

**Part 1            General**

**1.1            GENERALITIES**

- .1    Related requirements specified elsewhere:
  - .1    Inspections and testing as required by by-laws, ordinances, standards and regulations of jurisdictional authorities: see General Conditions of Contract.
  - .2    Generalities for the submission of inspection and test reports: Section 01 33 00 -Submittal Procedures.
  - .3    Verification by affidavits and certifications that specified products meet requirements of reference standards in applicable sections of the Specification.

**1.2            CODES AND STANDARDS**

- .1    Perform work in accordance with the National Building Code of Canada (NBC), its adopted Provincial Code and applicable Regulations and Standards. In case of conflict or Adiscrepancy between such requirements the most stringent shall govern.
- .2    Where applicable, respect the requirements of the following:
  - .1    AABC - Associated Air Balance Council (American Air Balancing Council);
  - .2    AMCA - Air Movement & Control Association Intl. Inc.;
  - .3    ANSI - American National Standards Institute;
  - .4    ASHRAE - American Society of Heating, Refrigeration and Air Conditioning Engineers;
  - .5    ASME - American Society of Mechanical Engineers;
  - .6    ASTM - American Society for Testing and Materials;
  - .7    CSA - Canadian Standards Association;
  - .8    EPA - Environmental Protection Agency;
  - .9    ISA - Instrumentation, Systems and Automation Society;
  - .10   CGSB - Canadian General Standards Board;
  - .11   SMACNA - Sheet Metal and Air Conditioning Contractors Association;
  - .12   TIAC - Thermal Insulation Association of Canada;
  - .13   ULC - Underwriter's Laboratories of Canada;
  - .14   OSHA - Occupational Safety and Health Act;
- .3    Meet or exceed requirements of:

- .1 Contract Documents;
- .2 Specified standards, National Building Code, other applicable codes and reference documents, their latest edition, revisions or modifications;
- .3 Applicable Health and Safety Requirements.

1.3 QUALIFICATIONS OF LABOUR AND WORKMANSHIP (Q.W.)

- .1 Assign work only to workers, suppliers and subcontractors who have complete knowledge, not only of the conditions of this Specification, but of jurisdictional requirements, and reference standards and specifications.
- .2 All work, including demolition, must be carried out by qualified workers, having their Competency Cards, permits or Certifications;
- .3 A qualified superintendent will be on the job at all times.
- .4 Unless otherwise specified in a more detailed manner, workmanship shall be of the highest quality, recognized by the trade executing the work in accordance with standard practices, by the best methods recommended by the manufacturers of the product, and as approved by the Architect.
- .5 Technical requirements, methods of operation and procedures specified in this Specification constitute the minimum quality requirements. Manufacturer's guarantees and agreements shall be observed and will be in effect and valid for the entire prescribed warranty period.
- .6 All unacceptable work will be done or replaced by the Contractor at his own expense.
- .7 As requested, the Contractor shall deliver daily work reports to the Departmental Representative.

1.4 TOLERANCE FOR INSTALLATION OF WORK

- .1 Unless other tolerances are mentioned in specific sections of the Specification, the following minimum tolerances shall be observed:
  - .1 Plumb and level shall mean plumb or level within 3 mm in 3 meters (1/8" in 10'-0") to the absolute horizontal or vertical at 90 degrees to the horizontal.
  - .2 Square shall mean not in excess of 10 seconds lesser or greater than 90 degrees.

1.5 INSPECTION AND TESTING

- .1 This section establishes requirements for the performance of inspection and testing specified under "Submittals" (certificates), "Source Quality Control" and "Field Quality Control" in the individual technical sections of the Specification.
- .2 Inspection and Testing done by independent agencies do not, in any way, limit the General Contractor's responsibility for ensuring that products and execution of the work meet Contract requirements; inspection and testing required to this end, to be executed by the Contractor, are not limited to inspection and testing specified in this section.

.3 Payment for inspection and testing services:

- .1 The Departmental Representative will appoint and pay for the services of independent inspection/testing agencies, except as otherwise specified herein or in other contract documents.
- .2 The General Contractor shall engage an approved company for mill tests and certificates of compliance, to carry out inspections and tests required by jurisdictional authorities, by-laws, rules, and decrees or as required by the Contract Documents. Include cost of this inspection and testing in the Contract Price.
- .3 The Departmental Representative and the Architect may order any part of the work to be examined or tested if the work is suspected to not be in accordance with the Contract Documents. If, upon examination such work is found not in accordance with the Contract Documents, the General Contractor shall correct such work and pay for the cost of examination or testing and of the required corrections. If such work is found in accordance with Contract Documents, the Departmental Representative shall pay the cost of examination and replacement.
- .4 If in the opinion of the Departmental Representative and the Architect it is not expedient to correct defective work or work not performed in accordance with the Contract Documents, the Departmental Representative may deduct from the difference in value between the work performed and that called for by the Contract Documents, the amount of which shall be determined by the General Contractor and the Architect.
- .5 Upon receipt of reports of inspections and tests, the Departmental Representative, in consultation with the Architect and the Consultants, will decide upon any action that may be required.

1.6 QUALIFICATION AND REFERENCE STANDARDS

- .1 Qualifications of inspection and testing companies:
  - .1 Companies engaged for inspection and testing, either by the Departmental Representative or by the Contractor, shall provide equipment, methods of recording, evaluation, and knowledgeable personnel to conduct tests precisely as specified in reference standards.
  - .2 If required, submit affidavits and copies of certificates of calibration, per ASTM standards, made by an accredited calibrator to verify that testing equipment was calibrated and its accuracy ensured within the previous twelve months.
- .2 Reference standards:
  - .1 Perform inspections and testing in accordance with standards quoted and as required by procedures specified in reference standards mentioned in specification sections applicable to the work being inspected and tested.

1.7 RESPONSIBILITIES OF THE CONTRACTOR

- .1 Inspection and testing performed by firms engaged for "Source Quality Control" and "Field Quality Control" specified in the technical sections shall not relieve the Contractor from responsibility of performing his work in accordance with Contract Documents.

- .2 Provide access for inspections and testing personnel to work in progress with the fabricator's operations.
- .3 Provide samples of materials to be tested in required quantities, at locations where testing is to be performed.
- .4 Submit copies of mill test reports in accordance with Section 01 33 00 - Submittal Procedures.
- .5 Provide labour and facilities to facilitate inspections and tests.
- .6 Provide sufficient space to store and cure test samples.
- .7 Notify the Departmental Representative and Inspection and Testing Company at least forty-eight (48) hours before work is to be inspected and /or testing commences.
- .8 Pay costs for uncovering and making good work that is covered before required inspection or testing is completed and approved by Architect.
- .9 If it is discovered on inspection that work is proceeding with incorrect materials or methods, ensure that corrections are immediately made and that work improperly completed is replaced.
- .10 If defects are revealed during inspection and/or testing, the appointed agent will request additional inspection and/or testing to ascertain full degree of defect. Correct defect as advised by Consultants at no cost to the Departmental Representative. Assume all costs and pay the costs for retesting and re-inspection.
- .11 Make good all work disturbed by inspection and testing.

1.8 **RESPONSIBILITIES OF THE CONTRACTOR'S INSPECTION AND TESTING COMPANIES**

- .1 Determine from Specifications and drawings the extent of inspection and testing work required for Contract work. Notify the Architect of any omissions or discrepancies in the work specified.
- .2 Perform applicable inspections and testing work described in the Specification and as may be additionally directed.
- .3 Provide competent inspection and testing personnel when notified by the Contractor that applicable work is proceeding. Inspection personnel shall cooperate with the Contractor to expedite the work.
- .4 Inform the Architect and the Contractor of deficiencies and irregularities in work immediately when they are observed in the course of inspections and tests.
- .5 Inspection and testing companies shall not perform any of the Contractor's work, and shall not authorize:
  - .1 Performance of work that is not in strict conformity with the Contract Documents,
  - .2 Approval or acceptance of any part of the work.

1.9 **PROCEDURES TO BE FOLLOWED BY INSPECTION AND TESTING COMPANIES**

- .1 Perform specified inspection and testing only in accordance with specified reference standards, or as approved.
- .2 Observe and report on compliance of work to requirements of Contract Documents.
- .3 Ensure that inspectors are on site or at fabricator's operations for full duration of critical operations, and as otherwise required to determine that work is being performed in accordance with Contract requirements.
- .4 Identify samples.
- .5 Identify sources of materials.
- .6 Review and report on progress of work. Report on count of units fabricated and inspected at fabricator's operations.
- .7 Observe and report on conditions of significance to work in progress at time of inspection or at fabricator's operations. Include where applicable and if critical to work in progress:
  - .1 Time and date of inspection;
  - .2 Temperature of air, materials , and adjacent surfaces;
  - .3 Humidity of air, and moisture content of materials and adjacent materials;
  - .4 Presence of sunlight, wind, rain, snow and other weather or environmental conditions.
- .8 Ensure that only materials from the work and intended for use therein are tested where required by the Specification.
- .9 Determine locations for work to be tested.

**1.10 SUBMITTALS**

- .1 Inspection and testing reports:
  - .1 Submit inspection and testing reports in accordance with Section 01 33 00 – Submittal Requirements.
  - .2 Submit inspection and testing reports to:
    - .1 The Contractor.
    - .2 The Architect.
    - .3 The Departmental Representative.
    - .4 The Consultants.
    - .5 Authorities Having Jurisdiction requiring such reports.

**1.11 DEFECTIVE PRODUCTS AND WORK**

- .1 Products and work found to be defective, not in accordance with the Specification, or defaced or damaged through negligence of the Contractor, his employees or Sub-contractors, or fire, weather or any other cause, during construction, before expiration of the general one year warranty period or the extended warranty period as specified in the present Specification, will be rejected for incorporation in the work.
- .2 Remove rejected products and work from the premises immediately.
- .3 Immediately replace rejected products after rejection. Provide replacement products and execute replacement work precisely as required by Specification. Previous inspections and payments shall not relieve the Contractor from his obligation to provide sound and satisfactory work in compliance with this Specification.
- .4 Replacement of rejected products shall not cause any delay to the completion of the project.
- .5 If, in the opinion of the Architect and Consultant, it is not expedient to correct defective work or work not performed in accordance with the Contract Documents, the Departmental Representative may deduct from the Contract Price the difference in value between the work performed and that called for by the Contract Documents, the amount of which shall be determined by the Architect and Consultant.

**Part 2 Products**

2.1 NOT USED

**Part 3 Execution**

3.1 NOT USED

END OF SECTION