

RS.OI.165094

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CITY OF
PORTLAND, OREGON
BUREAU OF ENVIRONMENTAL SERVICES
1900 SW 4TH AVE, SUITE 2100
Portland, OR 97201



BES PLAN EXAMINATION CHECK SHEET

Application # 01-165094-000-00-RS

Review Date: October 10, 2001

IVR# 2128634

To:	APPLICANT	BATEMAN CONSTRUCTION INC 7335 SW 92ND AVE PORTLAND OR 97223	Cellular	503 516-5770
			Fax	503 768-4986
From:		IGNATIUS DECHABERT	Phone	503-823-7116
			Fax	503 823-4591
			E-Mail	ignatiusd@bes.ci.portland.or.us
cc:	OWNER	LEONARD B WEITMAN & DEBORAH L WEITMAN 6415 SW 90TH AVE PORTLAND, OR 97223-7218		

PROJECT INFORMATION

Street Address:	4991 SW NEVADA CT
Description of Work	BUILD A NEW 2 STORY ADDITION FOR BEDROOMS & BATHROOM & OTHER ADDITIONS TO EXISTING HOUSE - ADDING 1200 SQ FT TO FOOTPRINT OF SFR

The following are items that will need to be addressed prior to plan approval by the Bureau of Environmental Services. Approval of your plan for sanitary and storm management facilities by BES does not mean your building permit can be immediately issued; BES is only one of many bureaus that review your building plan.

Item #	Location on plans	Clarifications / Corrections Required
1.	SITE PLAN	The site plan for this application must be revised to <u>show your plan to meet on-site stormwater water quality and flow management requirements</u> as required by the current Stormwater Management Manual adopted by the City of Portland. Once you have determined your method of water quality, correct the site plan to show your method of water quality, provide a detail drawing of the facility and attach a copy of your Operation & Maintenance Plan for our review prior to recording it with the county. Please indicate on the site plan the following: 1. Location of the stormwater management system 2. The size, location and specific type of stormwater management system. Provide form MIT (page 1-25) for required impervious surface mitigation (see chapter one). If appropriate, use form SIM (page 4-5) for the facility type and sizing of the system. 3. Total square footage of all new impervious area (i.e. roof area, sidewalks, concrete driveways, etc.). Any proposed development or redevelopment, which creates more than 500 square feet of impervious area, will need to comply with the water quality and flow management requirements of the current Stormwater Management Manual. Copies of the manual are available at the Office of Planning and Development Review (OPDR), 1900 SW 4th Ave., or on the Internet at www.enviro.ci.portland.or.us.

To respond to this checksheet, come to Document Services (the second floor of 1900 SW Fourth Ave., between 7:30 a.m. and 3:00 p.m.) and update all four sets of the originally submitted drawings. To update the drawings, you may either replace the



CITY OF
PORTLAND, OREGON

OFFICE OF PLANNING AND DEVELOPMENT REVIEW
1900 SW 4th Ave, Suite 5000
Portland, OR 97201



STATUS CHECK	Residential 1 & 2 Family Permit	Application # 01-165094-000-00-RS
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Status Date: October 08, 2001

IVR Number: 2128634

APPLICANT	BATEMAN CONSTRUCTION INC	Phone: (503) 516-5770
OWNER	LEONARD B WEITMAN & DEBORAH L WEITMAN	Phone:
CONTRACTOR	BATEMAN CONSTRUCTION INC	Phone:

PROJECT INFORMATION

Description of Work: BUILD A NEW 2 STORY ADDITION FOR BEDROOMS & BATHROOM & OTHER ADDITIONS TO EXISTING HOUSE - ADDING 1200 SQ FT TO FOOTPRINT OF SFR

Street 4991 SW NEVADA CT
Address

Occupancy Group	Construction Type	Sub Type	Work Proposed
R3 U1	V-N	Single Family Dwelling	Addition

This report shows those reviews which have been assigned as of October 8, 2001 at 12:13 pm. Technical reviews may trigger additional review assignments.

Review Type/Process	Mandatory	Status	Action Date	Reviewer	Phone
Completeness Check - RS	X	Closed	10/8/01	Nys, Steve	503-823-7717
Assign plan and file location		Open		DOCUMENT SERVICES	503-823-7357
Assign Reviews - RS		Open			
Corrections Received - RS		Open		DOCUMENT SERVICES	503-823-7357
Planning and Zoning Review	X	Approved	10/8/01	Scarzello, Chris	503-823-7716
Erosion Control Plan Review	X	Approved	10/8/01	Scarzello, Chris	503-823-7716
Life Safety Review	X	Open	10/9	LIFE SAFETY T. Jones	503-823-7301
Structural Review	X	Open		STRUCTURAL	503-823-7301
Residential Plumbing Review	X	Open		Ebeling, Mike	503-823-7247
Residential Subsurface Site Evaluation	X	Open		COMMERCIAL/RESIDENTIAL PLUMB	
BES Stormwater Review	X	Open		BES	503-823-7761
BES - SDC Review	X	Open		BES	503-823-7761
Urban Forestry Review	X	Open		Black, Mylos	503-823-4018
Send Letter of intent to expire		Open		DOCUMENT SERVICES	503-823-7357
Plans checked out to Applicant		Open			
Pre-issuance check	X	Open		PRE-ISSUANCE RS.MI:MP	503-823-7357
Payment Received		Open			

City of Portland
Office of Planning and Development Review
Development Services Center
Preliminary – Project Information

Building Address: <u>4991 SW NEVADA CT POR OR 97219</u>	
Business Address (if different): <u>7335 SW 92ND AVE POR OR 97223</u>	
Owner's Name: <u>LEONARD WRIGHT</u>	
Applicant's Name: <u>STEVEN BINTERMAN</u>	Phone: <u>503 516 5770</u>
Applicant's Address: <u>7335 SW 92ND AVE POR OR 97223</u>	

Legal Description (essential for new construction on vacant land):			
Tax Lot:	Section:	Township:	Range:
Lot:	Block:	Addition: <u>X</u>	
Account Number: R-			
Current Land Use Review Files:			

Description of Work:	<u>ADDING 2 STORY ADDITION TO</u>
	<u>EXISTING HOUSE. SMALL ADDITIONS TO</u>
	<u>EXISTING STRUCTURE</u>

Contractor: <u>BINTERMAN CONSTRUCTION INC</u>	
Contractor Number: <u>111019</u>	Existing Square Footage: <u>1100</u>
Valuation of Work: <u>75,000</u>	New Square Footage: <u>2300</u>

Type of Work	New:	Addition: <u>X</u>	Alteration:
	Repair:	Demolition:	Tenant Improvement:
	Other:		

PLEASE PROVIDE AS MUCH INFORMATION AS POSSIBLE



City of Portland Development Services Center

1900 SW 4th Avenue First Floor Portland, OR 97201 (503) 823-7310

URBAN FORESTRY (STREET TREE) REVIEW CHECKLIST

A street tree review may be required for any commercial or residential project that exceeds \$25,000 in value. As a result of that review, fees may be assessed and the property owner may need to plant street trees.

Please complete this checklist **before** you put your customer routing slip in the box to see a plan reviewer. If (based on your answers to the survey) an Urban Forestry review is required, a street tree review fee ranging between \$47.93 - \$115.02 will be collected with your other plan check permit fees.

A Forestry inspector will visit the property soon after the building permit is issued. If Urban Forestry determines that street trees are required, the inspector will either mail or leave at the door, routing information on the species, size, spacing, etc. of required trees. Trees must be planted before a building inspector can sign off the final inspection for your building permit.

PART I

Site Address: 5991 SW MEVADA CT.
POE OR 97219

Owner: LEONARD WATKINS

Applicant: STEVE BARNES

Contact: 503 516-5770 768-4986 flyonly@home.com
(phone) (FAX) (e-mail)

What is the total market value (includes the cost of volunteer labor and donated materials) of this project ?

\$25,000 or LESS ☐

MORE than \$25,000 ☒

If the value of the work is \$25,000 or less, NO Street Tree Review is required.
Please go directly to PART IV.

If the value exceeds \$25,000 please continue with PART II

PART II

1. Are there currently healthy trees in the public right-of-way spaced at 30' or less?
Yes ☒ No ☐
2. Are there currently healthy trees in the public right-of-way 15' or less from your side property lines or driveway curb cut?
Yes ☒ No ☐

If you answered "Yes" to both questions above, and the project will not affect existing trees in the public right-of-way (tree removal, pruning of limbs or roots, or any grade change), NO Street Tree Review is required before your permit is issued.
Please go to PART IV.

If you answered "No" to one or more questions, please continue with PART III.

PART III

3. Is there a curb OR sidewalk at the public right of way along this property?
Yes ☐ No ☐
4. Will the project affect existing trees in the public right-of-way (tree removal, pruning of limbs or roots, or any grade change)?
Yes ☐ No ☐

If you answered "yes" to question 3 OR 4 above, a Street Tree review IS required before your permit can be issued.
Please read and sign below in PART IV.

PART IV

If the project is under \$25,000 and will affect existing trees in the public right-of-way (tree removal, pruning of limbs or roots, or any grade change), a free inspection and permit will be required. Please call the Urban Forestry Division at (503) 823-4489.

Disclaimer: The City of Portland reserves the right to inspect the property or otherwise to verify the information provided. If information provided by the applicant and/or property owner is found to be incorrect, and if the City determines that street trees are required, the applicant and/or property owner will be required to pay an inspection fee, as well as all costs incurred by the City, and will be required to plant street trees in accordance with the City Code.

Signature of Applicant: _____

Date: _____

01-165094-RS

~ Office Use Only ~

Permit # _____

Impervious Surface Mitigation Measures

Instructions

1. Enter total site area into Box A.
2. Enter square footage of all impervious site elements in Box B.
3. Enter square footage of each proposed mitigation measure in the appropriate box under Column 1.
4. Add the surface areas (square footage) of all the mitigation measures in Column 1. Enter the total in Box C.
5. Subtract the amount in Box C from amount in Box B and enter in Box D.³
6. Enter the square footage of the proposed pervious area in Box E.
7. Add the numbers in Box C, Box D, and Box E. This number should be the same as the number in Box A.
8. If porous pavement or trees are proposed as mitigation measures, enter the appropriate SBUH curve number from back of form in Column 2.
9. Multiply the surface area of each mitigation measure by the curve number in Column 2 and enter the totals in Column 3.
10. Add the numbers in Column 3 and enter the total in Box F.
11. Divide the amount in Box F by the amount in Box C to get the composite curve number for the mitigated impervious area. Enter this number in Box G.
12. For the proposed pervious area enter the appropriate SBUH curve number from back of form in Box H. Note: This number may be an area weighted composite curve number.
13. Fill out Boxes I and J. (Information in the shaded Boxes (D, I, J, and K) will be used as input for the HYD program referenced in chapters 5.0 and 6.0.)

Enter total site area (sf) into Box A

Box A

Enter site impervious area (sf) into Box B

Box B

Proposed Mitigation Measure	Column 1 Surface Area	Unit	Column 2 SBUH ¹ Curve Numbers	Column 3 Area x Curve Number
Eco-roof		sf	61	
Roof Garden		sf	48	
Landscape Planter		sf	48	
Stormwater Planter (planter sf x 20 = surface area sf ²)		sf	48	
Porous Pavement		sf		
New Evergreen Trees (200 sf per tree)		sf		
New Deciduous Trees (100 sf per tree)		sf		
Existing Evergreen Trees ⁴ (One-half area of total tree canopy left in place)	725	sf		
Existing Deciduous Trees ⁴ (One-half area of total tree canopy left in place)	889.8	sf		
Mitigated Impervious Area	Box C	sf	Box G	Box F
Unmitigated Impervious Area	Box D	sf	Box K	
Proposed Pervious Area	Box E	sf	Box H	
Post-development Pervious Area = Box C + Box E =			Box I	
CN (perv.) = (Box C x Box G + Box E x Box H)/Box I =			Box J	

¹SBUH - Santa Barbara Unit Hydrograph; a method to determine the size of stormwater facilities.²These planters manage runoff from an impervious area 20 times the size of the surface area of the planter.³If the amount in Box D is less than 500 sf, there are no further requirements for water quality or flow management. If the amount in Box D is between 500 and 15,000 sf, the simplified approach may be used to design the required pollution reduction facilities. If the amount is greater than 15,000 sf or the designer chooses not to use the simplified approach, proceed to step 6.⁴Half credit is given unless tree will cover impervious surfaces. To get full credit, tree must be outside of environmental zones.

FORM MIT (page 2)

RUNOFF CURVE NUMBERS FOR MITIGATION MEASURES

Cover description		Curve numbers for hydrologic soil group			
Mitigation Measure	Hydrologic condition	A	B	C	D
Eco-roof	Good	N/a	61	n/a	n/a
Roof Garden	Good	N/a	48	n/a	n/a
Landscape Planter	Good	N/a	48	n/a	n/a
Stormwater Planter (AB and CD)	Good	N/a	48	n/a	n/a
Porous Pavement	-	76	85	89	n/a
Trees					
New and/or Existing Evergreen	-	36	60	73	79
New and/or Existing Deciduous	-	36	60	73	79

Notes:

n/a - Does not apply, as design criteria for the relevant mitigation measures do not include the use of this soil type.

CNs of various cover types were assigned to the mitigation measures with similar cover types, as follows:

Eco-roof – assumed grass in good condition with soil type B.

Roof Garden – assumed brush-weed-grass mixture with >75% ground cover and soil type B.

Landscape Planter – assumed brush-weed-grass mixture with >75% ground cover and soil type B.

Stormwater Planter – assumed brush-weed-grass mixture with >75% ground cover and soil type B.

Porous Pavement – assumed gravel.

Trees – assumed woods with fair hydrologic conditions.

DO NOT REMOVE

Approval criteria for Zoning must be attached to plans on construction site.

1 copy to each set of plans
1 copy to DSC filePlancheck # 21-165094-RS

ADDITION TO EXISTING HOME

Planner: RCARON**ONE & TWO FAMILY RESIDENTIAL PLAN REVIEW SHEET**Date: 10/2/01Zone: R7

Addition and Lot: _____

LUR History: NONESubstandard Lot Y ☒
PUD/Cluster Y ☒ADU Y ☒
Detached Access Structure Y ☒Lot size: 8250Plan District: NONE

<u>Minimum</u>	<u>Required</u>	<u>Proposed</u>	
Front Setback	<u>15</u>	<u>17'6"</u>	
Side Setback	<u>5</u>	<u>5' / 3'</u>	(3' FOR SIDE ADULTION) FLAG POLE ACCESS)
Rear Setback	<u>5</u>	<u>16</u>	
Parking Setback	<u>18</u>	<u>65'</u>	
Outdoor Area	<u>—</u>	<u>—</u>	
Trees (preservation, planting, or fund)	<u>—</u>	<u>—</u>	

<u>Maximum</u>			
Vehicle Paving	<u>40%</u>	<u>4620</u>	<u>237</u> —%
Building Coverage	<u>35%</u>	<u>29875</u>	<u>350975</u> % → REVISED 10/3/01
Height		<u>30'</u>	<u>23'</u>
Impervious Surface	<u>—%</u>	<u>—</u>	<u>—%</u>

Base Zone Design StandardsMain Entrance EXISTING ENTRANCE - NO CHANGEStreet Facing Façade 15'12Length of Garage Wall OKStreet Lot Line Setbacks OKOther Req./Notes

City of Portland

NOV 06 2001

FR YARD REST: 462

$$\text{Bld cov: } \left[\begin{array}{l} 37.5 \times 5 = \underline{187.5}, \quad 30.5 \times 58.5 = \underline{1784.25}, \quad 41 \times 16.5 = \underline{676.5} \\ 18.5 \times 42.5 = \underline{786.25}, \quad 2 \times 28.5 = \underline{57}, \quad 12 \times 1.5 = \underline{18} \end{array} \right] = 3,501$$

RELISED BUILDING COVERAGE 10/8/01

LOT SIZE = 8,250 sf 35% = 2,888 sf.

w/ proposed changes: 2020 sf

- changes:
- porch roof in rear removed
 - addition made smaller
 - eaves reduced.

BATEMAN LOT COVERAGE

2ND FLOOR WING 25'-9" x 55'-6"
w/ 1 1/2" GABLE ROOF & 9" TYP ROOF
BECOMES
27'-3" x 55'-9" + 1519 #

1ST FLOOR WING 35'-6" x 38'-6"
w/ TYP 9" ROOF BECOMES
37'-0" x 39'-6"
BUT TAKE AWAY 9" AREAROM
COUNTED ON 2ND FLOOR
FOR 37'-0" x 38'-9" + 1434 #

ADD LIVING ROOM STONE BAY 7'-0" x 2'-0" + 16 #
w/ 6" SIDING ROOF & TYP 9" ROOF
8'-0" x 2'-0"

ADD LIVING ROOM BAY WINDOW 3'-0" x 9'-0" + 26.25 #
w/ 9" TYP ROOF & 6" GABLE ROOF
2'-6" x 10'-6"

SUBTRACT DINING ROOM INSET 17'-3" x 2'-0" - 34.50 #

SUBTRACT ENTRY PORCH INSET 11'-0" x 20'-0" - 220.00 #
w/ ROOF'S

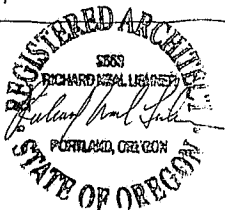
ADD SMALLER ENTRY PORCH 7'-6" x 18'-0" + 135.00
w/ ROOF'S

ADD WING WALL ROOF EXTENSION 2'-0" x 2'-0" + 4.00

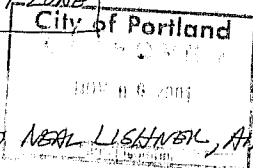
2879.75 # = 34.9 % ≤ 35% LOT COVERAGE
8250 # LOT LIMIT R-7 ZONE

2879.75 #

BATEMAN
10/5/01



RICHARD NEAL LISKHAL, AIA



52-360591-10
01-165094-ES

BATEMAN RESIDENCE
5 SEPTEMBER 2001
RADIATIONS & ADDITIONS

3553

①

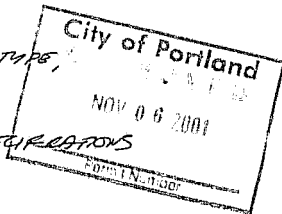


BEAM A: TYPICAL 2ND FLOOR SCISSOR TRUSS @ 24" O.C.
SPAN: 26'-0" 7/12 ROOF SLOPE, 5/12 ATTIC SLOPE
SEE TRUSS MANUFACTURER FOR
SPECS AND ENGINEERING
TRUSS OCCURS OVER:
- MASTER BEDROOM & PORCH
- STAIR HALL & BATH

BEAM B: CONVENTIONAL 2ND FLOOR TRUSS @ 24" O.C.
SPAN: 26'-0" 7/12 ROOF SLOPE, FLAT ATTIC
SEE TRUSS MANUFACTURER FOR
SPECS AND ENGINEERING
TRUSS OCCURS OVER: A
- MASTER CLOSET & BATH
- BEDROOMS 2 & 3

BEAM C: TYPICAL FIRST FLOOR TRUSS, SCISSOR TYPE
SPAN: 26'-0" 5/12 ATTIC SLOPE, 7/12 ROOF SLOPE
SEE TRUSS MANUFACTURER FOR SPECIFICATIONS
AND ENGINEERING
TRUSS OCCURS OVER:
- DINING ROOM & HALL

BEAM D: TYPICAL 1ST FLOOR TRUSS, SCISSOR TYPE,
SPAN: 28'-0" WITH EXTENDED CHORDS.
5/12 ATTIC SLOPE, 7/12 ROOF SLOPE
SEE TRUSS MANUFACTURER FOR SPECIFICATIONS
AND ENGINEERING
TRUSS OCCURS OVER:
- LIVING ROOM & HALL



BATEMAN RESIDENCE
09/09/01

RICHARD NEAL LISHER, RIA,

BEAM E: TYPICAL ROOF OVER RAFTERS
 SHED ROOF @ $3\frac{3}{4}/12 \pm$ SLOPE
 SPAN: $18'-0"$ MAX
2x8 DF #2 @ 24" O.C. CAN SPAN $13'-2"$ ✓

BEAM F: ROOF OVER FLAT VALLEY
USE 2x10 DF #2 SIZED FOR 2x8 RAFTERS

BEAM G: TYPICAL SHED ROOF RAFTERS @ $3\frac{3}{4}/12 \pm$ SLOPE
 SPAN: $18'-0"$
USE 2x8 DF #2 @ 24" O.C. CAN SPAN $13'-2"$ ✓

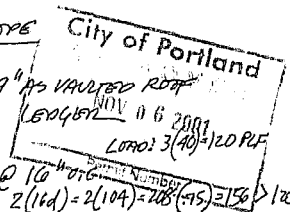
BEAM H: HIP ROOF 'ROOFLET' RAFTERS
 SPAN: $2'-0"$
USE 2x4 @ 24" O.C. CAN SPAN $7'-1"$
 USE SIMPSON LUS 24 HANGERS @ CONTINUOUS LEDGER

BEAM I: CONTINUOUS LEDGER @ "HIP ROOFLET"
USE 2x6 PT. SIZED FOR 2x4 RAFTERS w/ LOAD: 80 PLF
 (2) ROWS LGD @ $16" O.C.$ INTO GABLE STUDS. $2(16d) = 104(2) = 208(75) = 156$ ✓

BEAM J: BAY ROOF RAFTERS
 SPAN: $5'-0"$
USE 2x6 DF #2 @ 24" O.C. CAN SPAN $8'-9"$ as VAULTED
 CEILING. PROVIDE $5"$ RIGID INSULATION w/ TOTAL
 R-VALUE = R-33

VOID
BEAM K: REAR PORCH TYPICAL RAFTERS $3/12$ SLOPE
 SPAN: $6'-0"$

VOID
BEAM L: REAR PORCH CONTINUOUS LEDGER
USE 2x6 DF #2 @ 24" O.C. CAN SPAN $8'-9"$ as VAULTED ROOF
 SIMPSON LUS 26 HANGERS @ CONTINUOUS LEDGER
USE P.T. 2x8 DF #2 w/ (2) ROWS $16d$ @ $16" O.C.$
 INTO 2ND FLOOR STUDS. $2(16d) = 2(104) = 208(75) = 156 > 120$ ✓



BEAM M: TYPICAL SKYLIGHT HEADERS, 2ND FLOOR & 1ST FLOOR TRUSSES
USE (2) 2x4 DF #2 w/ LUS 24-2 HANGERS EACH END

BEAM #1 BAY WINDOW RIDGE BEAM

SPAN: 3'0"

LOADS: ROOF, VAULTED 5 (#0) 200
10m 10
740 PLF

$$m = \frac{wL^2}{8} = \frac{200(3)^2}{8} = 225 \text{ FT} \cdot \text{#}$$

$$\frac{225}{963} = \frac{100(12)}{2.80} = 1.24 \quad 2 \times 8 = 13.14 \text{ W}$$

DONT WORRY ABOUT SV & Δ

USE 2x8 DF #2 AS RIDGE BEAM W/
SIMPSON LUS 28 HANGER @ EACH END TYPING IT TO
SLOPED HANGER. REACTION: 210 #

315 #

BEAM #2 RETN PORCH HIP BEAM

VOID

SPAN: 8'0"

LOADS: $\frac{(2)(8)(40)(2)}{2} = 640(1.026) = 657 \text{ #}$

$$m = .1283 WL = .1283 (657)(8) = 674 \text{ FT} \cdot \text{#}$$

$$\frac{674(12)}{963} = 8.40 \quad 2 \times 8 \text{ DF} \cdot \text{#} = 13.14 \text{ W}$$

$$f_v = \frac{3V}{230} = \frac{3}{230} \left(\frac{2W}{3} \right) = \frac{3}{230} \left(\frac{2(657)}{3} \right) = \frac{1314}{2675} = 52.7 \text{ W}$$

$$f_v = 95 \text{ W}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5}{384EI} (.01304 WL^3) = \frac{.01304(657)(8 \times 12)^3}{16(47.635)} = \frac{7.58 \times 10^6}{7.62 \times 10^7}$$

SO USE 2x8 DF #2 HIP BEAM

REACTIONS: R1: 219 #

SAFETY ZFL = 267 W
360 r/inland
NOV 06 2001

BEAM N: TYPICAL SKYLIGHT HANDERS, KITCHEN + PORCH

USE (2) 2x8 DF #2 W/ LUS 28-2 HANGERS @ EACH END

BEAM #3: SLOPED HEADER @ BAY WINDOW

SPAN: 5'6" x 2 = 11'-0"

315

210 #

315

210 #

57

57

ROOF 7(35)

35

$$\frac{210(8)(55)^2}{(11)^3} = 38 \text{ PLF}$$

38

BM

38

42

BM

42

42

80 PLF TOTAL

(100)

$$\frac{180(11)^2}{8} = 1513$$

$$\frac{1513}{963} = 1.57$$

18.85

$$(2)2 \times 8 = 26.2 \text{ ✓}$$

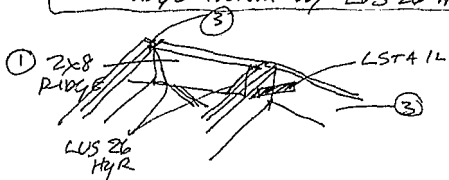
$$f_r = \frac{3V}{2BD} = 3 \left(\frac{42(11)}{2} + \frac{105}{158} \right) = \frac{1167}{43.5} = 26.8 \text{ ✓}$$

26.8V

$$f_v = 95 \text{ ✓}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(100)(11)(11 \times 12)^3}{384 \times 1.6(2)(95)} = \frac{1.06 \times 10^{10}}{5.85 \times 10^{10}} = .174 \text{ ✓}$$

SO USE (2) 2X8 RAFTERS TIED TOGETHER W/ SIMPSON LSTA 12 STRAP @ BOTH ENDS OF 2X8 RIDGE BEAM; ADJUST ENDS OF RIDGE BEAM W/ LVS 2G HANGERS.



BEAM #4 BAY WINDOW HEADER

SPAN: 2'-6"

LOADS ROOF 5(40) 200

ROOF BM

10

210 PLF

$$\frac{210(2.5)^2}{8} = 164 \text{ FT#}$$

City of Portland
164(12) = 2.0
963

$$\text{FLAT } (2) 2 \times 6 = 8.25 \text{ ✓}$$

USE FLAT (2) 2X6 OR LARGER HEADER @ SIDE BAY WINDOWS

POINT MOUNTAIN

PRATEMAN RESIDENCE

09/04/01

RICHARD NATH LISHNER FPA

BEAM # 5: DINING ROOM HEADERS

SPAN: 6'6"

LOADS: ROOF 15 (35)

525

$$\frac{760(6.5)^2}{8} = 404 \text{ FT} \#$$

ATTIC 15 (15)

225

DM

$$\frac{112}{760 \text{ PLF}}$$

$$\frac{4014(12)}{963} = 50 \sqrt{4 \times 12} = 73 \sqrt{V} \times$$

TOO LONG FOR
6'8" HEADER

$$f_r = 3V = 3 \left(\frac{760(6.5)}{2} \right) = \frac{2470}{2(4.5)(9.25)} = \frac{7410}{83.25} = 89 \sqrt{V}$$

$$\frac{404(12)}{2900} = \frac{(3) 2 \times 10 = 64 \sqrt{V}}{2900}$$

$$\frac{2470}{625} = \frac{3.95}{4.5} = 87 \sqrt{V} \text{ OK}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(760)(6.5)(6.5 \times 12)^3}{384(1.6)(3)(99)} = \frac{1.17 \times 10^{10}}{1.82 \times 10^8} = .064" \leq \frac{L}{360} = .217" \sqrt{V}$$

* SO USE (3) 2x10 DF # 2 HEADER w/ (1) 2x6 TRIMMER & (1) 2x6 KING POST EACH END

BEAM # 6: DINING ROOM HEADER

SPAN: 12'6" x 14'6"

LOADS: ROOF 13 (35)

455

325

LL

17,346 FT #

$$\frac{660(14.5)^2}{8} = 128,916 \text{ FT} \#$$

ATTIC 13 (15)

195

130

BEAM

LO

0

455

660 PLF

17,346

128,916

(12)

53.3

(2) 1 3/4" x 11 7/8"

71.7

2.0E = 83

$$f_r = 3V = 3 \left(\frac{660(14.5)}{2} \right) = \frac{14,355}{2(3.5)(11.875)} = \frac{376 \times 10^4}{83.125} = 142.8 \sqrt{V}$$

$$\frac{128,916(12)}{2900} = 53.3 \sqrt{V}$$

$$\frac{14,355}{625} = \frac{2.3}{4.5} = 72.5 \sqrt{V}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(660)(14.5)(14.5 \times 12)^3}{384(2.0)(440)} = \frac{2.52 \times 10^{10}}{3.76 \times 10^8} = .67" \leq \frac{L}{360} = .725" \sqrt{V}$$

* SO USE (2) 1 3/4" x 11 7/8" 2.0E PARALLAN w/ (2) ROWS 16d @ 12" O.C., 2' FROM TOP & BOTTOM w/ (2) 2x6 TRIMMER & (1) 2x6 KING POST EACH END

$$\frac{14,355}{625} = \frac{2.3}{4.5} = 72.5 \sqrt{V}$$

7.36 x 2.10
6.35 x 3.5
KING POST

TRY LIVE LOAD REDUCTION 455 PLF LL

$$\frac{1.74 \times 10^8}{3.76 \times 10^8} = .463 \leq \frac{L}{360} = .483 \sqrt{V}$$

YES
(2) 1 3/4" x 11 7/8" IS OK

BEAM #7 ENTRY WINDOW HEADER

SPAN: 6'-6"

LOADS :	ROOF (1) 35	35	$\frac{200(6.5)^2}{8} = 1056 \text{ FT}\#$
	ROH (2) 35	70	
	ATTIC (1) 15	15	$\frac{1056(12)}{963} = 13.16 \checkmark$
EXTRA WALL	7 (10)	70	
Bm		10	$4 \times 6 \text{ DF}\# 2 = 17 \checkmark$
		200 PLF	

$$f_v = \frac{3V}{2BD} = 3 \left(\frac{200(6.5)}{2} \right) = \frac{1950}{38.5} = 50.6 \checkmark \quad S_v = 95 \checkmark$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(200)(6.5)(6.5 \times 12)^3}{384(1.6)(48.5)} = \frac{3.08 \times 10^9}{2.98 \times 10^{10}} = .103 \angle \frac{L}{360} = .217 \text{ "V}$$

SO USE 4x6 DF #2 OR LARGER HEADER
w/ (1) 2x4 TRIMMER & (1) 2x4 KING POST EACH END

BEAM 8: ENTRY HALL HEADER

VOID

SEE 6A

SPAN: 6'-6"

LOADS:	13 (4) 580	ROOF OVER
	13 (15) 195	ROH ATTIC
	5.5 (35) 175	PORCH ROOF
	5.5 (15) 83	PORCH SOFFIT
Bm		17

$$\frac{990(6.5)^2}{8} = 5228 \text{ FT}\#$$

$$\frac{5228(12)}{963} = 65 \quad 4 \times 12 = 73 \checkmark$$

$$\frac{5228(12)}{875} = 71.6 \quad 6 \times 12 \text{ DF}\# 2 = 121 \checkmark$$

$$\frac{3218 - 495}{650 \cdot 3.5} = 1.41 \text{ "V}$$

$$f_v = \frac{3V}{2BD} = 3 \left(\frac{990(6.5)}{2} \right) = \frac{9653}{78.75} = 122.5 \text{ TRY LOAD REDUCTION}$$

$$\frac{2(3.5)(11.25)}{2(5.5)(11.5)} = \frac{78.75}{126.5} = .623 \checkmark$$

$$\frac{5228(12)}{2900} = 21.4$$

$$f_v = \frac{9653}{50.75} = 190 \text{ V} \quad f_v = 285 \text{ V} \quad 9653$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(990)(6.5)(6.5 \times 12)^3}{384(2.0E)(41)} = \frac{1.53 \times 10^{10}}{8.45 \times 10^{10}} = .18 \text{ "V}$$

$$\frac{5.45 \times 10^{10}}{5.47 \times 10^{10}} = .04 \angle \frac{L}{360} = .217 \text{ "V}$$

SO USE (2) 13/4" x 7/4" 2.0E PARALLEL OR LARGER
w/ (2) 2x4 ROWS 16" @ 12" O.C., 2" FROM TOP & BOTTOM

w/ (2) 1x4 TRIMMER & (1) 2x4 EACH END.

* (2) 2x4 BETWEEN DOOR & WINDOW (BEAM 8 JOINING W/ BEAM 9)

BATHING RESIDENCE

RICHARD NEAL LISHOR, AIA

09/05/01

6x12 DF #2 w/ 1/2 2x6
TRIMMER & (1) 2x4 KING POST
EACH END.

ATTENTION: 6x12 DF #2 w/ 1/2 2x6
TRIMMER & (1) 2x4 KING POST
EACH END.

BEAM #8 REVISION ENTRY HALL WINDOW HANGER

NEAR SHOWN: 4L6

LOADS: ROOF OVER 13 (40) 520

ATTIC 13 (15) 195

PORCH ROOF 5.5 (35) 175

PORCH SOFFIT 5.5 (15) 83

BM

17

990 PLF

$$\frac{990(4.5)^2}{8} = 2506 \text{ FT} \#$$

$$\frac{2506(12)}{963} = 31.2 \text{ 4x10 PF} \# 2 = 49 \text{ VI}$$

$$F_v = \frac{3V}{280} = \frac{3 \left(\frac{990(4.5)}{2} \right)^{2.28}}{2(5.5)(9.25)} = \frac{6683}{69.75} = 103$$

TRY LOMO REDUCTION $990 \left(\frac{9.25}{12} \right) = 763$

2228

763

1465 (2) = 4395

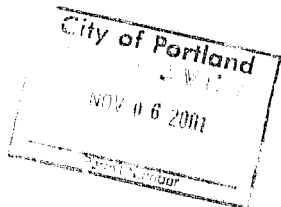
64.75

$$= 67.8 \sqrt{F_v} = 95 \text{ VI}$$

$$\frac{2228}{64.75} = \frac{3.56}{3.5} = 1.014 \text{ REDD.}$$

$$\delta = \frac{5WL^3}{384EI} = \frac{5 \left(\frac{990(4.5)(4.5 \times 12)^3}{384(1.6)(230)} \right)}{1.42 \times 10^9} = \frac{3.51 \times 10^9}{1.42 \times 10^9} = .025 \frac{\text{L}}{\text{IN}} = .150 \text{ VI}$$

SO USE 4x10DF#2 OR LARGER w/(1) 2x4 TRIMMER f(1) 2x4 KING
POSS EACH END



BATSMAN 09/22/01

k.

RICHARD NATHAN LISHOWSKY, AIA

BEAM #8 ENTRY POOL HEADER

SPAN: 3'-6"

LOADS: SAME AS BEAM 8 990 PLF

$$m = \frac{wL^2}{8} = \frac{990(3.5)^2}{8} = 1516 \text{ FT} \# \frac{1516(12)}{967} = 18.8 \text{ 4x8 DF} \#2: 30V$$

$$f_v = \frac{3V}{2B0} = \frac{3 \left(\frac{990(3.5)}{2} \right)}{2(3.5)(2.5)} = \frac{5199}{50.75} = 102.4 \text{ 12x LOTO REDUCTION}$$

$$990 \left(\frac{7.5}{12} \right) = 598$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(990)(3.5)(3.5 \times 12)^3}{384(1.6)(111)} = \frac{1.28 \times 10^9}{6.83 \times 10^{10}} = .019" \leq \frac{L}{360} = .117" \checkmark$$

$$1733 \left(\frac{7.5}{12} \right) = 598$$

$$1635(3) = 3405 = 67V \text{ } f_v = 75VV$$

SO USE 4x8 DF #2 OR LARGER
w/ (2) 2x4 POST EACH END
BETWEEN DOOR & WINDOW

$$\frac{.79}{1.41} = 2.20$$

BEAM 10: ENTRY PORCH BEAM

VOID SEE 7A
LL

SPAN: 18'-6"

LOADS:

ROOF	5.5 (35)	175	138	$\frac{340(18.5)^2}{8} = 14,546$	FR #
SOFFIT	5.5 (15)	83	55	$\frac{14,546}{8} = 1,818$	
ROH	2 (35)	70	50	$\frac{13,016(12)}{60.1} = 53.8$	(2) 1 3/4" x 11 7/8" = 83V
Bm		12	0	2900	

$$f_v = \frac{3V}{2B10} = \frac{3 \left(\frac{340(18.5)}{2} \right)}{2(3.5)(11.875)} = \frac{9425}{83.125} = 107V \text{ } f_v = 285VV$$

$$\frac{2715}{650} = \frac{4.5}{35} = 1.70" \text{ BR4 REQ}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(340)(18.5)(8.5 \times 12)^3}{384(2.0)(490)} = \frac{3.44}{2.76 \times 10^4} = .78" \leq \frac{L}{360} = 8.85" \checkmark$$

$$376 \times 10^4 = 5.69 \times 10^4 \text{ } 100 \text{ LOTS OF PERFORM.}$$

$$1.97 \times 10^4 = 5.24" \leq \frac{L}{360} = 5.83" \checkmark$$

SO USE (2) 1 3/4" x 11 7/8" 2.05 PARALLEL w/ (2) ROWS 16" ON C, 2" FROM TOP & BOTTOM
(2) ROWS 16" ON C, 2" FROM TOP & BOTTOM
w/ (2) 2x4 POST EACH END; CANTILEVER 9" BEYOND EACH END; 116" w/ bar
TO HOUSE & CORNER BEAM w/ LETA & STRAP.

BARBEMAN
09/05/01

RICHARD NEAL (LISTEN TO 7A)

BEAM 10: ENTRY PORCH BEAM

SPAN: 5'-6"

LOADS: ROOF	3.5 (35)	123
SIFIT	3.5 (15)	53
ROH	.75 (35)	26
Bm		18
		<u>220 PLF</u>

$$\frac{220(5.5)^2}{8} = 832 \text{ FT} \#$$

$$\frac{832(12)}{963} = 10.3 \checkmark$$

$$4 \times 6 \text{ DF} \# 2 = 17 \checkmark$$

$$f_v = \frac{3V}{2bD} = 3 \left(\frac{220(5.5)}{2} \right) \frac{605}{2(3.5)(5.5)} = 54 \text{ V } S_v = 95 \text{ V}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(220)(5.5)(5.5 \times 12)^3}{384(1.2)(485)} = \frac{1.74 \times 10^9}{6.83 \times 10^{10}} = .02' \leq \frac{L}{360} = .18' \checkmark \checkmark$$

SO USE 4x6 DF #2 MIN BEAM w/ 6x6 POST EACH END
ACE POST CAP TOP
ACE 6 POST CAP @ CORNER POST
LSTR 9 STRAPS TIE BEAMS TO HOUSE

FOOTING @ CORNER POST

Bm 10 R2	605
Bm 11 R1	455
	<u>1060 #</u>

18" ϕ SQUARE OR 12" x 12" x 18" FTG

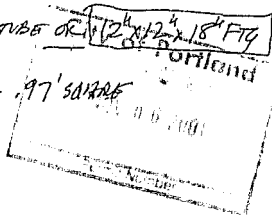
$$\frac{1060}{1500} = \sqrt{.70 \times 1.17} = .90' \text{ SQUARE}$$

FOOTING P TOP @ PORCH

$$\text{Bm 10 R1/R2 } 605(2) = 1210 \#$$

18" ϕ SQUARE OR 12" x 12" x 18" FTG

$$\frac{1210}{1500} = \sqrt{.81 \times 1.17} = .97' \text{ SQUARE}$$



BATEMAN
10/5/01

RICHARD NEAL LISHMAN AIA

BEAM #11 PORCH BEAMSPAN: ~~14'-0"~~ 17'-0"

LOADS: ROOF 1 (35) 35

SOFFIT 1 (15) 15

ROOF 1 (35) 35

EXT WALL 4 (10) 40

BM

5

$$\Delta = \frac{SWL^3}{384EI} = \frac{5(130)(17)^3}{384(1.6)(\frac{110}{485})} = \frac{7.77 \times 10^9}{6.83 \times 10^{10}} = .113" \leq \frac{L}{360} = .233"$$

SO USE 4x8 DF # 2 OR LARGER BEAM, CANTILEVERED 9" @ RZ INTO HOUSE CORNER (TIE W/ LSTA 9 INTO HOUSE FRAMING), CANTILEVER 6 OVER POST @ R1, HANG OFF BEAM 10 W/ SIMPSON HUSC48 HANGERS W/ CONCEALED FLANGES.

RETENTION: 715#

BEAM 12: KITCHEN HANGON

SPAN: 6'-6"

LOADS: 5.5 (40) FLOOR VALUE 220

BM

10

ROOF 2 (35) 70

230

70

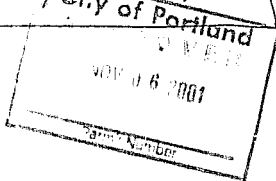
$$\frac{300(6.5)^2}{8} = 1584 \text{ FT} \#$$

$$\frac{1584(12)}{963} = 19.7 \text{ 4x8 DF} \# 2 = 30.6 \text{ VV}$$

$$f_v = \frac{3V}{2bm} = \frac{3(\frac{300(6.5)}{2})^{915}}{2(3.5)(7.25)} = \frac{2925}{50.75} = 57.6 \text{ VV } f_v = 95 \text{ VV}$$

$$\Delta = \frac{SWL^3}{384EI} = \frac{5(300)(6.5)(6.5 \times 12)^3}{384(1.6)(110)} = \frac{4.63 \times 10^9}{6.83 \times 10^{10}} = .068" \leq \frac{L}{360} = .217" \text{ VV}$$

SO USE 4x8 DF # 2 OR LARGER W/ (1) 2x4 HANGERS FLOOR 2x4 KING POST EACH END

BEAM O: KITCHEN SLOPED CEILING JOISTS

SPAN: 5'-6" 2x6 @ 24" O.C. CAN SPAN 14'-10" VV
PROVIDE CUS 24 HANGERS @ BM 14.

BEAM P: PORCH SOFFIT JOISTS

SPAN: 11'-0" 2x6 @ 24" O.C. CAN SPAN 14'-10" VV

BATEMAN RESIDENCE

09/05/01

RICHARD NEAL LISTMAN AIA

BEAM #13 KITCHEN HEADER

SPAN: 6' 0"

LOADS: ROOF (4) 40 40
 PORCH (1) 35 (35)
 ATTIC 1 (15) 15
 SUFFR 1 (15) 15
 EXTERIAL 4 (10) 40
 BM 5

$$150(6.5)^2 = 792 \text{ FT}\#$$

$$\frac{792(12)}{963} = 9.87 \text{ 4x6} = 17 \text{ V}$$

$$f_v = \frac{3V}{230} = 3 \left(\frac{150(6.5)}{2} \right)^{.488} = \frac{1464}{38.5} = 38 \text{ V}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(150)(6.5)(6.5 \times 12)^3}{384(1.6)(48.5)} = \frac{2.31 \times 10^9}{2.98 \times 10^{10}} = .078 \text{ " } \leq \frac{L}{360} = .217 \text{ " V}$$

SO USE 4x6 DF #2 OR LARGER w/ (1) 2x4 TRIMMER & (1) 2x4 KING POST EACH END

BEAM #14: KITCHEN CLY BEAM

SPAN: 19' 0"

LOADS: ROOF OVER 13 (40) 520 325 $\frac{1010(19)^2}{8} = 45,576 \text{ FT}\#$
 ATTIC 13 (15) 195 130
 LAGGED KITCHEN ROOF 5.5 (35) 193 138 $\frac{45,576(12)}{2900} = 188.6 \text{ V}$
 KITCHEN CLY 5.5 (15) 83 53
 BM 19 648 PFL

$$f_v = \frac{3V}{230} = 3 \left(\frac{1010(19)}{2} \right)^{.488} = \frac{2.8785}{168} = 171 \text{ V } f_v = 285 \text{ W}$$

$$(3) 1\frac{3}{4} \times 16 = 224 \text{ V}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(1010)(19)(19 \times 12)^3}{384(20 \times 1785)} = \frac{1.14 \times 10^{12}}{7.37 \times 10^{12}} = .032 \text{ " } \leq \frac{L}{240} = .950 \text{ " V}$$

TOTL LOAD REDUCTION 648 PFL

$$\frac{7.30 \times 10^{11}}{1.37 \times 10^{12}} = .533 \text{ " } \leq \frac{L}{360} = .623 \text{ " Wind}$$

* SO USE (3) 1 3/4" x 16" 2.0E PARALLEL w/ (2) RIPS 16" @ 12" O.C.
 FROM EACH SIDE, 2" FROM TOP & BOTTOM w/ (2) 2x6 FULL BRG TRIMMER
 OR (2) 2x4 FULL BRG EACH END

PROVIDE SIMPSON LUS26 HANGERS FOR KITCHEN CLY JOISTS.
 PROVIDE SIMPSON IUT29 HANGERS FOR TRUSSES [VERIFY w/ TRUSS CONFIGURATION (715 # REQD)]

BATEMAN
 09/05/01

RICHARD NASH L1 SHOWER AREA

VOID ~~66~~ 10A

10

BEAM 15: REAR PORCH TYP BEAM

SPAN: 16'-0"

LOADS: ROOF 3 (40) 120
RCH 1 (35) 35
BM 15

$$\frac{170(16)^2}{8} = 5440 \text{ FT} \#$$

$$\frac{5440(12)}{2400} = 22.5$$

$$(2) 1\frac{3}{4} \times 7\frac{1}{4} = 30 \text{ V}$$

$$f_v = \frac{3V}{2BD} = 3 \left(\frac{170(16)}{2} \right) \frac{1360}{2(2.5)(7.25)} = 4080 = 80 \text{ V } f_v = 285 \text{ V}$$

$$\frac{5440(12)}{963} = 67 \quad 4 \times 12 = 73 \text{ V}$$

$$\Delta = \frac{5WL^3}{384EI} = 5 \left(\frac{170(16)}{384(2.0)(110)} \right) \frac{(16 \times 12)^3}{(193)} = 2.45 \times 10^{-10}$$

$$\frac{5440(12)}{875} = 74.6 \quad 6 \times 10 \text{ FT} \# 2$$

$$\frac{5440(12)}{1350} = 483 \quad 6 \times 8 \text{ FT} \# 1 \text{ W}$$

SO USE (2) 1/34" x 9 1/2" 2.0E
PARALLEL W/ (2) ROWS 16 d @ 12" O.C.
2" FROM TOP & BOTTOM, W/ 4x4 POST EACH END
TIE BEAMS TO GENTLE W/ LAST 12 STRAP.

ALTERNATIVE: 4x12 DF #2 W/ 4x4 POST EACH END

$$\frac{1.92 \times 10^{-10}}{2.65 \times 10^{-10}} = .502 \quad \frac{L}{360} = .533 \text{ V}$$

$$\frac{9.63 \times 10^{-10}}{1.19 \times 10^{-10}} = .809 \times 2$$

$$.800 = \frac{L}{240}$$

6x10 DF #1
ALTERNATIVE

BEAM 16: REAR PORCH END BEAM

VOID

SPAN: 6'-0"

LOADS: ROOF 2 (40) 80
RCH 1 (35) 35
BM 5

$$\frac{120(6)^2}{8} = 540 \text{ FT} \#$$

$$\frac{540(12)}{963} = 6.72 \text{ V}$$

$$4 \times 6 \text{ DF} \# 2 = 17 \text{ V}$$

$$f_v = \frac{3V}{2BD} = 3 \left(\frac{120(6)}{2} \right) \frac{120 \text{ PLF}}{2(3.5)(5.5)} \frac{1080}{38.5} = 28. \text{ V } f_v = 95 \text{ V}$$

$$\Delta = \frac{5WL^3}{384EI} = 5 \left(\frac{120(6)}{384(1.6)(48.5)} \right) \frac{(6 \times 12)^3}{(2.98 \times 10^{-10})} = 1.34 \times 10^{-9}$$

City of Portland
NOV 10 2001
BUILDING DEPARTMENT

SO USE 4x6 DF #2 OR LARGER BEAM W/ (1) 2x4 POST @ 12" O.C.
P.T 4x4 POST @ R.I; USE SIMPSON LSTA 8 STRAP TO TIE
BM 15 & 16 @ TOP.

USE 4x12 OR 4x10 TO MATCH BEAM 15 ROOF PLATE HGT'S

BATEMAN

09/05/01

RICHARD NEER LISAHER ATT

BEAM #15: REAR PORCH TRP BEAM

V010

SPAN: 17'6"

LOADS: ROOF 3(40) 120 75 $170(17.5)^2 = 6508 \text{ FT} \cdot \text{LBS}$

ROOF 1(35) 35 25

SN 15 100

170 PLF

$\frac{6508(12)}{2900} = 26.9 \quad (2) 13/4" \times 7/4" = 30 \text{ W}$

$\frac{6508(12)}{1350} = 57.8 \quad 6 \times 10 \text{ DF} \#1 = 82.7 \text{ W}$

$f = \frac{3V}{290} = 3 \left(\frac{170(17.5)}{2} \right) \frac{17.5}{1045} = 42.7 \text{ V} / \text{FR} = 85 \text{ W}$
 $2(5.5)(9.5) 50.75 = 87.9 \text{ V} / \text{FR} = 285 \text{ W}$

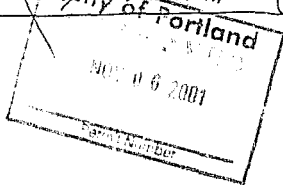
$\Delta = \frac{5WL^3}{384EI} = \frac{5(170)(17.5)(17.5 \times 12)^3}{384(1.6)(392.9)} = 1.38 \times 10^{-4}$
 $\frac{2.41 \times 10^{-4}}{8.45 \times 10^{-10}} = .573" \leq \frac{L}{240} = .875" \checkmark$
 $\frac{1.92 \times 10^{-4}}{1.92 \times 10^{-4}} = .719" \leq \frac{L}{240} = .875" \checkmark$

TRY LIVE LOAD REDUCTION 100 PLF LIVE LOAD

$\frac{8.10 \times 10^{10}}{2.41 \times 10^{-4}} = .336" \leq \frac{L}{360} = .583" \checkmark$
 $\frac{1.92 \times 10^{-4}}{1.92 \times 10^{-4}} = .422" \leq \frac{L}{360} = .583" \checkmark$

* USE EITHER $6 \times 10 \text{ DF} \#1$ w/ $6 \times 6 \text{ RT. POST}$ EACH END; TIE w/ LSTA-12 STRAP @ CENTER POST.
 OR $(2) 13/4" \times 9 1/2$ ZOE CHANNEL w/ (2) RAUS 16d @ 12" O.C.; 2" FROM TOP & BOTTOM w/ $6 \times 6 \text{ RT. POST}$ @ EACH END; TIE BEAMS TOGETHER w/ LSTA-12 STRAP

REACTIONS: 1488 #



BEAM #17: BEDROOM HEADERS @ GABLE ENDS

SPAN: 6'6"

LOADS: ROOF 1 (35) 35
ATTIC 1 (15) 15
ROH 2 (35) 70
BM 6
135 PLF

$$\frac{135(6.5)^2}{8} = 713 \text{ FT} \#$$

$$\frac{713(12)}{963} = 8.8 \text{ 4x6 DF} \# 2 = 17 \checkmark$$

$$f_v = \frac{3V}{2BD} = 3 \left(\frac{135(6.5)}{2} \right) \frac{439}{2(35)(5.6)} = \frac{1316}{38.5} = 34 \checkmark$$

$$f_v = 95 \checkmark$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(135)(6.5)(6.5 \times 12)^3}{384(1.6)(485)} = \frac{2.08 \times 10^7}{2.98 \times 10^{10}} = .069" \leq \frac{L}{360} = .217" \checkmark$$

USE 4x6 DF #2 OR LARGER

w/ (1) 2x6 TRIMMER & (1) 2x6 KING POST EACH END

BEAM #18: BEDROOM HEADERS

SPAN: 6'6"

LOADS: ROOF 13 (35) 455
ATTIC 13 (15) 195
ROH 2 (35) 70
BM 10
730 PLF

$$\frac{730(6.5)^2}{8} = 3855 \text{ FT} \#$$

$$\frac{3855(12)}{963} = 48 \text{ 4x10 DF} \# 2 = 49.9 \checkmark$$

$$f_v = \frac{3V}{2BD} = 3 \left(\frac{730(6.5)}{2} \right) \frac{2373}{2(35)(9.95)} = \frac{7118}{64.75} = 109$$

$$\frac{2373}{625} = 3.79 \cdot 1.08" \text{ OK}$$

$$\frac{625}{3.5} \text{ REQD.}$$

TRY LOAD REDUCTION

$$\frac{730(4.25)^2}{12} = 563$$

$$\frac{563}{181.6(3)} = \frac{5430}{64.75} = 83.8 \checkmark$$

$$f_v = 95 \checkmark$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(730)(6.5)(6.5 \times 12)^3}{384(1.6)(230)} = \frac{1.13 \times 10^{10}}{1.42 \times 10^{10}} = .079" \leq \frac{L}{360} = .217" \checkmark$$

* USE 4x10 DF #2 OR LARGER w/ (1) 2x6 TRIMMER & 2x6 KING POST EACH END

BEAM 19: STAIR TAIL HEADER

VOID SEE 11A

SPAN: 9'6"

LOADS: SAME AS BM 18

$$\frac{730(9)^2}{8} = 7391 \text{ FT} \#$$

$$f_v = \frac{3V}{2BD} = 3 \left(\frac{730(9.5)}{2} \right) \frac{3468}{2(3.5)(9.6)} = \frac{10403}{66.5} = 156 \checkmark$$

$$f_v = 285 \checkmark$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(730)(9.5)(9.5 \times 12)^3}{384(2.0)(230)} = \frac{5.14 \times 10^{10}}{1.92 \times 10^{10}} = 2.68" \leq \frac{L}{360} = 3.17" \checkmark$$

USE (2) 1 3/4" x 4 1/2" 2.OE PARALLEL w/ (2) ROWS 16d @ 12" O.C., 2" FROM TOP & BOTTOM w/ (2) 2x6 TRIMMER & 2x6 KING POST EACH END

BATEMAN 09/05/01

RICHARD NORD LISHNER, AIA

BEAM 19: STAIR HALL HEADER

SPAN: 7'6"

LOADS: ROOF 13 (35) 455
 ATML 13 (15) 195
 RCH 2 (35) 70
 BM 10

$$\frac{730 (\cancel{7.5})^2}{8} = 5133 \text{ FT} \#$$

$$\frac{5133 (12)}{963} = 64 \checkmark 4 \times 12 = 73 \checkmark$$

$$f_v = \frac{3V}{2BD} = \frac{3 \left(\frac{730 (7.5)}{2} \right)}{2 (3.5) (11.25)} = \frac{8213}{78.75} = 104.3$$

$$\frac{2738}{625} = \frac{4.38}{3.5} = 1.25" \text{ REQ. REQD.}$$

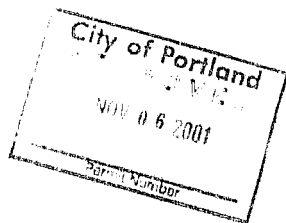
TRY LOAD REDUCTION

$$730 \left(\frac{11.25}{12} \right) = 684 \quad \frac{2738}{684} = \frac{6162}{78.75} = 78.2 \checkmark f_v = 95 \checkmark$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5 (730) (7.5) (2.5 \times 12)^3}{384 (1.6) (415)} = \frac{1.99 \times 10^{10}}{2.55 \times 10^4} = .078" \leq \frac{L}{360} = .250" \checkmark$$

SO USE 4x12 DF #2 w/ (2) 2x6 TRIMMER & (1) 2x6 KING POST

REACTIONS: 2738 #



PAYZMAN

09/24/01

RICHARD NEAL LISHMAN, AIA

BEAM #20: MASTER BEDROOM PORCH BEAM

SPAN: 17'-0"

LOADS: SAME AS BEAM 18 730 PLF

$$\frac{730(17)^2}{8} = 26,371 \text{ ft-lb} \quad \frac{26,371(12)}{2900} = 109 \quad 5\frac{1}{4}'' \times 11\frac{7}{8}''$$

$$f_v = \frac{3V}{2bd} = \frac{3 \left(\frac{730(17)}{2} \right) (205)}{2(3.5)(11.875)} = \frac{18,615}{130} = 143 \sqrt{f_v} = 285 \text{ psi}$$

$$(3) 1\frac{3}{4}'' \times 11\frac{7}{8}'' = 123 \text{ in}^2$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(730)(17)(17 \times 12)^3}{384(2.0)(735)} = \frac{5.27 \times 10^4}{5.64 \times 10^4} = .934 \times > \frac{L}{240} = .850$$

$$\text{TRY } 3\frac{1}{2}'' \times 14'' = 114 > 109 \text{ psi}$$

$$\frac{18,615}{98} = 190 \text{ psi } f_v = 285 \text{ psi}$$

$$3\frac{1}{2}'' \times 14'' (800)$$

$$5\frac{1}{4}'' \times 14'' (1200)$$

$$\frac{5.27 \times 10^4}{6.64 \times 10^4} = .850 \times$$

$$9.22 \times 10^4 = .572'' = \frac{L}{240} = .850''$$

$$.572'' \leq \frac{L}{360} = .567''$$

WILL MARK W/LOAD REDUCTION

USE (3) 134" x 14" 2.0 E PARALLEL
W/ (2) ROWS 16d @ 12" O.C. FROM EACH SIDE
2" FROM TOP & BOTTOM
W/ 6x6 POST @ EACH END
CANTILEVER 6" BEYOND POST, TIE TO JOIST
& CORNER BEAM W/ LSTA 9 S/DRAW.

BEAM Q: TYPICAL MASTER BEDROOM FLOOR JOISTS

SPAN: 16'-0"

USE 2x12 @ 16" O.C. CAN SPAN 17'-2" W/ INSULATION

PROVIDE LUS 210 HANGERS TYP.

BEAM R: DECK JOISTS MASTER BEDROOM

SPAN: 2'-0"

USE 2x8 @ 16" O.C., P.T.

BEAM S: DECK "TRUSS" JOISTS

SPAN: 6'-0"

USE 2x8 @ 24" O.C., CAN SPAN 10'-3" AS FLOOR JOIST

BEAM T: DECK RIM JOIST P.T. (2) 2x8

BEAM U: DECK RIM JOIST P.T. (2) 2x8 JOIST W/ HUSC 2x2
HANGER W/ CONCEALED FLANGE

BATTMAN

09/06/04

PICTURED WITH LIGHTSHEET THAT

BEAM 21: GARAGE BEAM

SPAN: 18' 0" 17' 0"

LOADS: FLOOR 10 (54) 540 400 560 (17' 0")² = 20,230
BM 20,230

$$f_v = \frac{3V}{2BD} = \frac{3(560(17'))}{2(3.25)(11.25)} = \frac{14280}{118} = 121V$$

$$f_v = \frac{3V}{2BD} = \frac{3(560(17'))}{2(3.25)(11.25)} = \frac{14280}{118} = 121V$$

$$f_v = \frac{3V}{2BD} = \frac{3(560(17'))}{2(3.25)(11.25)} = \frac{14280}{118} = 121V$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(560)(17')^3}{384(20)(624)} = \frac{4.79 \times 10^{-4}}{6.14 \times 10^{-4}} = .723 \leq \frac{L}{240} = .925"$$

TRY LVL LOAD REDUCTION

$$400 \text{ PLF LVL LOAD} = \frac{2.89}{6.14 \times 10^{-4}} = .47" \leq \frac{L}{360} = .617"$$

$$2.89 \times 10^{-4} = .47" \leq \frac{L}{360} = .617"$$

SO USE (2) 1 3/4" x 14" L.O.E PARALLAM w/ (2) ROWS 16d @ 12" O.C
2" FROM TOP & BOTTOM w/ 2x6 FULL BRG @ EXT
W/ (2) 2x6 FULL BRG @ EXTENSION W/ 16d @ 12" O.C
SIMPSON HHUS410 HANGER @ BM 23

BEAM 22: GARAGE BEAM

SPAN: 18' 0" 17' 0"

LOADS: SAME AS BM 21 560 PLF

$$f_v = \frac{3V}{2BD} = \frac{3(560(17'))}{2(3.25)(11.25)} = \frac{14280}{118} = 121V$$

$$f_v = \frac{3V}{2BD} = \frac{3(560(17'))}{2(3.25)(11.25)} = \frac{14280}{118} = 121V$$

$$f_v = \frac{3V}{2BD} = \frac{3(560(17'))}{2(3.25)(11.25)} = \frac{14280}{118} = 121V$$

BEAM V: RT. 2x8 CONTINUOUS LVL BRG

w/ (2) ROWS 16d @ 12" O.C INTO GARAGE STOPS

LOADS: 3(60) = 180 PLF @ (2) 16d @ 2(104) = 208(.75) = 156 X
3(104) 312(.75) = 234 > 180 VV
(3) 16d @ 16" O.C.

BATMAN

09/05/01

RICHARD NEAL LISHMAN AIA

BEAM 23: GARAGE CEILING

SPAN: 20'-0"

LOADS: PT LOAD @ 16 Bm 21 R2 5180 6440(8)(10)(4)
Bm 22 R1 1260 (20)³ 412 PLF
6440 #

412
178 FLOOR 1.33(54) 72
590 INT WALL 8(?) 56
ATTIC 2(15) 30
Bm 20 20

$$\frac{590(20)^2}{8} = 29500 \text{ FT} \#$$

$$\frac{29500(12)}{2900} = 122.7$$

$$3\frac{1}{2} \times 16 = 14.9 \text{ V}$$

$$f_v = \frac{3V}{2B_0} = \frac{3 \left(\frac{178(20)}{2} + \frac{6440(10)}{20} \right)}{2(3.5)(16)} = \frac{20796}{112} = 185 \text{ V}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(590)(20)(20 \times 12)^3}{384(2.0)(1190)} = \frac{8.16 \times 10^4}{1.31 \times 10^{12}} = .623'' \leq \frac{L}{360} = .667'' \text{ V}$$

SO USE 3 1/2 x 16 2.0E PARALLEL
IN FLOOR SYSTEM W/ (2) 2x4 FULL DRY
(@ R1, 4x6 POST @ R1 SOUTH END)

REACTIONS R1 3068
R2 6932

$$\frac{3068}{650} \times \frac{472}{3.5} = 1.34 \text{ Bay REAR}$$

$$\frac{6932}{650} \times \frac{1066}{3.5} = 3.04 \text{ Bay REAR}$$

* SIMPSON H&US HANGER @ Bm 24 @ SOUTH
END (LOAD 6932, HANGER CAPACITY 7890 #)

BEAM 24: GARAGE POOL HANGER

VOL. SEE PAGE 17A

SPAN: 16'-0" LL

LOADS: FLOOR 2(64) 108 80 410(16.5)² 13953 FT #
PORCH 3(60) 180 450 8
EXT WALL 10(10) 100 0 13953(12) 57.7(2) 1 3/4 x 11 7/8 2x6 V
Bm 22 22 230 PLF 2900

$$f_v = \frac{3V}{2B_0} = \frac{3 \left(\frac{410(16.5)}{2} \right)}{2(3.5)(11875)} = \frac{10149}{83} = 122 \text{ V}$$

$$\frac{3383}{650} \times \frac{5.2}{3.5} = 1.48'' \text{ Bay REAR}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(410)(16.5)(16.5 \times 12)^3}{384(2.0)(490)} = \frac{2.63 \times 10^4}{3.76 \times 10^6} = .699'' \leq \frac{L}{240} = .825'' \text{ V}$$

$$\text{TRY LVLs LOAD REDUCTION} \quad 230 \text{ PLF} \quad \frac{1.97 \times 10^4}{3.76 \times 10^6} = .39'' \leq \frac{L}{360} = .550'' \text{ V}$$

+ SO USE (2) 1 3/4 x 11 7/8 2.0E PARALLEL W/ (2) ROWS 6d @ 12" O.C.,
2" FROM TOP & BOTTOM W/ (2) 2x6 TRIMMER (1) 2x6 KING POST EACH END

BATEMAN
09/05/01

RICHARD NEAL LISHAK ATT

BEAM 24: GARAGE DOOR HEADER

SPAN: 16'-6"

$$\text{LOADS: PT LOAD @ 4 BM 18 R1 } 2373 \# \quad \frac{2373(8)(4)(12.5)}{(16.5)^3} = \boxed{211 \text{ PLF}}$$

$$211 \quad \text{PT LOAD @ 10.5 BM 18 R2 } 2373 \# \quad = \boxed{211 \text{ PLF}}$$

$$211 \quad \text{PT LOAD @ 15 BM 23 R2 } 6932 \# \quad \frac{6932(8)(15)(1.5)}{(16.5)^3} = \boxed{278 \text{ PLF}}$$

$$310 \quad \text{FLOOR } 2(54) \quad 108$$

$$162 \quad \text{PORCH } 3(60) \quad 180$$

$$249 \text{ PLF} \quad \text{BM} \quad 22$$

$$\text{TOTAL} \quad \boxed{310 \text{ PLF}}$$

$$\frac{12967}{650} = \frac{19.9}{525} = 3.80'' \text{ def reqd.}$$

$$\begin{aligned} \rightarrow W_0 &= 4 & \text{EXT WALL } 10(10) & 100 \\ \rightarrow 10.5 &\rightarrow 16.5 & \text{ROOF } 13(35) & 455 \\ & & \text{ATTIC } 13(15) & 195 \\ & & & 750 \end{aligned}$$

$$\frac{750(4)}{2} = 1500 \# @ 2$$

$$\frac{1500(8)(2)(14.5)}{(16.5)^3} = \boxed{77 \text{ PLF}}$$

$$\frac{750(6)}{2} = 2250 \# @ 13.5$$

$$\frac{2250(8)(13.5)(3)}{(16.5)^3} = \boxed{162 \text{ PLF}}$$

$$\frac{1249(16.5)^2}{8} = 42,505 \text{ FT} \# \quad \frac{42,505(12)}{176} = 176 \checkmark \quad (2) 13/4" \times 18" = 189 \text{ W}$$

$$f_v = \frac{3V}{2BD} = 3 \left(\frac{\frac{2558}{310(16.5)} + \frac{1798/575}{16.5} + \frac{2900/863/1510}{16.5} + \frac{630/6302}{16.5} + \frac{1318/182}{16.5} + \frac{409/1840}{16.5} + \frac{2250(3)}{16.5} \right) \frac{1}{2(3.5)(18)}$$

$$= \frac{38901}{126} = 308.7 \times \text{TRY LOAD REDUCTION}$$

$$\boxed{\text{TRY } 5\frac{1}{4}" \times 18"} \quad \frac{38901}{(2)(5.25)(18)} = 205.8 \checkmark \quad f_v = 285 \text{ W}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(1249)(16.5)(16.5 \times 12)^3}{384(2.0)(2550)} = \frac{8.00 \times 10^4}{1.96 \times 10^{12}} = 4.08 \times \frac{L}{360} = .550'' \text{ W}$$

* SO USE 5 1/4" x 18" 2.0E PARALLAM
W/ 6 X 6 POST EACH END; CONTINUOUS BEAM OVER
ENTIRE PORTAL FRAME SHEAR PLATE TO 4 X 6 @ EACH END

RECTIONS:
R1: 7576 #
R2: 12,967 #

BATEMAN 09/29/01

RICHARD MALL USHAR, ATT

BEAM 25: DECK BEAM @ MASTER BEDROOM

SPAN: 17'-0"

LOADS: DECK 3 (60) 180 LL 200 (17)² = 7225 Ft #
 BM 20 0 8

200 PLF 120 PLF LL 7225 (12) = 29.8
 2900

$$f_v = 3V = 3 \left(\frac{200(17)}{2} \right) = \frac{5100}{104.5} = 48.8 \text{ V}$$

$$f_v = 3V = 3 \left(\frac{200(17)}{2} \right) = \frac{5100}{104.5} = 48.8 \text{ V}$$

$$7225(12) = 99 \text{ } 6 \times 12 = 121.2 \text{ V}$$

$$48.8 \text{ V } f_v = 85 \text{ V}$$

$$7225(12) = 64.2 \text{ } 6 \times 10 \text{ DF \#1} = 82 \text{ V}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(200)(17)(17 \times 12)^3}{384(1.6)(393)} = \frac{1.44 \times 10^4}{2.41 \times 10^4} = .598" \leq \frac{L}{240} = .850"$$

TRY LIVE LOAD REDUCTION 120 PLF LL $\frac{8.66 \times 10^{10}}{2.41 \times 10^4} = .359" \leq \frac{L}{360} = .567" \text{ V}$

~~USE 6x10~~ USE P.T. 6x10 DF #1 w/ 6x6 POST EACH END.
 CANTILEVER BEAM ~~BEYOND~~ BEYOND POST, TIE TO
 CORNER OF HOUSE w/ LSTR 12 STRAP

BEAM 26: REAR ENTRY BEAM

SPAN: 6'-0"

LOADS: DECK 1 (60) 60
 FLOOR .67 (54) 36
 EXTERIOR 8 (10) 80
 ATTIC 2 (15) 30
 ROOF 2 (35) 70
 BM 14
 290 PLF

$$\frac{290(6)^2}{8} = 1305 \text{ Ft \#}$$

$$\frac{1305(12)}{963} = 16$$

$$(2) 2 \times 12 = 63 \text{ V}$$

DO NOT WORRY ABOUT ~~USE 2x12~~

USE (2) 2x12 DF #2 w/ LUS 2x10-2
 HANGER @ R1
 TIE (1) 2x4 POST @ R2

BEAM W: USE (2) 2x12 UNDER PARALLEL PARTITION WALLS
 TYPICAL

BAFFMAN
 09/06/01

RICHARD NEAL LISHAER, FPA

BEAM 27: BEARING WALL HEADER

SPAN: 3'0"

LOADS: FLOOR 13(50) 650
BM

$$\frac{660(3)^2}{8} = 743 \text{ FT} \#$$

$$\frac{10}{660 \text{ PLF}}$$

$$\frac{743(12)}{963} = 9.25 \text{ 4x6 DF} \#2 = 17$$

$$f_v = \frac{3V}{2bd} = 3 \left(\frac{660(3)}{2} \right) \frac{960}{2(3.5)(5.5)} = \frac{2970}{38.5} = 77 \checkmark f_v = 95 \checkmark$$

DONT WORRY ABOUT Δ

USE 4x6 DF #2 OR LARGER HEADER
w/ 2x4 TRIMMER & 2x4 KING POST EACH END

BEAM 28: UTILITY ROOM HEADER

VOID SEE 16A

SPAN: 5'6"

LOADS: FLOOR 8(50) 400

EXT WALL 10(10) 100

ROOF RAFT 13(40) 400

ROOF 13(35) 455

ATTIC 13(15) 195

BM

$$\frac{10}{760}$$

$$\frac{1950 \text{ PLF}}{1950 \text{ PLF}}$$

PT LOAD @ 1 BM 17 21 3468 #

$$\frac{3468(8)(1)(4.5)}{(5.5)^3} = 750 \text{ PLF}$$

$$\frac{1950(5.5)^2}{8} = 7373 \text{ FT} \#$$

$$\frac{7373(12)}{2980} = 30.5 / (2) 1\frac{3}{4} \times 9\frac{1}{2}$$

$$2.06 = 53 \checkmark \checkmark$$

$$f_v = \frac{3V}{2bd} = 3 \left(\frac{\frac{3300}{2} + \frac{2837}{2} + \frac{3468(4.5)}{5.5} \right) \frac{6137}{2(3.5)(9.5)} = \frac{18411}{66.5} = 276.8 \checkmark f_v = 285 \checkmark$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(1950)(5.5)(5.5 \times 12)^3}{384(2.6)(250)} = \frac{1.54 \times 10^{-10}}{1.92 \times 10^{-10}} = 0.8 \leq \frac{100}{360} \times 1.83 \checkmark$$

SO USE (2) 1\frac{3}{4} " x 9\frac{1}{2} " 2.0B PARALLEL
w/ (2) ROWS 16d @ 12" O.C., 2" FROM TOP & BOTTOM
w/ (2) 2x6 TRIMMER & 2x6 KING POST EACH END

6137 - 9.44 = 2.09" BPD
650
City of Portland
08" $\leq$ $\frac{100}{360} \times 1.83 \checkmark$
360
Printed Number

BATEMAN
09/06/01

RICHARD ADOL LISINER, AIA

DEAM 28: UTILITY ROOM HENDER

SPAN: 6'-6"

LOADS FLOOR 8(50) 400

EXT WALL 10(10) 100

POURH ROOF 1(40) 40

ROOF 13(35) 455

ATRL 13(15) 195

DM

10

1200 PLF

PT LOAD @ 15 DM 19 RI 2738#

DISCOUNT EXCEPT FOR SHEAR

$$M = \frac{W L^2}{8} = \frac{1200(6.5)^2}{8} = 6338 \text{ FT#}$$

$$f_r = \frac{3V}{280} = 3 \left(\frac{1200(6.5)}{2} + \frac{2527}{6.5} \right) \frac{6427}{876} = \frac{19281}{126.5} = 152 \times \quad \frac{6338(12)}{2400} = 26.22 \checkmark$$

DF#2

TRY LOAD REDUCTIONS

$$1200 \left(\frac{11.5}{12} \right) = 1150$$

$$\frac{6427}{1150}$$

$$\frac{5277}{5277}(3) = \frac{15831}{126.5} = 125 \times$$

$$\frac{6427}{650} \frac{7.88}{3.5} = 2.83 \checkmark$$

$$\frac{(2)(3.5)(7.25)}{9.5} = \frac{19281}{50.75} = 379 \times$$

$$\frac{3900}{650} \frac{6}{3.5} = 1.7 \checkmark$$

$$60 \text{ TO } (2) 1 \frac{3}{4} \times 9 \frac{1}{2} = 52.6 \checkmark$$

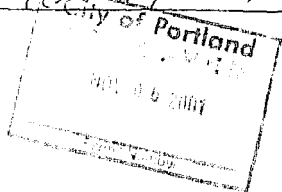
$$\frac{15031}{64.5} = 238 \checkmark$$

$$\Delta_1 = \frac{5WL^3}{384EI} = \frac{5(1200)(6.5)(6.5 \times 12)^3}{334(2.0)(250)} = \frac{1.85 \times 10^{10}}{1.92 \times 10^4} = .096 \text{ in. } \frac{L}{360} = .217 \checkmark$$

* SO USE (2) 1 3/4" x 9 1/2" 2.0E PARALLAM w/ (2) ROWS 16d @ 12" O.C.
2" FROM TOP & BOTTOM w/ (2) 2x6 TRIMMER EACH END & (1) 2x6 KING POST EACH END

REACTIONS: R1: 6427 #

R2: 4109 #



BATEMAN

09/24/01

RICHARD NEAL LISHNER, AIA.

BEAM 29: REAR STAIR HALL HEADER

SPAN: 6'-6"

LOADS: FLOOR 1.75 (50) 88 NO ROOF LOAD CUTOFF BY UPPER WINDOW

REAR PORCH 3 (40) 120

EXT WALL 2 (10) 20

BM

12

24 0 PLF

$$\frac{240(6.5)^2}{8} = 1268 \text{ FT}\#$$

$$\frac{1268(12)}{963} = 15.79 / 4 \times 6 \text{ DF}\# 2 - 176 \text{ V}$$

$$f_v = \frac{3V}{2B0} = 3 \left(\frac{24(6.5)}{2(3.5)(3.5)} \right)^{.780} = \frac{2340}{38.5} = 60.7 \text{ V } f_v = 95 \text{ V}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(240)(6.5)(6.5 \times 12)^3}{384(1.6)(48.5)} = \frac{3.70 \times 10^9}{2.98 \times 10^{10}} = .124" \leq \frac{L}{360} = .217" \text{ V}$$

SO USE 4x6 DF # 2 OR LARGER w/ (1) 2x6 TRIMMER & 2x6 KING POST EACH END

BEAM 30: STAIR BEAM

SPAN: 12'-6" INT WALL 3 (7) 21

LOADS: STAIR 1.5 (50) 75

BM

5

$$\frac{180(12.5)^2}{8} = 1953 \text{ FT}\# \frac{1953(12)}{963} = 24.4$$

4x8 = 30 W

$$f_v = \frac{3V}{2B0} = 3 \left(\frac{180(12.5)}{2(3.5)(7.25)} \right)^{.500} = \frac{1875}{50.75} = 36.9 \text{ V } f_v = 95 \text{ V}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(180)(12.5)(12.5 \times 12)^3}{384(1.6)(111)} = \frac{1.69 \times 10^{10}}{6.83 \times 10^{10}} = .247" \leq \frac{L}{360} = .417" \text{ V}$$

USE 4x8 DF # 2 OR LARGER w/ LUS 48 H/2 @ BEAM 31

BEAM 31: STAIR HALL BEAM

SPAN: 9'-0"

PTL 040 @ 4 → BM 30 R/ 500#

LOADS: FLOOR 2 (50) 100

BM

10

130

247 PLF

130

130

130

130

130

130

130

130

130

130

$$\frac{247(9)^2}{8} = 2501 \text{ FT}\# \frac{2501(12)}{963} = 31.1 \text{ V}$$

(2) 2x12 = 63 V

$$f_v = \frac{3V}{2B0} = 3 \left(\frac{247(9)}{2(3.0)(11.25)} \right)^{.780} = \frac{2470}{67.5} = 36.6 \text{ V } f_v = 95 \text{ V}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(247)(9)(9 \times 12)^3}{384(1.6)(2)(178)} = \frac{1.25 \times 10^{10}}{2.19 \times 10^{11}} = .064" \leq \frac{L}{360} = .300" \text{ W}$$

SO USE (2) 2x12 DF # 2 w/ (1) 2x4 POST EACH END

BATEMAN 09/06/01

RICHARD NEAL LISTENED AT

BEAM 32: UTILITY ROOM HEADER

SPAN: 3'6"

LOADS: PT LOAD @ CL BM 31 1112# $\frac{1112(8)(1.75)^2}{(3.5)^3} = 635 \text{ PLF}$

635	1/2 WALL 3(7) 21
80	FLOOR .67(50) 34
695 TOTAL	BM 5
	60 PLF
	635
	695 PLF

$$\frac{695(3.5)^2}{8} = 1064 \text{ FT#}$$

$$\frac{1064(12)}{963} = 13.26$$

$$f_v = \frac{3V}{2BD} = 3 \left(\frac{695(3.5)}{2} \right)^{12/6} \frac{4 \times 6 = 17 \checkmark}{8(3.5)(5.5)} = \frac{3649}{38.5} = 94.77 \text{ TOO CLOSE}$$

$$\text{MAKE 4x8} \quad \frac{38.5}{50.75} = 71.90 \checkmark f_v = 95 \checkmark$$

DONT WARY ABOUT Δ

USE 4x8 DF #2 OR LARGER
w/ (1) 2x4 TRIMMER & 2x4 KING POST
EACH END

BEAM 33: STAIR HALL BEAM

SPAN: 9'0"

LOADS: FLOOR 5(50) 250

1/2 WALL 3(7) 21

BM 9

280 PLF

$$\frac{280(9)^2}{8} = 2835 \text{ FT#}$$

$$\frac{2835(12)}{963} = 35.3 \checkmark$$

(2) 2x12 = 63 $\checkmark$

$$f_v = \frac{3V}{2BD} = 3 \left(\frac{280(9)}{2} \right)^{12/6} \frac{56 \checkmark}{2(3)(11.25)} = \frac{3780}{67.5} = 56 \checkmark f_v = 95 \checkmark$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(280)(9)(9 \times 12)^3}{384(1.6)(2)(198)} = \frac{1.59 \times 10^{10}}{2.19 \times 10^4} = .073" \leq \frac{L}{360} = .300" \checkmark$$

SO USE (2) 2x12 DF #2 w/ 2x4 TRIMMER & 2x4 KING POST EACH END

BEAM 34: BACK BEDROOM HALL HEADER

SPAN: 6'6"

LOADS: PT LOAD @ CL BM 33 1200#

$$\frac{1200(8)(3.25)^2}{(6.5)^3} = 388 \text{ PLF}$$

388	FLOOR 1.33(50) 67
302	INT WALL 12(7) 84
690 TOTAL	ATTIC 2(15) 30
	ROOF 2(35) 70
	BM 18
	300

$$\frac{690(6.5)^2}{8} = 3644 \text{ FT#}$$

$$\frac{3644(12)}{963} = 45.4 \text{ 4x10} = 49 \checkmark$$

OVER FOR $f_v \neq \Delta$

BREMANN 04/06/01

FRIEDMAN NEAR LISHNER JAY

BEAM 34 CONTINUED

$$f_v = \frac{3V}{280} = 3 \left(\frac{302(6.5)}{2} + \frac{1880}{2} \right) \frac{1612}{2(3.5)(9.25)} = \frac{4836}{64.75} = 74.6 \text{ } f_v = 98 \text{ v}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(690)(6.5)(6.5 \times 12)^3}{384(1.6)(280)} = \frac{1.06 \times 10^{10}}{1.42 \times 10^4} = .075" \leq \frac{L}{360} = .217" \text{ v}$$

SO USE 4x10 DF #2 OR L295E
w/(1) 2x4 TRIMMER & (1) 2x4 KING POST EACH END

BEAM #35: HALL BEAM

SPAN: 9'-0"

LL

LOADS: FLOOR	5(50)	250	200	$1100(9)^2 = 11,38 \text{ FT}^2$	$\frac{11,38(12)}{2900}$
EXT WALL	8(10)	80	0	8	
ROOF	12(35)	455	325	$11,38(12) = 138 \text{ X}$	= 46
ATTIC	12(15)	195	130	963	$(2) 134" \times 9\frac{1}{2} = 53 \text{ v}$
RAH	2(35)	70	50		
LOW ROOF	1(35)	35	25	$f_v = \frac{3V}{280} = 3 \left(\frac{1100(9)}{2} \right) \frac{4950}{2(3.5)(9.5)} = \frac{14850}{66.5} = 223 \text{ v}$	
BM		15	730 PLF	LL	$f_v = 285 \text{ v}$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(1100)(9)(9 \times 12)^3}{384(2.0)(230)} = \frac{6.24 \times 10^{10}}{1.92 \times 10^4} = .325" \leq \frac{L}{240} = .450 \text{ v}$$

$$\text{TRY LL REDUCTION } 730 \text{ PLF LL } \frac{4.14 \times 10^{10}}{1.92 \times 10^4} = .216" \leq \frac{L}{360} = .300" \text{ v}$$

SO USE (2) 134" x 9 1/2" 2.0E PARABOLAN w/ (2) ROWS
- 16x212

USE 3 1/2" x 9 1/2" 2.0E PARABOLAN w/
(2) 2x4 TRIMMER & (1) 2x4 KING POST EACH END

BEAM X: 2x8 DF #2 @ 24" O.C

SPAN: 14'-6"

LOWEROFF CEILING FRAMING
@ BACK HALL CAN SPAN 18'-9" v

BEAM Y: RAISED FLOOR IN EXIST DINING ROOM

SPAN: 13'-0" [USE 2x10 DF #2 @ 16" O.C] CAN SPAN 15'-5"

BATSMAN

09/06/01

RICHARD NEAL LISHNER ARCH

BEAM 36: BEDROOM #1 HEADER

SPAN: 3'0"

LOADS: FLOOR 13(50) 455

INT WALL 8(7) 56

BM 9

520 PLF

$$\frac{520(3)^2}{8} = 587 \text{ FT}\#$$

$$\frac{587(12)}{963} = 7.3 \text{ 4x6} = 17\checkmark$$

$$f_r = \frac{3V}{280} = 3 \left(\frac{520(3)}{2} \right) \frac{1}{780} = \frac{2340}{38.5} = 60\checkmark \quad f_v = 95\checkmark$$

DONT WORRY ABOUT Δ

USE 4x6 DFF #2 w/ 2x4 TRIMMER
2x4 KING POST EACH END

BEAM 37: BEDROOM #1 CLOSET HEADER

SPAN: 6'0"

LOADS: SAME AS BEAM 36 520 PLF

$$\frac{520(6.5)^2}{8} = 2746 \text{ FT}\#$$

$$\frac{2746(12)}{963} = 34 \text{ 4x10 DFF #2} = 99\checkmark$$

$$f_r = \frac{3V}{280} = 3 \left(\frac{520(6.5)}{2} \right) \frac{1}{64.75} = \frac{1690}{78.3} \checkmark \quad f_v = 95\checkmark$$

$$\frac{1690}{625} \cdot \frac{2.7}{35} = .71 \text{ "BAY REQD"}$$

$$\delta = \frac{5WL^3}{384EI} = \frac{5(520)(6.5)(6.5 \times 12)^3}{384(1.6)(230)} = \frac{8.02 \times 10^9}{1.42 \times 10^9} = .056 \leq \frac{L}{360} = .217\checkmark$$

SO USE 4x10 DFF #2 OR LARGER w/ 2x4 TRIMMER
2x4 KING POST EACH END

BEAM 38: BEDROOM #2 HEADER

SPAN: 6'6"

LOADS: FLOOR 4.5(50) 325

EXT WALL 4(10) 40

PORCH ROOF 3(40) 120

BM 15

500 PLF

NO ROOF LOAD - CUT OFF BY WALL AND

$$\frac{500(6.5)^2}{8} = 2641 \text{ FT}\#$$

$$\frac{2641(12)}{963} = 32.9 \text{ 4x10 DFF #2} = 99\checkmark$$

$$f_r = \frac{3V}{280} = 3 \left(\frac{500(6.5)}{2} \right) \frac{1}{64.75} = \frac{4875}{75} \checkmark \quad f_v = 95\checkmark$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(500)(6.5)(6.5 \times 12)^3}{384(1.6)(230)} = \frac{7.71 \times 10^9}{1.42 \times 10^9} = .055 \leq \frac{L}{360} = .217\checkmark$$

SO USE 4x10 DFF #2 w/ 2x4 TRIMMER # 2x6 KING POST EACH END
(2) 2x6 BETWEEN DOOR & WINDOW

BAREMAN 09/06/01

RICHARD MORRIS LISHMAN ARCH

BEAM 39: BEDROOM #1 HATCH

SPAN: 3'-6" LOADS: SAME AS BEAM 38 500 PLF

$$\frac{500(3.5)^2}{8} = 756 \text{ FT} \# \frac{766(12)}{963} = 9.5 \text{ 4x6} = 17 \text{ V}$$

$$f_v = \frac{3V}{2BD} = \frac{3 \left(\frac{500(3.5)}{2} \right) 875}{2(3.5)(5.5)} = \frac{2625}{38.5} = 68 \text{ V } f_v = 95$$

DONT WORRY ABOUT X

USE 4x6 DF #2 CLAY EZ
W/ 2x6 TRIMMER & 2x6 KING POST
(2) 2x6 BETWEEN DOOR & WINDOW

BEAM #40: BEDROOM GABLE WINDOWS

SPAN: 7'-6"

LOADS: FLOOR .67 (50) 39
EXT WALL 4 (10) 40
ROOF 1 (35) 35
ATTN 1 (15) 15
ROOF .25 (35) 9
BM 7

$$\frac{40(7.5)^2}{8} = 984 \text{ FT} \# \frac{984(12)}{963} = 12.26 \text{ V}$$

4x6 DF #2 = 17 V

$$f_v = \frac{3V}{2BD} = \frac{3 \left(\frac{40(7.5)}{2} \right) 325}{2(3.5)(5.5)} = \frac{1575}{38.5} = 40 \text{ V } f_v = 95 \text{ V}$$

$$\Delta = \text{SWL}^3 = \frac{5(140)(7.5)(7.5 \times 12)^3}{384 E I} = \frac{383 \times 10^9}{2.98 \times 10^{10}} = .129" \leq \frac{L}{360} = .250" \text{ V}$$

SO USE 4x6 DF #2 W/ 2x6 TRIMMER
& 2x6 KING POST EACH END

BEAM #41: GARAGE PERSON DOOR

SPAN: 6'-6"

LOADS: FLOOR 8 (50) 432
EXT WALL 5 (10) 50
BM 18

VOID G86 21A

PT LOAD @ C BM 81095 # $\frac{1095(8)(3.25)^4}{(6.5)^3} = 397 \text{ PLF}$

500

337

303

1140 TOTAL

$$\frac{1140(6.5)^2}{8} = 6021 \text{ FT} \#$$

$$\frac{6021(12)}{875} = 82.5 \text{ 6x12 DF} \# 2 =$$

$$\frac{6021(12)}{1350} = 53.5 \text{ 121 V}$$

$$6 \times 10 \text{ DF} \# 1 = 82 \text{ V}$$

$$\frac{770(3.25)^2}{2} = 1251 @ 1.75$$

$$\frac{1251(8)(1.75)(4.75)}{(6.5)^3} = 303 \text{ PLF}$$

$$\frac{221(12)}{2700} = 24.9 \text{ (2) } 1 \frac{3}{4} \times 7 \frac{1}{4} \text{ 2.05}$$

OVER FOR FV & L

BATEMAN 07/08/01

F. HARRISON LISHMAN ARCH

BEAM #41: GARAGE PENSON DOOR

SPAN: 6'-6"

LOADS: FLOOR 8 (54) 432

EXT WALL 15 (10) 150

ROOF, ATTIC, ROOF CUTOFF BY LAPPER WINDOW

$$DM \quad \frac{15}{500 \text{ PLF}}$$

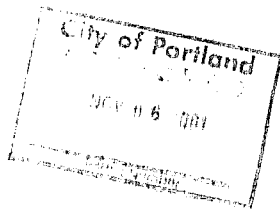
$$\frac{500(6.5)^2}{8} = 2641 \text{ FT} \# \quad \frac{2641(12)}{963} = 32.9 \quad 4 \times 16 \text{ DF} \#2 = 49 \text{ V}$$

$$f_v = 3V = 3 \left(\frac{500(6.5)}{2} \right)^{1.25} = \frac{4875}{2(3.5)(9.25)} = 75.2 \text{ V} \quad f_v = 95 \text{ V}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(500)(6.5)(6.5 \times 12)^3}{384(1.6)(230)} = \frac{7.71 \times 10^9}{1.42 \times 10^4} = .054" \leq \frac{L}{360} = .217"$$

SO USE 4x16 DF #2 w/ (1) 2x6 BRIMMER EACH END, w/ 2x6 KING POST

REACTIONS: 1625 #



BATEMAN

09/24/01

RICHARD NEAL LISHNER, AIA.

BEAM #1 CONTINUED

$$\frac{2087}{680} = 4.74 + 1.354$$

(22)

$$f_v = \frac{3V}{2bD} = 5 \left(\frac{500(45)}{2} + \frac{1095}{2} + \frac{1257(4.75)}{0.5} \right) = 9261$$

$$\begin{aligned} 50.75 & 182 \checkmark f_v = 285 \\ 104.5 & 88.6 \text{ MAX LONG REQD. VAL} \\ 126.5 & 73.2 \checkmark f_v = 85 \end{aligned}$$

$$500 \left(\frac{9.5}{12} \right) = 396 \quad \frac{2087}{268} (3) = 8073 = 77.2V \quad f_v = 85VV$$

$$\Delta = \frac{5wL^3}{384EI} = \frac{5(1140)(6.5)(6.5)(12)^3}{384(2.0)(1.76 \times 10^{10})} = .208" \leq \frac{L}{360} = .217" \checkmark$$

VOID 560 21A

SO USE EITHER: (2) $1\frac{3}{4} \times 7\frac{1}{4}$ " 20E JOISTS w/ (2) ROWS 16d @ 12" O.C., 2" FROM TOP & BOTTOM w/ (2) 2x6 TRIMMER & 2x6 KING STUD EACH END
OR 6x10 DF #1 w/ (2) 2x6 TRIMMER & 2x6 KING STUD EACH END
OR 6x12 DF #2 w/ (2) 2x6 TRIMMER & 2x6 KING STUD EA. END

BEAM #42 FOUNDATION BEAM

SPAN: 8'-0"

LOADS: FLOOR 4 (54) 21G PL LOAD @ CL: BM 3321 1260

$$\begin{aligned} 500 & \quad 5m 2722 \quad 940 \\ 14 & \quad 2200 \# \end{aligned}$$

$$\frac{730(8)^2}{8} = 5840 \text{ FT} \# \quad \frac{730 \text{ RF } 2200(8)(4)^2}{(8)^3} = 6000 \text{ RF}$$

$$\frac{5840(12)}{963} = 72.7 \quad 4 \times 12 \text{ DF} \# 2 = 73.8 \checkmark$$

$$\frac{2020 - 325}{285} = 92.8 \checkmark$$

$$f_v = \frac{3V}{2bD} = 3 \left(\frac{230(8)}{2} + \frac{2200}{2} \right) = 6000 = 77 \checkmark \quad f_v = 95VV$$

$$\Delta = \frac{5wL^3}{384EI} = \frac{5(730)(8)(8 \times 12)^3}{384(1.6)(4.15 \times 10^{10})} = .101" \leq \frac{L}{360} = .267" \checkmark$$

BEAM #2: RETN. PORCH JOISTS

SPAN: 6'-0" USE PIT 2x8 JOISTS w/ 16" O.C. CAN SPAN 12'-7"

w/ LUS 2x6 ANCHORS TOP

BEAM AA: CONTINUOUS LEMER @ RETN PORCH

PIT 4x8 CONTINUOUS LEMER w/ 3/4" & WERE ANCHORS @ 24" O.C. 180(2.67) = 481

LOADS 3(60) = 180 PLF W/ 90 ANCHOR = 925 > 180(2) = 360 \checkmark 925 > 481

DATAMAN 01/08/01

RIGHTMAN NORT LISTER A74

BEAM #41: GARAGE PETSON DOOR

SPAN: 6'6"

LOADS: FLOOR 8 (54) 432

EXT WALL 15 (10) 150

ROOF, ATTIC, ROTH CUTOFF BY LAMER HANDED

DM

18'

500 PLF

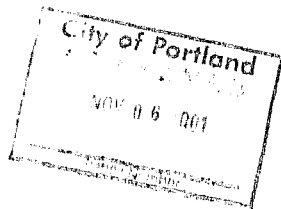
$$\frac{500(6.5)^2}{8} = 2641 \text{ FT}^2 \quad \frac{2641(12)}{963} = 32.9 \quad 4 \times 16 \text{ DF} \#2 = 49 \text{ V}$$

$$f_v = 3V = \frac{3 \left(\frac{500(6.5)}{2} \right)^{1.25}}{2(3.5)(9.25)} = \frac{4875}{64.75} = 75.2 \text{ V} \quad f_v = 95 \text{ V}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(500)(6.5)(6.5 \times 12)^3}{384(1.6)(230)} = \frac{7.71 \times 10^9}{1.42 \times 10^4} = .054" \leq \frac{L}{360} = .217"$$

SO USE 4x10 DF #2 w/ (1) 2x6 TRIMMER EACH END, w/ 2x6 KING POST

REACTIONS: 1625 #

BATEMAN
09/25/01

RICHARD NEIL LISHNEIL, AIA.

BEAM #1 CONTINUED

$$f_v = \frac{3V}{2bD} = \frac{5 \left(\frac{500(45)}{2} + \frac{1095}{2} + \frac{1251(4.75)}{0.5} \right)}{2(3.5)(7.25)} = \frac{3087}{396} = 7.79$$

$$\frac{500(9.5)}{12} = 396$$

$$\frac{3087}{396} = 7.79 \text{ } f_v = 7.79 \text{ } f_v = 7.79$$

$$\frac{500(9.5)}{12} = 396$$

$$\frac{3087}{396} = 7.79 \text{ } f_v = 7.79$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(1140)(6.5)(6.5)(12)^3}{384(2.0)(11.6)} = \frac{1.76 \times 10^{10}}{8.45 \times 10^{10}} = .208 \text{ } \Delta \leq \frac{L}{360} = .217 \text{ } \checkmark$$

VOID
585 Z1A

SO USE EITHER: (2) 1 3/4" x 7 1/4" 2.0E PARALLEL W/ (2) ROWS 16d @ 12" O.C., 2" FROM TOP & BOTTOM W/

(2) 2x6 TRIMMER & 2x6 KING STUD EACH END

OR 6x10 DF #1 W/ (2) 2x6 TRIMMER & 2x6 KING STUD EACH END

OR 6x12 DF #2 W/ (2) 2x6 TRIMMER & 2x6 KING STUD EA. END

BEAM #42 FOUNDATION BEAM

SPAN: 8'-0"

LOADS: FLOOR 4 (54) 21C PT LOAD @ CL: BM 3321 1260

5000 BM 2722 940

$$\frac{730(8)^2}{8} = 5840 \text{ FT#} \quad \frac{730 \text{ RF}}{14} = 5214 \text{ } \frac{2200(8)(4)}{(8)^3} = 500 \text{ RF}$$

$$\frac{5840(12)}{763} = 72.7 \text{ } 4 \times 12 \text{ DF #2} = 73.8 \text{ } \checkmark$$

$$\frac{2020}{285} = 7.1 \text{ } f_v = 7.1$$

$$f_v = \frac{3V}{2bD} = \frac{3 \left(\frac{230(8)}{2} + \frac{2200}{2} \right)}{2(3.5)(11.25)} = \frac{6060}{78.75} = 77 \text{ } f_v = 75 \text{ } \checkmark$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(730)(8)(8)(12)^3}{384(1.6)(415)} = \frac{2.58 \times 10^{10}}{2.55 \times 10^{10}} = .101 \text{ } \Delta \leq \frac{L}{360} = .267 \text{ } \checkmark$$

BEAM #2: REAR PORCH JOISTS

SPAN: 6'-0" USE P.T 2x8 JOISTS @ 16" O.C. CAN SPAN 12'-7"

W/ LUS 2.0 @ ANGLES TIP

BEAM AA: CONTINUOUS 12x8 (A REAR PORCH)

P.T. 4x8 CONTINUOUS LENGTH W/ 3/4" & NUTS ANCHORS @ 48" O.C. 180(2.67) = 481

LOADS 3(40) = 120 PLF 12x8 ANCHOR = 925 > 780(2) = 360 \checkmark 925 > 481

DATEMAN 04/08/01

RICHARD NEAL LISTER AIA

BEAM #43 FOUNDATION BEAM

SPAN: 4'0"

LOADS: PT LOAD @ CL BM 32 1216 # $\frac{1216(8)(2)^2}{(4)^3} = 608 \text{ PLF}$

$$\frac{608(4)^2}{8} = 1216 \text{ FT} \# \quad \frac{1216(12)}{963} = 15 \text{ V} \quad 4 \times 8 \text{ DF} \# 2 = 30 \text{ VV}$$

$$f_v = \frac{3V}{2B'D} = 3 \left(\frac{1216}{2} \right) \frac{608}{2(3.5)(7.25)} = \frac{1824}{50.75} = 35.9 \text{ V} \quad f_v = 95 \text{ V}$$

BENT MOMENT ABOUT Δ

USE 4x8 DF # 2 w/ LVS 4B HGR EACH END

BEAM 44 FOUNDATION BEAM

SPAN: 8'0"

LOADS: PT LOAD @ CL BM 43 608 # $\frac{608(8)(4)^2}{(8)^3} = 152 \text{ PLF}$

FLOOR 4 (54) 216

BM

14

230

$$\frac{382(8)^2}{8} = 3056 \text{ FT} \# \quad \frac{3056(12)}{963} = 38.08$$

152

230

382 TOTAL

$$f_v = \frac{3V}{2B'D} = 3 \left(\frac{920}{2} + \frac{304}{2} \right) \frac{122}{3} = 4 \times 10 \text{ DF} \# 2 = 49 \text{ VV}$$

$$= \frac{3672}{61.75} = 59.7 \text{ V} \quad f_v = 95 \text{ V}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(382)(8)(8 \times 12)^3}{384(1.6)(230)} = \frac{1.35 \times 10^{10}}{1.42 \times 10^8} = .095" \leq \frac{L}{360} = .267" \text{ V}$$

USE 4x10 DF # 2 w/ 4x4 PT POST EACH END

BEAM 45: FOUNDATION BEAMSPAN: 8'0" PT LOAD @ CL BM 43(2) 1216 $\frac{1216(8)(4)^2}{(8)^3} = 304 \text{ PLF}$

FLOOR 4 (54) 216

BM

14

230

$$\frac{534(8)^2}{8} = 4272 \text{ FT} \#$$

304

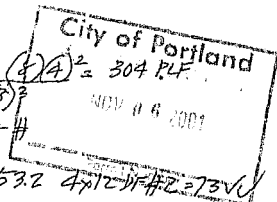
230

534 TOTAL

$$f_v = \frac{3V}{2B'D} = 3 \left(\frac{920}{2} + \frac{608}{2} \right) \frac{152}{3} = \frac{4584}{78.75} = 58.2 \text{ V} \quad f_v = 95 \text{ V}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(534)(8)(8 \times 12)^3}{384(1.6)(415)} = \frac{1.89 \times 10^{10}}{2.55 \times 10^8} = .074" \leq \frac{L}{360} = .267" \text{ V}$$

SO USE 4x12 DF # 2 w/ P.T 4x4 POST EACH END



BATEMAN 09/06/01

RICHARD NEAL LISHNER HTH

BEAM 46: FOUNDATION BEAM

SPAN: 8'-0"

LOADS: PT LOAD @ C BM 31 R2 1112 $\frac{1112(8)(4)^2}{(8)^3} = 278 \text{ PLF}$

FLOOR 4 (54) 216

BM

$$\begin{array}{r} 14 \\ 230 \\ 278 \end{array}$$

$$\frac{508(B)^2}{8} = 4064 \text{ FT} \#$$

$$f_v = \frac{3V}{2B} = 3 \left(\frac{230(8)}{2} + \frac{1112}{2} \right) \frac{1476}{2(3.5)(11.25)} = \frac{4428}{78.75} = 56.2 \text{ V } f_v = 95 \text{ V}$$

$$\frac{4064(12)}{963} = 50.6 \text{ 4x12} = 73 \text{ V}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(508)(8)(8 \times 12)^3}{384(1.6)(415)} = \frac{1.80 \times 10^{10}}{2.55 \times 10^8} = .07" \leq \frac{L}{360} = .267" \text{ V}$$

USE 4x12 DF #2 w/ P.T 4x9 POST EACH END

BEAM 47: FOUNDATION BEAM

SPAN: 8'-0"

LOADS: 3 (54) 162 FLOOR

8 (7) 63 INT WALL

6.5 (50) 325 2ND FLOOR

8 (10) 80 EXT WALL

2 (35) 70 ROOF

13 (35) 455 RAFT

13 (15) 195 ATTIC

1 (35) 35 LOWER RAFT

1 (15) 15 LOWER ATTIC

BM

1410 PLF

$$f_v = \frac{3V}{2B} = 3 \left(\frac{1410(4)}{2} \right) \frac{2820}{2(3.5)(9.25)} = \frac{8460}{106} = 79.8 \text{ V}$$

TRY LOAD REDUCTION

$$1410 \left(\frac{9.25}{12} \right) = \frac{1087}{1733(3)} = \frac{5199}{50.75} = 102.4 \text{ X}$$

VOID

$$\frac{1410(8)^2}{8} = 11,280 \text{ FT} \#$$

$$\frac{11280(12)}{2980} = 46.67 (2) 134" \times 9\frac{1}{2}" = 53 \text{ V}$$

$$f_v = \frac{3V}{2B} = 3 \left(\frac{1410(8)}{2} \right) \frac{5640}{2(3.5)(9.25)} = \frac{16920}{50.75} = 333 \text{ X}$$

SHORTEN SPAN IN 1/2

$$\frac{1410(4)^2}{8} = 2820 \text{ FT} \#$$

$$\frac{2820(12)}{963} = 35 \text{ V } 4 \times 10 \text{ DF} \#2 = 49 \text{ V}$$

* SUBSTITUTE TYPICAL STRIP FOUNDATION 8" x 15" w/ 8" STAIN WOOD

BATEMAN 09/06/01

RICHARD NEAL LISHAW 1/1/17

BEAM 47: FOUNDATION BEAM

SPAN: 8'-0"

LOADS: PT LOAD @ C BM 37K 1690# $\frac{1690(8)(4)^2}{(8)^3} = 425 \text{ PLF}$

425

FLOOR 2(54) 108

INTWALL 9(7) 63

2ND FLOOR 13(50) 650

INTWALL 8(7) 56

BM 13

890 PLF

425

1315 PLF

$$\frac{1315(8)^2}{8} = 10520$$

$$\frac{10520(12)}{2900} = 43.5 / 3\frac{1}{2} \times 9\frac{1}{2}"$$

$$2.0E = 53 \text{ VW}$$

$$f_v = \frac{3V}{2BO} = 3 \left(\frac{890(8)}{2} + \frac{1690}{2} \right) = \frac{13215}{465} = 198.7 \text{ VW}$$

$$f_v = 285 \text{ VW}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(1315)(8)(8 \times 12)^3}{384(20)(250)} = \frac{4.65 \times 10^{-10}}{1.92 \times 10^{-10}} = .24" \leq \frac{L}{360} = .267" \text{ VW}$$

SO USE 3 1/2" x 9 1/2" 2.0E PARALUX 14/ PT 4x4 POST EACH END

$$\frac{4405}{650} = \frac{6.78}{3.5} = 1.94" \text{ BR4 REQD.}$$

~~BEAM 48: ROOF BEAMS~~

BEAM BB: BEAM 2 & 3 RAFTERS

SPAN: 13'-0"

USE 2x10 DF #2 @ 24" O.C CAN SPAN 10'-1"

BEAM CC: BEAM 4 1/2 LEDGING JOISTS

SPAN: 13'-0" USE 2x8 @ 16" O.C CAN SPAN 16'-3" (LIMITED STORAGE)

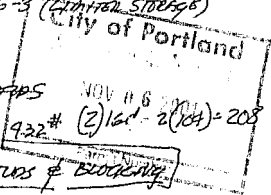
BEAM DD: CONTINUOUS LEDGER @ DINING ROOM FLOOR

[P.T. 2x8] w/ (4) ROWS 16d INTO BRICK STOPS

$$\text{LOADS: } 6.5 \times 50 = 325 \text{ PLF}$$

$$325(1.23) = 400 \text{ # } (2) 16d - 2(104) = 208$$

NEED (3) ROWS 16d @ 12" O.C. INTO STOPS & BRICKWORK



BARBARA
09/06/01

FRANK NORTON LISTER, ARCH

8M 42: PORCH BEAM, REAR POLL

25A

SPAN: 17'-0"

LOADS: DECK 3 (60) 180
BM

$$\frac{190(17)^2}{8} = 6864 \text{ FT} \#$$

$$\frac{10}{190} \text{ PLF}$$

$$\frac{6864(12)}{875} = 94.13 \text{ V } 6 \times 12 \text{ DF} \# 2 = 121 \text{ VV}$$

$$f_v = \frac{3V}{200} = \frac{3 \left(\frac{10(17)}{2} \right)^{1.65}}{2(6.5)(115)} = \frac{4895}{126.5} = 38 \text{ V } f_v = 85 \text{ VV}$$

$$\frac{16.15}{625} = \frac{2.5P}{5.5} = .46 \text{ " BRG REB}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(190)(17)(17 \times 12)^3}{384(1.3)(697)} = \frac{1.37 \times 10^4}{3.48 \times 10^4} = .394 \text{ " } \Delta \leq \frac{L}{360} = .567 \text{ " V}$$

SO CAN USE 6X12 DF #2 w/ P.T. 4X8 POST @ EACH END

BUT 17'-0" LONG 6X12 TOO EXPENSIVE, SO

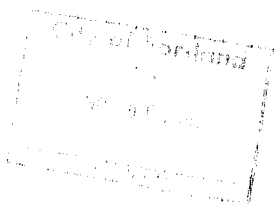
CUT SPAN IN 1/2 TO 8'-6"

$$\frac{190(8.5)^2}{8} = 1716 \text{ FT} \# \quad \frac{1716(12)}{963} = 21.3 \text{ V } 4 \times 8 \text{ DF} \# 2 = 30.6 \text{ VV}$$

$$f_v = \frac{3V}{200} = \frac{3 \left(\frac{190(8.5)}{2} \right)^{1.65}}{2(3.5)(111)} = \frac{2424}{50.75} = 47.7 \text{ V } f_v = 95 \text{ VV}$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(190)(8.5)(8.5 \times 12)^3}{384(1.3)(111)} = \frac{8.57 \times 10^4}{6.83 \times 10^4} = .125 \text{ " } \Delta \leq \frac{L}{360} = .283 \text{ " V}$$

* SO INSERT (2) EXTRA 4X8 POSTS, CUT SPAN TO 6'-6",
THEN USE P.T. 4X8 DF #2



DATE: 08/22/01

RICHARD NEAL LISTHAR, AIA

BEAM 50: GARAGE WINDOW HEADER

SPAN: 4'-6"

LOADS: FLOOR .67(54) 36

EXT WALL 9(10) 90

ROOF, ATYIC CUT OFF BY WINDOW

BM 14
140

$$\frac{140(4.5)^2}{8} = 354 \text{ Ft} \cdot \text{#}$$

$$\frac{354(12)}{963} = 4.41 \checkmark$$

$$(2) \text{ FLAT } 2 \times 6 \text{ DF} \#2 = 8.25 \checkmark$$

$$f_v = \frac{3V}{2bD} = \frac{3 \left(\frac{140(4.5)}{2} \right)^{.715} \cdot 945}{2(5.5)(3) \cdot 33} = 28.6 \checkmark \quad f_v = 95 \checkmark$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(140)(4.5)(9.5 \times 12)^3}{384(1.16)(12.375)} = \frac{4.96 \times 10^8}{7.60 \times 10^9} = .065" \leq \frac{L}{360} = .150" \checkmark$$

* SO USE FLAT (2) 2X6 OR LARGER HEADER
w/ 2X6 TRIMMER & 2X6 KING POST
EACH END

BEAM 50 A: BAY WINDOW HEADER

SPAN: 7'-6"

LOADS: ROOF .6(40) 20

EXT WALL 2(10) 20

BM

5
45 PLF

$$\frac{45(7.5)^2}{8} = 316 \text{ Ft} \cdot \text{#}$$

$$\frac{316(12)}{963} = 3.9 \checkmark \quad \text{FLAT}(2) 2 \times 6 = 8.25 \checkmark$$

$$f_v = \frac{3V}{2bD} = \frac{3 \left(\frac{45(7.5)}{2} \right)^{.69} \cdot 506}{2(5.5)(3) \cdot 33} = 15.3 \checkmark \quad f_v = 95 \checkmark$$

$$\Delta = \frac{5WL^3}{384EI} = \frac{5(45)(7.5)(7.5 \times 12)^3}{384(1.16)(12.375)} = \frac{1.23 \times 10^9}{7.60 \times 10^9} = .162" \leq \frac{L}{360} = .250" \checkmark$$

SO USE (2) 2X6 FLAT OR LARGER HEADER
w/ 2X6 TRIMMER & 2X6 KING POST EACH END

PATEMAN
09/25/01

RICHARD NEAL LISHNER, M/D

BEAM 51: CRAWL SPACE ACCESS

SPAN: 2'-6"

LOADS: ROOF 1 (35) 35 } 6 CUT OFF
 ATTIC 1 (15) 15 }
 EXT WALL 4 (10) 40
 FLOOR .67 (54) 36
 BM 14
 80 PLF

$$\frac{80(2.5)^2}{8} = 63 \text{ Ft}\#$$

$$\frac{63(12)}{963} = 1.77 \quad \boxed{\text{FLAT } (2) 2 \times 4 = 5.25 \checkmark}$$

DONT WORRY ABOUT f_v OR Δ BEAM 52: CRAWL SPACE ACCESS

SPAN: 2'-6"

LOADS: ROOF 13 (35) 455
 ATTIC 13 (15) 195
 ROOF 1 (35) 35
 EXT WALL 8 (10) 80
 INT WALL 8 (7) 63
 FLOOR 6.5 (50) 325
 FLOOR 1.25 (54) 68
 FLOOR 1.5 (54) 81
 LOWER ROOF 1 (65) 35
 LOWER ATTIC 1 (15) 15
 BM 18
 1370 PLF

$$\frac{1370(2.5)^2}{8} = 1070 \text{ Ft}\#$$

$$\frac{1070(12)}{963} = 13.3 \quad 4 \times 6 \text{ DF}\# 2 = 17 \checkmark$$

$$f_v = \frac{3V}{2BD} = 3 \left(\frac{1370(2.5)}{2} \right) \frac{1713}{2(3.5)(5.5)} = \frac{5138}{38.5} = 133 \times$$

$$725 \quad 50.75 = 101.2$$

TRY LOAD REDUCTION

$$1370 \left(\frac{7.25}{12} \right) = 828 \quad \frac{1713}{828} = \frac{2650}{50.75} = 52 \checkmark$$

$$885(2) = 1770 \quad f_v = 95 \checkmark$$

DONT WORRY ABOUT Δ

USE 4 x 8 DF #2 w/ (1) PT. 2 x 4 TRIMMER
 (1) PT 2 x 4 KING POST

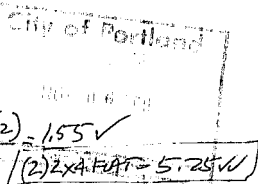
$$\frac{1713}{625} = \frac{274}{3.5} = .78 \text{ BAY REQD}$$

BEAM 53: CRAWL SPACE ACCESS

SPAN: 2'-6"

LOADS: FLOOR 2 (54) 108
 EXTERIOR .67 (54) 36
 BM 16
 160 PLF

$$\frac{160(2.5)^2}{8} = 125 \text{ Ft}\# \quad \frac{125(12)}{963} = 1.55 \checkmark$$

DONT WORRY ABOUT f_v OR Δ 

BATHEMAN
 09/24/01

RICHARD NORTON LISHNER, AIA

~~FOOTING A: BEAM 38 R2 4405#~~ Bin 34 R1 16/2

VOID FOOTING A: BEAM 47 R1/R2 4405#

SEE 26A

677

4405

1500

2.94 x 1.17

3.46

4.53

2.94 SQUARE

105.1 SQUARE

2.30 SQUARE

28" x 28" x 10" FOOTING

FOOTING B: BEAM 47 R1 & R2 4405(2) = 8810

$\frac{8810}{1500} = \sqrt{5.87 \times 1.17}$ 2.62' SQUARE

32" x 32" x 12" FOOTING
W/(2) #4 EACH WAY

FOOTING C: BEAM 47 R2 4405

1/2 BEAM 47A

$\frac{1780}{6185\#}$

$\frac{6185}{1500} = \sqrt{4.12 \times 1.17}$
2.19' SQUARE

28" x 28" x 10" FOOTING

FOOTING D:

BEAM 46 R2 1476

TYPE 4x8

920

2396#

18" IS OK UP TO 2473 #W

FOOTING E:

BM 46 R1 1476

BM 45 R2 1528

3004#

3004 34# SQUARE OK TO 4319 #W

$\frac{3004}{1500} = \sqrt{2 \times 1.17}$ 1.53' SQUARE

ALTERNATIVES
18" x 18" x 10" FOOTING

City of Portland

NOV 06 2001

FOOTING F:

BM 44 R2 1224

TYPE 4x8

920

2144#

18" IS OK UP TO 2473 #W

FOOTING G:

BM 43 R1 608

BM 29 K1 780

BM 28 R2 687#

7685#

$\frac{7685}{1500} = \sqrt{5.02 \times 1.17}$ 2.42' SQUARE

30" x 30" x 12"
W/(2) #4 EACH WAY

BATZMAN
09/06/01

REPAIRS NEAR LISHMAN AIA

26A

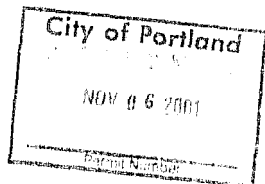
FOOTING A: BEAM 34 R1 1612
 BM 36 R4 780
 BM 47 R/L 4405
 BM 49 R1 4583

 11380

$$\frac{11380}{1500} = \sqrt{7.59 \times 117}$$

$$= 2.97' \text{ SQUARE}$$

36" x 36" x 12"
 FOOTING w/ (3) #4 EACH WAY



BATEMAN
 09/24/01

RUHARD NEAL LISHNER, AIA

FOOTING F: BM 42 R1 2020
 TYP 4x8 920
 2940#

24" ϕ SIGNATURE CAN SUPPORT 4319 (27)

$$\frac{2940}{1500} = \sqrt{4.98 \times 1.17} \quad 1.51' \text{ SQUARES}$$

18" x 18" x 10' FOOTING

FOOTING G: PM 18 R1 2373

~~BM 18 R1 1187~~

BM 38 R1 1625

BM 39 J 875

6060#

4873#

~~6060#~~ $\sqrt{4.04 \times 1.17} = 2.17' \text{ SQUARES}
 1500$

~~26" x 26" x 10' FOOTING~~

13837

15890

$$\frac{11185}{1500} = \sqrt{7.46 \times 1.17} \sqrt{16.59 \times 1.17}$$

2.95' SQUARES 3.52' SQUARES

3.28' SQUARES

~~12" x 12" x 12"~~
 FOOTING W/ (3)
 #4 EACH WAY

40" x 40" x 12"
 W/ (3) #4 EACH WAY

~~1185#~~
~~15890~~
 13,837

FOOTING H:

BM 26 R1 870

BM 24 R2 8388

~~BM 23 R2 6752~~

~~1185#~~

~~15890~~

13,837

FOOTING I: BM 25 R2 1700#

20 R2 6205

7905#

18" ϕ SIGNATURE CAN SUPPORT 2475#

~~FOOTING J~~ BM 25 R2 1700

~~BM U R2 182~~

$$\frac{7905}{1500} = \sqrt{5.27 \times 1.17} \quad 2.48' \text{ SQUARES}$$

30" x 30" x 18"
 W/ (2) #4 EACH WAY

FOOTING J

BM 25 R1 1700

BM U R2 182

BM 20 R1 6205

BM 17 R2 439

8524

$$\frac{8526}{1500} = \sqrt{5.68 \times 1.17}$$

NOV 06 2001
 2.58' SQUARES

32" x 32" x 18"
 W/ (2) #4 EACH WAY

City of Portland

FOOTING K

BM 21 R1

4760#

5780#

1500

$$\sqrt{3.45 \times 1.17} = 2.01' \text{ SQUARES}$$

~~24" x 24" x 10' FOOTING~~

4760# IS OK
 W/ TYP FOUNDATION

BATEMAN

07/06/01

RICHARD MERRILL SHAFER, AIA

FOOTING Q: BM 8 R2 5713
BM 9 R1 1733

~~5446 = 13.63 x 1.17~~
~~1500~~
= 2.06' SQUARE

3961 # DOESN'T REQUIRE ANY NEW FOOTING EXISTING OK

5446 #
3961

~~25" x 24" x 10' FOOTING~~
~~UNDER EXIST. FOOTING~~

FOOTING R: BM 24 R1 8574 #

$\frac{7576}{1500} \quad \frac{8574}{1500} = \sqrt{\frac{5.72 \times 1.17}{5.05}}$
2.93' SQUARE
2.58' SQUARE

30" x 30" x 12"
FOOTING W/ (2) #4
EACH WAY

QUESTIONS

① ? DO WE NEED TO POST BM 19 R2 TO FOUNDATION?

BM 19 R2 3468 # @ CL BRY WALL

SPAN: 1.33

LOADS: 3468 @ CL $\frac{3468(8)(.67)}{(1.33)^3} = 5294 \text{ PLF}$

$\frac{730(.67)}{2} = 245 \text{ @ } .33 \quad \frac{245(8)(.33)(1)}{(1.33)^3} = 275 \quad 875(1.3)(1.15)$
5569 PLF

$\frac{5569(1.33)^2}{8} = 1231 \text{ Ft} \# \quad \frac{1231(12)}{963.1208} = 15.29$
2) 2x6 PLAT = 8.25 X

YES NEED TO POST (2) 2x6 AT FIRST FLOOR WALL TO FOUNDATION

② ? BM 18 REACTIONS NEED TO BE POSTED?

BM 18 REACTION 2008 # SPAN: 1.33'

2008 @ C $\frac{2008(8)(.67)^2}{(1.33)^3} = 3065$

$\frac{3390(1.33)^2}{8} = 734 \text{ FT} \#$

$\frac{730(.67)}{2} = 245 \text{ @ } .33 \quad \frac{245(8)(.33)(1)}{(1.33)^3} = 275$
3340 PLF

City of Portland
FLAT (2) 2x6 = 8.25 IN
FLAT (2) 2x4 = 5.25 X

$R = \frac{3V}{2\Delta D} = \frac{3 \left(\frac{2008}{2} + \frac{245(1)}{1.33} \right)}{2(55)(3)} = \frac{1188}{33} = 36 \text{ X}$
FAILS IN SHEAR

YES NEED TO POST DOWN FROM (2) FROM BOTTOM WALLS
IN FIRST FLOOR WALLS.

BATEMAN
09/06/01

RICHARD NEAL LISKER AIA