazard to the safety of rail traffic, pedestrians or vehicular traffic. Material and equipment stored on site shall be done so only in areas so designated by the Consultant.

6. The Contractor shall be responsible to repair, restore or reinstate any existing areas disturbed by the Contractor during the course of this construction to the same level as existed prior to Construction commencing. This includes the entire site area.

7. Wherever in these Specifications it is stated that the Contractor shall reinstate, restore or repair any structure, service or condition existing in the field at the commencement of any work, the Contractor will interpret the statement as meaning that the condition of the site, as it pertains to the sidewalks, curbs, pavement, sod, and other site item, to be left in the condition in which it was found by the Contractor or better.

1.4 SPARE PARTS

1. Provide spare parts and materials in quantities specified in individual Specification Sections.

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

3. Deliver to project site; place and store where directed by Owner or Consultant.

4. Receive and catalogue all items. Submit inventory listing to the Consultant. Include approved listings in Operation and Maintenance Manual specified in Section 01300.

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

1.5 FINAL CLEANING

1. Refer to Section 01 74 00.

1.6 FINAL INSPECTION AND TAKE-OVER PROCEDURES

1. Arrange for, conduct and document final inspections, close-out and take-over at Completion of the Contract in accordance with procedures described in OAA/OGCA TAKE-OVER PROCEDURES, Document No. 100.

**- END OF SECTION -**

## PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS
- 1.1.1 Division One, General Requirements is part of this Section and applies as if repeated here.

1.2 WORK INCLUDED IN SECTION
- 1.2.1 Demolition and removals shown/noted on Drawings.
- 1.2.2 Restoration of damaged or disturbed Work.
- 1.2.3 Removal of surplus materials from the site.

1.3 REFERENCED STANDARDS
- 1.3.1 CSA S350-M Code of Practice of Safety in Demolition of Structures.

1.4 EXISTING CONDITIONS
- 1.4.1 Take over structures to be demolished based on their condition at time of examination prior to tendering.

1.5 DEMOLITION DRAWINGS
- 1.5.1 Where required by authorities having jurisdiction, submit for approval, Drawings, diagrams or details showing sequence of disassembly Work and supporting structures and underpinning.
- 1.5.2 Submissions to bear stamp of qualified professional engineer registered in the Province of Ontario.

1.6 QUALITY ASSURANCE
- 1.6.1 Comply with all applicable municipal regulations, the Occupational Health and Safety Act and Regulations for Construction Projects and the Ontario Building Code.
- 1.6.2 Provide all shoring, bracing, or other measures necessary to prevent accidental collapse of any part of existing buildings, and take all necessary measures to prevent damage to adjacent buildings.
- 1.6.3 Complete all measures required by the authority having jurisdiction for the enclosure of the site and protection of the public before the Work of demolition is commenced.
- 1.6.4 Conspicuously post danger signs around the property. Close off with barricades all doorways and thoroughfares giving access to the area of demolition.
- 1.6.5 Requirements specified herein are considered the minimum requirements; be responsible for providing and performing things required and necessary to complete the Work, in a safe, proper and workmanlike manner.
- 1.6.6 A competent foreman is to be in charge of the Work at all times while Work is in progress.

1.7 MAINTAINING TRAFFIC
- 1.7.1 Maintain and preserve Owner's access requirements to and from existing buildings in areas where demolition and removal Work is being carried out.
- 1.7.2 Do not close, obstruct, place or store material in Owner's driveways and passageways. Conduct operations with minimum interference with roads, streets, driveways and passageways.

1.8 HAULING OPERATIONS
- 1.8.1 Haul and move machines, vehicles and equipment over designated route and within Work areas as designated by Consultant.
- 1.8.2 Maintain roadways and paving in the hauling areas clean on a daily basis and as required by Local authorities.

1.9 PROTECTION
- 1.9.1 Protect Work to remain against damage of any kind. Repair or replace damaged Wwork at the discretion of Consultant, at no cost to Owner.

1.9.2 Prevent movement, settlement or damage of adjacent structures, services, walks, paving, trees, landscaping, adjacent grades, parts of existing building to remain. Provide bracing, shoring and underpinning as required. Make good damage caused by demolition.

1.9.3 Take precautions to support affected structures and, if safety of building being demolished or adjacent structures or services appears to be endangered, cease operations and notify Consultant.

1.9.4 Prevent debris from blocking surface drainage system.

1.9.5 Pay particular attention to prevention of fire and elimination of fire hazards which would endanger the Work or adjacent buildings and premises.

1.9.6 Provide and maintain necessary fire extinguishers throughout the Work at all times to the approval of the Fire Marshal, and located at convenient and accessible points.

## PART 2 - PRODUCTS

NOT APPLICABLE.

## PART 3 - EXECUTION

3.1 TEMPORARY PARTITIONS AND SCREENS

3.1.1 Safety Code: Blasting operations are not permitted during demolition.

3.1.2 Preparation

.1 Post warning signs on electrical lines and equipment which must remain energized to serve other properties during period of demolition.

.2 Disconnect and cap designated mechanical services in accordance with authorities having jurisdiction.

.1 Natural gas supply lines: Follow local jurisdictional requirements for removal

.2 Sewer and water lines: remove to property line.

.3 Other underground services: remove and dispose of as indicated.

.3 Do not disrupt active or energized utilities traversing premises or designated to remain undisturbed.

.4 Employ rodent and vermin exterminators to comply with health regulations.

3.1.3 Demolition

.1 Unless indicated otherwise on Drawings, demolish basement foundation walls and footings, and concrete floors below or on grade within areas of new construction.

.2 At end of each day's Work, leave Work in safe condition so that no part is in danger of toppling or falling. (Protect interiors of parts not to be demolished from exterior elements at all times).

.3 Demolish to minimize dusting. Keep materials wetted as directed by Consultant.

.4 Remove structural framing.

.5 Do not sell or burn materials on site.

.6 Remove contaminated or dangerous materials as defined by authorities having jurisdiction, relating to environmental protection, from site and dispose of in safe manner to minimize danger at site or during disposal.

3.2 DEMOLITION

3.2.1 Carry out demolition Work, removal of existing materials and equipment, and disposal of resultant debris not specifically called for under various Sections of the Specification but which is required to complete the Work of this Section. Proceed with demolition of, or alteration to, any portion of existing building ONLY after thorough protection of existing building has been achieved, as directed and/or accepted by Consultant.

3.2.2 During demolition operations, keep Work wetted down with fog sprays to prevent dust and dirt rising. Provide temporary water line for this purpose and furnish connections that are required. Upon completion, remove installed temporary water lines. Use covered chutes, watered down.

3.3 CUTTING

3.3.1 Perform required cutting using power operated cutting devices. Chipping will not be allowed. Breaking out to commence only after sawcutting of the cut-off points has been performed in order to prevent damage to remainder.

3.3.2 Demolish masonry and concrete in small sections.

3.4 DISPOSAL OF MATERIALS, RUBBLE AND DEBRIS

3.4.1 Surplus Materials

.1 Materials forming permanent part of the building that require removal become Contractor's property and must be removed from site daily, unless such materials are otherwise specified or shown on Drawings to be reused under this Contract (or turned over to the Owner). Remove materials not suitable for reuse.

.2 Stockpiling of surplus materials on site will not be permitted.

3.4.2 Rubble and Debris

.1 Rubbish and debris resulting from execution of the Work to be cleaned up as they are generated. Dispose of same at end each day's Work or place in waste disposal bins which must be emptied on a regular basis. Stockpiling of rubble and debris will not be permitted.

.2 Do not burn material on site.

3.4.3 Demolition and Excavation Dust Control Plan: The Demolition and Excavation Dust Control Plan is to identify measures that will be taken to control dust during demolition, related soil excavation or during soil remediation/excavation activities and is to include the following as applicable:

.1 The daily, or more frequently if required, wetting of all soft and hard surfaces and any excavation face on the site, with the addition of calcium chloride or other recognized materials as a dust repressant, if required.

.2 The daily cleaning of the road pavement and sidewalks for the entire frontage of the property to a distance of 25 metres from the property line.

.3 The designation of truck loading points to avoid trucks tracking potentially contaminated soil and demolition debris off the site. Such loading points are to be on a gravel base to minimize tracking of the soil onto the sidewalk and the street. If the loading point becomes contaminated it is to be cleaned and replaced.

.4 All trucks and vans leaving the site are to be cleaned of all loose soil and dust from demolition debris including the washing of tires and sweeping or washing of exteriors and tailgates by a designated labourer. A daily log of each truck leaving the site is to be kept noting when the truck was cleaned and by whom.

.5 Tarping all trucks leaving the site which have been loaded with indigenous soil or demolition debris.

3.5 CLEANING-UP

3.5.1 Leave site in a "broom-clean" condition on completion of work to Consultant's satisfaction.

3.5.2 Clean all existing surfaces specified to receive new applied finishes to assure proper adherence.

3.5.3 Clean all existing surfaces to receive paint finish to paint manufacturer's written specifications and/or recommendations.

3.6 ENVIRONMENTAL SITE ASSESSMENT

3.6.1 An environmental site assessment was not conducted by the Owner to determine the presence of environmentally hazardous materials.

3.6.2 If the Contractor encounters buried items containing environmentally hazardous substances such as, but not limited to, oil tanks, stop Work and notify the Consultant immediately. Do not proceed until written instructions have been received from the Consultant.

3.7 HAZARDOUS SUBSTANCES – Refer to Appendices

3.7.1 There is not a registered substance report for this Project. The following note pertains to its demolition.

3.7.2 Demolition of materials containing hazardous substances can be hazardous to health. If material resembling, but not limited to, the following: spray or trowel applied asbestos, PCB ballasts, plaster containing asbestos binder, roof felt containing asbestos binder, be encountered, stop Work and notify the Consultant immediately. Do not proceed until written instructions have been received from the Consultant.

.

**- END OF SECTION –**

## PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

1.1.1 Division One, General Requirements is part of this Section and shall apply as if repeated here.

1.2 RELATED WORK – NOT USED

1.3 REFERENCED STANDARDS

Note: Always refer to most current version of all standards

| | | |
|---|---|---|
| 1.3.1 | ASTM A143/A 143M-07 | Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement |
| 1.3.2 | ASTM A307 | Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength |
| 1.3.3 | ASTM A325-14 | Specification for High Strength Bolts for Structural Steel Joints |
| 1.3.4 | ASTM A563M | Specification for Carbon and Alloy Steel Nuts |
| 1.3.5 | ASTM A666 | Specification for Austenitic Stainless Steel, Sheet, Strip, Plate, and Flat Bar |
| 1.3.6 | ASTM A780/A780M-09 | Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized coatings |
| 1.3.7 | CAN/CSA-S16.1 | Limit States Design of Steel Structures |
| 1.3.8 | CSA W47.1 | Certification of Companies for Fusion Welding of Steel Structures |
| 1.3.9 | CSA W47.2-11 | Certification of Companies for Fusion Welding of Aluminum |
| 1.3.10 | CSA W55.3-08 | Resistance Welding Qualification Code for Fabricators of Structural Members Used In Buildings |
| 1.3.11 | CSA W59 | Welded Steel Construction (Metal Arc Welding) |
| 1.3.12 | CAN/CSA-G40.40/G40.21-M | General Requirements for Rolled or Welded Structural Quality Steel / Structural Quality Steel |
| 1.3.13 | CAN/CSA-G164-M | Hot Dip Galvanizing of Irregularly Shaped Articles |
| 1.3.14 | CISC/CPMA 2-75 | Canadian Institute of Steel Construction/Canadian Paint Manufacturers Association-A Quick Drying Primer for Use on Structural Steel |
| 1.3.15 | CAN/CGSB-85.10 | Protective Coatings for Metals |

1.4 QUALITY ASSURANCE

1.4.1 Qualifications of Subcontractor: Execute work of this Section using a firm thoroughly conversant with governing laws, bylaws, and regulations. Use workers skilled in this work.

1.4.2 Welding

.1 Welding of structural components shall be done only by fabricators certified by CSA W47.1 or W55.3 as applicable for welding of steel, and CSA W47.2-11 for welding of aluminum, and who shall perform welding to conform to W59.

.2 Perform stainless steel welding using the Argon Arc process.

.3 Weld all connections where possible, and bolt where not possible. Provide method to prevent loosening of nuts. Ream holes drilled for fastenings. Make welded joints tight, flush, and in true planes with base metals. Make welds continuous at joints where entry of water into building or into voids of members or assemblies is possible. Grind welds in exposed locations smooth in a manner that will not leave blemishes on exposed surfaces. Join members generally by inert metal arc welding where practicable, using materials recommended by

manufacturers of metals being welded. Remove flux completely following welding, and grind and polish joints smooth and clean.

.4 Where galvanized steel is to be welded, provide adequate ventilation. If adequate ventilation is not available, provide supplementary air circulation.

.5 Touch up all uncoated weld areas.

1.5 DESIGN

1.5.1 Design work of this section in accordance with the Ontario Building Code 4.1.5.14.

1.6 SUBMITTALS

1.6.1 Shop Drawings

.1 Submit shop drawings in accordance with Section 01 33 00, for work of all guards and handrails, including large-scale detail of members and materials, of connection and jointing details, of anchorage devices, dimensions, gauges, thicknesses, description of materials, metal finishing, as well as all other pertinent data and information, for Consultant's review before fabrication.

.2 Shop drawings for work of this section is to bear the seal and signature of a registered Ontario Professional Structural Engineer licensed to practice in Ontario and to confirm that the handrails and guards have been designed to withstand the minimum applicable loading values as defined in the Ontario Building Code, eg 4.1.5.14.

1.7 PRODUCT DELIVERY, STORAGE AND PROTECTION

1.7.1 Provide and maintain protection for work of this Section.

1.7.2 Protect exposed surfaces of metal work with protective coatings or wrappings. Use materials recommended by finishers or manufacturers of metals, to ensure that method is sufficiently protective, easily removable, and harmless to the finish.

1.7.3 Raise the articles from the ground and separate with strip spacers to provide free access of air to most parts of the surface. Incline in a manner which will give continuous drainage.

## PART 2 - PRODUCTS

2.1 MATERIALS

2.1.1 General

.1 Metals shall be free from defects which impair strength or durability, or which are visible. Metals shall be new, of best quality, and free from rust, or waves, or buckles, clean, straight, and with sharply defined profiles.

.2 Select materials for surface flatness, smoothness, and freedom from surface blemishes when exposed to view in finished unit. Exposed-to-view surfaces which exhibit pitting, seam marks, roller marks, "oil-canning", stains, discolorations, dents or other imperfections on finished units will not be acceptable.

2.1.2 Steel: For structural sections hot rolled to meet requirements of CAN/CSA-G40.21-M, Grade 300W or better. For sheet, cold-rolled furniture steel, double annealed, mill stretched and levelled, and fully pickled. Otherwise, steel shall be hot-rolled or cold-rolled of alloy to suit needs of fabrication, use, and appearance.

2.1.3 Primers and Coatings

.1 Site-applied anti-corrosive (rust preventative) interior paints and coatings shall be low-VOC or no-VOC and be GREENGUARD or GREENGUARD GOLD certified. Where certified products do not exist, the maximum VOC content permitted shall be 100 g/L or less.

.2 Quick drying oil alkyd conforming to CISC/CPMA 2-75.

2.1.4 Fastenings: Nuts and bolts shall conform to ASTM A307, A325, and A563 as applicable.

.1 For interior work: cadmium-plated fastenings where other protection is not specified.

2.1.5 Anchors and Shims: For exposed anchorage of aluminum, use stainless steel and otherwise to match metal anchored. For non-exposed work, anchors and shims may be galvanized steel.

2.1.6 Pipe and Tube

.1 Ferrous steel pipe: to ASTM A53-90a, Type S- Seamless, Grades A and B.

.2 Stainless steel pipe: AISI Type 304, austenitic grade, '18-8' composition, No. 4 finish.

.3 Ferrous steel square tube: to ASTM A519, cold drawn, seamless and welded.

2.1.7 Non-Shrinking Grout: "In-Pakt" by King Construction Products, "V-3 10K" by W.R. Meadows or "M-Bed" by Sika Canada.

2.1.8 Sulphur: Commercial grade.

2.2 DESIGN AND FABRICATION REQUIREMENTS

2.2.1 Generally

.1 Fabricate this work with machinery and tools specifically designed for the intended manufacturing processes, and with skilled tradespersons.

.2 Fit and assemble work in the shop. When this is not possible, make a trial shop assembly.

.3 Materials, component sizes, gauges of metals, anchorage and fastenings shall be of adequate strength to withstand the intended use within allowable design factors, as required by the Ontario Building Code, to ensure that all work is free of warping, buckling, opening of joints and seams, distortion and permanent deformation. Stairs, balustrades, guards, railings and handrails shall support applicable live loads specified in the Ontario Building Code.

.4 The details on the Drawings show the general arrangement of components to provide the desired appearance. The fabricator shall employ an Ontario Professional Structural Engineer to design the details of the stairs, balustrades, guards, railings and handrails, and the connections to the building structure, to satisfy all the requirements of the Ontario Building Code.

.5 Ensure that work will remain free of warping, buckling, opening of joints and seams, distortion, and permanent deformation.

2.2.3 Assembly

.1 Accurately cut, machine, and fit joints, corners, copes and mitres so that junctions between components fit together tightly, and in true planes.

.2 Fasten work with concealed methods, unless otherwise indicated on the Drawings.

.3 Weld all connections where possible, and bolt where not possible, and cut off bolts flush with nuts. Countersink bolt heads and provide method to prevent loosening of nuts. Ream holes drilled for fastenings.

.4 Make welded joints tight, flush, and in true planes with base metals, and continuous at joints where entry of water into building or into voids of members or assemblies is possible. Continuously grind and make smooth welds in exposed locations.

.5 Provide for differential movements within assemblies and at junctions of assemblies with surrounding work.

.6 Fabricate shims of galvanized steel of sizes required.

2.2.4 Finish Work

.1 Provide holes and connections for work installed under other Sections of this Specification.

.2 Cleanly and smoothly finish exposed edges of materials, including holes.

.3 Cap open ends of sections exposed to view, such as pipes, channels, angles, and other similar work.

2.2.5 Prime Painting of Ferrous Steel: Clean all loose mill scale, rust, dirt, weld flux, and spatter from work after fabrication. Grind smooth sharp projections and manufacturer's marks and labels. Prepare for prime painting by blast cleaning to SSPC-SP6 standard. Apply a shop prime coat of paint. Work paint into corners, and onto open areas smoothly. Deliver work to site with primer undamaged. Paint all surfaces except those to be welded in the field, or those encased in concrete. Give surfaces that are inaccessible to finish field painting two coats of primer.

2.3 HANDRAILS AND GUARDS

2.3.1 Provide handrails and guards, brackets and supports as required by drawings. Minimum wall thickness 12 ga.

2.3.2 Form rail-to-end post connections and all changes in rail direction by mitred joints or radius bends as applicable.

2.3.3 Remove burrs from all exposed cut edges.

2.3.4 Form bends and wall returns to uniform radius, free from buckles and twists, with smooth finished surfaces, or use prefabricated bends.

2.3.5 Close exposed ends of pipe and tube by welding metal closure in place or by use of prefabricated fittings.

2.3.7 Work shall be one piece or in as long lengths as possible. Join pipe sections using concealed connectors.

2.3.8 Weld all field joints, grind and polish smooth to match base metal.

## PART 3 - EXECUTION

3.1 INSPECTION OF THE SITE

3.1.1 Take site measurements to ensure that work is fabricated to fit surrounding construction around obstructions and projections in place, or yet to be put in place to suit service locations, and inaccuracies of construction.

3.2 INSTALLATION

3.2.1 Install work plumb, true, square, straight, level, and accurately and tightly fitted together and to surrounding work.

3.2.2 Work includes anchor bolts, bolts, washers and nuts, lag screws, expansion shields, toggles, straps, sleeve brackets, clips, shims and other items necessary for secure installation, as required to support and/or resist loads and forces, and as required by Jurisdictional Authorities.

3.2.3 Hand items over to appropriate trades for casting into concrete or building into structure together with setting templates.

3.2.4 Insulate between dissimilar metals, or between metals and masonry or concrete with bituminous paint to prevent electrolysis.

3.2.5 In concrete construction cast vertical pipes into sleeves set into concrete at least 150 mm. Sulphur grout or fill with non-shrinking grout or epoxy. In steel construction, weld to plates, stringers or other structural member.

3.2.6 Provide temporary supports and bracing required to position assemblies.

3.2.7 Caulk between components installed under this work. Caulking materials as specified in Section 07 92 00. Caulking between miscellaneous metal work and adjacent work of others is included in the work of Section 07 92 00.

3.3 PATCHING AND REFINISHING

3.3.1 After erection, touch up prime paint, and shop applied coatings and finishes (pre-finishes) damaged or removed during installation.

3.3.2 Remove damaged, dented, defaced, defectively finished, or tool-marked components and replace with new.

3.3.3 Clean off dirt on surfaces resulting from installation work.

**- END OF SECTION –**

## PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

1.1.1 Division One, General Requirements is part of this Section and shall apply as if repeated here.

1.2 RELATED SECTIONS – Not Used

1.3 REFERENCED STANDARDS

Note: Always refer to most current version of all standards

1.3.1 ASTM International

.1 ASTM C 919-[08], Standard Practice for Use of Sealants in Acoustical Applications.

1.3.2 Canadian General Standards Board (CGSB)

.1 CGSB 19-GP-5M, Sealing Compound, One Component, Acrylic Base, Solvent Curing.

.2 CAN/CGSB-19.13-[M87], Sealing Compound, One-component, Elastomeric, Chemical Curing.

.3 CGSB 19-GP-14M, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing.

.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.

1.3.3 General Services Administration (GSA) - Federal Specifications (FS)

.1 FS-SS-S-200, Sealants, Joint, Two-Component, Jet-Blast-Resistant, Cold Applied, for Portland Cement Concrete Pavement.

1.3.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (SDS).

1.4 QUALITY ASSURANCE

1.4.1 Have work performed by a recognized established caulking and sealing contractor having at least ten years experience and with skilled workers thoroughly trained and competent in the use of caulking and sealing equipment and the specified materials.

1.4.2 In order that recommendations may be made, arrange with sealant manufacturers for one of their technical representatives to visit the site, prior to application of this work, to discuss with the Contractor, in the presence of the Consultant, the procedures to be adopted and to review site conditions, and surfaces and joints to be sealed.

1.4.3 Discuss the following items:

.2 Anticipated frequency and extent of joint movement.

.3 Joint design.

.4 Suitability of durometer hardness and other properties of material specified.

1.5 SUBMITTALS – Not Used

1.6 JOB CONDITIONS

1.6.1 Apply materials only to completely dry surfaces, and at air and material temperatures above minimum established by manufacturer's specifications.

1.6.2 The applicator is responsible for ensuring the sealants are applied under acceptable conditions. Substrate temperatures of less than 4°C require special considerations, to ensure a clean, dry substrate and proper sealant wet-out.

.1 The substrate to which sealant is to be applied should be dry. This is particularly crucial where the substrate is porous and subject to water absorption. Although the joint interface may appear to be dry, the substrate below the immediate

joint surface may still be moist. This moisture can migrate rapidly to the joint surface thereby contaminating any preparation.

.2 Use a quick flashing solvent such as MEK or Tremco 200 Cleaner to clean the substrates.

NOTE: Ensure the substrate and/or any coating on the substrate is compatible with MEK or Tremco Cleaner 200.

.3 After solvent cleaning, wipe the joint interfaces dry with a second clean rag.

.4 Immediately following cleaning, install the sealant and tool it.

## PART 2 - PRODUCTS

2.1 MATERIALS

2.1.1 Generally: Labels indicating conformance to specified reference specifications will be acceptable as verification that contents meet specified requirements. Colour will be selected by Consultant from manufacturer's standard range. Colours shall match surface on which it occurs unless noted otherwise.

2.1.2 Sealants: Non-bleeding and capable of supporting their own weight. Caulking, sealants, cleaning solvents, fillers and primers shall be compatible with each other.

.1 Interior non-traffic bearing: one component elastomeric material conforming to CAN/CGSB-19.13, Class 1 or 2, depending on application. Colour as selected by the Consultant.

.2 Use only recommended products by Tremco, General Electric, or Dow Corning for intended use.

2.1.3 Primer: Specifically designed for use with compounds on surfaces encountered, and as specified by the compound manufacturer, to assure adhesion of compound and to prevent staining of substrate material.

2.1.4 Sealant Backing: Extruded, polyethylene closed cell, round foam rod, 25% wider than joint width, and manufactured especially for caulking purpose. Ensure that sealant backing is not cut nor punctured during installation.

2.1.5 Bond Breaker: Tape of type supplied or recommended by sealant or caulking manufacturer.

## PART 3 - EXECUTION

3.1 PREPARATION

3.1.1 Remove moisture, loose mortar, dust, oil, grease, oxidation, mill scale, coatings, and all other materials affecting bond of compounds by brushing, scrubbing, scraping, or grinding, from surfaces to which caulking compounds must adhere.

3.1.2 Ensure that releasing agents, coatings, or other treatments have either not been applied to joint surfaces, or that they are entirely removed.

3.1.3 Ensure joints are suitable to accept sealant and caulking.

3.1.4 Before any work is commenced, test the materials for indications of staining or poor adhesion.

3.1.5 Do not apply material to masonry until mortar has cured.

3.1.6 Do not exceed shelf life, and pot life of the materials and installation times, as stated by the manufacturers.

3.1.7 Become familiar with the work life of the material to be used. Do not mix two part materials until required for use.

3.1.8 Mix sealants thoroughly with a mechanical mixer capable of mixing at 80-100 rpm without mixing air into the materials. Continue mixing until the material is a uniform colour and free from streaks of unmixed material.

3.1.9 Mask areas adjacent to the joints as required. Prevent contamination of adjacent surfaces. Remove masking promptly after the joint has been completed.

3.2 APPLICATION

3.2.1 Work of this Section shall include all sealing and caulking, except where specified under the work of other Sections, to make the building weather and air tight, as indicated typically on drawings, and as otherwise specified.

3.2.2 Apply materials in accordance with the recommendation of the material manufacturer, in particular, backer rod, priming and depth-to-width ratio.

3.2.3 Pack joints tightly with sealant backing, set at sealant depth.

3.2.4 Apply primer with a brush which will permit all joint surfaces to be primed. Perform priming immediately before installation of caulking or sealant.

3.2.5 Caulking and sealants shall be of gun or knife grade consistency to suit the joint condition. Use gun nozzles of the proper sized to suit the joints and the caulking and sealing material.

3.2.6 Apply with manually operated or air pressure operated guns.

3.2.7 Use sufficient pressure to fill all voids and joints. Caulking sealants shall bond to both sides of joint but not backing material.

3.2.8 Ensure that the correct compound depth is maintained. Superficial painting with a skin bead will not be accepted.

3.2.9 Finished applications shall be a full bead free from air pockets and embedded impurities and having smooth surfaces, free from ridges, wrinkles, sags, air pockets and imbedded impurities.

3.2.10 After joints have been completely filled, tool them neatly to a slight concave surface.

3.2.11 Caulk joints in site painted materials after adjacent surfaces have been painted.

3.2.12 The work shall include, but not limited to the following:

.1 Intersection of new stage wall construction and existing floor.

.2 Joints between gypsum board and masonry, or other materials.

.3 Raked joints in junction of walls running at different angles, and at junction of walls to columns.

.4 At other locations shown on Drawings.

3.3 CLEANING

3.3.1 Do not use chemicals, scrapers, or other tools which would damage surfaces of caulked or sealed materials when excess compounds or droppings are removed. Work damaged by cleaning shall be made good under work of this Section.

3.4 REPAIR

3.4.1 Cut out damaged caulking and sealing, re-prepare and prime joints and install new material as specified to the Consultant's satisfaction.

3.5 PROTECTION OF COMPLETED WORK

3.5.1 Provide wood planks or other approved, non-staining means of protection for the completed caulking and sealants installations where required to protect the work from mechanical, thermal, chemical and other damage by other construction operations and traffic.

3.5.2 Maintain protection securely in place until project completion. Remove protection when so directed by the Consultant.

- END OF SECTION –

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1.1 GENERAL REQUIREMENTS

1.1.1 Division One, General Requirements is part of this Section and shall apply as if repeated here.

1.2 RELATED SECTIONS – Not Used

1.3 REFERENCED STANDARDS

Note: Always refer to most current version of all standards

1.3.1 Aluminum Association (AA)

.1 AA DAF 45-[03], Designation System for Aluminum Finishes.

1.32 American Society for Testing and Materials (ASTM)

.1 ASTM C 475-[02], Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.

.2 ASTM C 514-[04], Standard Specification for Nails for the Application of Gypsum Board.

.3 ASTM C 557-[03], Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.

.4 ASTM C 840-[16], Standard Specification for Application and Finishing of Gypsum Board.

.5 ASTM C 954-[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 C 1002-[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 C 1047-[14a], Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.

.8 ASTM C 1177/C 1177M-[13], Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.

.9 ASTM C 1178/C 1178M-[13], Standard Specification for Glass Mat Water-Resistant Gypsum Backing Board.

.10 ASTM C 1280-[13a], Standard Specification for Application of Gypsum Sheathing.

.11 ASTM C1396/C1396M-[14a], Standard Specification for Gypsum board.

1.3.3 Association of the Wall and Ceilings Industries International (AWCI)

.1 AWCI Levels of Gypsum Board Finish-[GA-214-].

1.3.4 Not Used

1.3.5 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.34-[M86], 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.

1.3.8 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S102-[10], Standard Method of Test of Surface Burning Characteristics of Building Materials and Assemblies.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

1.4.1 Package finish materials.

1.4.2 Store materials in a protected dry area. Store gypsum board flat in piles with edges protected.

1.4.3 Ensure that finish metal members are not bent, dented, or otherwise deformed.

1.4.4 Deliver products only supplied under the work of this Section to those who are responsible for installation, to the place they direct, and to meet installation schedules.

1.4.5 Package fire-rated materials with Underwriters Laboratories of Canada labels attached.

1.5 JOB CONDITIONS

1.5.1 Environmental Conditions

.1 Install work only in areas closed and protected against weather, and maintained between 10°C and 21°C. In cold weather, ensure that heat is introduced in sufficient time, before work commences to bring surrounding materials up to these temperatures, and maintained until materials installed by this Section have cured.

.2 Do not install work in any area unless satisfied that work in place has dried out, and that no further installation of damp materials is contemplated.

1.6 SUBMITTALS – Not Used

**PART 2 - PRODUCTS**

2.1 MATERIALS

2.1.1 Gypsum Board: Conforming to ASTM C1396/C1396M-14, as manufactured by Canadian Gypsum Company, Georgia-Pacific or CertainTeed Gypsum Canada as follows:

.1 Gypsum Board: In thicknesses indicated, with tapered edges. Abuse Resistant Gypsum Board (Very High Impact) CGC Inc. Fiberock Interior Panels Abuse resistant, VHI (Very High Impact). Type 'X' rated, where required, classified for fire hazard by Underwriters Laboratories of Canada and labelled in conformance with the ULC Label Service for the application specified.

.2 Fire-Rated Gypsum Board: Not Used

.3 Interior Water Resistant Gypsum Board: Not used

.4 Linerboard and Coreboard: Not Used.

.5 Glass Matt Backer Board: Not Used

.6 Exterior Grade Gypsum Board: Not Used.

2.1.2 Joint Materials

.1 Joint Reinforcing Tape

.1 For interior gypsum board: 50 x 0.3 mm perforated paper with chamfered edges.

.2 For moisture (water) resistant gypsum board: manufacturer's standard tape for waterproof application.

.3 For water resistant tile backer: manufacturer's standard for a waterproof joint assembly.

.2 Joint and Skim Compounds

.1 For interior gypsum board: gypsum with latex resin, possessing good adhesion, mixed with fresh, unadulterated water, having no detrimental effect on compounds.

.2 For moisture (water) resistant gypsum board: manufacturer's standard compound for waterproof application.

.3 For water resistant tile backer: manufacturer's standard cementitious type for a waterproof joint assembly.

.4 For skim compounds: "Durabond 90" manufactured by Canadian Gypsum Company.

2.1.5 Accessories: As manufactured by Canadian Gypsum Company, CertainTeed Gypsum Canada or Bailey Metal Products Limited as follows:

.1 Corner Beads: #25 steel, zinc-coated with flanges suitable for thickness of wallboards on which applied, and suitable for taping and plastering over.

.2 Casing Beads: #25 steel, zinc-coated, channel-shaped, suitable for taping and plastering over.

.3 Reveal Moulding: Roll formed .610 mm thick x 10 mm opening, primed for painting, flanges profiled to receive joint compound, as manufactured by Fry Reglet or approved equivalent. Use factory curved sections for curved applications.

.4 Expansion Joint Cover: Not Used

.5 Control Joints: Crimped, roll-formed zinc, as Fry Reglet "DA.14" or approved equivalent, with flanges for tape reinforcement or two casing beads set with gap for movement, and backed with flexible air seal membrane.

.6 Shaftwall Accessories: Not Used.

.7 Thermal Break Tape: Not Used

2.1.6 Fastenings and Ties

.1 Screws: Self-drilling, self-tapping, case-hardened, Phillips head, gypsum board screws with corrosion-resistant finish. #6 x 25 mm for single thickness panel fastening, and #7 x 40 mm for double thickness panel fastening.

.2 Tie Wire: Not Used

.3 Twist Clips: Not Used

.4 Concrete Anchors: Phillips Red Head TW-614 or other make of tie wire sleeve anchors conforming to US Federal Specs. FF-S-325, Group II Type 3, Class 3, and QQ-2-235, Type II, Class 3. Do not use powder activated fasteners for ceiling support.

2.1.7 Steel Studs: Depth to suit span except where wider depths are shown on Drawings. Knurled flanges 32 mm wide with edges doubled back at least 4.8 mm; #25 steel galvanized, with girts as required and with service access holes. Where structural studs are indicated, provide 0.91 mm (20 ga) material.

2.1.8 Retainer Studs: As manufactured by Bailey Metal Products, or approved equivalent.

2.1.9 Partition Runners: As specified for studs with flanges a minimum 125 mm high, and to suit depth of studs as required to serve as backing for carpet base where carpet occurs.

2.1.10 Bracing Channels: For partitions, 19 x 9.5 x 1.2 mm cold-rolled, galvanized steel.

2.1.11 Furring Channels: #25 galvanized, nominal size of 22 mm deep by 32 mm face, hat type with knurled face.

2.1.12 Resilient Channels: CGC RC-1 or equivalent by other reputable manufacturers.

2.1.13 Ceiling Hanger System: Not Used

2.1.14 Acoustical Caulking: Not Used

2.1.15 Acoustical Batt / Fire Rated Insulation: Not Used .

2.1.16 Control Joint Strip: Roll formed zinc coated metal with a tape protected void, 6 mm wide throat size x 13 mm deep with flanges for embedding in joint compound.

2.1.17 Skim Coating: "Durabond 90" or approved equivalent compound.

2.1.18 Stainless Steel Corner Guards: 900 mm x 50 mm x 50 mm x 1.5 mm Type 304 stainless steel as manufactured by the Pawling Corporation, and distributed by McGill Architectural. Provide at all outside corners.

## PART 3 - EXECUTION

3.1 EXAMINATION

3.1.1 Before application of gypsum board commences, ensure that services have been installed, tested and approved by relevant Jurisdictional Authorities and Consultant; that conduits, pipes, cables and outlets are plugged, capped or covered; and that fastenings and supports installed by others are in place.

3.1.2 Ensure that environmental conditions and work preceding that of this Section are satisfactory.

3.1.3 Verify that work performed under other Sections as a part of a ULC specification for a fire-rated assembly has been done in accordance with that specification.

3.2 INSTALLATION IN GENERAL

3.2.1 Install furring, studs, gypsum board, accessories, and all other related products in strict accordance with CSA Standard A82.31, including Appendix B "Control Joints". Where the standard does not incorporate specific products and methods, follow the manufacturer's directions. Use 16 mm thick gypsum board for interior work unless detailed otherwise.

3.2.2 Install work within 3 mm of dimensioned location unless approved otherwise by Consultant, and flat to tolerance of 3 mm maximum in 3 m and 1.6 m maximum in any running 300 mm.

3.2.3 Coordinate the work of this Section with that of other Sections. Ensure that adequate preparation is made for the attachment of hangers, fasteners, stiffeners, and reinforcing. Provide for carrying and integration of flush-mounted and recessed components only after consultation and verification of methods with those performing the work of Divisions 15 and 16. Do not use through-the-roof hangers.

3.2.4 Do not install metal framing, trim, casings, or accessories which have been bent, dented, or otherwise deformed.

3.2.5 Securely attach trim, casings, framing and accessories. Attachment by means of tape is unacceptable.

3.2.6 Framing and furring shown on Drawings is indicative, but do not regard it as exact or complete. Construct work to provide adequate strength to withstand stresses imposed by use without distortion and to maintain dimensions indicated on Drawings.

3.2.7 Erect supporting and finish materials to dimensions indicated on Drawings, plumb, level, straight, and square to adjoining elements.

3.2.8 Provide for movement at intersections with structural members to avoid transference of loads to this Work. Construct vertically sliding deflection space at top of partitions by means of double channels. Secure top channel to structure and bottom channel to stud work. Secure board only to bottom track making allowance for up to 19 mm deflection of structure. Cut board short at top and caulk this joint.

3.2.9 Make allowance for thermal movements in gypsum board systems.

3.2.10 Provide control joints in gypsum board work at no greater spacing than 4000 mm in each direction, at perimeters of ceilings where they abut walls and other vertical surfaces, at abutting structural elements, at dissimilar walls and ceilings, at structural expansion and control joints, and at other locations where stresses are likely to develop as recommended by board manufacturer. Line up control joints with joints in other construction or with centrelines of mullions, columns, piers, or similar building elements. Obtain Consultant's acceptance of locations of control joints, other than those indicated on Drawings.

3.2.11 Form control joints using continuous furring channels along each side of joint locations, and filling control joint space with specified joint strip, secured in place, making straight joints.

3.2.12 Install casings and thermal breaks at junctions of gypsum board with exterior door, window, or screen joints.

3.2.13 Do not support the work of this Section from, nor make attachment to ducts, pipes, conduit or the support framing of the work of other Sections. Place supplementary steel supports as required to maintain hanger spacing and to keep mechanical ducts free from hangers being secured to.

3.2.14 Do not apply gypsum board in close proximity to hot pipes or heating ducts.

3.2.15 Install materials with the minimum of joints. Tightly butt joints without force and neatly align them.

3.2.16 Frame openings on each side with suitable sections. Provide clearances required at mechanical and electrical services such as grilles, diffusers, access panels and lighting fixtures only after verification of requirements in each case.

3.2.17 Cooperate with those installing the work of other Sections. Where the work of others penetrates gypsum board construction, fit openings snugly, and to ensure cover by escutcheons or plates utilized.

3.3 FIXTURE, CABINET, & GRAB BAR SUPPORTS – Not Used

3.4 PARTITION STABILITY

3.4.1 Where partitions do not extend to structure, provide suitable internal reinforcement to prevent lateral movement of the partitions. Secure head runners to acoustic tees by means of "twist clips".

3.5 CONCRETE ANCHORS

3.5.1 Locate anchorage points in reinforced concrete floor slab underside in accordance with gypsum board manufacturer's suspension requirements. Drill holes with carbide-tipped drill bits conforming to ANSI B94.12. Install anchors; minimum installation depth and method of expansion shall be as recommended by the anchor manufacturer.

3.6 INSTALLATION OF SUSPENDED CEILING FRAMING AND FURRING – Not Used

3.8 FURRING AT MASONRY AND CONCRETE WALLS – Not Used

3.9 ACOUSTICALLY TREATED WALLS AND BULKHEADS – Not Used

3.10 INSTALLATION OF GYPSUM BOARD

3.10.1 Extend boards into door, window, and other opening reveals.

3.10.2 Back all joints with a framing member.

3.10.3 Install boards in maximum lengths and widths to minimize joints, and never in lengths of under 1800 mm. Stagger end joints where they are unavoidable. Locate joints in ceilings and soffits where least prominently discernible.

3.10.4 Form neat joints at mill ends and at field-cut edges of wallboard panels. Cut paper on face with a knife. Smooth by sanding and rubbing edges together.

3.10.5 Fasten boards to metal support members by sheet metal gypsum board screws at 300 mm o.c. no closer than 9.5 mm to and no farther than 13 mm from centre of joints. Do not force adjacent boards into place. Allow moderate contact. Provide extension slips where required. Drive screws to form a slight depression, but no so paper cover is broken.

3.10.6 Where curved gypsum board is indicated, wet boards and bend to required radius, and block in position until dry. Finished curved surface shall be smooth and even.

3.11 INSTALLATION OF CEMENT BOARD – Not Used

3.12 TREATMENT OF GYPSUM BOARD JOINTS

3.12.1 Fill joints, screwholes, and depressions on board surfaces exposed to view to provide smooth, seamless surfaces, and square, neat corners. Use jointing compounds and reinforcing tapes in conformance with manufacturer's specifications. Ensure that board is tight against framing members, fasteners are properly depressed, and adhesives have sufficiently cured.

3.12.2 Fill joints, edges and corners by Gypsum Association Level 5 three coat tape and joint filler method.

3.12.3 At external corners, install corner beads secured to framing at 150 mm o.c. on alternate flanges. Fill to nose of corner bead with joint filler and topping cement, as specified for bevelled joints.

3.12.4 At casing beads installed at all edges of board exposed to view, where board butts against other materials, with no trim to conceal junction at control joints, at perimeter of ceiling surfaces, at top of partitions where they stop against continuous ceiling surfaces, and where otherwise shown on Drawings, secure casing beads to framing at 300 mm o.c.

3.12.5 At screwheads, fill holes and depressions with a two-coat application of joint filler.

3.13 JOINT AND SURFACE TREATEMENT OF CEMENT BOARD – Not Used

3.14 INSTALLATION OF ACCESSORIES

3.14.1 Install accessories such as access panels, and grilles when supplied by other Sections. Obtain prior Consultant's approval of locations of accessories prior to installation.

3.14.2 Gypsum board infill at access panels shall have taped edges. Apply gypsum board with adhesive. Fill and sand smooth perimeter edges as specified for joint finishing.

3.14.3 Install cement board in wet area access panels which will receive ceramic tile by Section 09 30 13.

3.14.4 Install stainless steel corner guards on drywall as detailed using self adhered backing tape.

3.15 FIRE SEPARATIONS – Not Used

3.16 CLEANING AND PATCHING

3.16.1 Remove droppings and excess joint compound from work of others and from work of this Section, before it sets.

3.16.2 Make good to cut-outs for services and other work, fill in defective joints, holes, and other depressions with joint compounds.

3.16.3 Make good defective work, and ensure that surfaces are smooth, evenly textured, and within specified tolerances to receive finish treatments.

3.16.4 Clean off beads, casings, and other metal trim, and leave all surfaces ready for specified finishes.

- END OF SECTION -

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## PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

1.1.1 Division One, General Requirements is part of this Section and shall apply as if repeated here

1.2 QUALIFICATIONS

1.2.1 Execute the work of this Section only by a Subcontractor who has adequate plant, equipment and skilled tradesmen to perform work expeditiously, and is known to have been responsible for satisfactory installations during a period of at least five years.

1.3 REFERENCED STANDARDS

Note: Always refer to most current version of all standards

| | | |
|---|---|---|
| 1.3.1 | ASTM C156-89 | Test Method for Water Retention by Concrete Curing Materials |
| 1.3.2 | CAN/CGSB 51.34-M86 | Vapour Barrier, Polyethylene Sheet for Use in Building Construction |
| 1.3.3 | CSA A101-M1983 | Thermal Insulation, Mineral Fibre, For Buildings |
| 1.3.4 | CSA 0121-M1978 | Douglas Fir Plywood. |

1.3.5 ANSI E1.26 -2006 : Entertainment Technology - Recommended Testing Methods and Values for Shock Absorption of Floors Used in Live Performance Venues

1.3.6 FSC: Forest Stewardship Council®

1.4 TOLERANCES

1.4.1 Level of finish flooring shall be within 3 mm of established elevations in any 6 m area, and shall be sufficiently even to contact a 3 m long straight edge with a tolerance of 3 mm. Finish levels shall not vary more than 1.5 mm in any running 300 mm length.

1.5 SUBMITTALS

1.5.1 Product Data: Provide data on specified products, describing physical and performance characteristics, sizes, patterns, colors available, and method of installation.

1.5.2 Shop Drawings: Indicating extent, fastening, joints & running pattern

1.5.3 Material Sample: Minimum 302mmX302mm in size of complete RWFS.

1.5.4 Maintenance Guidelines: Submit copy of Maintenance Instructions including cleaning, and refinishing.

1.5.5 Submit any Manufacturer Requirements regarding conditions and requirements of substrate prior to installation.

1.5.6 Installer and Manufacturer Qualifications: Documentation showing compliance with manufacturer and installer qualifications specified in the Quality Assurance paragraph

1.5.7 Extended Warranty: Submit product and installation warranty for a period of 2 years from Substantial Performance. Warranty can exclude damage caused in whole or in part by casualty, ordinary wear and tear, abuse, use for which material is not designed and excessive dryness or excessive moisture from humidity or spillage

1.6 QUALITY ASSURANCE

1.6.1 Floor Contractor/Installer Qualifications and Certifications: The flooring contractor shall be a Manufacturer trained & accredited Installer and be on site for the duration of the floor installation.

1.6.2 Floor System Design

1. Resilient pad shall be made from 50 durometer EPDM rubber.
2. Resilient pad shall have built in stop blocks

1.6.3 Floor System Performance: Floor Systems shall be tested for ANSI E1.26 -2006 (R2012) performance criteria

1.7 DELIVERY, STORAGE, AND HANDLING

1.7.1 Materials shall not be delivered, stored or installed until all other work is complete. Room temperature of 55-80 degrees Fahrenheit (13 to 27 degrees Celsius) and relative humidity of 35-50 % are to be maintained. The building shall be enclosed and weather tight. Ideal installation/storage conditions are the same as those that will prevail when building is occupied

1.7.2 Materials shall not be delivered, stored or installed at the installation location if the In-Slab relative humidity level for the concrete slab is above 85% using ASTM F 2170 In-Slab Relative Humidity test.

1.8 PROJECT CONDITIONS - SEQUENCY

1.8.1 Do not install floor system until concrete has been cured 60 days and the requirements in Article 1.5 are obtained.

1.8.2 Contractor is responsible to ensure slab is clean and free of all dirt and debris prior to floor installation beginning.

1.8.3 Maintain room temperature at 55 to 80 degrees F (16 to 27 degrees C) for one week prior to delivery of materials, during installation, and after installation.

1.8.4 Provide permanent electricity, heat, light, and ventilation 1 week prior to delivery of materials, during installation, and after installation. Maintain a temperature range of 55 to 80 degrees Fahrenheit (13 to 27 degrees Celsius) and a relative humidity range of 35 to 50%.

1.8.5 Acclimatize wood flooring in accordance with period of time recommended by manufacturer. In applications in which very high or low levels of humidity are present, extend period of time accordingly.

1.9 SPECIAL PROTECTION

1.9.1 Barricade areas where floor laying and finishing is in progress to prevent traffic over flooring.

1.9.2 Cover finished flooring installations with protection adequate to prevent traffic damage, and maintain and replace protection as necessary until project completion.

1.9.3 Prohibit smoking, use spark-proof equipment, and take all other precautions to avoid fire or explosion, or both, in areas where flammable materials are being used.

## PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION: Systems described below are based on Robbins Performing Arts, 4777 Eastern Ave; Cincinnati, OH 45226; Toll Free Tel: 800-831-8987. Comparable systems by Homer, Action and Connor are acceptable. Consultant to have final approval on comparable system.

2.2 VAPOR BARRIER: 6-mil polyethylene. (for use over all on grade areas)

2.3 SUBFLOOR:

2.3.1 Engineered-wooden sleeper with 7/16" (11mm) EPDM Bio-Pads attached, factory encased in a steel channel. Sleeper must be free to move vertically within steel channel confines to assure proper uniformity of resiliency and function.

2.3.2 23/32" (18mm) structural rated sheathing, exposure 1 (CD-X).

2.4 SURFACE:

2.4.1 Wood Finish:
- 23/32" (18mm) structural rated sheathing, exposure 1 (CD-X).
- Top layer, 1/4" double tempered hardboard. 1219x2450 panel

2.5 FASTENERS

2.5.1 Wood Finish:

1. Subfloor Fasteners: 1 ¼ (2mm)" coated staples or equivalent.
2. Flooring Fasteners: Screws. Type as recommended by flooring manufacturer for intended use. Counter sunk.
3. Adhesive: Elastomeric subfloor adhesive.
4. Sleeper Anchors: Powers SPIKE® anchors and sleeves

2.6 PAINT FINISH

Water-based primer with special properties that allow bonding to the hard-to-prime materials. Quick drying acrylic primer that dries to a durable, water-resistant coating which can be painted or clear coat sealed over with any paint, water or solvent based paint or sealer. Colour: Flat Black
Example Product: "*Tough Prime Black, Primer & Sealant*" as manufactured by Rosco

2.8 PERIMETER BASE: 3"x4" heavy duty ventilating type base with pre-molded outside corners. Colour: black.

## PART 3 - EXECUTION

3.1 INSPECTION

3.1.1 Inspect concrete slab and other substrates for proper tolerance and dryness, and report any discrepancies to the general contractor and architect in writing. Slab will be level to within 1/8" (3mm) in a 10' (3m). Moisture content of the concrete slab not exceed 85% in accordance to ASTM F 2170 In-Slab Relative Humidity test.

3.1.2 All work required to put the substrate and / or concrete subfloors in acceptable condition shall be the responsibility of the contractor.

3.1.3 Floor area shall be broom cleaned by contractor.

3.1.4 Verify that site conditions are acceptable for installation of wood flooring system.

3.1.5 If substrate preparation is the responsibility of another trade, notify General Contractor of unsatisfactory preparation before proceeding. Do not begin installation until substrates have been properly prepared.

3.1.6. Installer shall document all working conditions prior to commencement of installation.

3.2 INSTALLATION

3.2.1 Vapor Barrier

1. Install polyethylene with joints lapped a minimum of 6" (150mm) and turned up at walls 4" (100mm).

3.2.2 Subfloor

1. Install resilient and force attenuation pads on sleepers per manufacturer's recommendations.
2. Place Bio-Channels 16-1/16" (408mm) ON CENTER end-to-end staggering end joints in adjacent rows, perpendicular to the intended direction of the maple flooring. Gap the ends of the sleepers approximately ¼" (6mm). Provide 1-½" to 2" (40 to 50mm) expansion void at the perimeter and all vertical obstructions.
3. Anchor Bio-Channels at predetermined locations.
   NOTE: Anchor sleepers in 3 of the pre-determined holes, at both ends and in center. When shimming for leveling is necessary, anchor in all 5 holes. NOTE: If extensive shimming is necessary, alternate anchoring 'non-standard' method may be necessary. Additional costs for this 'non-standard' method are to be borne by the contracting team.
4. Install stop blocking per manufacturer's recommendations.
5. Install 23/32" (18mm) plywood subfloor parallel to sleeper channels and securely fasten subfloor 6" (150mm) ON CENTER along each channel sleeper.

3.2.3 Flooring Surface:

1. Layout panels as shown on drawings.
2. Screw fasten flooring to the subfloor as shown on drawings.
3. Provide 1.5" to 2" expansion void at the perimeter and all permanent vertical obstructions.

3.3 FINISHING

3.3.1 Preparation

1. Examine floor area to insure the surface is acceptable for finishing. Floor shall present a smooth surface without marks, gouges, streaks or shiners.
2. Vacuum or tack surface, including between boards, to remove debris from entire surface.
3. Damp sponge mop over the entire floor surface in order to ensure best adhesion to the substrate.
4. Provide test patch in an inconspicuous area for review to ensure compatibility.

3.3.2 Finishing

1. Inspect entire floor to be sure surface is ready to accept stain, seal and or finish. Floor to be free from dust and debris.
2. Apply paint finish to provide uniform finish appearance. Minimum 4 coats. Apply as per painting manufacturer's recommendations

3.4 INSTALLATION OF WALL BASE

3.4.1 Install vent cove base anchored to walls with base cement or mechanical fastener. Use pre-molded outside corners and neatly mitered inside corner.

3.5 THRESHOLDS: Install stainless steel thresholds at all connections with other floor finishes and doorways. Anchor firmly in concrete floor beyond limits of wood flooring

3.6 CLEANING AND PROTECTION

3.6.1 Remove rubbish, debris, and waste material from work area and legally dispose.

3.6.2 After floors are finished, area to be kept locked by contractor to allow curing time for the finish. If after required curing time contractor or owner requires use of the floor, floor shall be protected by covering with non-fibered Kraft paper or red rosin paper with taped joints, until acceptance by Owner (or Consultant) of complete dance floor. Take necessary precautions to prevent damage from dropped objects. Use breathable materials to cover installed wood flooring. Do not completely cover installed wood flooring, as moisture and color shading issues may arise.

3.6.3 Clean floor surface using cleaning products recommended by flooring manufacturer.

3.7 INSTRUCTION

3.7.1 Instruct Owner's designated representatives in flooring maintenance.

**-END OF SECTION-**

## PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

1.1.1 Division One, General Requirements is part of this Section and shall apply as if repeated here.

1.2 RELATED SECTIONS – Not Used

1.3 REFERENCED STANDARDS

Note: Always refer to most current version of all standards

1.3.1 ASTM F-1861, Type TV, Group 1 (solid), Standard Specification for Resilient Wall Base

1.3.2 ASTM E 84/NFPA 255 (Flame/Smoke) – Class A, < 450

1.3.3 ASTM E 648 (NFPA 253): Critical Radiant Flux – Class 1

1.4 SUBMITTALS – Not Used

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

1.5.1 Package base materials and identify contents of each package.

1.5.2 Store materials at 21℃, for at least 48 hours before installation.

1.6 JOB CONDITIONS

1.6.1 Environmental Temperatures

.1 Verify that moisture content of substrate is within allowable tolerances of base manufacturer.

.2 Install resilient base only when substrate surfaces and air temperatures have been maintained between 21°C and 32℃ for 72 hours preceding installation, and will be so maintained during installation and for 7 days thereafter.

1.6.2 Protection

.1 Prevent traffic and work from newly installed areas by barricading until work has set.

.2 After bases have set, and until project completion, cover work by methods which will ensure that they are not damaged by traffic.

.3 Ensure that adequate ventilation and spark-proof electrical equipment are provided, and smoking is prohibited, in areas where flammable adhesives are used. Store materials to prevent spontaneous combustion.

## PART 2 - PRODUCTS

2.1 MATERIALS

2.1.1 Resilient Base (Rubber) – designated 'RB' on Drawings and Schedules: Top set, coved 3.17mm thickness, 102mm high, pure vulcanized virgin rubber material, continuous coil lengths (no joints permitted as manufactured by Johnsonite, Armstrong Flooring or Burke Flooring. Allow for 1 colour to be selected by Consultant from manufacturer's full range of colours

2.1.2 Primers and Adhesives: As recommended by base manufacturer for each substrate condition. Contact cement on corners. Ensure products meet the coating and adhesive VOC requirements of section 01611:
Wall/Cove Base Adhesive: <= 50 g/L
Contact cement: <= 80 g/L
Acceptable wall base adhesives include: Armstrong S-725 Wall Base Adhesive, 0 g/L; Henry 440 Cove Base Adhesive, 0 g/L; Tarkett 960 Wall Base Adhesive, 1 g/L)

2.1.3 Cleaner: Neutral chemical compound that will not damage base or affect its colour.

## PART 3 - EXECUTION

3.1 INSTALLATION

3.1.1 Install bases in lengths as long as possible. Do not make up runs of short lengths. Accurately scribe bases around door frames, openings, and other wall breaks. Install bases at columns, walls, and built-in fitments in areas where bases are indicated.

3.1.2 Trim and trim vertical leg below toe of base as required to suit thickness of finished floor material.

3.1.3 At outside corners, score the back of the base and continuously wrap the corner. Adhere with contact cement for 75 mm to 100 mm to either side of the corner.

3.1.4 At inside corners, score the back of the base and mitre the toe. Adhere with contact cement for 75 mm to 100 mm to either side of the corner.

3.2 CLEANING

3.3.1 Clean off excess adhesive as work progresses, before it sets.

3.3.2 No sooner than 48 hours following installation, clean resilient base. Sponge scrub using neutral-type cleaner, rinsing until a clean, stain-free surface is obtained.

- END OF SECTION -