Fig. 7.6.1 Relation of decibel reduction *of* reflected sound to absorption ratio

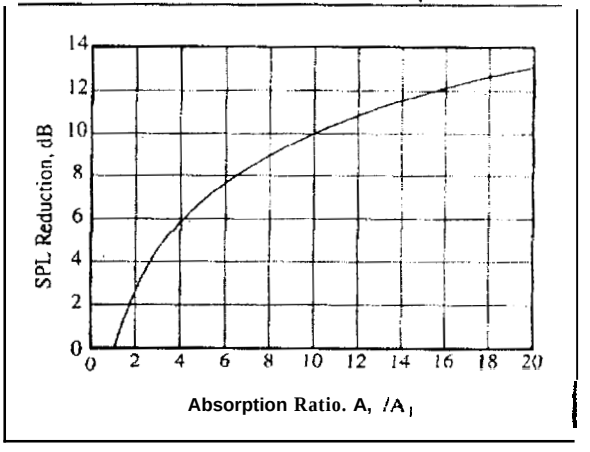


Fig. 7.6.2 Relation of percent loudness reduction of reflected sound *to* absorption ratio

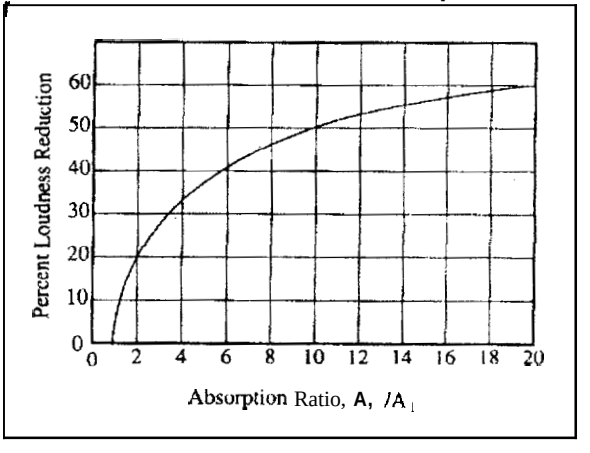


Fig. 7.7.1a NC (Noise Criteria) Curves

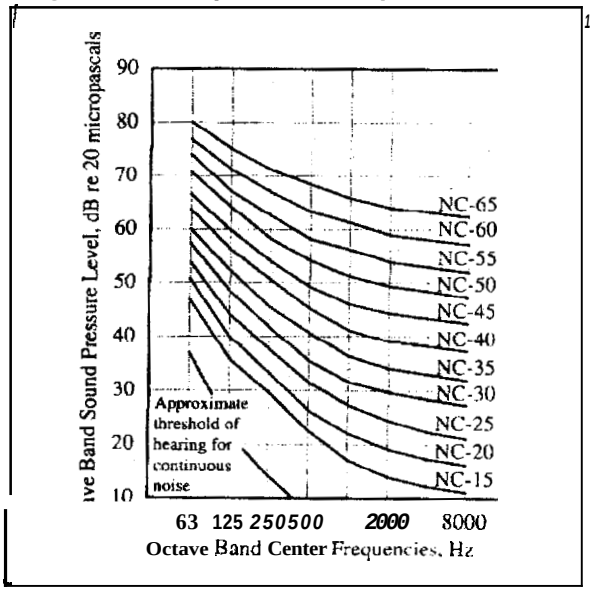
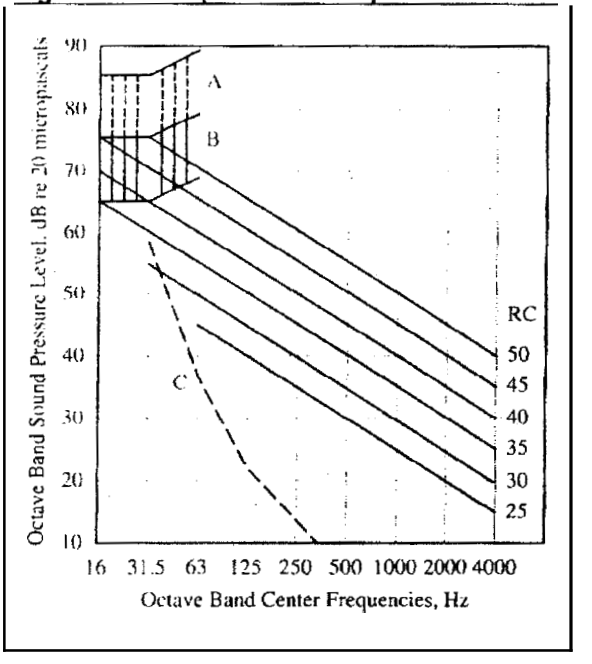


Fig. 7.7.1b RC (Room Criteria) Curves



Region A: High probability that **noise-induced vibration levels** in lightweight **wall/ceiling constructions will be clearly feelable; anticipate audible rattles** in **light** fixtures, **doors,** windows, etc.
Region B: Noise-induced vibration levels *in* lightweight wall/ceiling constructions may **be moderately feelable; slight possibility of rattles in** light **fixtures, doors, windows, etc.**
Region C: Below threshold of **hearing for continuous** noise.

portant. Conversely, higher levels can persist in large business offices or factories where speech communication is **limited** to short **distances.** Often it is just as important to be interested in the minimum as in the maximum permissible levels of Table 7.7.1. In an office or residence, it is desirable to have a certain ambient **sound** level **to assure** adequate acoustical privacy between spaces, thus, minimizing the transmission loss requirements of unwanted sound (noise).

These undesirable sounds may be **from** an **exterior** source such as automobiles or aircraft, or they may be generated **as speech in an adjacent classroom** or **music in** an **adjacent** apartment. They may be direct **impact-induced *sound* such *as* foot**falls on the floor above, rain impact on a lightweight roof construction or vibrating mechanical equipment.

Thus, the designer must always be ready to accept the task of analyzing the many potential sources of intruding sound as related to their frequency characteristics and the rates at which they occur. The level of toleration that is to be expected by those who will occupy the space must also be established. Figures 7.7.2 and 7.7.3 are the spectral characteristics of common noise sources.

Fig. 7.7.2 Sound pressure levels - exterior noise sources

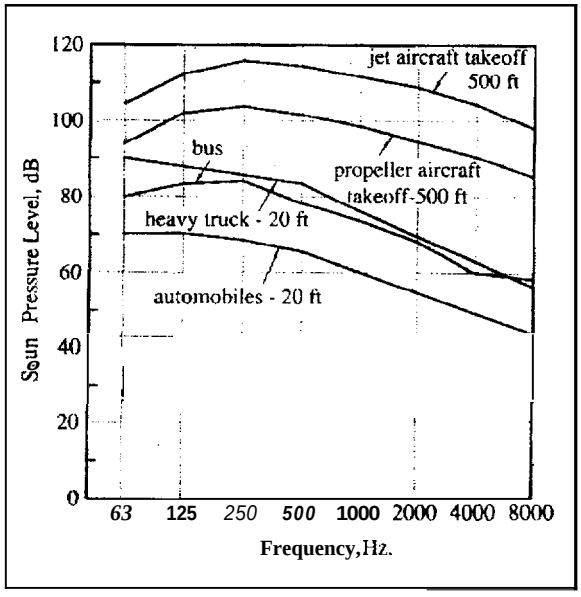


Fig. 7.7.3 Sound pressure levels - interior noise sources

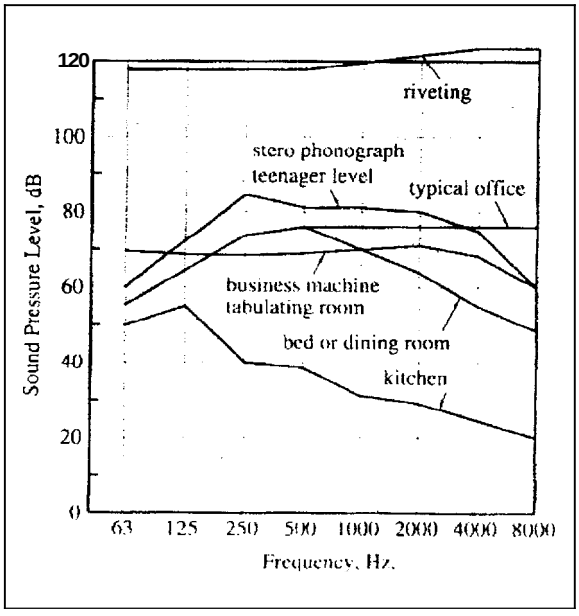


Table 7.7.1 Recommended category classification and suggested Noise Criteria range for steady background noise as heard in various in-door functional activity areas*[39]

TYPE OF SPACE	NC OR RC CURVE
1. Private residences	25 to 30
2. Apartments	30 to 35
3. Hotels/motels	
a. Individual rooms or suites	30 to 35
b. Meeting/banquet rooms	30 to 35
c. Halls, corridors, lobbies	35 to 40
d. Service/support areas	40 to 45
4. Offices	
a. Executive	25 to 30
b. Conference rooms	25 to 30
c. Private	30 to 35
d. Open-plan areas	35 to 40
e. Computer/business machine areas	40 to 45
f. Public circulation	40 to 45
5. Hospitals and clinics	
a. Private rooms	25 to 30
b. Wards	30 to 35
c. Operating rooms	25 to 30
d. Laboratories	30 to 35
e. Corridors	30 to 35
f. Public areas	35 to 40
6. Churches	25 to 30**
7. Schools	
a. Lecture and classrooms	25 to 30
b. Open-plan classrooms	30 to 35**
8. Libraries	30 to 35
9. Concert Halls	**
0. Legitimate theatres	**
1. Recording studios	**
2. Movie theatres	30 to 35

Design goals can be increased by 5 dB when dictated by budget constraints or when noise intrusion from other sources represents a limiting condition.

*An acoustical expert should be consulted for guidance on these critical spices.

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Stereo Source Noise (teenager) (Figure 7.7.3)	60	72	84	82	82	80	75	60
Bedroom Room Criteria RC 30 (Figure 7.7.1)	50	45	40	35	30	25	20	15
Required Insulation	10	27	44	47	52	55	55	45

Frequency (Hz)	125	250	500	1000	2000	4000
Required insulation	27	44	47	52	55	55
8 in H.C. (Figure 7.4.2)	34	39	46	53	59	64
Deficiencies	—	5	1	—	—	—

With these criteria, the problem of sound isolation now must be solved, namely, the reduction process between the high unwanted noise source and the desired ambient level. For this solution, two related yet mutually exclusive processes must be incorporated, i.e., sound transmission loss and sound absorption.

7.8 Establishment of Noise Insulation objectives

Often acoustical control is specified as to the minimum insulation values of the dividing partition system. Municipal building codes, lending institutions and the Department of Housing and Urban Development (HUD) list both airborne STC and impact IIC values for different living environments. For example, the HUD minimum property standards[41] are:

LOCATION	STC	IIC
Between living units	45	45
Between living units and public space	50	50

Once the objectives are established, the designer then should refer to available data, e.g., Fig. 7.4.2 or Table 7.4.1 and select the system which best meets these requirements. In this respect, concrete systems have superior properties and can, with minimal effort, comply with these criteria. When the insulation value has not been specified, selection of the necessary barrier can be determined analytically by (1) identifying exterior and/or interior noise sources, and (2) by establishing acceptable interior noise criteria.

Example 7.8.1

Assume a precast prestressed concrete apartment building with hollow core floor slabs. The first step is to determine the degree of acoustical insulation required of the floor-ceiling assembly by using Figures 7.4.1 and 7.7.3

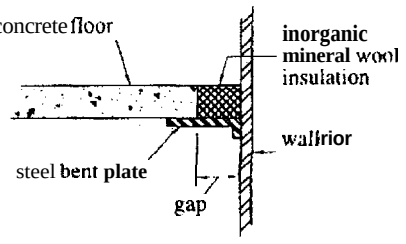
The 500 Hz requirement, 47 dB, can be used as the first approximation of the floor STC category.

The selected floor should meet or exceed the insulation needs at 1I frequencies. However, to achieve the most efficient design conditions, certain limited deficiencies can be tolerated. Experience has shown that the maximum deficiencies are 3 dB on one frequency point.

7.9 Leaks and Flanking

The performance of a building section with an otherwise adequate STC can be seriously reduced by a relatively small hole or any other path which allows sound to bypass the acoustical barrier. All noise which reaches a space by paths other than through the primary barrier is called flanking. Common flanking paths are openings around doors or windows, at electrical outlets, telephone and television connections, and pipe and duct penetrations. Suspended ceilings in rooms where walls do not extend from the ceiling to the roof or floor above allow sound to travel to adjacent rooms.

Fig. 7.9.1 Effect of sating insulation seals



	Combined Transmission Loss
No closure	14 STC
With steel vent **plate** closure	28 STC
With 4 in thick safing insulation	30 STC
steel bent plate added	42 STC
With **6** in thick safing insulation	38 STC
steel bent plate added	45 STC

Anticipation and prevention of leaks begins at rhe design stage. Flanking paths (gaps) at the perimeters of interior precast walls and floors are generally sealed during construction with grout or drypack. In addition, all openings around penetrations through walls or floors should he as small as possible and must be sealed airtight. The higher the STC of the barrier, the greater the effect **of** an unsealed opening.

Perimeter leakage morc commonly occurs at the intersection between an exterior curtain wall and floor slab. It is of vital importance to seal this gap in order to retain the acoustical integrity of the system as well as provide the required fire stop between floors. One way to achieve this seal is to place a **4** pcf **(64** kg/m^3) density mineral wood blanket between the floor slab and the exterior wall. Figure 7.9.1 demonstrates the acoustical isolation **effects** of this treatment.

In exterior walls, the proper application of sealant and backup materials in the joints between units will not allow sound to flank the wall.

If the acoustical design is balanced, **the** maximum amount of **acoustic** energy reaching a space via flanking should not equal the energy transmitted through the primary barriers.

Although riot easily quantified, an inverse relationship exists between the performance of an **element** as **a** primary barrier and its propensity tu transmit flanking sound. In other words. the **probability** of existing flanking paths in a concrete structure is much less than in one of steel or wood frame.

In addition to using basic structural materials, flanking paths can **he** minimized by:

1. Interrupting the continuous flow of energy with dissimilar material, i.e., expansion or control joints or air gaps.
2. Increasing the resistance to energy flow with floating floor systems, full height and/or double partitions and suspended ceilings.

7.10 Human Response to Building Vibrations

Modern buildings often use components with low **weight-to-strength** ratios, which allow longer spans with less mass. This trend increasingly results in transient vibrations which are annoying to the occupants. Unlike equipment vibration, a person often causes **the** vibration and **also** senses it. These vibrations usually have very small amplitudes (less than 0.05 in [1 mm]) and were not noticed in older structures with heavier framing and more numerous and heavier partitions, which provided greater damping and other beneficial dynamic characteristics.

This problem is not well understood. Predicting human response to floor motion and the dynamic response **to** floor motion arid the dynamic response of a floor system to moving loads are developing technologies. A number of discomfort criteria have been **published**[44-51], but they often give contradictory results.

The vibration problem is most effectively treated by modifying the structural system. The natural period (or its inverse, frequency), stiffness, mass, and damping are the structural **parameters** related **to** vibration control. Stiffness is increased by providing greater section properties than may be required for supporting loads. An increase in mass improves the natural frequency, but increases deflections and stresses, so **by** itself is only partially **effective** in controlling vibrations. For example, increasing the depth of a flexural member will aid greatly in vibration control, but increasing the width will not.

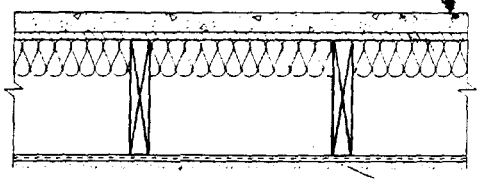
Recent research has emphasized the effect that damping plays in the human perception of vibration. In a study **of** 91 floor systems it was concluded that with damping greater than 5.5 to 6 percent of critical, structural systems were accept-

FLOOR-CEILING SYSTEMS, WOOD-FRAMED

GA FILE NO. FC 5115 | **PROPRIETARY†** | **1 HOUR FIRE** | **50 to 54 STC SOUND**

WOOD JOISTS, GYPSUM WALLBOARD, RESILIENT CHANNELS, GLASS FIBER INSULATION

One layer 5/8" proprietary type X gypsum wallboard or gypsum veneer base applied at right angles to resilient furring channels 24" o.c. with 1" Type S drywall screws 12" o.c. Gypsum board end joints located midway between continuous channels and attached to additional pieces of channel 54" long with screws 12" o.c. Resilient furring channels applied at right angles to 2 x 10 wood joists 16" o.c. with 1 1/4" Type W drywall screws. Wood joists supporting 5/8" interior plywood with exterior glue subfloor and 1 5/8" perlite-sand concrete reinforced with No. 19 SWG galvanized hexagonal wire mesh. 3" glass fiber insulation 0.90 pcf in joist space stapled to subfloor.



Approx. Ceiling Weight: 2 psf
Fire Test: UL R3453-7, 5-1-70; UL Design L516
Sound Test: KAL L 224-28-65, 3-30-65
IIC & Test: (74 C & P) KAL L 224-27-65, 3-30-65

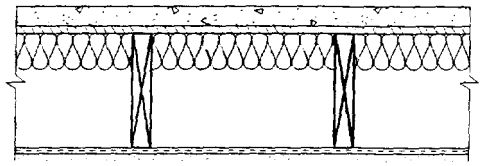
PROPRIETARY GYPSUM BOARD

United States Gypsum Company - 5/8" SHEETROCK® Brand Gypsum Panels, FIRECODE® C Core

GA FILE NO. FC 5116 | **PROPRIETARY†** | **1 HOUR FIRE** | **50 to 54 STC SOUND**

WOOD JOISTS, GYPSUM WALLBOARD, RESILIENT CHANNELS, GLASS FIBER INSULATION

One layer 5/8" proprietary type X gypsum wallboard or gypsum veneer base applied at right angles to resilient furring channels 24" o.c. with 1" Type S drywall screws 12" o.c. Gypsum board end joints located midway between continuous channels and attached to additional pieces of channel 54" long with screws at 12" o.c. Resilient furring channels applied at right angles to 2 x 10 wood joists 16" o.c. with 1 1/4" Type W drywall screws. Wood joists supporting 5/8" interior plywood with exterior glue subfloor and 1 5/8" perlite-sand concrete reinforced with No. 19 SWG galvanized hexagonal wire mesh. 3" glass fiber insulation 0.90 pcf in joist space stapled to subfloor.



Approx. Ceiling Weight: 2 psf
Fire Test: UL R3453-7, 5-1-70; Based on UL R3660-7, -8, 11-12-87; R2717-61, 8-18-87; Based on UL R7094, 90NK10635, 10-24-90; Based on UL R8742, 88NK22591, 10-6-88; UL Design L516
Sound Test: KAL L 224-28-65, 3-30-65
IIC & Test: (74 C & P) KAL L 224-27-65, 3-30-65

PROPRIETARY GYPSUM BOARD

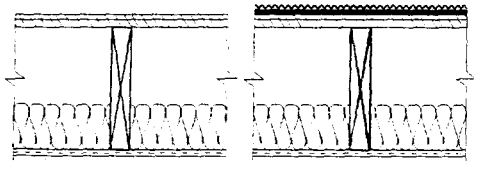
American Gypsum Company - 5/8" FIREBLOC TYPE C
CPB America Inc. - 5/8" ProRoc™ Type C Gypsum Panels
G-P Gypsum - 5/8" ToughRock® Fireguard® C
Lafarge North America Inc. - 5/8" Firecheck® Type C
National Gypsum Company - 5/8" Gold Bond® Brand FIRE-SHIELD C™ Gypsum Wallboard
PABCO Gypsum - 5/8" FLAME CURB® Super 'C'
Temple-Inland Forest Products Corporation - 5/8" TG-C

GA FILE NO. FC 5120 | **GENERIC** | **1 HOUR FIRE** | **50 to 54 STC SOUND**

WOOD JOISTS, GYPSUM WALLBOARD, RESILIENT CHANNELS, GLASS FIBER INSULATION

One layer 1/2" type X gypsum wallboard or gypsum veneer base applied at right angles to resilient furring channels 24" o.c. with 1" Type S drywall screws 8" o.c. at ends and 12" o.c. at intermediate furring channels. Gypsum board end joints located midway between continuous channels and attached to additional pieces of channel 64" long with screws 8" o.c. Resilient furring channels applied at right angles to 2 x 10 wood joists 16" o.c. with 6d coated nails, 1 7/8" long, 0.085" shank, 1/4" heads, two per joist. Wood joists supporting 5/8" interior plywood with exterior glue subfloor and 3/8" particle board, 1.5 psf. 3 1/2" glass fiber insulation batts, 0.7 pcf, friction fit in joist cavities supported alternately every 12" by wire rods and resilient furring channels.

Sound tested with carpet and pad and with insulation stapled to joists.



Approx. Ceiling Weight: 2 psf
Fire Test: FM FC-181, 5-31-72
Sound Test: G&H OC-3MT, 10-13-71
IIC & Test: (73 C 8 P) G&H OC-3MT, 10-13-71

† Contact the manufacturer for more detailed information on proprietary products.

Statement of Special Inspections

Project *Valley Street Apartments*

Location *Gilman Street Portland ME*

Owner *315 Valley Street LP*

Design Professional in Responsible Charge *David J. Tetreault P E*

This *Statement of* Special *Inspections* is submitted as a condition for permit issuance in accordance with the Special Inspection and Structural Testing requrrements of the Building Code It includes a schedule *of* Special Inspection services applicable to this project as well as the name of the Special Inspection Coordinator and the identity of other approved agencies to be retained for conducting these inspections and tests This Statement *of Special Inspections* encompass the following disciplines

X Structural
X Architectural
Mechanical/Electrical/Plumbing
Other

The Special Inspection Coordinator shall keep records of all inspections and shall furnish inspection reports to the Building Official and the Registered Design Professional in Responsible Charge Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction If such discrepancies are not corrected the discrepancies shall be brought to the attention of the Building Official and the Registered Design Professional in Responsible Charge The Special Inspection program does not relieve the Contractor of his or tier responsibilities

Interim reports shall *be submitted to* the Building Official and the Registered Design Professional in Responsible Charge

A *Final Report of Special* Inspections documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy

Job site safety and means and methods of construction are solely the responsibility of the Contractor

Interim Report Frequency: *Monthly* or ☐ per attached schedule

Prepared by:

David J. Tetreault, P.E.
(type or print name)

David Tetreault *01/30/06*
Signature Date

Design Professional Seal

Owners Authorization

Signature Date

Building Official's Acceptance

Signature Date

Architectural Systems

Item	Req'd Y/N	Agency # (Qualif.)	Scope
1. Exterior cladding	*N*		
2. Nonbearing walls	*N*		
3. Veneer	*Y*	*1*	*Review product information submittal for dovetail slots and veneer ties for conformance with Contract Documents.* *Periodic inspection of installation and fastening of masonry veneer.*
4. Other:	*N*		

Wood Construction

Item	Req'd Y/N	Agency # (Qualif.)	Scope
1. Fabricator Certification/ Quality Control Procedures	*Y*	*1*	***Review Submssion of t TPI Quality Control Inspection Program Certification*** .
2. Material Grading	*Y*	*1*	***Verify material grading marks***
3. Connections	**I'**	*I*	***Verify that connections andfastenings comply with Contract Documents***
4. Framing and Details	*Y*	*1y*	***Verify conformance with Contract Documents***
5. Diaphragms and Shearwalls	*Y*	*1*	***Inspect size, configuration, blocking andfastening of shearwalls and diaphragms. Verify panel grade and thickness.***
6. Prefabricated Wood Trusses	*Y*	*1*	***Verify conformance with Contract Documents.***

Precast Concrete

Item	Req'd Y/N	Agency # (Qualif.)	Scope
1. Plant Certification / Quality	Y	I	Review PCI Plant Certification as Group C, Category C3.
2. Mix Design	Y Per PCI Certif		Inspect concrete batching operations and verify compliance with approved mix design
3. Material Certification	Y	I	Review Concrete material certificates Reinforcing and prestressing materials Admixtures Bearing pads
4. Reinforcement Installation	Per PCI Certif.	ACI-CCI ICC-RCSI	Inspect size, spacing, position and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials.
5. Prestress Operations	Per PCI Certif	ICC-PCSI	Inspect placement, stressing, grouting and protection of prestressing tendons
6. Concrete Placement	Per PCI Certif	ACI-CCI ICC-RCSI	Inspect placement of concrete. Verify that concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated.
7. Sampling and Testing of Concrete	Per PCI Certif	ACI-CFTT ACI-STT	Test concrete compressive strength (ASTM C3I & C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064).
8. Curing and Protection	Per PCI Certif	ACI-CCI ICC-RCSI	Inspect curing, cold weather protection and hot weather protection procedures.
9. Erected Precast Elements	Y	I	Inspect erection of precast concrete including member configuration, connections, welding and grouting.

Cast-in-Place Concrete

Item	Req'd Y/N	Agency # (Qualif.)	Scope
1. Mix Design	*Y*	*3*	*Review concrete batch tickets and verify compliance with approved mix design. Verify that water added at the site does not exceed that allowed by the mix design.*
2. Material Certification	*N*		
3. Reinforcement Installation	*Y*	*3*	*Inspect size, spacing, cover, positioning and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials. Inspect bar laps and mechanical splices. Verify that bars are adequately tied and supported on chairs or bolsters*
4. F iti	*N*		
5. Welding of Reinforcing	*N*		
6. Anchor Rods	*Y*	*3*	*Inspect size, positioning and embedment of anchor rods. Inspect concrete placement and consolidation around anchors.*
7. Concrete Placement	*Y*	*3*	*Inspect placement of concrete. Verify that concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated.*
8. Sampling and Testing of Concrete	*Y*	*3*	*Test concrete compressive strength (ASTM C31 & C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064).*
9. Curing and Protection	*Y*	*3*	*Inspect curing, cold weather protection and hot weather protection procedures.*
10. Other:			

Soils and Foundations

Item	Req'd Y/N	Agency # (Qualif.)	Scope
1. Shallow Foundations	*Y*	*2*	*Inspect soils below slab-on-grade and stair foundation areas for adequate bearing capacity and consistency with geotechnical report.* *Inspect removal of unsuitable material and preparation of subgrade prior to placement of controlled fill*
2. Controlled Structural Fill	*Y*	*3*	*Perform sieve tests (ASTM D422 & D1140) and modified Proctor tests (ASTM D1557) of each source of fill material.* *Inspect placement, lift thickness and compaction of controlled fill.* *Verify extent and slope of fill placement.*
3. Deep Foundations	*Y*	*2*	*Inspect and log pile driving operations. Record pile driving resistance and verify compliance with driving criteria.* *Inspect piles for damage from driving and plumbness.* *Verify pile size, length and accessories*
4. Load Testing			
4. Other:			

Qualifications of Inspectors and Testing Technicians

The qualifications of all personnel performing Special Inspection and testing activities are subject to the approval of the Building Official. The credentials of all Inspectors and testing technicians shall be provided if requested.

Key for Minimum Qualifications of Inspection Agents:

When the Registered Design Professional in Responsible Charge deems it appropriate that the individual performing a stipulated test or inspection have a specific certification or license as indicated below, such designation shall appear below the Agency ***Number*** on the Schedule.

PE/SE	Structural Engineer – a licensed SE or PE specializing in the design of building structures
PE/GE	Geotechnical Engineer – a licensed PE specializing in soil mechanics and foundations
€IT	Engineer-In-Training – a graduate engineer who has passed the Fundamentals of Engineering examination

American Concrete Institute (ACI) Certification

ACI-CFTT	Concrete Field Testing Technician – Grade 1
ACI-CCI	Concrete Construction Inspector
ACI-LTT	Laboratory Testing Technician – Grade 1&2
ACI-STT	Strength Testing Technician

American Welding Society (AWS) Certification

AWS-CWI	Certified Welding Inspector
AWS/AISC-SSI	Certified Structural Steel Inspector

American Society of Non-DestructiveTesting (ASNT) Certification

ASNT	Non-Destructive Testing Technician – Level II or III.

International Code Council (ICC) Certification

ICC-SMSI	Structural Masonry Special Inspector
ICC-SWSI	Structural Steel and Welding Special Inspector
ICC-SFSI	Spray-Applied Fireproofing Special Inspector
ICC-PCSI	Prestressed Concrete Special Inspector
ICC-RCSI	Reinforced Concrete Special Inspector

National Instiiute for Certification in Engineering Technologies (NICET)

NICET-CT	Concrete Technician – Levels I, II, III & IV
NICET-ST	Soils Technician - Levels I,II, III & IV
NICET-GET	Geotechnical Engineering Technician - Levels I,II, III & IV

Other

_____

Qualitv Assurance Plan

Quality Assurance for Seismic Resistance

Seismic Design Category	***D***
Quality Assurance Plan Required (Y/N)	*Y*

Description of seismic force resisting system and designated seismic systems:

Wood-framed walls sheathed with wood structural panels rated for shear resistance and associated connections.

Quality Assurance for Wind Requirements

Basic Wind Speed (3 second gust)	*100 mph*
Wind Exposure Category	*C*
Quality Assurance Plan Required (Y/N)	*N*

Statement of Responsibility

Each contractor responsible for the construction or fabrication of a system or component designated above must submit a Statement of Responsibility.

Schedule of Inspection and Testing Agencies

This Statement of Special Inspections/ Quality Assurance Plan includes the following building systems:

X Soils and Foundations
X Cast-in-Place Concrete
X Precast Concrete
X Wood Construction
X ArchitecturalComponents

Special Inspection Agencies	Firm	Address, Telephone
1. Special Inspection Coordinator	*Structural Design Consulting, Inc.*	*22 Oakmont Drive* *Old Orchard Beach, ME 04064-4121* *207-934-8038*
2. Inspector	*Sebago Technics*	*One Chabot Street* *P.O. Box 1339* *Westbrook, ME 04098-1339* *(207) 856-0277*
3 Testing Agency	*Summit Labs*	*1039 Riverside Drive* *Portland ME 04103* *207-797-3311*
4		
5. Testing Agency		
6. Other		

Note: The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

- **Parking Garage Exhaust Rate:** being prepared by Mechanical Engineer; to follow shortly.

- **Mechanical:** Dryer venting – drawings MSK1 – 5 (previously submitted) are enclosed. Regarding the proposed dampers – the Mechanical Engineer is prepared to meet you anytime at your office to go over the plans.

Sincerely,

John Shields
Architect

Cc: Bill Floyd – Shalom House

R C H E T Y P E

January 18, 2006

Mike Nugent
Inspection Department
City Hall
Portland, Maine **0410**1

RE: Valley Street Apartments
Gilman Street
Portland, Maine

Dear Mike,

Enclosed are responses to the comments in your email of Wednesday, January 4, 2006.

UL and STC Ratings:

- Wall Type 1 (1) Hour – Gypsum Association File No. WP 3240, 50-54 STC. Copy attached.
- Wall Type *2* – non-rated assembly.
- Wall Type 3 (2) Hour - Gypsum Association File No. WP 1520, 55-59 STC. Copy attached.
- Wall Type 4 (2) Hour - Gypsum Association File No. WP 1521, 55-59 STC. Copy attached.
- Wall Type 5 (1) Hour Shaft wall – UL U415.
- Wall Type 6 (1) Hour at Electric and Mechanical Rooms - Gypsum Association File No. WP 3514, 35-39 STC. Copy attached.
- Wall Type 7 (2) Hour CMU Elevator Shaft - UL U905.
- Wall Type 8 *(2)* Hour – See fire resistance information published by the Portland Cement Association. Copy attached.
- Wall Type 9 (1) Hour – UL 356.
- Wall Type 10 (1) Hour - UL 356.

- **IECC Compliance:** being prepared by Mechanical Engineer; to follow shortly.

- **Statement of Special Inspections:** enclosed.

- **Egress Stair Building Type:** See Project Drawings Cover Sheet dated 11/21/05, revised 01/13/06. The Height and Area Limitations of Construction Type 5A allow the construction of the proposed building. Type 1 construction is not required, although used, for the construction of the garage.

- **"B" Dwelling Units:** areas of refuge not provided in a sprinkled building per 1007.6.2.

- **Alternating Tread Stair and Roof Hatch:** specification sections 05517 – Alternating Tread Steel Stairs and 07720 – Roof Scuttle are attached.

- **Windows:** per Section 2406.3.1 and 2406.3.10 glazing in entry doors and doors and windows in stairwells shall be Class II Safety Glazing.

SECTION 05517

ALTERNATING ***TREAD*** STEEL STAIRS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 SUMMARY:

A. Provide all material, labor, equipment and services and perform all operations necessary or required for the work of this section, in accordance with the Drawings and Specifications, and including fabrication and installation of Alternating Tread Steel Stairs.

B. Related work specified elsewhere includes but is not limited to:

1. Metal Fabrications in another Division 5 section
2. Painting in Division 9

1.3 PERFORMANCE REQUIREMENTS:

A. Stair Treads: be capable of withstanding a concentrated 1000 pound load without deformation

B. Handrail: be capable of withstanding a load of **200** pounds applied in any direction at any point on the rail.

1.4 CONSTRUCTION REQUIREMENTS:

A. Landings, Treads, and Mounting Base: shall be stamped and formed from single piece material. Stock shapes, hand forming, or welded remnants shall not be permitted. All stamped parts shall have integrally formed rigidizing bends and shall be spot welded to stringers of like material.

B. Welds: shall be a minimum of **8** welds per tread, and **12** welds each on the landing and mounting base. Each weld shall be quality controlled and be capable of withstanding a minimum of **2800** Ibs. in shear.

C. Pedestrian Surfaces: shall be punched through with upset non-skid openings.

D. Riser Spacing: shall be equally spaced to within **3/16**" for adjacent risers and to within 3/8" for any **two** non-adjacent risers on a stair.

E. Handrails: shall be contoured for body guidance and underarm suppor and shall be attached to the outside stringers and landings by bolting.

F. Landing Reinforcement: shall be with 1/4" steel angle notched and punched and factory welded to the landing at the points of a handrail attachment.

G. Rubber Foot Divider: shall be affixed to the central portion of the landing. A rubber bumper strip shall be attached or will be provided for field attaching to the central stringer.

1.5 DIMENSIONS:

A. Stair Angle: **68** degrees from horizontal as specified in the drawings.

B. Vertical Drop: the change in elevation, as shown in the drawings, between the upper finished floor surface where the top landing will be attached and the lower finished floor surface where the base of the stair will be secured.

1.6 SUBMITTALS:

Dimensional Prints: shall be submitted for approval prior to fabrication.

PART 2- PRODUCTS

2.1 ACCEPTABLE MANUFACTURER:

A. Lapeyre **Stair,** Inc.
220 Laitram Lane
Harahan, LA. **70123;**
1-(800)-535-7631 or
1-(504)-733-6009.

2.2 MATERIALS:

A. Carbon Steel:
1. Treads: 13 Gauge **1010/15 HRPO** per ASTM A569
2. Landing & Foot Stampings: 11 Gauge 1010/15 per ASTM A569
3. Stringers: **3"** x **1 3/4"** x 11 Gauge **1010/15** for **56** degree stairs over 10 vertical feet and for **68** degree stairs over **12** vertical feet.
4. Handrails: 1 **1/2"** OD x **0.083"** **1010/15** CS per ASTM A569 cold drawn, fully annealed tube per ASTM 513.

B. Miscellaneous Material:
1. Rubber Spine: Hollow neoprene
2. Rubber Foot Divider: Solid neoprene

2.3 FINISHES:

A. Carbon Steel:
1. Gray Primer: Powder Coat Baked Enamel

2.4 FABRICATION:

General: Fabricate alternating tread steel stairs to conform with performance and construction requirements, and in accordance with approved shop drawings or dimensional prints. Fabricate and shop assemble to greatest extent possible.

A. Carbon Steel: gas metal arc welded with treads spot welded to stringers and bolt-on handrails with included bolts using the specified materials.

PART 3- EXECUTION:

3.1 PREPARATIONS:

A. Coordination: Coordinate start and installation of steel alternating treads with all other related and adjacent work. Installation shall not start until the construction has progressed to the point that weather conditions and remaining construction operations will not damage stair installation.

B. Verification: Verify that dimensions and angle are correct and that substrate is in proper condition for stair installation. Do not proceed to install until all necessary corrections have been made.

3.2 INSTALLATION:

A. If bumper has not been installed at the factory, install the bumper in accordance with the manufacturer's instructions using glue supplied with the stair.

B. Prepare mounting holes.

C. Position stair with top tread at same elevation as upper finished floor or roof surface.

D. Secure stair with not less than **2** bolts or studs at top and with not less than **2** at bottom of stair.

E. Touch up with matching paint any chipped or abraded damage to factory finish.

3.3 CLEAN:

Leave work area clean and free of debris.

SECTION 07720

ROOF SCUTTLE

I. PART ONE - GENERAL

1.01 SUMMARY

A. Work included: Furnishing and installing factory fabricated roof scuttle

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM), 100 Bar Harbor Drive, West Conshocken, PA 19428-2959; (610) 832-9585, fax (610) 832-9555
   1. ASTM A 36-93a: Standard Specification for Structural Steel

1.03 SUBMITTALS

A. Product Data: Provide manufacturer's product data for all materials in this specification.
B. Shop Drawings: Show profiles, accessories, location, and dimensions.
C. Samples: Manufacturer to provide upon request; sized to represent material adequately.
D. Contract Closeout: Roof scuttle manufacturer shall provide the manufacturer's Warranty prior to the contract closeout.

1.04 PRODUCT HANDLING

A. All materials shall be delivered in manufacturer's original packaging.
B. Store materials in a dry, protected, well-vented area. The contractor shall thoroughly inspect product upon receipt and report damaged material immediately to delivering carrier and note such damage on the carrier's freight bill of lading.
C. Remove protective wrapping immediately after installation .

1.05 SUBSTITUTIONS

A. Proposals for substitution products shall be accepted only from bidding contractors and not less than (10) working days before bid due date. Contractor guarantees that proposed substitution shall meet the performance and quality standards of this specification.

1.06 JOB CONDITIONS

A. Verify that other trades with related work are complete before installing roof scuttle(s).
B. Mounting surfaces shall be straight and secure; substrates shall be of proper width.
C. Refer to the construction documents, shop drawings, and manufacturer's installation instructions.
D. Coordinate installation with roof membrane and roof insulation manufacturer's instructions before starting.
E. Observe all appropriate OSHA safety guidelines for this work.

1.07 WARRANTY/GUARANTEE

A. Manufacturer's standard warranty: Materials shall be free of defects in material and workmanship for a period of five years from the date of purchase. Should a part fail to function in normal use within this period, manufacturer shall furnish a new part at no charge. Electrical motors, special finishes, and other special equipment (if applicable) shall be warranted separately by the manufacturers of those products.

II. PART TWO - PRODUCTS

2.01 MANUFACTURER

A. The BILCO Company, P.O. Box 1203, New Haven, CT 06505, 1-203-934-6363, Fax: 1-203-933-8478, Web: www.bilco.com

2.02 ROOF SCUTTLE

A. Furnish and install where indicated on plans metal roof scuttle Type F, size width: 4'0" (1219mm) x length: **4'0"** (1219mm). Length denotes hinge side. The roof scuttle shall be single leaf. The roof scuttle shall be pre-assembled from the manufacturer.

B. Performance characteristics:

1. Cover shall be reinforced to support a minimum live load of **40** psf **(195kg/m2)** with a maximum deflection of 1/150th of the span or 20 psf wind uplift.
2. Operation of the cover shall be smooth and easy with controlled operation throughout the entire arc of opening and closing.
3. Operation of the cover shall not be affected by temperature.
4. Entire scuttle shall be weathertight with fully welded comer joints on cover and curb.

C. Cover: Shall be 11 gauge aluminum with a 3" (76mm) beaded flange with formed reinforcing members. Cover shall have a heavy extruded EPDM rubber gasket that is bonded to the cover interior to assure a continuous seal when compressed to the top surface of the curb.

D. Cover insulation: Shall be fiberglass of 1" (25.4mm) thickness, fully covered and protected by an 18 gauge aluminum liner.

E. Curb: Shall be 12" (305mm) in height and of 14 gauge paint bond. The curb shall be formed with a 3-1/2" (89mm) flange with 7/16" (11.1mm) holes provided for securing to the roof deck. The curb shall be equipped with **an** integral metal capflashing of the same gauge and material as the curb, fully welded at the corners, that features the Posi-Flash® flashing system, including stamped tabs, 6" (153mm) on center, to be bent inward to hold single ply roofing membrane securely in place.

F. Curb insulation: Shall be rigid, high-density fiberboard of 1" (25.4mm) thickness on outside of Curb.

G. Lifting mechanisms: Manufacturer shall provide compression spring operators enclosed in telescopic tubes to provide, smooth, easy, and controlled cover operation throughout the entire arc of opening and closing. The upper tube shall be the outer tube to prevent accumulation of moisture, grit, and debris inside the lower tube assembly. The lower tube shall interlock with a flanged support shoe.

H. Hardware

1. Heavy pintle hinges shall be provided
2. Cover shall be equipped with a spring latch with interior and exterior turn handles
3. Roof scuttle shall be equipped with interior and exterior padlock hasps.
4. The latch strike shall be a stamped component bolted to the curb assembly.
5. Cover shall automatically lock in the open position with a rigid hold open arm equipped with a 1" (25.4mm) diameter red vinyl grip handle to permit easy release for closing.
6. Compression spring tubes shall be an anti-corrosive composite material and all other hardware shall be zinc plated and chromate sealed. Springs shall have an electrocoated acrylic finish for corrosion resistance.
7. Cover hardware shall be bolted into heavy gauge channel reinforcing welded to the underside of the cover and concealed within the insulation space.

I. Finishes: Factory finish shall be alkyd based red oxide primed steel.

III. PART THREE - EXECUTION

3.01 INSPECTION

A. Verify that roof scuttle installation will not disrupt other trades. Verify that the substrate is dry, clean, and free of foreign matter. Report and correct defects prior to any installation.

3.02 INSTALLATION

A. Submit product design drawings for review and approval to the architect or specifier before fabrication.

B. The installer shall check as-built conditions and verify the manufacturer's roof scuttle details for accuracy to fit the application prior to fabrication. The installer shall comply with the roof scuttle Manufacturer's installation instructions.

C. The installer shall furnish mechanical fasteners consistent with the roof requirements.

END OF SECTION 07720

Applicant: Shalom House, INC Date: 12/12/05

Address: 98 - Gilman St C-B-L: 065 - D003 - 4-5-6-7-8-9

CHECK-LIST AGAINST ZONING ORDINANCE

Date - New Development permit # 05-1773

Zone Location - R-7 Zone (changed by Council on

Interior or corner lot -

Proposed Use/Work - to construct New 24 unit Apt bldg w/ Underground Parking

Sewage Disposal - City

Lot Street Frontage - None req

Front Yard - None except for abutting lots under separate ownership with existing residential Development, The side or rear setbacks of the R-6 zone shall Apply

Rear Yard -

Side Yard - o/k 20' min shown - 20' min req.

Projections -

Width of Lot - N/A

Height - 50' max - 47.25' from lowest to highest

Lot Area - 17,404 ☐' - No minimum req.

Lot Coverage/ Impervious Surface - 100% permitted o/k

Area per Family - 725 ☐' of Land Area per D.U (x24) = 17,400 ☐' min

Off-street Parking - 1 per Dwelling - 19 pkg spaces shown under bldg - 17 pkg spaces outside = 24 req

Loading Bays - N/A

Site Plan - Major Subdivision # 2005-0179

Shoreland Zoning/ Stream Protection - N/A

Flood Plains - Panel 13 - Zone C

o/k minimum D.U Size = 400 ☐' min - over 600 ☐' shown per D.U

This permit doesn't include a future Single family to be built

Order 20-05/06
Given first reading on 7/6/05
Public Hearing & Passage 8/1/05 7-0
(Leeman, Carr gone)

JILL C. DUSON (MAYOR)(A/L)
PETER O'DONNELL (A/L)
JAMES F. CLOUTIER(A/L)
NICHOLAS M. MAVODONES (A/L)

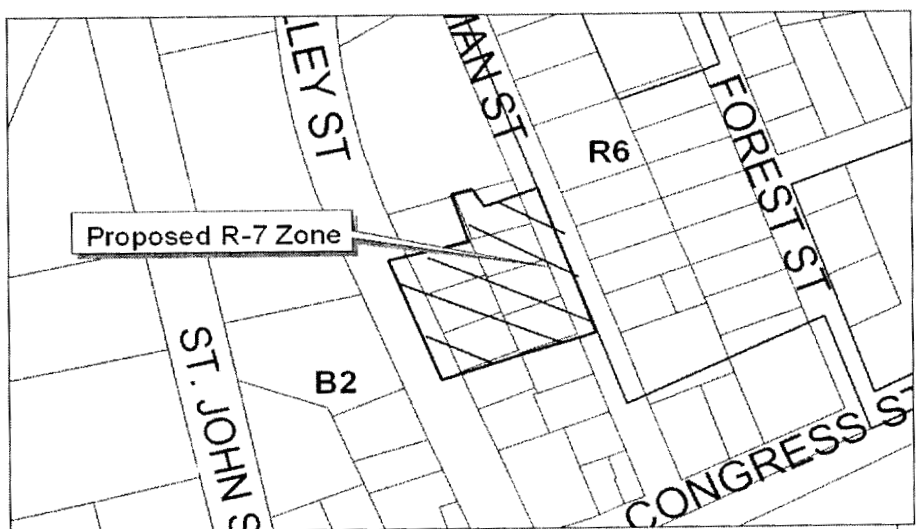
CITY OF PORTLAND
IN THE CITY COUNCIL

WILLIAM R. GORHAM (1)
KAREN A. GERAGHTY (2)
DONNA J. CARR (3)
CHERYL A. LEEMAN (4)
JAMES I. COHEN (5)

AMENDMENT TO ZONING MAP
RE: REZONING FROM BUSINESS –2 (B-2)
to RESIDENTIAL – 7 (R-7)
VICINITY OF GILMAN STREET AND VALLEY STREET

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF PORTLAND, MAINE IN CITY COUNCIL ASSEMBLED AS FOLLOWS:

That the Zoning Map of the City of Portland, dated December 2000, as amended and on file in the Department of Planning and Urban Development, and incorporated by reference into the Zoning Ordinance by §14-49, be and hereby is amended by adopting the following map change:



Proposed Rezoning of 86-100 Gilman Street and 305 to 315 Valley Street from Business B-2 to Compact Urban Residential Overlay Zone R-7

Prepared by the Department of Planning and Development using GIS Workgroup Data
June 2005

From: Marge Schmuckal
To: Barbara Barhydt
Date: **12/12/2005 10:13:53 AM**
Subject: Shalom apts on Valley St.

Barbara,
Can you get me some documentation when the R-7 zone change was approved by the Council? That change is not reflected on our zoning maps yet. I have their building permit application and I'm trying to get all my ducks in a row.

Thanks,
Marge

From: "Barbara Barhydt" <BAB@portlandmaine.gov>
To: <MES@portlandmaine.gov>
Date: 12/12/2005 11:53:29 AM
Subject: Re: Shalom House Inc apts

Hi Marge:

No it is not okay to issue it. I got the revised plans on Friday and haven't reviewed them yet. In addition, I am waiting for the final plans for the parking lot and they have not submitted their performance guarantee yet. I will look for a copy of the contract zone for you.

Thanks.

Barbara

>>> "Marge Schmuckal" <MES@portlandmaine.gov> 12/12/2005 10:33:21 AM >>>
Barbara,
I am also seeing that I do not have a stamped approved site plan. Can I get a copy of that stamped approved site plan for my review? Is it ok to issue a building permit?
Thanks,
Marge

From: Marge Schmuckal
To: Barbara Barhydt
Date: 12/12/2005 10:33:21 AM
Subject: Shalom House Inc apts

Barbara,
I am also seeing that I do not have a stamped approved site plan. Can I get a copy of that stamped approved site plan for my review? Is it Ok to issue a building permit?
Thanks,
Marge

CITY OF PORTLAND
BUILDING CODE CERTIFICATE
389 Congress St., Room 315
Portland, Maine 04101

TO: Inspector of Buildings City of Portland, Maine
Department of Planning & Urban Development
Division of Housing & Community Service

FROM: **Archetype, P.A.**

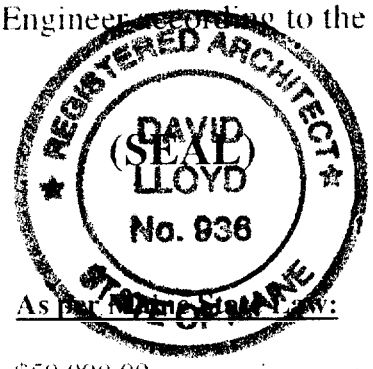
RE: Certificate of Design

DATE: **12/7/05**

These plans and / or specifications covering construction work on:

Twenty Four Unit, Four Story Apartment Building at Gilman Street, Portland, ME

Have been designed and drawn up by the undersigned, a Maine registered Architect / Engineer according to the ***2003 International Building Code*** and local amendments.



As per Maine State Law:

$50,000.00 or more in new construction, repair expansion, addition, or modification for Building or Structures, shall be prepared by a registered design Professional.

Signature: _____

Title: **Architect**

Firm: **Archetype, P.A.**

Address: **48 Union Wharf**
Portland, ME 04101

CITY OF PORTLAND
BUILDING CODE CERTIFICATE
389 Congress St., Room 315
Portland, Maine 04101

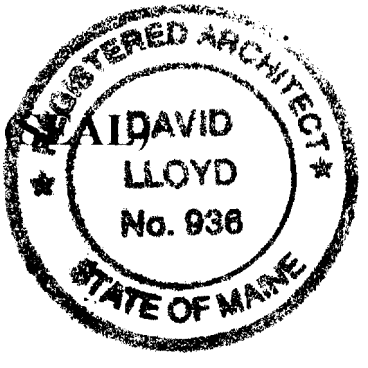
ACCESSIBILITY CERTIFICATE

Designer: David Lloyd, Archetype, P.A.

Address of Project: Gilman Street

Nature of Project: Twenty Four Unit, Four Story Apartment Building

The technical submissions covering the proposed construction work as described above have been designed in compliance with applicable referenced standards found in the Maine Human Rights Law and Federal Americans with Disability Act.



Signature:

Title: Architect

Firm: Archetype, P.A.

Address: 48 Union Wharf

Portland, ME 04101

Phone: (207) 772-6022

NOTE: If this project is a new Multi Family Structure of **4** units or more, this project must also be designed in compliance with the Federal Fair Housing Act. On a separate submission, please explain in narrative form the method of compliance.

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
Zoning Copy

2005-0179
Application I. D. Number

8112/2005
Application Date

315 Valley Street, LLC
Applicant

P.O. Box 560, Portland, ME 04112
Applicant's Mailing Address

Valley Street Apartments
Project Name/Description

Consultant/Agent

315 - 315 Valley Street, Portland, Maine
Address of Proposed Site

Applicant Ph: (207) 874-1080 **Agent Fax:**
Applicant or Agent Daytime Telephone, Fax

065 D003
Assessor's Reference: Chart-Block-Lot

Proposed Development (check all that apply): ☐ New Building ☐ Building Addition ☐ Change Of Use ☐ Residential ☐ Office ☐ Retail ☐ Manufacturing ☐ Warehouse/Distribution ☐ Parking Lot ☐ Other (specify)

17,400 s.f.
Proposed Building square Feet or # of Units

Acreage of Site

R7
Zoning

Check Review Required:

☑ Site Plan (major/minor)
☐ Subdivision # of lots
☐ PAD Review
☐ 14-403 Streets Review
☐ Flood Hazard
☐ Shoreland
☐ HistoricPreservation
☐ DEP Local Certification
☐ Zoning Conditional Use (ZBA/PB)
☐ Zoning Variance
☐ Other

Fees Paid: Site Pla **$1,625.00** Subdivision Engineer Review Date **8112/2005**

Zoning Approval Status:

Reviewer Marge S. Schmuckal

☐ **Approved**
☐ **Approved w/Conditions** See Attached
☐ **Denied**

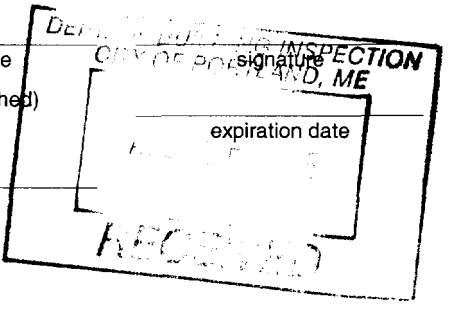
Approval Date Approval Expiration Extension to ☐ Additional Sheets Attached

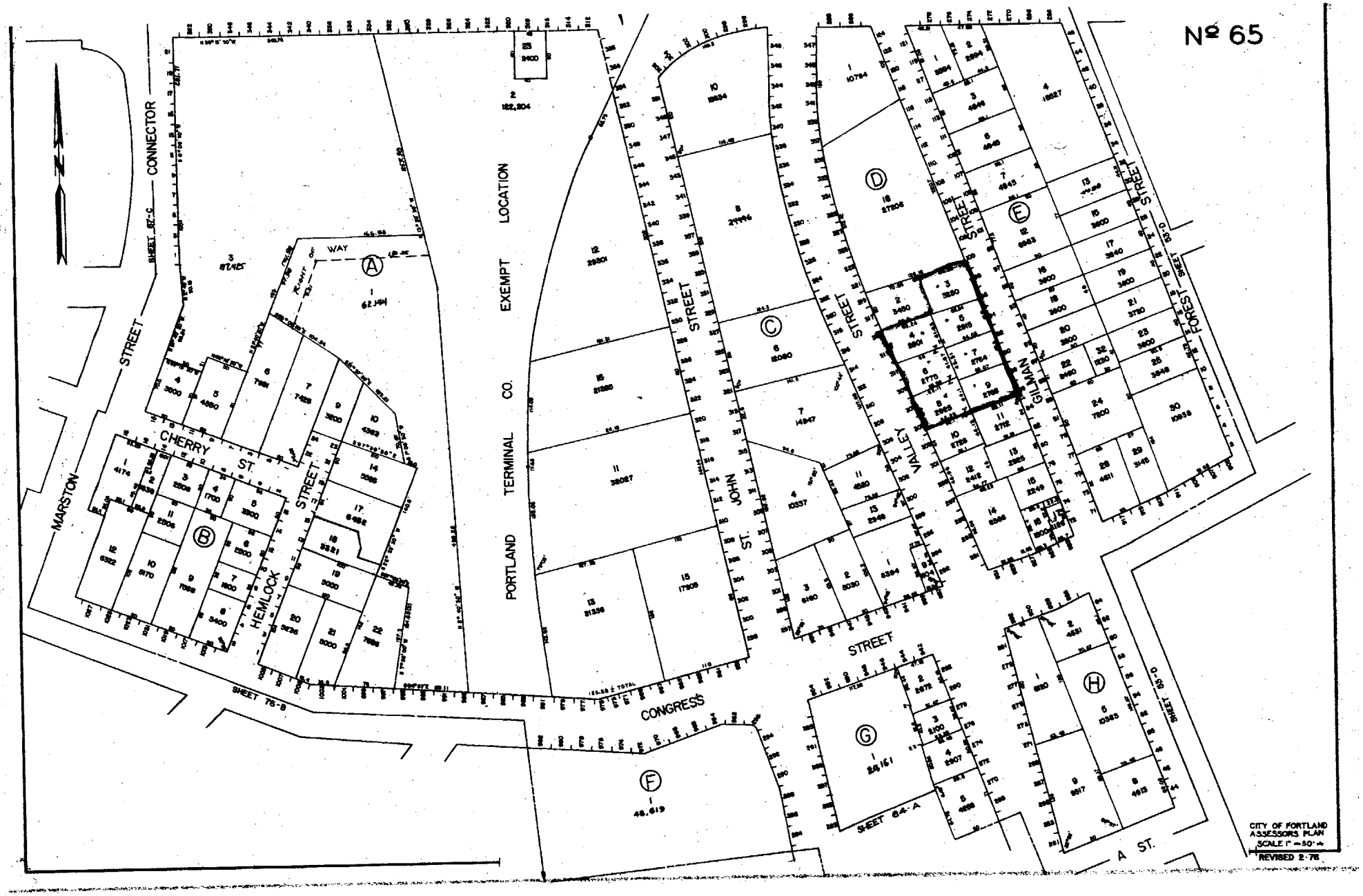
☐ Condition Compliance signature date

Performance Guarantee ☐ **Required*** ☐ **Not Required**

* No building permit may be issued until a performance guarantee has been submitted as indicated below

☐ Performance Guarantee Accepted	date	amount	expiration date
☐ Inspection Fee Paid	date	amount	
☐ Building Permit Issue	date		
☐ Performance Guarantee Reduced	date	remaining balance	signature
☐ Temporary Certificate of Occupancy	date	☐ Conditions (See Attached)	expiration date
☐ Final Inspection	date	signature	
☐ Certificate Of Occupancy	date		
☐ Performance Guarantee Released	date	signature	
☐ Defect Guarantee Submitted	submitted date	amount	expiration date
☐ Defect Guarantee Released	date	signature	




No 65
MARSTON STREET
CONNECTOR
SHEET 67-C
PORTLAND TERMINAL CO. EXEMPT LOCATION
CHERRY ST.
HEMLOCK STREET
JOHN ST. STREET
VALLEY STREET
GILMAN STREET
FOREST STREET
CONGRESS STREET
A ST.
SHEET 76-B
SHEET 64-A
CITY OF PORTLAND
ASSESSORS PLAN
SCALE 1" = 50'
REVISED 2-76

CITY OF PORTLAND, MAINE
PLANNING BOARD

October 19, 2005

William Floyd, Housing Director, Shalom House Inc.
Valley Street LLC
P.O Box 560
Portland, ME 04112

John Shields, Architect
Archetype
48 Union Wharf
Portland, Maine 04101

RE: Valley Street Apartments, 315 Valley Street

CBL: Map 65, Block D, Lots 3, 4, 5, 6, 7, 8, and 9

Dear Bill and John:

On October 18, 2005, the Portland Planning Board voted unanimously (4-0, Lowry, Anton and Silk absent) on the following motions regarding the Valley Street subdivision and site plan:

1. That the plan is in conformance with the Subdivision Review Ordinance of the City Land Use Code subject to the following conditions:

    i. The Reciprocal Easement with Libbytown Properties LLC shall be recorded at the Registry of Deeds and a copy of the easement with the book and page must be submitted to the City prior to the release of a building permit.
    ii. All easements shall be shown on the plat and the easements reviewed by the Planning Authority prior to the release of the recording plat.
    iii. A copy of the sewer capacity letter from the Department of Public Works shall be submitted prior to the release of the recording plat.
    iv. The grading and utility plan (Sheet 3) shall be revised showing the proposed underground electrical connection to the apartment building and a letter of capacity to serve from CMP shall be submitted prior to the release of the recording plat.
    v. The conditions contained in the review by Steve Bushey, Development Review Coordinator, DeLuca-Hoffman, Inc, dated October 14, 2005 shall be met prior to issuance of a building permit.

2. That the site plan for Valley Street Apartments is in conformance with the site plan standards of the land use code, subject to the following waiver:

    i. Upon the recommendation of the City's Traffic Engineer and his finding that parking activity and turnover should be minimal, and therefore the Planning Board does waive the City's Technical Standards for parking lots to allow the proposed aisle widths of 20 feet and a 20 foot curb cut into the basement level parking area.

3. That the site plan for Valley Street Apartments is in conformance with the site plan standards of the land use code, subject to the following conditions:

   i. A construction mobilization plan must be submitted for review and approval by the City prior to the issuance of a building permit.
   ii. The landscape plan is subject to the final review and approval of Jeff Tarling, City Arborist.
   iii. The conditions contained in the review by Steve Bushey, Development Review Coordinator, DeLuca-Hoffman, Inc., dated October 14, 2005 shall be met prior to issuance of a building permit.
   iv. The proposed Spectra III Area Luminaires shall be cut-off or full cut-off fixtures.
   v. The conditions contained in the review by Carrie Marsh, Urban Designer, dated 10/13/05, shall be addressed by the applicant and reviewed and approved by the Planning Authority prior to the issuance of a building permit.

The approval is based on the submitted plan and the findings related to subdivision and site plan review standards as contained in Planning Board # 61-05, which is attached.

Please note the following provisions and requirements for all subdivision approvals:

1. Mylar copies of the construction drawing for the subdivision must be submitted to the Public Works Department prior to the release of the plat. Where submission drawings are available in electronic form, the applicant shall submit any available electronic Autocad files (*.dwg), release 14 or greater, with seven (7) sets of the final plans.

2. A performance guarantee covering the site improvements as well as an inspection fee payment of 2.0% of the guarantee amount must be submitted to and approved by the Planning Division and Public works prior to the recording of the subdivision plat. The subdivision approval is valid for three (3) years.

3. A defect guarantee, consisting of 10% of the performance guarantee, must be posted before the performance guarantee will be released.

4. Prior to construction, a pre-construction meeting shall be held at the project site with the contractor, development review coordinator, Public Work's representative and owner to review the construction schedule and critical aspects of the site work. At that time, the site/building contractor shall provide three (3) copies of a detailed construction schedule to the attending City representatives. It shall be the contractor'sresponsibility to arrange a mutually agreeable time for the pre-construction meeting.

6. If work will occur within the public right-of-way such as utilities, curb, sidewalk and driveway construction, a street opening permit(s) is required for your site. Please contact Carol Merritt at 874-8300, ext. 8828. (Only excavators licensed by the City of Portland are eligible.)

7. The Development Review Coordinator must be notified five ***(5)*** working days prior to date required for final site inspection. The Development Review Coordinator can be reached at the Planning Department at 874-8632. Please make allowances for completion of site plan requirements determined to be incomplete or defective during the inspection. This is essential as all site plan requirements must be completed and approved by the Development Review

Coordinator prior to issuance of a Certificate of Occupancy. Please schedule any property closing with these requirements in mind.

If there are any questions regarding the Board's actions, please contact Barbara Barhydt at 874-8699.

Sincerely,

Lee Lowry III, Chair
Portland Planning Board

cc: Lee D. Urban, Planning and Development Department Director
Alexander Jaegerman, Planning Division Director
Sarah Hopkins, Development Review Services Manager
Barbara Barhydt ,Senior Planner
Jay Reynolds, Development Review Coordinator
Marge Schmuckal, Zoning Administrator
Carrie Marsh, Urban Designer
Inspections Division
Michael Bobinsky, Public Works Director
Traffic Division
Eric Labelle, City Engineer
Jeff Tarling, City Arborist
Penny Littell, Associate Corporation Counsel
Fire Prevention
Assessor's Office
Approval Letter File
Steve Bushey, P.E., DeLuca-Hoffman Associates, Inc. 778 Main Street, Suite 8, South Portland, Maine 04106
John Whitten, P.E., Sebago Technics, One Chabot Street, P.O. Box 1339, Westbrook, Maine 04098-1339

Mike Nugent - Gilman Question/Majority review

From: Mike Nugent
To: John Shields; lloyd@archetypepa.com
Date: 1/4/2006 1:26 PM
Subject: Gilman Question/Majority review

I need the associated UL listings and STC's for all rated assmblies.

Wall # 8 on Page A.6a is not assigned a fire rating or UL Listing.

Need International Energy Conservation Code Compliance documetation.

The Statement of Special Inspections does not include architectural components as required by Section 1707.6. Also does not assign the Inspectors and testors. It also does not include the masonry veneers & fasteners.

The Stair that leads out *of* the garage (type l b construction) appears to be wood, please provide a code justification.

Because these are intended as Type "B" dwelling units, is there a required accessible means of egress or area of refuge?

Please provide a spec for the alternating tread stairway and roof hatch.

Windows in Stairwells and doors and beside the entry doors (Types K, M & G) must be class II Safety Glazing

The Exhaust rate of 6500 CFM for EF1 for the garage doesn't seem to comply withe 1.5 CFM required in table 403.3 of the 2003 IMC.

I had a hard time understanding proposed dampers on the mechanical plans, we'll nee to go through each unit penetration by penetration, to make sure we understand this. **Also** need to talk about the clothes dryer vents and laundryrooms.

FROM DESIGNER: Archetype, P.A.

DATE: 12/7/05

Job Name: Valley Street Apartments

Address of Construction: Gillman Street

2003 International Building Code

Construction project was designed according to the building code criteria listed below:

Building Code and Year IBC 2003 Use Group Classification(s) R-2

Type of Construction 5A

Will the Structure have a Fire suppression system in Accordance with Section 903.3.1 of the 2003 IBC Y

Is the Structure mixed use? N if yes, separated or non separated (see Section 302.3)

Supervisory alarm system? Y Geotechnical/Soils report required?: See Section 1802.2) Included in Specifications

STRUCTURAL DESIGN CALCULATIONS

S.1-S.6 Submitted for all structural members *(106.1, 106.1.1)*

DESIGN LOADS ON CONSTRUCTION DOCUMENTS (1603)

Uniformly distributed floor live loads *(1603.1.1, 1607)*

Floor Area Use	Loads Shown
Dwelling	40 psf
Public Areas	100 psf

Wind loads *(1603.1.4, 1609)*

1609.1.1 Design option utilized *(1609.1.1, 1609.6)*

100 mph Basic wind speed *(1609.3)*

I Building category and wind importance factor, I_w *(Table 1604.5, 1609.5)*

C Wind exposure category *(1609.4)*

N/A Internal pressure coefficient *(ASCE 7)*

P_{net} = +18 psf / -24 psf Component and cladding pressures *(1609.1.1, 1609.6.2.2)*

Ps=12.8 psf Main force wind pressures *(1609.1.1, 1609.6.2.1)*

Earthquake design data *(1603.1.5, 1614 - 1623)*

ASCE 7 Design option utilized *(1614.1)*

I Seismic use group ("Category") *(Table 1604.5, 1616.2)*

S_{DS}=0.52 / S_{D1}=0.23 Spectral response coefficients, S_{DS} & S_{D1} *(1615.1)*

E Site class *(1615.1.5)*

Per 1067.9.1 Live load reduction *(1603.1.1, 1607.9, 1607.10)*

N/A Roof live loads *(1603.1.2, 1607.11)*

Roof snow loads *(1603.1.3, 1608)*

60 psf Ground snow load, P_g *(1608.2)*

42 psf If P_g > 10 psf, flat-roof snow load, P_f *(1608.3)*

1.0 If P_g > 10 psf, snow exposure factor, C_e *(Table 1608.3.1)*

1.0 If P_g > 10 psf, snow load importance factor, I_s *(Table 1604.5)*

1.0 Roof thermal factor, C_t *(Table 1608.3.2)*

N/A Sloped roof snowload, P_s *(1608.4)*

D Seismic design category *(1616.3)*

K Basic seismic-force-resisting system *(Table 1617.6.2)*

R=6 / Cd=4 Response modification coefficient, R, and deflection amplification factor, C_d *(Table 1617.6.2)*

E.L.F.P. Analysis procedure *(1616.6, 1617.5)*

212K Design base shear *(1617.4, 1617.5.1)*

Flood loads *(1603.1.6, 1612)*

N/A Flood hazard area *(1612.3)*

N/A Elevation of structure

Other loads

N/A Concentrated loads *(1607.4)*

N/A Partition loads *(1607.5)*

N/A Impact loads *(1607.8)*

N/A Misc. loads (*Table 1607.6, 1607.6.1, 1607.7, 1607.12, 1607.13, 1610, 1611, 2404)*

NOTE: Lateral System Unchanged

Statement of Special Inspections

Project: ***Valley Street Apartments***

Location: ***Gilman Street, Portland,*** *ME*

Owner: ***315 Valley Street LP***

Design Professional in Responsible Charge: ***David J. Tetreault,P.E.***

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 Building Code. It includes a schedule of Special Inspection services applicable to this project as well as the name of the Special Inspection Coordinator and the identity of other approved agencies to be retained for conducting these inspections and tests. This *Statement of Special Inspections* encompass the following disciplines:

X Structural — Mechanical/Electrical/Plumbing

Architectural — Other: _____

The Special Inspection Coordinator shall keep records of all inspections and shall furnish inspection reports to the Building Official and the Registered Design Professional in Responsible Charge. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Registered Design Professional in Responsible Charge. The Special Inspection program does not relieve the Contractor of his or her responsibilities.

Interim reports shall be submitted to the Building Official and the Registered Design Professional in Responsible Charge.

A *Final Report of Special Inspections* documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

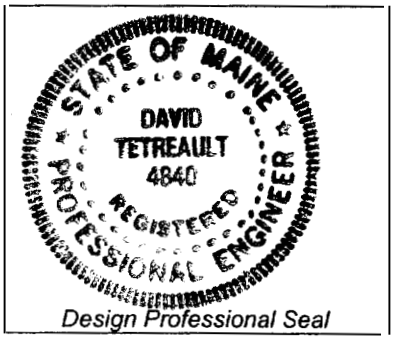
Job site safety and means and methods of construction are solely the responsibility of the Contractor.

Interim Report Frequency: *Monthly* or ☐ per attached schedule

Prepared by:

David J. Tetreault, P.E.
(type or print name)

Signature — *12/01/05* Date



Design Professional Seal

Owner's Authorization:

Signature — Date

Building Official's Acceptance:

Signature — Date

Schedule of Inspection and Testing Agencies

This Statement of Special inspections / Quality Assurance Plan includes the following building systems:

- **X** Soils and Foundations
- **X** Cast-in-Place Concrete
- **X** Precast Concrete
- **X** Wood Construction

Special Inspection Agencies	Firm	Address, Telephone
1. Special Inspection Coordinator	***Structural Design Consulting, Inc.***	*22* ***Oakmont Drive*** ***Old Orchard Beach,*** *ME 04064-4121* *207-934-8038*
2. Inspector	***Sebago Technics***	***One Chabot Street*** ***P.O. Box*** *1339* ***Westbrook, ME*** *04098-1339* *(207) 856-0277*
3 Testing Agency	***Summit Labs***	*1039* ***Riverside Drive*** ***Portland, ME*** *04103* *207-797-331I*
5. Testing Agency		
6. Other		

Note: The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

Quality Assurance Plan

Quality Assurance for Seismic Resistance

Seismic Design Category	***D***
Quality Assurance Plan Required (Y/N)	***Y***

Description of seismic force resisting system and designated seismic systems:

Wood-framed walls sheathed with wood structural panels rated for shear resistance and associated connections.

Quality Assurance for Wind Requirements

Basic Wind Speed (3 second gust)	***100 mph***
Wind Exposure Category	*C*
Quality Assurance Plan Required (Y/N)	***N***

Statement of Responsibility

Each contractor responsible for the construction or fabrication of a system or component designated above must submit a Statement of Responsibility.

Qualifications of Inspectors and Testing Technicians

The qualifications of all personnel performing Special Inspection and testing activities are subject to the approval of the Building Official. The credentials of all Inspectors and testing technicians shall **be** provided if requested.

Key for Minimum Qualifications of Inspection Agents:

When the Registered Design Professional in Responsible Charge deems it appropriate that the individual performing a stipulated test or inspection have a specific certification or license as indicated below, such designation shall appear below the ***Agency Number*** on the Schedule.

PE/SE	Structural Engineer – a licensed SE or PE specializing in the design of building structures
PE/GE	Geotechnical Engineer – a licensed PE specializing in soil mechanics and foundations
EIT	Engineer-In-Training – a graduate engineer who has passed the Fundamentals of Engineering examination

American Concrete Institute (ACI) Certification

ACI-CFTT	Concrete Field Testing Technician – Grade 1
ACI-CCI	Concrete Construction Inspector
ACI-LTT	Laboratory Testing Technician – Grade 1&2
ACI-STT	Strength Testing Technician

American Welding Society (AWS) Certification

AWS-CWI	Certified Welding Inspector
AWS/AISC-SSI	Certified Structural Steel Inspector

American Society of Non-Destructive Testing (ASNT) Certification

ASNT	Non-Destructive Testing Technician – Level II or III.

International Code Council (ICC) Certification

ICC-SMSI	Structural Masonry Special Inspector
ICC-SWSI	Structural Steel and Welding Special Inspector
ICC-SFSI	Spray-Applied Fireproofing Special Inspector
ICC-PCSI	Prestressed Concrete Special Inspector
ICC-RCSI	Reinforced Concrete Special Inspector

National Institute for Certification in Engineering Technologies (NICET)

NICET-CT	Concrete Technician – Levels I, II, III & IV
NICET-ST	Soils Technician - Levels I, II, III & IV
NICET-GET	Geotechnical Engineering Technician - Levels I, II, III & IV

Other

Soils and Foundations

Item	Req'd Y/N	Agency # (Qualif.)	Scope
1. Shallow Foundations	*Y*	2	*Inspect soils below slab-on-grade and stair foundation areas for adequate bearing capacity and consistency with geotechnical report.* *Inspect removal of unsuitable material and preparation of subgrade prior to placement of controlled fill*
2. Controlled Structural Fill	*Y*	*3*	*Perform sieve tests (ASTM 0422 & 01140) and modified Proctor tests (ASTM D1557) of each source of fill material.* *inspect placement, lift thickness and compaction of controlled fill.* *Verify extent and slope of fill placement.*
3. Deep Foundations	*Y*	*2*	*Inspect and log pile driving operations. Record pile driving resistance and verify compliance with driving criteria.* *Inspect piles for damage from driving and plumbness.* *Verify pile size, length and accessories.*
4. Load Testing			
4. Other:			

Cast-in-Place Concrete

Item	Req'd Y/N	Agency # (Qualif.)	Scope
1. Mix Design	*Y*	*3*	*Review concrete batch tickets and verify compliance with approved mix design. Verifi that water added at the site does not exceed that allowed by the mix design.*
2. Material Certification	*N*		
3. Reinforcement Installation	*Y*	*1*	*Inspect size, spacing, cover, positioning and grade of reinforcing steel. Verify that reinforcing bars are free ofform oil or other deleterious materials. Inspect bar laps and mechanical splices. Verifi that bars are adequately tied and supported on chairs or bolsters*
4. Post-Tensioning Operations	*N*		
5. Welding of Reinforcing	*N*		
6. Anchor Rods	*Y*	*1*	*Inspect size, positioning and embedment of anchor rods. inspect concrete placement and consolidation around anchors.*
7. Concrete Placement		*1*	*Inspect placement of concrete. Verifi that concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated.*
8. Sampling and Testing of Concrete		*3*	*Test concrete compressive strength (ASTM C31 & C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064).*
9. Curing and Protection		*1 S1*	*Inspect curing, cold weather protection and hot weather protection procedures.*
10. Other:			

Precast Concrete

Item	Req'd Y/N	Agency# (Qualif.)	Scope
1. Plant Certification / Quality Control Procedures	*Y*	*I*	*Review PCI Plant Certification as Group C, Category C3.*
2. Mix Design	*Y Per PCI Certif*		*Inspect concrete batching operations and verify compliance with approved mix design*
3. Material Certification	*Y*	*1*	*Review Concrete material certificates* *Reinforcing and prestressing materials* *Admixtures* *Bearing pads*
4. Reinforcement Installation	*Per PCI Certif:*	*ACI-CCI ICC-RCSI*	*Inspect size, spacing, position and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials.*
5. Prestress Operations	*Per PCI Certif*	*ICC-PCSI*	*Inspect placement, stressing, grouting and protection of prestressing tendons*
6. Concrete Placement	*Per PCI Certif*	*ACI-CCI ICC-RCSI*	*Inspect placement of concrete. Verify that concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated.*
7. Sampling and Testing of Concrete	*Per PCI Certif*	*ACI-CFTT ACI-STT*	*Test concrete compressive strength (ASTM C31 & C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064).*
8. Curing and Protection	*Per PCI Certif*	*ACI-CCI ICC-RCSI*	*Inspect curing, cold weather protection and hot weather protection procedures.*
9. Erected Precast Elements	*Y*	*1*	*Inspect erection of precast concrete including member configuration, connections, welding and grouting.*

Wood Construction

Item	Req'd YIN	Agency # (Qualif.)	Scope
1. Fabricator Certification/ Quality Control Procedures	*Y*	*I*	***Review Submssion of t TPI Quality Control Inspection Program*** *Certification* .
2. Material Grading	*Y*	*I*	***Verify material grading marks.***
3. Connections	*Y*	*I*	***Verify that connections andfastenings comply with Contract Documents***
4. Framing and Details	*Y*	*Iy*	***Verify conformance with Contract Documents***
5. Diaphragms and Shearwalls	*Y*	*I*	***Inspect size,*** *configuration,* ***blocking andfastening of*** *shearwalls* ***and diaphragms. Verifypanel grade and thickness.***
6. Prefabricated Wood Trusses	*Y*	*I*	***Verify conformance with Contract Documents.***

Permit #
Permit Date

COMcheck **Software Version 3.1 Release 1**

Mechanical Compliance Certificate

2003 IECC

Report Date: 01/23/06

Data filename: G:\COMcheck\Projects\Valley Street Apartments - Envelope and Mechanical.cck

Section 1: Project Information

Project Title: Valley Street Apartments

Construction Site:	Owner/Agent:	Designer/Contractor:
Gilman Street Portland. ME	315 Valley Street **L.P.** P.O. Box 560 Portland, ME 04112	Archetype, P.A. 48 Union Wharf Portland, ME 04101

Section 2: General Information

Building Location (for weather data):	Portland, Maine
Climate Zone:	**15**
Heating Degree Days (base 65 degrees F):	**7378**
Cooling Degree Days (base 65 degrees F):	**268**
Project Type:	**New** Construction

Section 3: Mechanical Systems List

Quantity	System Type & Description
2	HVAC System 1: Heating: Duct Furnace, Gas / Single Zone
1	Plant 1: Heating: Hot Water Boiler, Capacity >=300 - <600 kBtu/h, Gas
1	Storage Water Heater 1: Service Water Heater w/ Circulation Pump

Section 4: Requirements Checklist

Requirements Specific To: HVAC System 1 :

❑ 1. Equipment minimum efficiency: Duct Furnace (Gas): 80% Ec

Requirements Specific To: Plant 1 :

❑ 1. Equipment minimum efficiency: Boiler Thermal Efficiency >= 75% Et
❑ 2. Newly purchased heating equipment meets the efficiency requirements - used equipment must meet 80% Et @ maximum capacity
❑ 3. Systems with multiple boilers have automatic controls capable of sequencing boiler operation
❑ 4. Hydronic heating systems comprised of a single boiler and >500 kBtu/h input design capacity include either a multistaged or modulating burner

Generic Requirements: Must be met by all systems to which the requirement is applicable:

❑ 1. Load calculations per 1997 ASHRAE Fundamentals
❑ 2. Plant equipment and system capacity no greater than needed to meet loads
- Exception: Standby equipment automatically off when primary system is operating
- Exception: Multiple units controlled to sequence operation as a function of load

❑ 3. Minimum one temperature control device per system
❑ 4. Minimum one humidity control device per installed humidification/dehumidification system
❑ 5. Automatic Controls: Setback to 55 degrees F (heat) and 85 degrees F (cool); 7-day clock, 2-hour occupant override, IO-hour

COMcheck **Software Version 3.1 Release 1**

Mechanical Requirements Description

2003 IECC

Report Date:

Data filename: G:\COMcheck\Projects\Valley Street Apartments - Envelope and Mechanical.cck

The following list provides more detailed descriptions of the requirements in Section 4 of the Mechanical Compliance Certificate.

Requirements Specific To: HVAC System 1 :

1. The specified heating and/or cooling equipment is covered by the ASHRAE 90.1 Code and must meet the following minimum efficiency: Duct Furnace (Gas): 80% Ec

Requirements Specific To: Plant 1 :

1. The specified heating and/or cooling equipment is covered by the ASHRAE 90.1 Code and must meet the following minimum efficiency: Boiler Thermal Efficiency >= 75% Et
2. The specified heating equipment is covered by Federal minimum efficiency requirements. New equipment of this type can be assumed to meet or exceed ASHRAE 90.1 Code requirements for equipment efficiency. Used equipment must meet 80% Et @ maximum capacity
3. Systems with multiple boilers have automatic controls capable of sequencing the operation of the boilers.
4. Hydronic heating systems comprised of a single boiler and >500 kBtu/h input design capacity include either a multistaged or modulating burner.

Generic Requirements: Must be met by all systems to which the requirement is applicable:

1. Design heating and cooling loads for the building must be determined using procedures equivalent to those in Chapters 27 and 28 of the ASHRAE Handbook of Fundamentals or an approved equivalent calculation procedure.
2. All equipment and systems must be sized to be no greater than needed to meet calculated loads. A single piece of equipment providing both heating and cooling must satisfy this provision for one function with the capacity for the other function as small as possible, within available equipment options.
   - Exception: The equipment and/or system capacity may be greater than calculated loads for standby purposes. Standby equipment must be automatically controlled to be off when the primary equipment and/or system is operating.
   - Exception: Multiple units of the same equipment type whose combined capacities exceed the calculated load are allowed if they are provided with controls to sequence operation of the units as the load increases or decreases.
3. Each heating or cooling system serving a single zone must have its own temperature control device.
4. Each humidification system must have its own humidity control device.
5. The system or zone control must be a programmable thermostat or other automatic control meeting the following criteria: a) capable of setting back temperature to 55 degrees F during heating and setting up to 85 degrees F during cooling b) capable of automatically setting back or shutting down systems during unoccupied hours using 7 different day schedules c) have an accessible 2-hour occupant override d) have a battery back-up capable *of* maintaining programmed settings for at least 10 hours without power.
   - Exception: A setback or shutoff control is not required on thermostats that control systems serving areas that operate continuously.
   - Exception: A setback or shutoff control is not required on systems with total energy demand of 2 kW (6,826 Btu/h) or less.
6. The system must supply outside ventilation air as required by Chapter 4 of the International Mechanical Code. If the ventilation system is designed to supply outdoor-air quantities exceeding minimum required levels, the system must be capable of reducing outdoor-air flow to the minimum required levels.
7. Air ducts must be insulated to the following levels: a) Supply and return air ducts for conditioned air located in unconditioned spaces (spaces neither heated nor cooled) must be insulated with a minimum of R-5. Unconditioned spaces include attics, crawl spaces, unheated basements, and unheated garages. b) Supply and return air ducts and plenums must be insulated to a minimum of R-8 when located outside the building. c) When ducts are located within exterior components (e.g., floors or roofs), minimum R-8 insulation is required only between the duct and the building exterior.
   - Exception: Duct insulation is not required on ducts located within equipment.