

SUBMITTALS

1. SHOP DRAWINGS

1.1 General

- .1 Arrange for the preparation of clearly identified Shop Drawings as specified or as the Contract Administrator may reasonably request. Shop Drawings are to clearly indicate materials, methods of construction, and attachment or anchorage, erection diagrams, connections, explanatory notes, and other information necessary for completion of the Work. Where articles or equipment attach or connect to other articles or equipment, clearly indicate that all such attachments and connections have been properly coordinated, regardless of the trade under which the adjacent articles or equipment will be supplied and installed. Shop Drawings are to indicate their relationship to design Drawings and Specifications. Notify the Contract Administrator of any deviations in Shop Drawings from the requirements of the Contract Documents to allow the Contract Administrator to assess the deviations.
- .2 Where all or part of the Shop Drawings are to be prepared under the stamp and seal of a Professional Engineer registered in the Province of Manitoba, the Contract Administrator will limit that review to an assessment of the completeness of the part of the submission so stamped and sealed.

1.2 Submission Requirements

- .1 Coordinate each submission with requirements of the Work and Contract Documents. Individual submissions will not be reviewed until all related information is available
- .2 Accompany all submissions with a transmittal letter, in duplicate, containing:
 - .1 Date
 - .2 Project title and Bid Opportunity number
 - .3 Contractor's name and address
 - .4 Specification Section number for each submittal
 - .5 Submittal number and revision number in the following format:
 - .1 803 - Spec Section # - Submittal # - Revision # (e.g. 803-07840-001-1)
 - .2 The first submittal is numbered 1 with sequential numbering after that for revisions
 - .6 Identification and quantity of each Shop Drawing product
 - .7 Equipment tag number
 - .8 Other pertinent data

SUBMITTALS

- .3 Submissions shall include:
 - .1 Date and revision dates
 - .2 Project title and number
 - .3 Name, email address, and address of:
 - .1 Contractor
 - .2 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 As required in the specifications, the seal and signature of a Professional Engineer registered in the Province of Manitoba
- .4 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

1.3 Drawings

- .1 Original Drawings or modified standard Drawings provided by the Contractor to illustrate details of portions of Work which are specific to project requirements
- .2 Maximum sheet size: 850 x 1050 mm
- .3 Submit twelve (12) prints and one (1) reproducible copy of Shop Drawings. The Contract Administrator will return the reproducible copy with comments transcribed
- .4 Cross-reference Shop Drawing information to applicable portions of the Contract Documents
- .5 Include reviewed Shop Drawings in all O&M Manuals

SUBMITTALS

1.4 Product Data

- .1 Product Data; Manufacturer's catalogue sheets, brochures, literature, performance charts, and diagrams used to illustrate standard manufactured products
- .2 Submit twelve (12) copies of product data
- .3 Sheet size: 215 x 280 mm

1.5 Design System Listings

- .1 Submit Design System Listings indicating ULC assembly number for each condition, required temperature rise and flame rating, hose stream rating, thickness, installation methods and materials of Firestopping, damming materials, reinforcements, anchorages and fastenings, size of opening, adjacent materials and number of penetrations. Submit copies of current ULC listings for each system and certified copies of test reports verifying that firestopping meet or exceed specified requirements
- .2 Submit Design System Listings, product data and Material Safety Data Sheets (MSDS) and provide the following product data on each proposed product
 - .1 Technical data on out-gassing; off-gassing and age testing
 - .2 Curing time
 - .3 Chemical compatibility to other construction materials
- .3 Provide certification by the Manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOC's) and are non-toxic to building occupants
 - .1 According to ASTM E595
 - .2 Test Method: Environmental Protection Association, EPA Method 24
 - .3 Indoor Environmental Quality: Volatile Content: below 250 g/l
 - .4 **DO NOT** use silicone firestops
- .4 Design System Listing shall show proposed material, including technical data, reinforcement, anchorage, fastenings and method of installation. Construction details shall accurately reflect actual job conditions
- .5 Manufacturer may submit product data for materials and prefabricated devices, provided that descriptions are sufficient for identification at job site. Include Manufacturer's printed instructions for installation
- .6 Provide ULC or cUL Design System Listings complete with product literature and MSDS sheets on each system for each application, for each area as indicated

SUBMITTALS

- .7 When more than one product is specified for the firestop Design Listing System or more than one backing/darning material is indicated, the firestop trade shall circle the item that they have chosen to use on this project
- .8 Provide a list of products, identifying the following for each
 - .1 Product Name
 - .2 Shelf Life
 - .3 Life Expectancy
 - .4 Temperature Range for installation
 - .5 Humidity Range for installation
- .9 Submit design listing/shop drawings as follows:
 - .1 Provide a list of each proposed Design System Listing and corresponding service penetration type or joint type in schedule, indicated floor and wall system, including rating for each
 - .2 Provide a list of each proposed Design System Listing with approximate total quantity or amounts of each listing per floor on separate sheet
 - .3 Provide copies of all firestop systems ULC or cUL Design No. listing for each penetration type for all areas located
 - .4 Provide certification of each installer proposed on working on the project

1.6 Procedure and Routing

- .1 The Contractor shall provide to the Contract Administrator thirteen (13) printed copies of the Shop Drawings and corresponding submittal transmittal form(s) complete with the information specified in 1.2 Submission Requirements
- .2 The Contractor shall simultaneously email the .pdf version of these same Shop Drawings and submittal transmittal forms to the Contract Administrator. The Contractor shall ensure the .pdf version of the Shop Drawings and corresponding submittal transmittal form(s) are identical to the printed copies being distributed for review. When the total size of the email is greater than 5 MB, the Contractor shall post the .pdf version of the Shop Drawings and submittal transmittal form(s) to an accessible place on the internet (provided by the Contract Administrator) and an e-mail notification is to be sent to all parties listed above when posting is complete
- .3 The routing and the names of individuals responsible for receiving submittals will be identified by the Contract Administrator at the pre-construction meeting held pursuant to D4.2
- .4 Upon review of the Shop Drawings, the Contract Administrator will e-mail the .pdf version of the annotated Shop Drawings and corresponding transmittal form(s) to the Contractor.

SUBMITTALS

When the total size of the email is greater than 5 MB, the Contract Administrator will post the pdf version of the Shop Drawings and corresponding transmittal form(s) to the same accessible place on the internet and an e-mail notification will be sent to the Contractor. Two printed copies of the reviewed Shop Drawings will be sent back to the Contractor.

1.7 Shop Drawing and Design system Listing Review

- .1 Shop Drawing review by the Contract Administrator is solely to ascertain conformance with the general design concept. Responsibility for the approval of detail design inherent in Shop Drawings rests with the Contractor and review by the Contract Administrator shall not imply such approval
- .2 Review by the Contract Administrator shall not relieve the Contractor of his responsibility for errors or omissions in Shop Drawings or for proper completion of the Work in accordance with the Contract Documents
- .3 Shop Drawings will be returned to the Contractor with one of the following notations:
 - .1 When stamped "REVIEWED", distribute additional copies as required for execution of the Work
 - .2 When stamped "REVIEWED AS MODIFIED", ensure that all copies for use are modified and distributed, same as specified for "REVIEWED"
 - .3 When stamped "REVISE AND RE-SUBMIT", make the necessary revisions, as indicated, consistent with the Contract Documents and submit again for review
 - .4 When stamped "NOT REVIEWED", submit other drawings, brochures, etc., for review consistent with the Contract Documents
 - .5 Only Shop Drawings bearing "REVIEWED" or "REVIEWED AS MODIFIED" shall be used on the Work unless otherwise authorized by the Contract Administrator
- .4 After submittals are stamped "REVIEWED" or "REVIEWED AS MODIFIED", no further revisions are permitted unless re-submitted to the Contract Administrator for further review
- .5 Any adjustments made on Shop Drawings by the Contract Administrator are not intended to change the Contract Price. If it is deemed that such adjustments affect the Contract Price, clearly state as such in writing prior to proceeding with fabrication and installation of Work
- .6 Make changes in Shop Drawings which the Contract Administrator may require consistent with Contract Documents. When re-submitting, notify the Contract Administrator in writing of any revisions other than those requested by the Contract Administrator
- .7 Shop Drawings indicating design requirements not included in the Contract Documents require the seal of a Professional Engineer registered in the Province of Manitoba. If requested, submit engineering calculations for review, sealed by a Professional Engineer

END OF SECTION

QUALITY CONTROL

1. GENERAL

1.1 Section Includes

- .1 Quality Control (QC) requirements
- .2 Inspection and testing, administrative and enforcement requirements
- .3 Tests
- .4 Mock-ups

1.2 Precedence

- .1 Refer to C:2

1.3 References

- .1 Unless the edition number and/or date are specified, any reference to the Manufacturer's and published codes, standards and specifications shall mean the latest edition published by the issuing authority, and in effect three Business Days before the Submission Deadline
- .2 Referenced standards and specifications define minimum requirements. Work in quality exceeding these minimum requirements conforms to the Contract
- .3 Any reference to a Manufacturer's direction, instruction, or specification shall be deemed to include full information on storing, handling, preparing, mixing, installing, erecting, applying, or other matters concerning the products pertinent to their use and their relationship to the products with which they are incorporated
- .4 Any reference to regulatory authorities includes all authorities having jurisdiction
- .5 Any reference to a Specification section includes all Drawings and Schedules related to the work of that section

1.4 Inspection

- .1 Refer to C:11

1.5 Independent Inspection Agencies

- .1 Except where inspecting, testing and similar QC services are specifically indicated to be the Contractor's responsibility, the City will engage Independent Inspection/Testing Agencies for the purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by the City
- .2 Where inspecting, testing and similar quality control services are specifically indicated in the Specification Sections as the Contractor's responsibility, the Contractor shall engage

QUALITY CONTROL

appropriate Independent Inspection/Testing Agencies. Cost of such services will be borne by the Contractor

- .3 Where the City has engaged an Inspection/Testing Agency for testing and inspection of a part of the Work and the Contractor is also required to engage an Inspection/Testing Agency for the same or related part of the Work, the Contractor shall not employ the same agency engaged by the City without the prior written approval of the Contract Administrator
- .4 Employment of Inspection/Testing Agencies does not relax responsibility to perform Work in accordance with Contract Documents
- .5 If defects are revealed during inspection and/or testing, appointed agency may require additional inspection and/or testing to ascertain full degree of defect. Regardless of original responsibility, pay costs for additional inspection and testing, retesting and re-inspection

1.6 Access to Work

- .1 Refer to C:11

1.7 Procedures

- .1 Refer to C:11
- .2 Submit for the Contract Administrator's approval a written Quality Plan prior to start of any on site activities. The plan shall include as a minimum:
 - .1 Contractor's approach and philosophy to quality during construction
 - .2 Contractor's method for identification and tracking of all control documents
 - .3 Organization chart showing proposed personnel and key contacts for quality
 - .4 Quality representative and any subordinate experts. Submit resumes for the Contract Administrator's approval
 - .5 QC Representative's on site presence and participation in pre-installation, and Subcontractor meetings
- .3 Notify appropriate agency and the Contract Administrator not less than 48 hours in advance of requirement for tests, in order that attendance arrangements can be made
- .4 Submit samples and/or materials required for testing, as specified in Specification Section. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work
- .5 Provide labour and facilities to obtain and handle samples and materials on the Site

QUALITY CONTROL

- .6 Provide suitable facilities for the storage of specimens or samples at correct temperature, free from vibration or damage in accordance with the instruction of the Inspection/Testing Agency and the governing standard

1.8 Rejected Work

- .1 Refer to C:11

1.9 Reports

- .1 For inspecting, testing and similar quality control services which are the Contractor's responsibility, submit four copies of inspection and test reports to the Contract Administrator, unless specified otherwise
- .2 Each report shall include:
 - .1 Date of issue
 - .2 Contract name and number
 - .3 Name, address and telephone number of Inspection/Testing Agency
 - .4 Name and signature of inspector and tester
 - .5 Date of inspection or test
 - .6 Identification of the product and Specification Section covering inspected or tested Work
 - .7 Location of the inspection or the location from which the tested product was derived
 - .8 Type of inspection or test
 - .9 Complete inspection or test data
 - .10 Test results and an interpretation of test results
 - .11 Ambient conditions at the time of sample taking and testing
 - .12 The remarks and observations on compliance with the Contract Documents
 - .13 Recommendations on retesting or other corrective action where necessary.
 - .14 Signature of a qualified and authorized representative of the Agency
- .3 Submit reports within 48 hours, and notify the Contract Administrator forthwith if the report indicates improper conditions or procedures
- .4 Refer to Specification Section for definitive requirements

QUALITY CONTROL

1.10 Tests

- .1 Furnish test results reasonably required by the Contract Administrator

END OF SECTION

FIRESTOPPING

1. GENERAL

1.1 Quality Assurance

- .1 Manufacturer shall ensure that their Fire Protection Engineer will oversee the project and is a member in good standing with the Society of Fire Protection Engineers, and has a minimum five (5) years experience on the manufacturers design systems
- .2 Asbestos free firestopping materials and/or systems to provide closures to fire at openings around penetrations, and at openings and joints within fire separations and assemblies having a fire-resistance rating, including openings and spaces at perimeter edge conditions. System shall provide draft tight barriers to retard passage of flame, firefighter's hose stream and passage of liquids. System shall provide and maintain fire resistance rating of adjacent floor, wall or other fire separation assembly acceptable to authorities having jurisdiction. Provide firestopping for electrical assemblies (i.e. inside bus ducts) and around outside of electrical assemblies where they penetrate rated fire separations
- .3 Firestopping materials shall conform to both the temperature and flame ratings of ULC-S115 and, where applicable, to ASTM E814, and other requirements of authorities having jurisdiction
- .4 Comply with the requirements of Section 01450 – Quality Control

1.2 Environmental Requirements

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials

2. PRODUCTS

2.1 Materials

- .1 Certified and listed by ULC or Warnock Hersey (WH) in accordance with CAN4-S115 and bearing ULC or WH label, products shall be heat resistant, flexible, durable and compatible with adjacent materials and finishes. System shall be self supporting at penetration capable to adhere and yet maintain its integrity while providing effective barrier against passage of flame. Product shall provide flame and temperature rating in accordance with requirements of NBCC for openings in respective fire resistance rated floor, wall or other assembly
- .2 A single source of Manufacturer product shall be used on this project. Materials of different manufacturers shall not be acceptable
- .3 Firestop Systems: Certified by ULC, WH and listed in ULC Guide No. 40 U19
- .4 Firestop System Components: Certified by ULC, WH and listed in ULC Guide No. 40 U19.13 under the Label Service of ULC

FIRESTOPPING

- .5 Cementitious Matrices: Minimum 2758 kPa (400 psi) compressive strength when cured, to retard cable tray warping within the firestop seal
- .6 Firestopping at Openings Where Reinstallation Occurs: An elastomeric or re-useable cementitious matrix or putty seal; do not use a permanent cementitious seal at such locations
 - .1 Firestopping at openings around penetrations for electrical bus ducts, pipes, and other electrical items requiring sound and vibration control or allowance for expansion, contraction and other movement: An elastomeric seal; do not use a cementitious or rigid seal at such locations
 - .2 Firestopping at joints and spaces designed and required to allow movement such as building movement joints, deflection spaces, control joints, expansion joints, and similar locations shall be flexible, elastomeric seal suitable to withstand the required movement and capable of returning to original configuration without damage to seal and without adhesive or cohesive failure; do not use a cementitious or rigid seal at such locations
 - .3 Primers: To Manufacturer's recommendation for specific material, substrate, and end use
 - .4 Water (if applicable): Potable, clean and free from injurious amounts of deleterious substances
 - .5 Damming and backup materials, supports and anchoring devices: To Manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction
 - .6 Intumescent pads: Permanently pliable type
 - .7 Intumescent composite sheet: Composite sheet, strip or precut shapes
 - .8 Sealants and putty for vertical and overhead joints: Non-sagging
 - .9 Sealants and fluid seals at floors: Self-levelling
 - .10 Materials and products shall not cause stress, chemical or physical reaction, or other damage to penetrating items or adjacent materials

3. EXECUTION

3.1 Installation

- .1 Ensure materials and products are compatible with abutting materials, coatings and finishes. Remove applied coatings and finishes as required to permit proper installation and adhesion
- .2 Ensure that pipe insulation and wrappings occurring within openings to receive firestopping are installed prior to work of this Section and that insulation and wrapping within fire seals is a ULC listed component of the system to be installed, unless ULC certified assembly

FIRESTOPPING

permits such other insulation and wrapping to remain within the assembly. Otherwise, precede installation of mechanical insulations or remove insulation from area of insulated pipe where such pipes penetrate a fire separation. Coordinate work of this Section through the Contract Administrator with the work of mechanical installation contractor. Ensure the continuity and integrity of thermal and vapour barriers where such are removed, altered, or replaced, acceptable to the mechanical and electrical installation contractor and the Contract Administrator and the City

- .3 Apply firestopping in accordance with Manufacturer's instructions and tested designs acceptable to authorities having jurisdiction to provide required temperature and flame rated seal, and to prevent passage liquids
- .4 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing. Completely fill and seal voids with firestopping material. Do not cover up material until full curing has taken place. Notify Contract Administrator when completed installations are ready for inspection and prior to concealing or enclosing Firestopping seals.

3.2 Schedule of Firestop Locations

- .1 First stop includes but not limited, to the following locations:
 - .1 Penetrations through fire-resistance-rated masonry, concrete, and gypsum board partitions/walls, floors and roof assemblies
 - .2 Penetrations through fire-resistance-rated floor slabs/systems, ceilings and roof
 - .3 Openings and sleeves installed for future use through fire separations and unused openings and sleeves constructed as part of work
 - .4 Around electrical assemblies/devices penetrating fire separations
 - .5 Electrical recessed boxes in walls and partitions
 - .6 Where indicated on schedule of openings and specifications

3.3 Cleaning

- .1 Remove excess materials and debris and clean adjacent surfaces immediately after application. Remove temporary dams after initial set of firestopping

3.4 Schedule of Openings

- .1 Refer to Form B: Prices

END OF SECTION