

53-I-1  
2012-04-3734  
AIT Com

April 30, 2012


Ms. Tammy Munson  
Director Inspection Services  
City of Portland  
389 Congress Street  
Portland, Maine 04101

Dear Ms. Munson:

Pursuant to Section 1704 "Special Inspections" of the 2009 International Building Code, please be advised that Maine Medical Center has retained Tim Shelley, P.E. of Shelley Engineering, Inc. to conduct Special Inspections of the repair work being undertaken to the Skybridge in the vicinity of 053-X-001/ Congress Street, Portland, Maine.

MMC will abide by the requirements of 2009 IBC §§1704 and 1705 attached hereto. I trust this satisfies you but if you need anything additional please let me know.

Sincerely,



Penelope St. Louis

Cc; Dan Doughty

Maine Medical Center  
2 Bramhall St.  
Portland, Maine 04102-3175

April 23, 2012  
Pg. 1 of 1

Subject: Proposal for the Maine Medical Overhead Pedestrian Connector – Special Inspections.

Attention: Mr. Dan Doughty, AIA

I propose a lump sum fee of                      to provide Special Inspection Services for the construction/repair work for the Sky-Walk Project. I will provide all site visits necessary to visually inspect the installation of all reinforcement steel to be added to the Sky-Walk, per the structural plans prepared by the Carl Walker Co.

The visual inspections will include the installation of all new plates, welds, and tube steel members to be added. I will also review the "field weld reports" prepared by the selected testing agency for this project. I will not be providing any inspection or certification of the steel fabricator for this project.

I will coordinate my inspections with contractor and Maine Medical. I will supply Maine Medical with a written report detailing the findings of the special inspections. Any non-compliant field conditions will be immediately documented and verified when corrected, prior to the completion of the Special Inspections Report.

Sincerely:

Timothy G. Shelley, P.E.

Offered by (SEI):

Timothy G. Shelley  
(signature)

Timothy G. Shelley  
(printed name/title)  
P.E.

Accepted by (Client):

Daniel F. Doughty 4.23.2012  
(signature) (date)

Daniel F. Doughty, Manager  
(printed name/title)  
Facilities Development  
Maine Medical  
Center

Construction scheduled to  
be May 14 - 30, 2012

**1703.1.1 Independence.** An *approved agency* shall be objective, competent and independent from the contractor responsible for the work being inspected. The agency shall also disclose possible conflicts of interest so that objectivity can be confirmed.

**1703.1.2 Equipment.** An *approved agency* shall have adequate equipment to perform required tests. The equipment shall be periodically calibrated.

**1703.1.3 Personnel.** An *approved agency* shall employ experienced personnel educated in conducting, supervising and evaluating tests and/or inspections.

**1703.2 Written approval.** Any material, appliance, equipment, system or method of construction meeting the requirements of this code shall be *approved* in writing after satisfactory completion of the required tests and submission of required test reports.

**1703.3 Approved record.** For any material, appliance, equipment, system or method of construction that has been *approved*, a record of such approval, including the conditions and limitations of the approval, shall be kept on file in the *building official's* office and shall be open to public inspection at appropriate times.

**1703.4 Performance.** Specific information consisting of test reports conducted by an *approved* testing agency in accordance with standards referenced in Chapter 35, or other such information as necessary, shall be provided for the *building official* to determine that the material meets the applicable code requirements.

**1703.4.1 Research and investigation.** Sufficient technical data shall be submitted to the *building official* to substantiate the proposed use of any material or assembly. If it is determined that the evidence submitted is satisfactory proof of performance for the use intended, the *building official* shall approve the use of the material or assembly subject to the requirements of this code. The costs, reports and investigations required under these provisions shall be paid by the applicant.

**1703.4.2 Research reports.** Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports from *approved* sources.

**1703.5 Labeling.** Where materials or assemblies are required by this code to be *labeled*, such materials and assemblies shall be *labeled* by an *approved agency* in accordance with Section 1703. Products and materials required to be labeled shall be labeled in accordance with the procedures set forth in Sections 1703.5.1 through 1703.5.3.

**1703.5.1 Testing.** An *approved agency* shall test a representative sample of the product or material being *labeled* to the relevant standard or standards. The *approved agency* shall maintain a record of the tests performed. The record shall provide sufficient detail to verify compliance with the test standard.

**1703.5.2 Inspection and identification.** The *approved agency* shall periodically perform an inspection, which shall be in-plant if necessary, of the product or material that is to be *labeled*. The inspection shall verify that the labeled product or material is representative of the product or material tested.

**1703.5.3 Label information.** The *label* shall contain the manufacturer's or distributor's identification, model number, serial number or definitive information describing the product or material's performance characteristics and *approved agency's* identification.

**1703.6 Evaluation and follow-up inspection services.** Where structural components or other items regulated by this code are not visible for inspection after completion of a prefabricated assembly, the applicant shall submit a report of each prefabricated assembly. The report shall indicate the complete details of the assembly, including a description of the assembly and its components, the basis upon which the assembly is being evaluated, test results and similar information and other data as necessary for the *building official* to determine conformance to this code. Such a report shall be *approved* by the *building official*.

**1703.6.1 Follow-up inspection.** The applicant shall provide for *special inspections* of fabricated items in accordance with Section 1704.2.

**1703.6.2 Test and inspection records.** Copies of necessary test and inspection records shall be filed with the *building official*.

## SECTION 1704 SPECIAL INSPECTIONS

**1704.1 General.** Where application is made for construction as described in this section, the owner or the *registered design professional in responsible charge* acting as the owner's agent shall employ one or more *approved agencies* to perform inspections during construction on the types of work listed under Section 1704. These inspections are in addition to the inspections identified in Section 110.

The special inspector shall be a qualified person who shall demonstrate competence, to the satisfaction of the *building official*, for the inspection of the particular type of construction or operation requiring *special inspection*. The *registered design professional in responsible charge* and engineers of record involved in the design of the project are permitted to act as the *approved agency* and their personnel are permitted to act as the special inspector for the work designed by them, provided those personnel meet the qualification requirements of this section to the satisfaction of the *building official*. The special inspector shall provide written documentation to the *building official* demonstrating his or her competence and relevant experience or training. Experience or training shall be considered relevant when the documented experience or training is related in complexity to the same type of *special inspection* activities for projects of similar complexity and material quali-

ties. These qualifications are in addition to qualifications specified in other sections of this code.

**Exceptions:**

1. *Special inspections* are not required for work of a minor nature or as warranted by conditions in the jurisdiction as *approved* by the *building official*.
2. *Special inspections* are not required for building components unless the design involves the practice of professional engineering or architecture as defined by applicable state statutes and regulations governing the professional registration and certification of engineers or architects.
3. Unless otherwise required by the *building official*, *special inspections* are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.

**1704.1.1 Statement of special inspections.** The applicant shall submit a statement of *special inspections* prepared by the *registered design professional in responsible charge* in accordance with Section 107.1 as a condition for issuance. This statement shall be in accordance with Section 1705.

**Exceptions:**

1. A statement of *special inspections* is not required for structures designed and constructed in accordance with the conventional construction provisions of Section 2308.
2. The statement of *special inspections* is permitted to be prepared by a qualified person *approved* by the *building official* for construction not designed by a *registered design professional*.

**1704.1.2 Report requirement.** Special inspectors shall keep records of inspections. The special inspector shall furnish inspection reports to the *building official*, and to the *registered design professional in responsible charge*. Reports shall indicate that work inspected was or was not completed in conformance to *approved construction documents*. Discrepancies shall be brought to the immediate attention of the contractor for correction. If they are not corrected, the discrepancies shall be brought to the attention of the *building official* and to the *registered design professional in responsible charge* prior to the completion of that phase of the work. A final report documenting required *special inspections* and correction of any discrepancies noted in the inspections shall be submitted at a point in time agreed upon prior to the start of work by the applicant and the *building official*.

**1704.2 Inspection of fabricators.** Where fabrication of structural load-bearing members and assemblies is being performed on the premises of a fabricator's shop, *special inspection* of the fabricated items shall be required by this section and as required elsewhere in this code.

**1704.2.1 Fabrication and implementation procedures.** The special inspector shall verify that the fabricator maintains detailed fabrication and quality control procedures that

provide a basis for inspection control of the workmanship and the fabricator's ability to conform to *approved construction documents* and referenced standards. The special inspector shall review the procedures for completeness and adequacy relative to the code requirements for the fabricator's scope of work.

**Exception:** *Special inspections* as required by Section 1704.2 shall not be required where the fabricator is *approved* in accordance with Section 1704.2.2.

**1704.2.2 Fabricator approval.** *Special inspections* required by Section 1704 are not required where the work is done on the premises of a fabricator registered and *approved* to perform such work without *special inspection*. Approval shall be based upon review of the fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an *approved special inspection* agency. At completion of fabrication, the *approved* fabricator shall submit a *certificate of compliance* to the *building official* stating that the work was performed in accordance with the *approved construction documents*.

**1704.3 Steel construction.** The *special inspections* for steel elements of buildings and structures shall be as required by Section 1704.3 and Table 1704.3.

**Exceptions:**

1. *Special inspection* of the steel fabrication process shall not be required where the fabricator does not perform any welding, thermal cutting or heating operation of any kind as part of the fabrication process. In such cases, the fabricator shall be required to submit a detailed procedure for material control that demonstrates the fabricator's ability to maintain suitable records and procedures such that, at any time during the fabrication process, the material specification, grade and mill test reports for the main stress-carrying elements are capable of being determined.
2. The special inspector need not be continuously present during welding of the following items, provided the materials, welding procedures and qualifications of welders are verified prior to the start of the work; periodic inspections are made of the work in progress and a visual inspection of all welds is made prior to completion or prior to shipment of shop welding.
  - 2.1. Single-pass fillet welds not exceeding  $5/16$  inch (7.9 mm) in size.
  - 2.2. Floor and roof deck welding.
  - 2.3. Welded studs when used for structural diaphragm.
  - 2.4. Welded sheet steel for cold-formed steel members.
  - 2.5. Welding of stairs and railing systems.

**1704.3.1 Welding.** Welding inspection and welding inspector qualification shall be in accordance with this section.

STRUCTURAL TESTS AND SPECIAL INSPECTIONS

TABLE 1704.3  
REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD <sup>a</sup>	IBC REFERENCE
1. Material verification of high-strength bolts, nuts and washers:				
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	—	X	AISC 360, Section A3.3 and applicable ASTM material standards	
b. Manufacturer's certificate of compliance required.	—	X	—	—
2. Inspection of high-strength bolting:				
a. Snug-tight joints.	—	X	AISC 360, Section M2.5	1704.3.3
b. Pretensioned and slip-critical joints using turn-of-nut with matchmarking, twist-off bolt or direct tension indicator methods of installation.	—	X		
c. Pretensioned and slip-critical joints using turn-of-nut without matchmarking or calibrated wrench methods of installation.	X	—		
3. Material verification of structural steel and cold-formed steel deck:				
a. For structural steel, identification markings to conform to AISC 360.	—	X	AISC 360, Section M5.5	
b. For other steel, identification markings to conform to ASTM standards specified in the approved construction documents.	—	X	Applicable ASTM material standards	
c. Manufacturer's certified test reports.	—	X		
4. Material verification of weld filler materials:				
a. Identification markings to conform to AWS specification in the approved construction documents.	—	X	AISC 360, Section A3.5 and applicable AWS A5 documents	—
b. Manufacturer's certificate of compliance required.	—	X	—	—
5. Inspection of welding:				
a. Structural steel and cold-formed steel deck:				
1) Complete and partial joint penetration groove welds.	X	—	AWS D1.1	1704.3.1
2) Multipass fillet welds.	X	—		
3) Single-pass fillet welds $> 5/16"$	X	—		
4) Plug and slot welds.	X	—		
5) Single-pass fillet welds $\leq 5/16"$	—	X		
6) Floor and roof deck welds.	—	X	AWS D1.3	

(continued)

TABLE 1704.3—continued  
REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD <sup>a</sup>	IBC REFERENCE
b.Reinforcing steel:				
1) Verification of weldability of reinforcing steel other than ASTM A 706.	—	X	AWS D1.4 ACI 318: Section 3.5.2	—
2) Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	X	—		
3) Shear reinforcement.	X	—		
4) Other reinforcing steel.	—	X		
6. Inspection of steel frame joint details for compliance:				
a. Details such as bracing and stiffening.	—	X	—	1704.3.2
b. Member locations.	—	X		
c. Application of joint details at each connection.	—	X		

For SI: 1 inch = 25.4 mm.

a. Where applicable, see also Section 1707.1, Special inspection for seismic resistance.

**1704.3.1.1 Structural steel.** Welding inspection and welding inspector qualification for structural steel shall be in accordance with AWS D1.1.

**1704.3.1.2 Cold-formed steel.** Welding inspection and welding inspector qualification for cold-formed steel floor and roof decks shall be in accordance with AWS D1.3.

**1704.3.1.3 Reinforcing steel.** Welding inspection and welding inspector qualification for reinforcing steel shall be in accordance with AWS D1.4 and ACI 318.

**1704.3.2 Details.** The special inspector shall perform an inspection of the steel frame to verify compliance with the details shown on the *approved construction documents*, such as bracing, stiffening, member locations and proper application of joint details at each connection.

**1704.3.3 High-strength bolts.** Installation of high-strength bolts shall be inspected in accordance with AISC 360.

**1704.3.3.1 General.** While the work is in progress, the special inspector shall determine that the requirements for bolts, nuts, washers and paint; bolted parts and installation and tightening in such standards are met. For bolts requiring pretensioning, the special inspector shall observe the preinstallation testing and calibration procedures when such procedures are required by the installation method or by project plans or specifications; determine that all plies of connected materials have been drawn together and properly snugged and monitor the installation of bolts to verify that the selected procedure for installation is properly used to tighten bolts. For joints required to be tightened only to the snug-tight con-

dition, the special inspector need only verify that the connected materials have been drawn together and properly snugged.

**1704.3.3.2 Periodic monitoring.** Monitoring of bolt installation for pretensioning is permitted to be performed on a periodic basis when using the turn-of-nut method with matchmarking techniques, the direct tension indicator method or the alternate design fastener (twist-off bolt) method. Joints designated as snug tight need be inspected only on a periodic basis.

**1704.3.3.3 Continuous monitoring.** Monitoring of bolt installation for pretensioning using the calibrated wrench method or the turn-of-nut method without matchmarking shall be performed on a continuous basis.

**1704.3.4 Cold-formed steel trusses spanning 60 feet or greater.** Where a cold-formed steel truss clear span is 60 feet (18 288 mm) or greater, the special inspector shall verify that the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing are installed in accordance with the *approved* truss submittal package.

**1704.4 Concrete construction.** The *special inspections* and verifications for concrete construction shall be as required by this section and Table 1704.4.

**Exception:** *Special inspections* shall not be required for:

1. Isolated spread concrete footings of buildings three stories or less above *grade plane* that are fully supported on earth or rock.