

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



# CITY OF PORTLAND BUILDING PERMIT



This is to certify that CHAD THOMPSON

Located At 93 WESTLAND AVE

Job ID: 2011-07-1652-ALTR

CBL: 197-L-004-001

has permission to Amend Permit #2011-07-1652 with Structural Framing Modifications, ½ bath not approved provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise closed-in. 48 HOUR NOTICE IS REQUIRED.

A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be

\_\_\_\_\_  
Fire Prevention Officer

 11/18/11  
\_\_\_\_\_  
Code Enforcement Officer / Plan Reviewer

THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY  
PENALTY FOR REMOVING THIS CARD

# City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

Job No: 2011-07-1652-ALTR 2011-12859-AMEND	Date Applied: 11/17/2011	CBL: 197- L-004-001	
Location of Construction: 93 WESTLAND AVE	Owner Name: CHAD THOMPSON	Owner Address: 93 WESTLAND AVE  PORTLAND, ME 04102	Phone:  207-749-7778
Business Name:	Contractor Name: Paul White	Contractor Address: Verrill St., Portland, ME	Phone:  207-650-4817
Lessee/Buyer's Name:	Phone:	Permit Type: BLDG - Building-amendment	Zone:  R-5
Past Use:  Single family	Proposed Use:  Same - Single family -- amend permit #2011-07-1652- adding <del>hall bath</del> & framing modifications <i>JB</i>	Cost of Work: 15000.00  Fire Dept:  <input type="checkbox"/> Approved <input type="checkbox"/> Denied <input type="checkbox"/> N/A  Signature:	CEO District:    Inspection: Use Group: R-3 Type: <i>SB</i> IRL-2009 Signature: <i>JB</i> 4/18/11
Proposed Project Description: 12' x 14' addition & extnsion od 2nd floor.		Pedestrian Activities District (P.A.D.)	
Permit Taken By:		<b>Zoning Approval</b>	

- This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
- Building Permits do not include plumbing, septic or electrical work.
- Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work.

### Special Zone or Reviews

- Shoreland
- Wetlands
- Flood Zone
- Subdivision
- Site Plan
- 
- Maj  Min  MM

Date: *OK w/condition*  
*11/16/11* *ABU*

### CERTIFICATION

### Zoning Appeal

- Variance
- Miscellaneous
- Conditional Use
- Interpretation
- Approved
- Denied

Date:

### Historic Preservation

- Not in Dist or Landmark
- Does not Require Review
- Requires Review
- Approved
- Approved w/Conditions
- Denied

Date: *ABU*

SIGNATURE OF APPLICANT

ADDRESS

DATE

PHONE

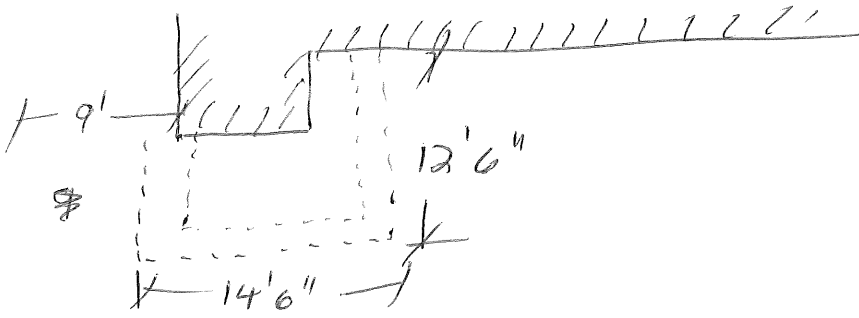
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE

DATE

PHONE

8-3-11 DWM Footings/setbacks, No one there.

Sooting has been poured



10-28-11 DWM Close-in Fall: Strap top plates, Provide:

- 1) revised plan + framing plan showing bathroom on 2nd floor including ceiling height + all framing details + beams,
- 2) Postings requirements (LVL)
- 3) LVL specifications
- 4) outlets as needed

3-21-13 DWM/BKL Chad final/<sup>provide:</sup> cap gas line in basement.

PE SDS, Tamper resistant GFIs, Junction box for range circuit

3-29-12 DWM Chad final OK

12-29-11 DWM Chad 749-7778 Close-in OK

## BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: [buildinginspections@portlandmaine.gov](mailto:buildinginspections@portlandmaine.gov)

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

Close In Elec/Plmb/Frame prior to insulate or gyp

Final Inspection

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.



# PORTLAND MAINE

*Strengthening a Remarkable City, Building a Community for Life • [www.portlandmaine.gov](http://www.portlandmaine.gov)*

Director of Planning and Urban Development  
Penny St. Louis

Job ID: 2011-07-1652-ALTR

Located At: 93 WESTLAND AVE

CBL: 197- L-004-001

## **Conditions of Approval:**

### **Zoning**

1. All conditions from previous permit (#2011-07-1652) are still in force with the issuance of this permit.

### **Building**

1. Application approval based upon information provided by applicant, including updated plans from the structural engineer. Any deviation from approved plans requires separate review and approval prior to work.
2. Separate permits are required for any electrical, plumbing, sprinkler, fire alarm, HVAC systems, heating appliances, including pellet/wood stoves, commercial hood exhaust systems and fuel tanks. Separate plans may need to be submitted for approval as a part of this process.
3. The 2<sup>nd</sup> floor half-bath is not approved due to noncompliance with 6'8" headroom requirements.
4. All previous approvals and inspections apply.

### **Fire**

1. All construction shall comply with City Code Chapter 10.
2. All smoke detectors and smoke alarms shall be photoelectric.
3. Hardwired Carbon Monoxide alarms with battery back up are required on each floor.

R-T.

Permit - 2011-07-1652  
amendment - 2011-12859



# General Building Permit Application

If you or the property owner owes real estate or personal property taxes or user charges on any property within the City, payment arrangements must be made before permits of any kind are accepted.

Location/Address of Construction: <u>93 Westland Ave Portland, ME 04102</u>		
Total Square Footage of Proposed Structure/Area	Square Footage of Lot <u>10,000</u>	Number of Stories <u>1.5</u>
Tax Assessor's Chart, Block & Lot Chart#      Block#      Lot# <u>197</u> <u>L</u> <u>Y</u>	Applicant * <u>must</u> be owner, Lessee or Buyer* Name <u>Chad Thompson</u> Address <u>93 Westland Ave</u> City, State & Zip <u>Portland, ME 04102</u>	Telephone:  <u>749-7778</u>
Lessee/DBA (If Applicable)	Owner (if different from Applicant) Name Address <u>Same</u> City, State & Zip	Cost Of Work: \$ <u>10,000</u> C of O Fee: \$ _____ Total Fee: \$ <u>120</u>
Current legal use (i.e. single family) <u>single family</u> Number of Residential Units <u>1</u> If vacant, what was the previous use? <u>same</u> Proposed Specific use: <u>same</u> Is property part of a subdivision? <u>No</u> If yes, please name _____ Project description: <u>Addition of half bath and framing modifications</u> <u>* Addendum to existing permit *</u>		
Contractor's name: <u>Paul White</u> Address: <u>Verrill St.</u> City, State & Zip <u>Portland, ME</u> Telephone: <u>650-4817</u> Who should we contact when the permit is ready: <u>Chad Thompson</u> Telephone: <u>749-7778</u> Mailing address: <u>93 Westland Ave. Portland, ME 04102</u>		

11.8.11

Please submit all of the information outlined on the applicable Checklist. Failure to do so will result in the automatic denial of your permit.

In order to be sure the City fully understands the full scope of the project, the Planning and Development Department may request additional information prior to the issuance of a permit. For further information or to download copies of this form and other applications visit the Inspections Division on-line at [www.portlandmaine.gov](http://www.portlandmaine.gov), or stop by the Inspections Division office, room 315 City Hall or call 874-8703.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

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NOV 22 2011  
Dept. of Building & Inspections  
City of Portland, Maine

Signature: [Signature]      Date: 11/2/11

This is not a permit; you may not commence ANY work until the permit is issued

**Jeanie Bourke - Re: 93 Westland**

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**From:** Chris Pirone  
**To:** Jeanie Bourke  
**Date:** 11/6/2011 4:00 PM  
**Subject:** Re: 93 Westland

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No sprinklers. Ben approved the permit and because of timing of changes in ordinances I could not require sprinklers.

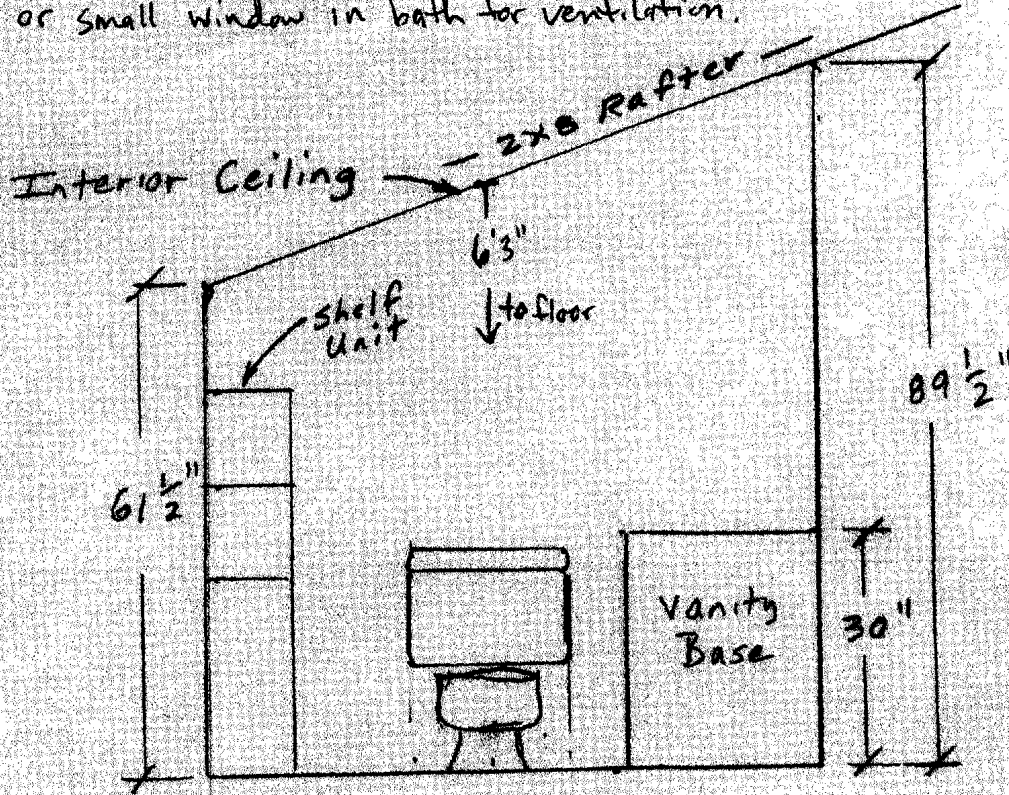
Captain Chris Pirone  
Portland Fire Department  
Fire Prevention Bureau  
380 Congress Street  
Portland, ME 04101  
(t) 207.874.8405  
(f) 207.874.8410

>>> Jeanie Bourke 10/31/2011 11:14 AM >>>  
Did you inspect this property, if so, are you requiring sprinklers?

The owner Chad Thompson needs to amend the permit and I want to make sure we are on the same page.  
Thanks

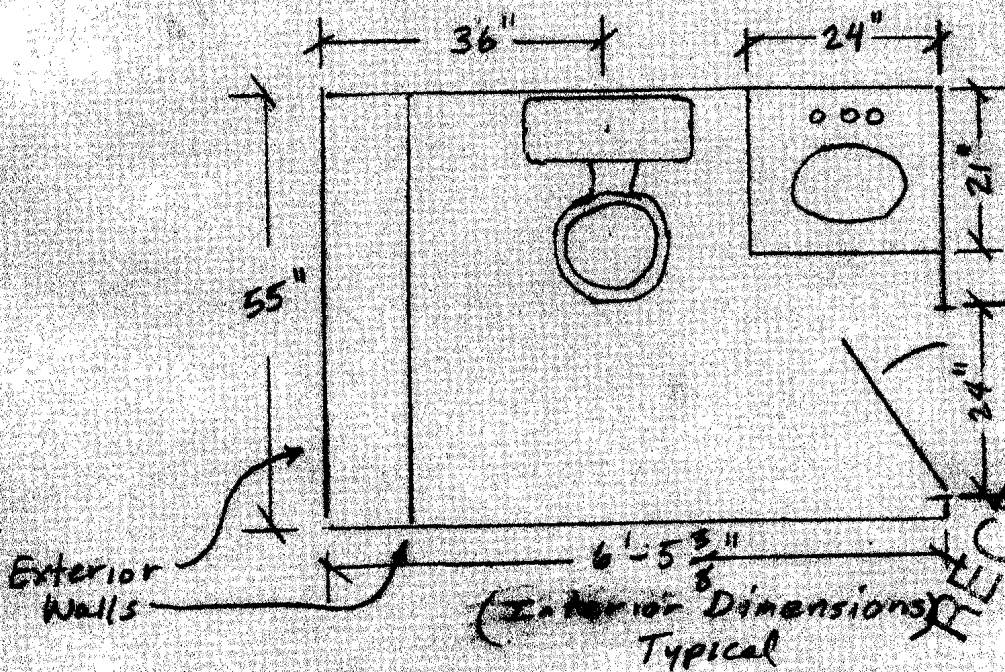


\* Will install ventilation fan or small window in bath for ventilation.



Elevation View

Bathroom Detail Scale 1/2" = 1'-0"



Plan View

Ridge (3) 16" LVL

12 penny nails

End of old rafter

Collar ties every other rafter

Posts (4) 2x4

8'

Building  $\phi$  →

added 2x6x8' 8x9' spaced to existing rafters

old rafter

2x6

Replaced existing kneewall - same location

2x4 kneewall (24" OC)

5'-2"

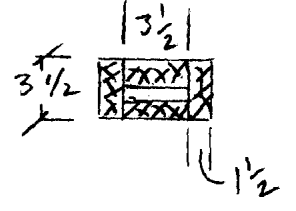
3/4" subfloor

Existing rafter fastening

re-fastened with 16 penny nails

11'

Post Detail (4) 2x4



Scale 1" = 1'-2"

Solid blocking and post to foundation

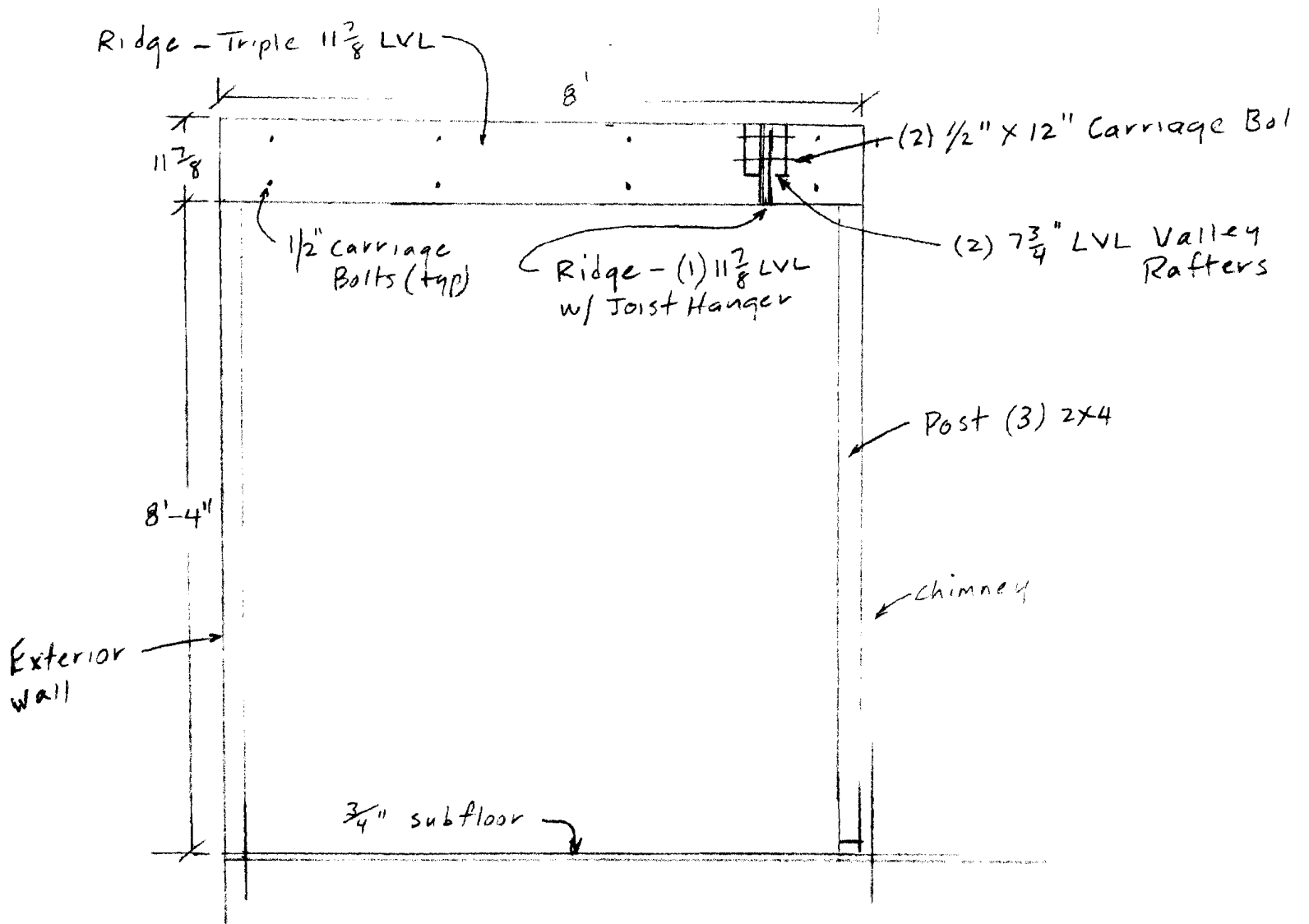
Increased Roof Slope Detail

Scale 1/2" = 1'-0"

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Dept of ...



RIDGE and Valley Rafter Detail

Scale  $\frac{1}{2}$ " = 1'-0"

Chad Thompson  
 93 Westland Ave  
 Portland ME





# Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

# Roof Beam\RB02

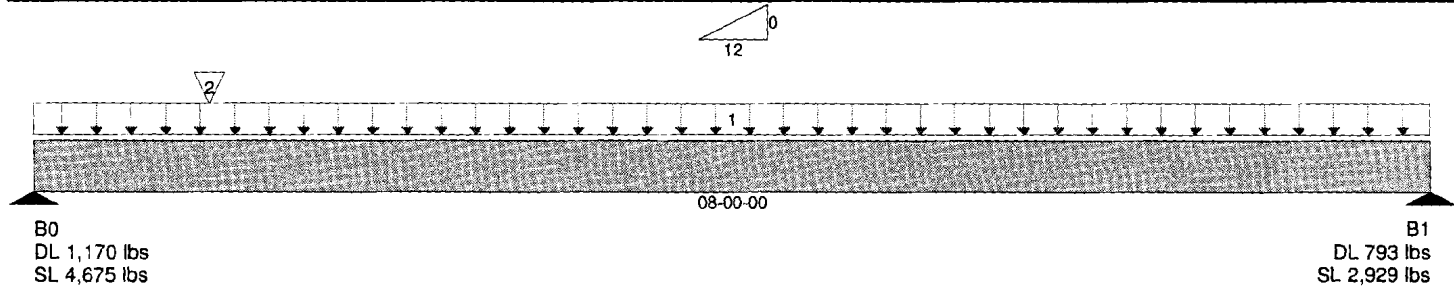
BC CALC® 3.0 Design Report - US  
Build 440

1 span | No cantilevers | 0/12 slope

Monday, November 14, 2011

Job Name:  
Address:  
City, State, Zip: ,  
Customer:  
Code reports: ESR-1040

File Name: BC CALC Project  
Description: Ridge beam on right side of chimney  
Specifier:  
Designer:  
Company:  
Misc:



Total of Horizontal Design Spans = 08-00-00

					Live	Dead	Snow	Wind	Roof Live	Trib. (In.)	
Tag	Description	Load Type	Ref.	Start	End	100%	90%	115%	160%	125%	
1	Standard Load	Unf. Area (psf)	L	00-00-00	08-00-00		15	60			11-00-00
2	Reaction from Designs\RB01...	Conc. Pt. (lbs)	L	01-00-00	01-00-00		502	2,324			n/a

Controls Summary	Value	% Allowable	Duration	Case	Span
Pos. Moment	8,220 ft-lbs	22.4%	115%	3	1 - Internal
End Shear	4,771 lbs	35.0%	115%	3	1 - Left
Total Load Defl.	L/1,454 (0.066")	12.4%		3	1
Live Load Defl.	L/1,839 (0.052")	13.1%		3	1
Max Defl.	0.066"	6.6%		3	1
Span / Depth	8.1	n/a			1

### Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of BOISE engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade, L.L.C.

### Cautions

For roof members with slope (1/4)/12 or less final design must ensure that ponding instability will not occur.  
For roof members with slope (1/2)/12 or less final design must account for Rain-on-Snow surcharge load.

### Notes

Design meets Code minimum (L/180) Total load deflection criteria.  
Design meets Code minimum (L/240) Live load deflection criteria.  
Design meets arbitrary (1") Maximum load deflection criteria.  
Minimum bearing length for B0 is 1-1/2".  
Minimum bearing length for B1 is 1-1/2".  
Entered/Displayed Horizontal Span Length(s) = Clear Span + 1/2 min. end bearing + 1/2 intermediate bearing  
Fastener Manufacturer: TrussLok (tm)

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Dept. of Building Inspections  
City of Portland Maine



# Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

# Roof Beam\RB02

BC CALC® 3.0 Design Report - US  
Build 440

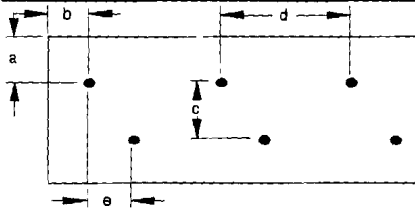
1 span | No cantilevers | 0/12 slope

Monday, November 14, 2011

Job Name:  
Address:  
City, State, Zip: ,  
Customer:  
Code reports: ESR-1040

File Name: BC CALC Project  
Description: Ridge beam on right side of chimney  
Specifier:  
Designer:  
Company:  
Misc:

## Connection Diagram



a minimum = 2"    c = 7-7/8"  
b minimum = 4"    d = 24"  
e minimum = 1"

Connection design assumes point load is 'top-loaded'. For connection design of 'side-loaded' point loads, please consult a technical representative or professional of Record.  
All TrussLok screws may be installed from one side of multiple ply VERSA-LAM beams.  
All TrussLok screws may be installed from one side of multiply Versa-Lam beams.  
Member has no side loads.  
Concentrated loads are not considered in side load analysis.  
Connectors are: FMTSL005

## Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of BOISE engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

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City of Portland Maine



**Jeanie Bourke - FW: 93 Westland avenue**

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**From:** "Chad Thompson" <cthompson@pwd.org>  
**To:** "Jeanie Bourke" <JMB@portlandmaine.gov>  
**Date:** 11/18/2011 1:55 PM  
**Subject:** FW: 93 Westland avenue  
**Attachments:** 93 Westland Street-Thompson Residence.pdf

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Hello Jeanie,

Here is the technical review and remediation plans from my structural engineer. Please let me know if you have any questions. If at all possible, I would love to discuss any questions you have today so I can get started on making the improvements this weekend.

Thanks,  
Chad

---

**From:** Daniel Owrl [mailto:mainehaole@gmail.com]  
**Sent:** Friday, November 18, 2011 1:48 PM  
**To:** Chad Thompson  
**Cc:** dan.owrl@gmail.com  
**Subject:** 93 Westland avenue

Chad,

Attached are my recommendations regarding your residence at 93 Westland Avenue. Let me know if you need any additional analysis or recommendations going forward. Thanks for considering me for this project, I appreciate it.

DAN

**Chad Thompson**  
**Source Protection Coordinator**  
Portland Water District  
225 Douglass Street, PO Box 3553  
Portland, ME 04104  
Phone: 774-5961 Ext. 3323  
Fax: 207-892-0041  
E-mail: cthompson@pwd.org  
<http://www.pwd.org>



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**The Portland Water District NOTICE & DISCLAIMER Confidentiality Notice:**

THIS MESSAGE IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY TO WHICH IT IS ADDRESSED AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED AND CONFIDENTIAL. Please notify the sender if you have received this message in error. Recipients should be aware that replies to this message may not be considered confidential and may therefore be subject to public disclosure.

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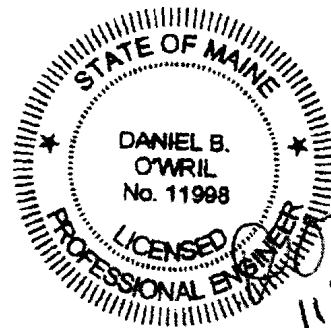
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Dept. of Building Inspections  
City of Portland Maine

DANIEL O'WRIL, P.E.

Chad Thompson  
93 Westland Ave.  
Portland, ME

November 18, 2011



RE: 93 Westland Avenue Renovation project

On November 3, 2011 we met at your property located at 93 Westland Avenue in Portland, Maine. The residence was under construction at the time of my visit. The exterior walls were sheathed, the roof was sheathed, and the shingles were in place on the roof. From the interior of the building, the roof and wall framing were visible as no interior wall finishes were applied.

You instructed me that a building inspector from the City of Portland had reviewed the roof framing during a routine inspection and had specific concerns regarding the structural integrity of the roof framing. I reviewed two specific framing issues per your request.

The first item I reviewed was a ridge beam running from the southwest side of the house (labeled Ridge Beam 3 on Sketch SK-1). The ridge beam is a 1 3/4" x 11 7/8" LVL, and spans approximately 23'-0". This existing ridge beam was found to be overstressed according to current building code requirements. It is recommended that the contractor install a vertical support to reduce the span of the ridge beam to meet current building code requirements. The installation of this support is detailed on the attached sketches.

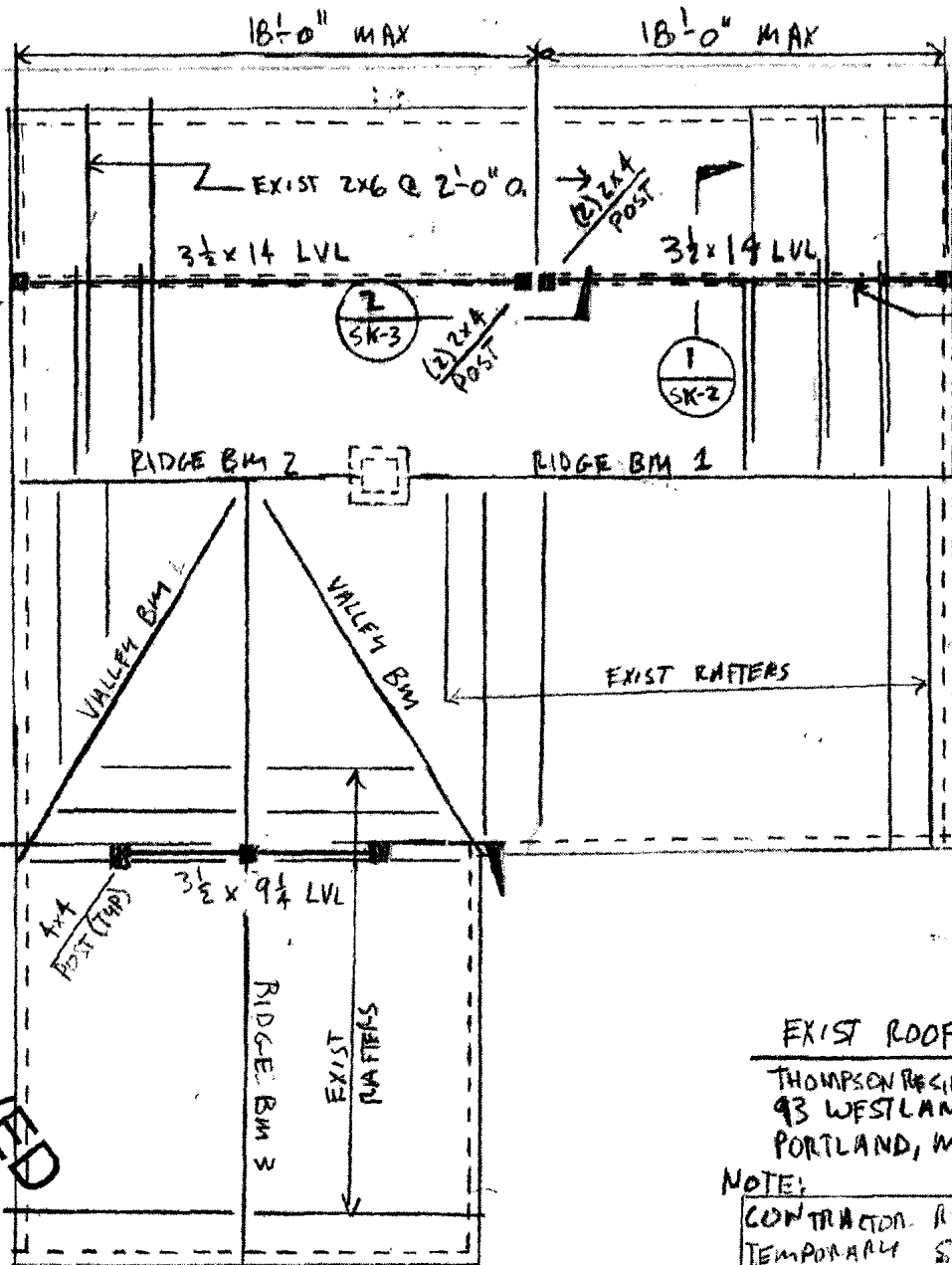
The second issue I reviewed was the roof rafters on the North side of the building. The original roof was reportedly lifted at the ridgeline to allow for more living space on the second floor. The rafters currently bear on the exterior wall at one end, a new knee wall at center span, and a new ridge beam at the other end. The new knee wall at center span is supported by the second floor framing. New rafters were sistered alongside the existing rafters to span from the knee wall to the center ridgeline. Upon review of this framing for code compliance, I found that the floor below the knee wall lacked the structural capacity to carry the roof loads from above. I recommend removing the existing knee wall and installing two LVL beams to remove the roof load from the existing floor framing. Details of this recommended repair are shown on the attached sketches.

I trust this letter will and the attached sketches will meet your current needs. Please don't hesitate to contact me if you or your contractor has any questions regarding the recommended repairs.

Daniel B. O'Wril, P.E.

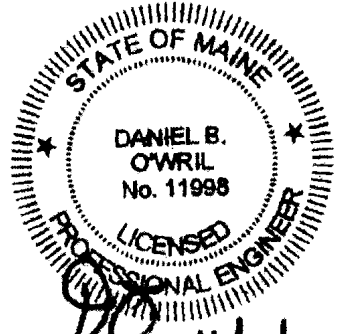
Attached: Sketches SK-1 thru SK-5





**NOTES:**

- 1) SNOW LOAD:  
P<sub>s</sub> = 60 PSF
- 2) DIMENSIONAL LUMBER SHALL BE #2 SPF OR BETTER
- 3) LVL SHALL BE BOISE VERSA-LAM 210 3100 OR BETTER



11/18/2011  
SHT SK-1 THRU SK-5

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Dept. of Building Inspections  
City of Portland Maine

**EXIST ROOF FRAMING**

THOMPSON RESIDENCE N.T.S.  
93 WESTLAND AVE  
PORTLAND, ME 04103

**NOTE:**

CONTRACTOR RESPONSIBLE FOR TEMPORARY SHORING AS REQUIRED.

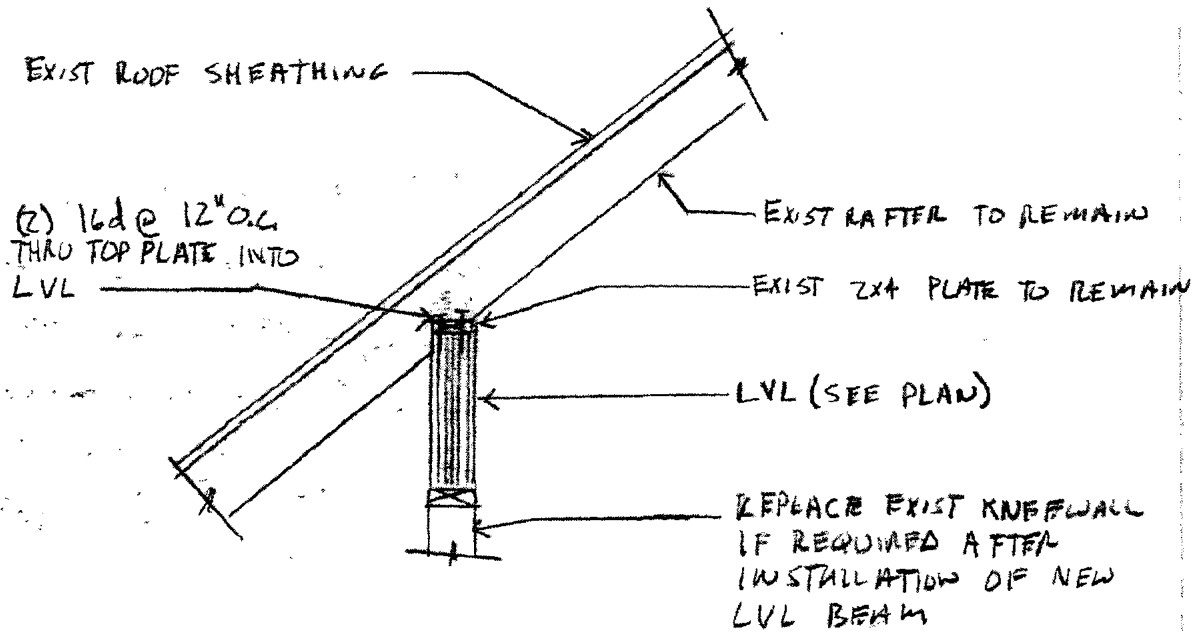


SK-1  
1 OF 5

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City of Portland Maine



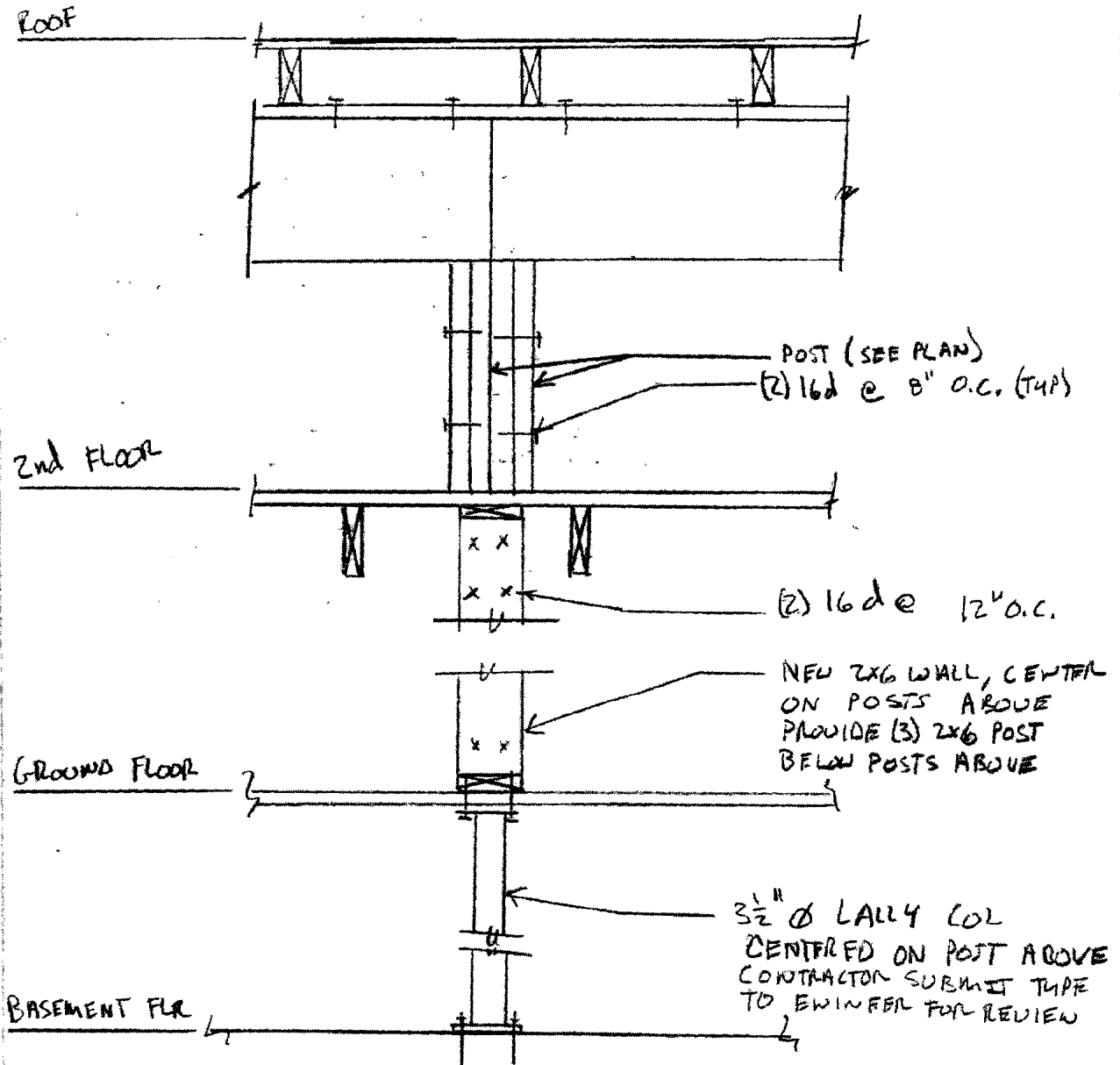
SECTION 1  
REF SK-1  $3/4" = 1'-0"$

SK-2  
2 OF 5

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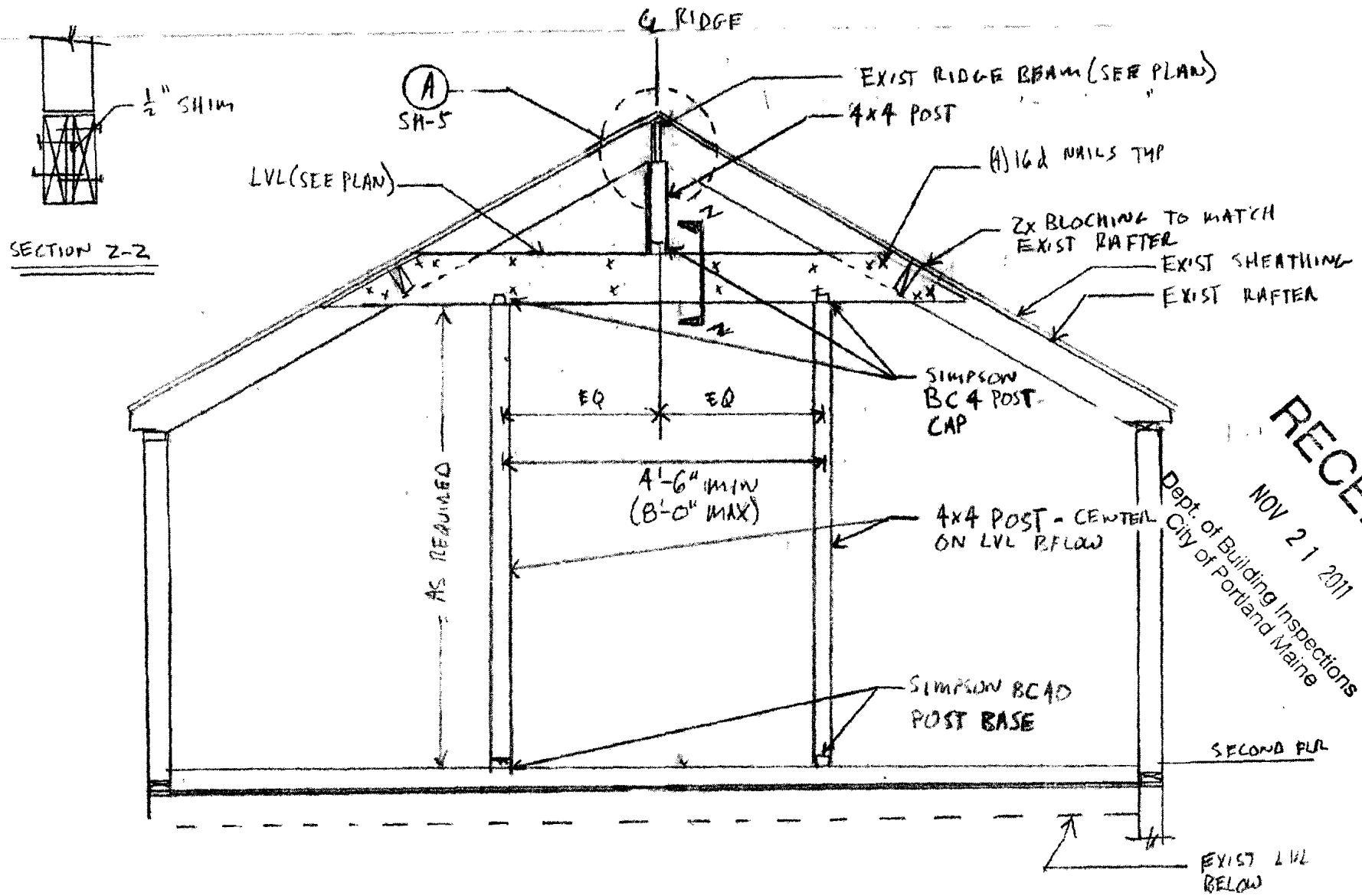
NOV 21 2011

Dept. of Building Inspections  
City of Portland Maine



SECTION Z  
3/4" = 1'-0"

SK-3  
3 OF 5



SECTION Z-Z

SECTION 3  
 $\frac{1}{2}'' = 1'-0''$

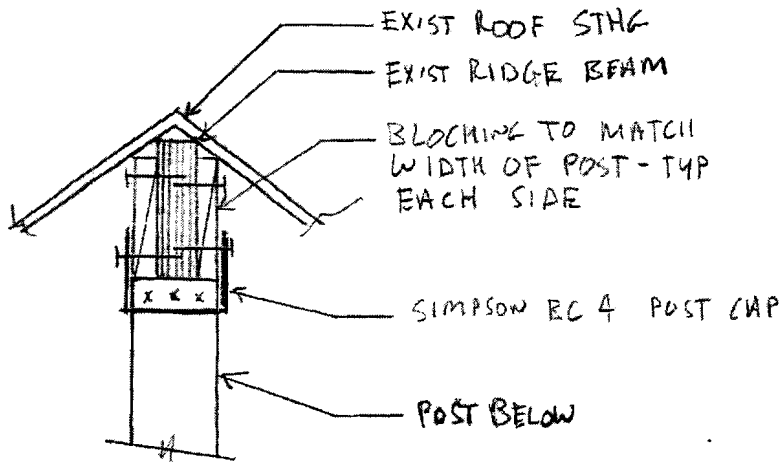
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 City of Portland Maine

SK-4  
 4 OF 5

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NOV 21 2011

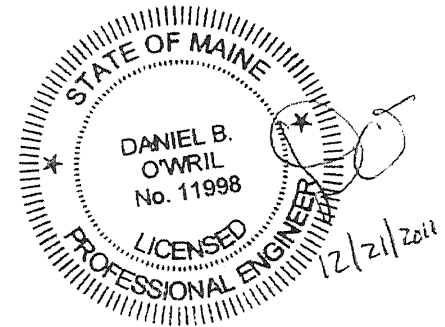
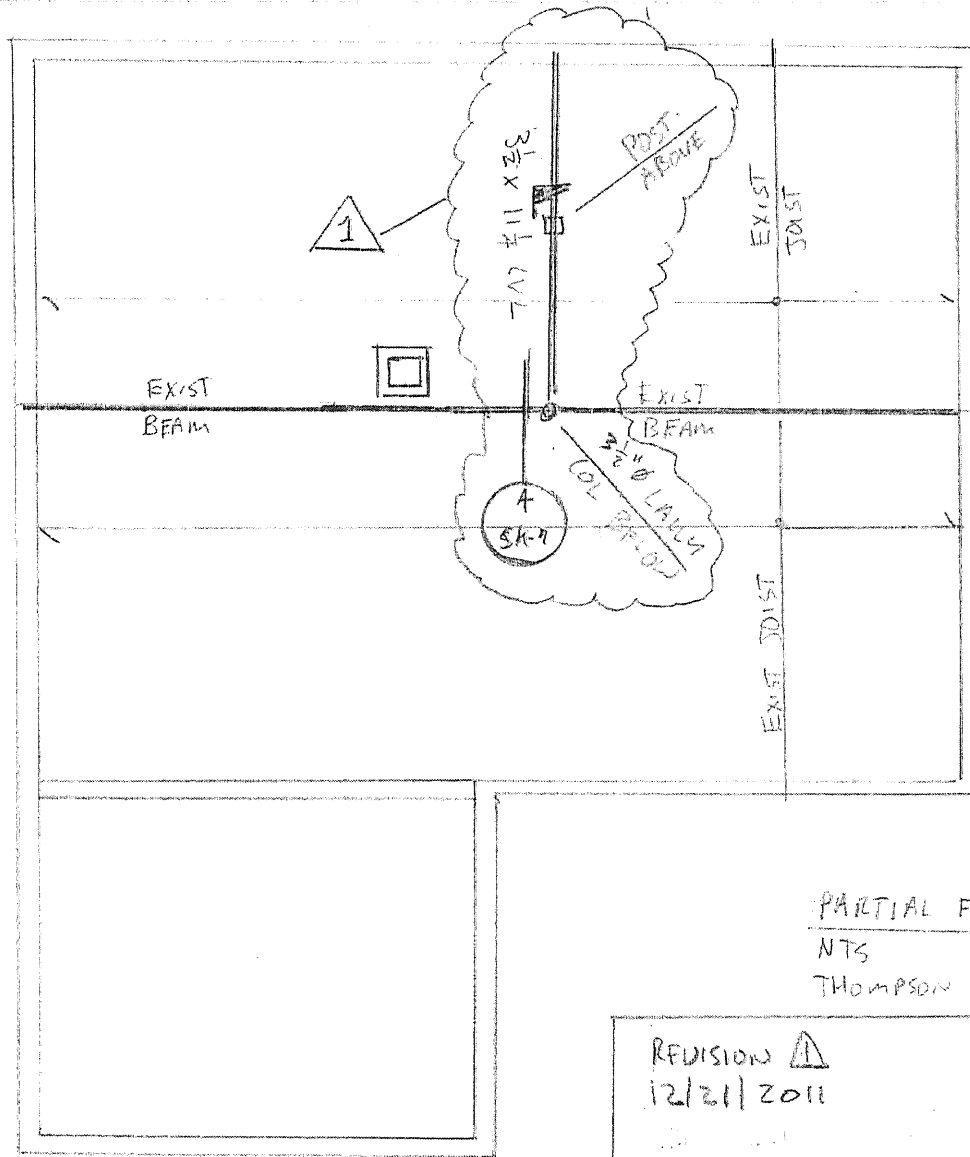
Dept. of Building Inspections  
City of Portland Maine




DETAIL A

$1\frac{1}{2}'' = 1'-0''$

SK-5  
5 OF 5

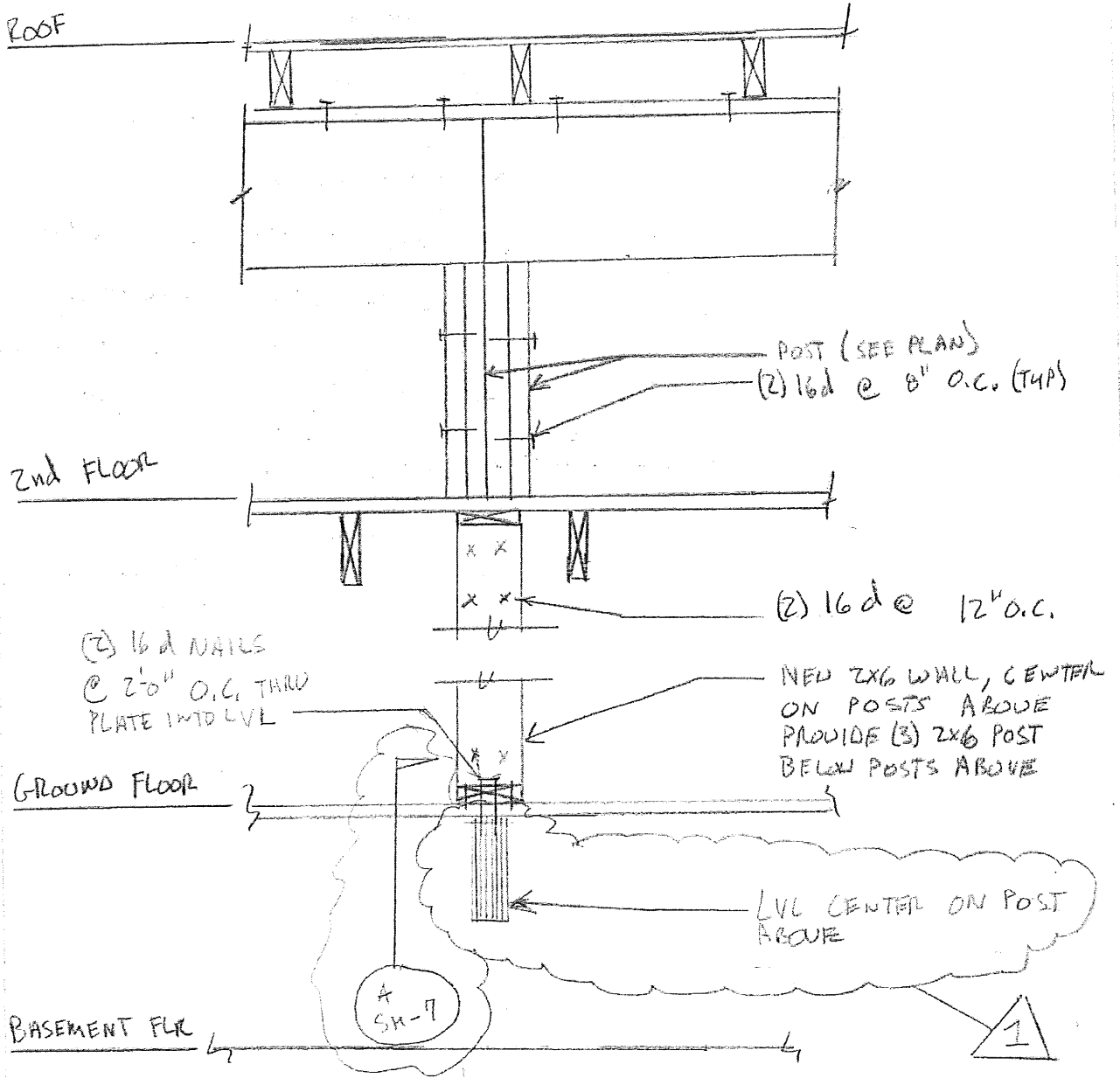
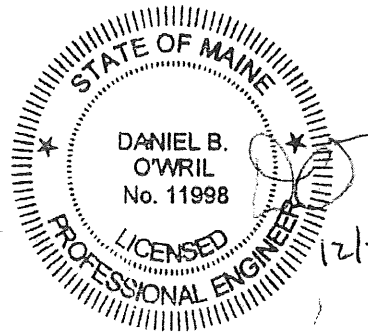


PARTIAL FIRST FLOOR FRAMING  
 NTS  
 THOMPSON RESIDENCE

REVISION   
 12/21/2011

SK-6

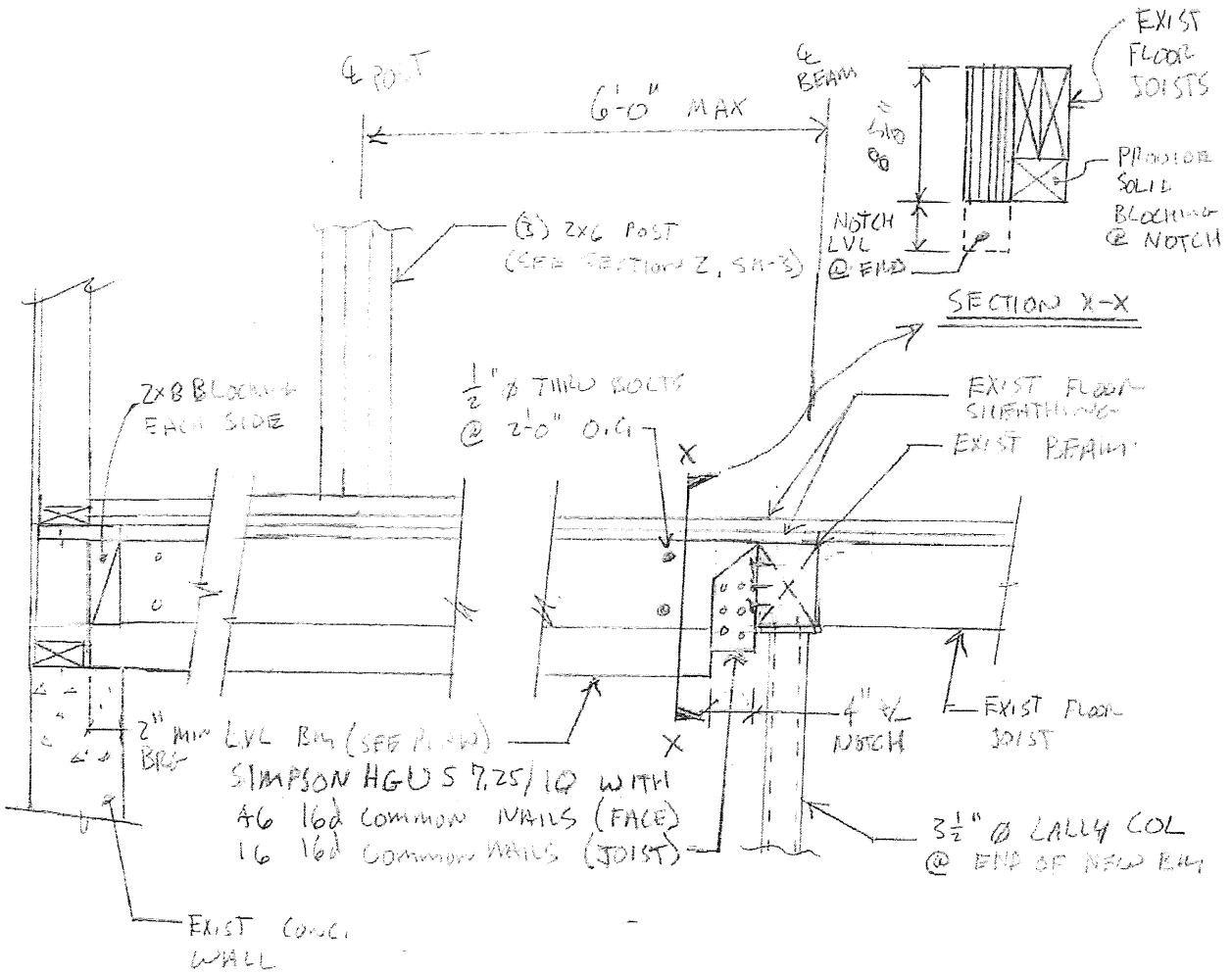
△ = REVISION 1, 12/21/2011



SECTION 2

2'-0" = 1'-0"

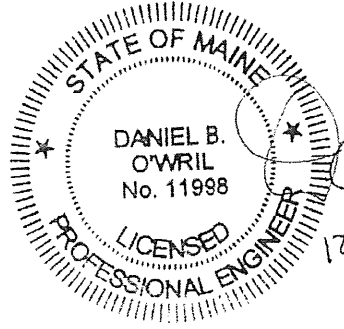
SH-3  
3 OF 5



SECTION 4

N.T.S

REVISION 1  
12/21/2011



12/21/2011

SK-7



**Jeanie Bourke - FW: 93 Westland Basement LVL**

---

**From:** "Chad Thompson" <cthompson@pwd.org>  
**To:** "Jeanie Bourke" <JMB@portlandmaine.gov>  
**Date:** 12/22/2011 10:25 AM  
**Subject:** FW: 93 Westland Basement LVL  
**Attachments:** 93 Westland-REV 1 - 12-21-2011.pdf

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Hello Jeanie,

Please find an engineer's drawing describing the posting of the LVL in the upstairs that was added to support the building's original roof at the kneewall. This modified drawing now includes an additional LVL and Simpson hanger in the basement that we decided to add so that the lolly column posting could be moved to the center-line of the building.

Please add the above document to my file. I believe it is a very straight forward and minor addition to the project, but please let me know if there are any procedural steps I need to take. Please also feel free to contact me with any questions.

Thanks,  
Chad  
749-7778

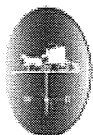
**Chad Thompson**  
**Source Protection Coordinator**  
Portland Water District  
225 Douglass Street, PO Box 3553  
Portland, ME 04104  
Phone: 774-5961 Ext. 3323  
Fax: 207-892-0041  
E-mail: cthompson@pwd.org  
<http://www.pwd.org>

197-L-4

RECEIVED

DEC 22 2011

Dept. of Building Inspections  
City of Portland Maine



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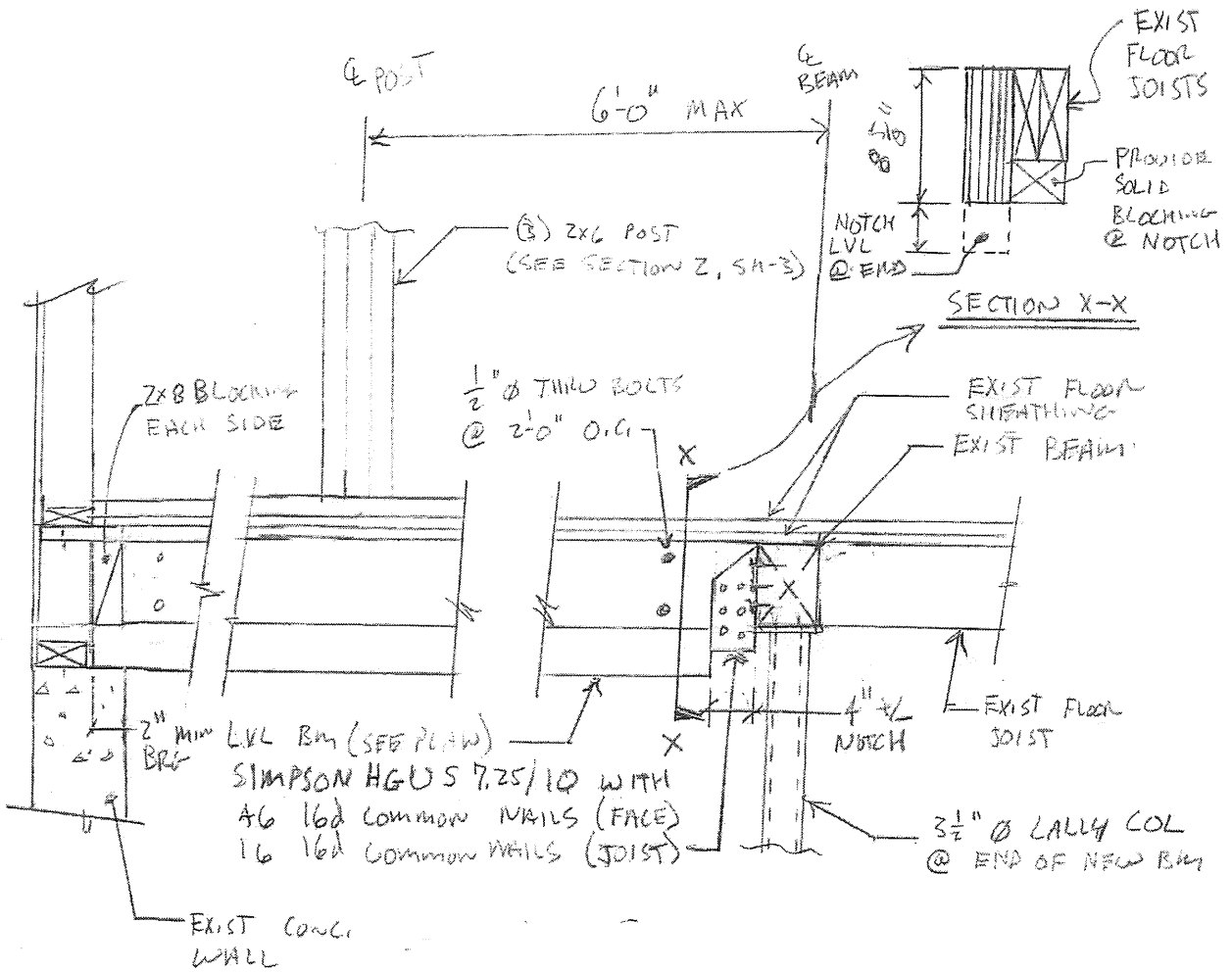
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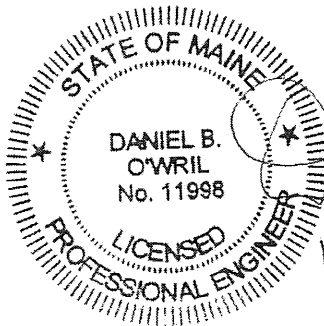
**From:** Daniel Owrl [mailto:mainehaole@gmail.com]  
**Sent:** Thursday, December 22, 2011 12:03 AM  
**To:** Chad Thompson



SECTION 4

N.T.S

REVISION  $\Delta$   
12/21/2011

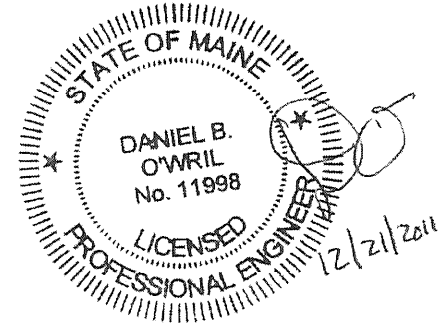
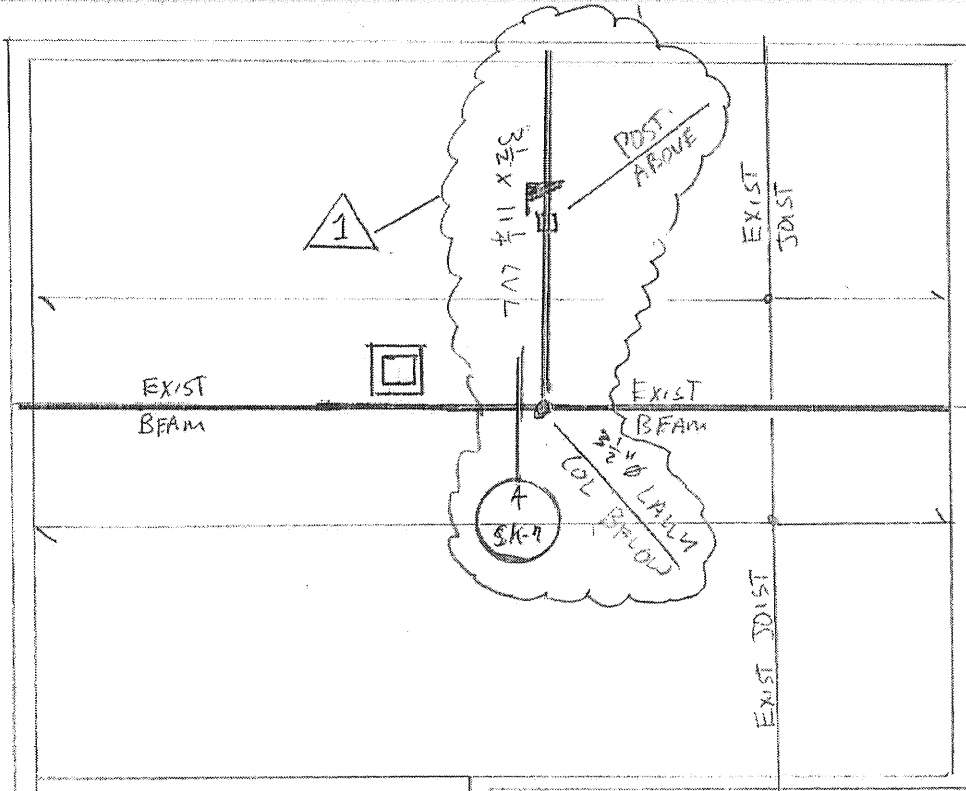


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DEC 22 2011  
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City of Portland Maine

SK-7

Amey



Dept. of Building Inspections  
 City of Portland Maine  
 DEC 22 2011

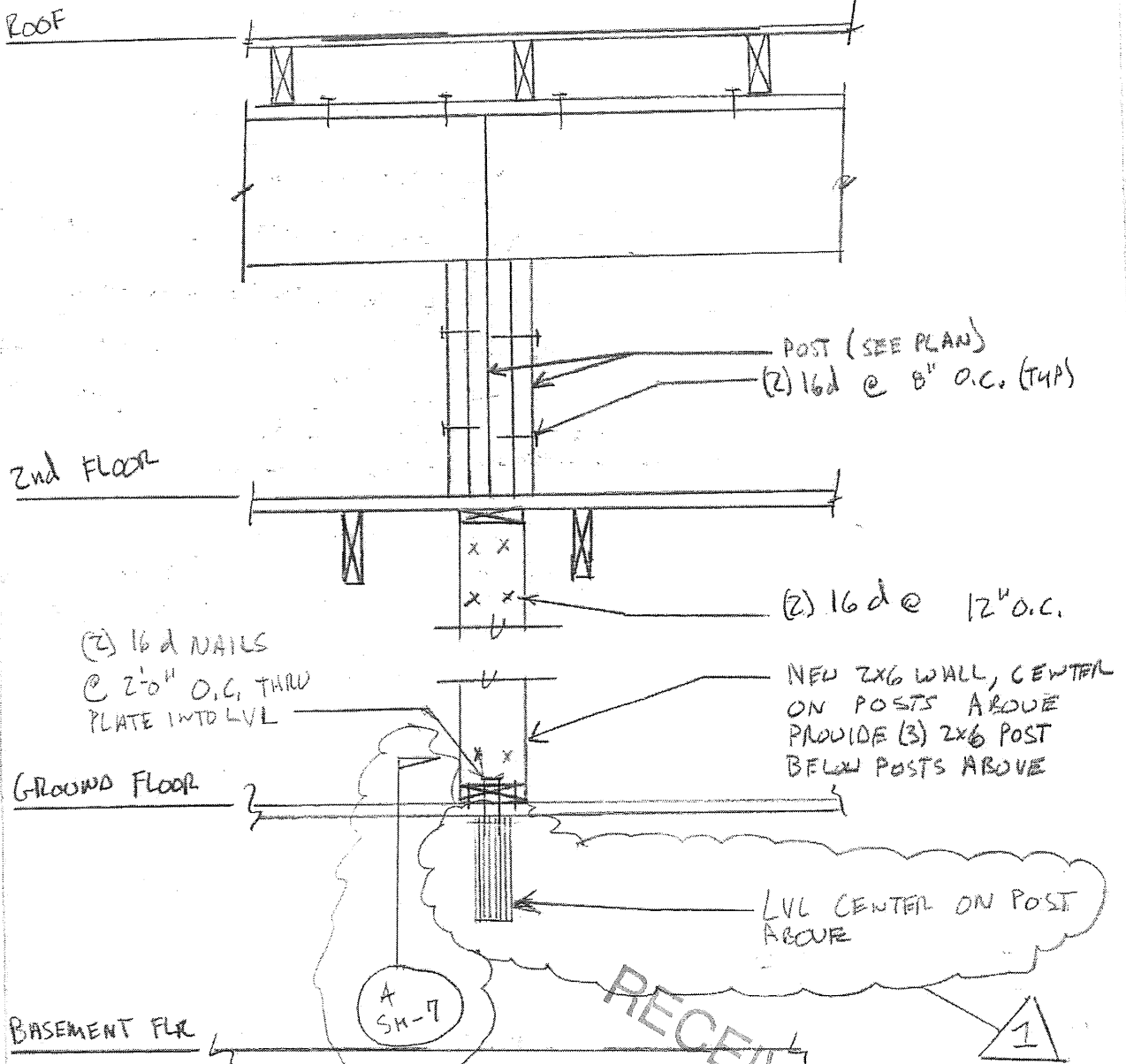
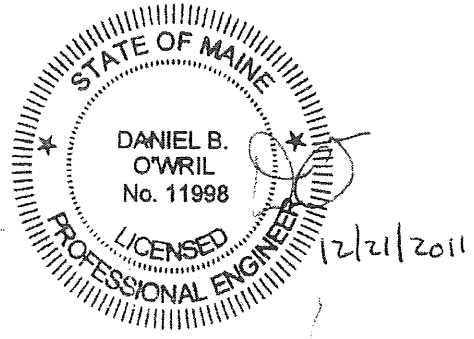
**RECEIVED**

PARTIAL FIRST FLOOR FRAMING  
 NTS  
 THOMPSON RESIDENCE

REVISION  $\Delta$   
 12/21/2011

SK-6

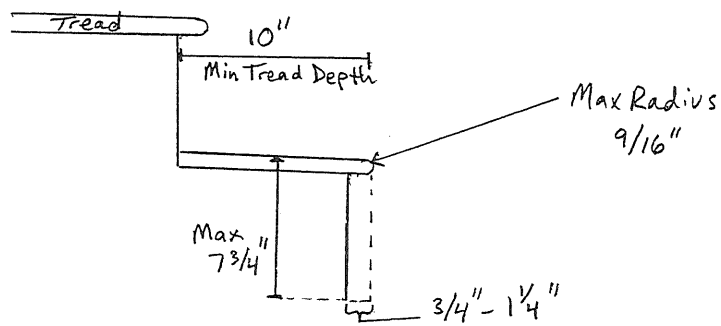
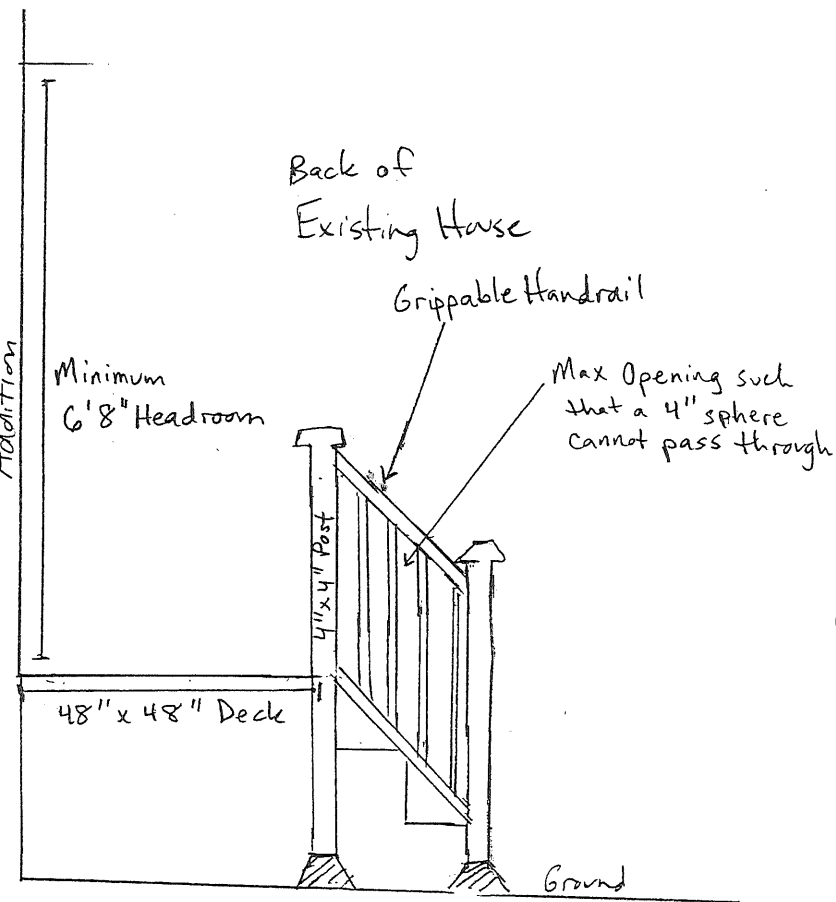
△ = REVISION 1, 12/21/2011



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DEC 22 2011  
Dept. of Building Inspections  
City of Portland Maine

SECTION 2  
3/4" = 1'-0"

SK-3  
3 OF 5



Stair Detail

Window Layout

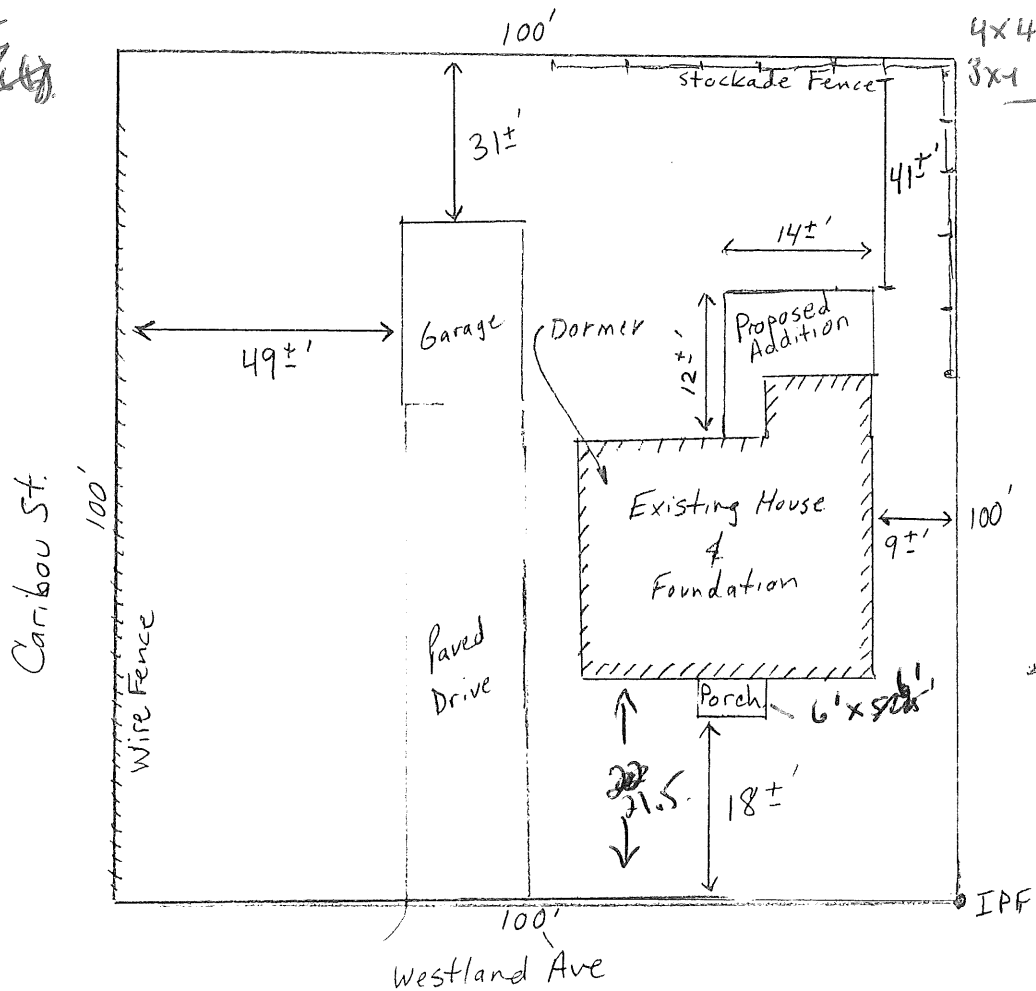
Plot Plan  
 93 Westland Ave  
 Chad Thompson

R-5

lot size - 10,000 sq ft  
 front 20' or average - ~~42' given~~ 21.5' house measure to that.  
 rear 20' - 41' given to addition (OK)  
 side - 2 sides - 12' - but can ~~be~~ reduce to 8' borrow  
 12' given but borrowing from other side (OK)  
 lot coverage - ~~4900~~ 4000

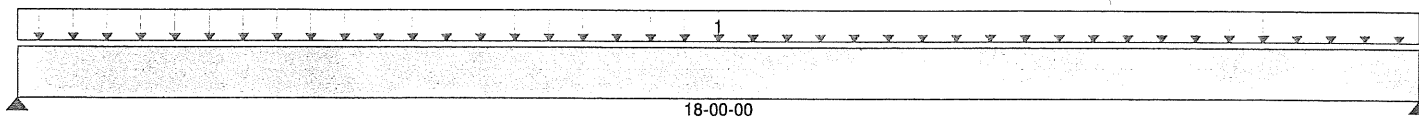
house 616  
 single 240  
~~14~~ 14x12 = 168  
 4x4 16  
 3x4 = 12  
 1052 sq ft OK

~~if driveway - must use section 44 use~~



Job Name: Thompson  
Address:  
City, State, Zip: Portland, ME  
Customer:  
Code reports: ESR-1040

File Name: BC CALC Project  
Description: RB01  
Specifier:  
Designer:  
Company:  
Misc:



B0  
DL 1,698 lbs  
SL 5,544 lbs

B1  
DL 1,698 lbs  
SL 5,544 lbs

Total of Horizontal Design Spans = 18-00-00

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	100%	90%	115%	160%	125%	Trib. (in.)
1	Standard Load	Unf. Area (psf)	L	00-00-00	18-00-00		15	56			11-00-00

Controls Summary	Value	% Allowable	Duration	Case	Span
Pos. Moment	32,588 ft-lbs	50.6%	115%	3	1 - Internal
End Shear	6,110 lbs	33.3%	115%	3	1 - Left
Total Load Defl.	L/407 (0.53")	44.2%		3	1
Live Load Defl.	L/532 (0.406")	45.1%		3	1
Max Defl.	0.53"	53.0%		3	1
Span / Depth	13.5	n/a			1

**Disclosure**

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of BOISE engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

**Cautions**

For roof members with slope (1/4)/12 or less final design must ensure that ponding instability will not occur.

For roof members with slope (1/2)/12 or less final design must account for Rain-on-Snow surcharge load.

**Notes**

Design meets Code minimum (L/180) Total load deflection criteria.

Design meets Code minimum (L/240) Live load deflection criteria.

Design meets arbitrary (1") Maximum load deflection criteria.

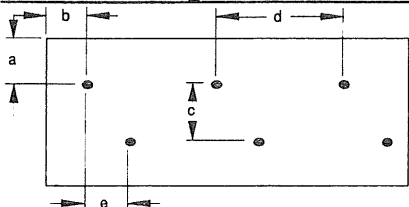
Minimum bearing length for B0 is 1-7/8".

Minimum bearing length for B1 is 1-7/8".

Entered/Displayed Horizontal Span Length(s) = Clear Span + 1/2 min. end bearing + 1/2 intermediate bearing

Fastener Manufacturer: TrussLok (tm)

**Connection Diagram**



a minimum = 2"    c = 12"  
b minimum = 4"    d = 24"  
e minimum = 1"

All TrussLok screws may be installed from one side of multiple ply VERSA-LAM beams.

All TrussLok screws may be installed from one side of multiply Versa-Lam beams.

Member has no side loads.

Connectors are: FMTSL005

## Jonathan Rioux - RE: Thompson building permit

---

**From:** "Chad Thompson" <cthompson@pwd.org>  
**To:** "Jonathan Rioux" <JRIOUX@portlandmaine.gov>  
**Date:** 7/29/2011 9:45 AM  
**Subject:** RE: Thompson building permit

---

Thanks Jon.

I think you forgot to attach the crawl space ventilation/ access: window height, and minimal room area/ ceiling height requirements. Please go ahead and do that so I can make sure we do it right.

I believe the new roof pitch will only increase the head room for the existing stairs. Yes, the proposed crawl space is attached to the existing foundation.

Thanks again,  
Chad

---

**From:** Jonathan Rioux [mailto:JRIOUX@portlandmaine.gov]  
**Sent:** Friday, July 29, 2011 9:25 AM  
**To:** Paul White  
**Cc:** Chad Thompson  
**Subject:** Re: Thompson building permit

Chad,

Your permit will be in the mail today. I've attached the crawl space ventilation/ access: window height, and minimal room area/ ceiling height requirements.

Is any part of the renovation(s) [roof pitch] affecting the existing stairwell minimal headroom requirements, and is the proposed crawl space connected to an existing foundation? JGR.

Jonathan Rioux  
Code Enforcement Officer/ Plan Reviewer

City of Portland  
Planning and Urban Development Department  
Inspection Services Division  
389 Congress St. Rm 315  
Portland, ME 04101  
Office: 207.874.8702  
Support Staff: 207.874.8703  
[jrioux@portlandmaine.gov](mailto:jrioux@portlandmaine.gov)

>>> "Paul White" <pjwhite81@gmail.com> 7/29/2011 7:05 AM >>>  
Jonathan,

I will attempt to answer your questions below.

1. There is no drainage, fabric and damp proofing required, the code requires it for enclosed habitable or usable space only.
2. Yes this is crawl space only

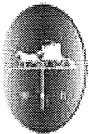


3. The roof structure will use structural ridges for all locations. Please see attached engineer drawing for 12' span for the addition. All pitches are a 5 pitch. This will allow me to use (2) 2x10 valley rafters which will be hung from the LVL ridge shown on submitted plan #2, for plan view see submitted plan #5, they are supported by being posted to basement along the masonry chimney. I can amend drawing # 5 to show the valley rafters if you like. The addition ridge will tie into this point as well.
4. The addition will be used - 1<sup>st</sup> floor for dining room, 2<sup>nd</sup> floor for bedroom. The bedroom will meet the code requirement for egress.
5. I have a copy of the energy code, chad does plan on meeting the code. He is very concerned about heat loss.
6. All framing will comply with the code. The headers will be 2x10 unless they are located under the structural ridges in which case they will be (2) LVLs as noted. Jack studs will be per code, I am using 2x4 framing and doubling jacks where necessary.
7. Floor sheathing is 3/4" t&g Advantech, CO detectors will be installed per Maine law and headroom is noted on plan. Please note there are areas where the head room is 5 feet which is the minimum allowed in the code.

Please contact me with any question or concerns. 650-4817

Paul White  
Lone Tree Woodworkers

**Chad Thompson**  
**Source Protection Coordinator**  
Portland Water District  
225 Douglass Street, PO Box 3553  
Portland, ME 04104  
Phone: 774-5961 Ext. 3323  
Fax: 207-892-0041  
E-mail: [cthompson@pwd.org](mailto:cthompson@pwd.org)  
<http://www.pwd.org>



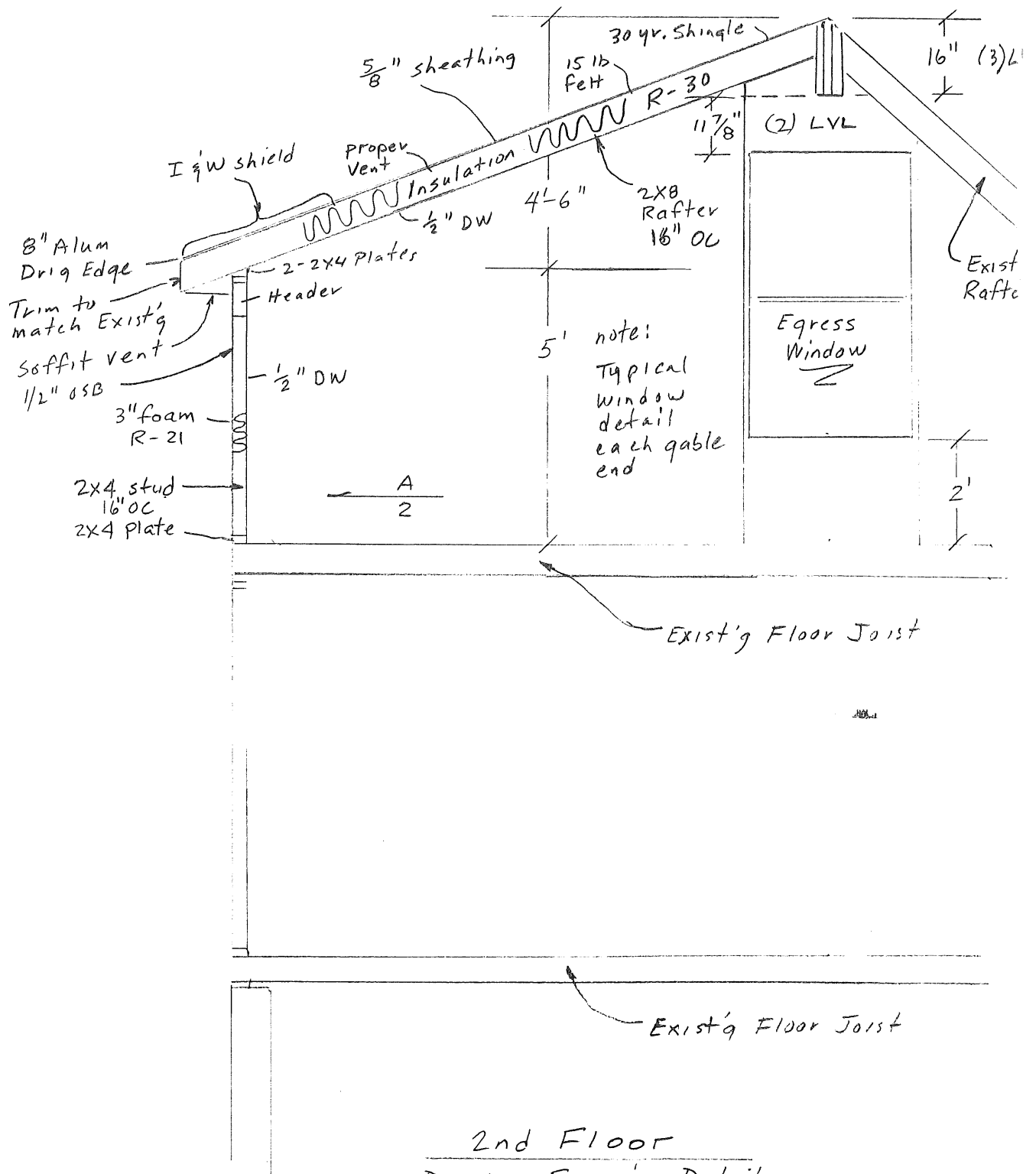
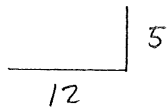
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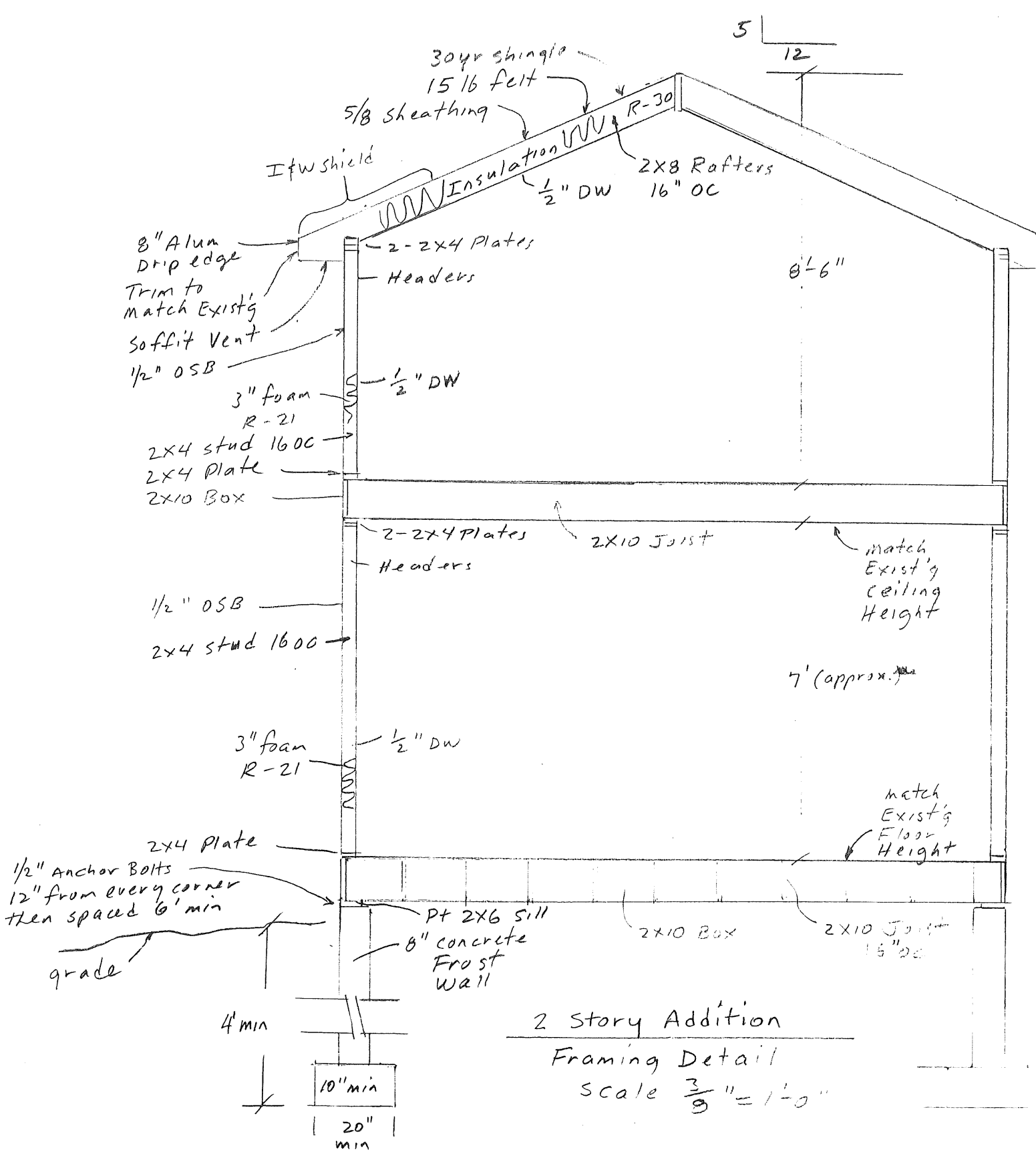
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Chad Thompson  
 93 Westland Ave.  
 Portland, ME.



2nd Floor  
 Dormer Framing Detail  
 Typical Wall Section  
 Scale  $\frac{3}{8}'' = 1'-0''$

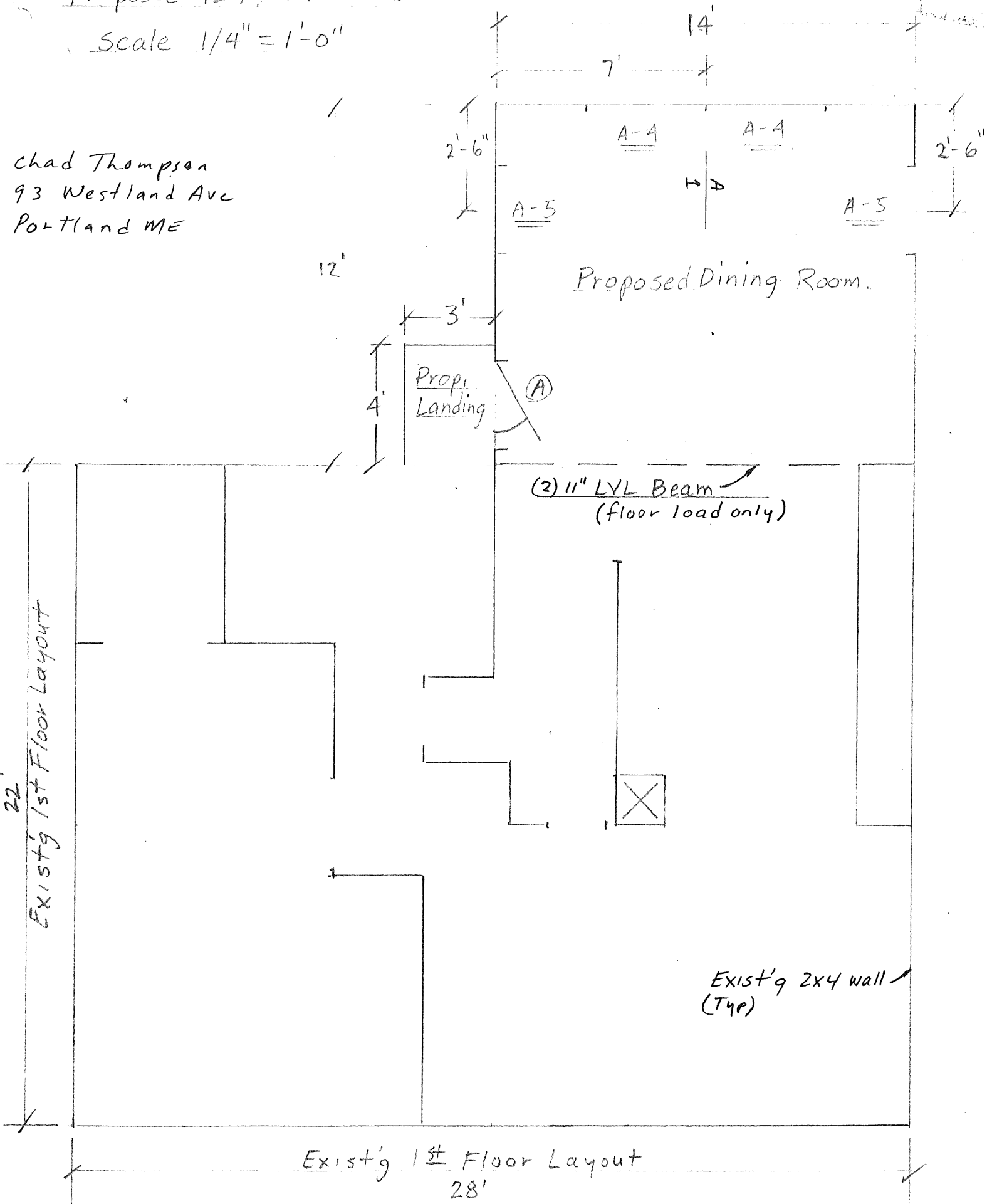
93 Westland Ave  
 Portland, ME.



Proposed 12' x 14' Addition

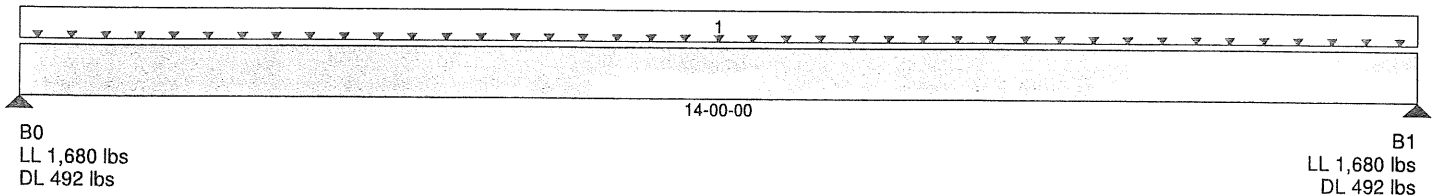
Scale 1/4" = 1'-0"

Chad Thompson  
93 Westland Ave  
Portland ME



Job Name: Thompson  
Address:  
City, State, Zip: Portland, ME  
Customer:  
Code reports: ESR-1040

File Name: BC CALC Project  
Description: FB01  
Specifier:  
Designer:  
Company:  
Misc:



Total of Horizontal Design Spans = 14-00-00

Load Summary				Live	Dead	Snow	Wind	Roof Live	Trib. (in.)
Tag	Description	Load Type	Ref. Start End	100%	90%	115%	160%	125%	
1	Standard Load	Unf. Area (psf)	L 00-00-00 14-00-00	40	10				06-00-00

Controls Summary	Value	% Allowable	Duration	Case	Span
Pos. Moment	7,604 ft-lbs	45.1%	100%	1	1 - Internal
End Shear	1,878 lbs	26.9%	100%	1	1 - Left
Total Load Defl.	L/423 (0.397")	56.7%		1	1
Live Load Defl.	L/547 (0.307")	65.8%		1	1
Max Defl.	0.397"	39.7%		1	1
Span / Depth	16.0	n/a			1

**Disclosure**

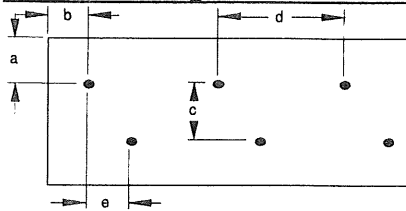
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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade, L.L.C.

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
Design meets Code minimum (L/360) Live load deflection criteria.  
Design meets arbitrary (1") Maximum load deflection criteria.  
Minimum bearing length for B0 is 1-1/2".  
Minimum bearing length for B1 is 1-1/2".  
Entered/Displayed Horizontal Span Length(s) = Clear Span + 1/2 min. end bearing + 1/2 intermediate bearing  
\* Cut from: 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP  
Fastener Manufacturer: TrussLok (tm)

**Connection Diagram**



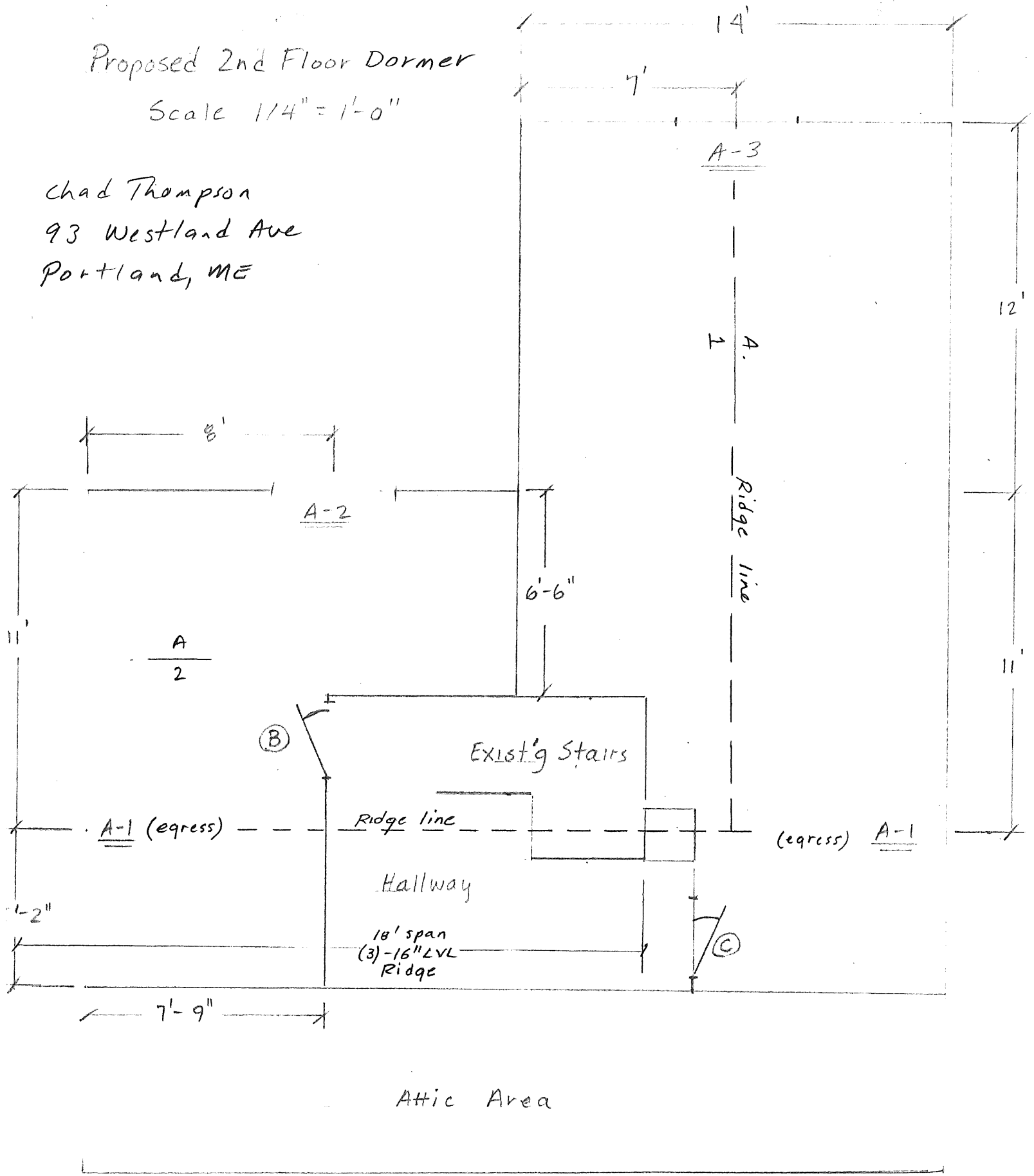
a minimum = 2"      c = 6-1/2"  
b minimum = 4"      d = 24"  
e minimum = 1"

All TrussLok screws may be installed from one side of multiple ply VERSA-LAM beams.  
All TrussLok screws may be installed from one side of multiply Versa-Lam beams.  
Member has no side loads.  
Connectors are: FMTSL338

# Proposed 2nd Floor Dormer

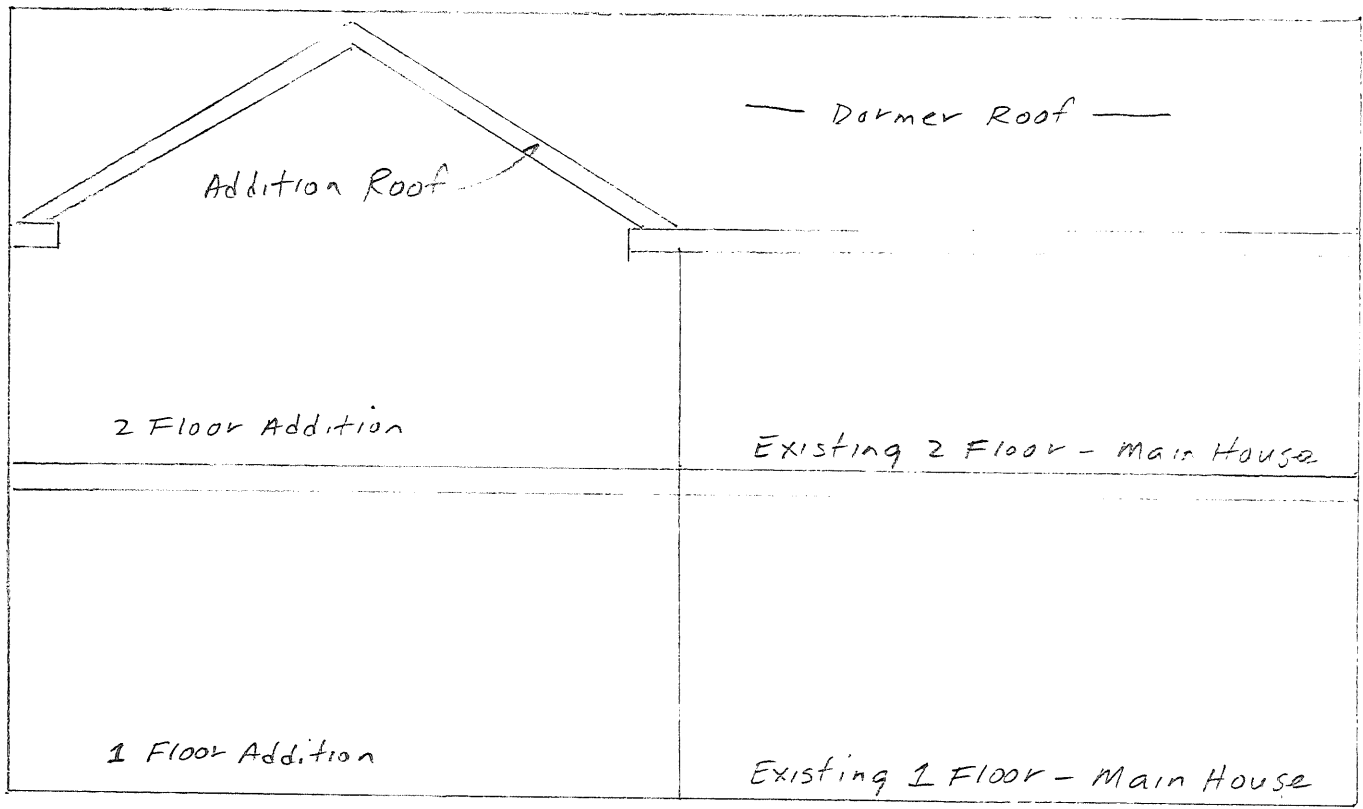
Scale 1/4" = 1'-0"

Chad Thompson  
93 Westland Ave  
Portland, ME



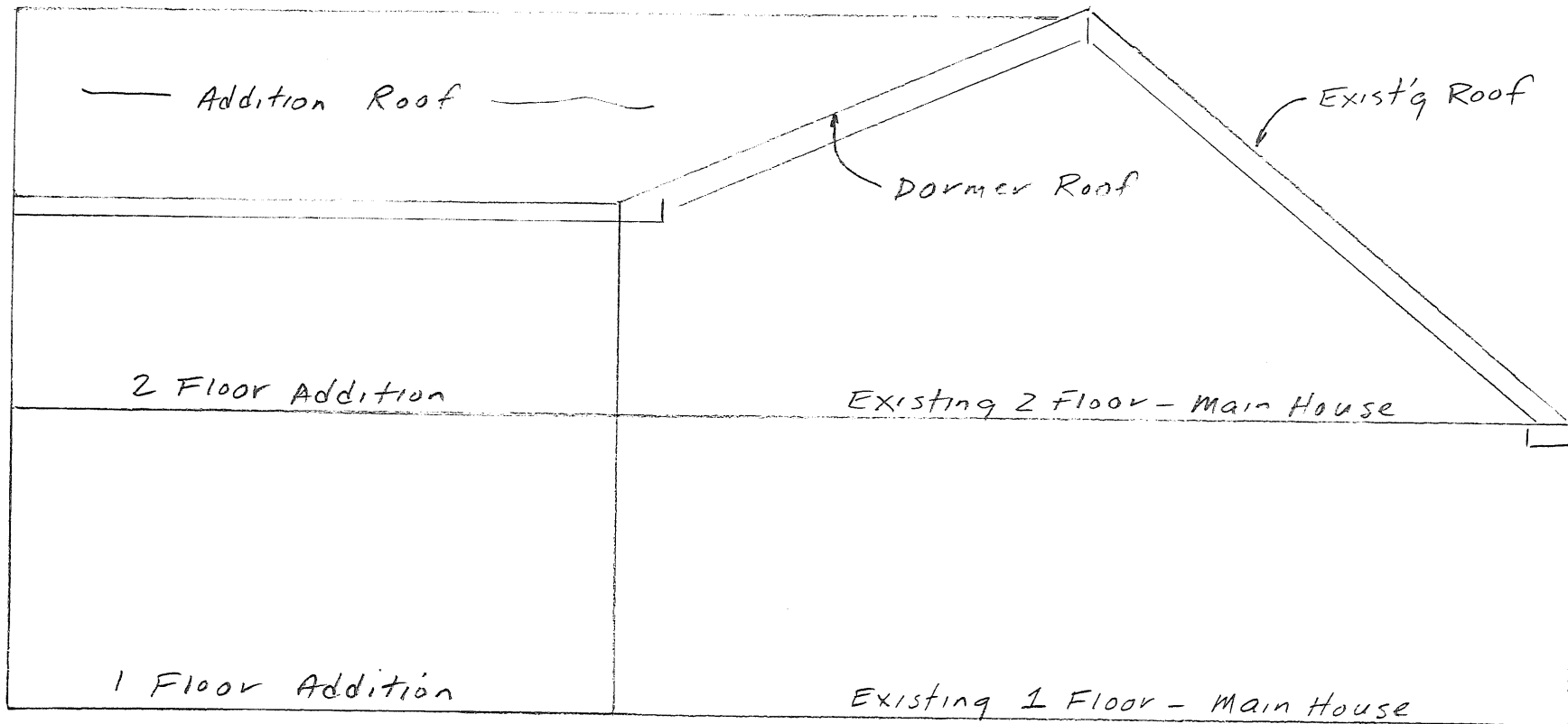
Chad Thompson  
73 Westland Ave  
Portland, ME

Sketch showing elevations  
Scale 1/4" = 1'-0"



Chad Kompson  
93 Westland Ave  
Portland, ME

ARCHITECTURAL ELEVATIONS  
Scale 1/4" = 1'-0"





**ICC-ES Evaluation Report****ESR-2072**

Reissued September 1, 2010

*This report is subject to re-examination in one year.*[www.icc-es.org](http://www.icc-es.org) | (800) 423-6587 | (562) 699-0543

A Subsidiary of the International Code Council®

**DIVISION: 07 00 00—THERMAL AND MOISTURE  
PROTECTION****Section: 07 21 00—Thermal Insulation****REPORT HOLDER:****BAYER MATERIALSCIENCE, LLC  
3010 WEST LINCOLN STREET  
PHOENIX, ARIZONA 85009  
(602) 269-9711  
[www.BaySystemsSpray.com](http://www.BaySystemsSpray.com)****EVALUATION SUBJECT:****BAYSEAL™ CC AND BAYSEAL™ CC POLAR SPRAY-  
APPLIED POLYURETHANE FOAM INSULATIONS****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2009 *International Building Code*® (IBC)
- 2009 *International Residential Code*® (IRC)
- 2009 *International Energy Conservation Code*® (IECC)
- Other Codes (see Section 8)

**Properties evaluated:**

- Surface-burning characteristics
- Physical properties
- Thermal resistance
- Attic and crawl space installation
- Air permeability
- Vapor permeance
- Exterior walls in Types I through IV construction

**2.0 USES**

Bayseal™ CC and Bayseal™ CC Polar spray foam insulations are used as thermal insulating materials in Type I, II, III, IV and V construction under the IBC and dwellings under the IRC. See Section 4.5 for use in Type I, II, III and IV construction. The insulations are for use in wall cavities, floor assemblies or ceiling assemblies, or attics and crawl spaces when installed in accordance with Section 4.0. Use of the insulations in fire-resistance-rated construction is outside the scope of this report.

**3.0 DESCRIPTION****3.1 Bayseal™ CC and Bayseal™ CC Polar Foam  
Plastic Insulation:**

Bayseal™ CC and Bayseal™ CC Polar spray foam insulations are medium-density polyurethane foam plastics

intended to be installed as a component of floor/ceiling and wall assemblies. The materials are two-component, closed cell, one-to-one-by-volume spray foam insulations with a nominal in-place density of 1.9 pcf (30 kg/m<sup>3</sup>). The insulation is produced in the field by combining a polymeric isocyanate (A component) with a polymeric resin blend (B component). The insulation liquid components have a shelf life of six months, are supplied in nominally 55-gallon (208 L) drums and must be stored at temperatures between 65°F (18°C) and 85°F (29°C).

**3.2 Surface-burning Characteristics:**

The insulation at a maximum thickness of 4 inches (102 mm) and a nominal density of 1.9 pcf (30 kg/m<sup>3</sup>) has a flame-spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84. Greater thicknesses are recognized as described in Sections 4.3 and 4.4.

**3.3 Thermal Resistance (R-values):**

The insulation has thermal resistance (R-value) at a mean temperature of 75°F (24°C) as shown in Table 1.

**3.4 Vapor Retarder:**

The foam plastic has a vapor permeance of less than 1 perm (5.7x10<sup>-11</sup> kg/Pa-s-m<sup>2</sup>) when applied at a minimum thickness of 1 inch (25.4 mm) and qualifies as a vapor retarder.

**3.5 Air Permeability:**

Bayseal™ CC and Bayseal™ CC Polar spray foam insulations are air-impermeable in accordance with Section R806.4 of the IRC, at a minimum thickness of 0.75-inches (19.1 mm), based on testing in accordance with ASTM E 283.

**3.6 Bayseal™ IC Intumescent Coating:**

Bayseal™ IC intumescent coating is a one-component, water-based polymer coating. Bayseal™ IC intumescent coating is supplied in 5-gallon (19 L) pails and 55-gallon (208 L) drums and has a shelf life of one year when stored in a factory-sealed container at temperatures of 50°F (10°C) or above.

**3.7 Flame Seal® TB Intumescent Coating:**

Flame Seal® TB, manufactured by Flame Seal Products Inc., is a two-component, four-to-one-by-volume, liquid-applied, water-based polymer intumescent coating. The coating is supplied in 5-gallon (19 L) pails and 55-gallon (208 L) drums and has a shelf life of six months when stored in a factory-sealed container at temperatures between 40°F and 90°F (4°C and 32°C).

## 4.0 INSTALLATION

### 4.1 General:

Bayseal™ CC and Bayseal™ CC Polar spray foam insulations must be installed in accordance with the manufacturer's published installation instructions and this report. A copy of the manufacturer's published installation instructions must be available at all times on the jobsite during installation.

### 4.2 Application:

The insulation is spray-applied on the jobsite using a volumetric positive displacement pump as identified in the Bayer MaterialScience application instructions. The maximum service temperature must not exceed that specified in the manufacturer's published installation instructions. The foam plastic must not be used in electrical outlet or junction boxes or in contact with water. The foam plastic must not be sprayed onto a substrate that is wet, or covered with frost or ice, loose scales, rust, oil, or grease.

The insulation may be applied at a maximum thickness of 3 inches (76 mm) per pass up to the maximum total thickness as specified in Sections 3.2, 4.3 and 4.4. Additional passes may be applied after ten minutes or more of curing time.

### 4.3 Thermal Barrier:

**4.3.1 Application with a Prescriptive Thermal Barrier:** Bayseal™ CC and Bayseal™ CC Polar spray foam insulation must be separated from the interior of the building by an approved thermal barrier of 1/2-inch-thick (12.7 mm) gypsum wallboard or an equivalent 15-minute thermal barrier complying with, and installed in accordance with, IBC Section 2603.4 or IRC Section R316.4, as applicable. Thicknesses of up to 8 inches (203 mm) for wall cavities and 12 inches (305 mm) for ceiling cavities are recognized, based on room corner fire testing in accordance with NFPA 286.

**4.3.2 Application without a Prescriptive Thermal Barrier with Flame Seal® TB Intumescent Coating:** The prescribed 15-minute thermal barrier may be omitted when installation is in accordance with this section. The Bayseal™ closed cell insulation and Flame Seal® TB system may be used in lieu of the prescribed 15-minute thermal barrier. The foam plastic insulation thickness must not exceed 6 inches (152 mm) in walls and ceilings, and the insulation must be covered with 18 dry mils (0.46 mm) of Flame Seal® TB intumescent coating applied at a minimum rate of 1.6 gallons (6 L) per 100 square feet (9.3 m<sup>2</sup>). The substrate must be dry, clean and free of dirt and loose debris or other substances that could interfere with the adhesion of the coating. Flame Seal® TB may be applied by airless sprayer at ambient temperatures between 50°F and 115°F (10°C and 46°C) and relative humidity of less than 70 percent.

**4.3.3 Use as Interior Finish:** The Bayseal™ closed cell insulation and Flame Seal® TB intumescent coating system, as described in Section 4.3.2, may be used as an interior finish in all construction types.

### 4.4 Attics and Crawl Spaces:

**4.4.1 Application with a Prescriptive Ignition Barrier:** When Bayseal™ CC and/or Bayseal™ CC Polar insulation is installed within attics or crawl spaces where entry is made only for service of utilities, an ignition barrier must be installed in accordance with IBC Section 2603.4.1.6 or IRC Sections R316.5.3 and R316.5.4, as applicable. The ignition barrier must be consistent with the requirements for the type of construction required by the applicable code, and must be installed in a manner so the foam

plastic insulation is not exposed. The insulation as described in this section may be installed in unvented attics in accordance with IRC Section R806.4.

### 4.4.2 Application without a Prescriptive Ignition Barrier:

**4.4.2.1 General:** Where Bayseal™ CC and/or Bayseal™ CC Polar insulation is installed without a prescriptive ignition barrier as described in Section 4.4.2.2 or 4.4.3, in attics and crawl spaces, the following conditions apply:

- Entry to the attic or crawl space is only to service utilities and no storage is permitted.
- There are no interconnected attic or crawl space areas.
- Air in the attic or crawl space is not circulated to other parts of the building.
- Under-floor (crawl space) ventilation is provided when required by IBC Section 1203.3 or IRC Section R408.1, as applicable.
- Attic ventilation is provided when required by IBC Section 1203.2 or IRC Section R806, except when air-impermeable insulation is permitted in unvented attics in accordance with Section R806.4 of the IRC.
- Combustion air must be provided in accordance with Section 701 of the 2009 *International Mechanical Code*® (IMC).

**4.4.2.2 Use with Bayseal™ IC Intumescent Coating:** Bayseal™ CC or Bayseal™ CC Polar insulation may be spray-applied to the underside of roof sheathing and/or rafters, and the underside of wood floors and/or floor joists in crawl spaces as described in this section. The thickness of the foam plastic applied to the underside of the wood floor or roof sheathing must not exceed 12 inches (305 mm). The thickness of the spray foam insulation applied to vertical wall surfaces in attics and crawl spaces must not exceed 8 inches (203 mm). All foam plastic surfaces must be covered with 4 dry mils (0.1 mm) of Bayseal™ IC intumescent coating, applied at a rate of 0.5 gallon (1.9 L) per 100 square feet (9.3 m<sup>2</sup>). Bayseal™ IC intumescent coating may be applied by brush, roller or airless sprayer at ambient temperatures between 50°F and 115°F (10°C and 46°C) and relative humidity of less than 75 percent. Surfaces to be coated must be dry, clean, and free of dirt, loose debris and any other substances that could interfere with adhesion of the coating. Bayseal™ CC and Bayseal™ CC Polar insulation, as described in this section, may be installed in unvented attics in accordance with IRC Section R806.4.

### 4.4.3 Attic Floors:

**Use on Attic Floors with Bayseal™ IC Intumescent Coating:** Bayseal™ CC and Bayseal™ CC Polar insulation may be installed at a maximum thickness of 8 inches (203 mm) between and over the joists in attic floors. All foam plastic surfaces must be covered with 4 dry mils (0.1 mm) of Bayseal™ IC intumescent coating uniformly applied at a rate of 0.5 gallons (1.9 L) per 100 square feet (9.3 m<sup>2</sup>). Bayseal™ IC intumescent coating may be applied by brush, roller or airless sprayer at ambient temperatures between 50°F and 115°F (10°C and 46°C) and relative humidity of less than 75 percent. Surfaces to be coated must be dry, clean, and free of dirt, loose debris and any other substances that could interfere with adhesion of the coating. The insulation must be separated from the interior of the building (beneath the attic) by an approved thermal barrier. The ignition barrier in accordance with IBC Section 2603.4 and IRC Section R316.5.3 may be omitted.

#### 4.5 Exterior Walls in Types I, II, III and IV Construction:

When used on walls of Type I, II, III and IV construction, the assembly in which the Bayseal™ CC or Bayseal™ CC Polar spray-applied polyurethane insulation is used must comply with Section 2603.5 of the IBC and must be installed at a maximum thickness of 3.25 inches (82.6 mm) in accordance with the manufacturer's published installation instructions and this report. The potential heat of the foam plastic in any portion of the walls or panels must not exceed the potential heat, expressed in Btu/ft<sup>2</sup> (MJ/m<sup>2</sup>), of the foam plastic insulation contained in the wall assembly tested in accordance with NFPA 285. The potential heat of the Bayseal™ CC or Bayseal™ CC Polar spray-applied polyurethane insulation is 1838 Btu/ft<sup>2</sup> (20.9 MJ/m<sup>2</sup>) per inch of thickness.

#### 5.0 CONDITIONS OF USE

The Bayseal™ CC and Bayseal™ CC Polar spray-applied foam plastic insulations described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The products must be installed in accordance with the manufacturer's published installation instructions, this evaluation report and the applicable code. The instructions within this report govern if there are any conflicts between the manufacturers' published installation instructions and this report.
- 5.2 The insulation must be separated from the interior of the building by an approved 15-minute thermal barrier, except when installation is as described in Sections 4.3.2 and 4.4.
- 5.3 The insulation must not exceed the thicknesses noted in Sections 3.2, 4.3 and 4.4 of this report.
- 5.4 The insulation must be protected from prolonged exposure to weather during and after application.
- 5.5 The insulation must be applied by contractors certified by Bayer MaterialScience, LLC.
- 5.6 When use is on buildings of Types I, II, III and IV construction, documentation must be submitted to the code official verifying that the insulation has been qualified as a component of an assembly tested in accordance with IBC Sections 2603.5.1, 2603.5.5 and 2603.5.7. The maximum potential heat of the foam plastic used in the assembly must be no greater than that noted in Section 4.5.
- 5.7 Use of the insulation in areas where the probability of termite infestation is "very heavy" must be in accordance with IRC Section R318.4 or IBC Section 2603.8, as applicable.
- 5.8 Jobsite certification and labeling of the insulation must comply with IRC Sections N1101.4 and N1101.4.1 and IECC Sections 303.1.1 and 303.1.2, as applicable.
- 5.9 Use of the insulations in fire-resistance-rated construction is outside the scope of this report.
- 5.10 Bayseal™ CC and Bayseal™ CC Polar spray-applied foam insulations are produced by Bayer MaterialScience, LLC, in Phoenix, Arizona, and Spring, Texas, under a quality control program with inspections by Underwriters Laboratories Inc. (AA-668).

#### 6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation (AC377), dated June 2010, including reports of tests in accordance with Appendix X.
- 6.2 Reports of room corner tests in accordance with NFPA 286 and UL 1715.
- 6.3 Reports of potential heat of foam plastics tests in accordance with NFPA 259.
- 6.4 Reports of air leakage tests in accordance with ASTM E 283.

#### 7.0 IDENTIFICATION

Components for Bayseal™ CC and Bayseal™ CC Polar spray-applied foam plastic insulations are identified with the manufacturer's name (Bayer MaterialScience, LLC), address and telephone number; the product name (Bayseal™ CC or Bayseal™ CC Polar); mixing instructions; the density; the flame-spread and smoke-development indices; the evaluation report number (ESR-2072); and the name of the inspection agency (Underwriters Laboratories Inc.).

Each pail of Bayseal™ IC intumescent coating is labeled with the manufacturer's name (Bayer MaterialScience, LLC) and address; the product name (Bayseal™ IC); and use instructions.

Each pail of Flame Seal® TB intumescent coating is labeled with the manufacturer's name (Flame Seal Products Inc.) and address; the product name (Flame Seal® TB); and use instructions.

#### 8.0 OTHER CODES

In addition to the codes referenced in Section 1.0, the products described in this report were evaluated for compliance with the requirements of the following codes:

- 2006 *International Building Code*® (2006 IBC)
- 2006 *International Residential Code*® (2006 IRC)
- 2006 *International Energy Conservation Code*® (2006 IECC)
- 2003 *International Building Code*® (2003 IBC)
- 2003 *International Residential Code*® (2003 IRC)
- 2003 *International Energy Conservation Code*® (2003 IECC)

The products comply with the above-mentioned codes as described in Sections 2.0 through 7.0 of this report, with the revisions noted below:

- **Application with a Prescriptive Thermal Barrier:** See Section 4.3.1, except the approved thermal barrier must be installed in accordance with Section R314.4 of the 2006 IRC or Section R314.1.2 of the 2003 IRC, as applicable.
- **Application with a Prescriptive Ignition Barrier:** See Section 4.4.1 except attics must be vented in accordance with Section 1203.2 of the 2006 and 2003 IBC or Section R806 of the 2003 IRC, and crawl space ventilation must be in accordance with IBC Section 1203.3 of the 2006 and 2003 IBC or IRC Section R408, as applicable. Additionally, an ignition barrier must be installed in accordance with Sections R314.5.3 or R314.5.4 of the 2006 IRC or Section R314.2.3 of the 2003 IRC, as applicable.

- **Application without a Prescriptive Ignition Barrier:** See Section 4.3.2, except attics must be vented in accordance with Section 1203.2 of the 2006 and 2003 IBC or Section R806 of the 2003 IRC, and crawl space ventilation must be in accordance with IBC Section 1203.3 of the 2006 and 2003 IBC or IRC Section R408, as applicable.
- **Protection against Termites:** See Section 5.7, except use of the insulation in areas where the probability of termite infestation is "very heavy" must be in accordance with Section R320.5 of the 2006 IRC or Section R320.4 of the 2003 IRC.
- **Jobsite Certification and Labeling:** See Section 5.9, except jobsite certification and labeling must comply with Sections 102.1.1 and 102.1.1.1, as applicable, of the 2006 IECC.

TABLE 1—THERMAL RESISTANCE (R-VALUES)<sup>1</sup>

THICKNESS (Inches)	R-VALUE (°F.ft <sup>2</sup> .h/Btu)
1	6.9
2	14
3	21
3.5	24
4	28
5	34
5.5	38
6	41
7	48
7.5	52
8	55
9	62
10	69
11	76
12	83

For SI: 1 inch = 25.5 mm; 1°F.ft<sup>2</sup>.h/Btu = 0.176 110°K.m<sup>2</sup>/W.

<sup>1</sup>R-values are calculated based on tested K values at 1 and 3.5-inch thicknesses.



Bayer MaterialScience

Bayer MaterialScience, LLC  
2400 Spring Stuebner Road  
Spring, TX 77389

Phone: 281-350-9000

April 7, 2011

93 Westland  
197-L-004

To Whom It May Concern:

This letter will certify that the contractor listed below ("Contractor") is a Bayer MaterialScience LLC ("BMS") Certified Contractor approved to apply BMS products.

High Efficiency Foam  
175 Halidon Road  
West Brook, ME 04092

This approval letter supersedes all previous communication verbal or written regarding BMS and Contractor. This letter shall be in effect for one year from the date of this letter unless cancelled prior to that date by written notification to Contractor at the address shown below.

Contractor is an independent contractor, and is not in a partnership relationship, pooling agreement, association, principal and agent relationship, or an employer and employee relationship. Application of materials supplied by BMS is under the control of Contractor. This approval letter does not bind BMS to any warranty obligation of any kind that is not specifically contained in a warranty supplied by BMS on any specific project.

If we may be of further service, please do not hesitate to contact us.

Sincerely,

*Bob Creighton*

Bob Creighton  
Marketing Manager, Contractor and Warranty Programs