

**SECTION 01 45 33**  
**CODE-REQUIRED SPECIAL INSPECTIONS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Code-required special inspections.
- B. Testing services incidental to special inspections.
- C. Submittals.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 21 00 - Allowances: Allowance for payment of testing services.
- B. Section 01 30 00 - Administrative Requirements: Submittal procedures.
- C. Section 01 40 00 - Quality Requirements.
- D. Section 01 60 00 - Product Requirements: Requirements for material and product quality.

**1.03 DEFINITIONS**

- A. Code or Building Code: 2009 Edition of the International Building Code and, more specifically, Chapter 17 - Structural Tests and Inspections, of same.
- B. Authority Having Jurisdiction (AHJ): Agency or individual officially empowered to enforce the building, fire and life safety code requirements of the permitting jurisdiction in which the Project is located.
- C. Special Inspection:
  - 1. Special inspections are inspections and testing of materials, installation, fabrication, erection or placement of components and connections mandated by the AHJ that also require special expertise to ensure compliance with the approved contract documents and the referenced standards.
  - 2. Special inspections are separate from and independent of tests and inspections conducted by Owner or Contractor for the purposes of quality assurance and contract administration.

**1.04 REFERENCE STANDARDS**

- A. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2011.
- B. ACI 530/530.1/ERTA - Building Code Requirements and Specification for Masonry Structures and Related Commentaries; 2011.
- C. AISC 341 - Seismic Provisions for Structural Steel Buildings; 2010.
- D. AISC 360 - Specification for Structural Steel Buildings; 2010.
- E. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2014.
- F. ASTM C31/C31M - Standard Practice for Making and Curing Concrete Test Specimens in the Field; 2012.
- G. ASTM C172/C172M - Standard Practice for Sampling Freshly Mixed Concrete; 2010.
- H. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2012a.
- I. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2014a.
- J. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2013.
- K. ASTM E605 - Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members; 1993 (Reapproved 2011).

- L. ASTM E736 - Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members; 2000 (Reapproved 2011).
- M. ASTM E2570 - Standard Test Methods for Evaluating Water-Resistive Barrier (WRB) Coatings Used under Exterior Insulation and Finish Systems (EIFS) or EIFS with Drainage; 2007.
- N. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2010 w/Errata.
- O. AWS D1.3/D1.3M - Structural Welding Code - Sheet Steel; 2008.
- P. AWS D1.4/D1.4M - Structural Welding Code - Reinforcing Steel; 2011.
- Q. IAS AC89 - Accreditation Criteria for Testing Laboratories; 2010.
- R. IAS AC291 - Accreditation Criteria for Special Inspection Agencies; 2012.

#### **1.05 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Special Inspection Agency Qualifications: Prior to the start of work, the Special Inspection Agency shall:
  - 1. Submit agency name, address, and telephone number, names of full time registered Engineer and responsible officer.
  - 2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
  - 3. Submit certification that Special Inspection Agency is acceptable to AHJ.
  - 4. Submit documentation that Special Inspection Agency is accredited by IAS according to IAS AC291.
- C. Testing Agency Qualifications: Prior to the start of work, the Testing Agency shall:
  - 1. Submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
  - 2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
  - 3. Submit certification that Testing Agency is acceptable to AHJ.
  - 4. Submit documentation that Testing Agency is accredited by IAS according to IAS AC89.
- D. Special Inspection Reports: After each special inspection, Special Inspector shall promptly submit two copies of report; one to Architect and one to the AHJ.
  - 1. Include:
    - a. Date issued.
    - b. Project title and number.
    - c. Name of Special Inspector.
    - d. Date and time of special inspection.
    - e. Identification of product and specifications section.
    - f. Location in the Project.
    - g. Type of special inspection.
    - h. Date of special inspection.
    - i. Results of special inspection.
    - j. Conformance with Contract Documents.
  - 2. Final Special Inspection Report: Document special inspections and correction of discrepancies prior to the start of the work.
- E. Fabricator Special Inspection Reports: After each special inspection of fabricated items at the Fabricator's facility, Special Inspector shall promptly submit two copies of report; one to Architect and one to AHJ.
  - 1. Include:
    - a. Date issued.
    - b. Project title and number.
    - c. Name of Special Inspector.

- d. Date and time of special inspection.
  - e. Identification of fabricated item and specification section.
  - f. Location in the Project.
  - g. Results of special inspection.
  - h. Verification of fabrication and quality control procedures.
  - i. Conformance with Contract Documents.
  - j. Conformance to referenced standard(s).
- F. Test Reports: After each test or inspection, promptly submit two copies of report; one to Architect and one to AHJ.
1. Include:
    - a. Date issued.
    - b. Project title and number.
    - c. Name of inspector.
    - d. Date and time of sampling or inspection.
    - e. Identification of product and specifications section.
    - f. Location in the Project.
    - g. Type of test or inspection.
    - h. Date of test or inspection.
    - i. Results of test or inspection.
    - j. Conformance with Contract Documents.
- G. Certificates: When specified in individual special inspection requirements, Special Inspector shall submit certification by the manufacturer, fabricator, and installation subcontractor to Architect and AHJ, in quantities specified for Product Data.
1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

#### **1.06 SPECIAL INSPECTION AGENCY**

- A. Owner or Architect will employ services of a Special Inspection Agency to perform inspections and associated testing and sampling in accordance with ASTM E329 and required by the building code.
- B. The Special Inspection Agency may employ and pay for services of an independent testing agency to perform testing and sampling associated with special inspections and required by the building code.
- C. Employment of agency in no way relieves Contractor of obligation to perform work in accordance with requirements of Contract Documents.

#### **1.07 TESTING AND INSPECTION AGENCIES**

- A. Owner or Architect may employ services of an independent testing agency to perform additional testing and sampling associated with special inspections but not required by the building code.
- B. Employment of agency in no way relieves Contractor of obligation to perform work in accordance with requirements of Contract Documents.

#### **1.08 QUALITY ASSURANCE**

- A. Special Inspection Agency Qualifications:
  1. Independent firm specializing in performing testing and inspections of the type specified in this section.
  2. Accredited by IAS according to IAS AC291.
- B. Testing Agency Qualifications:
  1. Independent firm specializing in performing testing and inspections of the type specified in this section.
  2. Accredited by IAS according to IAS AC89.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

# Statement of Special Inspections

May 27, 2015

Park Danforth

Project Name: Park Danforth  
Location: 777 Stevens Avenue  
Portland, Maine, 04103

Owner: The Park Danforth  
Denise M. Vachon, CEO  
777 Stevens Avenue  
Portland, Maine 04103  
Tel: 207-797-7710

Architect of Record (AoR): Richard Pizzi, CEO  
& Registered Design Professional Lavallee Brensinger Architects  
in Responsible Charge (RDPiRC): 155 Dow St. Manchester, NH  
Tel: 603-622-5450

Structural Engineer of Record (SER): Daniel Burne, Associate  
Becker Structural Engineers, Inc  
75 York Street, Portland, Maine 04101  
Tel: 207-879-1838

Testing Agency(s) (TA): TO BE DETERMINED

Geotechnical Engineer (GE): Timothy J. Boyce, P.E.  
S.W. Cole Engineering Inc  
286 Portland Road, Gray, ME  
Tel (207) 657-2866

Specialty Engineer(s) (SE): See Performance Specifications on Page 2

This Statement of Special Inspections is submitted as a condition for permit issuance in accordance with the Special Inspection and Structural Testing requirements of the International Building Code, 2009 edition.

The firms, agencies, or individuals noted above (hereafter referred to collectively as agents) will perform the structural tests and inspections as specified herein.

The complete set of Contract Documents (Drawings and Specifications) that accompany the application for building permit is to be considered attached to this program as reference material.

This program does not relieve the Contractor of their responsibility to conduct the work in accordance with the requirements of the Construction Documents, the approved Shop Drawings and the Maine Uniform Building and Energy Code "MUBEC" (2009 International Building Code – IBC, Amended).

**Construction Categories:** The following construction categories are included in the Statement of Special Inspections for this Project. Specific tests and inspections required for each designated category are listed on the page noted opposite the category.

<u>Construction Category</u>	<u>Page</u>	<u>Construction Category</u>	<u>Page</u>
Structural Steel Framing	<u>3-4</u>	Earthwork	<u>8</u>
Shear Connectors	<u>4</u>	In-situ Bearing Strata	<u>8</u>
Steel Decking	<u>4</u>	Controlled Fill	<u>8</u>
Cast-In-Place Concrete	<u>5-6</u>	Fireproofing	<u>9</u>
Precast Concrete	<u>5-6</u>	Storefront and Curtain wall	<u>10</u>
Masonry	<u>7</u>	Steel Stairs & Handrails/Guardrails	<u>11</u>
		Cold Formed Metal Framing	<u>12</u>

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**Performance Specifications:** The following construction components are designated in the Contract Documents on the basis of a performance specification to be designed by the Contractor's or Subcontractor's registered professional engineer, i.e. Specialty Engineer - SE.

<u>Construction Component</u>	<u>Page</u>
Precast Concrete	<u>5-6</u>
Storefront and Curtainwall	<u>10</u>
Steel Stairs & Handrails/Guardrails	<u>11</u>
Cold Formed Metal Framing	<u>12</u>
Firestopping	<u>13</u>

**Reports:** Test and inspection reports prepared by the AOR, SER, TA, GE, and SE will be collected and maintained by the RDPIDC and distributed, according to the procedures established by the Building Official. Prior to the issuance of a certificate of occupancy the RDPIDC will submit a final report to the Owner and Building Official in accordance with the Building Code.

Prepared by the SER:

Name: Daniel Burne, P.E.  
Maine P.E. Registration # 10910 (Structural)

Signature: \_\_\_\_\_

Firm: Becker Structural Engineers, Inc.

Date: \_\_\_\_\_

Registered Design Professional in Responsible Charge:

Name: Richard Pizzi, AIA  
Maine Registered Architect # 3807

Signature: \_\_\_\_\_

Firm: Lavallee Brensinger Architects

Date: \_\_\_\_\_

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<b>Steel Construction</b> <b>(IBC 2009 Section 1704.3)</b> <b>(Specification Sections 051200, 052100 &amp; 053100)</b>					
Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection <sup>1,2,3</sup>	Frequency
1. Steel Construction QC Review	<ul style="list-style-type: none"> <li>Review Contractor's field quality control procedures.</li> <li>Review frequency and scope of field testing and inspections.</li> </ul>	Spec. Section 051200	SER	-	Each submittal
2. Fabricator and Erector Certifications	<ul style="list-style-type: none"> <li>Review AISC Certified Fabricator and AISC Certified Erector Submittals.</li> </ul>	AISC (Fabricator) Certification Standard for Steel Building Structures (STD) and AISC Certified Steel Erector (CSE)	SER	-	Each submittal
	<ul style="list-style-type: none"> <li>For record and use in field verification</li> </ul>		TA	Periodic	In conjunction with related field visits
3. Materials	<ul style="list-style-type: none"> <li>Review material certifications for conformance to Specifications.</li> </ul>	AISC 360 A3.1 AISC 360 A3.3 & 3.4 Spec. Section 051200	SER	-	Each submittal
	<ul style="list-style-type: none"> <li>For record and use in field verification</li> </ul>		TA	Periodic	In conjunction with related field visits
4. Anchor Rods	<ul style="list-style-type: none"> <li>Review Contractor's as-built survey.</li> <li>Verify that all anchor rods have been properly torqued and have adequate fit-up.</li> </ul>	ASTM F1554 AISC 360 M4 Spec. Section 051200	TA	Periodic	Verify bolt length, projection and condition. Verify "Snug tight" torque for 100% of anchor bolts in braced bays, 20% in all other cases.
5. Bolting	<ul style="list-style-type: none"> <li>Verify bolt size and grade.</li> <li>Test and inspect bolted connections.</li> </ul>	AISC 360 A3.3 & M2.5 Spec. Section 051200 AISC Specification for Structural Joints Using A325 or A490 Bolts	TA	Continuous (Slip-critical)  Periodic (Bearing)	As appropriate for connection type and fastener type. Per Contract Documents and AISC specifications.
			SER	-	During aperiodic site visits
6. Welding	<ul style="list-style-type: none"> <li>Check welder qualifications.</li> <li>Check weld identification markings.</li> <li>Test and inspect welds.</li> </ul>	AWS D1.1 Section 6 Spec. Section 051200	TA	<p><u>Continuous:</u></p> <ul style="list-style-type: none"> <li>Complete and partial penetration groove welds,</li> <li>Multiple pass fillet welds,</li> <li>Plug and slot welds</li> <li>Single pass fillet welds &gt;5/16"</li> </ul> <p><u>Periodic:</u></p> <ul style="list-style-type: none"> <li>Fillet welds ≤ 5/16"</li> </ul>	<p><u>At moment connections:</u> Visually inspect and test all welds by ultrasonic or radiographic methods. If for an individual welder, the rejection rate is demonstrated to be five (5) percent or less, the non-destructive testing rate may be reduced to twenty-five (25) percent for the individual welder. The evaluation of the welding shall be based on a sampling of at least forty (40) completed welds.</p> <p><u>At all other welds:</u> Visually inspect all welds and test as required by magnetic particle, ultrasonic or radiographic methods.</p>

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7. Shear Connectors	<ul style="list-style-type: none"> <li>• Check against Construction Documents and latest approved shop drawings.</li> <li>• Inspect shear connectors for size, quantity, and location.</li> <li>• Test shear connectors for proper weld attachment.</li> </ul>	AWS D1.1 Section 7 Construction Documents Spec. Section 051226	TA	Periodic	Test a minimum of 10% of shear connectors; if one or more fail, then test all shear connectors.
			SER	-	During aperiodic site visits
8. Structural Framing, Details, and Assemblies	<ul style="list-style-type: none"> <li>• Check against Construction Documents and latest approved shop drawings.</li> <li>• Inspect for size, grade of steel, camber, installation, and connection details.</li> <li>• Verify steel frame joint details including:                             <ul style="list-style-type: none"> <li>• Details such as bracing and stiffeners</li> <li>• Moment connections</li> <li>• Joint configurations and locations</li> <li>• Preparation of faying surfaces</li> </ul> </li> </ul>	Construction Documents Spec. Section 051200	TA	Periodic	All framing, details, and assemblies.
			SER	-	During aperiodic site visits
9. Expansion & Adhesive Anchors	<ul style="list-style-type: none"> <li>• Review installation procedures for both mechanical anchors and adhesive anchors.</li> <li>• Verify that materials are suitable for job conditions.</li> </ul>	ACI 318 Appendix D Anchor manufacturer's instructions	TA	Periodic	All anchors
			SER	-	Each submittal
10. Steel Decking	<ul style="list-style-type: none"> <li>• Verify gage, depth, and type.</li> <li>• Inspect placement, laps, welds, side lap attachments, and mechanical fasteners</li> <li>• Check welder qualifications.</li> </ul>	SDI Steel Deck Design Manual AWS D1.3 Section 7 Construction Documents Spec. Section 053100	TA	Periodic	All decking and connections
			SER	-	During aperiodic site visits
11. Field Correction of Fabricated Items	<ul style="list-style-type: none"> <li>• Review documentation of approved repairs and verify completion of repairs.</li> </ul>	Construction Documents Spec. Section 051200	TA	As required, per above	Each repair
			SER	-	During aperiodic site visits

<sup>1</sup>Continuous Inspection: Full-time observation of the indicated work by approved individual of the noted Agency, as the work is being performed.

<sup>2</sup>Periodic Inspection: Part-time or periodic observation of the indicated work by an approved individual of the noted Agency and an inspection of the completed work.

<sup>3</sup>Aperiodic Inspection: Irregularly scheduled as required or as needed observation of the indicated work by an approved individual of the noted Agency.



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<b>Concrete Construction (IBC 2009 Section 1704.4) (Specification Section 033000)</b>					
Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection <sup>1,2,3</sup>	Frequency
1. Cast in Place Concrete Construction QC Review	<ul style="list-style-type: none"> <li>Review Contractor's field quality control procedures.</li> <li>Review frequency and scope of field testing and inspections.</li> </ul>	Construction Documents Spec. Section 033000	SER	-	Each submittal
2. Mix Design	<ul style="list-style-type: none"> <li>Review mix designs prior to placement.</li> </ul>	Construction Documents Spec. Section 033000	SER	-	Each submittal
	<ul style="list-style-type: none"> <li>Verify use of approved mix design.</li> </ul>	ACI 318, 1.3.2.A ACI 318, Chapter 4 ACI 318, 5.2-5.4	TA	-	Each concrete placement
3. Materials	<ul style="list-style-type: none"> <li>Review material certifications for conformance to Specifications.</li> </ul>	Construction Documents Spec. Section 033000	SER & TA	-	Each submittal
4. Batching Plant	<ul style="list-style-type: none"> <li>Review plant quality control procedures and batching/mixing methods.</li> </ul>	ACI 304	TA	-	One (1) visit at the start of production & one (1) during the production period. Additional visits may be requested by the SER, if necessary.
5. Reinforcement Installation	<ul style="list-style-type: none"> <li>Use latest set of approved reinforcing bar shop drawings.</li> <li>Inspect reinforcing for grade, size, quantity, spacing, lap lengths, bends, hooks, condition, and placement.</li> <li>Verify adequate cover per specifications.</li> <li>Confirm dowel installation for masonry and concrete, including embedment lengths.</li> </ul>	ACI 318, 1.3.2.C ACI 318, 7.5	TA	Periodic	Each concrete placement
			SER	-	During aperiodic site visits
6. Anchor Rods	<ul style="list-style-type: none"> <li>Inspect anchor rods prior to and during placement of concrete.</li> </ul>	ACI 318 1.3.2.C	TA	Continuous	All anchor rods
			SER	-	During aperiodic site visits
7. Formwork	<ul style="list-style-type: none"> <li>Inspect forms for cleanliness and for proper sizes/locations of concrete members.</li> </ul>	ACI 318 6.1.1	TA	Periodic	Each concrete placement
			SER	-	During aperiodic site visits

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8. Concrete Placement and Sampling of Fresh Concrete	<ul style="list-style-type: none"> <li>Review hot-weather and cold-weather placement procedures submitted by the Contractor.</li> </ul>	ACI 305 ACI 306	SER	-	Each submittal
	<ul style="list-style-type: none"> <li>Verify conformance to Specifications including hot-weather and cold-weather placement procedures.</li> </ul>	ACI 305 ACI 306	TA	-	Each concrete placement
	<ul style="list-style-type: none"> <li>Observe concrete placement operations.</li> <li>Check that total water does not exceed amount in design mix.</li> </ul>	ACI 318, 1.3.2.D ACI 318, 5.9-5.10	TA	Continuous	Each concrete delivery
			SER	-	During aperiodic site visits
	• Concrete Strength	ASTM C31, C39 & C172	TA	-	For each strength of concrete, each day, take six (6) standard 6"x12" cylinders for the first placement up to 50 CY. Then take six (6) additional cylinders for every 50 CY thereafter. Take sample from point of discharge and at time fresh concrete is placed. Concrete for each set of cylinders shall be from (1) representative sample of the entire batch.
	• Concrete Slump	ASTM C143			
	• Concrete Air Content	ASTM C231			
	• Concrete Temperature	ASTM C1064			
9. Evaluation of Concrete Strength	<ul style="list-style-type: none"> <li>Test and evaluate in accordance with the Specifications.</li> </ul>	Construction Documents Spec. Section 033000 ACI 214 ASTM C42	TA	-	(2) 7-day & (2) 28-day results. Hold (2) for 56-day results, as needed.
			SER	-	Each submittal
10. Curing and Protection	<ul style="list-style-type: none"> <li>Observe procedures for conformance to the Specifications.</li> </ul>	Construction Documents Spec. Section 033000	TA	Periodic	Each concrete placement
			SER	-	During aperiodic site visits
11. Mechanical Reinforcing Splices	<ul style="list-style-type: none"> <li>Confirm that the correct, approved couplers are being used.</li> <li>Verify proper embedment, joint fit-up, and tightness of mechanical parts.</li> </ul>	ACI 318, Chapter 12 & Manufacturer's installation instructions	TA	Periodic	Visual inspection of all splices

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<b>Masonry Construction (IBC 2009 Section 1704.5) (Specification Section 042000)</b>					
Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection <sup>1,2</sup>	Frequency
1. Tests Submitted by Contractor for Masonry Units/ Assemblages	<ul style="list-style-type: none"> <li>Review mortar, grout, and prism tests submitted by Contractor.</li> </ul>	Construction Documents Spec. Section 042000 ACI 530.1 Art. 1.5	SER	-	Each class of masonry unit and type of masonry assemblage.
2. Materials Certification	<ul style="list-style-type: none"> <li>Review masonry units, masonry veneers, precast masonry units, and mortar and grout materials.</li> </ul>	Construction Documents Spec. Section 042000 ACI 530.1 Art. 1.4B	SER	-	Each submittal
	<ul style="list-style-type: none"> <li>For record and field verification</li> </ul>		TA	-	In conjunction with related field visits
3. Testing & Evaluation of Mortar & Grout Strength	<ul style="list-style-type: none"> <li>Sample and test mortar and grout used in field for masonry construction.</li> </ul>	Construction Documents Spec. Section 042000 ACI 530.1 Art. 1.4B	TA	-	For each type of mortar and grout, per every 5,000 square feet of wall surface area: test mortar per ASTM C780 test grout per ASTM C1019
	<ul style="list-style-type: none"> <li>Review test results for mortar and grout.</li> </ul>		SER	-	Each report
4. Proportioning, Mixing, and Consistency of Mortar & Grout	<ul style="list-style-type: none"> <li>Observe field procedures for proportioning and mixing of the mortar and grout to be used in the masonry construction.</li> </ul>	Construction Documents Spec. Section 042000 ACI 530.1 Art. 2.6	TA	Continuous	Once, for each type of grout, at the beginning of masonry construction
			SER	-	During aperiodic site visits
5. Masonry Installation	<ul style="list-style-type: none"> <li>Inspect and report on installation of masonry units for general configuration and placement.</li> </ul>	Construction Documents Spec. Section 042000 ACI 530.1 Art. 3.3	TA	Periodic	All locations
			SER	-	During aperiodic site visits
6. Anchorage	<ul style="list-style-type: none"> <li>Inspect type, spacing, and placement of masonry anchors and ties.</li> </ul>	ACI 530 Sections 1.2.2.e & 1.16.1	TA	Periodic	All locations
			SER	-	During aperiodic site visits
7. Reinforcement Installation	<ul style="list-style-type: none"> <li>Inspect reinforcement for grade, size, quantity, spacing, condition, cover, bar positioners, and placement.</li> </ul>	Construction Documents Spec. Section 042000 ACI 530 Section 1.15 ACI 530.1 Art. 2.4 & 3.4	TA	Periodic	All locations
			SER	-	During aperiodic site visits
8. Grouting Operations	<ul style="list-style-type: none"> <li>Inspect cells of masonry units for cleanliness prior to grouting. Observe partial/full grouting procedures.</li> </ul>	Construction Documents Spec. Section 042000 ACI 530.1 Art. 2.6B	TA	Continuous	All locations
			SER	-	During aperiodic site visits
9. Weather Protection	Review submittal on protection of masonry against cold and hot weather.	IBC Sections ACI 530.1 Articles 1.8C & 1.8D	SER	-	Each submittal
	<ul style="list-style-type: none"> <li>Observe protection of masonry against cold and hot weather.</li> </ul>		TA	Periodic	Each masonry placement
10. Anchorage of Exterior Wall Masonry Veneer	<ul style="list-style-type: none"> <li>Inspect type, size, spacing, and placement of approved anchorage to adjacent back-up framing.</li> </ul>	Construction Documents Spec. Section 042000 ACI 530 Section 1.2.2.e	TA	Periodic	All locations
			SER	-	Each submittal

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<b>Soils</b> <b>(IBC 2009 Section 1704.7)</b> <b>(Specification Section 31 23 15)</b>					
Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection <sup>1,2,3</sup>	Frequency
1. Excavation	<ul style="list-style-type: none"> <li>Review existing sub-soils and groundwater conditions during building excavation.</li> </ul>	Construction Documents Spec. Section 320000	GE	Periodic	At each location
2. Bearing Strata	<ul style="list-style-type: none"> <li>Review the in-situ bearing strata and compacted structural fill bearing strata for footings and slabs cast on grade.</li> </ul>	Construction Documents Spec. Section 320000	GE	Periodic	At each location
3. Structural Fill	<ul style="list-style-type: none"> <li>Observe and test compacted structural fill.</li> </ul>	Construction Documents Spec. Section 320000	TA	Continuous	At each location
4. Field Conditions	<ul style="list-style-type: none"> <li>Review existing conditions, procedures and in-situ bearing strata for underpinning.</li> </ul>	Construction Documents Spec. Section 314000	GE	Continuous	At each location
5. Concrete Placement	<ul style="list-style-type: none"> <li>Observe concrete placement operations.</li> </ul>	Construction Documents Spec. Sections 033000 & 314000	TA	Periodic	See Concrete Construction Requirements

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<sup>3</sup>Aperiodic Inspection: Irregularly scheduled as required or as needed observation of the indicated work by an approved individual of the noted Agency.

<b>Fire-resistant Materials</b> <b>Specification Section 07 81 00 and 07 81 23.</b> <b>(IBC 2009 Sections 1704.12 &amp; 1704.13)</b>					
Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection <sup>1,2</sup>	Frequency
1. Materials Certification	Review materials certifications for conformance to Specifications	IBC 1704.12, 1704.13 Spec. Section 078100 and 078123 ASTM E605 ASTM E736	AOR	-	Each submittal
	For record and use in field verification		TA	Periodic	In conjunction with related field visits
2. Sprayed Fire-resistant Materials	<ul style="list-style-type: none"> <li>Inspect and test sprayed fire-resistant materials applied to floor/roof assemblies and structural members in accordance with ASTM E605 and ASTM E736, based on the fire-resistance design as designated in the Construction Documents. Inspections shall include:                             <ul style="list-style-type: none"> <li>Condition of substrates</li> <li>Thickness of application</li> <li>Density</li> <li>Bond strength adhesion/cohesion</li> <li>Condition of finished application</li> </ul> </li> </ul>	IBC 1704.12 Spec. Section 078100 ASTM E605 ASTM E736	TA	Periodic	<u>Floor &amp; Roof Assemblies:</u> <ul style="list-style-type: none"> <li>Thickness: 4 measurements per 1,000 square feet of sprayed area of each assembly at each story</li> <li>Density: 1 measurement per 2,500 square feet of sprayed area of each assembly at each story</li> <li>Bond Strength: 1 measurement per 2,500 square feet of sprayed area of each assembly at each story</li> </ul> <u>Structural Members:</u> <ul style="list-style-type: none"> <li>Thickness: 25 percent of the structural members at each story</li> <li>Density: 1 measurement per 2,500 square feet of sprayed area of each type of member at each story</li> <li>Bond Strength: 1 measurement per 2,500 square feet of sprayed area of each type of member at each story</li> </ul>
3. Mastic and Intumescent Fire-resistant Coatings	<ul style="list-style-type: none"> <li>Inspect coatings applied to structural elements in accordance with AWCI 12-B, based on the fire-resistance design as designated in the Construction Documents.</li> </ul>	IBC 1704.13 Spec. Section 078123 AWCI 12-B	TA	Periodic	At all locations

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<b>Glazed Aluminum Curtain Walls (IBC 2009 Section 1704.15) (Specification Section 084410)</b>					
Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection <sup>1,2</sup>	Frequency
1. Glazed Aluminum Curtainwalls	<ul style="list-style-type: none"> <li>Review Specialty Engineer's performance design criteria used in structural design of system.</li> </ul>	Construction Documents Spec. Section 084410	SER	-	Each submittal
2. Material Certification	<ul style="list-style-type: none"> <li>Review materials used.</li> </ul>	Construction Documents Spec. Section 084410	TA	-	In conjunction with related field visits
	<ul style="list-style-type: none"> <li>For record and use in field verification.</li> </ul>				
3. Installation of Glazed Aluminum Curtainwalls	<ul style="list-style-type: none"> <li>Inspect type, size, gauge, spacing, and placement of members for conformance to the approved Curtain Wall Shop Drawings and Contract Documents.</li> </ul>	Construction Documents Spec. Section 084410 Manufacturer's installation instructions	TA	Periodic	All locations
	<ul style="list-style-type: none"> <li>Inspect member-to-member connections and connections/anchorage to adjacent steel/concrete/wood support elements.</li> </ul>		SE	-	Once during performance of the work and once after completion of the work

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<b>Stairs and Railings (IBC 2009 Section 1704.15) (Specification Section 055100)</b>					
Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection <sup>1,2,3</sup>	Frequency
1. Steel Stairs & Handrail/Guardrail Assemblies	<ul style="list-style-type: none"> <li>Review Specialty Engineer's performance design criteria used in structural design of stair pans, stringers, landings, and railings.</li> </ul>	Construction Documents Spec. Section 055100	SER	-	Each submittal
2. Materials Certification	<ul style="list-style-type: none"> <li>Review certification of materials.</li> </ul>	Construction Documents Spec. Section 055100	SER	-	Each submittal
	<ul style="list-style-type: none"> <li>For record and field verification.</li> </ul>	Construction Documents Spec. Section 055100	TA	Periodic	All locations
3. Installation of Steel Stairs & Handrail/Guardrail Assemblies	<ul style="list-style-type: none"> <li>Inspect installation of steel stairs.</li> <li>Check component type, size, spacing, and placement for conformance with the approved stair system design.</li> <li>Check member-to-member connections and connections to adjacent steel/concrete support elements.</li> </ul>	AWS D1.1 AISC 360 NAAMM Metal Stair Manual Construction Documents Spec. Section 055100	TA	Periodic	All locations
			SE	-	Once during performance of the work and once after completion of the work
			SER	-	During aperiodic site visits

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<b>Cold Formed Metal Framing Construction (IBC 2009 Section 1704.3) (Specification Section 054000)</b>					
Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection <sup>1,2</sup>	Frequency
1. Cold Formed Metal Exterior Wall Stud Backup Framing Design and Cold Formed Metal Roof Truss Design	<ul style="list-style-type: none"> <li>Review Specialty Engineer's performance design criteria used in structural design of cold formed metal exterior wall stud backup framing and cold formed metal roof trusses.</li> </ul>	Construction Documents Spec. Section 054000	SER	-	Each submittal
2. Materials Certification	<ul style="list-style-type: none"> <li>Review certification of materials.</li> </ul>	AISI Cold Formed Steel Design Manual Construction Documents Spec. Section 054000	TA		In conjunction with related field visits
	<ul style="list-style-type: none"> <li>For record &amp; field verification</li> </ul>				
3. Installation of Cold Formed Metal Exterior Wall Stud Backup Framing and Cold Formed Metal Roof Trusses	<ul style="list-style-type: none"> <li>Inspect type, size, gauge, spacing and placement of cold formed metal exterior wall studs, connections, anchorage, bridging, accessories, etc. for conformance with the approved Shop Drawings and Contract Documents.</li> </ul>	AISI Cold Formed Steel Design Manual Construction Documents Spec. Section 054000	TA	Periodic	All locations
			SE	-	Once during performance of the work and once after completion of the work

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<b>Firestopping</b> <b>(IBC 2009 Section 110.3.63)</b> <b>(Specification Section 07 84 00) USE ONLY IF AHJ REQUIRES 3RD PARTY INSPECTION</b>					
Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection <sup>1,2</sup>	Frequency
1. Material Certification. Test data for each firestop assembly	Review for conformance with the Contract Documents	Construction Document Spec. Section 07 84 00	TA	-	Each submittal
2. Installer certification	Review of installer qualifications	Construction Document Spec. Section 07 84 00	TA	-	Once
3. Installation of firestopping	Inspect type, materials, thickness, adhesion of firestopping assemblies for all joints and penetrations in fire-resistance-rated assemblies, smoke barriers, and smoke partitions prior to concealment from view. Verify proper in-place labeling.	Construction Document Spec. Section 07 84 00	TA	Continuous	100% of all applicable items.

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