

A R C H I T E C T Y P E

September 11, 2008

Mike Nugent
Consulting Plans Examiner
City of Portland

RE: 53 Danforth Street – Portland, Maine

Dear Mike,

Following are responses to your comments for code review:

- a) (Original question 1) *If the building is a seismic design category "D" we'll need a new page 3 Structural certification form, a seismic quality assurance plan that complies with Section 1705 including contractor's statement of responsibility. All of the building plans & specs will have to be consistent with this finding. **See revised "Program of Structural Tests and Inspections" attached below.***
- b) (Original question 2) *With regard to the fire suppression response, in my discussions with Captain Cass, I think we arrived at a full Chapter 13 system. Please confirm. **The fire suppression system will be a fully compliant NFPA 13 system. See revised specification below.***
- c) (Original question 3) *Please provide an elevation to support the percentages of openings on the garage level of north elevation. **See attachment in email.***
- d) (Original Question 9) *I'll recheck the "M" drawing when I go to City Hall tomorrow and comment.*

Respectfully,

Kevin Gough
Archetype Architects

(Attachments follow).

Program of Structural Tests and Inspections

Project: 53 Danforth St.

Location: 53 Danforth St. Portland, Maine

Owner: 53 Danforth St, LP

Owner's Address: c/o The Szanton Company One City Center, Portland, ME

Architect of Record: Archetype P.A.

Structural Engineer of Record (SER): Veitas & Veitas Engineers, Inc.

This program of structural tests and inspections is submitted as a condition for issuance of the building permit in accordance with section 1704 of the 2003 International Building Code.

The following firms, agencies, or individuals (hereinafter referred to collectively as *agents*) will perform the tests and inspections under the direction of the SER, and submit reports for each inspection:

<i>Agents</i>	<i>Firm</i>	<i>Address/Phone #</i>
1. Structural Engineer of Record	Veitas & Veitas Engineers, Inc.	639 Granite Street Braintree, MA 02184 (781) 843-2863
2. Agent - Soils	Sebago Technics	One Chabot St. Westbrook, ME 04098 (207) 856-0277
3. Agent - Concrete Cylinder Testing	Summit Geoengineering Services	640 Main Street Lewiston, ME 04240 207-795-6009
4. Agent - Weld Testing	Summit Geoengineering Services	640 Main Street Lewiston, ME 04240 207-795-6009
5. Agent - Masonry	Summit Geoengineering Services	640 Main Street Lewiston, ME 04240 207-795-6009
6. Architect	Archetype PA	48 Union Wharf Portland, ME 04101 (207) 772-6022

The numbers will be used on the attached pages to identify which agent is performing the particular tests or inspections.

The following categories of structural tests and inspections, if checked, are included in the program for structural tests and inspections for this project. The specific tests and inspections required for each checked category are listed on the page noted opposite the category.

<u>Category</u>	<u>Page</u>	<u>Category</u>	<u>Page</u>
<input type="checkbox"/> Steel Construction	_____	<input checked="" type="checkbox"/> Controlled structural fill (prepared fill)	<u>7</u>
<input checked="" type="checkbox"/> Cast-in-place concrete construction	<u>3</u>	<input type="checkbox"/> Pile foundations	_____
<input type="checkbox"/> Precast concrete construction	_____	<input type="checkbox"/> Pier foundations	_____
<input checked="" type="checkbox"/> Masonry construction	<u>4</u>	<input type="checkbox"/> Curtain Walls (wall panels and veneers)	_____
<input checked="" type="checkbox"/> Wood construction	<u>5</u>	<input type="checkbox"/> Light gage metal framing	_____
<input checked="" type="checkbox"/> In-situ bearing strata for footings	<u>6</u>	<input type="checkbox"/> Special cases	_____

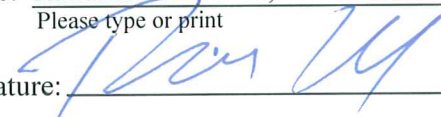
The following items of construction, if checked, are specified in the structural plans or specifications on a performance basis. In accordance with section 1704, their structural design will be reviewed by the SER and their construction is included in the program for tests and inspections on the attached sheets:

- | | |
|---|--|
| <input type="checkbox"/> Curtain Walls | <input type="checkbox"/> Metal Buildings |
| <input type="checkbox"/> Precast concrete components | <input type="checkbox"/> _____ |
| <input checked="" type="checkbox"/> Post-tensioning steel | <input type="checkbox"/> _____ |
| <input type="checkbox"/> Structural steel connections | |

The following items are excluded from this program of structural tests and inspections, since they are designed by other structural engineers not under the aegis of the SER and the SER was not retained to provide performance specifications for their design. These other structural engineers must be assigned by the owner, architect, or construction contractor, as applicable, to be special SER's for their respective designs and to provide a program of structural tests and inspections for their respective designs.

Prepared by the Structural Engineer of Record:

Name: Rimantas M. Veitas, P.E.
Please type or print

Signature: 

Firm: Veitas & Veitas Engineers, Inc.

Date: 9/10/08



Registration Seal

Schedule of Structural Tests and Inspections

Cast-in-Place Concrete Construction

Item	Agent	Scope
1. Mix Design.	1	Review mix designs.
2. Materials Certification	1	Review for conformance to specifications.
3. Batching Plant	1,3	Review Plant quality control procedures and batching and mixing methods.
4. Reinforcement Installation	1	Special inspector shall inspect all reinforcing for size, quantity, condition for all placements.
5. Post-Tensioning Operations.	N/A	Special inspector shall inspect tensioning and anchorage of tendons for all placements.
6. Formwork Geometry	1	Inspect form sizes.
7. Concrete Placement	1,3	Observe all concrete placement operations. Verify conformance to specifications including cold-weather and hot-weather placement procedures. Perform slump, density and air content tests at point of discharge.
8. Evaluation of Concrete Strength	1,3	Test and evaluate in accordance with the specifications.
9. Curing and Protection	1	Observe procedures for conformance to the specifications.
10. Other		
11.		

Schedule of Structural Tests and Inspections

Masonry Construction

Item	Agent	Scope
1. Material Certification	1	Review for conformance to specifications.
2. Evaluation of Masonry Strength	1,5	Verify strength in accordance with the specifications.
3. Proportioning, Mixing and Consistency of Mortar and Grout	1,5	Inspect field-mixing procedures for conformance to the specifications.
4. Installation of Masonry	1,5	Inspect placement for conformance to the specifications.
5. Reinforcement Installation	1,5	Inspect reinforcing steel for size, quantity, condition and placement for conformance to SER approved submittals and Contract Documents. Inspect welding of reinforcement and review welder's certifications.
6. Grouting Operations	1,5	Inspect grouting procedures for conformance with the specifications. Inspect cells prior to grouting.
7. Weather Protection	1	Inspect protection for cold and hot weather for conformance with the specifications.
8. Anchorage	1	Inspect anchorage of masonry to other construction for conformance to the Contract Documents.
9. Other		
10.		

Schedule of Structural Tests and Inspections

Wood Construction

Item	Agent	Scope
1. Fabricator Certification/ Quality Control Procedures for prefabricated wood components.	1	Review Fabricator's quality control procedures.
2. Material Grading.	1	Inspect Lumber for conformance to the Contract Documents. Check moisture content.
3. Framing, Details and Connections.	1	Inspect members for size, placement and connection details. Inspect blocking between floors and at posts. Verify connection hardware and its installation. Inspect bearing, nailing and completed connections for conformance to the SER approved submittals and Contract Documents.
4. Shear Walls and Diaphragms.	1	Inspect thickness and grade of plywood, blocking, hold-down anchors and the edge and field nailing of the plywood to the framing for conformance to the SER approved submittals and Contract Documents.
5. Wood Trusses.	1	Inspect size and location of nail plates, split rings, bolts, or other connection devices for conformance to SER approved submittals and the Contract Documents. Verify that nails, bolts, hold-down anchors or clips or other devices are tight and otherwise properly installed.
6. Laminated Lumber.	1	Inspect nailing, end bearing and end attachment for conformance to SER approved submittals and the Contract Documents.
7. Other		
8.		

Schedule of Structural Tests and Inspections

In-Situ Bearing Strata for Footings

Item	Agent	Scope
1. Bearing strata for footings	2	Inspect strata for conformance to the structural drawings, specifications, and/or geotechnical report.
2. Bearing surfaces of footings	2	Inspect bearing surfaces for conformance to the requirements of the structural drawings, specifications, and/or geotechnical report.
3. Other		
4.		

Schedule of Structural Tests and Inspections

Controlled Structural Fill (Prepared Fill)

Item	Agent	Scope
1. Fill Material	2	Test material for conformance to specifications or geotechnical report. Perform laboratory compaction tests in accordance with the specifications to determine optimum water content and maximum dry density.
2. Installation of controlled structural fill (780 CMR 1705.9.1 and .2)	2	Provide full-time inspection of the installation, in accordance with the specifications and 780 CMR 1705.9.1 and .2.
3. Density of fill (780 CMR 1705.9.3)	2	Perform field density tests of the in-place fill in accordance with the specifications and 780 CMR 1705.9.3.
4. Other		
5.		

**SECTION 15710
FIRE SPRINKLERS & STANDPIPES**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

General Provisions of Contract, including General and Supplementary conditions and General Requirements (if any) apply to work specified in this Section.

1.03 DEFINITIONS

- A. Reviewed equal: Shall mean that the Engineer, not the contractor, shall make final determination whether materials are an equal to that which is specified.
- B. Equal: Shall mean essentially the same as that product specified, but a model of a different manufacturer.
- C. Concealed: Shall mean in walls, in chases, above ceilings, within enclosed cabinets, otherwise enclosed.
- D. Exposed: Shall mean in finished spaces, in closets, under counters, behind and/or under equipment and/or otherwise visible.
- E. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawl spaces, and tunnels.
- F. Others: Shall mean provided by sections other than this section. If not purposely assumed by another section, shall be provided by the General Contractor.
- G. Materials: Shall mean any product used in the construction, including but not limited to: fixtures, equipment, piping and supplies.
- H. Piping: Shall mean pipe, fittings, hangers and valves.
- I. Provide: Shall mean the furnishing and installing of materials.
- J. Substitution: Shall mean materials of significantly different physical, structural or electrical requirements, performance, dimensions, function, maintenance, quality or cost, than that specified.

1.04 DESCRIPTION OF WORK

A. Work Included

Provide all design services, construction documents, labor, transportation, equipment, permits, materials, tools, inspections, incidentals, tests and perform all operations in connection with the installation of a complete new Hydraulically Designed Wet Pipe Sprinkler System in all areas of the buildings, with Wet Standpipe Systems in the stairwells. Comply with requirements of all Authorities Having Jurisdiction. Include aesthetic considerations into the design. Coordinate with interfacing trades. Submit equipment and components for review. Prepare Shop and Record Drawings and Owner's Manuals. Assure quality of workmanship. Provide guarantees and warranties.

1. Automatic Sprinkler System shall meet the standards of the most recent edition of the National Fire Protection Association's (NFPA) NFPA 13 Standard for the Installation of Sprinkler Systems
2. A Dry Automatic Sprinkler System meeting the requirements of NFPA 13 Standard for the Installation of Sprinkler Systems shall be provided for the parking area beneath the building.
3. A Manual Wet Class 1 Standpipe system shall be provided in the stairwells and shall meet the requirements of the National Fire Protection Association's (NFPA) NFPA 14 Standard for the Installation of Standpipe, Private Hydrant and Hose Systems.

1.05 SUBMITTALS

A. Shop Drawings:

1. Within 30 working days after the General Contractor has received a fully executed contract, prepare and submit Plans / Shop Drawings in accordance with the requirements of NFPA and obtain the Engineer's approval and Owner's Insurance Underwriter approval before proceeding with the fabrication and work.
2. Drawings shall include, but not be limited to:
 - a. Name of Owner and Occupant
 - b. Name and address of Contractor.
 - c. Physical Location
 - d. Plan view of system
 - e. Full height cross section or schematic diagram including ceiling construction and spray obstructions.
 - f. Locations of all partitions, with fire partitions noted.
 - g. Occupancy class for each area and minimum density of water application.
 - h. Locations of concealed spaces
 - i. Plan showing location and size of city water main, where private main attaches, all valves, distance and elevation between main and riser.
 - j. Recent hydrant test showing both static and residual pressures, and date and time taken. List any significant known daily or seasonal pressure fluctuations and the cause.

- k. Make, model and nominal K factor of sprinkler heads.
 - l. Control valves, check valves, drain pipes and test connections.
 - m. Fire department connections
 - n. Details showing riser piping configurations.
 - o. Pipe sizes.
 - p. Switches and supervisory devices.
 - q. Interface with Fire Control Panel.
3. To obtain an electronic copy of the building plan and sections, contact the Engineer. Specify required CAD format when requesting the files.
4. Procedure
- a.. As soon as possible after award of Contract, before any material or equipment is purchased, this Contractor shall submit to the Engineer no less than ten (10) copies for approval. Shop drawings shall be properly identified and shall describe in detail the material and equipment shall be provided, including all dimensional data, performance data, curves, computer selection print-outs, etc.
 - b. Corrections or comments made on the submittals do not relieve the contractor from compliance with requirements of the specification. Shop drawing review is only for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades and performing his work in a safe and satisfactory manner.
 - c. All related items shall be submitted as a package.
4. Submit data on the following items:
- a. Piping, fittings and couplings.
 - b. Alarm check valves and trim.
 - c. Backflow preventer.
 - d. Valves and supervisory devices.
 - e. Sprinkler heads and escutcheon plates.
 - f. Supports, hangers and accessories.
 - g. Fire Department Connections.
 - h. Any other significant item valued over \$100.00
5. Submit to the Owner's Insurance Underwriter sufficient copies for approval to allow one copy to be incorporated into each Owner's Manual in addition to the required As-Built Plans

1.06 HYDRAULIC DESIGN DATA

- A. Building Occupancy:
 - 1. Apartments and parking.

- B. Water Density and Square Foot Requirements: Provide per NFPA.
- C. Codes and Requirements:
 - 1. Comply with the standards of most recent edition of the National Fire Protection Association.
 - 2. Comply with the BOCA International Building Code, all Maine State laws as well as local codes and ordinances.
 - 3. Comply with the requirements of the State Fire Marshals Office, Local Fire Chief, Owners Insurance Underwriter, Local Water District and other Authorities Having Jurisdiction

1.07 GUARANTEE

This Contractor shall guarantee all materials and workmanship furnished by him or his sub-contractors to be free from all defects for a period of no less than one (1) year from date of final acceptance of completed system and shall make good, repair or replace any defective work which may develop within that time at his own expense and without expense to the Owner.

1.08 MAINTENANCE MANUAL

On completion of this portion of the work, and as a condition of its acceptance, submit for review two copies of a manual describing the system. Prepare manuals in durable 3-ring binders approximately 8.1/2” by 11” in size with at least the following:

- A. Project name on the spine and front cover, and identification on the front cover stating the project name, general nature of the manual, and name, address and telephone number of the General and Sprinkler Contractors.
- B. Neatly typewritten index.
- C. Complete instructions regarding operation and maintenance of all equipment involved.
- D. Complete nomenclature of all frequently replaceable parts and supplies, their part numbers, and name, address and telephone number of the vendor.
- E. Copy of all guarantees and warranties issued, and dates of expiration.
- F. Shop drawings and equipment/fixtures manufacturer’s catalog pages.

PART 2 – PRODUCTS

All products shall be new and must be either Factory Mutual (FM) or Underwriters' Laboratory (U.L.) listed or both.

2.01 MANUFACTURERS

- A. Equipment: Grinnell, Standard, Viking, Central Sprinkler Corp., Reliable, or equal.
- B. Heads: Viking, or equal.
- C. Flow Switch and Supervisory Device: Potter Electric Signal Company or equal.
- D. Backflow preventer: Ames or equal.

2.02 MATERIALS

- A. Piping:
 - 1. Outside Building, Underground: Is the responsibility of the General Contractor and shall comply with NFPA.
 - 2. Inside building: Shall be schedule 40 black steel, standard weight welded, threaded or Victaulic fittings for sizes 2-1/2" and under. Install flanged fitting and flanges at valves and where required. Threadable light wall pipe (schedule 10) shall be permitted only for sizes 3" and over.
 - 3. Where permitted by code and based on the construction the contractor may substitute CPVC sprinkler system piping in lieu of the above for the sprinkler system. Install according to manufacturer's requirements and restrictions. Piping and fittings, shall be Harvel Blazemaster CPVC fire sprinkler piping or approved equal. Piping shall be installed only by a factory trained and certified installer. Where piping is exposed or where manufacturers requirements cannot be met, piping shall be the same as above.
- B. Sprinkler Heads:
 - 1. Temperature Classification:
 - a. Finished area shall be ordinary temperature rating.
 - b. Boiler Room shall be Intermediate temperature rating 175° F to 225° .
 - 2. All shall be Quick Response type head.
 - 3. All heads shall be glass bulb type .
 - 4. Type:
 - a. Generally shall be white, concealed pendant.
 - b. Concealed spaces shall be the type best suited for the configuration of the individual space.
 - c. Any minor unheated spaces shall be dry type.

5. Provide and install a spare head case per NFPA requirements. The case shall contain not less than 12 heads total, no less than two of each style of heads and one wrench for each style of head. Locate case in the sprinkler room near the check valve assemblies.
- C. Provide sprinkler guards on any exposed heads.
- D. Hangers: Provide per NFPA. Provide seismic protection unless specifically exempt by the Authority Having Jurisdiction. Hang from building structure, not piping of other trades.
- E. Sleeves:
1. Pipes Through Floors: Form with Schedule 40 (galvanized) steel pipe and extend 1” above surrounding floor.
 2. Pipes Through Interior Fire-rated or Sound-rated Partitions: Form with steel pipe or 16 gauge galvanized steel.
 3. Pipes through Exterior Building Walls, Concrete Walls or Footing: Form with Schedule 40 (galvanized) steel pipe.
 4. Size: The minimum sleeve diameter shall be either 2 pipe sizes or 2” in diameter larger than the outside diameter of the pipe.
 5. Fire caulk all penetrations through floors and fire rated partitions.
- F. Valves:
1. Riser Control Valve: OS&Y cast iron construction.
 2. Sectionalizing Valves: OS&Y cast iron body.
 3. Drain and Test Valves: Bronze body, gate type or ball type, capable of being padlocked in either open or closed position.
- G. Provide all miscellaneous items required for a complete system, such as: paint, signs, valve tags, pipe markers, chains and locks, relief valves, and water additives.

2.03 COMPONENTS

- A. Fire Department Connection (Verify with local Fire Department). 4” Fire Department connection with, caps with chains and wall plate with “Auto Sprinkler” and “Manual Wet Standpipe”. Thread Pattern shall match that of the local Fire Department equipment; also 4” UL listed check valve with automatic ball drip piped to drain. Bronze finish.
- B. Flow Switch for Wet Systems: Model # VSR-F vane type water flow alarm switch with an adjustable retard setting from 10 seconds to 90 seconds having two sets of DPDT contacts for reporting to the building fire alarm system.

- C. Electric Supervisory Switch: All valves shall have a Model # OSYSU-2 electric supervisory device with 2 sets of DPDT contacts to report to the building fire alarm system.
- D. Backflow preventer: Double check, testable, replaceable seats.
- E. Provide all shut-off valves with tamper switches. Lock or chain open valves with break-away padlocks.
- F. Water pressure gauge: Provide one before the valve on each inspectors test connection. Range applicable to fire protection application.

PART 3 – EXECUTION

3.01 PREBID EXAMINATION AND INVESTIGATION

- A. Visit the site and become acquainted with the conditions.
- B. Study all Drawings and Specifications for all related and interfacing trades. No claim will be recognized for extra compensation due to failure to become familiarized with the conditions and extent of the proposed work as indicated within.
- C. Ascertain all Authorities Having Jurisdiction, and consult where needed.

3.02 OBTAINING DRAWINGS AND SPECIFICATIONS

- A. Obtain a FULL set of drawings and specifications as soon as is practical.

3.03 SPECIFIC INSTALLATION REQUIREMENTS

- A. All piping in finished areas shall be run concealed wherever possible.
- B. For aesthetic reasons, locate sprinkler heads neatly and symmetrically, relative to the walls, ceiling grid, diffusers and light fixtures. Center heads in tiles in suspended ceilings.
- C. All piping shall be run as high as practicable. Pitch piping slightly to allow the system to be drained.
- D. System drains shall be valved and piped to discharge. No valve shall be provided ahead of the electric alarm devices.
- F. All sprinkler work shall avoid proposed locations of, and installation clearances for, lighting, ducts, piping, framing and equipment.

3.04 COORDINATION

- A. Coordinate work with that of other trades. Coordinate early for locations of mains. Ductwork, mechanical equipment, electrical panels and large gravity piping will be given priority over sprinkler piping, unless all effected parties agree otherwise
- B. Contact Electrical Contractor and assure that all requirements for power and fire alarm system have been met.

3.05 TESTS

The entire installation shall be tested with water in accordance with all NFPA requirements, all requirements of the local Fire Department and local Water District; and the Owner's Insurance Underwriter; this includes the testing of all alarms. All tests shall be witnessed by the Owner's representative and local Fire Chief's representative. Submit copies of all test certificates, properly signed, to the Engineer.

END OF SECTION 15710