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**Part 1            General**

**1.1            TAXES**

- .1    Pay all taxes properly levied by law including Federal, Provincial and Municipal taxes.

**1.2            FEES, PERMITS and CERTIFICATES**

- .1    Pay all fees and obtain all permits including the building permit. The Departmental Representative will apply for the Building Permit, the General Contractor is to obtain and pay for the Building Permit.
  - .1    The cost of the building permit is \$43,401.60
- .2    Provide authorities with plans and information for acceptance certificates. Provide inspection certificates as evidence that work conforms to requirements of Authority having jurisdiction.

**1.3            REGULATORY REQUIREMENTS**

- .1    References and Codes:
    - .1    Materials shall be new and work shall conform to the minimum applicable standards of the "References" indicated in the specification sections, the National Building Code of Canada 2015 (NBC) and all applicable Provincial and Municipal codes. In the case of conflict or discrepancy the most stringent requirement shall apply.
  - .2    Building Smoking Environment:
    - .1    Smoking is not permitted in the Building. Obey smoking restrictions on building property.
  - .3    Hazardous Material Discovery:
    - .1    Review "Designated Substance Reports" (DSR) and take precautions to protect environment. The DSR reports are attached following Section 01 14 25.
    - .2    Asbestos is known to be contained in the roof deck, and as such can reasonably be expected to be disturbed during the construction. Refer to the attached DSR reports for instructions on how to proceed with work that may affect the existing roof decking.
    - .3    If other material resembling spray or trowel-applied asbestos or other designated substances or hazardous substances be encountered during demolition work or new work, stop work immediately take preventative measures, and notify Departmental Representative immediately.
      - .1    Do not proceed until written instructions have been received from Departmental Representative.
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## **1.4 FIRE SAFETY REQUIREMENTS**

- .1 Comply with both the National Building Code of Canada 2015 and the National Fire Code of Canada 2015 for safety of persons in buildings in the event of a fire and the protection of buildings from the effects of fire, as follows;
    - .1 The National Building Code (NBC): for fire safety and fire protection features that are required to be incorporated in a building during construction.
    - .2 The National Fire Code (NFC):
      - .1 The on-going maintenance and use of the fire safety and fire protection features incorporated in buildings.
      - .2 The conduct of activities that might cause fire hazards in and around buildings.
      - .3 Limitations on hazardous contents in and around buildings.
      - .4 The establishment of fire safety plans.
      - .5 Fire safety at construction and demolition sites.
  - .2 Welding and cutting:
    - .1 At least one week prior to commencing cutting, welding or soldering procedure, provide to Departmental Representative:
      - .1 Notice of intent, indicating devices affected, time and duration of isolation or bypass.
      - .2 Completed welding permit as defined in NFC.
      - .3 Return welding permit to Departmental Representative immediately upon completion of procedures for which permit was issued.
    - .2 "Fire Watchers" as described in NFC shall be assigned when welding or cutting operations are carried out in areas where combustible materials within 15m may be ignited by conduction or radiation.
  - .3 Where work requires interruption or cause activation of fire alarms or fire suppression, extinguishing or protection systems:
    - .1 Retain services of manufacturer for fire protection systems on daily basis or as approved by Departmental Representative, to isolate and protect all devices relating to:
      - .1 modification of fire alarms, fire suppression, extinguishing or protection systems; and/or
      - .2 cutting, welding, soldering or other construction activities that might activate fire protection systems.
    - .2 Immediately upon completion of work, restore fire protection systems to normal operation and verify that all devices are fully operational.
    - .3 Inform fire alarm system monitoring agency and local Fire Department immediately prior to isolation and immediately upon restoration of normal operation.
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**1.5 HOT WORK PERMIT**

- .1 Hot work means any work where a flame is used or a source of ignition may be produced, i.e., riveting, welding, cutting, grinding, burning and heating.
- .2 Before the beginning of work, the Contractor must have applied for and received A "Hot Work Permit" from CFIA.

**1.6 EXAMINATION and PREPARATION**

- .1 Examine site and conditions likely to affect work and be familiar and conversant with existing conditions.
- .2 Before commencing work, establish location and extent of services lines in area of work and notify Departmental Representative of findings.

**1.7 WASTE MANAGEMENT**

- .1 Comply with Environmental Protection Act, Ontario Regulations: O. Reg. 102/94 – Waste Audits and Waste Reduction Work Plans; and O. Reg. 103/94 – Industrial, Commercial and Institutional Source Separation Programs; for waste management on construction and demolition projects.
- .2 Conduct "waste audit" to determine what waste will be generated during construction and demolition operations. Prepare written "waste reduction work plan" and implement the principles to reduce, reuse and recycle materials to the extent that is possible.
- .3 Provide a "source separation program" to disassemble and collect in an orderly fashion the following "materials designated for alternative disposal" from the "general waste" stream:
  - .1 brick and concrete;
  - .2 cardboard;
  - .3 gypsum board;
  - .4 steel; and
  - .5 wood (not including painted, treated or laminated wood).
- .4 Submit complete records of all removals from site for both "materials designated for alternative disposal" and "general waste" including:
  - .1 time and date of removal;
  - .2 description of material and quantities; and
  - .3 proof that materials have been received at an approved Waste Processing Site or certified Waste Disposal Site as required.

**1.8 CLOSEOUT SUBMITTALS**

- .1 Operational and Maintenance Manuals:
    - .1 Submit to Departmental Representative four (4) copies of approved Operations Data and Maintenance Manual in both official languages, compiled as follows:
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- .1 Bind data in vinyl hard cover 3 "D" ring type loose-leaf binders for 212 x 275mm size paper. Binders must not exceed 75mm thick or be more than 2/3 full.
- .2 Enclose title sheet labelled "Operation Data and Maintenance Manual," project name, date and list of contents. Project name must appear on binder face and spine.
- .3 Organize contents into applicable sections of work to parallel project specifications breakdown. Mark each section by labelled tabs protected with celluloid covers fastened to hard paper dividing sheets.
- .2 Include following information plus data specified:
  - .1 Maintenance instruction for finished surface and materials.
  - .2 Copy of hardware and paint schedules.
  - .3 Description: operation of the equipment and systems defining start-up, shut-down and emergency procedures, and any fixed or adjustable set points that affect the efficiency of the operation. Include nameplate information such as make, size, capacity and serial number.
  - .4 Maintenance: use clear drawings, diagrams or manufacturers' literature which specifically apply and detail the following:
    - .1 lubrication products and schedules;
    - .2 trouble shooting procedures;
    - .3 adjustment techniques; and
    - .4 operational checks.
  - .5 Suppliers' names, addresses and telephone numbers and components supplied by them must be included in this section. Components must be identified by a description and manufacturers part number.
  - .6 Guarantees showing:
    - .1 name and address of projects;
    - .2 guarantee commencement date (date of Interim Certificate of Completion);
    - .3 duration of guarantee;
    - .4 clear indication of what is being guaranteed and what remedial action will be taken under guarantee; and
    - .5 signature and seal of Guarantor.
  - .7 Additional material used in project listed under various Sections showing name of manufacturer and source of supply.
- .3 Spare parts: list all recommended spares to be maintained on site to ensure optimum efficiency. List all special tools appropriate to unique application. All parts/tools detailed must be identified as to manufacturer, manufacturer part number and supplier (including address).
- .4 Include one complete set of final shop drawings (bound separately) indicating corrections and changes made during fabrication and installation.

- .2 Records:
  - .1 As work progresses, maintain accurate records to show deviations from contract drawings. Just prior to Departmental Representative's inspection for issuance of final certificate of completion, supply to the Departmental Representative one (1) set of white prints with all deviations neatly inked in. The Departmental Representative will provide two sets of clean white prints for this purpose.
- .3 Guarantees and Warranties:
  - .1 Before completion of work collect all manufacturer's guarantees or warranties and deposit with Departmental Representative.

## **1.9 CLEANING**

- .1 Clean up as work progresses. At the end of each work period, and more often if ordered by the Departmental Representative, remove debris from site, neatly stack material for use, and clean up generally.
- .2 Upon completion remove scaffolding, temporary protection and surplus materials. Make good defects noted at this stage.
- .3 Clean and polish glass, mirrors, ceramic tile, aluminum, chrome, stainless steel, baked or porcelain enamel, plastic laminate and other plastic surfaces, floors, hardware and washroom fixtures. Clean manufactured articles in accordance with manufacturer's written instructions.
- .4 Clean areas under contract to a condition equal to what previously existed and to approval of Departmental Representative.

## **1.10 SECURITY CHECK**

- .1 One Commissionaire, provide by the Departmental Representative, will be station on the roof at all time when roofing work is ongoing.

## **1.11 SITE SAFETY TRAINING**

- .1 All personnel employed on this project must attend a site specific safety training program of approximately 1 hour. Coordinate with Departmental Representative to schedule training of personnel prior to commencing work.

## **1.12 COST BREAKDOWN**

- .1 Before submitting first progress claim, submit breakdown of Contract Amount in detail as directed by Departmental Representative and aggregating the Contract Amount. After approval by Departmental Representative cost breakdown will be used as the basis of progress payments.

**END OF SECTION**

**Part 1        General**

**1.1            WORK SEQUENCE**

- .1      Construct Work to accommodate Owner's continued use of the facilities during the construction period, for the duration of the entire construction period.
- .2      Coordinate Progress Schedule and co-ordinate with Owner Occupancy during construction
- .3      Maintain fire access/control at all times.

**1.2            PHASING OF WORK**

- .1      The work associated with Building O-276 can begin on, or after July 17, 2017 as per the client's schedule.
- .2      All work associated with the temporary removal of the existing Chiller is to be performed after September 21, 2017.
- .3      The removal of the temporary chiller can only be performed once the existing chiller is re-installed, tested, fully operational, and accepted by the Departmental Representative.

**1.3            CONTRACTOR USE OF PREMISES**

- .1      Limited use of premises for Work, to allow the Owner's occupancy/usage of Hangar T-58 and Building O-276.
  - .2      Should the General Contractor decide to use a crane to hoist roofing materials and install the new insulated metal wall cladding, the crane must not exceed in height the top of the existing exposed structural roof trusses of Hangar T-58. Should a taller crane be required, the General Contractor will be required to apply to NavCan for approval with no guarantee that approval will be granted. Such application will take a minimum of thirty (30) days, and all schedule impact and cost are to be borne by the General Contractor.
  - .3      The Contractor's use of Hangar T-58 and occupant's use of the facilities. Existing parking lots and parking spaces must be maintained for the owner's usage, except for the areas demarcated on drawing A 000- Site Plans & Location plan; noted as Construction areas and Construction staging areas.
  - .4      Coordinate use of premises under direction of the Departmental Representative.
  - .5      Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
  - .6      Remove or alter existing work to prevent injury or damage to portions of existing work which is to remain.
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- .7 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Departmental Representative.
- .8 At completion of operations condition of existing work: equal to or better than that which existed before new work started.
- .9 Generally, carry out work during "regular hours", Monday to Friday from 07:00 to 18:00 hours.
- .10 Provide Departmental Representative minimum 48 hour notice for work to be carried out during "off hours". "Off hours" are hours between 18:00pm to 7:00am Monday to Friday, and all day Saturdays and Sundays, including Statutory Holidays.
- .11 Provide the Departmental Representative a minimum 48 hour notice to perform work during "off hours".

#### **1.4 OWNER OCCUPANCY**

- .1 Owner will occupy premises of both Hangars T-58 and O-276, and they will remain in full operation during the entire construction period.
- .2 Building entrances and exits to remain safe and operational at all times. Provide Departmental Representative minimum 5 working day notice should any entrances or exits require interruption.
- .3 Co-operate with Departmental Representative in scheduling operations to minimize conflict and to facilitate occupant's usage.

#### **1.5 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING**

- .1 Execute work with least possible interference or disturbance to occupants and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

#### **1.6 EXISTING SERVICES**

- .1 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.
- .2 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .3 Provide independent temporary services for all project requirements. No building or site utilities are permitted to be used.
- .4 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

#### **1.7 EXISTING CONDITIONS**

- .1 All existing surfaces and finishes, including roadways and landscaping, impacted or damaged by work must be repaired to match existing conditions.

**Part 2        Products**

**2.1            NOT USED**

**Part 3        Execution**

**3.1            NOT USED**

**END OF SECTION**



## **1. GENERAL**

### **1.1 REFERENCES**

#### **1. Federal Legislation**

1. *Canada Labour Code, Part II, section 124 and 125. Canada Occupational Health and Safety Regulations*
2. *Transportation of Dangerous Goods Act, 1992 (TDGA)*
3. *Canada Consumer Product Safety Act*
  1. *Surface Coating Materials Regulations SOR/2005-109.*
4. *Canadian Environmental Protection Act, 1999 (CEPA)*
  1. *PCB Regulations (SOR/2008-273)*
  2. *Federal Halocarbon Regulations, 2003 (SOR/2003-289)*

#### **2. Provincial Legislation**

1. *Ontario Occupational Health and Safety Act, R.S.O. 1990, 2010 edition.*
  1. *Ontario Regulation 490/09 – Designated Substances (O.Reg. 490/09).*
  2. *Ontario Regulation 278/05 – Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations, (O.Reg. 278/05).*
  3. *Ontario Regulation 213/91 for Construction Projects (O.Reg. 213/91)*
2. *Ontario Environmental Protection Act, R.R.O. 1990,*
  1. *Ontario Regulation 347/09, General – Waste Management (O.Reg. 347/09).*
  2. *Ontario Regulation 463/10, Ozone Depleting Substances and Other Halocarbons (O.Reg. 463/10).*
3. *Canadian General Standards Board (CGSB).*
4. *Canadian Standards Association (CSA International). CAN/CSA-Z94.4-11 - Respiratory Protection*
5. *Underwriters' Laboratories of Canada (ULC).*

### **1.2 DEFINITIONS**

Asbestos-Containing Materials (ACMs): means material that contains 0.5 per cent or more asbestos by dry weight as per Ontario Regulation 278/05.

Friable Material: material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.

Time-weighted average exposure limit (TWAEEL): the time-weighted average airborne concentration of a biological or chemical agent to which a worker may be exposed in a work day or work week as prescribed by Ontario Regulation 490/09 Designated Substances, as amended.

### 1.3 DESIGNATED SUBSTANCES

Confirm with the Departmental Representative that no additional designated substances have been brought to the project area prior to beginning work.

Additional designated substances and hazardous materials may exist outside the accessible survey areas but are beyond the scope of this project.

Should any additional material, suspected to be a designated substance, be encountered within the project area, any disturbance of such material must be stopped, precautionary measures taken, and the Departmental Representative must be notified immediately. Do not proceed until written instructions have been received.

1. ACRYLONITRILE: Not Identified

2. ARSENIC: Not Identified

3. ASBESTOS: **Identified**

Based on historical bulk sampling and laboratory analysis, the following materials contain regulated amounts of asbestos:

- Non-friable black tar, applied to four (4) pipe connections (<0.1 m<sup>2</sup> each) on the main roof of the T-58 building, in good condition, contain 5% Chrysotile asbestos.
- Non-friable white caulking, applied to the edges of the walls of the Squadron 412 Building that abut the east wall of the main T-58 Building, contains 2% Chrysotile asbestos. There is approximately 20 linear metres of this caulking, in good condition.

Bulk sampling and laboratory analysis has determined that the following materials do not contain regulated amounts of asbestos:

- White and grey caulking, Base of steel roof struts, T-58 main roof;
- T-58 main roof, roofing material layers;
- Base of steel roof struts, T-58 main roof, brown caulking;
- Roof vents, T-58 main roof, grey caulking;
- T-58 main roof, white surfacing material;
- Steel strut supports, T-58 main roof, black tar;
- Base of building structures, T-58 main roof, fireproofing;
- T-58 main roof, raised section on northwest corner, roofing material layers;
- T-58 Main roof, raised wall, south central, Pebble-dash finish;

- O-276 Gravel-topped roof section, roofing material layers;
- O-276 Gravel-topped roof section, south, edges, lapped-up white vapor barrier;
- Roof section by bay doors, closest to Airbus Private, roofing material layers;
- O-276 Gravel-topped roof section, vents, white caulking;
- T-58, east siding, side of metal panels, grey caulking;
- T-58, east siding, side of metal panels, grey caulking;
- T-58, east siding, beige window caulking;
- T-58, east siding, lower wall, concrete parging;
- Squadron 412 Building, south roof, windows and edges, white caulking;
- Squadron 412 Building, south roof, roofing material layers;
- T-58, beneath west siding, vermiculite fill insulation;
- T-58, East wall, Brick mortar; and
- Squadron 412 Building, upper main roof, roofing material layers.

4. BENZENE: Not Identified

5. COKE OVEN EMISSIONS: Not identified

6. ETHYLENE OXIDE: Not Identified

7. ISOCYANATES: Not Identified

8. LEAD: **Trace amounts identified**

Based on sample results for a bulk lead (in paint) sample collected from T-58, detectable concentrations of lead were confirmed in the white surfacing material, that is applied on the entire T-58 main roof surface, however, in a concentration below the Federal Canada Consumer Product Safety Act's limit of 90 ppm. This paint is not considered to be lead-based.

No other lead paint samples were collected by DST for lead content analysis, as other paints and surface coatings encountered in the project areas were in good condition and sampling without matrix interference (i.e. removing the paint without the substrate material) would have proved difficult. All other paints and surface coatings, including structural steel coatings, throughout the project area, shall be assumed to contain detectable concentrations of lead, unless specific bulk sampling and laboratory analysis confirms otherwise.

9. MERCURY: Not Identified

10. SILICA: **Identified**

Free crystalline silica is expected to be present in the following materials:

- Roofing materials layers;
- Drywall;
- Pebbledash and mortar;
- Pebble/stone surfacing;
- Fireproofing;
- Vermiculite fill insulation; and
- Concrete and cement materials

11. VINYL CHLORIDE MONOMER: Not Identified

12. POLYCHLORINATED BIPHENYLS (PCBs): Not Identified

13. MOULD: Not Identified

14. HALOCARBONS: Assumed

Halocarbons are suspected to be present in rooftop air-containing/ cooling equipment.

15. OTHER HAZARDOUS MATERIALS: Not Identified

1.4 RECOMMENDATIONS

.1 ASBESTOS

All work must be done in accordance with O.Reg. 278/05 (as amended).

1. The disturbance of ACMs on construction and demolition projects in the province of Ontario is governed by *O.Reg. 278/05*, as amended. This regulation classifies all asbestos disturbances as Low Risk (Type 1), Moderate Risk (Type 2), or High Risk (Type 3), each of which has defined precautionary measures. All asbestos materials are subject to specific handling and disposal precautions, and must be removed prior to demolition. The Ontario Ministry of Labour (MoL) must be notified of any project involving removal of more than a minor amount (e.g. typically 1 square metre) of friable asbestos material.

2. Type 1 work procedures can be used for the removal of non-friable ACMs (tar and caulking), provided that the material can be wetted and removed using only non-powered hand tools. If these conditions cannot be met, then more stringent (e.g., Type 2 or Type 3) procedures are necessary.
3. Disposal of asbestos waste must be done in accordance with "General – Waste Management" O.Reg. 347/90 (as amended) under the Ontario Environmental Protection Act and the federal Transportation of Dangerous Goods Act. The waste must be disposed at a licensed waste disposal site. Proper notification must be issued to the Departmental Representative prior to transportation of waste.

## 2. LEAD

1. Follow recommendations provided in the Ontario Ministry of Labour (MoL) Guideline entitled "Guideline: Lead on Construction Projects". This guideline classifies all lead disturbances as Type 1, Type 2a, Type 2b, Type 3a or Type 3b work, and assigns different levels of respiratory protection and work procedures for each classification.
2. Work procedures and personal protective equipment must be used to ensure that workers are not exposed to airborne lead levels that exceed the TWAEEL of 0.05 milligram per cubic metre (mg/m<sup>3</sup>) prescribed by O.Reg. 490/09.
3. Even at low concentrations, there may be a potential for exposure to high concentrations of lead depending on the activities performed that disturb the lead-containing materials. At low lead concentrations, conducting a risk assessment to assess the potential for exposure is required to determine the need to follow precautionary measures.
4. Disposal of construction waste containing lead must be done in accordance with O.Reg. 347/90 – General Waste Management, as amended, under the Ontario Environmental Protection Act and the federal Transportation of Dangerous Goods Act. The classification of the waste is dependent upon the result(s) of leachate test(s). The waste can be classified as "hazardous, "non-hazardous" or "registerable solid waste" depending on the results of the leachate test.

## 3. SILICA

1. Comply with Ontario Regulations O.Reg. 490/09 when performing works that may disturb silica-containing materials. The regulation provides requirements for allowable exposure levels.

2. Silica dust can be generated through such processes as blasting, grinding, crushing, and sandblasting silica-containing material. Since silica is present in select materials within the project area, appropriate respiratory protection and ventilation must be donned during the demolition and modifications of these structures.
3. Follow recommendations provided in the MoL Guideline entitled "Guideline: Silica on Construction Projects". This document classifies all silica disturbances as Type 1, Type 2 or Type 3 work, and assigns different levels of respiratory protection and work procedures for each classification. These work procedures should be followed when performing work involving the disturbance of silica-containing materials.

#### 4. HALOCARBONS

1. The handling, transport and disposal of halocarbons is governed by the following:
  - Ozone-depleting Substances Regulations, 1998, as amended;
  - O.Reg. 463/10, Ozone Depleting Substances and Other Halocarbons;
  - Federal Halocarbon Regulations, 2003 (FHR).

When suspected halocarbon-containing equipment is taken out of service, the halocarbon refrigerants must be captured and reclaimed by a licensed technician. The presence of halocarbon refrigerants within unit's no longer in service should be verified. If halocarbon refrigerants are found to be present, they must be captured and reclaimed by a licensed technician. Appropriate records of equipment decommissioning must be maintained in accordance with requirements of the FHR.

**END OF SECTION**

**Part 1            General**

**1.1            ADMINISTRATIVE**

- .1    Departmental Representative to schedule and administer project meetings throughout the progress of the work.
- .2    Departmental Representative to prepare agenda for meetings.
- .3    Departmental Representative to distribute written notice of each meeting four days in advance of meeting date.
- .4    Existing building boardroom to be used for project meetings.
- .5    Departmental Representative to preside at meetings.
- .6    Departmental Representative to record the meeting minutes. All significant proceedings and decisions will be recorded. Actions by parties will be identified.
- .7    Departmental Representative to reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants affected parties not in attendance.
- .8    Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

**1.2            PRECONSTRUCTION MEETING**

- .1    Within 15 days after award of Contract, Departmental Representative to request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
  - .2    Departmental Representative, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
  - .3    Departmental Representative to establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
  - .4    Departmental Representative to incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
  - .5    Agenda to include:
    - .1    Appointment of official representative of participants in the Work.
    - .2    Schedule of Work: in accordance with Section 01 32 16.06 - Construction Progress Schedule - Critical Path Method (CPM) .
    - .3    Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
    - .4    Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
    - .5    Delivery schedule of specified equipment.
    - .6    Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
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**1.3 PROGRESS MEETINGS**

- .1 During course of Work schedule progress meetings bi-weekly.
- .2 Agenda to include the following:
  - .1 Review, approval of minutes of previous meeting.
  - .2 Review of Work progress since previous meeting.
  - .3 Field observations, problems, conflicts.
  - .4 Problems which impede construction schedule.
  - .5 Review of off-site fabrication delivery schedules.
  - .6 Corrective measures and procedures to regain projected schedule.
  - .7 Revision to construction schedule.
  - .8 Progress schedule, during succeeding work period.
  - .9 Review submittal schedules: expedite as required.
  - .10 Maintenance of quality standards.
  - .11 Review proposed changes for affect on construction schedule and on completion date.
  - .12 Other business.

**Part 2 Products**

**2.1 NOT USED**

**Part 3 Execution**

**3.1 NOT USED**

**END OF SECTION**



**Part 1        General**

**1.1        REFERENCES**

.1        Definitions:

- .1        Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
  - .2        Bar Chart (Gantt chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars.
  - .3        Baseline: original approved plan (for Project, work package, or activity), plus or minus approved scope changes.
  - .4        Cash Flow: projection of progress payment requests based on cash loaded construction schedule.
  - .5        Completion Milestones: they are firstly Substantial Completion and secondly Final Certificate.
  - .6        Constraint: applicable restriction or limitation, either internal or external to project, that will affect performance of Project. Factors that affect activities can be scheduled.
  - .7        Control: process of comparing actual performance with planned performance, analyzing variances, evaluating possible alternatives, and taking appropriate corrective action as needed.
  - .8        Critical Activity: any activity on a critical path.
    - .1        Most commonly determined by using critical path method.
  - .9        Critical Path: sequence of activities that determines duration of Project. Generally, it is the longest path through Project.
    - .1        Usually defined as those activities with float less than or equal to specified value, often zero.
  - .10       Critical Path Method (CPM): network analysis technique used to determine the amount of scheduling flexibility (amount of float) on various logical network paths in Project schedule network, and to determine the minimum total Project duration.
  - .11       Data Date: date through which project status and progress were last determined and reported for analyses, such as scheduling and performance measurements.
  - .12       Duration: total number of work periods (not including holidays or other non-working periods) required to complete activity or other Project element.
    - .1        Usually expressed as workdays or work weeks.
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- .13 Early Finish Date: in critical path method, earliest possible point in time on which uncompleted portions of activity (or Project) can finish, based on network logic and schedule constraints.
    - .1 Early finish dates can change as Project progresses and changes are made to Project plan.
  - .14 Early Start Date: in critical path method, earliest possible point in time on which uncompleted portions of activity (or Project) can start, based on network logic and schedule constraints.
    - .1 Early start dates can change as Project progresses and changes are made to Project Plan.
  - .15 Finish Date: point in time associated with activity's completion.
    - .1 Usually qualified by one of following: actual, planned, estimated, scheduled, early, late, baseline, target, or current.
  - .16 Float: amount of time that activity may be delayed from its early start without delaying Project finish date.
    - .1 This resource is available to both PWGSC and Contractor.
  - .17 Impact Analysis: schedule analysis technique that adds a modeled delay to an accepted construction schedule to determined possible outcome of that delay on project completion.
  - .18 Lag: modification of logical relationship that directs delay in successor activity.
  - .19 Late Finish Date (LF): in critical path method, latest possible point in time that activity may be completed without delaying specified milestone (usually Project finish date).
  - .20 Late Start Date (LS): in critical path method, latest possible point in time that activity may begin without delaying specified milestone (usually Project finish date).
  - .21 Lead: modification of logical relationship that allows acceleration of successor task.
  - .22 Logic Diagram: see Project network diagram.
  - .23 Master Schedule: summary-level schedule that identifies major deliverable; work breakdowns structure and key milestones.
  - .24 Milestone: significant point or event in Project, usually completion of major deliverable.
  - .25 Monitoring: capture, analysis, and reporting of Project performance, usually as compared to plan.
  - .26 Non-Critical Activities: activities which when delayed, do not affect specified Contract duration.
  - .27 Project Control System: fully computerized system utilizing commercially available software packages.
  - .28 Project Network Diagram: schematic display of logical relationships of Project activities.
    - .1 Always drawn from left to right to reflect Project chronology.
-

- .29 Project Plan: formal, approved document used to guide both Project execution and Project control.
  - .1 Primary uses of Project plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines.
  - .2 Project plan may be summary or detailed.
- .30 Project Planning: development and maintenance of Project Plan.
- .31 Project Planning, Monitoring and Control System: overall system operated to enable monitoring of Project Work in relation to established milestones.
- .32 Project Schedule: planned dates for performing activities and planned dates for meeting milestones.
- .33 Quantified days duration: working days based on 5 day work week, discounting statutory holidays.
- .34 Risk: uncertain event or condition that, if it occurs, has positive or negative effect on Project's objectives.
- .35 Start Date: point in time associated with activity's start, usually qualified by one of following: actual, planned, estimated, scheduled, early, late, target, baseline, or current.
- .36 Work Breakdown Structure (WBS): deliverable-oriented hierarchical decomposition of Work to be executed by contractor to accomplish project objectives and create required deliverables. It organizes and defines total scope of Project. Each descending level represents an increasingly detailed definition of Project Work. WBS is decomposed into Work packages.

## **1.2 ADMINISTRATIVE REQUIREMENTS**

- .1 Project Meeting:
    - .1 Meet with Departmental Representative within 10 working days of Award of Contract date, to establish Work requirements and approach to project construction operations.
    - .2 Participate in regular project progress meetings with Departmental Representative specifically intended to discuss update of detailed schedule and contract changes.
  - .2 Scheduling:
    - .1 Planning: ensure that planning process is iterative and results in generally top-down processing with more detail being developed as planning progresses, and decisions concerning options and alternatives are made.
    - .2 Ensure project schedule efficiencies through monitoring of Project in detail to ensure integrity of Critical Path, by comparing actual completions of individual activities with their scheduled completions, and review progress of activities that has started but are not yet completed..
-

- .3 Monitor sufficiently often so that causes of delays can immediately be identified and removed.
  - .3 Project monitoring and reporting:
    - .1 Keep team aware of changes to schedule, and possible consequences as project progresses.
    - .2 Use narrative reports to provide advice on seriousness of difficulties and measures to overcome them.
    - .3 Begin narrative reporting with statement on general status of Project followed by summarization of delays, potential problems, corrective measures and Project status criticality.
  - .4 Critical Path Method (CPM) Requirements:
    - .1 Ensure Master Plan and Detail Schedule are practical and remain within specified Contract duration.
    - .2 Revise Master Schedule and Detail Schedule deemed impractical by Departmental Representative and resubmit for approval.
    - .3 Change to Contract Duration:
      - .1 Acceptance of Master Schedule and Detail Schedule showing scheduled Contract duration shorter than specified Contract duration does not constitute change to Contract.
      - .2 Duration of Contract may only be changed through bilateral Agreement.
    - .4 Consider Master Schedule and Detail Schedule deemed practical by Departmental Representative, showing Work completed in less than specified Contract duration, to have float.
    - .5 First Milestone on Master Schedule and Detail Schedule will identify start Milestone with an "ES" constraint date equal to Award of Contract date.
    - .6 Calculate dates for completion milestones from Plan and Schedule using specified time periods for Contract.
    - .7 Interim Certificate with "LF" constraint equal to calculated date.
    - .8 Calculations on updates to be such that if early finish of Interim Certificate falls later than specified Contract duration then float calculation to reflect negative float.
    - .9 Delays to non-critical activities, those with float may not be basis for time extension.
    - .10 Do not use float suppression techniques such as imposed dates other than required by Contract.
    - .11 Allow for and show Master Plan and Detail Schedule adverse weather conditions normally anticipated.
      - .1 Specified Contract duration has been predicated assuming normal amount of adverse weather conditions.
    - .12 Provide necessary crews and manpower to meet schedule requirements for performing Work within specified Contract duration.
-

- .1 Simultaneous use of multiple crews on multiple fronts on multiple critical paths may be required.
- .13 Arrange participation on and off site of subcontractors and suppliers, as required by Departmental Representative, for purpose of network planning, scheduling, updating and progress monitoring.
  - .1 Approvals by Departmental Representative of original networks and revisions do not relieve Contractor from duties and responsibilities required by Contract.
- .14 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

### **1.3 SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Submit to Departmental Representative Project Control System for planning, scheduling, monitoring and reporting of project progress.
  - .3 Submit Project Control System to Departmental Representative for approval.
    - .1 Failure to comply with each required submission may result in progress payment being withheld in accordance with Federal Government's GC 5 Terms of Payment.
  - .4 Include costs for execution, preparation and reproduction of schedule submittals in bid documents.
  - .5 Submit letter ensuring that schedule has been prepared in co-ordination with major sub-contractors.
  - .6 Refer to article "PROGRESS MONITORING AND REPORTING" of this specification Section for frequency of Project control system submittals.
  - .7 Submit impact analysis of schedule for changes that result in extension of contract duration.
    - .1 Include draft schedule update and report as outlined in article "PROGRESS MONITORING AND REPORTING".
  - .8 Submit Project planning, monitoring and control system data as part of initial schedule submission and monthly status reporting in following form.
    - .1 Master Schedule Bar Chart.
    - .2 Construction Detail schedule Bar Chart.
    - .3 Listing of project activities including milestones and logical connectors, networks (sub-networks) from Project start to end. Sort activities by activity identification number and accompany with descriptions. List early and late start and finish dates together with durations, codes and float.
    - .4 Criticality report listing activities and milestones with zero total float used as first sort for ready identification of critical paths through entire project. List early and late starts and finishes dates, together with durations, codes and float for critical activities.
-

- .5 Progress report in early start sequence, listing for each trade, activities, or finished within 2 months from monthly update date. List activity identification number, description and duration. Provide columns for entry of actual start and finish dates, duration remaining and remarks concerning action required.

#### **1.4 QUALITY ASSURANCE**

- .1 Use experienced personnel, fully qualified in planning and scheduling to provide services from start of construction to Final Certificate, including Commissioning.

#### **1.5 WORK BREAKDOWN STRUCTURE (WBS)**

- .1 Prepare construction Work Breakdown Structure (WBS) within 15 working days of Award of Contract date.
  - .1 Develop WBS through at least five levels: project, stage, element, sub-element and work package.

#### **1.6 MASTER SCHEDULE**

- .1 Structure and base CPM construction networks system on WBS coding in order to ensure consistency throughout Project.
- .2 Prepare comprehensive construction Master Schedule (CPM logic diagram) within 15 working days of finalizing Agreement to confirm validity or alternates of identified milestones.
  - .1 Master Schedule will be used as baseline.
    - .1 Revise baseline as conditions dictate and as required by Departmental Representative.
    - .2 Departmental Representative as Project progresses will review and return revised baseline within 7 work days.
- .3 Reconcile revisions to Master Schedule and Cash Flow Projections with previous baseline to provide continuous audit trail.
- .4 Initial and subsequent Master Schedule will include:
  - .1 Bar chart identifying coding, activity durations, early/late and start/finish dates, total float, completion as percentile, current status and budget amounts.
  - .2 Network diagram showing coding, activity sequencing (logic), total float, early/late dates, current status and durations.

#### **1.7 DETAIL SCHEDULE**

- .1 Provide detailed project schedule (CPM logic diagram) within 15 working days of Award of Contract date showing activity sequencing, interdependencies and duration estimates. Include listed activities as follows:
    - .1 Shop drawings.
    - .2 Samples.
-

- .3 Approvals.
- .4 Procurement.
- .5 Construction.
- .6 Installation.
- .7 Site works.
- .8 Testing.
- .9 Commissioning and acceptance.
- .2 Relate Detail Schedule activities to basic activities and milestones developed and approved in Master Schedule.
- .3 Clearly show sequence and interdependence of construction activities and indicate:
  - .1 Start and completion of all items of Work, their major components, and interim milestone completion dates.
  - .2 Activities for procurement, delivery, installation and completion of each major piece of equipment, materials and other supplies, including:
    - .1 Time for submittals, resubmittals and review.
    - .2 Time for fabrication and delivery of manufactured products for Work.
    - .3 Interdependence of procurement and construction activities.
  - .3 Include sufficient detail to assure adequate planning and execution of Work. Activities should generally range in duration from 3 to 15 workdays each.
- .4 Provide level of detail for project activities such that sequence and interdependency of Contract tasks are demonstrated and allow co-ordination and control of project activities. Show continuous flow from left to right.
- .5 Ensure activities with no float are calculated and clearly indicated on logical CPM construction network system as being, whenever possible, continuous series of activities throughout length of Project to form "Critical Path". Increased number of critical activities is seen as indication of increased risk.
- .6 Insert Change Orders in appropriate and logical location of Detail Schedule. After analysis, clearly state and report to Departmental Representative for review effects created by insertion of new Change Order.

## **1.8 PROGRESS MONITORING AND REPORTING**

- .1 On ongoing basis, Detail Schedule on job site must show "Progress to Date". Arrange participation on and off site of subcontractors and suppliers, as, and when necessary, for purpose of network planning, scheduling, updating and progress monitoring. Inspect Work with Departmental Representative at least once monthly to establish progress on each current activity shown on applicable networks.
  - .2 Update and reissue project Work Breakdown Structure and relevant coding structures as project develops and changes.
-

- .3 Perform Detail Schedule update monthly with status dated (Data Date) on last working day of month. Update to reflect activities completed to date, activities in progress, logic and duration changes.
- .4 Do not automatically update actual start and finish dates by using default mechanisms found in project management software.
- .5 Submit to Departmental Representative copies of updated Detail Schedule.
- .6 Requirements for monthly progress monitoring and reporting are basis for progress payment request.
- .7 Submit monthly written report based on Detail Schedule, showing Work to date performed, comparing Work progress to planned, and presenting current forecasts. Report must summarize progress, defining problem areas and anticipated delays with respect to Work schedule, and critical paths. Explain alternatives for possible schedule recovery to mitigate any potential delay. Include in report:
  - .1 Description of progress made.
  - .2 Pending items and status of: shop drawings,.
  - .3 Status of Contract completion date and milestones.
  - .4 Current and anticipated problem areas, potential delays and corrective measures.
  - .5 Review of progress and status of Critical Path activities.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not used.

**END OF SECTION**

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**Part 1            General**

**1.1            ADMINISTRATIVE**

- .1      Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2      Do not proceed with Work affected by submittal until review is complete.
- .3      Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4      Where items or information is not produced in SI Metric units converted values are acceptable.
- .5      Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6      Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7      Verify field measurements and affected adjacent Work are coordinated.
- .8      Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9      Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10     Keep one reviewed copy of each submission on site.

**1.2            SHOP DRAWINGS AND PRODUCT DATA**

- .1      The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
  - .2      Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
  - .3      Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
  - .4      Allow 10 days for Departmental Representative's review of each submission.
-

- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
  - .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
  - .7 Accompany submissions with transmittal letter, in duplicate, containing:
    - .1 Date.
    - .2 Project title and number.
    - .3 Contractor's name and address.
    - .4 Identification and quantity of each shop drawing, product data and sample.
    - .5 Other pertinent data.
  - .8 Submissions include:
    - .1 Date and revision dates.
    - .2 Project title and number.
    - .3 Name and address of:
      - .1 Subcontractor.
      - .2 Supplier.
      - .3 Manufacturer.
    - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
    - .5 Details of appropriate portions of Work as applicable:
      - .1 Fabrication.
      - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
      - .3 Setting or erection details.
      - .4 Capacities.
      - .5 Performance characteristics.
      - .6 Standards.
      - .7 Operating weight.
      - .8 Wiring diagrams.
      - .9 Single line and schematic diagrams.
      - .10 Relationship to adjacent work.
  - .9 After Departmental Representative's review, distribute copies.
  - .10 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
-

- .11 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
    - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
    - .2 Testing must have been within 8 years of date of contract award for project.
  - .12 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
    - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
    - .2 Certificates must be dated after award of project contract complete with project name.
  - .13 Submit electronic copies of manufacturer's instructions for requirements requested in specification Sections and as requested by Departmental Representative.
    - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
  - .14 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
  - .15 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
  - .16 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
  - .17 Delete information not applicable to project.
  - .18 Supplement standard information to provide details applicable to project.
  - .19 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
  - .20 The review of shop drawings by the Departmental Representative is for sole purpose of ascertaining conformance with the general concept.
-

- .1 This review shall not mean that the Departmental Representative approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
- .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

### **1.3 SAMPLES**

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Departmental Representative's business address.
- .3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

### **1.4 MOCK-UPS**

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

### **1.5 PHOTOGRAPHIC DOCUMENTATION**

- .1 Submit electronic colour digital photography in jpg format, fine resolution, monthly with progress statement.
- .2 Project identification: name and number of project and date of exposure indicated.
- .3 Number of viewpoints: 2 locations.
  - .1 Viewpoints and their location as determined by Departmental Representative.
- .4 Frequency of photographic documentation: monthly.

### **1.6 CERTIFICATES AND TRANSCRIPTS**

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

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

**Part 2 Products**

**2.1 NOT USED**

- .1 Not used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not used.

**END OF SECTION**

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**Part 1            General**

**1.1            REFERENCES**

- .1    Province of Ontario
  - .1    Occupational Health and Safety Act and Regulations for Construction Projects, R.S.O. 1991, as amended by O. Reg. 252/142005

**1.2            SUBMITTALS**

- .1    Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2    Submit site-specific Health and Safety Plan: Within 7 days after date contract award and prior to commencement of Work. Health and Safety Plan must include:
  - .1    Results of site specific safety hazard assessment.
  - .2    Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
- .3    Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to authority having jurisdiction,.
- .4    Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .5    Submit copies of incident and accident reports.
- .6    Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 7 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 5 days after receipt of comments from Departmental Representative.
- .7    Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .8    On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

**1.3            FILING OF NOTICE**

- .1    File Notice of Project with Provincial authorities prior to beginning of Work.
  - .2    Contractor shall be responsible and assume the Principal Contractor role for each work zone location and not the entire complex. Contractor shall provide a written acknowledgement of this responsibility with 3 weeks of contract award.
  - .3    Contractor shall agree to install proper site separation and identification in order to maintain time and space at all times throughout life of project.
-

#### **1.4 SAFETY ASSESSMENT**

- .1 Perform site specific safety hazard assessment related to project.

#### **1.5 SITE SAFETY TRAINING**

- .1 All personnel must attend a mandatory site specific safety training session. Provide minimum 72 hours notice to Departmental Representative requesting site training.

#### **1.6 MEETINGS**

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

#### **1.7 REGULATORY REQUIREMENTS**

- .1 Do Work in accordance with Section 01 00 10 - General Instructions.

#### **1.8 GENERAL REQUIREMENTS**

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

#### **1.9 RESPONSIBILITY**

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Contractor will be responsible and assume the role Constructor as described in the Ontario Occupational Health and Safety Act and Regulations for Construction Projects.
- .3 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

#### **1.10 UNFORESEEN HAZARDS**

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.
- .2 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, advise Safety Officer and follow procedures in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

**1.11 POSTING OF DOCUMENTS**

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Departmental Representative.

**1.12 CORRECTION OF NON-COMPLIANCE**

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

**1.13 BLASTING**

- .1 Blasting or other use of explosives is not permitted.

**1.14 POWDER ACTUATED DEVICES**

- .1 Use powder actuated devices only after receipt of written permission from Departmental Representative.

**1.15 WORK STOPPAGE**

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not used.

**END OF SECTION**

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**Part 1        General**

**1.1            INSPECTION**

- .1      Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2      Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative, instructions or law of Place of Work.
- .3      If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4      Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.

**1.2            ACCESS TO WORK**

- .1      Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2      Co-operate to provide reasonable facilities for such access.

**1.3            PROCEDURES**

- .1      Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2      Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3      Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

**1.4            REJECTED WORK**

- .1      Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2      Make good other Contractor's work damaged by such removals or replacements promptly.

**1.5            REPORTS**

- .1      Submit 4 copies of inspection and test reports to Departmental Representative.
-

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

## **1.6 TESTS AND MIX DESIGNS**

- .1 Furnish test results and mix designs as requested.
- .2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

## **1.7 MOCK-UPS**

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct in locations as specified in specific Section.
- .3 Prepare mock-ups for Departmental Representative review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

## **1.8 MILL TESTS**

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

## **Part 2 Products**

### **2.1 NOT USED**

- .1 Not used.

## **Part 3 Execution**

### **3.1 NOT USED**

- .1 Not used.

**END OF SECTION**

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**Part 1        General**

**1.1            INSTALLATION AND REMOVAL**

- .1      Provide temporary utilities controls in order to execute work expeditiously.
- .2      Remove from site all such work after use.

**1.2            WATER SUPPLY**

- .1      Provide own continuous supply of potable water for construction use. Site and building water services are not to be used.
- .2      Make arrangements and pay to deliver any water required for construction activities.

**1.3            TEMPORARY HEATING AND VENTILATION**

- .1      Provide temporary heating required during construction period, including attendance, maintenance and fuel.
- .2      Site and building heating services are not to be used.
- .3      Provide temporary heat and ventilation in enclosed areas as required to:
  - .1      Facilitate progress of Work.
  - .2      Protect Work and products against dampness and cold.
  - .3      Prevent moisture condensation on surfaces.
  - .4      Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
  - .5      Provide adequate ventilation to meet health regulations for safe working environment.
- .4      Ventilating:
  - .1      Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
  - .2      Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
  - .3      Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
  - .4      Ventilate storage spaces containing hazardous or volatile materials.
  - .5      Ventilate temporary sanitary facilities.
  - .6      Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.
- .5      Permanent heating system of building is not to be used.
- .6      Maintain strict supervision of operation of temporary heating and ventilating equipment to:
  - .1      Conform with applicable codes and standards.

- .2 Enforce safe practices.
- .3 Prevent abuse of services.
- .4 Prevent damage to finishes.
- .5 Vent direct-fired combustion units to outside.
- .7 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

#### **1.4 TEMPORARY POWER AND LIGHT**

- .1 Provide and pay for temporary power during construction for temporary lighting, operating of tools and equipment.
- .2 Arrange and pay for generators or other means of power supply for all construction and work activities. Site and building electrical services are not to be used.

#### **1.5 TEMPORARY COMMUNICATION FACILITIES**

- .1 Any communication facilities and services required by Contractor must be independent of the site and building communication services.

#### **1.6 FIRE PROTECTION**

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction governing codes, regulations and bylaws.
- .2 Burning rubbish and construction waste materials is not permitted on site.

### **Part 2 Products**

#### **2.1 NOT USED**

- .1 Not used.

### **Part 3 Execution**

#### **3.1 NOT USED**

- .1 Not used.

**END OF SECTION**

**Part 1 General**

**1.1 SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Scaffolding shop drawings:
  - .1 Provide complete scaffolding shop drawings of all building scaffolding indicating components and connectors, platforms, load capacity, attachment to existing building and imposed loads on existing structure.
  - .2 Shop drawings to bear seal of professional engineer licensed to practice in the province of Ontario, Canada.
- .3 Site layout plan:
  - .1 Submit site layout plan indicating all items as indicated in paragraph 1.2 of this Section

**1.2 INSTALLATION AND REMOVAL**

- .1 Prepare site/roof plans indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers or on-site built site offices, to be used, avenues of ingress/egress to fenced area and details of fence installation, scaffolding, storage areas and location of waste and recycling bins.
  - .1 Identify areas which have to be graveled to prevent tracking of mud.
  - .2 Indicate use of supplemental or other staging area.
- .2 Provide construction facilities in order to execute work expeditiously.
- .3 Remove from site all such work after use.

**1.3 SCAFFOLDING**

- .1 Scaffolding in accordance with CAN/CSA-S269.2 and reviewed shop drawings.
- .2 Provide and maintain scaffolding.
- .3 Installation and use of scaffolding must not permanently or visibly impact existing building and finishes to remain.
- .4 Do not exceed structural capacity of existing building components.
- .5 Provide access to the scaffolding from grade for access to the roof.

**1.4 HOISTING**

- .1 If required, provide, operate and maintain hoists cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists cranes to be operated by qualified operator.
- .3 Should the use a crane be necessary to hoist roofing materials and to install the new insulated metal wall cladding, the crane must not exceed in height the top of

the existing exposed structural roof trusses of Hangar T-58. The Departmental Representative will require three (3) week notice to approve hoisting prior to any work being completed. Should a taller crane be required beyond the above noted limit, the General Contractor will be required to apply to NavCan for approval with no guarantee that approval will be granted. Such application will take a minimum of thirty (30) days beyond the three week period noted above, and all schedule impact and cost are to be borne by the General Contractor.

## **1.5 ELEVATORS**

- .1 Existing elevators are not to be used.

## **1.6 SITE STORAGE/LOADING**

- .1 Confine work and operations of employees to work staging area as indicated in contract documents. Do not encumber premises with products. The use of the existing site is limited to the areas defined in these documents.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.
- .3 Do not load or permit to load any part of the roof that is designed as a cantilevered roof.

## **1.7 CONSTRUCTION PARKING**

- .1 Parking can be permitted on site at regular parking rates, provided it does not disrupt building occupants and normal building operations. Cost for on-site parking is to be borne by the Contractor and his Trades.
- .2 Do not restrict any access lanes and fire routes on property.
- .3 Limit the on-site construction parking to the construction areas.
- .4 Provide and maintain adequate access to project site.

## **1.8 OFFICES**

- .1 Provide site offices of sufficient size to accommodate contractor's own needs.
- .2 Location of site offices is to be coordinated with the phasing of the work and is limited to the work areas covered by these documents. Relocation of such site office to suit the phasing of the work should such relocation be required, is to be borne by the Contractor and his Trades.
- .3 Provide marked and fully stocked first-aid case in a readily available location.
- .4 Subcontractors are to provide their own offices as necessary. Location of these offices are to be determined on-site and must be approved by the Client and User Representative.

## **1.9 EQUIPMENT, TOOL AND MATERIALS STORAGE**

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

- .2 Locate materials not required to be stored in weatherproof sheds on site in staging area identified in contract documents.

#### **1.10 SANITARY FACILITIES**

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.
- .3 Use of building sanitary facilities is not permitted.

#### **1.11 CONSTRUCTION SIGNAGE**

- .1 No signs or advertisements, other than warning and safety signs, are permitted on site.
- .2 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.
- .3 Maintain approved signs and notices in good condition for duration of project, and dispose of off site on completion of project or earlier if directed by Departmental Representative.

#### **1.12 PROTECTION AND MAINTENANCE OF TRAFFIC**

- .1 Maintain and protect traffic on any roads/entrance ramps during construction period except as otherwise specifically directed by Departmental Representative.
- .2 Do not restrict or inhibit regular use and access of all roads, ramps, and access routes.
- .3 Protect building occupants and public from damage to person and property.
- .4 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with regular traffic.
- .5 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .6 Construct access and haul roads necessary.
- .7 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic to be avoided.
- .8 Consult with Departmental Representative for locations of buried site services prior to impacting site. Do not construct haul loads over buried services.
- .9 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .10 Dust control: adequate to ensure safe operation at all times.
- .11 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental Representative.

- .12 Provide snow removal during period of Work of all areas located within the work zones.

**1.13 CLEAN-UP**

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not used.

**END OF SECTION**



**Part 1        General**

**1.1            INSTALLATION AND REMOVAL**

- .1        Provide temporary controls in order to execute Work expeditiously.
- .2        Remove from site all such work after use.

**1.2            HOARDING**

- .1        Site Hoarding: erect temporary chain-link or welded wire fabric fencing enclosures using the following:
  - .1        Height: minimum 2400mm
  - .2        Galvanized or prefinished metal shapes and wire
  - .3        45mm minimum dimension schedule 40 vertical and horizontal steel support framing. Support framing to complete perimeter of each fence panel with welded connections
  - .4        Minimum 2.5mm base metal wire thickness
  - .5        Woven wire fabric with maximum 65mm openings
  - .6        Heavy duty post connectors between panels
  - .7        Ballasted footing supports
- .2        Site hoarding is to be provided around all work areas and to delineate the air side from the public side. All hoarding affecting the air side and any modification to the air side boundaries are to be installed in a secure manner as to limit any access to the air side at all time. The proposed site hoarding limiting access to the air side must be constructed to meet the minimum design of the current air side barrier, to the acceptance of the Client.
- .3        Roof Edge Barrier/Hoarding for safety and movement control of construction materials/debris: erect temporary chain-link or welded wire fabric fencing enclosures using the following:
  - .1        Height: minimum 2400mm above roof level
  - .2        Galvanized or prefinished metal shapes and wire
  - .3        45mm minimum dimension schedule 40 vertical and horizontal steel support framing. Support framing to complete perimeter of each fence panel with welded connections
  - .4        Minimum 2.5mm base metal wire thickness
  - .5        Woven wire fabric with maximum 65mm openings complete with fiber mesh fabric,
  - .6        Heavy duty post connectors between panels
  - .7        Ballasted footing supports

- .8 At non-Air side; provide standard roof edge barriers as required by safety standards and authorities having jurisdiction.

- .4 Erect hoarding to prohibit all unauthorized access to construction staging area and dangerous work areas.
- .5 Provide debris barrier at hoarding located at roof edges to limit the movement of construction materials/debris to adjacent Airport Air Side.
- .6 Protect all existing surfaces, existing equipment, airplanes & helicopters located within the Hangar or on the adjacent tarmac on the air side from damages by equipment, flying construction debris, and construction procedures.

### **1.3 GUARD RAILS AND BARRICADES**

- .1 Provide secure, rigid guard rails and barricades around open shafts, and at edges of roofs.
- .2 Provide as required by governing authorities.

### **1.4 WEATHER ENCLOSURES**

- .1 Provide weather tight closures to all unprotected openings in floors, walls and roofs.
- .2 Design enclosures to withstand wind pressure and exterior elements.

### **1.5 DUST TIGHT SCREENS**

- .1 Provide dust tight screens to localize dust generating activities and for protection of workers, finished areas of Work and public.
- .2 Ensure dust protection is provided at all air intake louvres or air supply ductwork feeding the Hangars or any other occupied areas. Dust protection must not inhibit air intake requirements of HVAC system.
  - .1 Provide shop drawings of HVAC hoarding in accordance with Section 01 33 00 - Submittal Procedures
  - .2 Shop drawings to indicate:
    - .1 Extent, framing, dust tight screening, connections, roof enclosure to withstand snow loading, dust tight connection to existing roofing and dust tight connection to existing building cladding
- .3 Maintain and relocate protection until such work is complete.

### **1.6 ACCESS TO SITE**

- .1 Provide and maintain existing and proposed access roads as may be required for access to Work.
- .2 All personnel must sign-in at security kiosk prior to accessing site.

**1.7 FIRE ROUTES**

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

**1.8 PROTECTION OF BUILDING FINISHES**

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers and hoardings.
- .3 Be responsible for damage incurred due to lack of or improper protection.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1        General**

**1.1        REFERENCES**

- .1        Within text of each specifications section, reference may be made to reference standards.
- .2        Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3        If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .4        Cost for such testing will be borne by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

**1.2        QUALITY**

- .1        Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2        Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials in execution of work.
- .3        Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4        Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
- .5        Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6        Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

**1.3        STORAGE, HANDLING AND PROTECTION**

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

- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber and moisture sensitive materials on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints and coatings in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

#### **1.4 TRANSPORTATION**

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

#### **1.5 MANUFACTURER'S INSTRUCTIONS**

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

#### **1.6 QUALITY OF WORK**

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.
  - .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
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## **1.7 CO-ORDINATION**

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

## **1.8 CONCEALMENT**

- .1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation inform Departmental Representative if there is interference. Install as directed by Departmental Representative.

## **1.9 REMEDIAL WORK**

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

## **1.10 LOCATION OF FIXTURES**

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Departmental Representative of conflicting installation. Install as directed.

## **1.11 FASTENINGS**

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

## **1.12 FASTENINGS - EQUIPMENT**

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

- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

### **1.13 PROTECTION OF WORK IN PROGRESS**

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

### **1.14 EXISTING UTILITIES**

- .1 When working nearby, breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, without disturbance to Work and building occupants.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

## **Part 2 Products**

### **2.1 NOT USED**

- .1 Not Used.

## **Part 3 Execution**

### **3.1 NOT USED**

- .1 Not Used

**END OF SECTION**

**Part 1        General**

**1.1           SUBMITTALS**

- .1        Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2        Submit written request in advance of cutting or alteration which affects:
  - .1        Structural integrity of elements of project.
  - .2        Integrity of weather-exposed or moisture-resistant elements.
  - .3        Efficiency, maintenance, or safety of operational elements.
  - .4        Visual qualities of sight-exposed elements.
  - .5        Work of Owner or separate contractor.
- .3        Include in request:
  - .1        Identification of project.
  - .2        Location and description of affected Work.
  - .3        Statement on necessity for cutting or alteration.
  - .4        Description of proposed Work, and products to be used.
  - .5        Alternatives to cutting and patching.
  - .6        Effect on Work of Owner or separate contractor.
  - .7        Written permission of affected separate contractor.
  - .8        Date and time work will be executed.

**1.2           MATERIALS**

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

**1.3           PREPARATION**

- .1        Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
  - .2        After uncovering, inspect conditions affecting performance of Work.
  - .3        Beginning of cutting or patching means acceptance of existing conditions.
  - .4        Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
  - .5        Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.
-



**1.4 EXECUTION**

- .1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.
- .2 Fit several parts together, to integrate with other Work.
- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .7 Cut rigid materials using precise hand tools, masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .8 Restore work with new products in accordance with requirements of Contract Documents.
- .9 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .10 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

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