Statement of Special Inspections

Park Danforth

Project Name Park Danforth

Location: 777 Stevens Avenue

Portland, Maine, 04103

Owner: The Park Danforth Tel: 207-797-7710

Denise M. Vachon, CEO 777 Stevens Avenue Portland, Maine 04103

Architect of Record (AoR): Richard Pizzi, CEO Tel: 603-622-5450

& Registered Design Professional Lavallee Brensinger Architects in Responsible Charge (RDPiRC): 155 Dow St. Manchester, NH

Structural Engineer of Record (SER): Daniel Burne, Associate Tel: 207-879-1838

Becker Structural Engineers, Inc 75 York Street, Portland, Maine 04101

Testing Agency(s) (TA): Roger Domingo (TA1) Tel (207) 657-2866

S.W. Cole Engineering Inc 286 Portland Road, Gray, ME

Daniel Burne, Associate (TA2) Tel: 207-879-1838

May 27, 2015

Becker Structural Engineers, Inc 75 York Street, Portland, Maine 04101

Geotechnical Engineer (GE): Timothy J. Boyce, P.E. Tel (207) 657-2866

S.W. Cole Engineering Inc 286 Portland Road, Gray, ME

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).

<u>Construction Categories:</u> 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.

Construction CategoryPageConstruction CategoryPageStructural Steel Framing3-4Earthwork8Shear Connectors4In-situ Bearing Strata8Steel Decking4Controlled Fill8

2015 V5 Project # Page 1 of 13

Statement of Special Inspections

Park Danforth

May 27, 2015

Cast-In-Place Concrete	<u> </u>	Fireproofing	9
Precast Concrete	<u> 5-6 </u>	Storefront and Curtain wall	10
Masonry	7	Steel Stairs & Handrails/Guardrails	11
•		Cold Formed Metal Framing	12

<u>Performance Specifications:</u> 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.

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

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:

٨	b	m	۱e	٠
	ш	11	10	

Daniel Burne, P.E.

Maine P.E. Registration # 10930 (Structural)

Signature:

Firm:

Becker Structural Engineers, Inc.

Date:

11/24/15

Registered Design Professional in Responsible Charge:

Name:

Richard Pizzi, AIA

Maine, Registered Architect # 3807-

Signature:

Firm:

Lavallee Brensinger Architects

Date:

11.24.2015

Steel Construction (IBC 2009 Section 1704.3) (Specification Sections 051200, 052100 & 053100)

	(Opecinication Sections 031200, 032100 & 033100)						
Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection ^{1,2,3}	Frequency		
Steel Construction QC Review	Review Contractor's field quality control procedures. Review frequency and scope of field testing and inspections.	Spec. Section 051200	SER	-	Each submittal		
Fabricator and Erector Certification s	Review AISC Certified Fabricator and AISC Certified Erector Submittals.	AISC (Fabricator) Certification Standard for Steel Building Structures (STD) and AISC Certified Steel	SER	-	Each submittal		
		Erector (CSE)					
3. Materials	Review material certifications for conformance to Specifications.	AISC 360 A3.1 AISC 360 A3.3 & 3.4 Spec. Section 051200	SER	-	Each submittal		
4. Anchor Rods	Review Contractor's as-built survey. Verify that all anchor rods have been properly torqued and have adequate fit-up.	ASTM F1554 AISC 360 M4 Spec. Section 051200	TA1	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	Verify bolt size and grade. Test and inspect bolted connections.	AISC 360 A3.3 & M2.5 Spec. Section 051200 AISC Specification for Structural Joints Using	TA1	Continuous (Slip-critical) Periodic (Bearing)	As appropriate for connection type and fastener type. Per Contract Documents and AISC specifications.		
		A325 or A490 Bolts	SER	-	During aperiodic site visits		
6. Welding	Check welder qualifications. Check weld identification markings. Test and inspect welds.	AWS D1.1 Section 6 Spec. Section 051200	TA1	Continuous: •Complete and partial penetration groove welds, •Multiple pass fillet welds, •Plug and slot welds •Single pass fillet welds >5/16" Periodic: •Fillet welds ≤ 5/16"	At moment connections: 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. At all other welds: Visually inspect all welds and test as required by magnetic particle, ultrasonic or radiographic methods.		

Page 3 of 13 2015 V5 Project #

Park Danforth

7. Shear	Check against Construction Documents and latest approved shop drawings. Inspect shear connectors for size,	AWS D1.1 Section 7 Construction	TA1	Periodic	Test a minimum of 10% of shear connectors; if one or more fail, then test all shear connectors.
Connectors	quantity, and location. Test shear connectors for proper weld attachment.	Documents Spec. Section 051226	SER	-	During aperiodic site visits
8. Structural	Check against Construction Documents and latest approved shop drawings. Inspect for size, grade of steel, camber, installation, and connection	Construction Documents Spec. Section 051200	TA2	Periodic	All framing,details, and assemblies.
Framing, Details, and Assemblies	details. • Verify steel frame joint details including: • Details such as bracing and stiffeners • Moment connections • Joint configurations and locations • Preparation of faying surfaces		SER	-	During aperiodic site visits
Expansion & Adhesive	Review installation procedures for both mechanical anchors and adhesive anchors.	ACI 318 Appendix D Anchor manufacturer's instructions	TA1	Periodic	All anchors
Anchors			SER	-	Each submittal
10. Steel	Verify gage, depth, and type. Inspect placement, laps, welds, side Inspect placement and machanical	SDI Steel Deck Design Manual AWS D1.3 Section 7 Construction Documents Spec. Section 053100	TA1	Periodic	All decking and connections
Decking	lan attachments, and mechanical		SER	-	During aperiodic site visits
11. Field Correction	Review documentation of approved Review and write completion of	Construction Documents Spec. Section 051200	TA1	As required, per above	Each repair
of Fabricated Items	repairs and verify completion of repairs.		SER	-	During aperiodic site visits

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

²Periodic 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.

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

Concrete Construction (IBC 2009 Section 1704.4) (Specification Section 033000)

(Specification Section 033000)						
Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection ^{1,2,3}	Frequency	
Cast in Place Concrete Construction QC Review	Review Contractor's field quality control procedures. Review frequency and scope of field testing and inspections.	Construction Documents Spec. Section 033000	SER	-	Each submittal	
O.M. Barin	Review mix designs prior to placement.	Construction Documents Spec. Section 033000	SER	-	Each submittal	
2. Mix Design	Verify use of approved mix design.	ACI 318, 1.3.2.A ACI 318, Chapter 4 ACI 318, 5.2-5.4	TA1	-	Each concrete placement	
3. Materials	Review material certifications for conformance to Specifications.	Construction Documents Spec. Section 033000	SER	-	Each submittal	
4. Batching Plant	Review plant quality control procedures and batching/mixing methods.	ACI 304	TA1	-	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. Reinforcemen t ber pla Installation • Ve spe • Co ma	Use latest set of approved reinforcing bar shop drawings. Inspect reinforcing for grade, size, quantity, spacing, lap lengths, bends, hooks, condition, and	ACI 318, 1.3.2.C ACI 318, 7.5	TA2	Periodic	Each concrete placement	
	placement. Verify adequate cover per specifications. Confirm dowel installation for masonry and concrete, including embedment lengths.		SER	-	During aperiodic site visits	
G. Anahar Dada	Inspect anchor rods prior to and	ACI 249 4 2 2 C	TA2	Continuous	All anchor rods	
6. Anchor Rods	during placement of concrete.	ACI 318 1.3.2.C	SER	-	During aperiodic site visits	
7. Formwork	Inspect forms for cleanliness and for proper sizes/legations of	ACI 310 € 1 1	TA2	Periodic	Each concrete placement	
7. POIIIIWOIK	for proper sizes/locations of concrete members.	ACI 318 6.1.1	SER	-	During aperiodic site visits	

2015 V5 Project # Page 5 of 13

	Review hot-weather and cold- weather placement procedures submitted by the Contractor.	ACI 305ACI 306	SER	-	Each submittal
	Verify conformance to Specifications including hot- weather and cold-weather placement procedures.	ACI 305 ACI 306	TA1	-	Each concrete placement
8. Concrete	Observe concrete placement operations.	ACI 318, 1.3.2.D	TA1	Continuous	Each concrete delivery
Placement and Sampling of Fresh Concrete	Check that total water does not exceed amount in design mix.	ACI 318, 5.9-5.10	SER	-	During aperiodic site visits
	Concrete Strength	ASTM C31, C39 & C172	TA1	TA1 -	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
	Concrete Slump	ASTM C143			
	Concrete Air Content	ASTM C231			
	Concrete Temperature	ASTM C1064			cylinders shall be from (1) representative sample of the entire batch.
Evaluation of Concrete	Test and evaluate in accordance	Construction Documents Spec. Section 033000	TA1	-	(2) 7-day & (2) 28-day results. Hold (2) for 56-day results, as needed.
Strength	with the Specifications.	ACI 214 ASTM C42	SER	-	Each submittal
10. Curing and	Observe procedures for	Construction Documents	TA1	Periodic	Each concrete placement
Protection	conformance to the Specifications.	Spec. Section 033000	SER	-	During aperiodic site visits

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

²Periodic Inspection: Part-time or intermittent observation of the indicated work by an approved individual of the noted Agency and an inspection of the completed work.

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

Park Danforth

Masonry Construction (IBC 2009 Section 1704.5) (Specification Section 042000)						
Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection ^{1,2}	Frequency	
Tests Submitted by Contractor for Masonry Units/ Assemblages	Review mortar, grout, and prism tests submitted by Contractor.	Construction Documents Spec. Section 042000 ACI 530.1 Art. 1.5	SER	-	Each class of masonry unit and type of masonry assemblage.	
Materials Certification	Review masonry units, masonry veneers, precast masonry units, and mortar and grout materials.	Construction Documents Spec. Section 042000	SER	-	Each submittal	
Certification	For record and field verification	ACI 530.1 Art. 1.4B	TA1		In conjunction with related field visits	
3. Testing & Evaluation of Mortar & Grout	Sample and test mortar and grout used in field for masonry construction.	Construction Documents Spec. Section 042000 ACI 530.1 Art. 1.4B	TA1	-	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	
Strength	Review test results for mortar and grout.		SER	-	Each report	
4. Proportioning , Mixing, and Consistency	Observe field procedures for proportioning and mixing of the mortar and grout to be used in the masonry	Construction Documents Spec. Section 042000	TA1	Continuous	Once, for each type of grout, at the beginning of masonry construction	
of Mortar & Grout	construction.	ACI 530.1 Art. 2.6	SER	-	During aperiodic site visits	
5. Masonry	Inspect and report on installation of masonry units for general configuration and placement.	Construction Documents Spec. Section 042000 ACI 530.1 Art. 3.3	TA1	Periodic	All locations	
Installation			SER	-	During aperiodic site visits	
6. Anchorage	Inspect type, spacing, and placement	ACI 530 Sections	TA1	Periodic	All locations	
0. Allololage	of masonry anchors and ties.	1.2.2.e & 1.16.1	SER	-	During aperiodic site visits	
7. Reinforceme	Inspect reinforcement for grade, size, guantity, appains, condition, governors, bar-	Construction Documents Spec. Section 042000	TA1	Periodic	All locations	
nt Installation	quantity, spacing, condition, cover, bar positioners, and placement.	ACI 530 Section 1.15 ACI 530.1 Art. 2.4 & 3.4	SER	-	During aperiodic site visits	
8. Grouting	Inspect cells of masonry units for cleanliness prior to grouting. Observe	Construction Documents Spec. Section 042000	TA1	Continuous	All locations	
Operations	cleanliness prior to grouting. Observe partial/full grouting procedures.	ACI 530.1 Art. 2.6B	SER	-	During aperiodic site visits	
Weather Protection	Review submittal on protection of masonry against cold and hot weather.	IBC Sections ACI 530.1 Articles	SER	-	Each submittal	
	Observe protection of masonry against cold and hot weather.	1.8C & 1.8D	TA1	Periodic	Each masonry placement	
10. Anchorage of Exterior Wall	Inspect type, size, spacing, and placement of approved anchorage to	Construction Documents Spec. Section 042000	TA1	Periodic	All locations	
Wall Masonry	placement of approved anchorage to adjacent back-up framing.	ACI 530 Section 1.2.2.e	SER	-	Each submittal	

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

²Periodic Inspection: Part-time or intermittent observation of the indicated work by an approved individual of the noted Agency and an inspection of the completed work.

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

Soils (IBC 2009 Section 1704.7) (Specification Section 31 23 15)						
Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection ^{1,2,3}	Frequency	
Excavation	Review existing sub-soils and groundwater conditions during building excavation.	Construction Documents Spec. Section 320000	GE	Periodic	At each location	
2. Bearing Strata	Review the in-situ bearing strata and compacted structural fill bearing strata for footings and slabs cast on grade.	Construction Documents Spec. Section 320000	GE	Periodic	At each location	
3. Structural Fill	Observe and test compacted structural fill.	Construction Documents Spec. Section 320000	TA1	Continuous	At each location	
4. Field Conditions	Review existing conditions, procedures and in-situ bearing strata for underpinning.	Construction Documents Spec. Section 314000	GE	Continuous	At each location	
5. Concrete Placement	Observe concrete placement operations.	Construction Documents Spec. Sections 033000 & 314000	TA1	Periodic	See Concrete Construction Requirements	

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

²Periodic Inspection: Part-time or intermittent observation of the indicated work by an approved individual of the noted Agency and an inspection of the completed work.

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

Fire-resistant Materials Specification Section 07 81 00 and 07 81 23.

(IBC 2009 Sections 1704.12 & 1704.13)					
Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection ^{1,2}	Frequency
1. Materials	Review materials certifications for conformance to Specifications	IBC 1704.12, 1704.13 Spec. Section 078100	AOR	-	Each submittal
Certification	For record and use in field verification	and 078123 ASTM E605 ASTM E736	TA1	Periodic	In conjunction with related field visits
2. Sprayed Fire-resistant Materials	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: Condition of substrates Thickness of application Density Bond strength adhesion/cohesion Condition of finished application	IBC 1704.12 Spec. Section 078100 ASTM E605 ASTM E736	TA1	Periodic	Floor & Roof Assemblies: Thickness: 4 measurements per 1,000 square feet of sprayed area of each assembly at each story Density: 1 measurement per 2,500 square feet of sprayed area of each assembly at each story Bond Strength: 1 measurement per 2,500 square feet of sprayed area of each assembly at each story Structural Members: Thickness: 25 percent of the structural members at each story Density: 1 measurement per 2,500 square feet of sprayed area of each type of member at each story Bond Strength: 1 measurement per 2,500 square feet of sprayed area of each type of member at each story
3. Mastic and Intumescent Fire-resistant Coatings	Inspect coatings applied to structural elements in accordance with AWCI 12-B, based on the fire-resistance design as designated in the Construction Documents.	IBC 1704.13 Spec.Section 078123 AWCI 12-B	TA1	Periodic	At all locations

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

²Periodic Inspection: Part-time or intermittent observation of the indicated work by an approved individual of the noted Agency and an inspection of the completed work.

Glazed Aluminum Curtain Walls (IBC 2009 Section 1704.15) (Specification Section 084410)						
Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection ^{1,2}	Frequency	
Glazed Aluminum Curtainwalls	Review Specialty Engineer's performance design criteria used in structural design of system.	Construction Documents Spec. Section 084410	SER	-	Each submittal	
2. Material	Review materials used.	Construction Documents Spec. Section 084410	Construction Documents	TA1		In conjunction with related field
Certification	Certification • For record and use in field verification.		IAI		visits	
Installation of Glazed	Glazed Shop Drawings and Contract	Construction Documents Spec. Section 084410 Manufacturer's installation instructions	TA1 & AoR	Periodic	All locations	
Aluminum Curtainwalls	Documents. Inspect member-to-member connections and connections/ anchorage to adjacent steel/concrete/wood support elements.		SE	-	Once during performance of the work and once after completion of the work	

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

²Periodic Inspection: Part-time or intermittent observation of the indicated work by an approved individual of the noted Agency and an inspection of the completed work.

Stairs and Railings (IBC 2009 Section 1704.15) (Specification Section 055100)

Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection ^{1,2,3}	Frequency
Steel Stairs & Handrail/Guardrail Assemblies	 Review Specialty Engineer's performance design criteria used in structural design of stair pans, stringers, landings, and rallings. 	Construction Documents Spec. Section 055100	SER	-	Each submittal
2. Materials Certification	Review certification of materials.	Construction Documents Spec. Section 055100	SER	-	Each submittal
	For record and field verification.	Construction Documents Spec. Section 055100	TA1	Periodic	All locations
3. Installation of Steel Stairs & Handrail/ Guardrail Assemblies	Inspect installation of steel stairs. Check component type, size, spacing, and placement for conformance with the approved stair system design. Check member-to-member connections and connections.	AWS D1.1 AISC 360 NAAMM Metal Stair Manual Construction Documents Spec. Section 055100	TA1	Periodic	All locations
			SE	1	Once during performance of the work and once after completion of the work
	to adjacent steel/concrete support elements.		SER	-	During aperiodic site visits

¹Continuous Inspection: Full-time observation of the indicated work by approved individual of the noted Agency, as the work is being performed.
²Periodic Inspection: Part-time or intermittent observation of the indicated work by an approved individual of the noted Agency and an inspection of the completed work.
³Aperiodic Inspection: Irregularly scheduled as required or as needed observation of the indicated work by an approved individual of the noted Agency.

Cold Formed Metal Framing Construction (IBC 2009 Section 1704.3) (Specification Section 054000)

Item	Tests / Inspections	Code, Standard, or Document Reference	Agency	Type of Inspection ^{1,2}	Frequency
Cold Formed Metal Exterior Wall Stud Backup Framing Design and Cold Formed Metal Roof Truss Design	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.	Construction Documents Spec. Section 054000	SER	-	Each submittal
Materials Certification	Review certification of materials.	AISI Cold Formed Steel Design Manual Construction Documents Spec. Section 054000	TA1		In conjunction with related field visits
	For record & field verification				
3. Installation of Cold Formed Metal Exterior Wall Stud Backup Framing and Cold Formed Metal Roof Trusses	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.	AISI Cold Formed Steel Design Manual Construction Documents Spec. Section 054000	TA1	Periodic	All locations
			SE	-	Once during performance of the work and once after completion of the work

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

²Periodic Inspection: Part-time or intermittent observation of the indicated work by an approved individual of the noted Agency and an inspection of the completed work.

Park Danforth

Firestopping (IBC 2009 Section 110.3.63) (Specification Section 07 84 00) USE ONLY IF AHJ REQUIRES 3RD PARTY INSPECTION Code, Standard, or Type of Item Tests / Inspections Agency Frequency Inspection^{1,2} Document Reference 1. Material Certification. Review for conformance with the **Construction Document** AoR Each submittal Test data for Contract Documents Spec. Section 07 84 00 each firestop assembly 2. Installer Construction Document Review of installer qualifications AoR Once certification Spec. Section 07 84 00 Inspect type, materials, thickness, adhesion of firestopping assemblies for all joints and penetrations in fire-3. Installation of Construction Document resistance-rated assemblies, TA1 Continuous 100% of all applicable items. firestopping smoke barriers, and smoke Spec. Section 07 84 00 partitions prior to concealment from view. Verify proper in-place labeling.

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

²Periodic Inspection: Part-time or intermittent observation of the indicated work by an approved individual of the noted Agency and an inspection of the completed work.