DEI
DIBBLE ENGINEERS INC

STRUCTURAL CALCULATIONS
SEIFERT RESIDENCE REMODEL

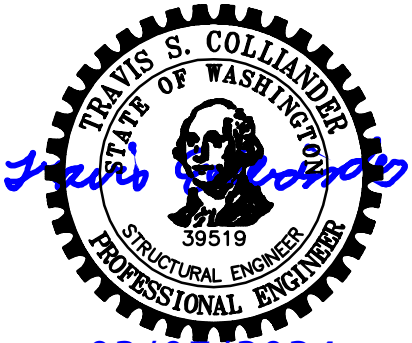
3261 67th Ave SE

Mercer Island, WA 98040

Prepared for Gelotte Hammas Drivdahl Architecture

Project # 24-005

March 7, 2024



03/07/2024

DEI
DIBBLE ENGINEERS INC

STRUCTURAL CALCULATIONS
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Seifert Residence Remodel; DEI Job #24-005

Two story remodel to an existing single-family residence.

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DESIGN CRITERIA & LOADS

Seifert Residence Remodel; DEI Job #24-005

Dibble Engineers Inc
1029 Market Street, Suite 200
Kirkland, WA 98033
(425) 828-4200

JOB TITLE Seifert Res Remodel

JOB NO. 24-005 **SHEET NO.**
CALCULATED BY **DATE**
CHECKED BY **DATE**

Code Search

Code: International Building Code 2018

Occupancy:

Occupancy Group = R Residential

Risk Category & Importance Factors:

Risk Category =	II
Wind factor =	1.00
Snow factor =	1.00
Seismic factor =	1.00

Building Geometry:

Roof angle (θ)	5.00 / 12	22.6 deg
Building length	119.0 ft	
Least width	75.5 ft	
Mean Roof Ht (h)	29.5 ft	
Parapet ht above grd	0.0 ft	
Minimum parapet ht	0.0 ft	

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Project Name: Seifert Residence
Project #: 24-005
Subject: Loads

Sheet # 01
Date: 00/00/20XX
By: Name Here

Roof Dead Loads

Roofing Material (Wood Shingle - 2 Layers)	6.0	psf
1/2" Ply	1.5	psf
Framing Member - 2x12 at 24" o/c	2.3	psf
Batt Insulation	1	psf
5/8" Gyp Board	2.8	psf
Misc. Other	1.4	psf
	15.0	psf

Assume Roof DL of 15 psf

Typical Exterior Wall Dead Loads

Beveled Siding	2.5	psf
1/2" Ply/OSB	1.7	psf
Framing Member (2x6 Studs @ 16" oc)	1.4	psf
Batt Insulation	0.5	psf
1/2" Gyp Board	2.2	psf
Misc. Other	1.7	psf
	10.0	psf

Assume Wall DL of 10 psf

Typical Floor Dead Loads

Finish Flooring Material	3.0	psf
-	0	psf
-	0	psf
3/4" Ply	2.3	psf
Framing Member (2x10 at 16" o/c)	2.8	psf
Batt Insulation	1	psf
5/8" Gyp Board	2.8	psf
Misc. Other	3.1	psf
	15.0	psf

Assume Floor DL of 15 psf

(E) Deck Dead Loads

Ceramic Tile	4.7	psf
Grout (2")	24	psf
Waterproofing	1	psf
3/4" Ply	2.5	psf
2x12 @ 16" O.C.	3.5	psf
Misc. Other	0.3	psf
	36.0	

Assume DL of 36 psf

(N) Deck Dead Loads

Pavers on Pedastal	25.0	psf
1/2" protection board	1	psf
Membrane	1.5	psf
1/4" coverboard	1	psf
Rigid insulation	1.5	psf
(2) Layers 11/2" ply	2.8	psf
Framing	2.9	psf
T&G Soffit	1	psf
Misc.	0.3	psf
	37.0	psf

Assume DL of 37 psf

GEOTECH
CONSULTANTS, INC.

2401 10th Ave E
Seattle, Washington 98102
(425) 747-5618

October 5, 2023

JN 23323

Mike and Anne Seifert
3261 – 67th Avenue S.E.
Mercer Island, WA 98040
via email: mseifert@apple.com; annebseifert@yahoo.com

Subject: **Foundation and Critical Area Considerations**
Proposed Additions to Existing Residence
3261 – 67th Avenue S.E.
Mercer Island, Washington

Greetings:

This report presents our geotechnical engineering report related to the planned additions to the upper floor of your existing home. The scope of our services consisted of assessing the site surface and subsurface conditions, and then developing this summary report.

Planning for the plans prepared by Gelotte Hommas Drivdahl Architecture, we understand that the upper floor will be expanded on the north and south sides of the western portion of the house, in order to create new bedrooms. These additions to the structure will be supported on the existing foundations. Depending on the findings of the structural engineer, it is possible that new interior foundations will have to be added to address new loading or changes related to the remodel of the house. No deep excavations, or expansions outside of the existing footprint, are expected.

The City of Mercer Island GIS maps the entire site as being within a Potential Landslide Hazard area, and the western half of the lot is mapped as a Potential Seismic Hazard area. The site is not mapped as an Erosion Hazard area, and there are no steep slopes mapped on, or around, your property. There is no history of large-scale slope movement in this area. This is confirmed by our review of the *Mercer Island Landslide Hazard Assessment* (Troost and Wisher, 2009). Lidar imagery on Washington Department of Natural Resources' *Geologic Information Portal* does not show indications of historic large-scale landslide features in the site vicinity.

We visited the subject property on September 20, 2023 to observe the existing site conditions and to conduct test holes alongside the north and south perimeter footings in the area of the proposed second story additions. The garage extends eastward from the main body of the residence. The eastern approximately one-fourth of the house is underlain by a crawl space. The remainder of the house is underlain by a shallow basement that daylights toward the west. The additions will be constructed above this shallow basement portion of the structure. To the west of the house is a deck and elevated terrace. The ground surface on the lot slopes gently downward toward Lake Washington on the west side of the lot. There are no steep slopes on, or near, the site.

We are familiar with the native subsurface conditions on the property from review of published geologic maps. During our visit to the site, we also conducted test holes alongside the north and south foundations of the western basement, portion of the house that will support the loads from the new upper floor addition. The geologic mapping for the area is glacial till, a glacially-compressed, gravelly, silty sand. This soil has a high internal strength. The test holes that we excavated found dense, silty sand or sandy silt immediately beneath the existing footings. It is apparent that the

shallow basement was excavated below the original grade, extending into the competent, glacially-compressed soil. No groundwater seepage was observed in the test holes.

CONCLUSIONS AND RECOMMENDATIONS

GENERAL

THIS SECTION CONTAINS A SUMMARY OF OUR STUDY AND FINDINGS FOR THE PURPOSES OF A GENERAL OVERVIEW ONLY. MORE SPECIFIC RECOMMENDATIONS AND CONCLUSIONS ARE CONTAINED IN THE REMAINDER OF THIS REPORT. ANY PARTY RELYING ON THIS REPORT SHOULD READ THE ENTIRE DOCUMENT.

Based on published geologic maps and our explorations the site and surrounding area are underlain by competent, glacially-compressed native soils. The test holes confirmed that the foundations in the western, basement portion of the existing house were placed on glacially-compressed soils. These soils: 1) are not susceptible to seismic liquefaction, and 2) are suitable to carry loads from the new upper floor addition.

Any new foundations constructed for the remodel/additions should bear on the dense, glacially-compressed soils.

As with any structure, the soil beneath the existing foundations will compress slightly under new loads. This may result in some cosmetic cracking in existing interior finishes, but should not present a structural concern.

Potential Landslide Hazard Areas: The site and surrounding area have been mapped as a Potential Landslide Hazard area. No recent large-scale movement has been documented in this area. As previously discussed, the core of the subject site consists of dense, glacially compressed, silty sand that has a negligible potential for instability on the gentle to moderately-sloped ground. The proposed new additions will be supported on foundations bearing directly on these dense, glacially-compressed soils.

It is our opinion that no buffers or setbacks, or other landslide hazard mitigation measures are required for the planned construction.

Potential Seismic Hazard Area: The soils that underlie the existing foundations, and which would support any new foundations, are not prone to seismic liquefaction under the ground motions of the Maximum Considered Earthquake (MCE).

We provide the following “statement of risk” to satisfy City of Mercer Island conditions:

> “It is our professional opinion that the development practices proposed in this report for the planned alteration would render the development as safe as if it were not located in a geologic hazard area.”

We recommend including this report, in its entirety, in the project contract documents. This report should also be provided to any future property owners so they will be aware of our findings and recommendations.

SEISMIC CONSIDERATIONS

In accordance with the International Building Code (IBC), the site class within 100 feet of the ground surface is best represented by Site Class Type D (Stiff Soil).

The IBC and ASCE 7 require that the potential for liquefaction (soil strength loss) during an earthquake be evaluated for the peak ground acceleration of the Maximum Considered Earthquake (MCE), which has a probability of occurring once in 2,475 years (2 percent probability of occurring in a 50-year period). The dense soils that will support the new construction are not susceptible to seismic liquefaction under the ground motions of the MCE because of the absence of near-surface groundwater.

CONVENTIONAL FOUNDATIONS

We recommend that new continuous and individual spread footings have minimum widths of 12 and 16 inches, respectively. Exterior footings should also be bottomed at least 18 inches below the lowest adjacent finish ground surface for protection against frost and erosion. The local building codes should be reviewed to determine if different footing widths or embedment depths are required.

Footing subgrades must be cleaned of loose or disturbed soil prior to pouring concrete. Depending upon site and equipment constraints, this may require removing the disturbed soil by hand. In wet conditions, the prepared footing subgrades should be protected with several inches of clean crushed rock, in order to prevent softening or disturbance during the placement of forms and rebar.

An allowable bearing pressure of 2,500 pounds per square foot (psf) is appropriate for new or existing footings supported on competent native soil. A one-third increase in this design bearing pressure can be used when considering short-term wind or seismic loads. For the above design criteria, it is anticipated that the total post-construction settlement of footings founded on competent native soil will be less than one inch, with differential settlements on the order of one-quarter-inch in a distance of 25 feet along a continuous footing with a uniform load.

Lateral loads due to wind or seismic forces may be resisted by friction between the foundation and the bearing soil, or by passive earth pressure acting on the vertical, embedded portions of the foundation. For the latter condition, the foundation must be either poured directly against relatively level, undisturbed soil or be surrounded by level, well-compacted fill. We recommend using the following ultimate values for the foundation's resistance to lateral loading:

PARAMETER	ULTIMATE VALUE
Coefficient of Friction	0.40
Passive Earth Pressure	300 pcf

Where: pcf is Pounds per Cubic Foot, and Passive Earth Pressure is computed using the Equivalent Fluid Density.

The above ultimate values for passive earth pressure and coefficient of friction do not include a safety factor.

LIMITATIONS

This report has been prepared for the exclusive use of Mike and Anne Seifert for specific application to this project and site. Our conclusions and recommendations are professional opinions derived in accordance with our understanding of current local standards of practice, and within the scope of our services. No warranty is expressed or implied. The scope of our services does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences, or procedures, except as specifically described in our report for consideration in design. Our services also do not include assessing or minimizing the potential for biological hazards, such as mold, bacteria, mildew and fungi in either the existing or proposed site development.

We appreciate the opportunity to be of service on this project. Please contact us if you have any questions, or if we can be of further assistance.

Respectfully submitted,

GEOTECH CONSULTANTS, INC.

10/5/2023

Marc R. McGinnis, P.E.
Principal

cc: **Gelotte Hommas Drivdahl Architecture** – David Grubb
via email: davidg@ghdarch.com

MRM:kg

This is a beta release of the new ATC Hazards by Location website. Please contact us with feedback.

The ATC Hazards by Location website will not be updated to support ASCE 7-22. Find out why.

Hazards by Location

Search Information

Address:	3261 67th Ave SE, Mercer Island, WA 98040, USA
Coordinates:	47.5796968, -122.2491287
Elevation:	28 ft
Timestamp:	2024-01-16T16:24:25.476Z
Hazard Type:	Seismic
Reference Document:	ASCE7-16
Risk Category:	II
Site Class:	D-default

Basic Parameters

Name	Value	Description
S_S	1.415	MCE_R ground motion (period=0.2s)
S_1	0.492	MCE_R ground motion (period=1.0s)
S_{MS}	1.698	Site-modified spectral acceleration value
S_{M1}	* null	Site-modified spectral acceleration value
S_{DS}	1.132	Numeric seismic design value at 0.2s SA
S_{D1}	* null	Numeric seismic design value at 1.0s SA

* See Section 11.4.8

Additional Information

Name	Value	Description
SDC	* null	Seismic design category
F_a	1.2	Site amplification factor at 0.2s
F_v	* null	Site amplification factor at 1.0s
CR_S	0.902	Coefficient of risk (0.2s)
CR_1	0.896	Coefficient of risk (1.0s)
PGA	0.605	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.726	Site modified peak ground acceleration
T_L	6	Long-period transition period (s)
SsRT	1.415	Probabilistic risk-targeted ground motion (0.2s)
SsUH	1.568	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.402	Factored deterministic acceleration value (0.2s)
S1RT	0.492	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.549	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.373	Factored deterministic acceleration value (1.0s)

Mercer Island Wind Exposure and Wind Speed-Up (Topographic Effect)

by Development Services Group (DSG), City of Mercer Island
April 2009

0 0.5 1 Kilometers 1:12,000
0 0.5 1 Miles

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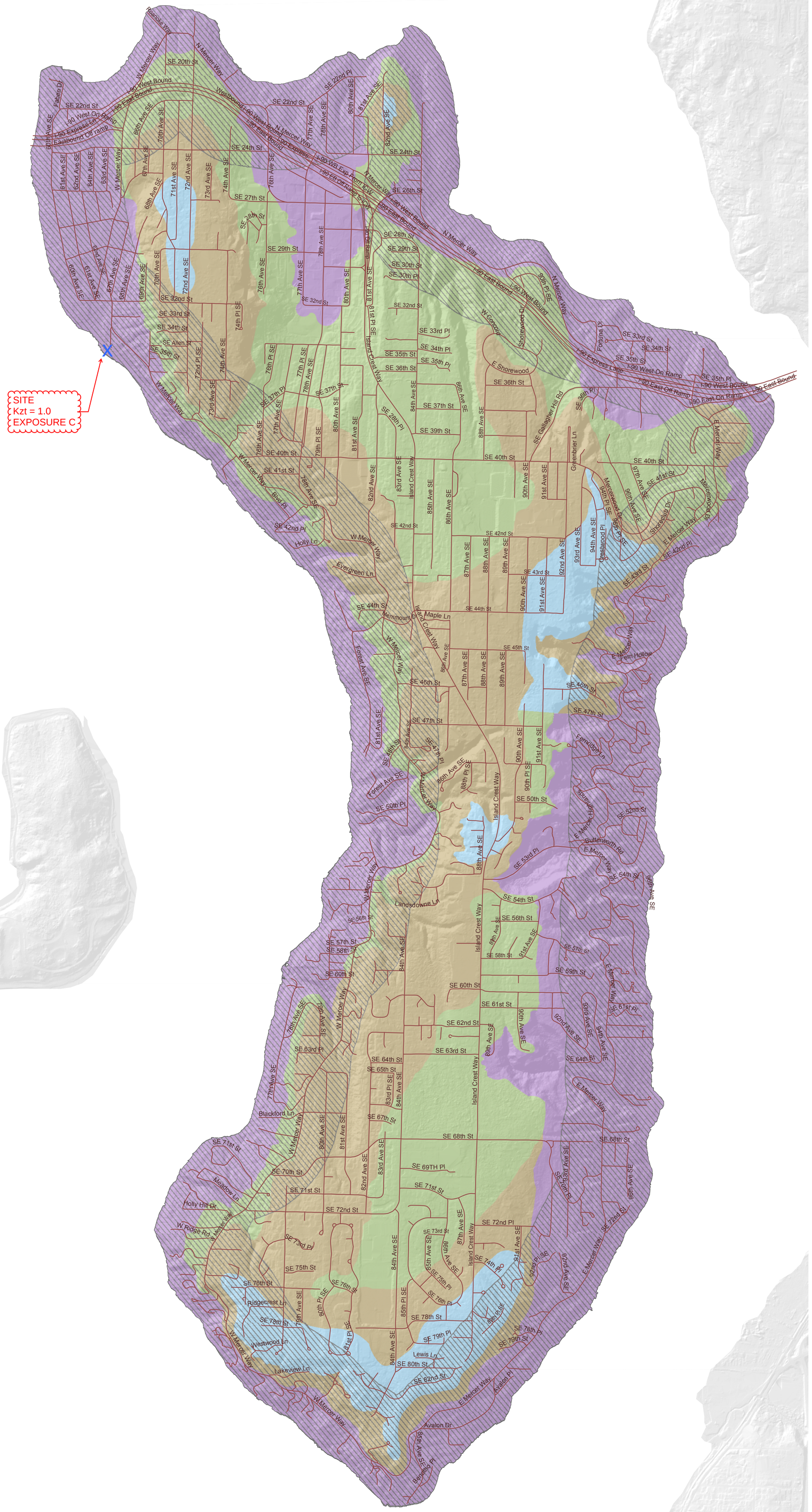


WIND EXPOSURE CATEGORIES & WIND SPEED-UP FACTORS
(ICC Section 1609 & ASCE 7-05 Chapter 6)

It is the responsibility of the Owner (or their Design Professional) to review site conditions and determine the Kzt factor to be utilized for each specific project. The Kzt factors and wind exposure categories indicated on this map are the minimum values accepted by the City of Mercer Island without requiring the design professional to submit additional calculations and supporting topographic documentation (to verify the values utilized in their wind load determination).

Please note – The Kzt values indicated on this map are approximations based upon periodic calculations of representative samplings around Mercer Island. These values are intended for City of Mercer Island's plan review purposes only.

WIND EXPOSURE CATEGORIES:

Wind Exposure Category	
	Exposure 'C' (1500 feet from Lake)
	Exposure 'B' (all other areas)

WIND SPEED-UP (TOPOGRAPHIC EFFECT) - K_zt Factor :

K_zt Factor	
	$K_zt = 1.0$
	$K_zt = 1.3$
	$K_zt = 1.6$
	$K_zt = 1.9$

GENERAL NOTES FOR WIND EXPOSURE AND WIND SPEED-UP MAP

This map is the Wind Exposure Category and Wind Speed-up (Topographic Effects) Map for the City of Mercer island. This map shows the minimum wind exposure category and the minimum wind speed-up, "K_zt" factor, which will be accepted without site specific documentation and calculation.

Other wind speed phenomena may occur on Mercer Island that is not specifically indentified on this map. It is the responsibility of the Owner (or their Design Professional) to review site conditions and determine the appropriate design wind speed and exposure category for their specific project and location.

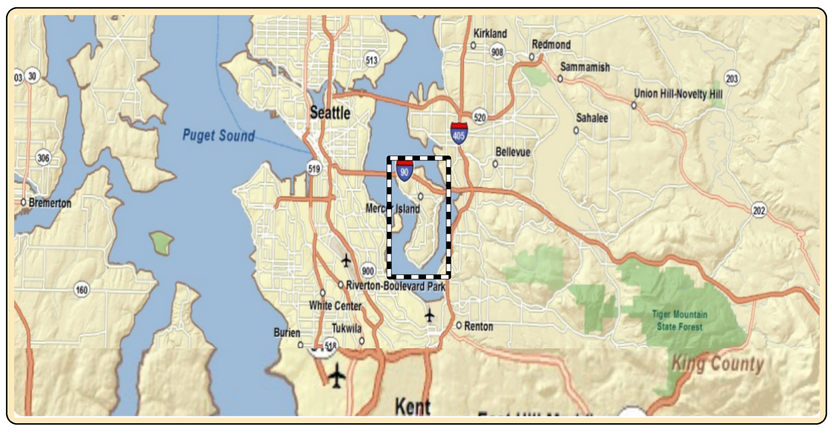
This map is for the sole use of the staff of the City of Mercer Island's Development Services Group (DSG) for the purposes of permit application evaluation. This map provides DSG staff a general assessment of Wind Exposure Category and Wind Speed-up (Topographic Effects). All areas have not been specifically evaluated and there may be locations that are not correctly represented on this map. It is the responsibility of individual property owners and map users to evaluate risk associated with their proposed development. No site-specific assessment of risk is implied or otherwise indicated by the City of Mercer Island with this map.

Information about data used for the map, references, and data limitation are all described the associated "Read Me" document. The digital version of this map is accompanied by a meta data file containing pertinent information about map construction. This data map is available on the City of Mercer Island website.

The City of Mercer Island is using guidance provided within ICC Section 1609 & ASCE 7-05 Chapter 6 regarding definitions used when creating this map.

DEFINITIONS:

K_zt factor:	The topographic effect of wind speed-up at isolated hills, ridges, and escarpments constituting abrupt changes in the general topography, located in any exposure category, that meet all of the conditions noted in ASCE 7-05 Minimum Design Loads for Buildings and Other Structures, Section 6.5.7.
Exposure B:	The wind exposure category that applies where the site in question is located a minimum of 1500 feet from the shoreline and the mean roof height is less than or equal to 30 feet per IBC 2006 section 1609.4.3.
Exposure C:	The wind exposure category that applies where the site in question is located within 1500 feet from the shoreline per IBC 2006 section 1609.4.3.
Wind Speed:	Minimum 85 mph 3-second gust per IRC Figure R301.2(4)



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Hazards by Location

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Coordinates: 47.5796968, -122.2491287

Elevation: 28 ft

Timestamp: 2024-01-16T16:23:39.599Z

Hazard Type: Wind

ASCE 7-16

MRI 10-Year	67 mph
MRI 25-Year	73 mph
MRI 50-Year	78 mph
MRI 100-Year	83 mph
Risk Category I	92 mph
Risk Category II	97 mph
Risk Category III	104 mph
Risk Category IV	108 mph

ASCE 7-10

MRI 10-Year	72 mph
MRI 25-Year	79 mph
MRI 50-Year	85 mph
MRI 100-Year	91 mph
Risk Category I	100 mph
Risk Category II	110 mph
Risk Category III-IV	115 mph

ASCE 7-05

ASCE 7-05 Wind Speed	85 mph

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Please note that the ATC Hazards by Location website will not be updated to support ASCE 7-22. Find out why.

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

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Dibble Engineers Inc
1029 Market Street, Suite 200
Kirkland, WA 98033
(425) 828-4200

JOB TITLE Seifert Res Remodel

JOB NO. 24-005 **SHEET NO.**
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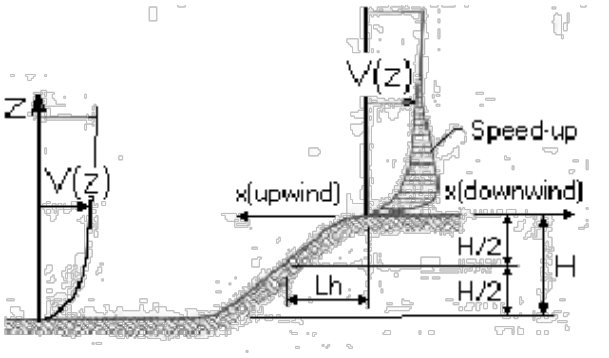
Wind Loads : ASCE 7- 16

Ultimate Wind Speed	97 mph
Nominal Wind Speed	75.1 mph
Risk Category	II
Exposure Category	C
Enclosure Classif.	Enclosed Building
Internal pressure	+/-0.18
Directionality (Kd)	0.85
Kh case 1	0.979
Kh case 2	0.979
Type of roof	Hip

Topographic Factor (Kzt)

Topography		Flat
Hill Height	(H)	315.0 ft
Half Hill Length (Lh)		1320.0 ft
Actual H/Lh	=	0.24
Use H/Lh	=	0.24
Modified Lh	=	1320.0 ft
From top of crest: x =		1503.0 ft
Bldg up/down wind?		downwind

H/Lh= 0.24 K_1 = 0.000
x/Lh = 1.14 K_2 = 0.241
z/Lh = 0.02 K_3 = 1.000
At Mean Roof Ht:
Kzt = $(1+K_1K_2K_3)^2$ = 1.00



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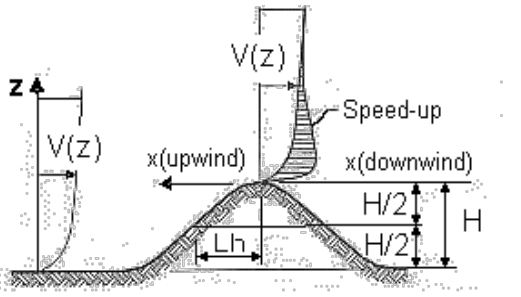

2D RIDGE or 3D AXISYMMETRICAL HILL

Gust Effect Factor

h =	29.5 ft
B =	75.5 ft
/z (0.6h) =	17.7 ft

Flexible structure if natural frequency < 1 Hz (T > 1 second).
If building h/B>4 then may be flexible and should be investigated.
h/B = 0.39 Rigid structure (low rise bldg)

G = 0.85 Using rigid structure formula

Rigid Structure

$\bar{e}$ =	0.20
ℓ =	500 ft
z_{min} =	15 ft
c =	0.20
g_Q, g_v =	3.4
L_z =	441.4 ft
Q =	0.89
I_z =	0.22
G =	**0.87** use G = 0.85

Flexible or Dynamically Sensitive Structure

Natural Frequency (η_1) =	0.0 Hz			
Damping ratio (β) =	0			
/b =	0.65			
/α =	0.15			
Vz =	84.0			
N_1 =	0.00			
R_n =	0.000			
R_h =	28.282	η =	0.000	h = 29.5 ft
R_B =	28.282	η =	0.000	
R_L =	28.282	η =	0.000	
g_R =	0.000			
R =	0.000			
Gf =	0.000			

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Wind Loads - MWFRS all h (Except for Open Buildings)

Kh (case 2) =	0.98			GCpi =	+/-0.18
Base pressure (q_h) =	**20.0 psf**	Bldg dim parallel to ridge =	119.0 ft	G =	0.85
Roof Angle (θ) =	22.6 deg	Bldg dim normal to ridge =	75.5 ft	qi = qh	
Roof tributary area:		h =	29.5 ft		
Wind normal to ridge =(h/2)*L:	1755 sf	ridge ht =	37.4 ft		
Wind parallel to ridge =(h/2)*L:	1114 sf				

Ultimate Wind Surface Pressures (psf)

	Wind Normal to Ridge				Wind Parallel to Ridge				
	L/B = 0.63		h/L = 0.39			L/B = 1.58		h/L = 0.25	
Surface	Cp	q_hGC_p	w/+q_iGC_{pi}	w/-q_hGC_{pi}	Dist.*	Cp	q_hGC_p	w/ +q_iGC_{pi}	w/ -q_hGC_{pi}
Windward Wall (WW)	0.80	13.6	see table below			0.80	13.6	see table below	
Leeward Wall (LW)	-0.50	-8.5	-12.1	-4.9		-0.38	-6.6	-10.2	-2.9
Side Wall (SW)	-0.70	-11.9	-15.5	-8.3		-0.70	-11.9	-15.5	-8.3
Leeward Roof (LR)	-0.60	-10.2	-13.8	-6.6		Included in windward roof			
Neg Windward Roof pressure	-0.30	-5.2	-8.8	-1.6	0 to h/2*	-0.90	-15.3	-18.9	-11.7
Pos/min Windward Roof press.	0.17	2.9	-0.7	6.5	h/2 to h*	-0.90	-15.3	-18.9	-11.7
					h to 2h*	-0.50	-8.5	-12.1	-4.9
					> 2h*	-0.30	-5.1	-8.7	-1.5
					Min press.	-0.18	-3.1	-6.7	0.5

*Horizontal distance from windward edge

Parapet

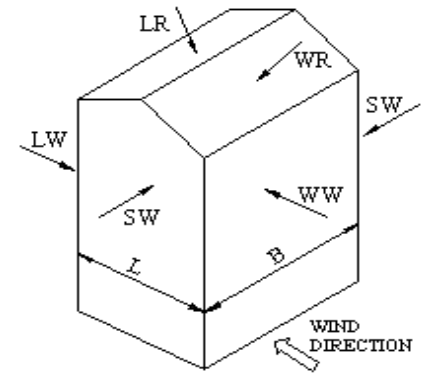
z	Kz	Kzt	qp (psf)
0.0 ft	0.85	1.00	0.0

Windward parapet: 0.0 psf (GCpn = +1.5)
Leeward parapet: 0.0 psf (GCpn = -1.0)

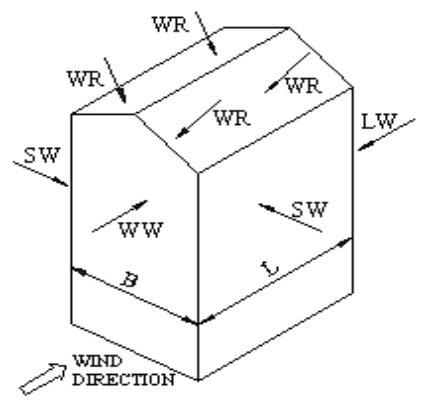
Windward roof overhangs : 13.6 psf (upward - add to windward roof pressure)

Windward Wall Pressures at "z" (psf)

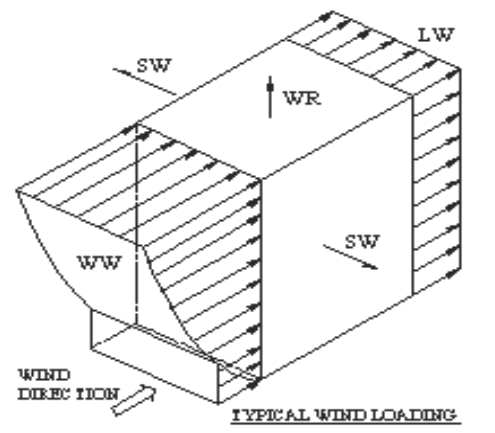
	z	Kz	Kzt	Windward Wall q_zGC_p	Windward Wall w/+q_iGC_{pi}	Windward Wall w/-q_hGC_{pi}	Combined WW + LW Wind Normal to Ridge	Combined WW + LW Wind Parallel to Ridge
	0 to 15'	0.85	1.00	11.8	8.2	15.4	20.3	18.4
	20.0 ft	0.90	1.00	12.6	8.9	16.2	21.1	19.1
	25.0 ft	0.95	1.00	13.2	9.6	16.8	21.7	19.7
h=	29.5 ft	0.98	1.00	13.6	10.0	17.2	22.1	20.2
ridge =	37.4 ft	1.03	1.00	14.3	10.7	17.9	22.8	20.9



WIND NORMAL TO RIDGE

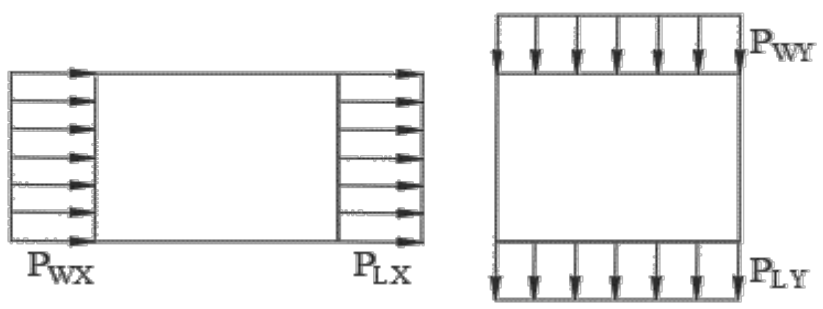


WIND PARALLEL TO RIDGE

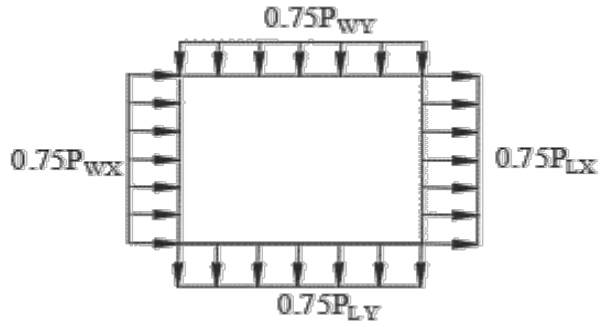


TYPICAL WIND LOADING

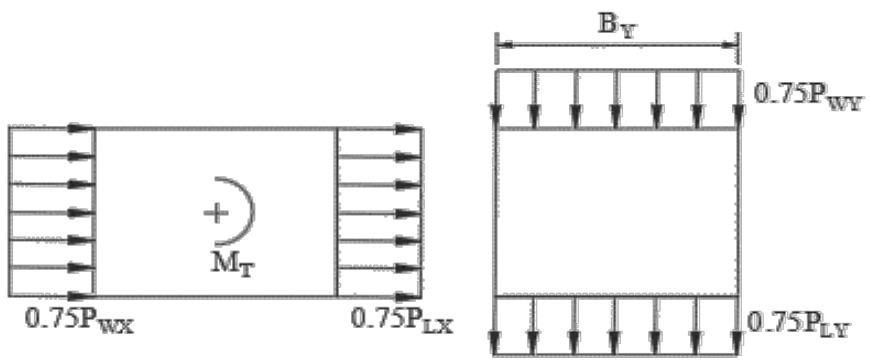
NOTE: ASCE 7 requires the application of full and partial loading of the wind pressures per the 4 cases below.



CASE 1



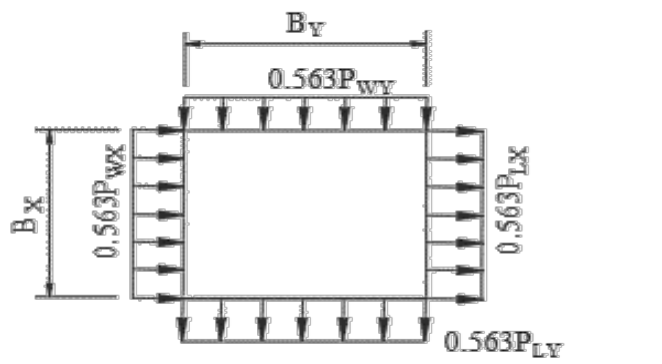
CASE 3



$M_T = 0.75(P_{WX}+P_{LX})B_X e_X$
$e_X = \pm 0.15\,B_X$

$M_T = 0.75(P_{WY}+P_{LY})B_Y e_Y$
$e_Y = \pm 0.15\,B_Y$

CASE 2



$M_T = 0.563(P_{WX}+P_{LX})B_X e_X + 0.563(P_{WY}+P_{LY})B_Y e_Y$
$e_X = \pm 0.15\,B_X$ $e_Y = \pm 0.15\,B_Y$

CASE 4

Wind Forces at Floors

Building dimension (parallel with ridge) = 119.0 ft e = 17.85 ft
Total Floors = 1 Building dimension (normal to ridge) = 75.5 ft e = 11.33 ft
T/Fdn (dist below grade) = 2.0 ft L is the building dimension parallel to the wind direction

	Elevation	Height of	Wind Normal to Ridge						Wind Parallel to Ridge			
Level	Above Grade (ft)	Centroid to Fdn (ft)	L	B	Area (sf)	Applied Force (k)	Story Shear (k)	Overturning Moment ('k)	Area	Applied Force (k)	Story Shear (k)	Overturning Moment ('k)
Equip,etc		0.00	wind on equip, screenwalls, etc =					0.0				
Parapet	0.00	0.00				0.0		0.0		0.0		
T/Ridge	0.00	0.00			0.0	0.0		0.0	0.0	0.0		0.0
Roof	15.00	17.00	75.5	119.0	892.5	18.1	18.1	0.0	566.3	10.4	10.4	0.0
1	0.00	2.00	75.5	119.0	892.5	18.1	36.3	272.2	566.3	10.4	20.8	156.1
FDN		0.00						344.8				197.7

Dibble Engineers Inc
1029 Market Street, Suite 200
Kirkland, WA 98033
(425) 828-4200

JOB TITLE Seifert Res Remodel

JOB NO. 24-005 **SHEET NO.**
CALCULATED BY **DATE**
CHECKED BY **DATE**

Wind Loads - MWFRS h≤60' (Low-rise Buildings) except for open buildings

Kz = Kh (case 1) = 0.98
Base pressure (qh) = **20.0 psf**
GCpi = +/-0.18

Edge Strip (a) = 7.6 ft
End Zone (2a) = 15.1 ft
Zone 2 length = 37.8 ft

Wind Pressure Coefficients

	CASE A				CASE B		
		θ = 22.6 deg					
Surface	GCpf	w/-GCpi	w/+GCpi		GCpf	w/-GCpi	w/+GCpi
1	0.54	0.72	0.36		-0.45	-0.27	-0.63
2	-0.45	-0.27	-0.63		-0.69	-0.51	-0.87
3	-0.47	-0.29	-0.65		-0.37	-0.19	-0.55
4	-0.41	-0.23	-0.59		-0.45	-0.27	-0.63
5					0.40	0.58	0.22
6					-0.29	-0.11	-0.47
1E	0.77	0.95	0.59		-0.48	-0.30	-0.66
2E	-0.72	-0.54	-0.90		-1.07	-0.89	-1.25
3E	-0.65	-0.47	-0.83		-0.53	-0.35	-0.71
4E	-0.60	-0.42	-0.78		-0.48	-0.30	-0.66
5E					0.61	0.79	0.43
6E					-0.43	-0.25	-0.61

Ultimate Wind Surface Pressures (psf)

1		14.4	7.2		-5.4	-12.6
2		-5.5	-12.7		-10.2	-17.4
3		-5.7	-13.0		-3.8	-11.0
4		-4.7	-11.9		-5.4	-12.6
5					11.6	4.4
6					-2.2	-9.4
1E		19.1	11.8		-6.0	-13.2
2E		-10.8	-18.0		-17.8	-25.0
3E		-9.4	-16.6		-7.0	-14.2
4E		-8.4	-15.6		-6.0	-13.2
5E					15.8	8.6
6E					-5.0	-12.2

Parapet

Windward parapet = 0.0 psf (GCpn = +1.5)
Leeward parapet = 0.0 psf (GCpn = -1.0)

Windward roof overhangs = 14.0 psf (upward) add to windward roof pressure

Horizontal MWFRS Simple Diaphragm Pressures (psf)

Transverse direction (normal to L)

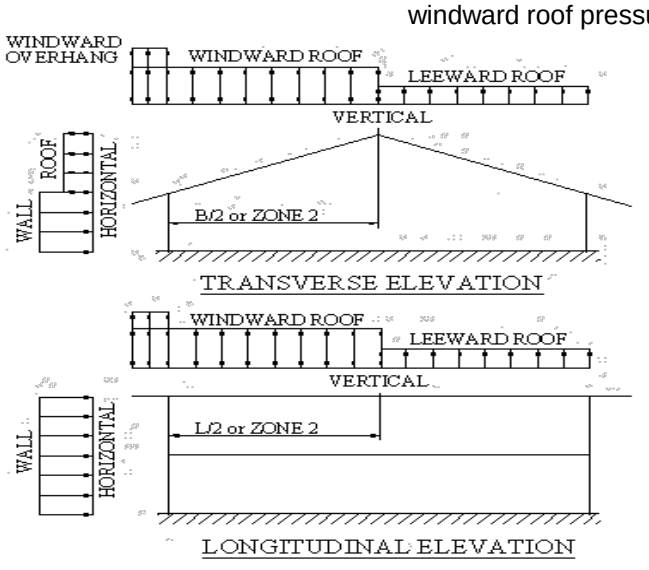
Interior Zone: Wall 19.1 psf
Roof 0.3 psf
End Zone: Wall 27.4 psf
Roof -1.4 psf **

Longitudinal direction (parallel to L)

Interior Zone: Wall 13.8 psf
End Zone: Wall 20.8 psf

** NOTE: Total horiz force shall not be less than that determined by neglecting roof forces (except for MWFRS moment frames).

The code requires the MWFRS be designed for a min ultimate force of 16 psf multiplied by the wall area plus an 8 psf force applied to the vertical projection of the roof.



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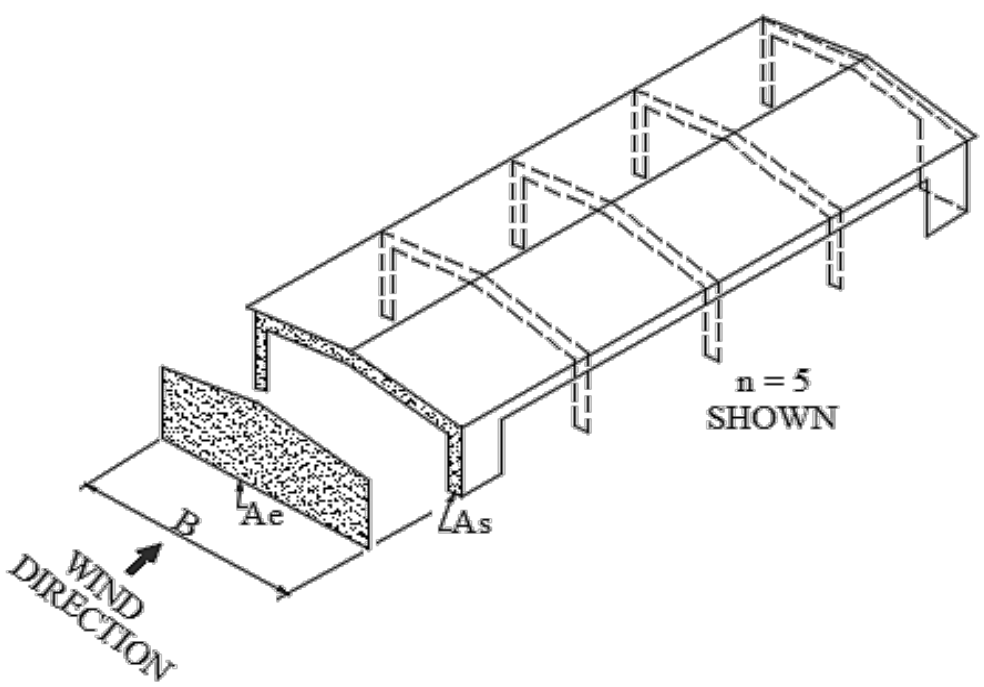
Wind Loads - h≤60' Longitudinal Direction MWFRS On Open or Partially

Enclosed Buildings with Transverse Frames and Pitched Roofs

ASCE 7-16 procedure

Base pressure (qh) = **20.0 psf**
GCpi = +/-0.18 Enclosed bldg, procdure doesn't apply
Roof Angle (θ) = 22.6 deg



B=	75.5	ft
# of frames (n) =	5	
Solid are of end wall including fascia (As) =	1,500.0	sf
Roof ridge height =	37.4	ft
Roof eave height =	21.6	ft
Total end wall area if soild (Ae) =	2,227.3	sf

Longidinal Directional Force (F) = pAe
p= qh [(GCpf)windward -(GCpf)leeward] K_B K_S

Solidarity ratio (Φ) =	0.673	
n =	5	
KB =	1.045	
KS =	1.360	
Zones 5 & 6 area =	2,034	sf
5E & 6E area =	193	sf
(GCpf) windward - (GCpf) leeward] =	0.720	
p =	20.5	psf

Total force to be resisted by MWFRS (F) = **45.7** **kips** applied at the centroid of the end wall area Ae

Note: The longidudinal force acts in combination with roof loads calculated elsewhere for an open or partially enclosed building.

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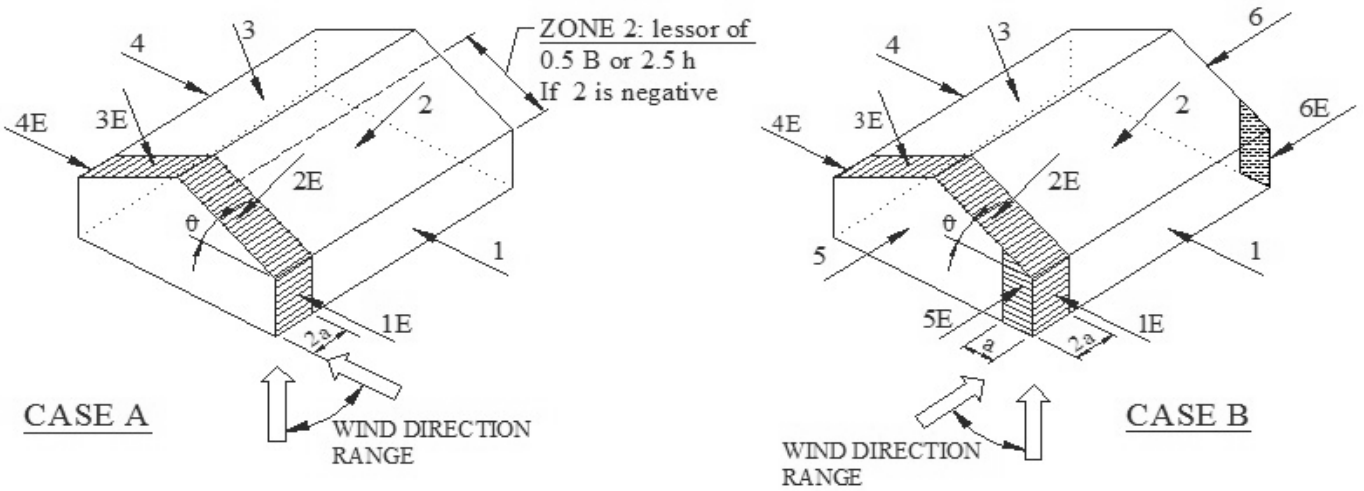
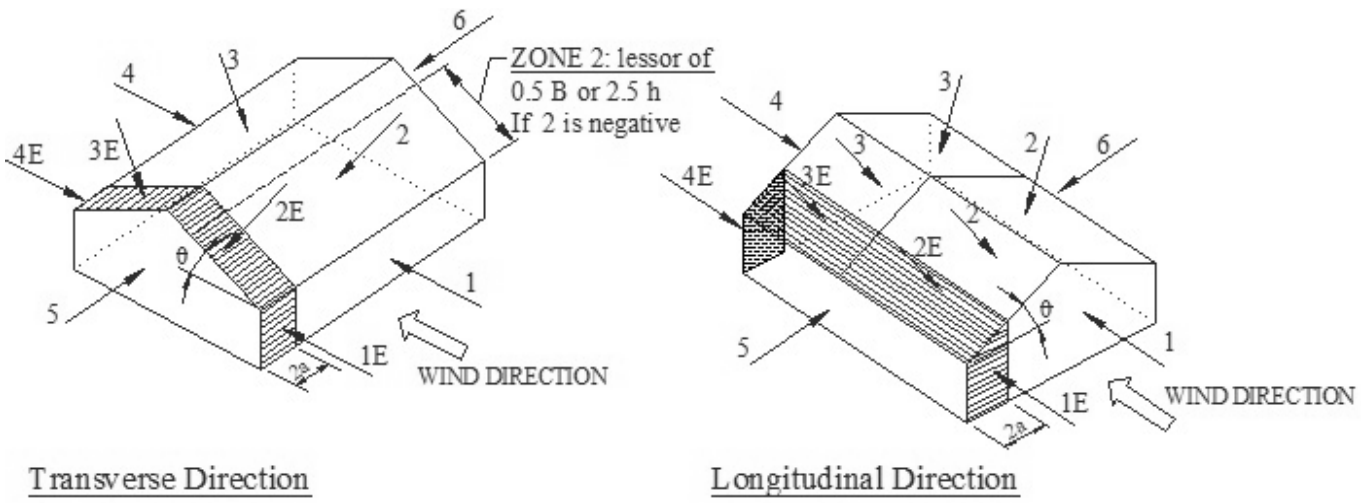


NOTE: Torsional loads are 25% of zones 1 - 6. See code for loading diagram.
Exception: One story buildings h<30' and 1 to 2 storybuildings framed with light-frame construction or with flexible diaphragms need not be designed for the torsional load case.

ASCE 7-98 & ASCE 7-10 (& later) - MWFRS wind pressure zones



NOTE: Torsional loads are 25% of zones 1 - 4. See code for loading diagram.
Exception: One story buildings h<30' and 1 to 2 storybuildings framed with light-frame construction or with flexible diaphragms need not be designed for the torsional load case.

ASCE 7-02 and ASCE 7-05 - MWFRS wind pressure zones

DEI
DIBBLE ENGINEERS INC

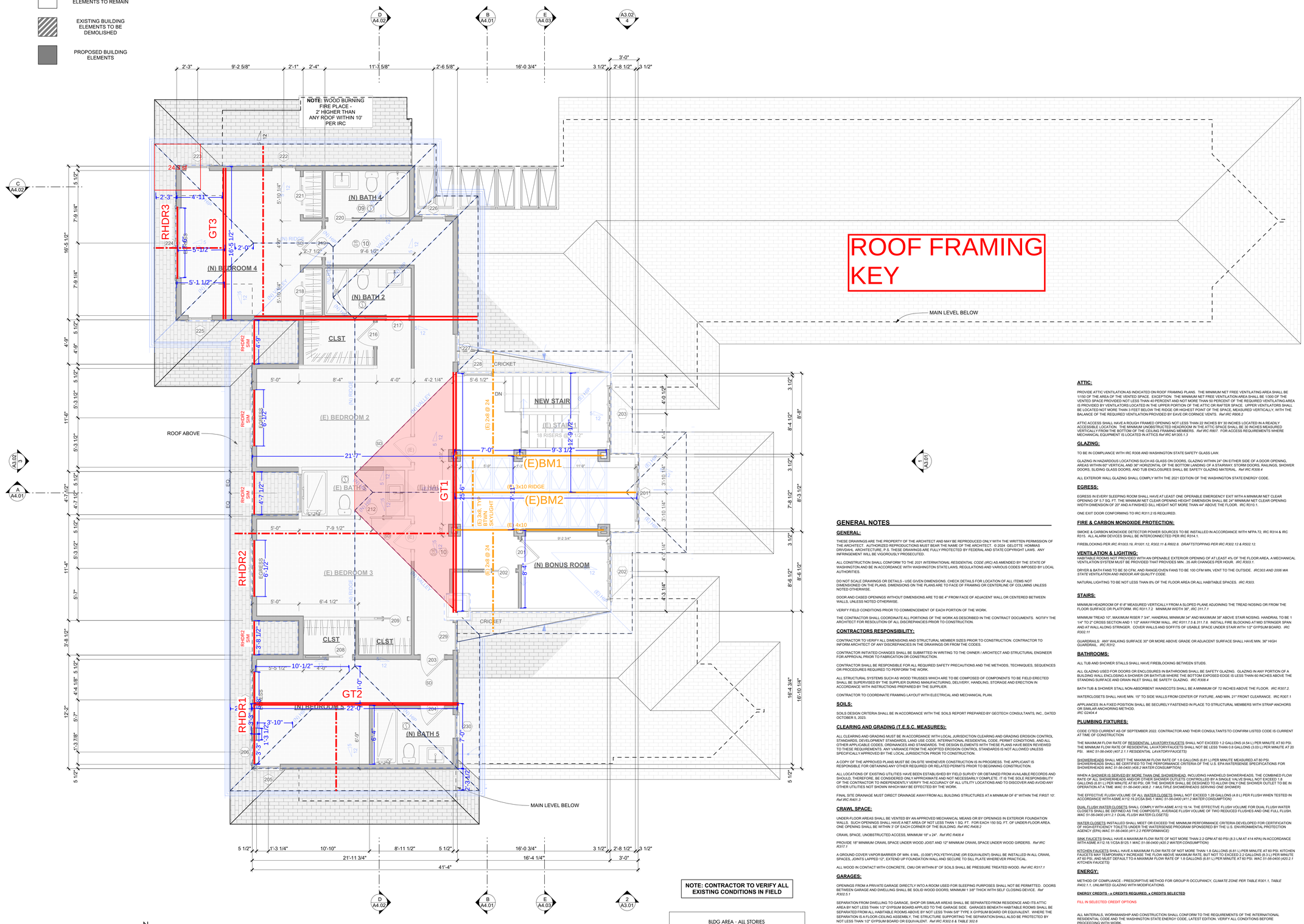
GRAVITY

Seifert Residence Remodel; DEI Job #24-005

EXISTING BUILDING ELEMENTS TO REMAIN

EXISTING BUILDING ELEMENTS TO BE DEMOLISHED

PROPOSED BUILDING ELEMENTS



N

UPPER FLOOR PROPOSED

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

NOTE: CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS IN FIELD

BLDG AREA - ALL STORIES	
LOWER FLOOR	
(E) FINISHED AREAS	1,096
(N) FINISHED AREAS	536
MAIN FLOOR	
(E) FINISHED AREAS	3,265
(E) GARAGE	1,075
(N) FINISHED AREAS	175
UPPER FLOOR	
(E) FINISHED AREAS	789
(N) FINISHED AREAS	967
	7,903 ft²

GENERAL NOTES

GENERAL:

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ALL CONSTRUCTION SHALL CONFORM TO THE *2021 INTERNATIONAL RESIDENTIAL CODE (IRC)* AS AMENDED BY THE STATE OF WASHINGTON AND BE IN ACCORDANCE WITH WASHINGTON STATE LAWS, REGULATIONS AND VARIOUS CODES IMPOSED BY LOCAL AUTHORITIES.

DO NOT SCALE DRAWINGS OR DETAILS - USE GIVEN DIMENSIONS. CHECK DETAILS FOR LOCATION OF ALL ITEMS NOT DIMENSIONED ON THE PLANS. DIMENSIONS ON THE PLANS ARE TO FACE OF FRAMING OR CENTERLINE OF COLUMNS UNLESS NOTED OTHERWISE.

DOOR AND CASED OPENINGS WITHOUT DIMENSIONS ARE TO BE 4" FROM FACE OF ADJACENT WALL OR CENTERED BETWEEN WALLS, UNLESS NOTED OTHERWISE.

VERIFY FIELD CONDITIONS PRIOR TO COMMENCEMENT OF EACH PORTION OF THE WORK.

THE CONTRACTOR SHALL COORDINATE ALL PORTIONS OF THE WORK AS DESCRIBED IN THE CONTRACT DOCUMENTS. NOTIFY THE ARCHITECT FOR RESOLUTION OF ALL DISCREPANCIES PRIOR TO CONSTRUCTION.

CONTRACTORS RESPONSIBILITY:

CONTRACTOR TO VERIFY ALL DIMENSIONS AND STRUCTURAL MEMBER SIZES PRIOR TO CONSTRUCTION. CONTRACTOR TO INFORM ARCHITECT OF ANY DISCREPANCIES IN THE DRAWINGS OR FROM THE CODES.

CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE OWNER / ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK.

ALL STRUCTURAL SYSTEMS SUCH AS WOOD TRUSSES WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

CONTRACTOR TO COORDINATE FRAMING LAYOUT WITH ELECTRICAL AND MECHANICAL PLAN.

SOILS:

SOILS DESIGN CRITERIA SHALL BE IN ACCORDANCE WITH THE SOILS REPORT PREPARED BY GEOTECH CONSULTANTS, INC., DATED OCTOBER 5, 2023.

CLEARING AND GRADING (T.E.S.C. MEASURES):

ALL CLEARING AND GRADING MUST BE IN ACCORDANCE WITH LOCAL JURISDICTION CLEARING AND GRADING EROSION CONTROL STANDARDS, DEVELOPMENT STANDARDS, LAND USE CODE, INTERNATIONAL RESIDENTIAL CODE, PERMIT CONDITIONS, AND ALL OTHER APPLICABLE CODES, ORDINANCES AND STANDARDS. THE DESIGN ELEMENTS WITH THESE PLANS HAVE BEEN REVIEWED TO THESE REQUIREMENTS. ANY VARIANCE FROM THE ADOPTED EROSION CONTROL STANDARDS IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY THE LOCAL JURISDICTION PRIOR TO CONSTRUCTION.

A COPY OF THE APPROVED PLANS MUST BE ON-SITE WHENEVER CONSTRUCTION IS IN PROGRESS. THE APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER REQUIRED OR RELATED PERMITS PRIOR TO BEGINNING CONSTRUCTION.

ALL LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD, THEREFORE, BE CONSIDERED ONLY APPROXIMATE AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS AND TO DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN WHICH MAY BE EFFECTED BY THE WORK.

FINAL SITE DRAINAGE MUST DIRECT DRAINAGE AWAY FROM ALL BUILDING STRUCTURES AT A MINIMUM OF 6" WITHIN THE FIRST 10'. *Ref IRC R401.3*

CRAWL SPACE:

UNDER-FLOOR AREAS SHALL BE VENTED BY AN APPROVED MECHANICAL MEANS OR BY OPENINGS IN EXTERIOR FOUNDATION WALLS. SUCH OPENINGS SHALL HAVE A NET AREA OF NOT LESS THAN 1 SQ. FT. FOR EACH 150 SQ. FT. OF UNDER-FLOOR AREA. ONE OPENING SHALL BE WITHIN 3' OF EACH CORNER OF THE BUILDING. *Ref IRC R408.2*

CRAWL SPACE, UNOBSTRUCTED ACCESS, MINIMUM 18" x 24". *Ref IRC R408.4*

PROVIDE 18" MINIMUM CRAWL SPACE UNDER WOOD JOIST AND 12" MINIMUM CRAWL SPACE UNDER WOOD GIRDERS. *Ref IRC R317.1*

A GROUND COVER VAPOR BARRIER OF MIN. 6 MIL. ((0.006") POLYETHYLENE (OR EQUIVALENT) SHALL BE INSTALLED IN ALL CRAWL SPACES. JOINTS LAPPED 12". EXTEND UP FOUNDATION WALL AND SECURE TO SILL PLATE WHEREVER PRACTICAL.

ALL WOOD IN CONTACT WITH CONCRETE, CMU OR WITHIN 8" OF SOILS SHALL BE PRESSURE TREATED WOOD. *Ref IRC R317.1*

GARAGES:

OPENINGS FROM A PRIVATE GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED. DOORS BETWEEN GARAGE AND DWELLING SHALL BE SOLID WOOD DOORS; MINIMUM 1 3/8" THICK WITH SELF CLOSING DEVICE. *Ref R302.5.1*

SEPARATION FROM DWELLING TO GARAGE, SHOP OR SIMILAR AREAS SHALL BE SEPARATED FROM RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 1/2" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. GARAGES BENEATH HABITABLE ROOMS SHALL BE SEPARATED FROM ALL HABITABLE ROOMS ABOVE BY NOT LESS THAN 5/8" TYPE X GYPSUM BOARD OR EQUIVALENT. WHERE THE SEPARATION IS A FLOOR-CEILING ASSEMBLY, THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY NOT LESS THAN 1/2" GYPSUM BOARD OR EQUIVALENT. *Ref IRC R302.6 & TABLE 302.6*

HEATING AND/OR COOLING EQUIPMENT LOCATED IN GARAGE SHALL BE INSTALLED WITH PILOTS AND BURNERS OR HEATING ELEMENTS AND SWITCHES AT LEAST 18" ABOVE THE FLOOR LEVEL. *Ref IRC G2408.2*

FIREPLACES:

FACTORY-BUILT FIREPLACES SHALL BE LISTED AND LABELED AND SHALL BE INSTALLED IN ACCORDANCE WITH THE CONDITIONS OF THE LISTING. FACTORY-BUILT FIREPLACES SHALL BE TESTED IN ACCORDANCE WITH UL 127. *Ref IRC R1004.1*

MASONRY FIREPLACES, BARBECUES, SMOKE CHAMBERS AND FIREPLACE CHIMNEYS SHALL BE CONSTRUCTED OF MASONRY OR REINFORCED CONCRETE. FOUNDATIONS SHALL BE MIN. 12" THICK AND EXTEND MIN. 6" BEYOND MASONRY. FIREBOX WALLS MIN. 10" THICK EXCEPT MIN. 8" THICK WHERE A FIREBRICK LINING IS USED. COMBUSTIBLE MATERIALS SHALL NOT BE PLACED WITHIN 2 INCHES OF A FIREPLACE, SMOKE CHAMBER OR CHIMNEY WALLS. COMBUSTIBLE MATERIAL SHALL NOT BE PLACED WITHIN 6" OF THE FIREPLACE OPENING. MIN. 4" THICK NON-COMBUSTIBLE HEARTH EXTENDING 16" IN FRONT AND 8" TO THE SIDE OF THE FIREPLACE OPENING. COMBUSTIBLE MATERIAL WITHIN 12" OF THE FIREPLACE OPENING SHALL NOT PROJECT MORE THAN 1/8" FOR EACH 1" DISTANCE FROM SUCH OPENING. *Ref IRC R1001 - R1003*

CEILING HEIGHTS:

HABITABLE SPACE SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'-0". NOT MORE THAN 50% OF REQUIRED FLOOR AREA OF A SPACE IS PERMITTED TO HAVE A SLOPED CEILING LESS THAN 7'-0" IN HEIGHT WITH NO PORTION LOWER THAN 5'-0". BATHROOM SHALL HAVE A MIN CEILING HEIGHT OF 6'-8" OVER THE FIXTURE AND ITS FRONT CLEARANCE AREA. *Ref IRC R305*

ROOFING:

APPLY ROOFING IN ACCORDANCE WITH *IRC R905.*

BALCONIES, LANDINGS, EXTERIOR STAIRWAYS, OCCUPIED ROOFS AND SIMILAR SURFACES EXPOSED TO THE WEATHER AND SEALED UNDERNEATH SHALL BE WATERPROOFED AND SLOPED A MINIMUM OF 1/4" PER 12" (2% SLOPE) FOR DRAINAGE.

ATTIC:

PROVIDE ATTIC VENTILATION AS INDICATED ON ROOF FRAMING PLANS. THE MINIMUM NET FREE VENTILATING AREA SHALL BE 1/150 OF THE AREA OF THE VENTED SPACE. EXCEPTION: THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/300 OF THE VENTED SPACE PROVIDED NOT LESS THAN 40 PERCENT AND NOT MORE THAN 50 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE ATTIC OR RAFTER SPACE. UPPER VENTILATORS SHALL BE LOCATED NOT MORE THAN 3 FEET BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE, MEASURED VERTICALLY, WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS. *Ref IRC R806.2*

ATTIC ACCESS SHALL HAVE A ROUGH FRAMED OPENING NOT LESS THAN 22 INCHES BY 30 INCHES LOCATED IN A READILY ACCESSIBLE LOCATION. THE MINIMUM UNOBSTRUCTED HEADROOM IN THE ATTIC SPACE SHALL BE 30 INCHES MEASURED VERTICALLY FROM THE BOTTOM OF THE CEILING FRAMING MEMBERS. *Ref IRC R807.* FOR ACCESS REQUIREMENTS WHERE MECHANICAL EQUIPMENT IS LOCATED IN ATTICS *Ref IRC M1305.1.3*

GLAZING:

TO BE IN COMPLIANCE WITH IRC R308 AND WASHINGTON STATE SAFETY GLASS LAW.

GLAZING IN HAZARDOUS LOCATIONS SUCH AS GLASS ON DOORS, GLAZING WITHIN 24" ON EITHER SIDE OF A DOOR OPENING, AREAS WITHIN 60" VERTICAL AND 36" HORIZONTAL OF THE BOTTOM LANDING OF A STAIRWAY, STORM DOORS, RAILINGS, SHOWER DOORS, SLIDING GLASS DOORS, AND TUB ENCLOSURES SHALL BE SAFETY GLAZING MATERIAL. *Ref IRC R308.4*

ALL EXTERIOR WALL GLAZING SHALL COMPLY WITH THE 2021 EDITION OF THE WASHINGTON STATE ENERGY CODE.

EGRESS:

EGRESS IN EVERY SLEEPING ROOM SHALL HAVE AT LEAST ONE OPERABLE EMERGENCY EXIT WITH A MINIMUM NET CLEAR OPENING OF 5.7 SQ. FT. THE MINIMUM NET CLEAR OPENING HEIGHT DIMENSION SHALL BE 24" MINIMUM NET CLEAR OPENING WIDTH DIMENSION OF 20" AND A FINISHED SILL HEIGHT NOT MORE THAN 44" ABOVE THE FLOOR. IRC R310.1.

ONE EXIT DOOR CONFORMING TO IRC R311.2 IS REQUIRED.

FIRE & CARBON MONOXIDE PROTECTION:

SMOKE & CARBON MONOXIDE DETECTOR POWER SOURCES TO BE INSTALLED IN ACCORDANCE WITH NFPA 72, IRC R314 & IRC R315. ALL ALARM DEVICES SHALL BE INTERCONNECTED PER IRC R314.1.

FIREBLOCKING PER IRC R1003.19, R1001.12, R302.11 & R602.8. DRAFTSTOPPING PER IRC R302.12 & R502.12.

VENTILATION & LIGHTING:

HABITABLE ROOMS NOT PROVIDED WITH AN OPENABLE EXTERIOR OPENING OF AT LEAST 4% OF THE FLOOR AREA, A MECHANICAL VENTILATION SYSTEM MUST BE PROVIDED THAT PROVIDES MIN. .35 AIR CHANGES PER HOUR. *IRC R303.1.*

DRYER & BATH FANS TO BE 50 CFM, AND RANGE/OVEN FANS TO BE 100 CFM MIN, VENT TO THE OUTSIDE. *IRC303 AND 2006 WA STATE VENTILATION AND INDOOR AIR QUALITY CODE*

NATURAL LIGHTING TO BE NOT LESS THAN 8% OF THE FLOOR AREA OR ALL HABITABLE SPACES. *IRC R303.*

STAIRS:

MINIMUM HEADROOM OF 6'-8" MEASURED VERTICALLY FROM A SLOPED PLANE ADJOINING THE TREAD NOSING OR FROM THE FLOOR SURFACE OR PLATFORM. *IRC* R311.7.2 MINIMUM WIDTH 36". *IRC 311.7.1*

MINIMUM TREAD 10", MAXIMUM RISER 7 3/4", HANDRAIL MINIMUM 34" AND MAXIMUM 38" ABOVE STAIR NOSING. HANDRAIL TO BE 1 1/4" TO 2" CROSS SECTION AND 1 1/2" AWAY FROM WALL. *IRC R311.7.5 & 311.7.8.* INSTALL FIRE BLOCKING AT MID STRINGER SPAN AND AT WALL ALONG STRINGER. COVER WALLS AND SOFFITS OF USABLE SPACE UNDER STAIR WITH 1/2" GYPSUM BOARD. *IRC R302.11*

GUARDRAILS: ANY WALKING SURFACE 30" OR MORE ABOVE GRADE OR ADJACENT SURFACE SHALL HAVE MIN. 36" HIGH GUARDRAIL. *IRC R312.*

BATHROOMS:

ALL TUB AND SHOWER STALLS SHALL HAVE FIREBLOCKING BETWEEN STUDS.

ALL GLAZING USED FOR DOORS OR ENCLOSURES IN BATHROOMS SHALL BE SAFETY GLAZING. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING A SHOWER OR BATHTUB WHERE THE BOTTOM EXPOSED EDGE IS LESS THAN 60 INCHES ABOVE THE STANDING SURFACE AND DRAIN INLET SHALL BE SAFETY GLAZING. *IRC R308.4*

BATH TUB & SHOWER STALL NON-ABSORBENT WAINSCOTS SHALL BE A MINIMUM OF 72 INCHES ABOVE THE FLOOR. *IRC R307.2.*

WATERCLOSETS SHALL HAVE MIN. 15" TO SIDE WALLS FROM CENTER OF FIXTURE, AND MIN. 21" FRONT CLEARANCE. IRC R307.1

APPLIANCES IN A FIXED POSITION SHALL BE SECURELY FASTENED IN PLACE TO STRUCTURAL MEMBERS WITH STRAP ANCHORS OR SIMILAR ANCHORING METHOD. *IRC G2404.4*

PLUMBING FIXTURES:

CODE CITED CURRENT AS OF SEPTEMBER 2022. CONTRACTOR AND THEIR CONSULTANTS TO CONFIRM LISTED CODE IS CURRENT AT TIME OF CONSTRUCTION

THE MAXIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT EXCEED 1.2 GALLONS (4.54 L) PER MINUTE AT 60 PSI. THE MINIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT BE LESS THAN 0.8 GALLONS (3.05 L) PER MINUTE AT 20 PSI. *WAC 51-56-0400 (407.2.1.1 RESIDENTIAL LAVATORY FAUCETS)*

SHOWERHEADS SHALL MEET THE MAXIMUM FLOW RATE OF 1.6 GALLONS (6.81 L) PER MINUTE MEASURED AT 80 PSI. SHOWERHEADS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATERSENSE SPECIFICATIONS FOR SHOWERHEADS *WAC 51-56-0400 (408.2 WATER CONSUMPTION)*

WHEN A SHOWER IS SERVED BY MORE THAN ONE SHOWERHEAD, INCLUDING HANDHELD SHOWERHEADS, THE COMBINED FLOW RATE OF ALL SHOWERHEADS AND OTHER SHOWER OUTLETS CONTROLLED BY A SINGLE VALVE SHALL NOT EXCEED 1.8 GALLONS (6.81 L) PER MINUTE AT 80 PSI, OR THE SHOWER SHALL BE DESIGNED TO ALLOW ONLY ONE SHOWER OUTLET TO BE IN OPERATION AT A TIME. *WAC 51-56-0400 (408.2.1 MULTIPLE SHOWERHEADS SERVING ONE SHOWER)*

THE EFFECTIVE FLUSH VOLUME OF ALL WATER CLOSETS SHALL NOT EXCEED 1.28 GALLONS (4.8 L) PER FLUSH WHEN TESTED IN ACCORDANCE WITH ASME A112.19.2/CSA B45.1 *WAC 51-56-0400 (411.2 WATER CONSUMPTION)*

DUAL FLUSH WATER CLOSETS SHALL COMPLY WITH ASME A112.19.14. THE EFFECTIVE FLUSH VOLUME FOR DUAL FLUSH WATER CLOSETS SHALL BE DEFINED AS THE COMPOSITE, AVERAGE FLUSH VOLUME OF TWO REDUCED FLUSHES AND ONE FULL FLUSH. *WAC 51-56-0400 (411.2.1 DUAL FLUSH WATER CLOSETS)*

WATER CLOSETS INSTALLED SHALL MEET OR EXCEED THE MINIMUM PERFORMANCE CRITERIA DEVELOPED FOR CERTIFICATION OF HIGH-EFFICIENCY TOILETS UNDER THE WATERSENSE PROGRAM SPONSERED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) *WAC 51-56-0400 (411.2.2 PERFORMANCE)*

SINK FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 2.2 GPM AT 60 PSI (8.3 LM AT 414 KPA) IN ACCORDANCE WITH ASME A112.18.1/CSA B125.1 *WAC 51-56-0400 (408.2 WATER CONSUMPTION)*

KITCHEN FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. KITCHEN FAUCETS MAY TEMPORARILY INCREASE THE FLOW ABOVE MAXIMUM RATE, BUT NOT TO EXCEED 2.2 GALLONS (8.3 L) PER MINUTE AT 60 PSI. AND MUST DEFAULT TO A MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. *WAC 51-56-0400 (430.2.1 KITCHEN FAUCETS)*

ENERGY:

METHOD OF COMPLIANCE - PRESCRIPTIVE METHOD FOR GROUP R OCCUPANCY, *CLIMATE ZONE PER TABLE R301.1, TABLE R402.1.1, UNLIMITED GLAZING WITH MODIFICATIONS.*

ENERGY CREDITS - x CREDITS REQUIRED. x CREDITS SELECTED

FILL IN SELECTED CREDIT OPTIONS

ALL MATERIALS, WORKMANSHIP AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL RESIDENTIAL CODE AND THE WASHINGTON STATE ENERGY CODE, LATEST EDITION. VERIFY ALL CONDITIONS BEFORE PROCEEDING WITH WORK.

WALLS: INSULATED PER *WSEC TABLE R402.1.1.*

ROOF AND CEILING: INSULATED PER *WSEC TABLE R402.1.1.* PROVIDE INSULATION IN CEILING WHERE POSSIBLE AND IN 2x12 RAFTERS IF VAULTED CEILING CONDITION EXISTS. MAINTAIN A MINIMUM OF 2" CLEAR BETWEEN TOP OF INSULATION AND BOTTOM OF SHEATHING FOR VENTING. VENTING MUST OCCUR IN EACH JOIST SPACE. WHERE CONTINUOUS VENTING WITHIN A JOIST SPACE IS INTERRUPTED BY A HEADER (I.E., SKYLIGHT OR AT HIP END), PROVIDE (2) 1 1/2" VENTING HOLES AT THE TOP OF THE RAFTER AT THE HEADER TO ALLOW FOR CONTINUAL THROUGH-VENTING INTO THE NEXT JOIST SPACE.

FLOORS: INSULATE PER *WSEC TABLE R402.1.1*

SLAB ON GRADE: INSULATE PER TABLE R402.1.1. PROVIDE EXTRUDED RIGID CLOSED CELL INSULATION. INSULATION, INSTALLED INSIDE THE FOUNDATION WALL, SHALL EXTEND DOWNWARD FROM THE TOP OF THE SLAB 24" MIN. OR DOWNWARD AND THEN HORIZONTALLY BENEATH THE SLAB FOR A COMBINED 24" MIN. INSULATION INSTALLED OUTSIDE THE FOUNDATION SHALL EXTEND DOWNWARD 24" MIN. OR TO THE FROSTLINE. *WSEC 402.2.9.1*

VAPOR BARRIERS: VAPOR RETARDERS SHALL BE INSTALLED ON THE WARM SIDE (IN WINTER) OF INSULATION PER *TABLE R402.4.1.1.*

FLOORS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE MIN. 4 MIL POLYETHYLENE OR KRAFT FACED MATERIAL. ROOF/CEILING ASSEMBLIES WHERE THE VENTILATION SPACE ABOVE THE INSULATION IS LESS THAN AN AVERAGE OF 12 INCHES SHALL BE PROVIDED WITH A VAPOR RETARDER. WALLS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE A VAPOR RETARDER INSTALLED. FACED BATT INSULATION SHALL BE FACE STAPLED. A GROUND COVER OF MIN. 6 MIL BLACK POLYETHYLENE SHALL BE LAID OVER THE GROUND WITHIN CRAWL SPACES W/ JOINTS LAPPED MIN. 12".

GLAZING AND DOORS: GLAZING AND DOOR U-FACTORS SHALL BE DETERMINED IN ACCORDANCE WITH *WSEC SECTIONS R402.1.1 AND R303.1.3(2),* RESPECTIVELY.

GELOTTE HOMMAS DRIVDAHL ARCHITECTURE
2340 130th Ave. NE, Suite 100, Bellevue, WA 98005
425.828.3081

SEIFERT REMODEL

3261 67TH AVE SE
MERCER ISLAND, WA 98040

Job No.	2219
Project Manager:	DG
Issue Date:	08/03/2023

NO.	DATE	REVISION

W.I.P. SET (12.20.2023)

UPPER FLOOR PLAN PROPOSED

A2.03

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: EBM1 - (E) 4x10

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

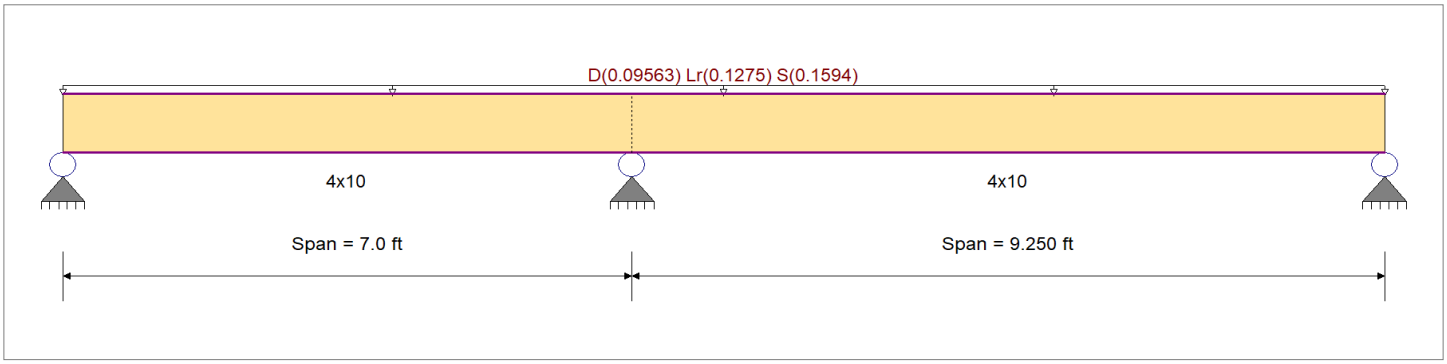
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850 psi
Fb -	850 psi
Fc - Prll	1300 psi
Fc - Perp	405 psi
Fv	150 psi
Ft	525 psi

E : Modulus of Elasticity

Ebend- xx	1300 ksi
Eminbend - xx	470 ksi
Density	26.84 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added
Loads on all spans...
Uniform Load on ALL spans : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 6.375 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.456 : 1	Maximum Shear Stress Ratio	=	0.332 : 1
Section used for this span		4x10	Section used for this span		4x10
fb: Actual	=	535.01 psi	fv: Actual	=	57.24 psi
F'b	=	1,173.00 psi	F'v	=	172.50 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	7.000 ft	Location of maximum on span	=	7.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.046 in	Ratio =	2434 >=360	Span: 2 : S Only
Max Upward Transient Deflection	-0.002 in	Ratio =	38210 >=360	Span: 1 : S Only
Max Downward Total Deflection	0.073 in	Ratio =	1521 >=180	Span: 2 : +D+S
Max Upward Total Deflection	-0.004 in	Ratio =	23881 >=180	Span: 1 : +D+S

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 7.0 ft	1	0.219	0.159	0.90	1.00	1.00	1.00	1.200	1.00	1.00	1.00	0.83	200.6	918.0	0.46	21.5	135.0
Length = 9.250 ft	2	0.219	0.159	0.90	1.00	1.00	1.00	1.200	1.00	1.00	1.00	0.83	200.6	918.0	0.46	21.5	135.0
+D+Lr					1.00	1.00	1.00	1.200	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	1	0.367	0.267	1.25	1.00	1.00	1.00	1.200	1.00	1.00	1.00	1.95	468.1	1,275.0	1.08	50.1	187.5
Length = 9.250 ft	2	0.367	0.267	1.25	1.00	1.00	1.00	1.200	1.00	1.00	1.00	1.95	468.1	1,275.0	1.08	50.1	187.5
+D+S					1.00	1.00	1.00	1.200	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	1	0.456	0.332	1.15	1.00	1.00	1.00	1.200	1.00	1.00	1.00	2.23	535.0	1,173.0	1.24	57.2	172.5
Length = 9.250 ft	2	0.456	0.332	1.15	1.00	1.00	1.00	1.200	1.00	1.00	1.00	2.23	535.0	1,173.0	1.24	57.2	172.5

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: EBM1 - (E) 4x10

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+0.750Lr					1.00	1.00	1.00	1.200	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	**1**	0.315	0.229	1.25	1.00	1.00	1.00	1.200	1.00	1.00	1.00	1.67	401.3	1,275.0	0.93	42.9	187.5
Length = 9.250 ft	**2**	0.315	0.229	1.25	1.00	1.00	1.00	1.200	1.00	1.00	1.00	1.67	401.3	1,275.0	0.93	42.9	187.5
+D+0.750S					1.00	1.00	1.00	1.200	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	**1**	0.385	0.280	1.15	1.00	1.00	1.00	1.200	1.00	1.00	1.00	1.88	451.4	1,173.0	1.04	48.3	172.5
Length = 9.250 ft	**2**	0.385	0.280	1.15	1.00	1.00	1.00	1.200	1.00	1.00	1.00	1.88	451.4	1,173.0	1.04	48.3	172.5
+0.60D					1.00	1.00	1.00	1.200	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	**1**	0.074	0.054	1.60	1.00	1.00	1.00	1.200	1.00	1.00	1.00	0.50	120.4	1,632.0	0.28	12.9	240.0
Length = 9.250 ft	**2**	0.074	0.054	1.60	1.00	1.00	1.00	1.200	1.00	1.00	1.00	0.50	120.4	1,632.0	0.28	12.9	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.0090	2.385	+D+S	-0.0035	6.101
+D+S	2	0.0730	5.168		0.0000	6.101

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions	0.575	2.630	0.939
Max Upward from Load Combinations	0.575	2.630	0.939
Max Upward from Load Cases	0.359	1.644	0.587
D Only	0.215	0.986	0.352
+D+Lr	0.503	2.302	0.821
+D+S	0.575	2.630	0.939
+D+0.750Lr	0.431	1.973	0.704
+D+0.750S	0.485	2.219	0.792
+0.60D	0.129	0.592	0.211
Lr Only	0.287	1.315	0.469
S Only	0.359	1.644	0.587

Dibble Engineers, Inc.
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Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

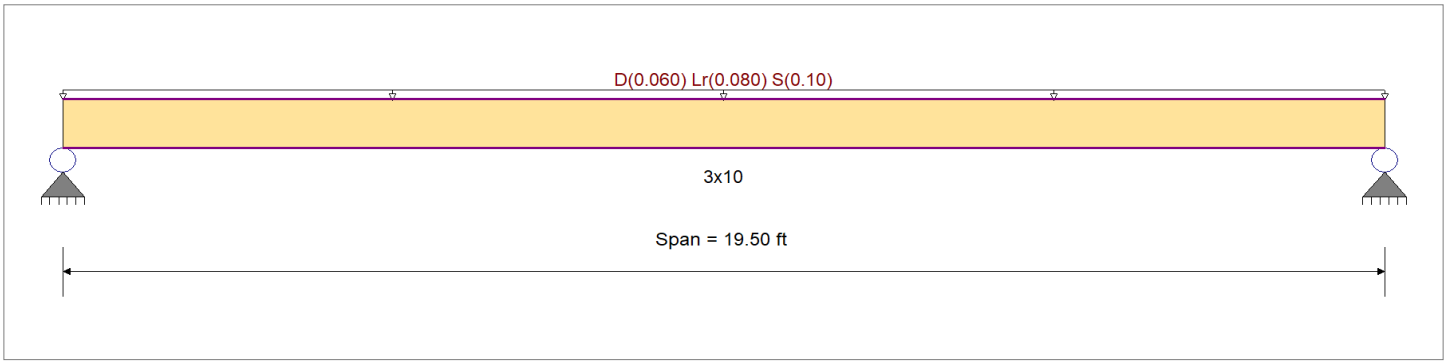
DESCRIPTION: EBM2 - (E) 3x10 Ridge

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method :	Allowable Stress Design	Fb +	850.0 psi	*E : Modulus of Elasticity*	
Load Combination :	IBC 2021	Fb -	850.0 psi	Ebend- xx	1,300.0 ksi
		Fc - Prll	1,300.0 psi	Eminbend - xx	470.0 ksi
Wood Species :	Hem-Fir	Fc - Perp	405.0 psi		
Wood Grade :	No.2	Fv	150.0 psi		
		Ft	525.0 psi	Density	26.840 pcf
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling				



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added
Loads on all spans...
Uniform Load on ALL spans : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 4.0 ft

DESIGN SUMMARY

Design N.G.

Maximum Bending Stress Ratio	=	2.381 : 1	Maximum Shear Stress Ratio	=	0.544 : 1
Section used for this span		3x10	Section used for this span		3x10
fb: Actual	=	2,559.81 psi	fv: Actual	=	93.80 psi
F'b	=	1,075.25 psi	F'v	=	172.50 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	9.750 ft	Location of maximum on span	=	18.788 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	1.527 in	Ratio =	153 <360	Span: 1 : S Only
Max Upward Transient Deflection	0 in	Ratio =	0 <360	n/a
Max Downward Total Deflection	2.443 in	Ratio =	95 <180	Span: 1 : +D+S
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	M	fb	F'b	V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 19.50 ft	1	1.141	0.261	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	2.85	959.9	841.5	0.54	35.2	135.0
+D+Lr					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 19.50 ft	1	1.916	0.438	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	6.65	2,239.8	1,168.8	1.27	82.1	187.5
+D+S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 19.50 ft	1	2.381	0.544	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	7.61	2,559.8	1,075.3	1.45	93.8	172.5
+D+0.750Lr					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 19.50 ft	1	1.643	0.375	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	5.70	1,919.9	1,168.8	1.08	70.4	187.5
+D+0.750S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: EBM2 - (E) 3x10 Ridge

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 19.50 ft	**1**	2.009	0.459	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	6.42	2,159.8	1,075.3	1.22	79.1	172.5
+0.60D					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 19.50 ft	**1**	0.385	0.088	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.71	576.0	1,496.0	0.33	21.1	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	2.4425	9.821		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	1.560	1.560
Max Upward from Load Combinations	1.560	1.560
Max Upward from Load Cases	0.975	0.975
D Only	0.585	0.585
+D+Lr	1.365	1.365
+D+S	1.560	1.560
+D+0.750Lr	1.170	1.170
+D+0.750S	1.316	1.316
+0.60D	0.351	0.351
Lr Only	0.780	0.780
S Only	0.975	0.975

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

General Beam Analysis

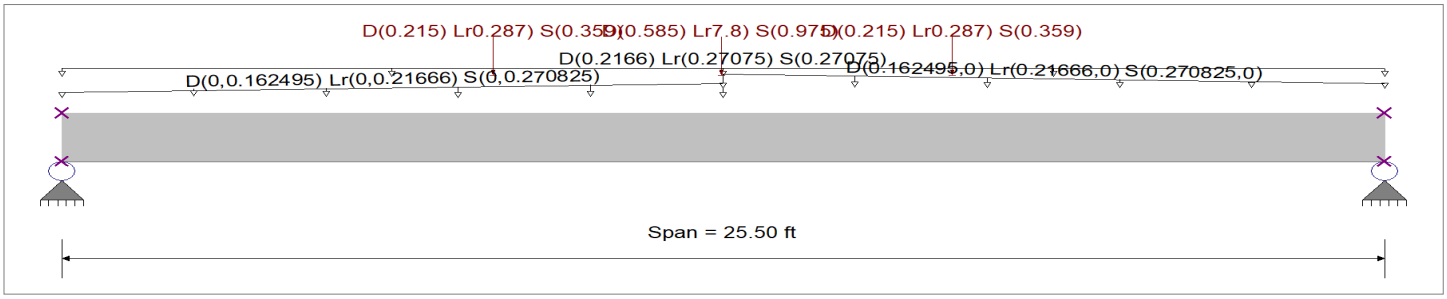
Project File: Seifert Calcultions.ec6

DESCRIPTION: GT1

General Beam Properties

Elastic Modulus 29,000.0 ksi

Span #1 Span Length = 25.50 ft Area = 10.0 in^2 Moment of Inertia = 100.0 in^4



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.020, Lr = 0.0250, S = 0.0250 ksf, Tributary Width = 10.830 ft, (Roof Load)

Varying Uniform Load : D= 0.0150->0.0150, Lr= 0.020->0.020, S= 0.0250->0.0250 ksf, Extent = 0.0 -->> 12.750 ft, Trib Width = 0.0 ft, (Overframing)

Varying Uniform Load : D= 0.0150->0.0150, Lr= 0.020->0.020, S= 0.0250->0.0250 ksf, Extent = 12.750 -->> 25.50 ft, Trib Width = 10.833 ft, (Overframing)

Point Load : D = 0.2150, Lr = 0.2870, S = 0.3590 k @ 8.333 ft, (RXN EBM1)

Point Load : D = 0.2150, Lr = 0.2870, S = 0.3590 k @ 17.167 ft, (RXN EBM1)

Point Load : D = 0.5850, Lr = 7.80, S = 0.9750 k @ 12.720 ft, (RXN EBM2)

DESIGN SUMMARY

Maximum Bending =	117.670 k-ft	Maximum Shear =	13.335 k
Load Combination	+D+Lr	Load Combination	+D+Lr
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Location of maximum on span	12.750 ft	Location of maximum on span	0.000 ft
Maximum Deflection			
Max Downward Transient Deflection	3.071 in	99	
Max Upward Transient Deflection	0.028 in	10905	
Max Downward Total Deflection	4.328 in	70	
Max Upward Total Deflection	0.012 in	25920	

Maximum Forces & Stresses for Load Combinations

N/A

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values (k-ft) Mmax +	Mmax -	Ma - Max	Mnx Mnx/Omega Cb	Rm	Shear Values (k) Va Max	VnxVnx/Omega
Overall MAXimum Envelope										
Dsgn. L = 25.50 ft	1			117.67		117.67			13.34	
D Only										
Dsgn. L = 25.50 ft	1			31.92		31.92			4.31	
+D+Lr										
Dsgn. L = 25.50 ft	1			117.67		117.67			13.34	
+D+S										
Dsgn. L = 25.50 ft	1			77.80		77.80			10.33	
+D+0.750Lr										
Dsgn. L = 25.50 ft	1			96.23		96.23			11.08	
+D+0.750S										
Dsgn. L = 25.50 ft	1			66.33		66.33			8.83	
+0.60D										
Dsgn. L = 25.50 ft	1			19.15		19.15			2.58	

Vertical Reactions

Support notation : Far left is #: Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	13.335	13.315
Overall MINimum		

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Kirkland, WA 98033
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Project Title:
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Project ID:
Project Descr:

General Beam Analysis

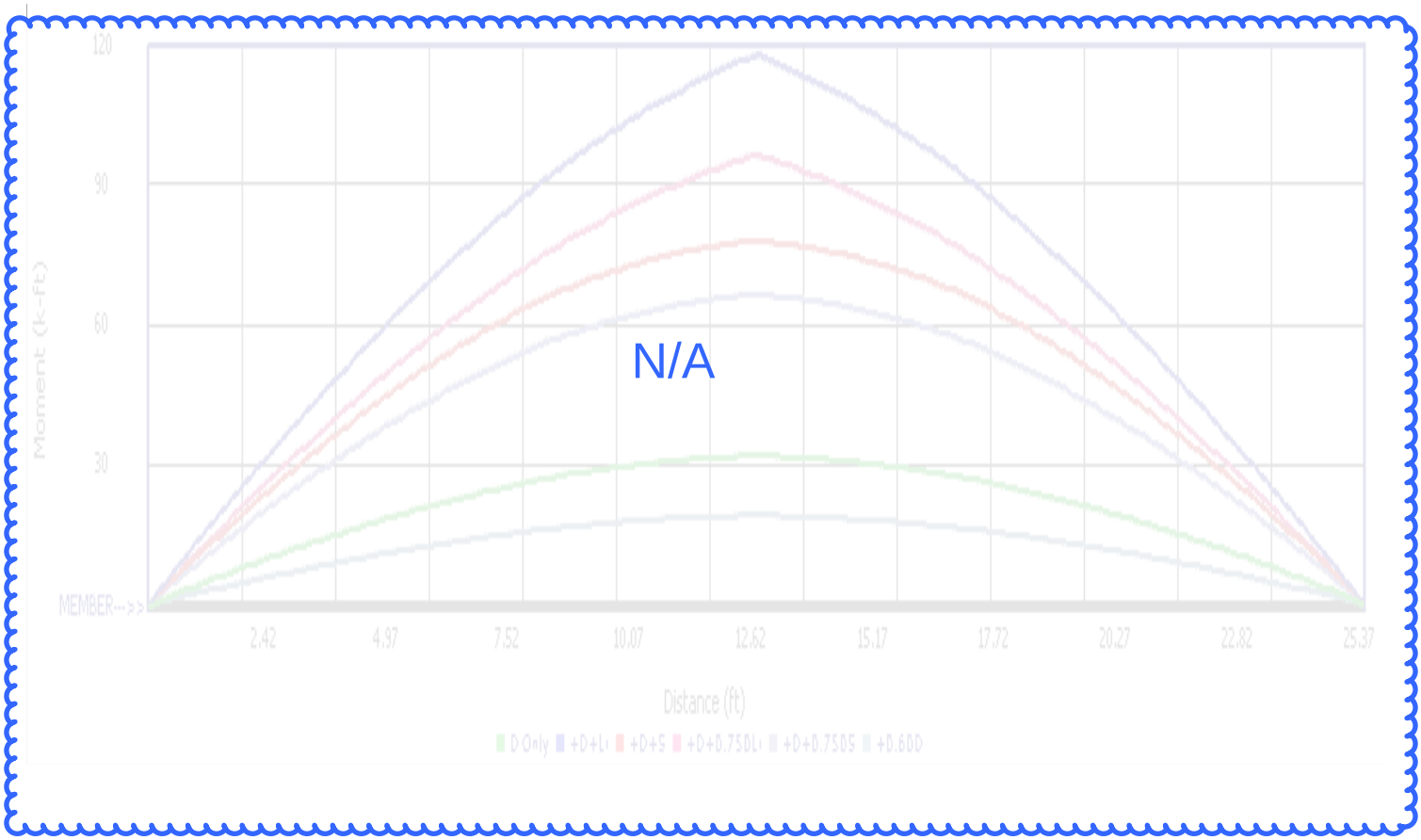
Project File: Seifert Calcultions.ec6

DESCRIPTION: GT1

Vertical Reactions

Support notation : Far left is #: Values in KIPS

Load Combination	Support 1	Support 2
D Only	4.306	4.304
+D+Lr	13.335	13.315
+D+S	10.332	10.328
+D+0.750Lr	11.078	11.063
+D+0.750S	8.825	8.822
+0.60D	2.583	2.583
Lr Only	9.029	9.011
S Only	6.026	6.024



Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

General Beam Analysis

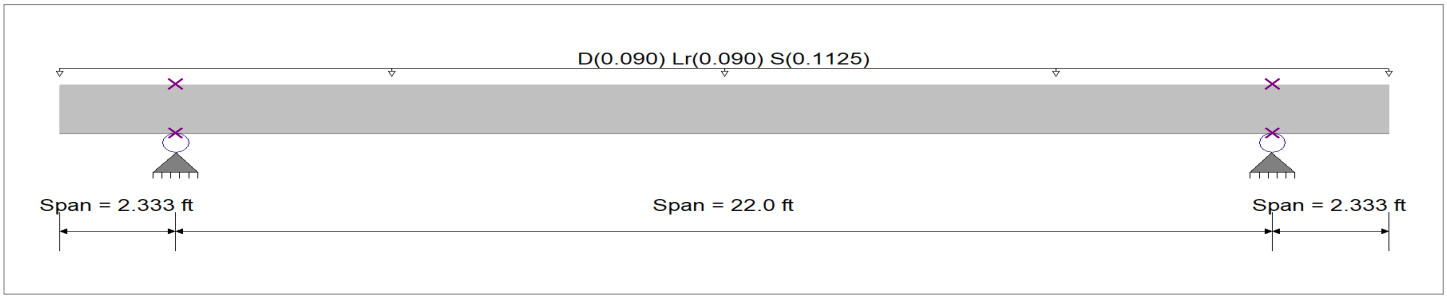
Project File: Seifert Calcultions.ec6

DESCRIPTION: GT2

General Beam Properties

Elastic Modulus 29,000.0 ksi

Span #1	Span Length =	2.333 ft	Area =	10.0 in^2	Moment of Inertia =	100.0 in^4
Span #2	Span Length =	22.0 ft	Area =	10.0 in^2	Moment of Inertia =	100.0 in^4
Span #3	Span Length =	2.333 ft	Area =	10.0 in^2	Moment of Inertia =	100.0 in^4



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Loads on all spans...
Uniform Load on ALL spans : D = 0.020, Lr = 0.020, S = 0.0250 k/ft, Tributary Width = 4.50 ft

DESIGN SUMMARY

Maximum Bending =	11.698 k-ft	Maximum Shear =	2.228 k
Load Combination	+D+S	Load Combination	+D+S
Span # where maximum occurs	Span # 2	Span # where maximum occurs	Span # 2
Location of maximum on span	10.861 ft	Location of maximum on span	22.000 ft

Maximum Deflection

Max Downward Transient Deflection	0.197 in	1337
Max Upward Transient Deflection	-0.064 in	868
Max Downward Total Deflection	0.355 in	743
Max Upward Total Deflection	-0.116 in	482

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values (k-ft) Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Shear Values (k) Va Max	Vnx	Vnx/Omega
Overall MAXimum Envelope													
Dsgn. L = 2.33 ft	1				-0.55	0.55					2.23		
Dsgn. L = 22.00 ft	2			11.70	-0.55	11.70					2.23		
Dsgn. L = 2.33 ft	3				-0.55	0.55					0.47		
D Only													
Dsgn. L = 2.33 ft	1				-0.24	0.24					0.99		
Dsgn. L = 22.00 ft	2			5.20	-0.24	5.20					0.99		
Dsgn. L = 2.33 ft	3				-0.24	0.24					0.21		
+D+Lr													
Dsgn. L = 2.33 ft	1				-0.49	0.49					1.98		
Dsgn. L = 22.00 ft	2			10.40	-0.49	10.40					1.98		
Dsgn. L = 2.33 ft	3					0.49					0.42		
+D+S													
Dsgn. L = 2.33 ft	1				-0.55	0.55					2.23		
Dsgn. L = 22.00 ft	2			11.70	-0.55	11.70					2.23		
Dsgn. L = 2.33 ft	3				-0.55	0.55					0.47		
+D+0.750Lr													
Dsgn. L = 2.33 ft	1				-0.43	0.43					1.73		
Dsgn. L = 22.00 ft	2			9.10	-0.43	9.10					1.73		
Dsgn. L = 2.33 ft	3				-0.43	0.43					0.37		
+D+0.750S													
Dsgn. L = 2.33 ft	1				-0.47	0.47					1.92		
Dsgn. L = 22.00 ft	2			10.07	-0.47	10.07					1.92		
Dsgn. L = 2.33 ft	3				-0.47	0.47					0.41		
+0.60D													
Dsgn. L = 2.33 ft	1				-0.15	0.15					0.59		
Dsgn. L = 22.00 ft	2			3.12	-0.15	3.12					0.59		
Dsgn. L = 2.33 ft	3				-0.15	0.15					0.13		

N/A

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

General Beam Analysis

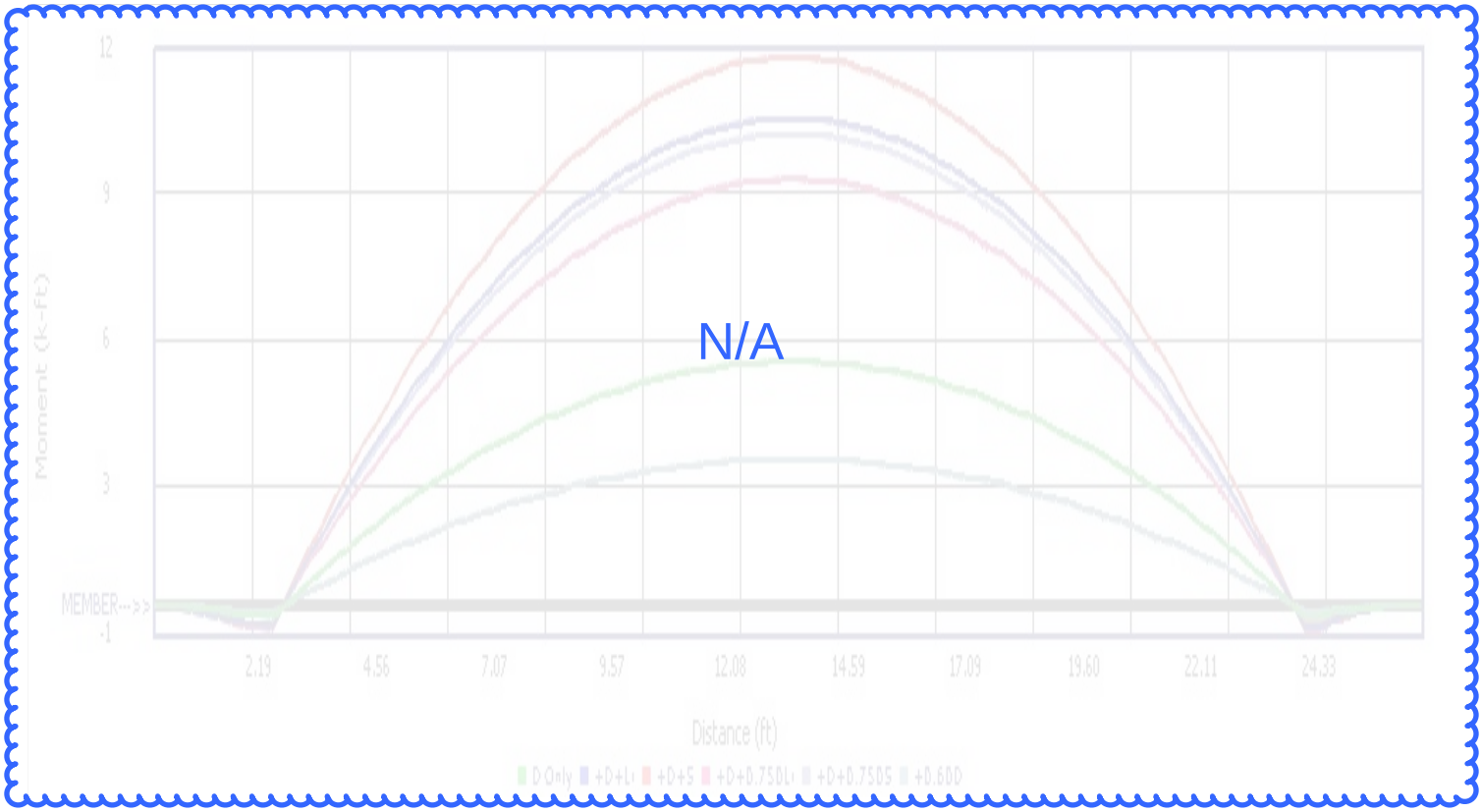
Project File: Seifert Calcultions.ec6

DESCRIPTION: GT2

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Overall MAXimum		2.700	2.700	
Overall MINimum				
D Only		1.200	1.200	
+D+Lr		2.400	2.400	
+D+S		2.700	2.700	
+D+0.750Lr		2.100	2.100	
+D+0.750S		2.325	2.325	
+0.60D		0.720	0.720	
Lr Only		1.200	1.200	
S Only		1.500	1.500	



Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

General Beam Analysis

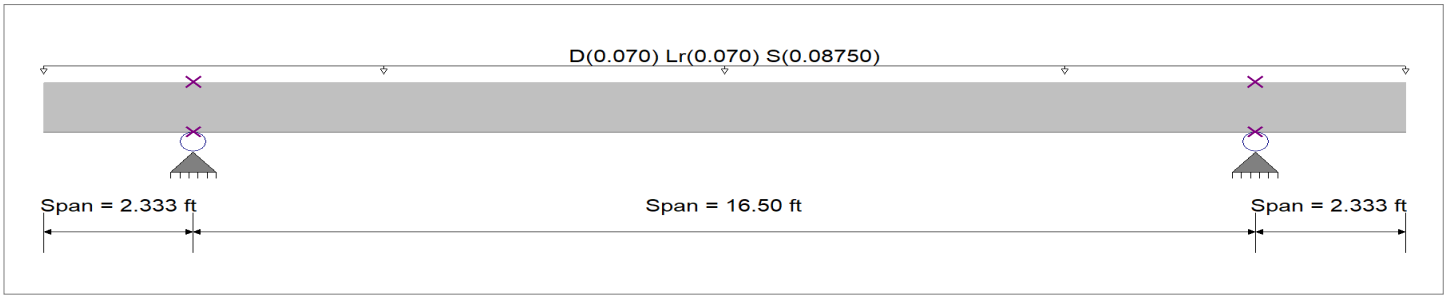
Project File: Seifert Calcultions.ec6

DESCRIPTION: GT3

General Beam Properties

Elastic Modulus 29,000.0 ksi

Span #1	Span Length =	2.333 ft	Area =	10.0 in^2	Moment of Inertia =	100.0 in^4
Span #2	Span Length =	16.50 ft	Area =	10.0 in^2	Moment of Inertia =	100.0 in^4
Span #3	Span Length =	2.333 ft	Area =	10.0 in^2	Moment of Inertia =	100.0 in^4



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Loads on all spans...
Uniform Load on ALL spans : D = 0.020, Lr = 0.020, S = 0.0250 k/ft, Tributary Width = 3.50 ft

DESIGN SUMMARY

Maximum Bending =	4.930 k-ft	Maximum Shear =	1.299 k
Load Combination	+D+S	Load Combination	+D+S
Span # where maximum occurs	Span # 2	Span # where maximum occurs	Span # 1
Location of maximum on span	8.146 ft	Location of maximum on span	2.333 ft

Maximum Deflection

Max Downward Transient Deflection	0.046 in	4267
Max Upward Transient Deflection	-0.020 in	2820
Max Downward Total Deflection	0.084 in	2370
Max Upward Total Deflection	-0.036 in	1566

Maximum Forces & Stresses for Load Combinations

N/A

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values (k-ft) Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Shear Values (k) Va Max	Vnx	Vnx/Omega
Overall MAXimum Envelope													
Dsgn. L = 2.33 ft	1				-0.43	0.43					1.30		
Dsgn. L = 16.50 ft	2			4.93	-0.43	4.93					1.30		
Dsgn. L = 2.33 ft	3				-0.43	0.43					0.37		
D Only													
Dsgn. L = 2.33 ft	1				-0.19	0.19					0.58		
Dsgn. L = 16.50 ft	2			2.19	-0.19	2.19					0.58		
Dsgn. L = 2.33 ft	3				-0.19	0.19					0.16		
+D+Lr													
Dsgn. L = 2.33 ft	1				-0.38	0.38					1.16		
Dsgn. L = 16.50 ft	2			4.38	-0.38	4.38					1.16		
Dsgn. L = 2.33 ft	3				-0.38	0.38					0.33		
+D+S													
Dsgn. L = 2.33 ft	1				-0.43	0.43					1.30		
Dsgn. L = 16.50 ft	2			4.93	-0.43	4.93					1.30		
Dsgn. L = 2.33 ft	3				-0.43	0.43					0.37		
+D+0.750Lr													
Dsgn. L = 2.33 ft	1				-0.33	0.33					1.01		
Dsgn. L = 16.50 ft	2			3.83	-0.33	3.83					1.01		
Dsgn. L = 2.33 ft	3				-0.33	0.33					0.29		
+D+0.750S													
Dsgn. L = 2.33 ft	1				-0.37	0.37					1.12		
Dsgn. L = 16.50 ft	2			4.25	-0.37	4.25					1.12		
Dsgn. L = 2.33 ft	3				-0.37	0.37					0.32		
+0.60D													
Dsgn. L = 2.33 ft	1				-0.11	0.11					0.35		
Dsgn. L = 16.50 ft	2			1.31	-0.11	1.31					0.35		
Dsgn. L = 2.33 ft	3				-0.11	0.11					0.10		

Dibble Engineers, Inc.
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Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

General Beam Analysis

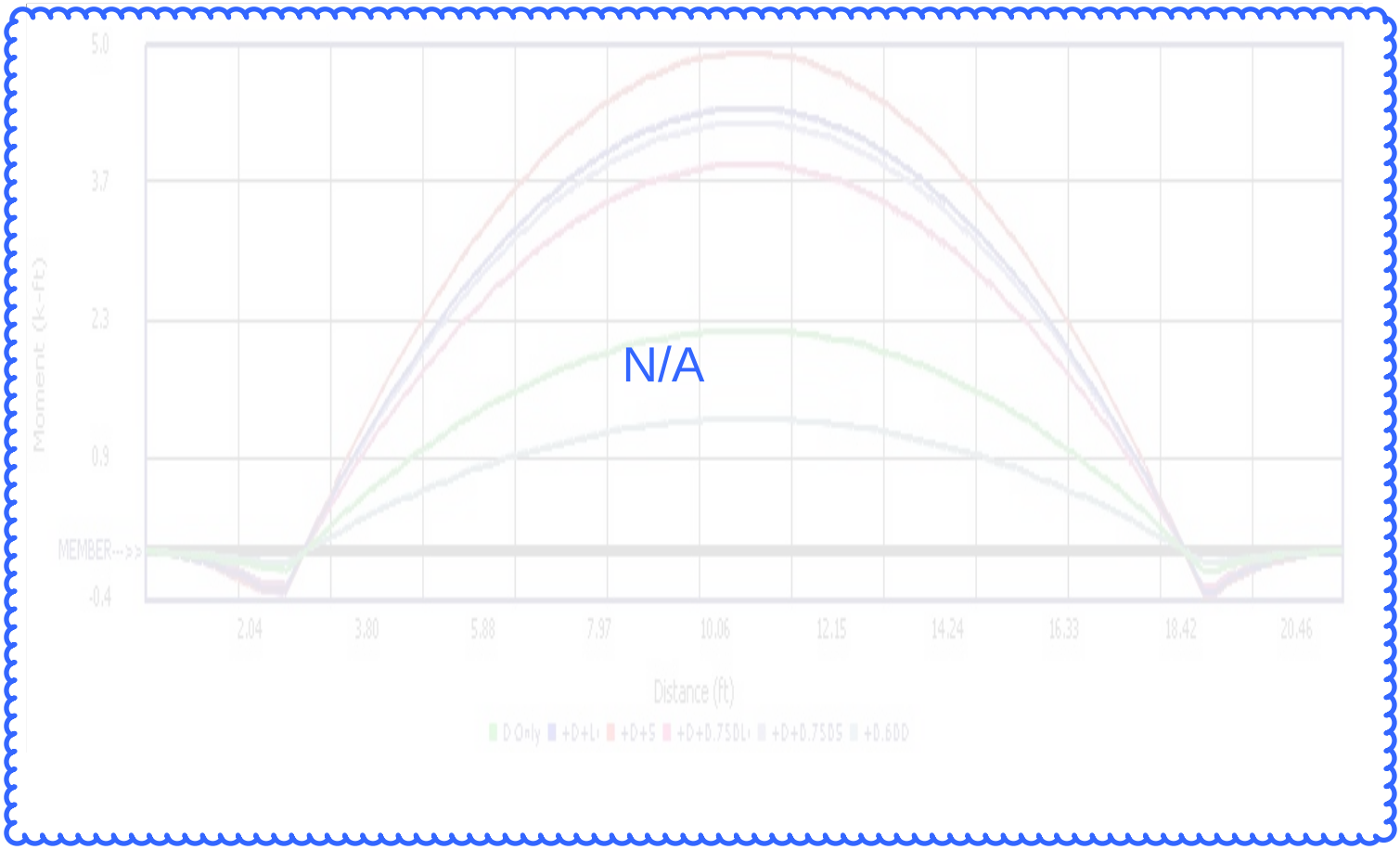
Project File: Seifert Calcultions.ec6

DESCRIPTION: GT3

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Overall MAXimum		1.667	1.667	
Overall MINimum				
D Only		0.741	0.741	
+D+Lr		1.482	1.482	
+D+S		1.667	1.667	
+D+0.750Lr		1.296	1.296	
+D+0.750S		1.435	1.435	
+0.60D		0.444	0.444	
Lr Only		0.741	0.741	
S Only		0.926	0.926	



Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: RHDR1 - Support GT2

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

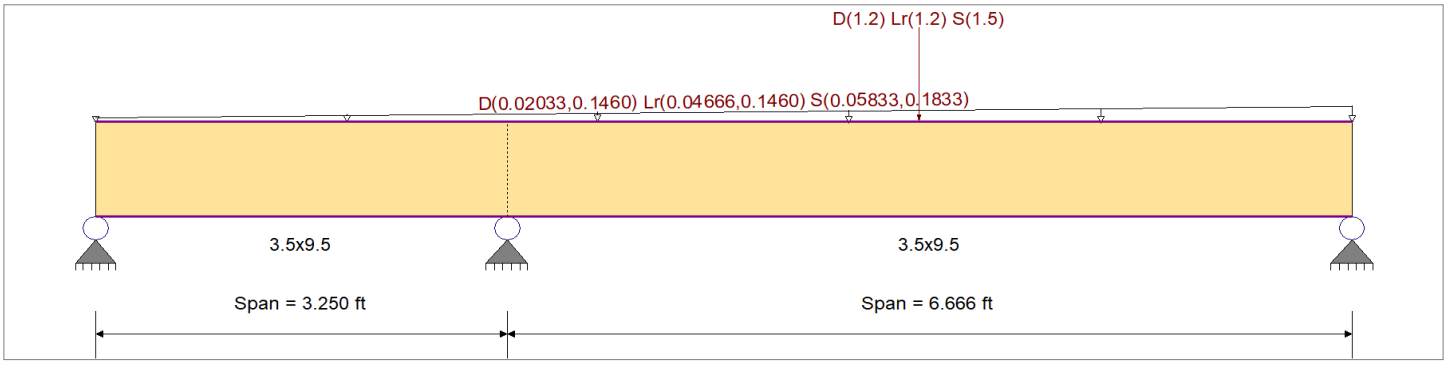
Wood Species : iLevel Truss Joist
Wood Grade : TimberStrand LSL 1.55E

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2325 psi
Fb -	2325 psi
Fc - Prll	2050 psi
Fc - Perp	800 psi
Fv	310 psi
Ft	1070 psi

E : Modulus of Elasticity

Ebend- xx	1550 ksi
Eminbend - xx	787.815 ksi
Density	45.01 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Loads on all spans...
Varying Uniform Load : D= 0.02033->0.1460, Lr= 0.04666->0.1460, S= 0.05833->0.1833 k/ft, Extent = 0.0 -->> 9.916 ft

Load for Span Number 2
Point Load : D = 1.20, Lr = 1.20, S = 1.50 k @ 3.250 ft, (RXN GT2)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.351 : 1	Maximum Shear Stress Ratio	=	0.315 : 1
Section used for this span		3.5x9.5	Section used for this span		3.5x9.5
fb: Actual	=	960.13 psi	fv: Actual	=	112.39 psi
F'b	=	2,731.84 psi	F'v	=	356.50 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	3.240 ft	Location of maximum on span	=	3.250 ft
Span # where maximum occurs	=	Span # 2	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.035 in	Ratio =	2270 >=360	Span: 2 : S Only
Max Upward Transient Deflection	-0.005 in	Ratio =	7734 >=360	Span: 1 : S Only
Max Downward Total Deflection	0.064 in	Ratio =	1257 >=180	Span: 2 : +D+S
Max Upward Total Deflection	-0.009 in	Ratio =	4266 >=180	Span: 1 : +D+S

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 3.250 ft	1	0.155	0.179	0.90	1.00	1.00	1.00	1.022	1.00	1.00	1.00	1.45	331.5	2,138.0	1.11	49.9	279.0
Length = 6.666 ft	2	0.200	0.179	0.90	1.00	1.00	1.00	1.022	1.00	1.00	1.00	1.88	427.6	2,138.0	1.11	49.9	279.0
+D+Lr					1.00	1.00	1.00	1.022	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.250 ft	1	0.223	0.258	1.25	1.00	1.00	1.00	1.022	1.00	1.00	1.00	2.91	663.4	2,969.4	2.21	99.8	387.5
Length = 6.666 ft	2	0.287	0.258	1.25	1.00	1.00	1.00	1.022	1.00	1.00	1.00	3.74	853.3	2,969.4	2.21	99.8	387.5
+D+S					1.00	1.00	1.00	1.022	1.00	1.00	1.00			0.0	0.00	0.0	0.0

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: RHDR1 - Support GT2

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 3.250 ft	**1**	0.273	0.315	1.15	1.00	1.00	1.00	1.022	1.00	1.00	1.00	3.28	746.8	2,731.8	2.49	112.4	356.5
Length = 6.666 ft	**2**	0.351	0.315	1.15	1.00	1.00	1.00	1.022	1.00	1.00	1.00	4.21	960.1	2,731.8	2.49	112.4	356.5
+D+0.750Lr					1.00	1.00	1.00	1.022	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.250 ft	**1**	0.195	0.225	1.25	1.00	1.00	1.00	1.022	1.00	1.00	1.00	2.55	580.4	2,969.4	1.94	87.4	387.5
Length = 6.666 ft	**2**	0.252	0.225	1.25	1.00	1.00	1.00	1.022	1.00	1.00	1.00	3.28	746.9	2,969.4	1.94	87.4	387.5
+D+0.750S					1.00	1.00	1.00	1.022	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.250 ft	**1**	0.235	0.271	1.15	1.00	1.00	1.00	1.022	1.00	1.00	1.00	2.82	643.0	2,731.8	2.15	96.8	356.5
Length = 6.666 ft	**2**	0.303	0.271	1.15	1.00	1.00	1.00	1.022	1.00	1.00	1.00	3.63	827.0	2,731.8	2.15	96.8	356.5
+0.60D					1.00	1.00	1.00	1.022	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.250 ft	**1**	0.052	0.060	1.60	1.00	1.00	1.00	1.022	1.00	1.00	1.00	0.87	198.9	3,800.8	0.66	30.0	496.0
Length = 6.666 ft	**2**	0.068	0.060	1.60	1.00	1.00	1.00	1.022	1.00	1.00	1.00	1.13	256.6	3,800.8	0.66	30.0	496.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
	1	0.0000	0.000	+D+S	-0.0091	1.906
+D+S	2	0.0636	3.575		0.0000	1.906

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions		3.875	1.770
Max Upward from Load Combinations		3.875	1.770
Max Upward from Load Cases		2.166	0.976
Max Downward from all Load Conditio	-0.819		
Max Downward from Load Combinations	-0.819		
Max Downward from Load Cases (Resis	-0.444		
D Only	-0.375	1.709	0.794
+D+Lr	-0.730	3.439	1.573
+D+S	-0.819	3.875	1.770
+D+0.750Lr	-0.641	3.007	1.379
+D+0.750S	-0.708	3.333	1.526
+0.60D	-0.225	1.025	0.477
Lr Only	-0.355	1.731	0.779
S Only	-0.444	2.166	0.976

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

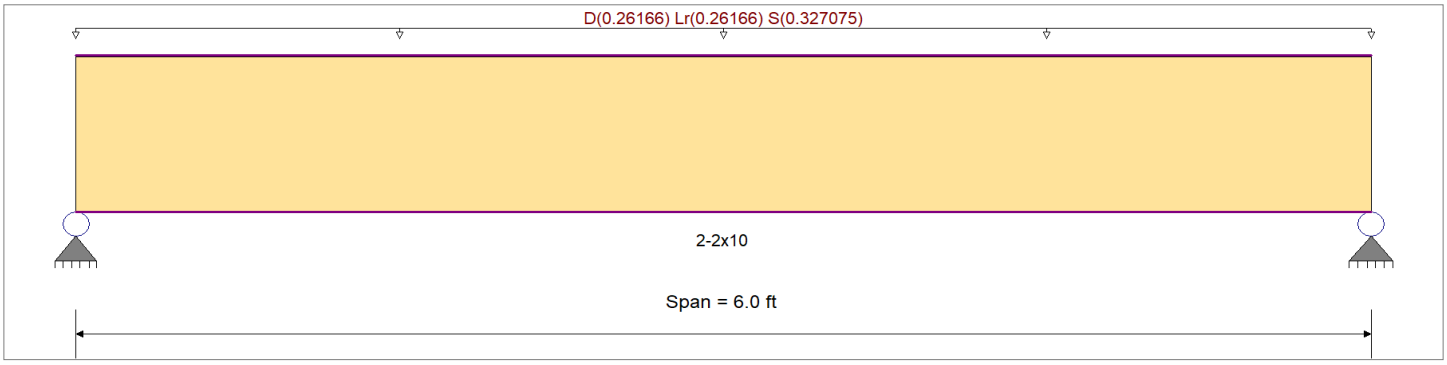
DESCRIPTION: RHDR2 - Typ. HDR

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method :	Allowable Stress Design	Fb +	850 psi	*E : Modulus of Elasticity*	
Load Combination :	IBC 2021	Fb -	850 psi	Ebend- xx	1300 ksi
		Fc - Prll	1300 psi	Eminbend - xx	470 ksi
Wood Species :	Hem-Fir	Fc - Perp	405 psi		
Wood Grade :	No.2	Fv	150 psi		
		Ft	525 psi	Density	26.84 pcf
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling				



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.020, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 13.083 ft, (Roof Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.697 : 1	Maximum Shear Stress Ratio	=	0.416 : 1
Section used for this span		2-2x10	Section used for this span		2-2x10
fb: Actual	=	749.65 psi	fv: Actual	=	71.70 psi
F'b	=	1,075.25 psi	F'v	=	172.50 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	3.000 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.037 in	Ratio =	1930	>=360	Span: 1 : S Only
Max Upward Transient Deflection	0 in	Ratio =	0	<360	n/a
Max Downward Total Deflection	0.068 in	Ratio =	1063	>=180	Span: 1 : +D+S
Max Upward Total Deflection	0 in	Ratio =	0	<180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	M	fb	F'b	V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.400	0.239	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.20	336.8	841.5	0.60	32.2	135.0
+D+Lr					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.571	0.340	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	2.38	667.1	1,168.8	1.18	63.8	187.5
+D+S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.697	0.416	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	2.67	749.7	1,075.3	1.33	71.7	172.5
+D+0.750Lr					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.500	0.298	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	2.08	584.5	1,168.8	1.03	55.9	187.5
+D+0.750S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	1	0.601	0.358	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	2.30	646.4	1,075.3	1.14	61.8	172.5

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: RHDR2 - Typ. HDR

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+0.60D					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.0 ft	**1**	0.135	0.081	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.72	202.1	1,496.0	0.36	19.3	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.0677	3.022		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	1.782	1.782
Max Upward from Load Combinations	1.782	1.782
Max Upward from Load Cases	0.981	0.981
D Only	0.800	0.800
+D+Lr	1.585	1.585
+D+S	1.782	1.782
+D+0.750Lr	1.389	1.389
+D+0.750S	1.536	1.536
+0.60D	0.480	0.480
Lr Only	0.785	0.785
S Only	0.981	0.981

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: RHDR2 - Bedroom 4 HDR

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

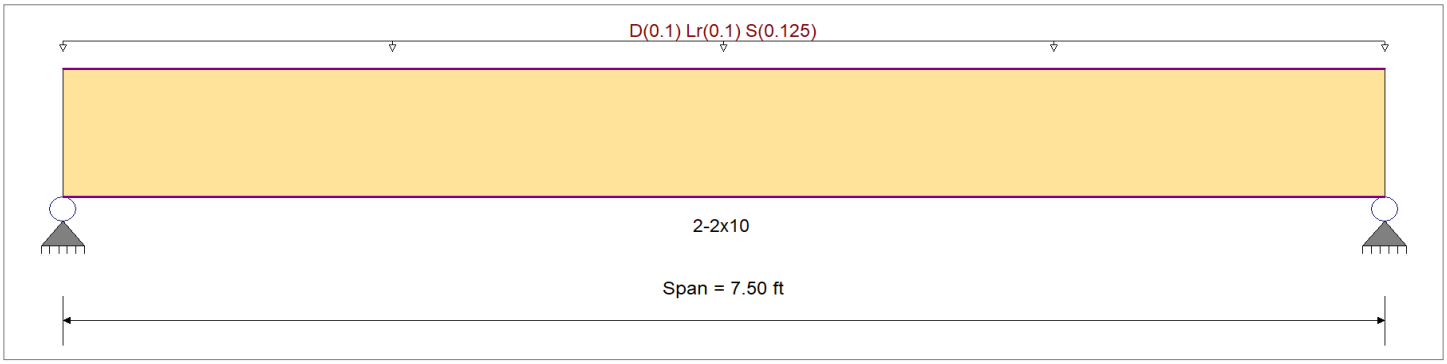
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.020, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 5.0 ft, (Roof Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.422 : 1	Maximum Shear Stress Ratio	=	0.215 : 1
Section used for this span		2-2x10	Section used for this span		2-2x10
fb: Actual	=	453.96 psi	fv: Actual	=	37.12 psi
F'b	=	1,075.25 psi	F'v	=	172.50 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	3.750 ft	Location of maximum on span	=	6.734 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.035 in	Ratio =	2586	>=360	Span: 1 : S Only
Max Upward Transient Deflection	0 in	Ratio =	0	<360	n/a
Max Downward Total Deflection	0.064 in	Ratio =	1404	>=180	Span: 1 : +D+S
Max Upward Total Deflection	0 in	Ratio =	0	<180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 7.50 ft	1	0.246	0.126	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.74	207.4	841.5	0.31	17.0	135.0
+D+Lr					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.50 ft	1	0.346	0.176	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.44	404.6	1,168.8	0.61	33.1	187.5
+D+S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.50 ft	1	0.422	0.215	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.62	454.0	1,075.3	0.69	37.1	172.5
+D+0.750Lr					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.50 ft	1	0.304	0.155	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.27	355.3	1,168.8	0.54	29.1	187.5
+D+0.750S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.50 ft	1	0.365	0.186	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.40	392.3	1,075.3	0.59	32.1	172.5

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DESCRIPTION: RHDR2 - Bedroom 4 HDR

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+0.60D					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.50 ft	**1**	0.083	0.042	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.44	124.5	1,496.0	0.19	10.2	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.0641	3.777		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	0.863	0.863
Max Upward from Load Combinations	0.863	0.863
Max Upward from Load Cases	0.469	0.469
D Only	0.394	0.394
+D+Lr	0.769	0.769
+D+S	0.863	0.863
+D+0.750Lr	0.676	0.676
+D+0.750S	0.746	0.746
+0.60D	0.237	0.237
Lr Only	0.375	0.375
S Only	0.469	0.469

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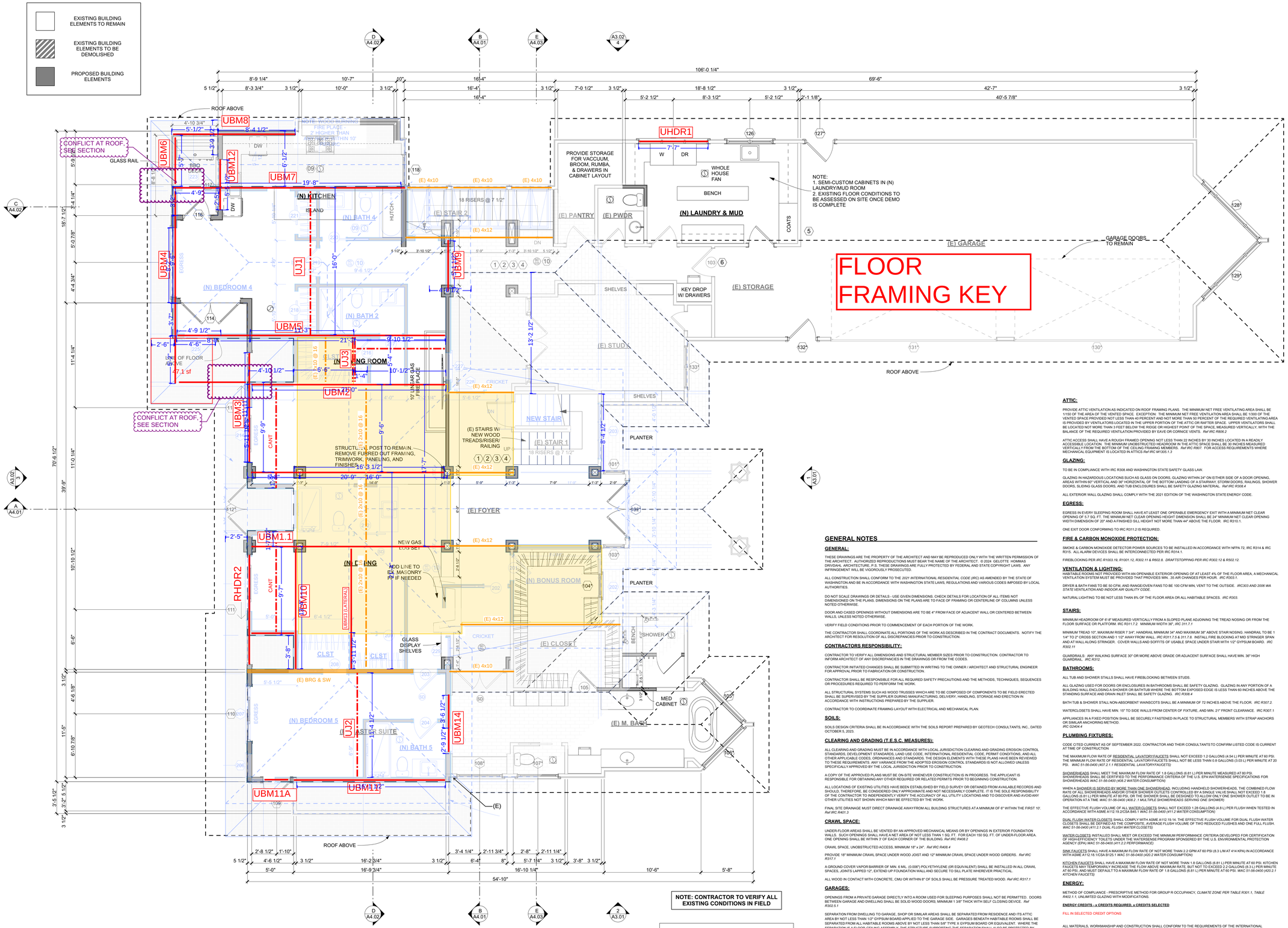
EXISTING BUILDING ELEMENTS TO REMAIN

EXISTING BUILDING ELEMENTS TO BE DEMOLISHED

PROPOSED BUILDING ELEMENTS

FLOOR FRAMING KEY



GENERAL NOTES

GENERAL:

THESE DRAWINGS ARE THE PROPERTY OF THE ARCHITECT AND MAY BE REPRODUCED ONLY WITH THE WRITTEN PERMISSION OF THE ARCHITECT. AUTHORIZED REPRODUCTIONS MUST BEAR THE NAME OF THE ARCHITECT. © 2024 GELOTTE HOMMAS DRIVDAHL, ARCHITECTURE, P.S. THESE DRAWINGS ARE FULLY PROTECTED BY FEDERAL AND STATE COPYRIGHT LAWS. ANY INFRINGEMENT WILL BE VIGOROUSLY PROSECUTED.

ALL CONSTRUCTION SHALL CONFORM TO THE 2021 *INTERNATIONAL RESIDENTIAL CODE (IRC)* AS AMENDED BY THE STATE OF WASHINGTON AND BE IN ACCORDANCE WITH WASHINGTON STATE LAWS, REGULATIONS AND VARIOUS CODES IMPOSED BY LOCAL AUTHORITIES.

DO NOT SCALE DRAWINGS OR DETAILS - USE GIVEN DIMENSIONS. CHECK DETAILS FOR LOCATION OF ALL ITEMS NOT DIMENSIONED ON THE PLANS. DIMENSIONS ON THE PLANS ARE TO FACE OF FRAMING OR CENTERLINE OF COLUMNS UNLESS NOTED OTHERWISE.

DOOR AND CASED OPENINGS WITHOUT DIMENSIONS ARE TO BE 4" FROM FACE OF ADJACENT WALL OR CENTERED BETWEEN WALLS, UNLESS NOTED OTHERWISE.

VERIFY FIELD CONDITIONS PRIOR TO COMMENCEMENT OF EACH PORTION OF THE WORK.

THE CONTRACTOR SHALL COORDINATE ALL PORTIONS OF THE WORK AS DESCRIBED IN THE CONTRACT DOCUMENTS. NOTIFY THE ARCHITECT FOR RESOLUTION OF ALL DISCREPANCIES PRIOR TO CONSTRUCTION.

CONTRACTORS RESPONSIBILITY:

CONTRACTOR TO VERIFY ALL DIMENSIONS AND STRUCTURAL MEMBER SIZES PRIOR TO CONSTRUCTION. CONTRACTOR TO INFORM ARCHITECT OF ANY DISCREPANCIES IN THE DRAWINGS OR FROM THE CODES.

CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE OWNER / ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK.

ALL STRUCTURAL SYSTEMS SUCH AS WOOD TRUSSES WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

CONTRACTOR TO COORDINATE FRAMING LAYOUT WITH ELECTRICAL AND MECHANICAL PLAN.

SOILS:

SOILS DESIGN CRITERIA SHALL BE IN ACCORDANCE WITH THE SOILS REPORT PREPARED BY GEOTECH CONSULTANTS, INC., DATED OCTOBER 5, 2023.

CLEARING AND GRADING (T.E.S.C. MEASURES):

ALL CLEARING AND GRADING MUST BE IN ACCORDANCE WITH LOCAL JURISDICTION CLEARING AND GRADING EROSION CONTROL STANDARDS, DEVELOPMENT STANDARDS, LAND USE CODE, INTERNATIONAL RESIDENTIAL CODE, PERMIT CONDITIONS, AND ALL OTHER APPLICABLE CODES, ORDINANCES AND STANDARDS. THE DESIGN ELEMENTS WITH THESE PLANS HAVE BEEN REVIEWED TO THESE REQUIREMENTS. ANY VARIANCE FROM THE ADOPTED EROSION CONTROL STANDARDS IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY THE LOCAL JURISDICTION PRIOR TO CONSTRUCTION.

A COPY OF THE APPROVED PLANS MUST BE ON-SITE WHENEVER CONSTRUCTION IS IN PROGRESS. THE APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER REQUIRED OR RELATED PERMITS PRIOR TO BEGINNING CONSTRUCTION.

ALL LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD, THEREFORE, BE CONSIDERED ONLY APPROXIMATE AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS AND TO DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN WHICH MAY BE EFFECTED BY THE WORK.

FINAL SITE DRAINAGE MUST DIRECT DRAINAGE AWAY FROM ALL BUILDING STRUCTURES AT A MINIMUM OF 6" WITHIN THE FIRST 10'. *Ref IRC R401.3*

CRAWL SPACE:

UNDER-FLOOR AREAS SHALL BE VENTED BY AN APPROVED MECHANICAL MEANS OR BY OPENINGS IN EXTERIOR FOUNDATION WALLS. SUCH OPENINGS SHALL HAVE A NET AREA OF NOT LESS THAN 1 SQ. FT. FOR EACH 150 SQ. FT. OF UNDER-FLOOR AREA. ONE OPENING SHALL BE WITHIN 3' OF EACH CORNER OF THE BUILDING. *Ref IRC R408.2*

CRAWL SPACE. UNOBSTRUCTED ACCESS, MINIMUM 18" x 24". *Ref IRC R408.4*

PROVIDE 18" MINIMUM CRAWL SPACE UNDER WOOD JOIST AND 12" MINIMUM CRAWL SPACE UNDER WOOD GIRDERS. *Ref IRC R317.1*

A GROUND COVER VAPOR BARRIER OF MIN. 6 MIL. (0.006") POLYETHYLENE (OR EQUIVALENT) SHALL BE INSTALLED IN ALL CRAWL SPACES, JOINTS LAPPED 12", EXTEND UP FOUNDATION WALLS AND SECURE TO SILL PLATE WHEREVER PRACTICAL.

ALL WOOD IN CONTACT WITH CONCRETE, CMU OR WITHIN 8" OF SOILS SHALL BE PRESSURE TREATED WOOD. *Ref IRC R317.1*

GARAGES:

OPENINGS FROM A PRIVATE GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED. DOORS BETWEEN GARAGE AND DWELLING SHALL BE SOLID WOOD DOORS; MINIMUM 1 3/8" THICK WITH SELF CLOSING DEVICE. *Ref R302.5.1*

SEPARATION FROM DWELLING TO GARAGE, SHOP OR SIMILAR AREAS SHALL BE SEPARATED FROM RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 1/2" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. GARAGES BENEATH HABITABLE ROOMS SHALL BE SEPARATED FROM ALL HABITABLE ROOMS ABOVE BY NOT LESS THAN 5/8" TYPE X GYPSUM BOARD OR EQUIVALENT. WHERE THE SEPARATION IS A FLOOR-CEILING ASSEMBLY, THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY NOT LESS THAN 1/2" GYPSUM BOARD OR EQUIVALENT. *Ref IRC R302.6 & TABLE 302.6*

HEATING AND/OR COOLING EQUIPMENT LOCATED IN GARAGE SHALL BE INSTALLED WITH PILOTS AND BURNERS OR HEATING ELEMENTS AND SWITCHES AT LEAST 18" ABOVE THE FLOOR LEVEL. *Ref IRC G2408.2*

FIREPLACES:

FACTORY-BUILT FIREPLACES SHALL BE LISTED AND LABELED AND SHALL BE INSTALLED IN ACCORDANCE WITH THE CONDITIONS OF THE LISTING. FACTORY-BUILT FIREPLACES SHALL BE TESTED IN ACCORDANCE WITH UL 127. *Ref IRC R1004.1*

MASONRY FIREPLACES, BARBECUES, SMOKE CHAMBERS AND FIREPLACE CHIMNEYS SHALL BE CONSTRUCTED OF MASONRY OR REINFORCED CONCRETE. FOUNDATIONS SHALL BE MIN. 12" THICK AND EXTEND MIN. 6" BEYOND MASONRY. FIREBOX WALLS MIN. 10" THICK EXCEPT MIN. 8" THICK WHERE A FIREBRICK LINING IS USED. COMBUSTIBLE MATERIALS SHALL NOT BE PLACED WITHIN 2 INCHES OF FIREPLACE, SMOKE CHAMBER OR CHIMNEY WALLS. COMBUSTIBLE MATERIAL SHALL NOT BE PLACED WITHIN 6" OF THE FIREPLACE OPENING. MIN. 4" THICK NON-COMBUSTIBLE HEARTH EXTENDING 16" IN FRONT AND 8" TO THE SIDE OF THE FIREPLACE OPENING. COMBUSTIBLE MATERIAL WITHIN 12" OF THE FIREPLACE OPENING SHALL NOT PROJECT MORE THAN 1/8" FOR EACH 1" DISTANCE FROM SUCH OPENING. *Ref IRC R1001 - R1003*

CEILING HEIGHTS:

HABITABLE SPACE SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'-0". NOT MORE THAN 50% OF REQUIRED FLOOR AREA OF A SPACE IS PERMITTED TO HAVE A SLOPED CEILING LESS THAN 7'-0" IN HEIGHT WITH NO PORTION LOWER THAN 5'-0". BATHROOM SHALL HAVE A MIN CEILING HEIGHT OF 6'-8" OVER THE FIXTURE AND ITS FRONT CLEARANCE AREA. *Ref IRC R305*

ROOFING:

APPLY ROOFING IN ACCORDANCE WITH *IRC R905.*

BALCONIES, LANDINGS, EXTERIOR STAIRWAYS, OCCUPIED ROOFS AND SIMILAR SURFACES EXPOSED TO THE WEATHER AND SEALED UNDERNEATH SHALL BE WATERPROOFED AND SLOPED A MINIMUM OF 1/4" PER 12" (2% SLOPE) FOR DRAINAGE.

ATTIC:

PROVIDE ATTIC VENTILATION AS INDICATED ON ROOF FRAMING PLANS. THE MINIMUM NET FREE VENTILATING AREA SHALL BE 1/150 OF THE AREA OF THE VENTED SPACE. EXCEPTION: THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/300 OF THE VENTED SPACE PROVIDED NOT LESS THAN 40 PERCENT AND NOT MORE THAN 50 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE ATTIC OR RAFTER SPACE. UPPER VENTILATORS SHALL BE LOCATED NOT MORE THAN 3 FEET BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE, MEASURED VERTICALLY, WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS. *Ref IRC R806.2*

ATTIC ACCESS SHALL HAVE A ROUGH FRAMED OPENING NOT LESS THAN 22 INCHES BY 30 INCHES LOCATED IN A READILY ACCESSIBLE LOCATION. THE MINIMUM UNOBSTRUCTED HEADROOM IN THE ATTIC SPACE SHALL BE 30 INCHES MEASURED VERTICALLY FROM THE BOTTOM OF THE CEILING FRAMING MEMBERS. *Ref IRC R807.* FOR ACCESS REQUIREMENTS WHERE MECHANICAL EQUIPMENT IS LOCATED IN ATTICS *Ref IRC M1305.1.3*

GLAZING:

TO BE IN COMPLIANCE WITH IRC R308 AND WASHINGTON STATE SAFETY GLASS LAW.

GLAZING IN HAZARDOUS LOCATIONS SUCH AS GLASS ON DOORS, GLAZING WITHIN 24" ON EITHER SIDE OF A DOOR OPENING, AREAS WITHIN 60" VERTICAL AND 36" HORIZONTAL OF THE BOTTOM LANDING OF A STAIRWAY, STORM DOORS, RAILINGS, SHOWER DOORS, SLIDING GLASS DOORS, AND TUB ENCLOSURES SHALL BE SAFETY GLAZING MATERIAL. *Ref IRC R308.4*

ALL EXTERIOR WALL GLAZING SHALL COMPLY WITH THE 2021 EDITION OF THE WASHINGTON STATE ENERGY CODE.

EGRESS:

EGRESS IN EVERY SLEEPING ROOM SHALL HAVE AT LEAST ONE OPERABLE EMERGENCY EXIT WITH A MINIMUM NET CLEAR OPENING OF 5.7 SQ. FT. THE MINIMUM NET CLEAR OPENING HEIGHT DIMENSION SHALL BE 24" MINIMUM NET CLEAR OPENING WIDTH DIMENSION OF 20" AND A FINISHED SILL HEIGHT NOT MORE THAN 44" ABOVE THE FLOOR. IRC R310.1.

ONE EXIT DOOR CONFORMING TO IRC R311.2 IS REQUIRED.

FIRE & CARBON MONOXIDE PROTECTION:

SMOKE & CARBON MONOXIDE DETECTOR POWER SOURCES TO BE INSTALLED IN ACCORDANCE WITH NFPA 72, IRC R314 & IRC R315. ALL ALARM DEVICES SHALL BE INTERCONNECTED PER IRC R314.1.

FIREBLOCKING PER *IRC R1003.19, R1001.12, R302.11 & R602.8. DRAFTSTOPPING PER IRC R302.12 & R502.12.*

VENTILATION & LIGHTING:

HABITABLE ROOMS NOT PROVIDED WITH AN OPENABLE EXTERIOR OPENING OF AT LEAST 4% OF THE FLOOR AREA, A MECHANICAL VENTILATION SYSTEM MUST BE PROVIDED THAT PROVIDES MIN. .35 AIR CHANGES PER HOUR. *IRC R303.1.*

DRYER & BATH FANS TO BE 50 CFM, AND RANGE/OVEN FANS TO BE 100 CFM MIN, VENT TO THE OUTSIDE. *IRC303 AND 2006 WA STATE VENTILATION AND INDOOR AIR QUALITY CODE.*

NATURAL LIGHTING TO BE NOT LESS THAN 8% OF THE FLOOR AREA OR ALL HABITABLE SPACES. *IRC R303.*

STAIRS:

MINIMUM HEADROOM OF 6'-8" MEASURED VERTICALLY FROM A SLOPED PLANE ADJOINING THE TREAD NOSING OR FROM THE FLOOR SURFACE OR PLATFORM. IRC R311.7.2 MINIMUM WIDTH 36", *IRC 311.7.1*

MINIMUM TREAD 10", MAXIMUM RISER 7 3/4". HANDRAIL MINIMUM 34" AND MAXIMUM 38" ABOVE STAIR NOSING. HANDRAIL TO BE 1 1/4" TO 2" CROSS SECTION AND 1 1/2" AWAY FROM WALL. IRC R311.7.5 & 311.7.8. INSTALL FIRE BLOCKING AT MID STRINGER SPAN AND AT WALL ALONG STRINGER. COVER WALLS AND SOFFITS OF USABLE SPACE UNDER STAIR WITH 1/2" GYPSUM BOARD. *IRC R302.11*

GUARDRAILS: ANY WALKING SURFACE 30" OR MORE ABOVE GRADE OR ADJACENT SURFACE SHALL HAVE MIN. 36" HIGH GUARDRAIL. *IRC R312.*

BATHROOMS:

ALL TUB AND SHOWER STALLS SHALL HAVE FIREBLOCKING BETWEEN STUDS.

ALL GLAZING USED FOR DOORS OR ENCLOSURES IN BATHROOMS SHALL BE SAFETY GLAZING. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING A SHOWER OR BATHTUB WHERE THE BOTTOM EXPOSED EDGE IS LESS THAN 60 INCHES ABOVE THE STANDING SURFACE AND DRAIN INLET SHALL BE SAFETY GLAZING. *IRC R308.4*

BATH TUB & SHOWER STALL NON-ABSORBENT WAINSCOTS SHALL BE A MINIMUM OF 72 INCHES ABOVE THE FLOOR. *IRC R307.2.*

WATERCLOSETS SHALL HAVE MIN. 15" TO SIDE WALLS FROM CENTER OF FIXTURE, AND MIN. 21" FRONT CLEARANCE. IRC R307.1

APPLIANCES IN A FIXED POSITION SHALL BE SECURELY FASTENED IN PLACE TO STRUCTURAL MEMBERS WITH STRAP ANCHORS OR SIMILAR ANCHORING METHOD. *IRC G2404.4*

PLUMBING FIXTURES:

CODE CITED CURRENT AS OF SEPTEMBER 2022. CONTRACTOR AND THEIR CONSULTANTS TO CONFIRM LISTED CODE IS CURRENT AT TIME OF CONSTRUCTION

THE MAXIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT EXCEED 1.2 GALLONS (4.54 L) PER MINUTE AT 60 PSI. THE MINIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT BE LESS THAN 0.8 GALLONS (3.05 L) PER MINUTE AT 20 PSI. *WAC 51-56-0400 (407.2.1.1 RESIDENTIAL LAVATORY FAUCETS)*

SHOWERHEADS SHALL MEET THE MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE MEASURED AT 80 PSI. SHOWERHEADS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATERSENSE SPECIFICATIONS FOR SHOWERHEADS *WAC 51-56-0400 (408.2 WATER CONSUMPTION)*

WHEN A SHOWER IS SERVED BY MORE THAN ONE SHOWERHEAD, INCLUDING HANDHELD SHOWERHEADS, THE COMBINED FLOW RATE OF ALL SHOWERHEADS AND/OR OTHER SHOWER OUTLETS CONTROLLED BY A SINGLE VALVE SHALL NOT EXCEED 1.8 GALLONS (6.81 L) PER MINUTE AT 80 PSI, OR THE SHOWER SHALL BE DESIGNED TO ALLOW ONLY ONE SHOWER OUTLET TO BE IN OPERATION AT A TIME *WAC 51-56-0400 (408.2. 1 MULTIPLE SHOWERHEADS SERVING ONE SHOWER)*

THE EFFECTIVE FLUSH VOLUME OF ALL WATER CLOSETS SHALL NOT EXCEED 1.28 GALLONS (4.8 L) PER FLUSH WHEN TESTED IN ACCORDANCE WITH ASME A112.19.2/CSA B45.1 *WAC 51-56-0400 (411.2 WATER CONSUMPTION)*

DUAL FLUSH WATER CLOSETS SHALL COMPLY WITH ASME A112.19.14. THE EFFECTIVE FLUSH VOLUME FOR DUAL FLUSH WATER CLOSETS SHALL BE DEFINED AS THE COMPOSITE, AVERAGE FLUSH VOLUME OF TWO REDUCED FLUSHES AND ONE FULL FLUSH. *WAC 51-56-0400 (411.2.1 DUAL FLUSH WATER CLOSETS)*

WATER CLOSETS INSTALLED SHALL MEET OR EXCEED THE MINIMUM PERFORMANCE CRITERIA DEVELOPED FOR CERTIFICATION OF HIGH-EFFICIENCY TOILETS UNDER THE WATERSENSE PROGRAM SPONSERED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) *WAC 51-56-0400 (411.2.2 PERFORMANCE)*

SINK FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 2.2 GPM AT 60 PSI (8.3 LM AT 414 KPA) IN ACCORDANCE WITH ASME A112.18.1/CSA B125.1 *WAC 51-56-0400 (409.2 WATER CONSUMPTION)*

KITCHEN FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. KITCHEN FAUCETS MAY TEMPORARILY INCREASE THE FLOW ABOVE MAXIMUM RATE, BUT NOT TO EXCEED 2.2 GALLONS (8.3 L) PER MINUTE AT 60 PSI, AND MUST DEFAULT TO A MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. *WAC 51-56-0400 (402.2.1 KITCHEN FAUCETS)*

ENERGY:

METHOD OF COMPLIANCE - PRESCRIPTIVE METHOD FOR GROUP R OCCUPANCY, *CLIMATE ZONE PER TABLE R301.1, TABLE R402.1.1, UNLIMITED GLAZING* WITH MODIFICATIONS.

ENERGY CREDITS - x CREDITS REQUIRED, x CREDITS SELECTED

FILL IN SELECTED CREDIT OPTIONS

ALL MATERIALS, WORKMANSHIP AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL RESIDENTIAL CODE AND THE WASHINGTON STATE ENERGY CODE, LATEST EDITION. VERIFY ALL CONDITIONS BEFORE PROCEEDING WITH WORK.

WALLS: INSULATED PER *WSEC TABLE R402.1.1*

ROOF AND CEILING: INSULATED PER *WSEC TABLE R402.1.1.* PROVIDE INSULATION IN CEILING WHERE POSSIBLE AND IN 2x12 RAFTERS IF VAULTED CEILING CONDITION EXISTS. MAINTAIN A MINIMUM OF 2" CLEAR BETWEEN TOP OF INSULATION AND BOTTOM OF SHEATHING FOR VENTING. VENTING MUST OCCUR IN EACH JOIST SPACE. WHERE CONTINUOUS VENTING WITHIN A JOIST SPACE IS INTERRUPTED BY A HEADER (I.E., SKYLIGHT OR AT HIP END), PROVIDE (2) 1 1/2" VENTING HOLES AT THE TOP OF THE RAFTER AT THE HEADER TO ALLOW FOR CONTINUAL THROUGH-VENTING INTO THE NEXT JOIST SPACE.

FLOORS: INSULATE PER *WSEC TABLE R402.1.1*

SLAB ON GRADE: INSULATE PER TABLE R402.1.1. PROVIDE EXTRUDED RIGID CLOSED CELL INSULATION. INSULATION, INSTALLED INSIDE THE FOUNDATION WALL, SHALL EXTEND DOWNWARD FROM THE TOP OF THE SLAB 24" MIN. OR DOWNWARD AND THEN HORIZONTALLY BENEATH THE SLAB FOR A COMBINED 24" MIN. INSULATION INSTALLED OUTSIDE THE FOUNDATION SHALL EXTEND DOWNWARD 24" MIN. OR TO THE FROSTLINE. *WSEC 402.2.9.1*

VAPOR BARRIERS: VAPOR RETARDERS SHALL BE INSTALLED ON THE WARM SIDE (IN WINTER) OF INSULATION PER *TABLE R402.4.1.1*

FLOORS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE MIN. 4 MIL POLYETHYLENE OR KRAFT FACED MATERIAL. ROOF/CEILING ASSEMBLIES WHERE THE VENTILATION SPACE ABOVE THE INSULATION IS LESS THAN AN AVERAGE OF 12 INCHES SHALL BE PROVIDED WITH A VAPOR-RETARDER. WALLS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE A VAPOR RETARDER INSTALLED. FACED BATT INSULATION SHALL BE FACE STAPLED. A GROUND COVER OF MIN. 6 MIL BLACK POLYETHYLENE SHALL BE LAID OVER THE GROUND WITHIN CRAWL SPACES W/ JOINTS LAPPED MIN. 12".

GLAZING AND DOORS: GLAZING AND DOOR U-FACTORS SHALL BE DETERMINED IN ACCORDANCE WITH *WSEC SECTIONS R402.1.1 AND R303.1.3(2),* RESPECTIVELY.

NOTE: CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS IN FIELD

BLDG AREA - ALL STORIES

LOWER FLOOR		
	(E) FINISHED AREAS	1,096
	(N) FINISHED AREAS	536
MAIN FLOOR		
	(E) FINISHED AREAS	3,265
	(E) GARAGE	1,075
	(N) FINISHED AREAS	175
UPPER FLOOR		
	(E) FINISHED AREAS	789
	(N) FINISHED AREAS	967
		7,903 ft²

N

MAIN FLOOR PROPOSED

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

RE: 2219 Seifert Remodel and Addition PRINTED: Friday, January 12, 2024

SEIFERT REMODEL

3261 67TH AVE SE
MERCER ISLAND, WA 98040

Job No. 2219
Project Manager: DG
Issue Date: 08/03/2023

NO.	DATE	REVISION

W.I.P. SET (12.20.2023)

MAIN FLOOR PLAN PROPOSED

A2.02

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UJ1 - New Joists

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

Wood Species : iLevel Truss Joist
Wood Grade : TimberStrand LSL 1.55E

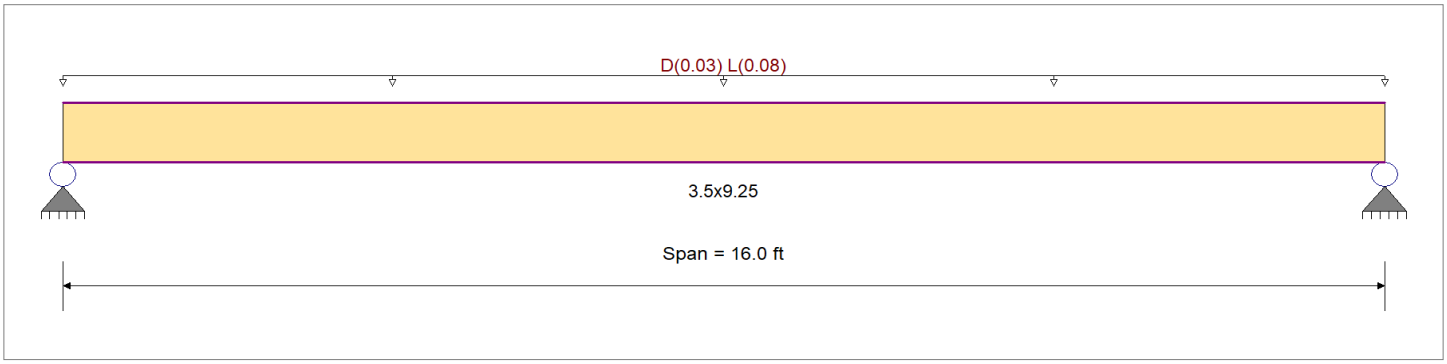
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2,325.0 psi
Fb -	2,325.0 psi
Fc - Prll	2,050.0 psi
Fc - Perp	800.0 psi
Fv	310.0 psi
Ft	1,070.0 psi

E : Modulus of Elasticity

Ebend- xx	1,550.0 ksi
Eminbend - xx	787.82 ksi
Density	45.010 pcf

Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 2.0 ft, (Floor Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.373 : 1	Maximum Shear Stress Ratio	=	0.130 : 1
Section used for this span		3.5x9.25	Section used for this span		3.5x9.25
fb: Actual	=	924.15 psi	fv: Actual	=	40.30 psi
F'b	=	2,476.60 psi	F'v	=	310.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	8.000 ft	Location of maximum on span	=	15.241 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.332 in	Ratio =	578 >=480	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <480	n/a
Max Downward Total Deflection	0.498 in	Ratio =	385 >=360	Span: 1 : +D+L
Max Upward Total Deflection	0 in	Ratio =	0 <360	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 16.0 ft	1	0.138	0.048	0.90	1.00	1.00	1.00	1.024	1.00	1.00	1.04	1.28	308.7	2,228.9	0.29	13.5	279.0
+D+L					1.00	1.00	1.00	1.024	1.00	1.00	1.04			0.0	0.00	0.0	0.0
Length = 16.0 ft	1	0.373	0.130	1.00	1.00	1.00	1.00	1.024	1.00	1.00	1.04	3.84	924.2	2,476.6	0.87	40.3	310.0
+D+0.750L					1.00	1.00	1.00	1.024	1.00	1.00	1.04			0.0	0.00	0.0	0.0
Length = 16.0 ft	1	0.249	0.087	1.25	1.00	1.00	1.00	1.024	1.00	1.00	1.04	3.20	770.3	3,095.8	0.72	33.6	387.5
+0.60D					1.00	1.00	1.00	1.024	1.00	1.00	1.04			0.0	0.00	0.0	0.0
Length = 16.0 ft	1	0.047	0.016	1.60	1.00	1.00	1.00	1.024	1.00	1.00	1.04	0.77	185.2	3,962.6	0.17	8.1	496.0

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UJ1 - New Joists

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.4979	8.058		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	0.961	0.961
Max Upward from Load Combinations	0.961	0.961
Max Upward from Load Cases	0.640	0.640
D Only	0.321	0.321
+D+L	0.961	0.961
+D+0.750L	0.801	0.801
+0.60D	0.193	0.193
L Only	0.640	0.640

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Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: Copy of UJ1 - New Joists

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

Wood Species : iLevel Truss Joist
Wood Grade : TimberStrand LSL 1.55E

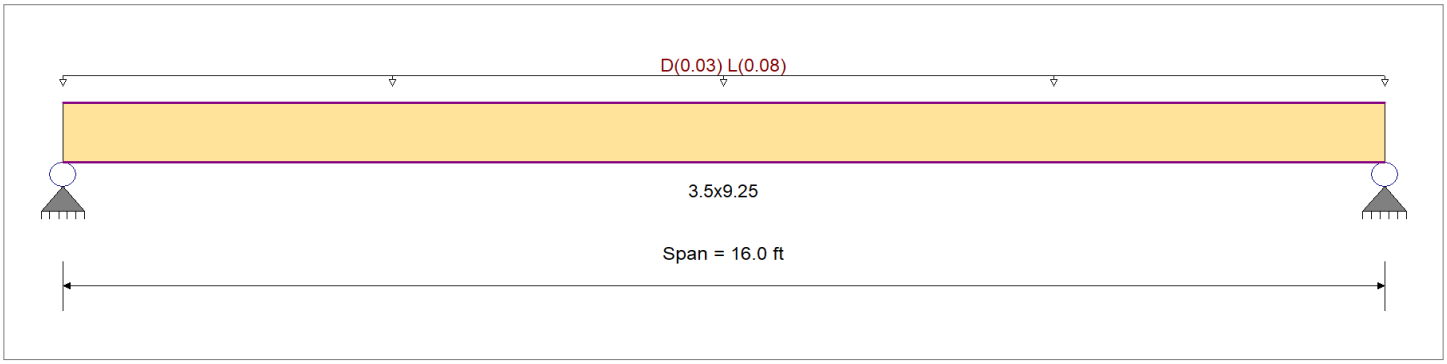
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2,325.0 psi
Fb -	2,325.0 psi
Fc - Prll	2,050.0 psi
Fc - Perp	800.0 psi
Fv	310.0 psi
Ft	1,070.0 psi

E : Modulus of Elasticity

Ebend- xx	1,550.0 ksi
Eminbend - xx	787.82 ksi
Density	45.010 pcf

Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 2.0 ft, (Floor Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.373 : 1	Maximum Shear Stress Ratio	=	0.130 : 1
Section used for this span		3.5x9.25	Section used for this span		3.5x9.25
fb: Actual	=	924.15 psi	fv: Actual	=	40.30 psi
F'b	=	2,476.60 psi	F'v	=	310.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	8.000 ft	Location of maximum on span	=	15.241 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.332 in	Ratio =	578 >=480	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <480	n/a
Max Downward Total Deflection	0.498 in	Ratio =	385 >=360	Span: 1 : +D+L
Max Upward Total Deflection	0 in	Ratio =	0 <360	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 16.0 ft	1	0.138	0.048	0.90	1.00	1.00	1.00	1.024	1.00	1.00	1.04	1.28	308.7	2,228.9	0.29	13.5	279.0
+D+L					1.00	1.00	1.00	1.024	1.00	1.00	1.04			0.0	0.00	0.0	0.0
Length = 16.0 ft	1	0.373	0.130	1.00	1.00	1.00	1.00	1.024	1.00	1.00	1.04	3.84	924.2	2,476.6	0.87	40.3	310.0
+D+0.750L					1.00	1.00	1.00	1.024	1.00	1.00	1.04			0.0	0.00	0.0	0.0
Length = 16.0 ft	1	0.249	0.087	1.25	1.00	1.00	1.00	1.024	1.00	1.00	1.04	3.20	770.3	3,095.8	0.72	33.6	387.5
+0.60D					1.00	1.00	1.00	1.024	1.00	1.00	1.04			0.0	0.00	0.0	0.0
Length = 16.0 ft	1	0.047	0.016	1.60	1.00	1.00	1.00	1.024	1.00	1.00	1.04	0.77	185.2	3,962.6	0.17	8.1	496.0

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: Copy of UJ1 - New Joists

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.4979	8.058		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	0.961	0.961
Max Upward from Load Combinations	0.961	0.961
Max Upward from Load Cases	0.640	0.640
D Only	0.321	0.321
+D+L	0.961	0.961
+D+0.750L	0.801	0.801
+0.60D	0.193	0.193
L Only	0.640	0.640

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UJ2 - Upper Floor Joist (Bed5)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

Wood Species : Hem-Fir
Wood Grade : No.2

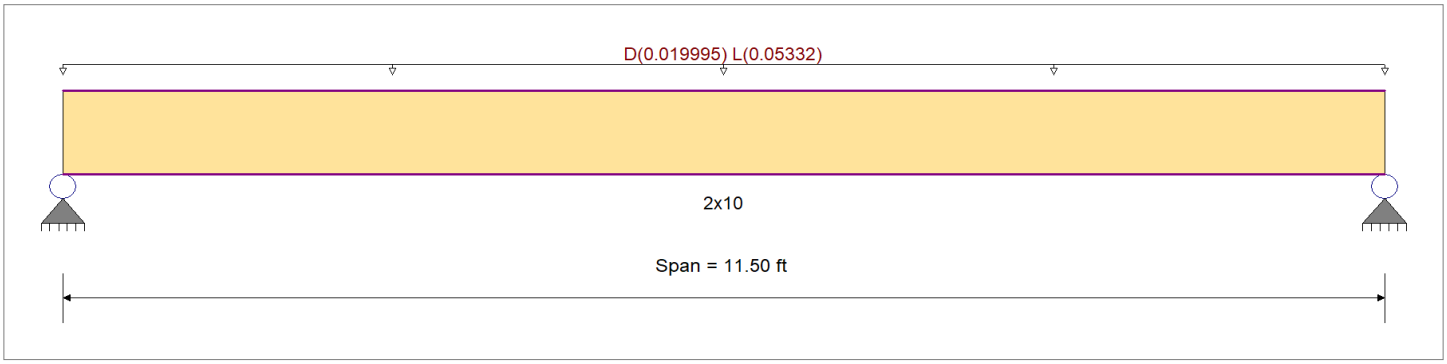
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf

Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 1.333 ft, (Floor Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.655 : 1	Maximum Shear Stress Ratio	=	0.273 : 1
Section used for this span		2x10	Section used for this span		2x10
fb: Actual	=	703.90 psi	fv: Actual	=	40.98 psi
F'b	=	1,075.25 psi	F'v	=	150.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	5.750 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.164 in	Ratio =	840 >=360	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <360	n/a
Max Downward Total Deflection	0.234 in	Ratio =	590 >=180	Span: 1 : +D+L
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 11.50 ft	1	0.216	0.090	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.15	0.37	209.4	967.7	0.11	12.2	135.0
+D+L					1.00	1.00	1.00	1.100	1.00	1.00	1.15			0.0	0.00	0.0	0.0
Length = 11.50 ft	1	0.655	0.273	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.15	1.25	703.9	1,075.3	0.38	41.0	150.0
+D+0.750L					1.00	1.00	1.00	1.100	1.00	1.00	1.15			0.0	0.00	0.0	0.0
Length = 11.50 ft	1	0.432	0.180	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.15	1.03	580.3	1,344.1	0.31	33.8	187.5
+0.60D					1.00	1.00	1.00	1.100	1.00	1.00	1.15			0.0	0.00	0.0	0.0
Length = 11.50 ft	1	0.073	0.030	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.15	0.22	125.6	1,720.4	0.07	7.3	240.0

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UJ2 - Upper Floor Joist (Bed5)

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.2336	5.792		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	0.436	0.436
Max Upward from Load Combinations	0.436	0.436
Max Upward from Load Cases	0.307	0.307
D Only	0.130	0.130
+D+L	0.436	0.436
+D+0.750L	0.360	0.360
+0.60D	0.078	0.078
L Only	0.307	0.307

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UJ3 - DBL @ Flue

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

Wood Species : Hem-Fir
Wood Grade : No.2

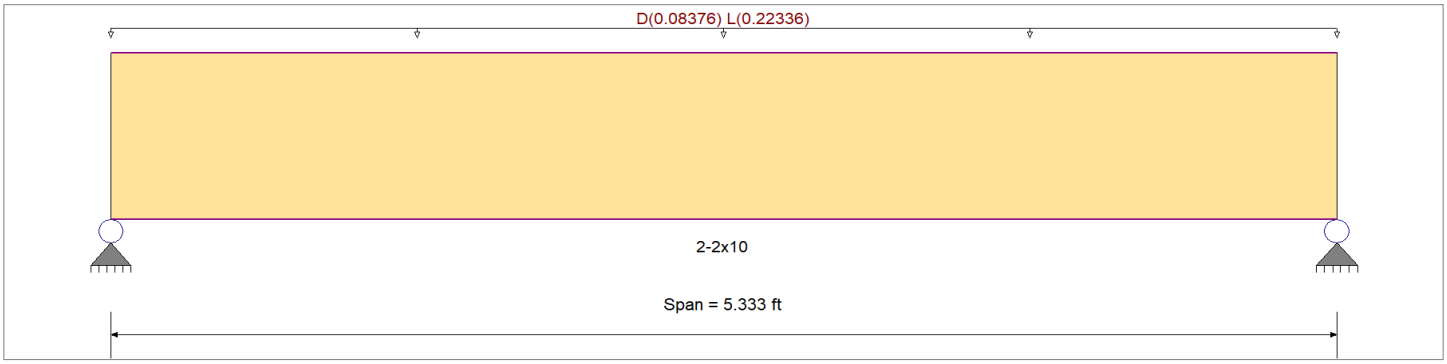
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf

Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 5.584 ft, (Floor Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.290 : 1	Maximum Shear Stress Ratio	=	0.215 : 1
Section used for this span		2-2x10	Section used for this span		2-2x10
fb: Actual	=	311.42 psi	fv: Actual	=	32.20 psi
F'b	=	1,075.25 psi	F'v	=	150.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	2.667 ft	Location of maximum on span	=	4.574 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.016 in	Ratio =	4025 >=360	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <360	n/a
Max Downward Total Deflection	0.022 in	Ratio =	2879 >=180	Span: 1 : +D+L
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 5.333 ft	1	0.092	0.068	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.15	0.32	88.7	967.7	0.17	9.2	135.0
+D+L					1.00	1.00	1.00	1.100	1.00	1.00	1.15			0.0	0.00	0.0	0.0
Length = 5.333 ft	1	0.290	0.215	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.15	1.11	311.4	1,075.3	0.60	32.2	150.0
+D+0.750L					1.00	1.00	1.00	1.100	1.00	1.00	1.15			0.0	0.00	0.0	0.0
Length = 5.333 ft	1	0.190	0.141	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.15	0.91	255.7	1,344.1	0.49	26.4	187.5
+0.60D					1.00	1.00	1.00	1.100	1.00	1.00	1.15			0.0	0.00	0.0	0.0
Length = 5.333 ft	1	0.031	0.023	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.15	0.19	53.2	1,720.4	0.10	5.5	240.0

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UJ3 - DBL @ Flue

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.0222	2.686		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	0.833	0.833
Max Upward from Load Combinations	0.833	0.833
Max Upward from Load Cases	0.596	0.596
D Only	0.237	0.237
+D+L	0.833	0.833
+D+0.750L	0.684	0.684
+0.60D	0.142	0.142
L Only	0.596	0.596

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM1 - Dropped Beam

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

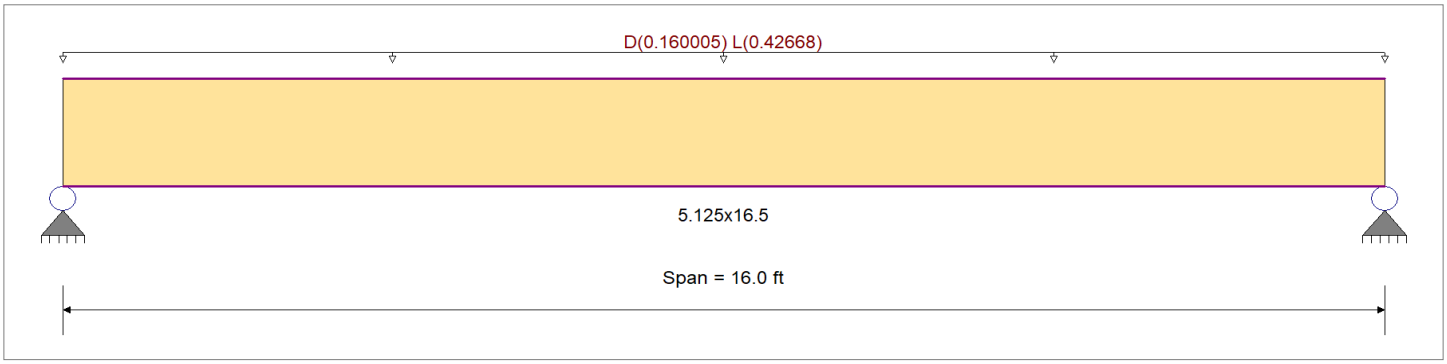
Wood Species : DF/DF
Wood Grade : 24F-V4

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2,400.0 psi
Fb -	1,850.0 psi
Fc - Prll	1,650.0 psi
Fc - Perp	650.0 psi
Fv	265.0 psi
Ft	1,100.0 psi

E : Modulus of Elasticity

Ebend- xx	1,800.0 ksi
Eminbend - xx	950.0 ksi
Ebend- yy	1,600.0 ksi
Eminbend - yy	850.0 ksi
Density	31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 10.667 ft, (Floor Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.418 : 1	Maximum Shear Stress Ratio	=	0.270 : 1
Section used for this span		5.125x16.5	Section used for this span		5.125x16.5
fb: Actual	=	999.05 psi	fv: Actual	=	71.44 psi
F'b	=	2,388.86 psi	F'v	=	265.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	8.000 ft	Location of maximum on span	=	14.657 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.183 in	Ratio =	1047 >=480	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <480	n/a
Max Downward Total Deflection	0.260 in	Ratio =	738 >=360	Span: 1 : +D+L
Max Upward Total Deflection	0 in	Ratio =	0 <360	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_V	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 16.0 ft	1	0.137	0.088	0.90	1.00	1.00	1.00	0.995	1.00	1.00	1.00	5.71	294.5	2,150.0	1.19	21.1	238.5
+D+L					1.00	1.00	1.00	0.995	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 16.0 ft	1	0.418	0.270	1.00	1.00	1.00	1.00	0.995	1.00	1.00	1.00	19.36	999.0	2,388.9	4.03	71.4	265.0
+D+0.750L					1.00	1.00	1.00	0.995	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 16.0 ft	1	0.276	0.178	1.25	1.00	1.00	1.00	0.995	1.00	1.00	1.00	15.95	822.9	2,986.1	3.32	58.8	331.3
+0.60D					1.00	1.00	1.00	0.995	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 16.0 ft	1	0.046	0.030	1.60	1.00	1.00	1.00	0.995	1.00	1.00	1.00	3.42	176.7	3,822.2	0.71	12.6	424.0

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM1 - Dropped Beam

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.2598	8.058		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	4.840	4.840
Max Upward from Load Combinations	4.840	4.840
Max Upward from Load Cases	3.413	3.413
D Only	1.427	1.427
+D+L	4.840	4.840
+D+0.750L	3.987	3.987
+0.60D	0.856	0.856
L Only	3.413	3.413

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM1.1 - Dropped Beam

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

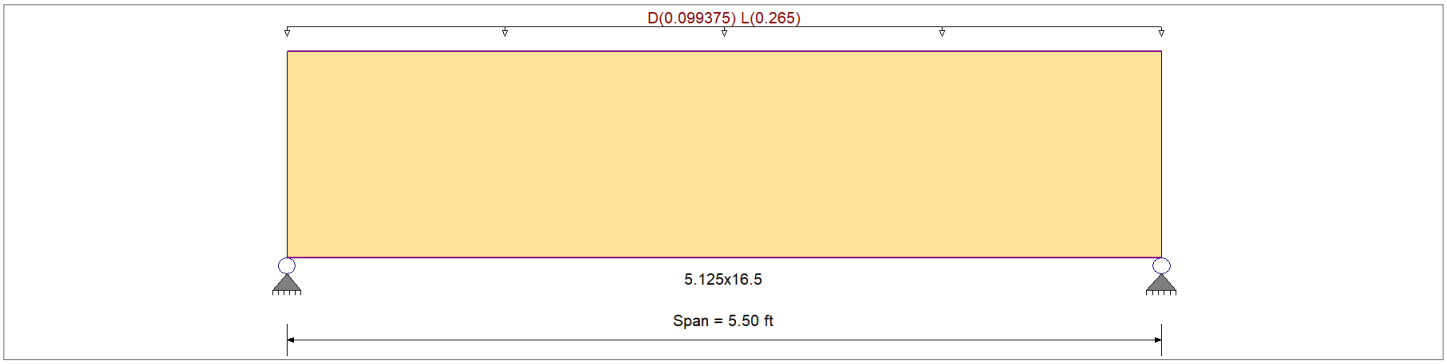
Wood Species : DF/DF
Wood Grade : 24F-V4

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2,400.0 psi
Fb -	1,850.0 psi
Fc - Prll	1,650.0 psi
Fc - Perp	650.0 psi
Fv	265.0 psi
Ft	1,100.0 psi

E : Modulus of Elasticity

Ebend- xx	1,800.0 ksi
Eminbend - xx	950.0 ksi
Ebend- yy	1,600.0 ksi
Eminbend - yy	850.0 ksi
Density	31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 6.625 ft, (Floor Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.031 : 1	Maximum Shear Stress Ratio	=	0.035 : 1
Section used for this span		5.125x16.5	Section used for this span		5.125x16.5
fb: Actual	=	74.67 psi	fv: Actual	=	9.40 psi
F'b	=	2,400.00 psi	F'v	=	265.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	2.750 ft	Location of maximum on span	=	4.135 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.002 in	Ratio =	41531	>=480	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0	<480	n/a
Max Downward Total Deflection	0.002 in	Ratio =	28757	>=360	Span: 1 : +D+L
Max Upward Total Deflection	0 in	Ratio =	0	<360	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_V	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.011	0.012	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.45	23.0	2,160.0	0.16	2.9	238.5
+D+L					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.031	0.035	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	1.45	74.7	2,400.0	0.53	9.4	265.0
+D+0.750L					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.021	0.023	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	1.20	61.7	3,000.0	0.44	7.8	331.3
+0.60D					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.004	0.004	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	0.27	13.8	3,840.0	0.10	1.7	424.0

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM1.1 - Dropped Beam

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.0023	2.770		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	1.052	1.052
Max Upward from Load Combinations	1.052	1.052
Max Upward from Load Cases	0.729	0.729
D Only	0.324	0.324
+D+L	1.052	1.052
+D+0.750L	0.870	0.870
+0.60D	0.194	0.194
L Only	0.729	0.729

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM2 - Dropped Beam (Wood)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

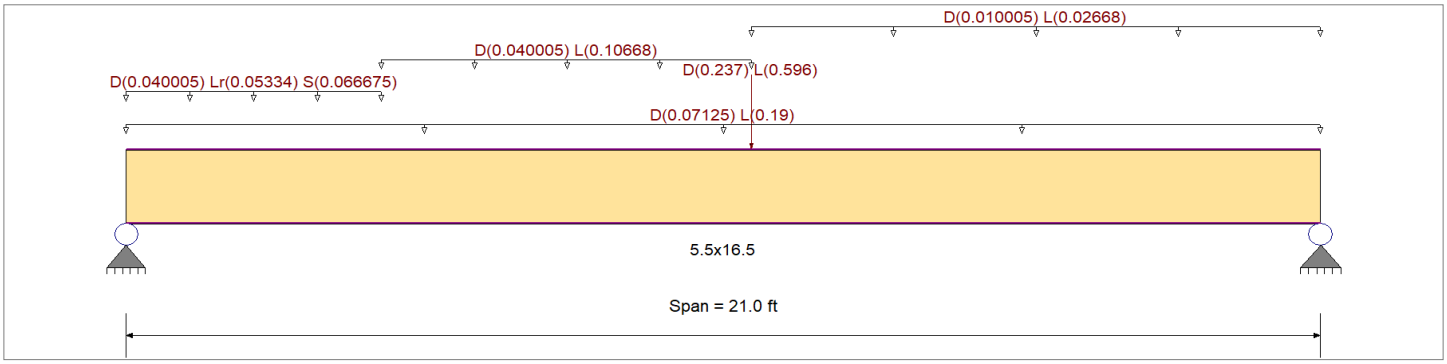
Wood Species : DF/DF
Wood Grade : 24F-V4

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2,400.0 psi
Fb -	1,850.0 psi
Fc - Prll	1,650.0 psi
Fc - Perp	650.0 psi
Fv	265.0 psi
Ft	1,100.0 psi

E : Modulus of Elasticity

Ebend- xx	1,800.0 ksi
Eminbend - xx	950.0 ksi
Ebend- yy	1,600.0 ksi
Eminbend - yy	850.0 ksi
Density	31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 4.750 ft, (Floor Load)
Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Extent = 0.0 -->> 4.50 ft, Tributary Width = 2.667 ft, (Roof Load)
Uniform Load : D = 0.0150, L = 0.040 ksf, Extent = 4.50 -->> 11.0 ft, Tributary Width = 2.667 ft, (Floor Load (Perp))
Uniform Load : D = 0.0150, L = 0.040 ksf, Extent = 11.0 -->> 21.0 ft, Tributary Width = 0.6670 ft, (Floor Load (Parallel))
Point Load : D = 0.2370, L = 0.5960 k @ 11.0 ft, (RXN UJ3)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.510 : 1	Maximum Shear Stress Ratio	=	0.236 : 1
Section used for this span		5.5x16.5	Section used for this span		5.5x16.5
fb: Actual	=	1,177.44 psi	fv: Actual	=	62.44 psi
F'b	=	2,308.42 psi	F'v	=	265.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	10.960 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.349 in	Ratio =	722 >=480	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <480	n/a
Max Downward Total Deflection	0.509 in	Ratio =	495 >=360	Span: 1 : +D+L
Max Upward Total Deflection	0 in	Ratio =	0 <360	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_V	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 21.0 ft	1	0.177	0.086	0.90	1.00	1.00	1.00	0.962	1.00	1.00	1.00	7.66	368.3	2,077.6	1.25	20.6	238.5
+D+L					1.00	1.00	1.00	0.962	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 21.0 ft	1	0.510	0.236	1.00	1.00	1.00	1.00	0.962	1.00	1.00	1.00	24.49	1,177.4	2,308.4	3.78	62.4	265.0
+D+Lr					1.00	1.00	1.00	0.962	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 21.0 ft	1	0.132	0.069	1.25	1.00	1.00	1.00	0.962	1.00	1.00	1.00	7.92	381.0	2,885.5	1.39	23.0	331.3
+D+S					1.00	1.00	1.00	0.962	1.00	1.00	1.00			0.0	0.00	0.0	0.0

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM2 - Dropped Beam (Wood)

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_V	Cfu	C_i	C_r	M	fb	F'b	V	fv	F'v
Length = 21.0 ft	**1**	0.145	0.077	1.15	1.00	1.00	1.00	0.962	1.00	1.00	1.00	7.99	384.2	2,654.7	1.43	23.6	304.8
+D+0.750Lr+0.750L					1.00	1.00	1.00	0.962	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 21.0 ft	**1**	0.341	0.162	1.25	1.00	1.00	1.00	0.962	1.00	1.00	1.00	20.47	984.5	2,885.5	3.25	53.8	331.3
+D+0.750L+0.750S					1.00	1.00	1.00	0.962	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 21.0 ft	**1**	0.372	0.178	1.15	1.00	1.00	1.00	0.962	1.00	1.00	1.00	20.52	986.9	2,654.7	3.28	54.2	304.8
+0.60D					1.00	1.00	1.00	0.962	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 21.0 ft	**1**	0.060	0.029	1.60	1.00	1.00	1.00	0.962	1.00	1.00	1.00	4.60	221.0	3,693.5	0.75	12.4	424.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.5091	10.500		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	4.196	4.037
Max Upward from Load Combinations	4.196	4.037
Max Upward from Load Cases	2.780	2.766
D Only	1.416	1.270
+D+L	4.196	4.037
+D+Lr	1.630	1.296
+D+S	1.684	1.302
+D+0.750Lr+0.750L	3.662	3.364
+D+0.750L+0.750S	3.702	3.369
+0.60D	0.850	0.762
Lr Only	0.214	0.026
L Only	2.780	2.766
S Only	0.268	0.032

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM2 - Dropped Beam (Steel)

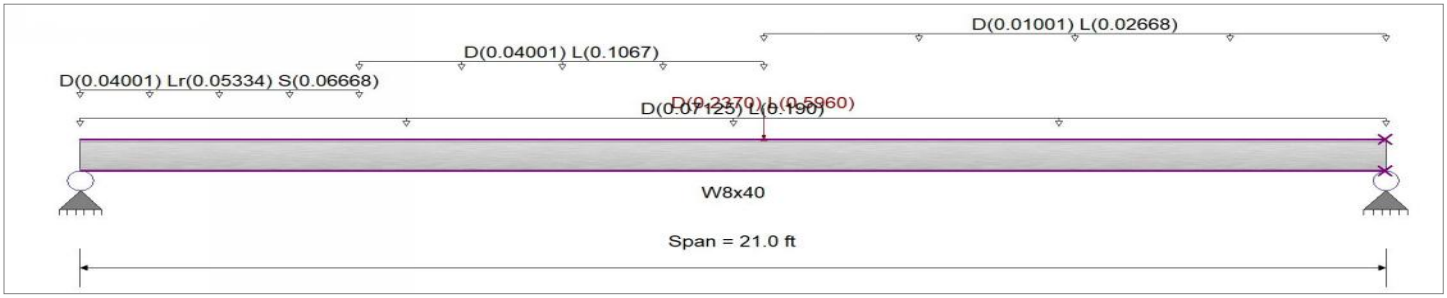
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Strength Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 4.750 ft, (Floor Load)

Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Extent = 0.0 -->> 4.50 ft, Tributary Width = 2.667 ft, (Roof Load)

Uniform Load : D = 0.0150, L = 0.040 ksf, Extent = 4.50 -->> 11.0 ft, Tributary Width = 2.667 ft, (Floor Load (Perp))

Uniform Load : D = 0.0150, L = 0.040 ksf, Extent = 11.0 -->> 21.0 ft, Tributary Width = 0.6670 ft, (Floor Load (Parallel))

Point Load : D = 0.2370, L = 0.5960 k @ 11.0 ft, (RXN UJ3)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.258 : 1	Maximum Shear Stress Ratio =	0.074 : 1
Section used for this span	W8x40	Section used for this span	W8x40
Ma : Applied	25.606 k-ft	Va : Applied	4.409 k
Mn / Omega : Allowable	99.301 k-ft	Vn/Omega : Allowable	59.40 k
Load Combination	+D+L	Load Combination	+D+L
		Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.305 in	Ratio =	826	>=480.	
Max Upward Transient Deflection	0.000 in	Ratio =	0	<480.0	Span: 1 : L Only
Max Downward Total Deflection	0.466 in	Ratio =	541	>=360.	Span: 1 : +D+L
Max Upward Total Deflection	0.000 in	Ratio =	0	<360.0	

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	VnxVnx/Omega
D Only												
Dsgn. L = 21.00 ft	1	0.088	0.027	8.78		8.78	165.83	99.30	1.00	1.00	1.63	89.10 59.40
+D+L												
Dsgn. L = 21.00 ft	1	0.258	0.074	25.61		25.61	165.83	99.30	1.00	1.00	4.41	89.10 59.40
+D+Lr												
Dsgn. L = 21.00 ft	1	0.091	0.031	9.04		9.04	165.83	99.30	1.00	1.00	1.84	89.10 59.40
+D+S												
Dsgn. L = 21.00 ft	1	0.092	0.032	9.11		9.11	165.83	99.30	1.00	1.00	1.90	89.10 59.40
+D+0.750Lr+0.750L												
Dsgn. L = 21.00 ft	1	0.217	0.065	21.59		21.59	165.83	99.30	1.00	1.00	3.88	89.10 59.40
+D+0.750L+0.750S												
Dsgn. L = 21.00 ft	1	0.218	0.066	21.64		21.64	165.83	99.30	1.00	1.00	3.92	89.10 59.40

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM2 - Dropped Beam (Steel)

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	VnxVnx/Omega
+0.60D												
Dsgn. L = 21.00 ft	1	0.053	0.016	5.27		5.27	165.83	99.30	1.00	1.00	0.98	89.10 59.40

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.4661	10.500		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	
Max Upward from all Load Conditions	4.409	4.250	-1.497
Max Upward from Load Combinations	4.409	4.250	-1.497
Max Upward from Load Cases	2.780	2.766	-1.497
Max Downward from all Load Conditions (Resis			-1.497
Max Downward from Load Combinations (Resis			-1.497
Max Downward from Load Cases (Resisting Up			-1.497
D Only	1.630	1.484	-1.497
+D+L	4.409	4.250	-1.497
+D+Lr	1.844	1.509	-1.497
+D+S	1.897	1.516	-1.497
+D+0.750Lr+0.750L	3.875	3.578	-1.497
+D+0.750L+0.750S	3.915	3.583	-1.497
+0.60D	0.978	0.890	-1.497
Lr Only	0.214	0.026	-1.497
L Only	2.780	2.766	-1.497
S Only	0.268	0.032	-1.497

Dibble Engineers, Inc.
1029 Market Street
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Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM2 (Lateral) - Dropped Beam (Steel)

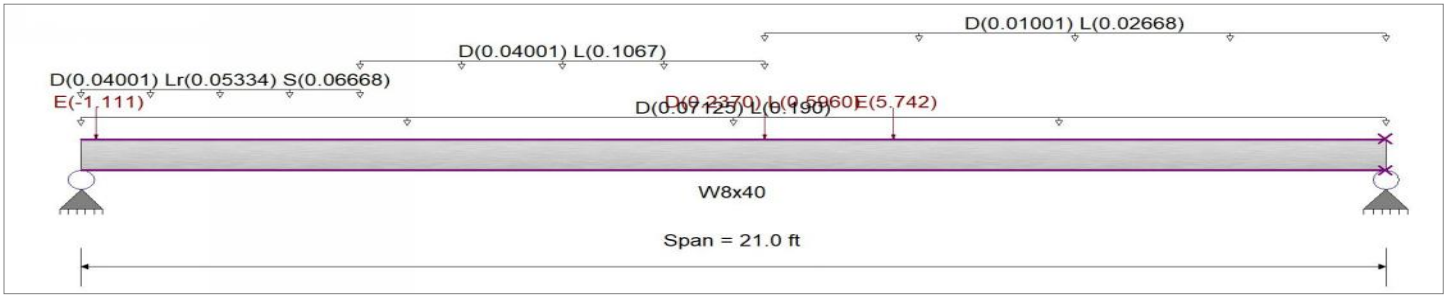
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Strength Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading

Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 4.750 ft, (Floor Load)

Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Extent = 0.0 -->> 4.50 ft, Tributary Width = 2.667 ft, (Roof Load)

Uniform Load : D = 0.0150, L = 0.040 ksf, Extent = 4.50 -->> 11.0 ft, Tributary Width = 2.667 ft, (Floor Load (Perp))

Uniform Load : D = 0.0150, L = 0.040 ksf, Extent = 11.0 -->> 21.0 ft, Tributary Width = 0.6670 ft, (Floor Load (Parallel))

Point Load : D = 0.2370, L = 0.5960 k @ 11.0 ft, (RXN UJ3)

Point Load : E = -1.111 k @ 0.250 ft, (SW 3.A)

Point Load : E = 5.742 k @ 13.083 ft, (SW 3.A)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	**0.346** : 1	Maximum Shear Stress Ratio =	**0.092** : 1
Section used for this span	**W8x40**	Section used for this span	**W8x40**
Ma : Applied	34.350 k-ft	Va : Applied	5.454 k
Mn / Omega : Allowable	99.301 k-ft	Vn/Omega : Allowable	59.40 k
Load Combination	+D+0.750L+0.750S+0.5250E	Load Combination	+D+0.750L+0.750S+0.5250E
		Location of maximum on span	21.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.415 in	Ratio =	606	>=480.
Max Upward Transient Deflection	0.000 in	Ratio =	0	<480.0 Span: 1 : E Only
Max Downward Total Deflection	0.613 in	Ratio =	411	>=360. Span: 1 : +D+0.750L+0.750S+0.5250E
Max Upward Total Deflection	0.000 in	Ratio =	0	<360.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	VnxVnx/Omega
D Only												
Dsgn. L = 21.00 ft	1	0.088	0.027	8.78		8.78	165.83	99.30	1.00	1.00	1.63	89.10 59.40
+D+L												
Dsgn. L = 21.00 ft	1	0.258	0.074	25.61		25.61	165.83	99.30	1.00	1.00	4.41	89.10 59.40
+D+Lr												
Dsgn. L = 21.00 ft	1	0.091	0.031	9.04		9.04	165.83	99.30	1.00	1.00	1.84	89.10 59.40
+D+S												

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Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM2 (Lateral) - Dropped Beam (Steel)

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	VnxVnx/Omega
Dsgn. L = 21.00 ft +D+0.750Lr+0.750L	1	0.092	0.032	9.11		9.11	165.83	99.30	1.00	1.00	1.90	89.10 59.40
Dsgn. L = 21.00 ft +D+0.750L+0.750S	1	0.217	0.065	21.59		21.59	165.83	99.30	1.00	1.00	3.88	89.10 59.40
Dsgn. L = 21.00 ft +D+0.70E	1	0.218	0.066	21.64		21.64	165.83	99.30	1.00	1.00	3.92	89.10 59.40
Dsgn. L = 21.00 ft +D+0.750L+0.750S+0.5250E	1	0.279	0.067	27.70		27.70	165.83	99.30	1.00	1.00	3.98	89.10 59.40
Dsgn. L = 21.00 ft +0.60D	1	0.346	0.092	34.35		34.35	165.83	99.30	1.00	1.00	5.45	89.10 59.40
Dsgn. L = 21.00 ft +0.60D+0.70E	1	0.053	0.016	5.27		5.27	165.83	99.30	1.00	1.00	0.98	89.10 59.40
Dsgn. L = 21.00 ft	1	0.247	0.057	24.52		24.52	165.83	99.30	1.00	1.00	3.39	89.10 59.40

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S+0.5250E	1	0.6127	10.740		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	4.476	5.454
Max Upward from Load Combinations	4.476	5.454
Max Upward from Load Cases	2.780	3.564
D Only	1.630	1.484
+D+L	4.409	4.250
+D+Lr	1.844	1.509
+D+S	1.897	1.516
+D+0.750Lr+0.750L	3.875	3.578
+D+0.750L+0.750S	3.915	3.583
+D+0.70E	2.376	3.979
+D+0.750L+0.750S+0.5250E	4.476	5.454
+0.60D	0.978	0.890
+0.60D+0.70E	1.725	3.385
Lr Only	0.214	0.026
L Only	2.780	2.766
S Only	0.268	0.032
E Only	1.067	3.564

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM3 - Support UBM2 HDR

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

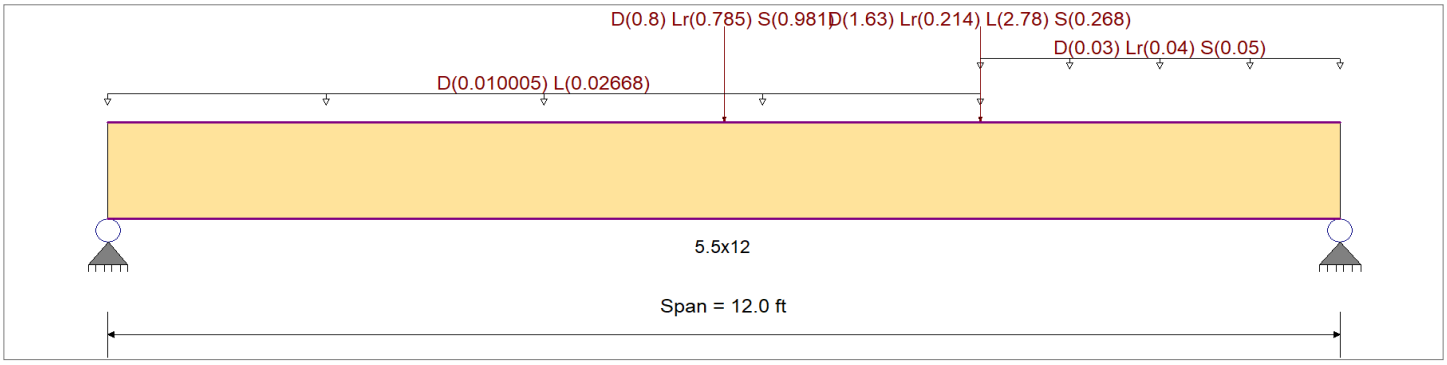
Wood Species : DF/DF
Wood Grade : 24F-V4

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2400 psi
Fb -	1850 psi
Fc - Prll	1650 psi
Fc - Perp	650 psi
Fv	265 psi
Ft	1100 psi

E : Modulus of Elasticity

Ebend- xx	1800 ksi
Eminbend - xx	950 ksi
Ebend- yy	1600 ksi
Eminbend - yy	850 ksi
Density	31.21 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0150, L = 0.040 ksf, Extent = 0.0 -->> 8.50 ft, Tributary Width = 0.6670 ft, (Floor Load)
Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Extent = 8.50 -->> 12.0 ft, Tributary Width = 2.0 ft, (Roof)
Point Load : D = 1.630, Lr = 0.2140, L = 2.780, S = 0.2680 k @ 8.50 ft, (RXN UBM2)
Point Load : D = 0.80, Lr = 0.7850, S = 0.9810 k @ 6.0 ft, (RHDR2)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.495 : 1	Maximum Shear Stress Ratio	=	0.323 : 1
Section used for this span		5.5x12	Section used for this span		5.5x12
fb: Actual	=	1,187.26 psi	fv: Actual	=	85.61 psi
F'b	=	2,400.00 psi	F'v	=	265.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	8.496 ft	Location of maximum on span	=	11.036 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.103 in	Ratio =	1401 >=600	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <600	n/a
Max Downward Total Deflection	0.219 in	Ratio =	658 >=600	Span: 1 : +D+0.750L+0.750S
Max Upward Total Deflection	0 in	Ratio =	0 <600	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_V	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 12.0 ft	1	0.248	0.164	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.89	535.4	2,160.0	1.72	39.0	238.5
+D+L					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 12.0 ft	1	0.495	0.323	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	13.06	1,187.3	2,400.0	3.77	85.6	265.0
+D+Lr					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 12.0 ft	1	0.261	0.161	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	8.60	782.1	3,000.0	2.34	53.2	331.3
+D+S					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM3 - Support UBM2 HDR

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_V	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 12.0 ft	**1**	0.307	0.186	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	9.32	846.9	2,760.0	2.50	56.8	304.8
+D+0.750Lr+0.750L					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 12.0 ft	**1**	0.389	0.255	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	12.83	1,166.0	3,000.0	3.72	84.6	331.3
+D+0.750L+0.750S					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 12.0 ft	**1**	0.435	0.286	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	13.22	1,201.5	2,760.0	3.84	87.3	304.8
+0.60D					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 12.0 ft	**1**	0.084	0.055	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.53	321.2	3,840.0	1.03	23.4	424.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S	1	0.2186	6.394		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	2.195	3.920
Max Upward from Load Combinations	2.195	3.920
Max Upward from Load Cases	1.031	2.049
D Only	1.031	1.760
+D+L	1.989	3.810
+D+Lr	1.507	2.424
+D+S	1.626	2.590
+D+0.750Lr+0.750L	2.106	3.795
+D+0.750L+0.750S	2.195	3.920
+0.60D	0.619	1.056
Lr Only	0.475	0.664
L Only	0.957	2.049
S Only	0.594	0.830

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Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam

Project File: Seifert Calcultions.ec6

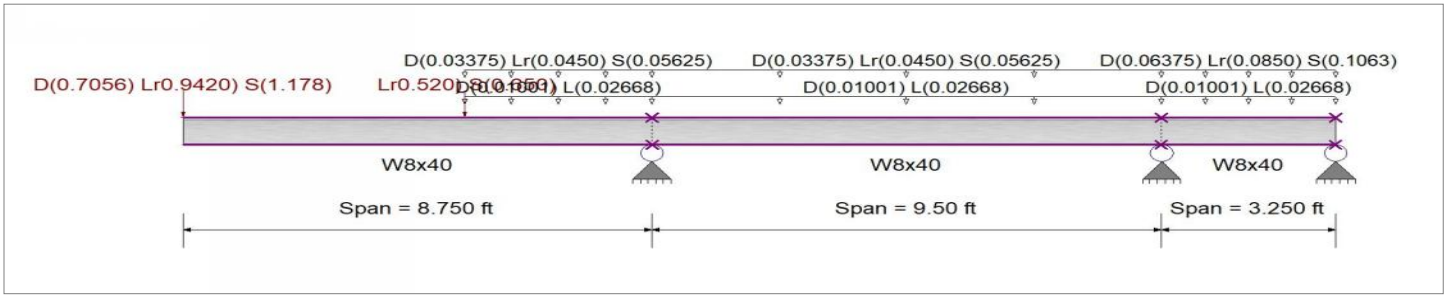
DESCRIPTION: UBM4 - Rim/Discontinuous SW Support/Roof Support

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method :	Allowable Strength Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0150, L = 0.040 ksf, Extent = 5.250 -->> 8.750 ft, Tributary Width = 0.6670 ft, (Floor Load)

Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Extent = 5.250 -->> 8.750 ft, Tributary Width = 2.250 ft, (Roof Load)

Point Load : D = 0.7056, Lr = 0.9420, S = 1.178 k @ 0.0 ft, (Roof Tip)

Point Load : Lr = 0.520, S = 0.650 k @ 5.250 ft, (RXN UBMB.1)

Load for Span Number 2
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 0.6670 ft, (Floor Load)

Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 2.250 ft, (Roof Load)

Load for Span Number 3
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 0.6670 ft, (Floor Load)

Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 4.250 ft, (Roof Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.210 : 1	Maximum Shear Stress Ratio =	0.060 : 1
Section used for this span	W8x40	Section used for this span	W8x40
Ma : Applied	20.900 k-ft	Va : Applied	3.553 k
Mn / Omega : Allowable	99.301 k-ft	Vn/Omega : Allowable	59.40 k
Load Combination	+D+S	Load Combination	+D+S
		Location of maximum on span	8.750 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.236 in	Ratio =	889	>=360	Span: 3 : S Only
Max Upward Transient Deflection	-0.020 in	Ratio =	5,725	>=360	Span: 3 : S Only
Max Downward Total Deflection	0.381 in	Ratio =	552	>=180	Span: 3 : +D+S
Max Upward Total Deflection	-0.031 in	Ratio =	3667	>=180	Span: 3 : +D+S

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios		Summary of Moment Values					Summary of Shear Values	
Segment Length	Span #	M	V	Mmax +	Mmax -	Ma Max	Mnx Mnx/Omega Cb	Rm	Va Max	VnxVnx/Omega
D Only										

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Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM4 - Rim/Discontinuous SW Support/Roof Support

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	VnxVnx/Omega	
Dsgn. L = 8.75 ft	1	0.080	0.025		-7.97	7.97	165.83	99.30	1.00	1.00	1.47	89.10	59.40
Dsgn. L = 9.50 ft	2	0.080	0.025	2.23	-7.97	7.97	165.83	99.30	1.00	1.00	1.47	89.10	59.40
Dsgn. L = 3.25 ft	3	0.022	0.015	2.23		2.23	165.83	99.30	1.00	1.00	0.87	89.10	59.40
+D+L													
Dsgn. L = 8.75 ft	1	0.082	0.027		-8.14	8.14	165.83	99.30	1.00	1.00	1.60	89.10	59.40
Dsgn. L = 9.50 ft	2	0.082	0.027	2.06	-8.14	8.14	165.83	99.30	1.00	1.00	1.60	89.10	59.40
Dsgn. L = 3.25 ft	3	0.021	0.014	2.06		2.06	165.83	99.30	1.00	1.00	0.86	89.10	59.40
+D+Lr													
Dsgn. L = 8.75 ft	1	0.184	0.053		-18.31	18.31	165.83	99.30	1.00	1.00	3.14	89.10	59.40
Dsgn. L = 9.50 ft	2	0.184	0.053	5.67	-18.31	18.31	165.83	99.30	1.00	1.00	3.14	89.10	59.40
Dsgn. L = 3.25 ft	3	0.057	0.035	5.67		5.67	165.83	99.30	1.00	1.00	2.07	89.10	59.40
+D+S													
Dsgn. L = 8.75 ft	1	0.210	0.060		-20.90	20.90	165.83	99.30	1.00	1.00	3.55	89.10	59.40
Dsgn. L = 9.50 ft	2	0.210	0.060	6.54	-20.90	20.90	165.83	99.30	1.00	1.00	3.55	89.10	59.40
Dsgn. L = 3.25 ft	3	0.066	0.040	6.54		6.54	165.83	99.30	1.00	1.00	2.37	89.10	59.40
+D+0.750Lr+0.750L													
Dsgn. L = 8.75 ft	1	0.160	0.047		-15.85	15.85	165.83	99.30	1.00	1.00	2.81	89.10	59.40
Dsgn. L = 9.50 ft	2	0.160	0.047	4.68	-15.85	15.85	165.83	99.30	1.00	1.00	2.81	89.10	59.40
Dsgn. L = 3.25 ft	3	0.047	0.030	4.68		4.68	165.83	99.30	1.00	1.00	1.76	89.10	59.40
+D+0.750L+0.750S													
Dsgn. L = 8.75 ft	1	0.179	0.053		-17.79	17.79	165.83	99.30	1.00	1.00	3.13	89.10	59.40
Dsgn. L = 9.50 ft	2	0.179	0.053	5.33	-17.79	17.79	165.83	99.30	1.00	1.00	3.13	89.10	59.40
Dsgn. L = 3.25 ft	3	0.054	0.033	5.33		5.33	165.83	99.30	1.00	1.00	1.99	89.10	59.40
+0.60D													
Dsgn. L = 8.75 ft	1	0.048	0.015		-4.78	4.78	165.83	99.30	1.00	1.00	0.88	89.10	59.40
Dsgn. L = 9.50 ft	2	0.048	0.015	1.34	-4.78	4.78	165.83	99.30	1.00	1.00	0.88	89.10	59.40
Dsgn. L = 3.25 ft	3	0.013	0.009	1.34		1.34	165.83	99.30	1.00	1.00	0.52	89.10	59.40

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.3807	0.000		0.0000	0.000
	2	0.0000	0.000	+D+S	-0.0311	3.357
+D+S	3	0.0020	1.408		0.0000	3.357

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Max Upward from all Load Conditions		6.787	0.224	2.368
Max Upward from Load Combinations		6.787		2.368
Max Upward from Load Cases		4.106	0.224	1.498
Max Downward from all Load Conditions (Resis			-3.876	-0.010
Max Downward from Load Combinations (Resis			-3.876	
Max Downward from Load Cases (Resisting Up			-2.700	-0.010
D Only		2.680	-1.177	0.870
+D+L		2.900	-0.953	0.861
+D+Lr		5.964	-3.336	2.068
+D+S		6.787	-3.876	2.368
+D+0.750Lr+0.750L		5.308	-2.628	1.762
+D+0.750L+0.750S		5.924	-3.033	1.987
+0.60D		1.608	-0.706	0.522
Lr Only		3.284	-2.159	1.198
L Only		0.219	0.224	-0.010
S Only		4.106	-2.700	1.498

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Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam

Project File: Seifert Calcultions.ec6

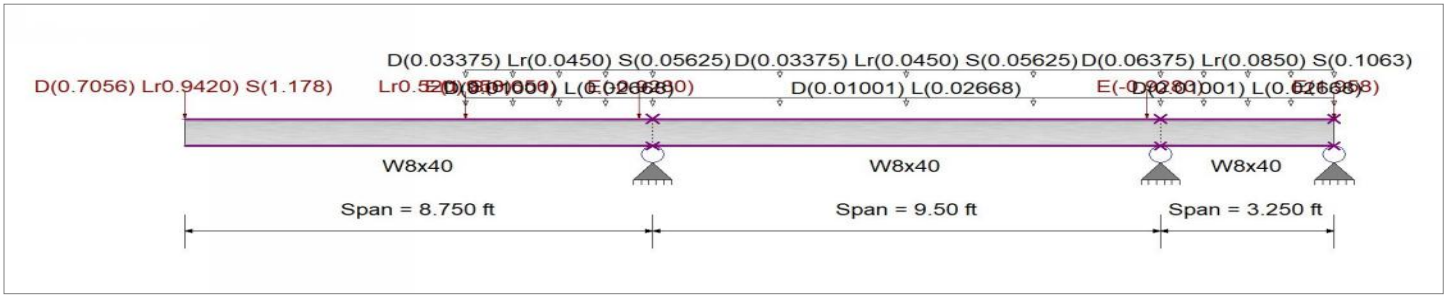
DESCRIPTION: UBM4 (Lateral) - Rim/Discontinuous SW Support/Roof Support

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method :	Allowable Strength Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0150, L = 0.040 ksf, Extent = 5.250 -->> 8.750 ft, Tributary Width = 0.6670 ft, (Floor Load)

Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Extent = 5.250 -->> 8.750 ft, Tributary Width = 2.250 ft, (Roof Load)

Point Load : D = 0.7056, Lr = 0.9420, S = 1.178 k @ 0.0 ft, (Roof Tip)

Point Load : Lr = 0.520, S = 0.650 k @ 5.250 ft, (RXN UBMB.1)

Point Load : E = 1.958 k @ 5.250 ft, (SW A)

Point Load : E = -0.9280 k @ 8.50 ft, (SW A)

Load for Span Number 2
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 0.6670 ft, (Floor Load)

Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 2.250 ft, (Roof Load)

Point Load : E = -0.9280 k @ 9.250 ft, (SW A)

Load for Span Number 3
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 0.6670 ft, (Floor Load)

Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 4.250 ft, (Roof Load)

Point Load : E = 1.958 k @ 3.250 ft, (SW A)

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM4 (Lateral) - Rim/Discontinuous SW Support/Roof Support

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.214 : 1	Maximum Shear Stress Ratio =	0.064 : 1
Section used for this span	W8x40	Section used for this span	W8x40
Ma : Applied	21.267 k-ft	Va : Applied	3.783 k
Mn / Omega : Allowable	99.301 k-ft	Vn/Omega : Allowable	59.40 k
Load Combination	+D+0.750L+0.750S+0.5250E	Load Combination	+D+0.750L+0.750S+0.5250E
		Location of maximum on span	8.458 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.236 in	Ratio =	889	>=360	Span: 3 : S Only
Max Upward Transient Deflection	-0.020 in	Ratio =	5,725	>=360	Span: 3 : S Only
Max Downward Total Deflection	0.381 in	Ratio =	552	>=180	Span: 3 : +D+S
Max Upward Total Deflection	-0.032 in	Ratio =	3607	>=180	Span: 3 : +D+0.750L+0.750S+0.5250E

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	VnxVnx/Omega
D Only												
Dsgn. L = 8.75 ft	1	0.080	0.025		-7.97	7.97	165.83	99.30	1.00	1.00	1.47	89.10 59.40
Dsgn. L = 9.50 ft	2	0.080	0.025	2.23	-7.97	7.97	165.83	99.30	1.00	1.00	1.47	89.10 59.40
Dsgn. L = 3.25 ft	3	0.022	0.015	2.23		2.23	165.83	99.30	1.00	1.00	0.87	89.10 59.40
+D+L												
Dsgn. L = 8.75 ft	1	0.082	0.027		-8.14	8.14	165.83	99.30	1.00	1.00	1.60	89.10 59.40
Dsgn. L = 9.50 ft	2	0.082	0.027	2.06	-8.14	8.14	165.83	99.30	1.00	1.00	1.60	89.10 59.40
Dsgn. L = 3.25 ft	3	0.021	0.014	2.06		2.06	165.83	99.30	1.00	1.00	0.86	89.10 59.40
+D+Lr												
Dsgn. L = 8.75 ft	1	0.184	0.053		-18.31	18.31	165.83	99.30	1.00	1.00	3.14	89.10 59.40
Dsgn. L = 9.50 ft	2	0.184	0.053	5.67	-18.31	18.31	165.83	99.30	1.00	1.00	3.14	89.10 59.40
Dsgn. L = 3.25 ft	3	0.057	0.035	5.67		5.67	165.83	99.30	1.00	1.00	2.07	89.10 59.40
+D+S												
Dsgn. L = 8.75 ft	1	0.210	0.060		-20.90	20.90	165.83	99.30	1.00	1.00	3.55	89.10 59.40
Dsgn. L = 9.50 ft	2	0.210	0.060	6.54	-20.90	20.90	165.83	99.30	1.00	1.00	3.55	89.10 59.40
Dsgn. L = 3.25 ft	3	0.066	0.040	6.54		6.54	165.83	99.30	1.00	1.00	2.37	89.10 59.40
+D+0.750Lr+0.750L												
Dsgn. L = 8.75 ft	1	0.160	0.047		-15.85	15.85	165.83	99.30	1.00	1.00	2.81	89.10 59.40
Dsgn. L = 9.50 ft	2	0.160	0.047	4.68	-15.85	15.85	165.83	99.30	1.00	1.00	2.81	89.10 59.40
Dsgn. L = 3.25 ft	3	0.047	0.030	4.68		4.68	165.83	99.30	1.00	1.00	1.76	89.10 59.40
+D+0.750L+0.750S												
Dsgn. L = 8.75 ft	1	0.179	0.053		-17.79	17.79	165.83	99.30	1.00	1.00	3.13	89.10 59.40
Dsgn. L = 9.50 ft	2	0.179	0.053	5.33	-17.79	17.79	165.83	99.30	1.00	1.00	3.13	89.10 59.40
Dsgn. L = 3.25 ft	3	0.054	0.033	5.33		5.33	165.83	99.30	1.00	1.00	1.99	89.10 59.40
+D+0.70E												
Dsgn. L = 8.75 ft	1	0.127	0.043		-12.61	12.61	165.83	99.30	1.00	1.00	2.55	89.10 59.40
Dsgn. L = 9.50 ft	2	0.127	0.036	4.07	-12.61	12.61	165.83	99.30	1.00	1.00	2.14	89.10 59.40
Dsgn. L = 3.25 ft	3	0.041	0.047	4.07		4.07	165.83	99.30	1.00	1.00	2.81	89.10 59.40
+D+0.750L+0.750S+0.5250E												
Dsgn. L = 8.75 ft	1	0.214	0.064		-21.27	21.27	165.83	99.30	1.00	1.00	3.78	89.10 59.40
Dsgn. L = 9.50 ft	2	0.214	0.061	6.71	-21.27	21.27	165.83	99.30	1.00	1.00	3.63	89.10 59.40
Dsgn. L = 3.25 ft	3	0.068	0.058	6.71		6.71	165.83	99.30	1.00	1.00	3.44	89.10 59.40
+0.60D												
Dsgn. L = 8.75 ft	1	0.048	0.015		-4.78	4.78	165.83	99.30	1.00	1.00	0.88	89.10 59.40
Dsgn. L = 9.50 ft	2	0.048	0.015	1.34	-4.78	4.78	165.83	99.30	1.00	1.00	0.88	89.10 59.40
Dsgn. L = 3.25 ft	3	0.013	0.009	1.34		1.34	165.83	99.30	1.00	1.00	0.52	89.10 59.40
+0.60D+0.70E												
Dsgn. L = 8.75 ft	1	0.095	0.035		-9.42	9.42	165.83	99.30	1.00	1.00	2.08	89.10 59.40
Dsgn. L = 9.50 ft	2	0.095	0.029	3.18	-9.42	9.42	165.83	99.30	1.00	1.00	1.73	89.10 59.40
Dsgn. L = 3.25 ft	3	0.032	0.041	3.18		3.18	165.83	99.30	1.00	1.00	2.46	89.10 59.40

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.3807	0.000		0.0000	0.000
	2	0.0000	0.000	+D+0.750L+0.750S+0.5250E	-0.0316	3.357
+D+0.750L+0.750S+0.5250E	3	0.0020	1.408		0.0000	3.357

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Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM4 (Lateral) - Rim/Discontinuous SW Support/Roof Support

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Max Upward from all Load Conditions		6.964	0.224	3.440
Max Upward from Load Combinations		6.964		3.440
Max Upward from Load Cases		4.106	0.224	2.768
Max Downward from all Load Conditions (Resis			-4.444	-0.010
Max Downward from Load Combinations (Resi			-4.444	
Max Downward from Load Cases (Resisting Up			-2.700	-0.010
D Only		2.680	-1.177	0.870
+D+L		2.900	-0.953	0.861
+D+Lr		5.964	-3.336	2.068
+D+S		6.787	-3.876	2.368
+D+0.750Lr+0.750L		5.308	-2.628	1.762
+D+0.750L+0.750S		5.924	-3.033	1.987
+D+0.70E		4.066	-3.058	2.808
+D+0.750L+0.750S+0.5250E		6.964	-4.444	3.440
+0.60D		1.608	-0.706	0.522
+0.60D+0.70E		2.994	-2.587	2.460
Lr Only		3.284	-2.159	1.198
L Only		0.219	0.224	-0.010
S Only		4.106	-2.700	1.498
E Only		1.980	-2.688	2.768

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Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM5 - Cant. Kitchen Beam (Steel),

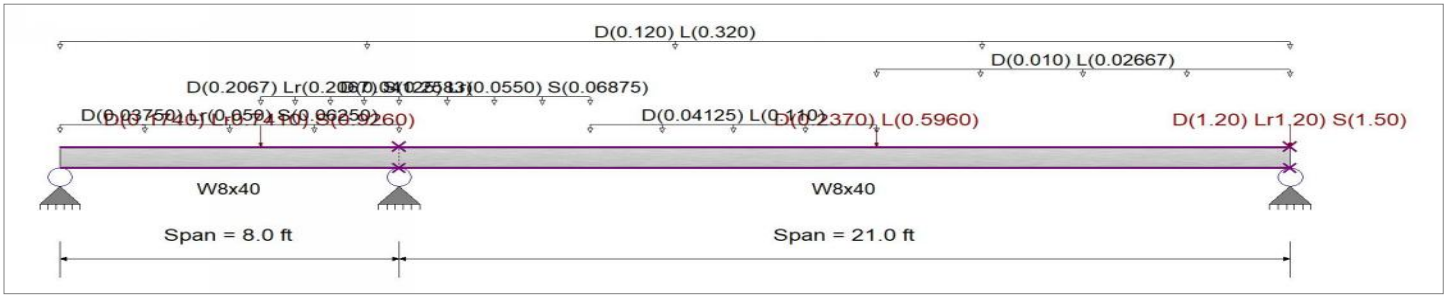
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Strength Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Loads on all spans...
Uniform Load on ALL spans : D = 0.0150, L = 0.040 ksf, Tributary Width = 8.0 ft

Load for Span Number 1
Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 2.50 ft, (Roof Load)

Point Load : D = 0.1740, Lr = 0.7410, S = 0.9260 k @ 4.750 ft, (GT3)

Uniform Load : D = 0.020, Lr = 0.020, S = 0.0250 ksf, Extent = 4.750 -->> 8.0 ft, Tributary Width = 10.333 ft, (Roof Load)

Load for Span Number 2
Uniform Load : D = 0.0150, L = 0.040 ksf, Extent = 4.50 -->> 11.250 ft, Tributary Width = 2.750 ft, (Floor Load)

Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Extent = 0.0 -->> 4.50 ft, Tributary Width = 2.750 ft, (Roof Load)

Uniform Load : D = 0.0150, L = 0.040 ksf, Extent = 11.250 -->> 21.0 ft, Tributary Width = 0.6667 ft, (Floor Load)

Point Load : D = 0.2370, L = 0.5960 k @ 11.250 ft, (UJ3)

Point Load : D = 1.20, Lr = 1.20, S = 1.50 k @ 21.0 ft, (RXN GT2)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.267 : 1	Maximum Shear Stress Ratio =	0.128 : 1
Section used for this span	W8x40	Section used for this span	W8x40
Ma : Applied	26.510 k-ft	Va : Applied	7.576 k
Mn / Omega : Allowable	99.301 k-ft	Vn/Omega : Allowable	59.40 k
Load Combination	+D+L	Load Combination	+D+L
		Location of maximum on span	8.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.246 in	Ratio =	1,022	>=480.	Span: 2 : L Only
Max Upward Transient Deflection	-0.023 in	Ratio =	4,192	>=480.	Span: 2 : L Only
Max Downward Total Deflection	0.360 in	Ratio =	700	>=360.	Span: 2 : +D+L
Max Upward Total Deflection	-0.031 in	Ratio =	3052	>=360.	Span: 2 : +D+L

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Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM5 - Cant. Kitchen Beam (Steel),

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	VnxVnx/Omega
D Only												
Dsgn. L = 8.00 ft	1	0.090	0.043		-8.91	8.91	165.83	99.30	1.00	1.00	2.58	89.10 59.40
Dsgn. L = 21.00 ft	2	0.090	0.047	7.36	-8.91	8.91	165.83	99.30	1.00	1.00	2.78	89.10 59.40
+D+L												
Dsgn. L = 8.00 ft	1	0.267	0.128		-26.51	26.51	165.83	99.30	1.00	1.00	7.58	89.10 59.40
Dsgn. L = 21.00 ft	2	0.267	0.128	23.25	-26.51	26.51	165.83	99.30	1.00	1.00	7.58	89.10 59.40
+D+Lr												
Dsgn. L = 8.00 ft	1	0.099	0.065	0.33	-9.85	9.85	165.83	99.30	1.00	1.00	3.83	89.10 59.40
Dsgn. L = 21.00 ft	2	0.099	0.067	7.19	-9.85	9.85	165.83	99.30	1.00	1.00	3.96	89.10 59.40
+D+S												
Dsgn. L = 8.00 ft	1	0.102	0.070	0.55	-10.08	10.08	165.83	99.30	1.00	1.00	4.16	89.10 59.40
Dsgn. L = 21.00 ft	2	0.102	0.072	7.15	-10.08	10.08	165.83	99.30	1.00	1.00	4.26	89.10 59.40
+D+0.750Lr+0.750L												
Dsgn. L = 8.00 ft	1	0.230	0.110		-22.81	22.81	165.83	99.30	1.00	1.00	6.53	89.10 59.40
Dsgn. L = 21.00 ft	2	0.230	0.110	19.15	-22.81	22.81	165.83	99.30	1.00	1.00	6.53	89.10 59.40
+D+0.750L+0.750S												
Dsgn. L = 8.00 ft	1	0.232	0.111		-22.99	22.99	165.83	99.30	1.00	1.00	6.58	89.10 59.40
Dsgn. L = 21.00 ft	2	0.232	0.111	19.11	-22.99	22.99	165.83	99.30	1.00	1.00	6.58	89.10 59.40
+0.60D												
Dsgn. L = 8.00 ft	1	0.054	0.026		-5.35	5.35	165.83	99.30	1.00	1.00	1.55	89.10 59.40
Dsgn. L = 21.00 ft	2	0.054	0.028	4.42	-5.35	5.35	165.83	99.30	1.00	1.00	1.67	89.10 59.40

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
	1	0.0000	0.000	+D+L	-0.0315	4.896
+D+L	2	0.3602	11.508		0.0000	4.896

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3	
Max Upward from all Load Conditions	0.650	13.598	6.379	1.498
Max Upward from Load Combinations	0.534	13.598	6.379	1.498
Max Upward from Load Cases	0.650	8.479	3.319	1.498
Max Downward from all Load Conditions (Resis	-1.037			1.498
Max Downward from Load Combinations (Resi	-1.037			1.498
Max Downward from Load Cases (Resisting Up	-0.920			1.498
D Only	-0.117	5.119	2.782	1.498
+D+L	-1.037	13.598	6.101	1.498
+D+Lr	0.404	6.677	3.964	1.498
+D+S	0.534	7.066	4.259	1.498
+D+0.750Lr+0.750L	-0.416	12.647	6.158	1.498
+D+0.750L+0.750S	-0.319	12.939	6.379	1.498
+0.60D	-0.070	3.071	1.669	1.498
Lr Only	0.520	1.558	1.182	1.498
L Only	-0.920	8.479	3.319	1.498
S Only	0.650	1.947	1.477	1.498

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM6 - Hanging Roof Section

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

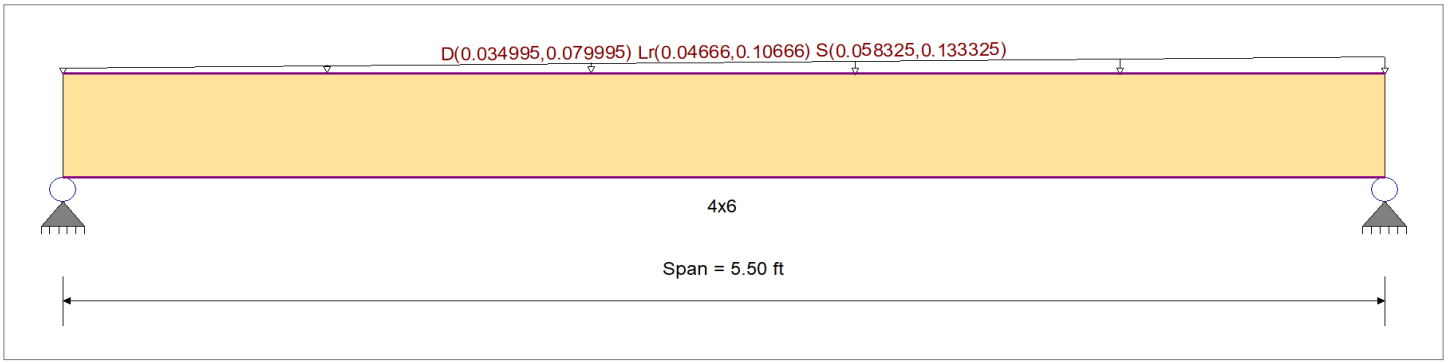
Material Properties

Analysis Method :	Allowable Stress Design
Load Combination :	IBC 2021
Wood Species :	Hem-Fir
Wood Grade :	No.2
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling

Fb +	850 psi
Fb -	850 psi
Fc - Prll	1300 psi
Fc - Perp	405 psi
Fv	150 psi
Ft	525 psi

E : Modulus of Elasticity

Ebend- xx	1300 ksi
Eminbend - xx	470 ksi
Density	26.84 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Varying Uniform Load : D= 0.0150->0.0150, Lr= 0.020->0.020, S= 0.0250->0.0250 ksf, Extent = 0.0 -->> 5.50 ft, Trib Width = 2.333->5.333 ft, (Roof Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.319 : 1	Maximum Shear Stress Ratio	=	0.177 : 1
Section used for this span		4x6	Section used for this span		4x6
fb: Actual	=	405.10 psi	fv: Actual	=	30.61 psi
F'b	=	1,270.75 psi	F'v	=	172.50 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	2.931 ft	Location of maximum on span	=	5.058 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.031 in	Ratio =	2097 >=360	Span: 1 : S Only
Max Upward Transient Deflection	0 in	Ratio =	0 <360	n/a
Max Downward Total Deflection	0.052 in	Ratio =	1281 >=180	Span: 1 : +D+S
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.159	0.088	0.90	1.00	1.00	1.00	1.300	1.00	1.00	1.00	0.23	157.7	994.5	0.15	11.9	135.0
+D+Lr					1.00	1.00	1.00	1.300	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.257	0.143	1.25	1.00	1.00	1.00	1.300	1.00	1.00	1.00	0.52	355.6	1,381.3	0.34	26.9	187.5
+D+S					1.00	1.00	1.00	1.300	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.319	0.177	1.15	1.00	1.00	1.00	1.300	1.00	1.00	1.00	0.60	405.1	1,270.8	0.39	30.6	172.5
+D+0.750Lr					1.00	1.00	1.00	1.300	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.222	0.123	1.25	1.00	1.00	1.00	1.300	1.00	1.00	1.00	0.45	306.1	1,381.3	0.30	23.1	187.5
+D+0.750S					1.00	1.00	1.00	1.300	1.00	1.00	1.00			0.0	0.00	0.0	0.0

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM6 - Hanging Roof Section

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 5.50 ft	**1**	0.270	0.150	1.15	1.00	1.00	1.00	1.300	1.00	1.00	1.00	0.50	343.2	1,270.8	0.33	25.9	172.5
+0.60D					1.00	1.00	1.00	1.300	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	**1**	0.054	0.030	1.60	1.00	1.00	1.00	1.300	1.00	1.00	1.00	0.14	94.6	1,768.0	0.09	7.1	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.0515	2.810		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	0.376	0.486
Max Upward from Load Combinations	0.376	0.486
Max Upward from Load Cases	0.229	0.298
D Only	0.147	0.189
+D+Lr	0.331	0.427
+D+S	0.376	0.486
+D+0.750Lr	0.285	0.367
+D+0.750S	0.319	0.412
+0.60D	0.088	0.113
Lr Only	0.183	0.238
S Only	0.229	0.298

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM7 - Cant. Kitchen Beam (2)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

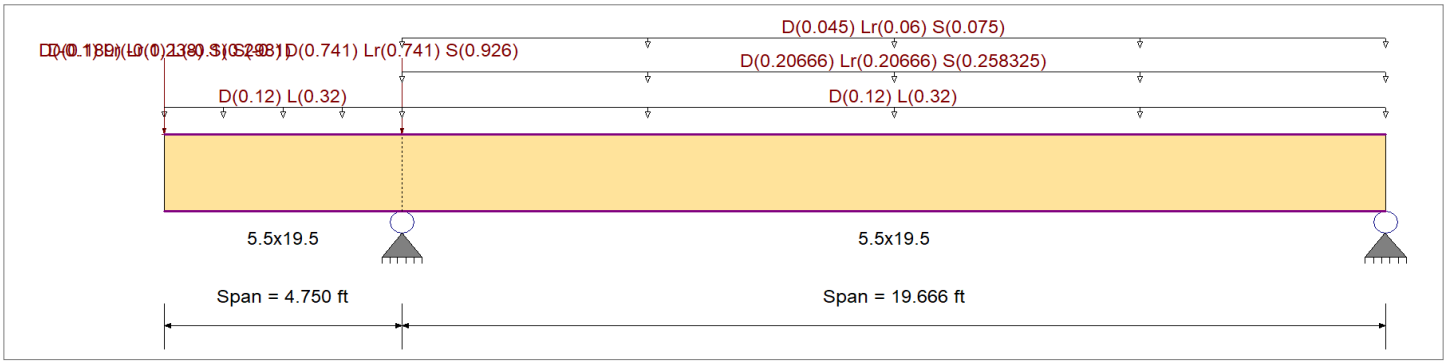
Wood Species : DF/DF
Wood Grade : 24F-V8

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2,400.0 psi
Fb -	2,400.0 psi
Fc - Prll	1,650.0 psi
Fc - Perp	650.0 psi
Fv	265.0 psi
Ft	1,100.0 psi

E : Modulus of Elasticity

Ebend- xx	1,800.0 ksi
Eminbend - xx	950.0 ksi
Ebend- yy	1,600.0 ksi
Eminbend - yy	850.0 ksi
Density	31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Point Load : D = -0.10, Lr = -0.10, L = -0.10, S = -0.10 k @ 0.0 ft, (RXN UBM4)
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 8.0 ft, (Floor Load)
Point Load : D = 0.7410, Lr = 0.7410, S = 0.9260 k @ 4.750 ft, (RXN GT3)
Point Load : D = 0.1890, Lr = 0.2380, S = 0.2980 k @ 0.0 ft, (UBM6)
Load for Span Number 2
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 8.0 ft, (Floor Load)
Uniform Load : D = 0.020, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 10.333 ft, (High Roof Load)
Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 3.0 ft, (Low Roof Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.528 : 1	Maximum Shear Stress Ratio	=	0.349 : 1
Section used for this span		5.5x19.5	Section used for this span		5.5x19.5
fb: Actual	=	1,386.37 psi	fv: Actual	=	106.28 psi
F'b	=	2,627.89 psi	F'v	=	304.75 psi
Load Combination		+D+0.750L+0.750S	Load Combination		+D+0.750L+0.750S
Location of maximum on span	=	10.108 ft	Location of maximum on span	=	4.750 ft
Span # where maximum occurs	=	Span # 2	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.179 in	Ratio =	1322 >=360	Span: 2 : S Only
Max Upward Transient Deflection	-0.131 in	Ratio =	866 >=360	Span: 1 : S Only
Max Downward Total Deflection	0.456 in	Ratio =	517 >=180	Span: 2 : +D+0.750L+0.750S
Max Upward Total Deflection	-0.323 in	Ratio =	352 >=180	Span: 1 : +D+0.750L+0.750S

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_V	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.032	0.198	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.04	70.2	2,160.0	3.38	47.3	238.5
Length = 19.666 ft	2	0.303	0.198	0.90	1.00	1.00	1.00	0.952	1.00	1.00	1.00	18.09	622.6	2,056.6	3.38	47.3	238.5

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM7 - Cant. Kitchen Beam (2)

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_V	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+L					1.00	1.00	1.00	0.952	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.074	0.327	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.17	178.1	2,400.0	6.19	86.6	265.0
Length = 19.666 ft	2	0.482	0.327	1.00	1.00	1.00	1.00	0.952	1.00	1.00	1.00	32.02	1,102.5	2,285.1	6.19	86.6	265.0
+D+Lr					1.00	1.00	1.00	0.952	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.031	0.237	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.69	92.8	3,000.0	5.62	78.7	331.3
Length = 19.666 ft	2	0.369	0.237	1.25	1.00	1.00	1.00	0.952	1.00	1.00	1.00	30.65	1,055.2	2,856.4	5.62	78.7	331.3
+D+S					1.00	1.00	1.00	0.952	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.037	0.284	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.98	102.6	2,760.0	6.19	86.6	304.8
Length = 19.666 ft	2	0.442	0.284	1.15	1.00	1.00	1.00	0.952	1.00	1.00	1.00	33.73	1,161.3	2,627.9	6.19	86.6	304.8
+D+0.750Lr+0.750L					1.00	1.00	1.00	0.952	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.056	0.303	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.88	168.1	3,000.0	7.17	100.3	331.3
Length = 19.666 ft	2	0.457	0.303	1.25	1.00	1.00	1.00	0.952	1.00	1.00	1.00	37.96	1,306.8	2,856.4	7.17	100.3	331.3
+D+0.750L+0.750S					1.00	1.00	1.00	0.952	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.064	0.349	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.10	175.4	2,760.0	7.60	106.3	304.8
Length = 19.666 ft	2	0.528	0.349	1.15	1.00	1.00	1.00	0.952	1.00	1.00	1.00	40.27	1,386.4	2,627.9	7.60	106.3	304.8
+0.60D					1.00	1.00	1.00	0.952	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.011	0.067	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	1.22	42.1	3,840.0	2.03	28.4	424.0
Length = 19.666 ft	2	0.102	0.067	1.60	1.00	1.00	1.00	0.952	1.00	1.00	1.00	10.85	373.6	3,656.2	2.03	28.4	424.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
	1	0.0000	0.000	+D+0.750L+0.750S	-0.3229	0.000
+D+0.750L+0.750S	2	0.4560	9.998		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions		12.379	8.442
Max Upward from Load Combinations		12.379	8.442
Max Upward from Load Cases		5.497	3.779
D Only		5.497	3.779
+D+L		10.223	6.767
+D+Lr		9.032	6.368
+D+S		9.947	7.009
+D+0.750Lr+0.750L		11.692	7.961
+D+0.750L+0.750S		12.379	8.442
+0.60D		3.298	2.268
Lr Only		3.534	2.589
L Only		4.726	2.987
S Only		4.449	3.230

Dibble Engineers, Inc.
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(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM7 (Lateral) - Cant. Kitchen Beam (2)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

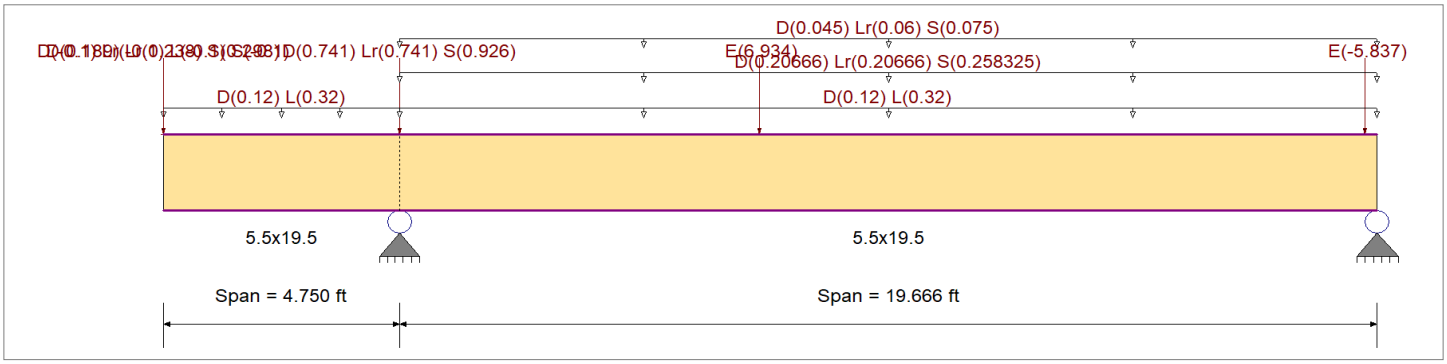
Wood Species : DF/DF
Wood Grade : 24F-V8

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2,400.0 psi
Fb -	2,400.0 psi
Fc - Prll	1,650.0 psi
Fc - Perp	650.0 psi
Fv	265.0 psi
Ft	1,100.0 psi

E : Modulus of Elasticity

Ebend- xx	1,800.0 ksi
Eminbend - xx	950.0 ksi
Ebend- yy	1,600.0 ksi
Eminbend - yy	850.0 ksi
Density	31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Point Load : D = -0.10, Lr = -0.10, L = -0.10, S = -0.10 k @ 0.0 ft, (RXN UBM4)
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 8.0 ft, (Floor Load)
Point Load : D = 0.7410, Lr = 0.7410, S = 0.9260 k @ 4.750 ft, (RXN GT3)
Point Load : D = 0.1890, Lr = 0.2380, S = 0.2980 k @ 0.0 ft, (UBM6)
Load for Span Number 2
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 8.0 ft, (Floor Load)
Uniform Load : D = 0.020, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 10.333 ft, (High Roof Load)
Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 3.0 ft, (Low Roof Load)
Point Load : E = 6.934 k @ 7.250 ft, (SW 2.A)
Point Load : E = -5.837 k @ 19.416 ft, (SW 2.A)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.528 : 1	Maximum Shear Stress Ratio	=	0.349 : 1
Section used for this span		5.5x19.5	Section used for this span		5.5x19.5
fb: Actual	=	1,386.37 psi	fv: Actual	=	106.28 psi
F'b	=	2,627.89 psi	F'v	=	304.75 psi
Load Combination		+D+0.750L+0.750S	Load Combination		+D+0.750L+0.750S
Location of maximum on span	=	10.108 ft	Location of maximum on span	=	4.750 ft
Span # where maximum occurs	=	Span # 2	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.276 in	Ratio =	855 >=360	Span: 2 : E Only
Max Upward Transient Deflection	-0.221 in	Ratio =	514 >=360	Span: 1 : E Only
Max Downward Total Deflection	0.600 in	Ratio =	393 >=180	Span: 2 : +D+0.750L+0.750S+0.5250E
Max Upward Total Deflection	-0.439 in	Ratio =	258 >=180	Span: 1 : +D+0.750L+0.750S+0.5250E

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_V	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.032	0.198	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.04	70.2	2,160.0	3.38	47.3	238.5

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM7 (Lateral) - Cant. Kitchen Beam (2)

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_V	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 19.666 ft	2	0.303	0.198	0.90	1.00	1.00	1.00	0.952	1.00	1.00	1.00	18.09	622.6	2,056.6	3.38	47.3	238.5
+D+L					1.00	1.00	1.00	0.952	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.074	0.327	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.17	178.1	2,400.0	6.19	86.6	265.0
Length = 19.666 ft	2	0.482	0.327	1.00	1.00	1.00	1.00	0.952	1.00	1.00	1.00	32.02	1,102.5	2,285.1	6.19	86.6	265.0
+D+Lr					1.00	1.00	1.00	0.952	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.031	0.237	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.69	92.8	3,000.0	5.62	78.7	331.3
Length = 19.666 ft	2	0.369	0.237	1.25	1.00	1.00	1.00	0.952	1.00	1.00	1.00	30.65	1,055.2	2,856.4	5.62	78.7	331.3
+D+S					1.00	1.00	1.00	0.952	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.037	0.284	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.98	102.6	2,760.0	6.19	86.6	304.8
Length = 19.666 ft	2	0.442	0.284	1.15	1.00	1.00	1.00	0.952	1.00	1.00	1.00	33.73	1,161.3	2,627.9	6.19	86.6	304.8
+D+0.750Lr+0.750L					1.00	1.00	1.00	0.952	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.056	0.303	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.88	168.1	3,000.0	7.17	100.3	331.3
Length = 19.666 ft	2	0.457	0.303	1.25	1.00	1.00	1.00	0.952	1.00	1.00	1.00	37.96	1,306.8	2,856.4	7.17	100.3	331.3
+D+0.750L+0.750S					1.00	1.00	1.00	0.952	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.064	0.349	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.10	175.4	2,760.0	7.60	106.3	304.8
Length = 19.666 ft	2	0.528	0.349	1.15	1.00	1.00	1.00	0.952	1.00	1.00	1.00	40.27	1,386.4	2,627.9	7.60	106.3	304.8
+D+0.70E					1.00	1.00	1.00	0.952	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.018	0.211	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.04	70.2	3,840.0	6.39	89.4	424.0
Length = 19.666 ft	2	0.361	0.211	1.60	1.00	1.00	1.00	0.952	1.00	1.00	1.00	38.33	1,319.5	3,656.2	6.39	89.4	424.0
+D+0.750L+0.750S+0.5250E					1.00	1.00	1.00	0.952	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.046	0.325	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.10	175.4	3,840.0	9.86	137.9	424.0
Length = 19.666 ft	2	0.506	0.325	1.60	1.00	1.00	1.00	0.952	1.00	1.00	1.00	53.76	1,850.7	3,656.2	9.86	137.9	424.0
+0.60D					1.00	1.00	1.00	0.952	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.011	0.067	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	1.22	42.1	3,840.0	2.03	28.4	424.0
Length = 19.666 ft	2	0.102	0.067	1.60	1.00	1.00	1.00	0.952	1.00	1.00	1.00	10.85	373.6	3,656.2	2.03	28.4	424.0
+0.60D+0.70E					1.00	1.00	1.00	0.952	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.011	0.166	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	1.22	42.1	3,840.0	5.04	70.5	424.0
Length = 19.666 ft	2	0.299	0.166	1.60	1.00	1.00	1.00	0.952	1.00	1.00	1.00	31.73	1,092.4	3,656.2	5.04	70.5	424.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
	1	0.0000	0.000	+D+0.750L+0.750S+0.5250E	-0.4391	0.000
+D+0.750L+0.750S+0.5250E	2	0.5997	9.778		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions		14.638	8.442
Max Upward from Load Combinations		14.638	8.442
Max Upward from Load Cases		5.497	3.779
Max Downward from all Load Conditio			-3.207
Max Downward from Load Cases (Resis			-3.207
D Only		5.497	3.779
+D+L		10.223	6.767
+D+Lr		9.032	6.368
+D+S		9.947	7.009
+D+0.750Lr+0.750L		11.692	7.961
+D+0.750L+0.750S		12.379	8.442
+D+0.70E		8.510	1.535
+D+0.750L+0.750S+0.5250E		14.638	6.759
+0.60D		3.298	2.268
+0.60D+0.70E		6.311	0.023
Lr Only		3.534	2.589

Dibble Engineers, Inc.
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Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM7 (Lateral) - Cant. Kitchen Beam (2)

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
L Only		4.726	2.987
S Only		4.449	3.230
E Only		4.304	-3.207

Dibble Engineers, Inc.
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM8 - Cant. Kitchen Beam (3)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

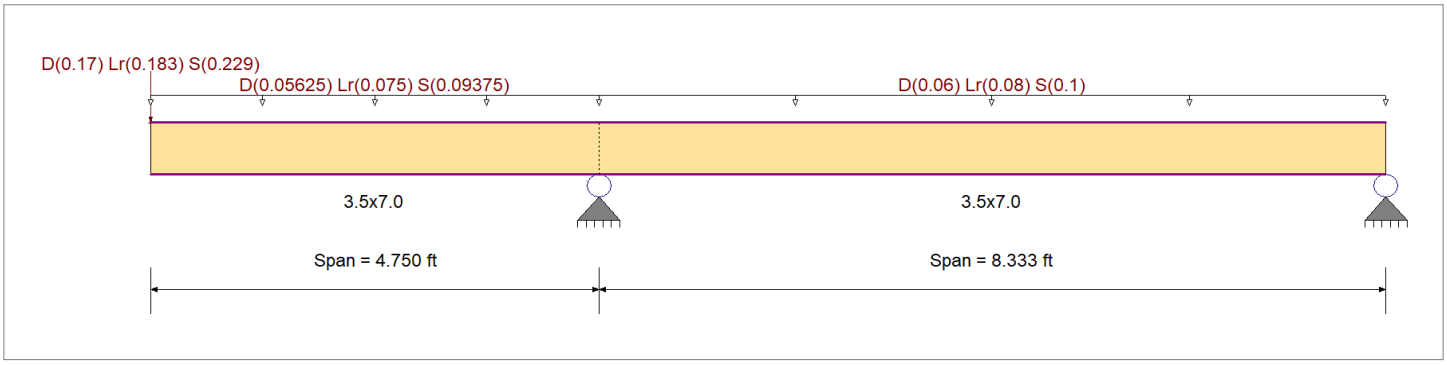
Wood Species : iLevel Truss Joist
Wood Grade : Parallam PSL 2.0E

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2900 psi
Fb -	2900 psi
Fc - Prll	2900 psi
Fc - Perp	750 psi
Fv	290 psi
Ft	2025 psi

E : Modulus of Elasticity

Ebend- xx	2000 ksi
Eminbend - xx	1016.535 ksi
Density	45.07 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Point Load : D = 0.170, Lr = 0.1830, S = 0.2290 k @ 0.0 ft, (RXN UBM6)
Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 3.750 ft, (Low Roof Load)
Load for Span Number 2
Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 4.0 ft, (Low Roof Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.436 : 1	Maximum Shear Stress Ratio	=	0.195 : 1
Section used for this span		3.5x7.0	Section used for this span		3.5x7.0
fb: Actual	=	1,542.41 psi	fv: Actual	=	64.90 psi
F'b	=	3,540.62 psi	F'v	=	333.50 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	4.750 ft	Location of maximum on span	=	4.193 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.268 in	Ratio =	424	>=360	Span: 1 : S Only
Max Upward Transient Deflection	-0.033 in	Ratio =	3013	>=360	Span: 2 : S Only
Max Downward Total Deflection	0.463 in	Ratio =	246	>=180	Span: 1 : +D+S
Max Upward Total Deflection	-0.058 in	Ratio =	1710	>=180	Span: 2 : +D+S

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.232	0.103	0.90	1.00	1.00	1.00	1.062	1.00	1.00	1.00	1.53	641.7	2,770.9	0.44	26.8	261.0
Length = 8.333 ft	2	0.232	0.103	0.90	1.00	1.00	1.00	1.062	1.00	1.00	1.00	1.53	641.7	2,770.9	0.43	26.8	261.0
+D+L					1.00	1.00	1.00	1.062	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	1	0.208	0.092	1.00	1.00	1.00	1.00	1.062	1.00	1.00	1.00	1.53	641.7	3,078.8	0.44	26.8	290.0
Length = 8.333 ft	2	0.208	0.092	1.00	1.00	1.00	1.00	1.062	1.00	1.00	1.00	1.53	641.7	3,078.8	0.43	26.8	290.0
+D+Lr					1.00	1.00	1.00	1.062	1.00	1.00	1.00			0.0	0.00	0.0	0.0

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM8 - Cant. Kitchen Beam (3)

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 4.750 ft	**1**	0.354	0.158	1.25	1.00	1.00	1.00	1.062	1.00	1.00	1.00	3.24	1,361.9	3,848.5	0.94	57.3	362.5
Length = 8.333 ft	**2**	0.354	0.158	1.25	1.00	1.00	1.00	1.062	1.00	1.00	1.00	3.24	1,361.9	3,848.5	0.92	57.3	362.5
+D+S					1.00	1.00	1.00	1.062	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	**1**	0.436	0.195	1.15	1.00	1.00	1.00	1.062	1.00	1.00	1.00	3.67	1,542.4	3,540.6	1.06	64.9	333.5
Length = 8.333 ft	**2**	0.436	0.195	1.15	1.00	1.00	1.00	1.062	1.00	1.00	1.00	3.67	1,542.4	3,540.6	1.05	64.9	333.5
+D+0.750Lr+0.750L					1.00	1.00	1.00	1.062	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	**1**	0.307	0.137	1.25	1.00	1.00	1.00	1.062	1.00	1.00	1.00	2.82	1,181.8	3,848.5	0.81	49.7	362.5
Length = 8.333 ft	**2**	0.307	0.137	1.25	1.00	1.00	1.00	1.062	1.00	1.00	1.00	2.82	1,181.8	3,848.5	0.80	49.7	362.5
+D+0.750L+0.750S					1.00	1.00	1.00	1.062	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	**1**	0.372	0.166	1.15	1.00	1.00	1.00	1.062	1.00	1.00	1.00	3.14	1,317.2	3,540.6	0.90	55.4	333.5
Length = 8.333 ft	**2**	0.372	0.166	1.15	1.00	1.00	1.00	1.062	1.00	1.00	1.00	3.14	1,317.2	3,540.6	0.89	55.4	333.5
+0.60D					1.00	1.00	1.00	1.062	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.750 ft	**1**	0.078	0.035	1.60	1.00	1.00	1.00	1.062	1.00	1.00	1.00	0.92	385.0	4,926.1	0.26	16.1	464.0
Length = 8.333 ft	**2**	0.078	0.035	1.60	1.00	1.00	1.00	1.062	1.00	1.00	1.00	0.92	385.0	4,926.1	0.26	16.1	464.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.4634	0.000		0.0000	0.000
	2	0.0000	0.000	+D+S	-0.0584	2.607

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions		2.287	0.258
Max Upward from Load Combinations		2.287	0.258
Max Upward from Load Cases		1.348	0.159
D Only		0.939	0.099
+D+L		0.939	0.099
+D+Lr		2.017	0.226
+D+S		2.287	0.258
+D+0.750Lr+0.750L		1.748	0.194
+D+0.750L+0.750S		1.950	0.218
+0.60D		0.563	0.059
Lr Only		1.078	0.127
S Only		1.348	0.159

Dibble Engineers, Inc.
1029 Market Street
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM9 - (E) Roof to (N) Floor Transition

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

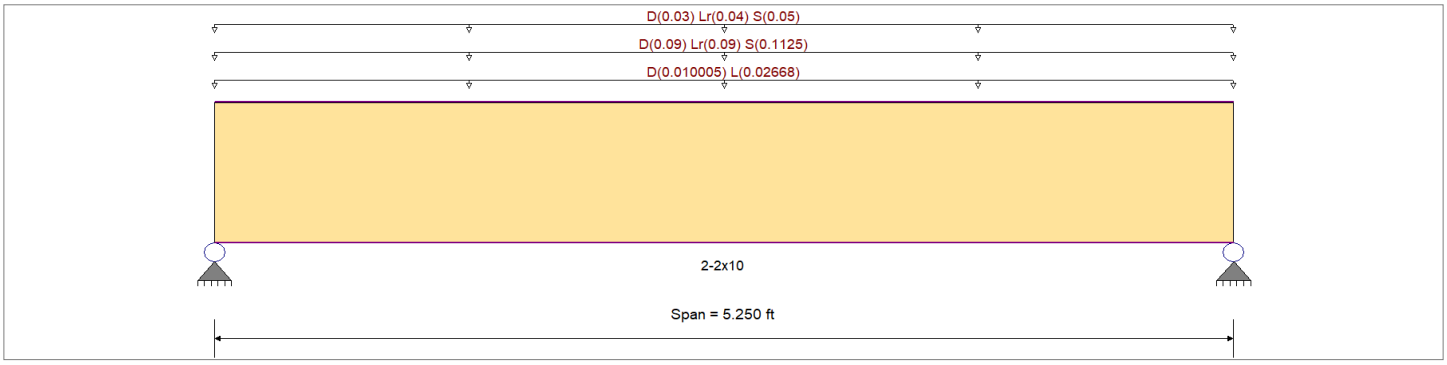
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 0.6670 ft, (Floor Load)
Uniform Load : D = 0.020, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 4.50 ft, (High Roof Load)
Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 2.0 ft, (Low Roof Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.268 : 1	Maximum Shear Stress Ratio	=	0.173 : 1
Section used for this span		2-2x10	Section used for this span		2-2x10
fb: Actual	=	287.67 psi	fv: Actual	=	29.91 psi
F'b	=	1,075.25 psi	F'v	=	172.50 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	2.625 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.011 in	Ratio =	5800 >=360	Span: 1 : S Only
Max Upward Transient Deflection	0 in	Ratio =	0 <360	n/a
Max Downward Total Deflection	0.020 in	Ratio =	3166 >=180	Span: 1 : +D+S
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 5.250 ft	1	0.155	0.101	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.47	130.6	841.5	0.25	13.6	135.0
+D+L					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.250 ft	1	0.167	0.108	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.56	156.4	935.0	0.30	16.3	150.0
+D+Lr					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.250 ft	1	0.219	0.142	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.91	256.3	1,168.8	0.49	26.6	187.5
+D+S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.250 ft	1	0.268	0.173	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.03	287.7	1,075.3	0.55	29.9	172.5
+D+0.750Lr+0.750L					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM9 - (E) Roof to (N) Floor Transition

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 5.250 ft	**1**	0.209	0.135	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.87	244.2	1,168.8	0.47	25.4	187.5
+D+0.750L+0.750S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.250 ft	**1**	0.249	0.161	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.95	267.8	1,075.3	0.51	27.8	172.5
+0.60D					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.250 ft	**1**	0.052	0.034	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.28	78.4	1,496.0	0.15	8.1	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.0199	2.644		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	0.781	0.781
Max Upward from Load Combinations	0.781	0.781
Max Upward from Load Cases	0.427	0.427
D Only	0.355	0.355
+D+L	0.425	0.425
+D+Lr	0.696	0.696
+D+S	0.781	0.781
+D+0.750Lr+0.750L	0.663	0.663
+D+0.750L+0.750S	0.727	0.727
+0.60D	0.213	0.213
Lr Only	0.341	0.341
L Only	0.070	0.070
S Only	0.427	0.427

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM10 - (N) Dining Beam

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

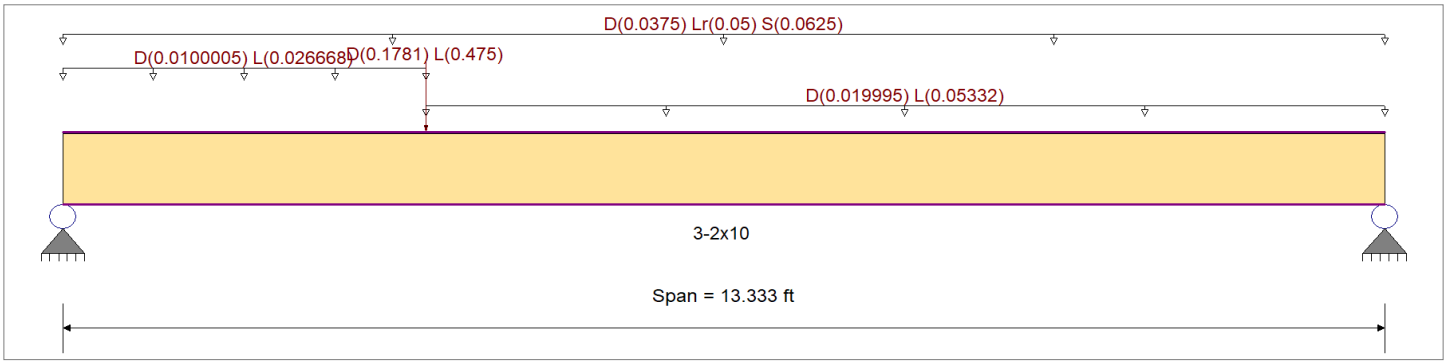
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850 psi
Fb -	850 psi
Fc - Prll	1300 psi
Fc - Perp	405 psi
Fv	150 psi
Ft	525 psi

E : Modulus of Elasticity

Ebend- xx	1300 ksi
Eminbend - xx	470 ksi
Density	26.84 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0150, L = 0.040 ksf, Extent = 3.666 -->> 13.333 ft, Tributary Width = 1.333 ft, (Floor Load)
Uniform Load : D = 0.0150, L = 0.040 ksf, Extent = 0.0 -->> 3.666 ft, Tributary Width = 0.6667 ft, (Floor Load)
Point Load : D = 0.1781, L = 0.4750 k @ 3.666 ft, (RXN Cross Joist)
Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 2.50 ft, (Low Roof Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.764 : 1	Maximum Shear Stress Ratio	=	0.261 : 1
Section used for this span		3-2x10	Section used for this span		3-2x10
fb: Actual	=	714.01 psi	fv: Actual	=	39.22 psi
F'b	=	935.00 psi	F'v	=	150.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	5.304 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.169 in	Ratio =	945 >=480	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <480	n/a
Max Downward Total Deflection	0.361 in	Ratio =	443 >=360	Span: 1 : +D+0.750L+0.750S
Max Upward Total Deflection	0 in	Ratio =	0 <360	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 13.284 ft	1	0.391	0.131	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.76	328.7	841.5	0.49	17.7	135.0
Length = 0.04866 ft	1	0.005	0.131	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.02	4.3	841.5	0.43	17.7	135.0
+D+L					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 13.284 ft	1	0.764	0.261	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.00	3.82	714.0	935.0	1.09	39.2	150.0
Length = 0.04866 ft	1	0.009	0.261	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.05	8.6	935.0	0.87	39.2	150.0
+D+Lr					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0

Dibble Engineers, Inc.
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM10 - (N) Dining Beam

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 13.284 ft	1	0.458	0.152	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	2.86	535.2	1,168.8	0.79	28.4	187.5
Length = 0.04866 ft	1	0.006	0.152	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.04	7.4	1,168.8	0.73	28.4	187.5
+D+S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 13.284 ft	1	0.546	0.180	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	3.14	587.0	1,075.3	0.86	31.1	172.5
Length = 0.04866 ft	1	0.008	0.180	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.04	8.1	1,075.3	0.80	31.1	172.5
+D+0.750Lr+0.750L					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 13.284 ft	1	0.658	0.223	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	4.11	768.8	1,168.8	1.16	41.9	187.5
Length = 0.04866 ft	1	0.008	0.223	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.05	9.8	1,168.8	0.98	41.9	187.5
+D+0.750L+0.750S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 13.284 ft	1	0.751	0.254	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	4.32	807.1	1,075.3	1.22	43.9	172.5
Length = 0.04866 ft	1	0.010	0.254	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.06	10.4	1,075.3	1.03	43.9	172.5
+0.60D					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 13.284 ft	1	0.132	0.044	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.05	197.2	1,496.0	0.30	10.6	240.0
Length = 0.04866 ft	1	0.002	0.044	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.01	2.6	1,496.0	0.26	10.6	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S	1	0.3609	6.521		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	1.307	1.146
Max Upward from Load Combinations	1.307	1.146
Max Upward from Load Cases	0.616	0.479
D Only	0.533	0.479
+D+L	1.148	0.952
+D+Lr	0.866	0.812
+D+S	0.949	0.896
+D+0.750Lr+0.750L	1.244	1.083
+D+0.750L+0.750S	1.307	1.146
+0.60D	0.320	0.287
Lr Only	0.333	0.333
L Only	0.616	0.473
S Only	0.417	0.417

Dibble Engineers, Inc.
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM11 - Bed5 Floor Support

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

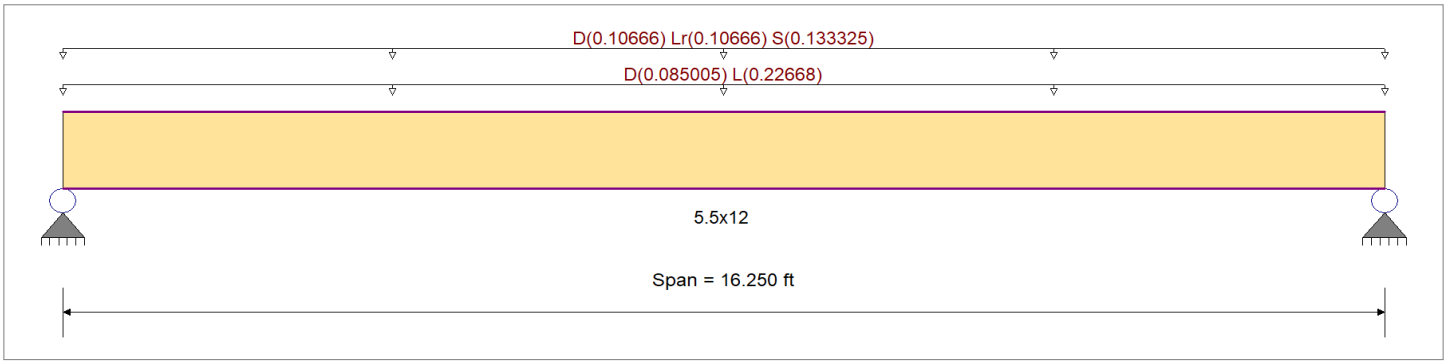
Wood Species : DF/DF
Wood Grade : 24F-V4

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2400 psi
Fb -	1850 psi
Fc - Prll	1650 psi
Fc - Perp	650 psi
Fv	265 psi
Ft	1100 psi

E : Modulus of Elasticity

Ebend- xx	1800 ksi
Eminbend - xx	950 ksi
Ebend- yy	1600 ksi
Eminbend - yy	850 ksi
Density	31.21 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 5.667 ft, (Floor Load)
Uniform Load : D = 0.020, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 5.333 ft, (Roof Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.541 : 1	Maximum Shear Stress Ratio	=	0.266 : 1
Section used for this span		5.5x12	Section used for this span		5.5x12
fb: Actual	=	1,298.26 psi	fv: Actual	=	70.56 psi
F'b	=	2,400.00 psi	F'v	=	265.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	8.125 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.251 in	Ratio =	777 >=480	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <480	n/a
Max Downward Total Deflection	0.527 in	Ratio =	370 >=360	Span: 1 : +D+0.750L+0.750S
Max Upward Total Deflection	0 in	Ratio =	0 <360	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_V	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 16.250 ft	1	0.286	0.141	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	6.80	618.1	2,160.0	1.48	33.6	238.5
+D+L					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 16.250 ft	1	0.541	0.266	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	14.28	1,298.3	2,400.0	3.10	70.6	265.0
+D+Lr					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 16.250 ft	1	0.313	0.154	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	10.32	938.1	3,000.0	2.24	51.0	331.3
+D+S					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 16.250 ft	1	0.369	0.182	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	11.20	1,018.1	2,760.0	2.43	55.3	304.8
+D+0.750Lr+0.750L					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM11 - Bed5 Floor Support

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_V	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 16.250 ft	1	0.456	0.225	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	15.05	1,368.2	3,000.0	3.27	74.4	331.3
+D+0.750L+0.750S					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 16.250 ft	1	0.517	0.255	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	15.71	1,428.3	2,760.0	3.42	77.6	304.8
+0.60D					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 16.250 ft	1	0.097	0.048	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.08	370.8	3,840.0	0.89	20.2	424.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S	1	0.5269	8.184		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	3.867	3.867
Max Upward from Load Combinations	3.867	3.867
Max Upward from Load Cases	1.842	1.842
D Only	1.674	1.674
+D+L	3.515	3.515
+D+Lr	2.540	2.540
+D+S	2.757	2.757
+D+0.750Lr+0.750L	3.705	3.705
+D+0.750L+0.750S	3.867	3.867
+0.60D	1.004	1.004
Lr Only	0.867	0.867
L Only	1.842	1.842
S Only	1.083	1.083

Dibble Engineers, Inc.
1029 Market Street
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(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM11A (Lateral) - Bed5 Floor Support

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

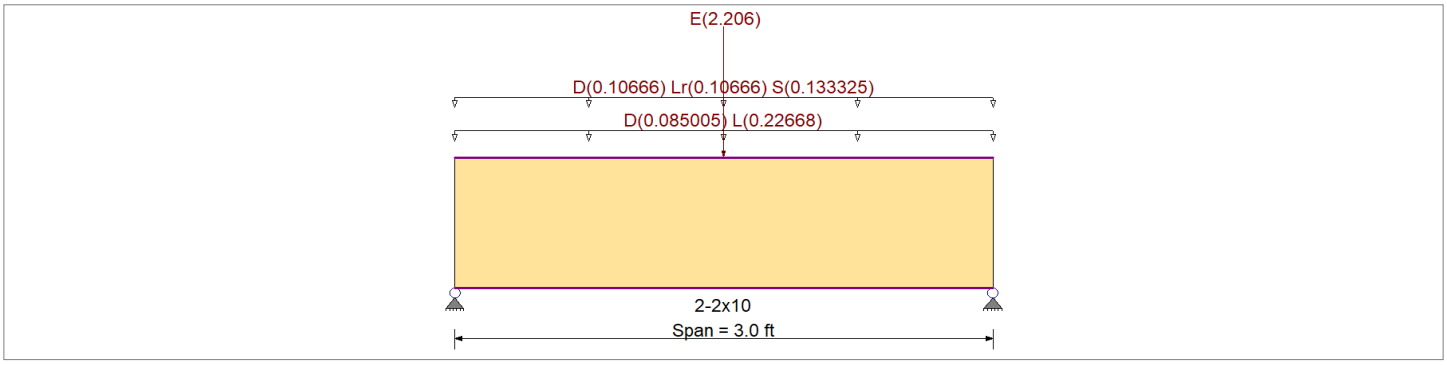
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 5.667 ft, (Floor Load)
Uniform Load : D = 0.020, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 5.333 ft, (Roof Load)
Point Load : E = 2.206 k @ 1.50 ft, (SW 5.A)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.261 : 1	Maximum Shear Stress Ratio	=	0.208 : 1
Section used for this span		2-2x10	Section used for this span		2-2x10
fb: Actual	=	390.96 psi	fv: Actual	=	49.81 psi
F'b	=	1,496.00 psi	F'v	=	240.00 psi
Load Combination		+D+0.750L+0.750S+0.5250E	Load Combination		+D+0.750L+0.750S+0.5250E
Location of maximum on span	=	1.500 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.008 in	Ratio =	4295 >=480	Span: 1 : E Only
Max Upward Transient Deflection	0 in	Ratio =	0 <480	n/a
Max Downward Total Deflection	0.008 in	Ratio =	4658 >=360	Span: 1 : +D+0.750L+0.750S+0.5250E
Max Upward Total Deflection	0 in	Ratio =	0 <360	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.074	0.058	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.22	62.1	841.5	0.14	7.8	135.0
+D+L					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.143	0.112	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.48	133.6	935.0	0.31	16.8	150.0
+D+Lr					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.082	0.064	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.34	95.8	1,168.8	0.22	12.0	187.5
+D+S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	1	0.097	0.076	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.37	104.2	1,075.3	0.24	13.1	172.5
+D+0.750Lr+0.750L					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0

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1029 Market Street
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM11A (Lateral) - Bed5 Floor Support

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 3.0 ft	**1**	0.121	0.094	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.50	141.0	1,168.8	0.33	17.7	187.5
+D+0.750L+0.750S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.137	0.107	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.53	147.3	1,075.3	0.34	18.5	172.5
+D+0.70E					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.259	0.206	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.38	387.0	1,496.0	0.92	49.5	240.0
+D+0.750L+0.750S+0.5250E					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.261	0.208	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.39	391.0	1,496.0	0.92	49.8	240.0
+0.60D					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.025	0.020	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.13	37.3	1,496.0	0.09	4.7	240.0
+0.60D+0.70E					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 3.0 ft	**1**	0.242	0.193	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.29	362.1	1,496.0	0.86	46.4	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
E Only	1	0.0084	1.500		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	1.279	1.279
Max Upward from Load Combinations	1.279	1.279
Max Upward from Load Cases	1.103	1.103
D Only	0.295	0.295
+D+L	0.635	0.635
+D+Lr	0.455	0.455
+D+S	0.495	0.495
+D+0.750Lr+0.750L	0.670	0.670
+D+0.750L+0.750S	0.700	0.700
+D+0.70E	1.067	1.067
+D+0.750L+0.750S+0.5250E	1.279	1.279
+0.60D	0.177	0.177
+0.60D+0.70E	0.949	0.949
Lr Only	0.160	0.160
L Only	0.340	0.340
S Only	0.200	0.200
E Only	1.103	1.103

Dibble Engineers, Inc.
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM12 - Support UBM7

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

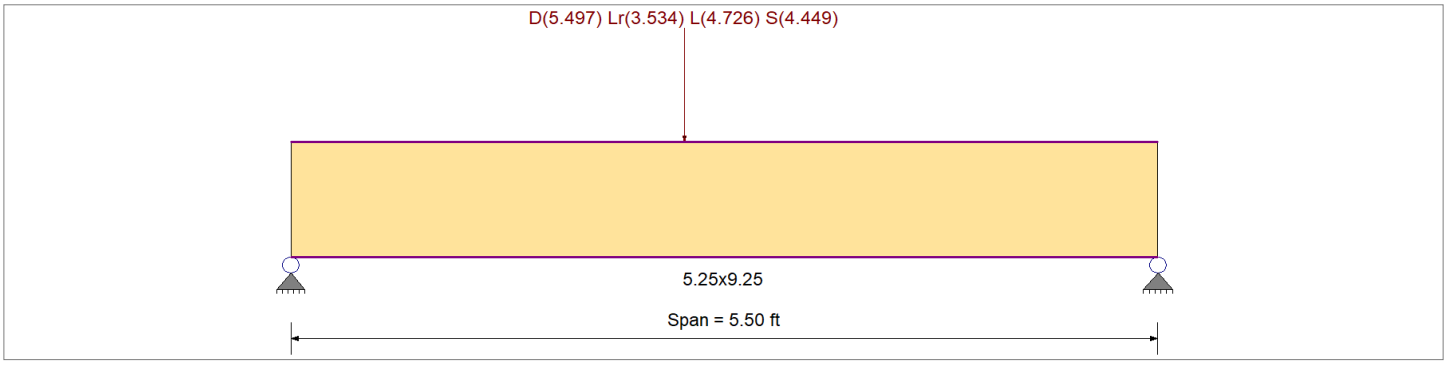
Wood Species : iLevel Truss Joist
Wood Grade : Parallam PSL 2.0E

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2,900.0 psi
Fb -	2,900.0 psi
Fc - Prll	2,900.0 psi
Fc - Perp	750.0 psi
Fv	290.0 psi
Ft	2,025.0 psi

E : Modulus of Elasticity

Ebend- xx	2,000.0 ksi
Eminbend - xx	1,016.54 ksi
Density	45.070 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Point Load : D = 5.497, Lr = 3.534, L = 4.726, S = 4.449 k @ 2.50 ft, (RXN UBM7)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.788 : 1	Maximum Shear Stress Ratio	=	0.628 : 1
Section used for this span		5.25x9.25	Section used for this span		5.25x9.25
fb: Actual	=	2,706.41 psi	fv: Actual	=	209.48 psi
F'b	=	3,432.76 psi	F'v	=	333.50 psi
Load Combination		+D+0.750L+0.750S	Load Combination		+D+0.750L+0.750S
Location of maximum on span	=	2.509 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.041 in	Ratio =	1623 >=360	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <360	n/a
Max Downward Total Deflection	0.107 in	Ratio =	617 >=180	Span: 1 : +D+0.750L+0.750S
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.449	0.358	0.90	1.00	1.00	1.00	1.029	1.00	1.00	1.00	7.53	1,207.0	2,686.5	3.03	93.5	261.0
+D+L					1.00	1.00	1.00	1.029	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.749	0.597	1.00	1.00	1.00	1.00	1.029	1.00	1.00	1.00	13.96	2,236.8	2,985.0	5.61	173.2	290.0
+D+Lr					1.00	1.00	1.00	1.029	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.530	0.422	1.25	1.00	1.00	1.00	1.029	1.00	1.00	1.00	12.33	1,977.0	3,731.3	4.96	153.1	362.5
+D+S					1.00	1.00	1.00	1.029	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.634	0.505	1.15	1.00	1.00	1.00	1.029	1.00	1.00	1.00	13.58	2,176.4	3,432.8	5.46	168.5	333.5
+D+0.750Lr+0.750L					1.00	1.00	1.00	1.029	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.685	0.546	1.25	1.00	1.00	1.00	1.029	1.00	1.00	1.00	15.95	2,556.9	3,731.3	6.41	197.9	362.5

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM12 - Support UBM7

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+0.750L+0.750S					1.00	1.00	1.00	1.029	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	**1**	0.788	0.628	1.15	1.00	1.00	1.00	1.029	1.00	1.00	1.00	16.89	2,706.4	3,432.8	6.78	209.5	333.5
+0.60D					1.00	1.00	1.00	1.029	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	**1**	0.152	0.121	1.60	1.00	1.00	1.00	1.029	1.00	1.00	1.00	4.52	724.2	4,776.0	1.82	56.1	464.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S	1	0.1069	2.690		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	6.794	5.668
Max Upward from Load Combinations	6.794	5.668
Max Upward from Load Cases	3.040	2.540
D Only	3.040	2.540
+D+L	5.618	4.689
+D+Lr	4.968	4.147
+D+S	5.467	4.563
+D+0.750Lr+0.750L	6.419	5.356
+D+0.750L+0.750S	6.794	5.668
+0.60D	1.824	1.524
Lr Only	1.928	1.606
L Only	2.578	2.148
S Only	2.427	2.022

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Kirkland, WA 98033
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM13 (Lateral) - SW 4.A Support

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

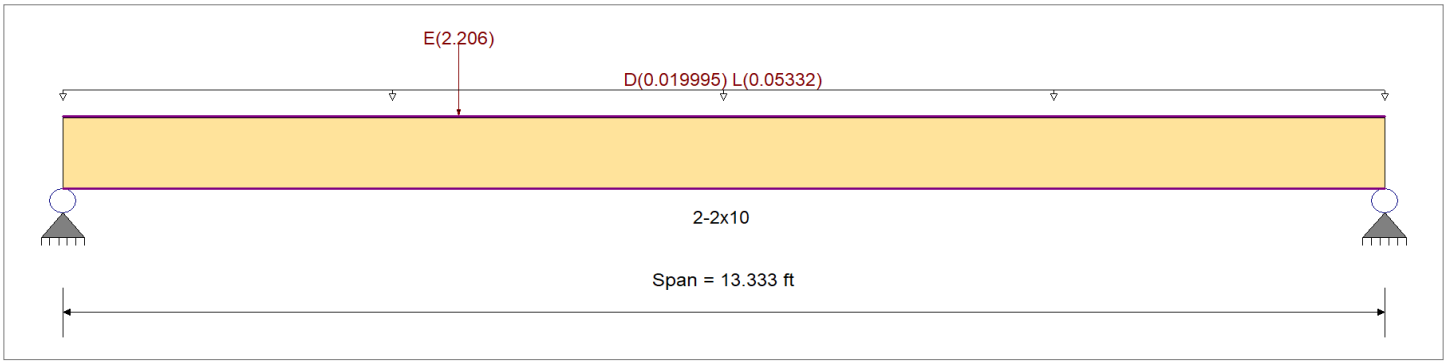
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 1.333 ft, (Floor Load)
Point Load : E = 2.206 k @ 4.0 ft, (SW 4.A)

DESIGN SUMMARY

Design N.G.

Maximum Bending Stress Ratio	=	0.897 : 1	Maximum Shear Stress Ratio	=	0.277 : 1
Section used for this span		2-2x10	Section used for this span		2-2x10
fb: Actual	=	1,341.39 psi	fv: Actual	=	66.50 psi
F'b	=	1,496.00 psi	F'v	=	240.00 psi
Load Combination		+D+0.70E	Load Combination		+D+0.70E
Location of maximum on span	=	3.990 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.591 in	Ratio =	270 <480	Span: 1 : E Only
Max Upward Transient Deflection	0 in	Ratio =	0 <480	n/a
Max Downward Total Deflection	0.490 in	Ratio =	326 <360	Span: 1 : +D+0.750L+0.5250E
Max Upward Total Deflection	0 in	Ratio =	0 <360	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 13.284 ft	1	0.186	0.060	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.56	156.9	841.5	0.15	8.1	135.0
Length = 0.04866 ft	1	0.003	0.060	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.01	2.3	841.5	0.15	8.1	135.0
+D+L					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 13.284 ft	1	0.523	0.168	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.74	489.2	935.0	0.47	25.2	150.0
Length = 0.04866 ft	1	0.008	0.168	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.03	7.1	935.0	0.47	25.2	150.0
+D+0.750L					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 13.284 ft	1	0.347	0.112	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.45	406.1	1,168.8	0.39	20.9	187.5
Length = 0.04866 ft	1	0.005	0.112	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.02	5.9	1,168.8	0.39	20.9	187.5

CHECKING LATERAL;
THEREFORE DEFLECTION OK

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM13 (Lateral) - SW 4.A Support

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+0.70E					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 13.284 ft	1	0.897	0.277	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	4.78	1,341.4	1,496.0	1.23	66.5	240.0
Length = 0.04866 ft	1	0.006	0.277	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.03	8.6	1,496.0	0.61	66.5	240.0
+D+0.750L+0.5250E					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 13.284 ft	1	0.835	0.270	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	4.45	1,248.8	1,496.0	1.20	64.7	240.0
Length = 0.04866 ft	1	0.007	0.270	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.04	10.6	1,496.0	0.73	64.7	240.0
+0.60D					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 13.284 ft	1	0.063	0.020	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.34	94.1	1,496.0	0.09	4.8	240.0
Length = 0.04866 ft	1	0.001	0.020	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.00	1.4	1,496.0	0.09	4.8	240.0
+0.60D+0.70E					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 13.284 ft	1	0.861	0.264	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	4.59	1,288.8	1,496.0	1.17	63.3	240.0
Length = 0.04866 ft	1	0.005	0.264	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.03	7.7	1,496.0	0.55	63.3	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
E Only	1	0.5906	6.034		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	1.544	0.782
Max Upward from Load Combinations	1.249	0.782
Max Upward from Load Cases	1.544	0.662
D Only	0.168	0.168
+D+L	0.523	0.523
+D+0.750L	0.434	0.434
+D+0.70E	1.249	0.631
+D+0.750L+0.5250E	1.245	0.782
+0.60D	0.101	0.101
+0.60D+0.70E	1.182	0.564
L Only	0.355	0.355
E Only	1.544	0.662

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UHDR1 - WC HDR

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

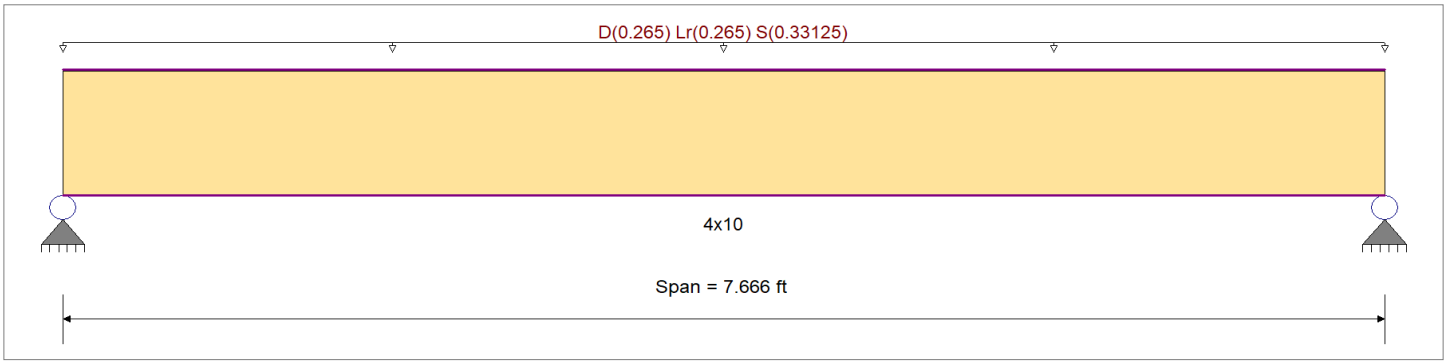
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850 psi
Fb -	850 psi
Fc - Prll	1300 psi
Fc - Perp	405 psi
Fv	150 psi
Ft	525 psi

E : Modulus of Elasticity

Ebend- xx	1300 ksi
Eminbend - xx	470 ksi
Density	26.84 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.020, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 13.250 ft, (Roof Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.907 : 1	Maximum Shear Stress Ratio	=	0.498 : 1
Section used for this span		4x10	Section used for this span		4x10
fb: Actual	=	1,063.73 psi	fv: Actual	=	85.88 psi
F'b	=	1,173.00 psi	F'v	=	172.50 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	3.833 ft	Location of maximum on span	=	6.911 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.086 in	Ratio =	1066	>=360	Span: 1 : S Only
Max Upward Transient Deflection	0 in	Ratio =	0	<360	n/a
Max Downward Total Deflection	0.157 in	Ratio =	586	>=180	Span: 1 : +D+S
Max Upward Total Deflection	0 in	Ratio =	0	<180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 7.666 ft	1	0.521	0.286	0.90	1.00	1.00	1.00	1.200	1.00	1.00	1.00	1.99	478.7	918.0	0.83	38.6	135.0
+D+Lr					1.00	1.00	1.00	1.200	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.666 ft	1	0.743	0.408	1.25	1.00	1.00	1.00	1.200	1.00	1.00	1.00	3.94	946.7	1,275.0	1.65	76.4	187.5
+D+S					1.00	1.00	1.00	1.200	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.666 ft	1	0.907	0.498	1.15	1.00	1.00	1.00	1.200	1.00	1.00	1.00	4.42	1,063.7	1,173.0	1.85	85.9	172.5
+D+0.750Lr					1.00	1.00	1.00	1.200	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.666 ft	1	0.651	0.357	1.25	1.00	1.00	1.00	1.200	1.00	1.00	1.00	3.45	829.7	1,275.0	1.45	67.0	187.5
+D+0.750S					1.00	1.00	1.00	1.200	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.666 ft	1	0.782	0.429	1.15	1.00	1.00	1.00	1.200	1.00	1.00	1.00	3.82	917.5	1,173.0	1.60	74.1	172.5

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UHDR1 - WC HDR

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+0.60D					1.00	1.00	1.00	1.200	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.666 ft	**1**	0.176	0.097	1.60	1.00	1.00	1.00	1.200	1.00	1.00	1.00	1.19	287.2	1,632.0	0.50	23.2	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.1569	3.861		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	2.309	2.309
Max Upward from Load Combinations	2.309	2.309
Max Upward from Load Cases	1.270	1.270
D Only	1.039	1.039
+D+Lr	2.055	2.055
+D+S	2.309	2.309
+D+0.750Lr	1.801	1.801
+D+0.750S	1.991	1.991
+0.60D	0.623	0.623
Lr Only	1.016	1.016
S Only	1.270	1.270

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: Low Roof

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

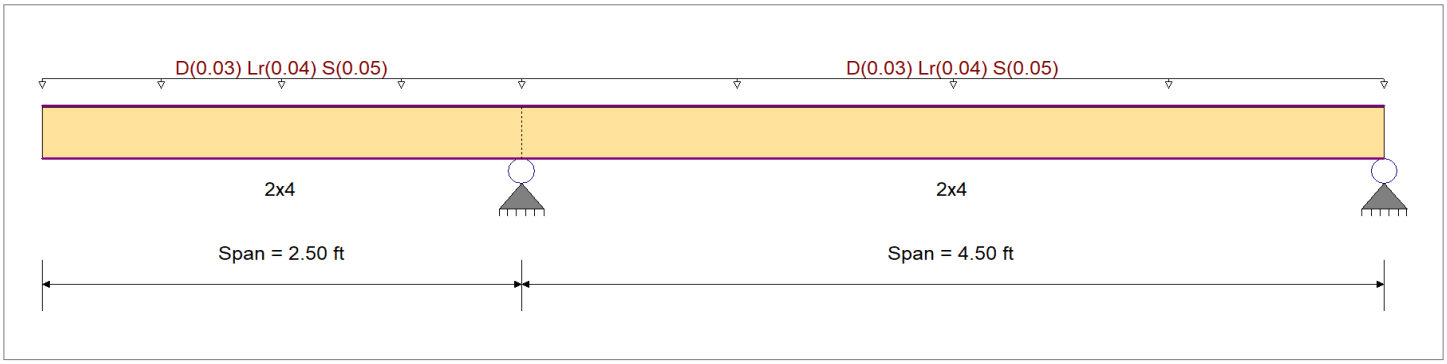
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850 psi
Fb -	850 psi
Fc - Prll	1300 psi
Fc - Perp	405 psi
Fv	150 psi
Ft	525 psi

E : Modulus of Elasticity

Ebend- xx	1300 ksi
Eminbend - xx	470 ksi
Density	26.84 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 2.0 ft, (Roof Load)
Load for Span Number 2
Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 2.0 ft, (Roof Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.676 : 1	Maximum Shear Stress Ratio	=	0.358 : 1
Section used for this span		2x4	Section used for this span		2x4
fb: Actual	=	991.57 psi	fv: Actual	=	61.73 psi
F'b	=	1,466.25 psi	F'v	=	172.50 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	2.500 ft	Location of maximum on span	=	2.500 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.088 in	Ratio =	678 >=360	Span: 2 : S Only
Max Upward Transient Deflection	-0.002 in	Ratio =	28582 >=360	Span: 2 : S Only
Max Downward Total Deflection	0.143 in	Ratio =	418 >=180	Span: 2 : +D+S
Max Upward Total Deflection	-0.003 in	Ratio =	17648 >=180	Span: 2 : +D+S

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 2.50 ft	1	0.331	0.175	0.90	1.00	1.00	1.00	1.500	1.00	1.00	1.00	0.10	379.3	1,147.5	0.08	23.6	135.0
Length = 4.50 ft	2	0.331	0.175	0.90	1.00	1.00	1.00	1.500	1.00	1.00	1.00	0.10	379.3	1,147.5	0.08	23.6	135.0
+D+Lr					1.00	1.00	1.00	1.500	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 2.50 ft	1	0.545	0.289	1.25	1.00	1.00	1.00	1.500	1.00	1.00	1.00	0.22	869.1	1,593.8	0.19	54.1	187.5
Length = 4.50 ft	2	0.545	0.289	1.25	1.00	1.00	1.00	1.500	1.00	1.00	1.00	0.22	869.1	1,593.8	0.19	54.1	187.5
+D+S					1.00	1.00	1.00	1.500	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 2.50 ft	1	0.676	0.358	1.15	1.00	1.00	1.00	1.500	1.00	1.00	1.00	0.25	991.6	1,466.3	0.22	61.7	172.5

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: Low Roof

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 4.50 ft	**2**	0.676	0.358	1.15	1.00	1.00	1.00	1.500	1.00	1.00	1.00	0.25	991.6	1,466.3	0.22	61.7	172.5
+D+0.750Lr					1.00	1.00	1.00	1.500	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 2.50 ft	**1**	0.469	0.248	1.25	1.00	1.00	1.00	1.500	1.00	1.00	1.00	0.19	746.7	1,593.8	0.16	46.5	187.5
Length = 4.50 ft	**2**	0.469	0.248	1.25	1.00	1.00	1.00	1.500	1.00	1.00	1.00	0.19	746.7	1,593.8	0.16	46.5	187.5
+D+0.750S					1.00	1.00	1.00	1.500	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 2.50 ft	**1**	0.572	0.303	1.15	1.00	1.00	1.00	1.500	1.00	1.00	1.00	0.21	838.5	1,466.3	0.18	52.2	172.5
Length = 4.50 ft	**2**	0.572	0.303	1.15	1.00	1.00	1.00	1.500	1.00	1.00	1.00	0.21	838.5	1,466.3	0.18	52.2	172.5
+0.60D					1.00	1.00	1.00	1.500	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 2.50 ft	**1**	0.112	0.059	1.60	1.00	1.00	1.00	1.500	1.00	1.00	1.00	0.06	227.6	2,040.0	0.05	14.2	240.0
Length = 4.50 ft	**2**	0.112	0.059	1.60	1.00	1.00	1.00	1.500	1.00	1.00	1.00	0.06	227.6	2,040.0	0.05	14.2	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.1432	0.000		0.0000	0.000
+D+S	2	0.0308	2.791	+D+S	-0.0031	0.352

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions		0.441	0.126
Max Upward from Load Combinations		0.441	0.126
Max Upward from Load Cases		0.272	0.078
D Only		0.169	0.048
+D+Lr		0.386	0.110
+D+S		0.441	0.126
+D+0.750Lr		0.332	0.095
+D+0.750S		0.373	0.107
+0.60D		0.101	0.029
Lr Only		0.218	0.062
S Only		0.272	0.078

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM14 - Floor Beam

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

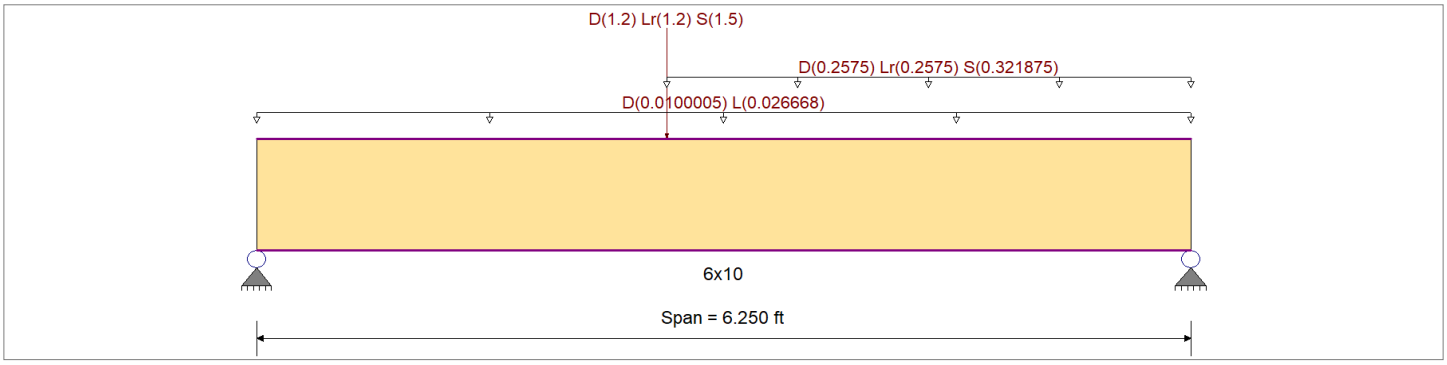
Material Properties

Analysis Method :	Allowable Stress Design
Load Combination :	IBC 2021
Wood Species :	Douglas Fir-Larch
Wood Grade :	No.1
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling

Fb +	1350 psi
Fb -	1350 psi
Fc - Prll	925 psi
Fc - Perp	625 psi
Fv	170 psi
Ft	675 psi

E : Modulus of Elasticity

Ebend- xx	1600 ksi
Eminbend - xx	580 ksi
Density	31.21 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 0.6667 ft, (Floor Load)
Point Load : D = 1.20, Lr = 1.20, S = 1.50 k @ 2.750 ft, (RXN GT2)
Uniform Load : D = 0.020, Lr = 0.020, S = 0.0250 ksf, Extent = 2.750 -->> 6.250 ft, Tributary Width = 12.875 ft, (Roof Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.543 : 1	Maximum Shear Stress Ratio	=	0.330 : 1
Section used for this span		6x10	Section used for this span		6x10
fb: Actual	=	843.60 psi	fv: Actual	=	64.56 psi
F'b	=	1,552.50 psi	F'v	=	195.50 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	2.760 ft	Location of maximum on span	=	5.474 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.031 in	Ratio =	2406 >=360	Span: 1 : S Only
Max Upward Transient Deflection	0 in	Ratio =	0 <360	n/a
Max Downward Total Deflection	0.057 in	Ratio =	1309 >=180	Span: 1 : +D+S
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 6.250 ft	1	0.315	0.193	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.64	383.2	1,215.0	1.03	29.5	153.0
+D+L					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.250 ft	1	0.298	0.184	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.77	401.8	1,350.0	1.09	31.3	170.0
+D+Lr					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.250 ft	1	0.445	0.271	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.18	751.5	1,687.5	2.00	57.5	212.5
+D+S					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.250 ft	1	0.543	0.330	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.82	843.6	1,552.5	2.25	64.6	195.5
+D+0.750Lr+0.750L					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: UBM14 - Floor Beam

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	M	fb	F'b	V	fv	F'v
Length = 6.250 ft	**1**	0.399	0.244	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.64	673.4	1,687.5	1.81	51.9	212.5
+D+0.750L+0.750S					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.250 ft	**1**	0.478	0.292	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.12	742.5	1,552.5	1.99	57.1	195.5
+0.60D					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.250 ft	**1**	0.106	0.065	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	1.59	229.9	2,160.0	0.62	17.7	272.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.0573	3.125		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

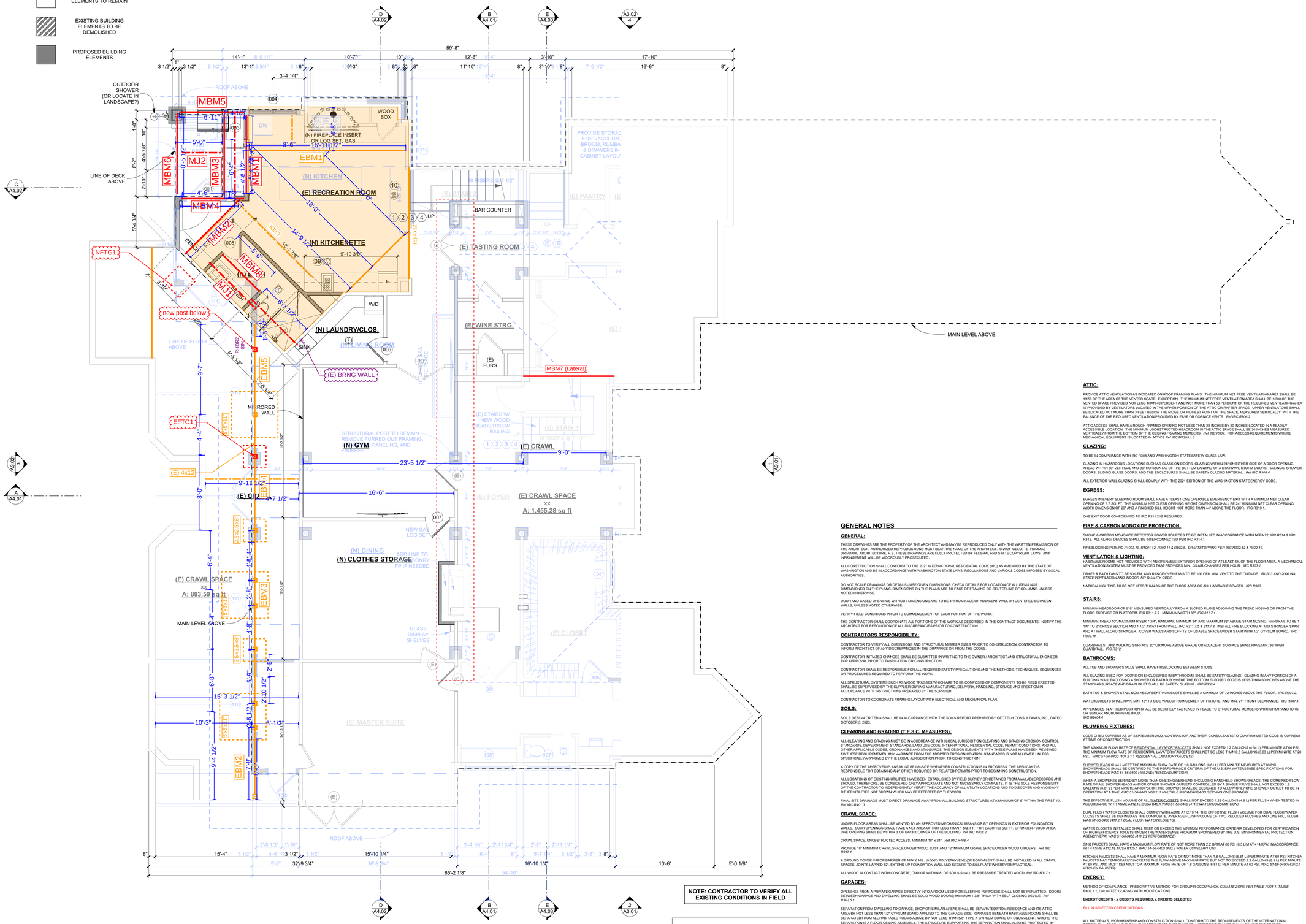
Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	2.146	2.715
Max Upward from Load Combinations	2.146	2.715
Max Upward from Load Cases	1.155	1.471
D Only	0.991	1.244
+D+L	1.074	1.327
+D+Lr	1.915	2.420
+D+S	2.146	2.715
+D+0.750Lr+0.750L	1.747	2.189
+D+0.750L+0.750S	1.920	2.409
+0.60D	0.595	0.746
Lr Only	0.924	1.177
L Only	0.083	0.083
S Only	1.155	1.471

GELOTTE HOMMAS DRIVDAHL
ARCHITECTURE
2340 130th Ave. NE, Suite 100, Bellevue, WA 98005
425.828.3081

EXISTING BUILDING ELEMENTS TO REMAIN

EXISTING BUILDING ELEMENTS TO BE DEMOLISHED

PROPOSED BUILDING ELEMENTS



NOTE: CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS IN FIELD

N

LOWER FLOOR PROPOSED

SCALE: 1/4" = 1'-0"

BLDG AREA - ALL STORIES	
LOWER FLOOR	
(E) FINISHED AREAS	1,096
(N) FINISHED AREAS	536
MAIN FLOOR	
(E) FINISHED AREAS	3,265
(E) GARAGE	1,075
(N) FINISHED AREAS	175
UPPER FLOOR	
(E) FINISHED AREAS	789
(N) FINISHED AREAS	967
	7,903 ft²

ATTIC:

PROVIDE ATTIC VENTILATION AS INDICATED ON ROOF FRAMING PLANS. THE MINIMUM NET FREE VENTILATING AREA SHALL BE 1/150 OF THE AREA OF THE VENTED SPACE. EXCEPTION: THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/300 OF THE VENTED SPACE PROVIDED NOT LESS THAN 40 PERCENT AND NOT MORE THAN 50 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE ATTIC OR RAFTER SPACE. UPPER VENTILATORS SHALL BE LOCATED NOT MORE THAN 3 FEET BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE, MEASURED VERTICALLY, WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS. *Ref IRC R806.2*

ATTIC ACCESS SHALL HAVE A ROUGH FRAMED OPENING NOT LESS THAN 22 INCHES BY 30 INCHES LOCATED IN A READILY ACCESSIBLE LOCATION. THE MINIMUM UNOBSTRUCTED HEADROOM IN THE ATTIC SPACE SHALL BE 30 INCHES MEASURED VERTICALLY FROM THE BOTTOM OF THE CEILING FRAMING MEMBERS. *Ref IRC R807.* FOR ACCESS REQUIREMENTS WHERE MECHANICAL EQUIPMENT IS LOCATED IN ATTICS *Ref IRC M1305.1.3*

GLAZING:

TO BE IN COMPLIANCE WITH IRC R308 AND WASHINGTON STATE SAFETY GLASS LAW.

GLAZING IN HAZARDOUS LOCATIONS SUCH AS GLASS ON DOORS, GLAZING WITHIN 24" ON EITHER SIDE OF A DOOR OPENING, AREAS WITHIN 60" VERTICAL AND 36" HORIZONTAL OF THE BOTTOM LANDING OF A STAIRWAY, STORM DOORS, RAILINGS, SHOWER DOORS, SLIDING GLASS DOORS, AND TUB ENCLOSURES SHALL BE SAFETY GLAZING MATERIAL. *Ref IRC R308.4*

ALL EXTERIOR WALL GLAZING SHALL COMPLY WITH THE 2021 EDITION OF THE WASHINGTON STATE ENERGY CODE.

EGRESS:

EGRESS IN EVERY SLEEPING ROOM SHALL HAVE AT LEAST ONE OPERABLE EMERGENCY EXIT WITH A MINIMUM NET CLEAR OPENING OF 5.7 SQ. FT. THE MINIMUM NET CLEAR OPENING HEIGHT DIMENSION SHALL BE 24" MINIMUM NET CLEAR OPENING WIDTH DIMENSION OF 20" AND A FINISHED SILL HEIGHT NOT MORE THAN 44" ABOVE THE FLOOR. IRC R310.1.

ONE EXIT DOOR CONFORMING TO IRC R311.2 IS REQUIRED.

FIRE & CARBON MONOXIDE PROTECTION:

SMOKE & CARBON MONOXIDE DETECTOR POWER SOURCES TO BE INSTALLED IN ACCORDANCE WITH NFPA 72, IRC R314 & IRC R315. ALL ALARM DEVICES SHALL BE INTERCONNECTED PER IRC R314.1.

FIREBLOCKING PER IRC R1003.19, R1001.12, R302.11 & R602.8. DRAFTSTOPPING PER IRC R302.12 & R502.12.

VENTILATION & LIGHTING:

HABITABLE ROOMS NOT PROVIDED WITH AN OPENABLE EXTERIOR OPENING OF AT LEAST 4% OF THE FLOOR AREA, A MECHANICAL VENTILATION SYSTEM MUST BE PROVIDED THAT PROVIDES MIN. .35 AIR CHANGES PER HOUR. *IRC R303.1.*

DRYER & BATH FANS TO BE 50 CFM, AND RANGE/OVEN FANS TO BE 100 CFM MIN, VENT TO THE OUTSIDE. *IRC303 AND 2006 WA STATE VENTILATION AND INDOOR AIR QUALITY CODE.*

NATURAL LIGHTING TO BE NOT LESS THAN 8% OF THE FLOOR AREA OR ALL HABITABLE SPACES. *IRC R303.*

STAIRS:

MINIMUM HEADROOM OF 6'-8" MEASURED VERTICALLY FROM A SLOPED PLANE ADJOINING THE TREAD NOSING OR FROM THE FLOOR SURFACE OR PLATFORM. IRC R311.7.2 MINIMUM WIDTH 36", *IRC 311.7.1*

MINIMUM TREAD 10", MAXIMUM RISER 7 3/4", HANDRAIL MINIMUM 34" AND MAXIMUM 38" ABOVE STAIR NOSING. HANDRAIL TO BE 1 1/4" TO 2" CROSS SECTION AND 1 1/2" AWAY FROM WALL. *IRC R311.7.5 & 311.7.8.* INSTALL FIRE BLOCKING AT MID STRINGER SPAN AND AT WALL ALONG STRINGER. COVER WALLS AND SOFFITS OF USABLE SPACE UNDER STAIR WITH 1/2" GYPSUM BOARD. *IRC R302.11*

GUARDRAILS: ANY WALKING SURFACE 30" OR MORE ABOVE GRADE OR ADJACENT SURFACE SHALL HAVE MIN. 36" HIGH GUARDRAIL. *IRC R312.*

BATHROOMS:

ALL TUB AND SHOWER STALLS SHALL HAVE FIREBLOCKING BETWEEN STUDS.

ALL GLAZING USED FOR DOORS OR ENCLOSURES IN BATHROOMS SHALL BE SAFETY GLAZING. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING A SHOWER OR BATHTUB WHERE THE BOTTOM EXPOSED EDGE IS LESS THAN 60 INCHES ABOVE THE STANDING SURFACE AND DRAIN INLET SHALL BE SAFETY GLAZING. *IRC R308.4*

BATH TUB & SHOWER STALL NON-ABSORBENT WAINSCOTS SHALL BE A MINIMUM OF 72 INCHES ABOVE THE FLOOR. *IRC R307.2.*

WATERCLOSETS SHALL HAVE MIN. 15" TO SIDE WALLS FROM CENTER OF FIXTURE, AND MIN. 21" FRONT CLEARANCE. IRC R307.1

APPLIANCES IN A FIXED POSITION SHALL BE SECURELY FASTENED IN PLACE TO STRUCTURAL MEMBERS WITH STRAP ANCHORS OR SIMILAR ANCHORING METHOD.
IRC G2404.4

PLUMBING FIXTURES:

CODE CITED CURRENT AS OF SEPTEMBER 2022. CONTRACTOR AND THEIR CONSULTANTS TO CONFIRM LISTED CODE IS CURRENT AT TIME OF CONSTRUCTION

THE MAXIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT EXCEED 1.2 GALLONS (4.54 L) PER MINUTE AT 60 PSI. THE MINIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT BE LESS THAN 0.8 GALLONS (3.03 L) PER MINUTE AT 20 PSI. *WAC 51-56-0400 (407.2.1.1 RESIDENTIAL LAVATORY FAUCETS)*

SHOWERHEADS SHALL MEET THE MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE MEASURED AT 80 PSI. SHOWERHEADS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATERSENSE SPECIFICATIONS FOR SHOWERHEADS *WAC 51-56-0400 (408.2 WATER CONSUMPTION)*

WHEN A SHOWER IS SERVED BY MORE THAN ONE SHOWERHEAD, INCLUDING HANDHELD SHOWERHEADS, THE COMBINED FLOW RATE OF ALL SHOWERHEADS AND/OR OTHER SHOWER OUTLETS CONTROLLED BY A SINGLE VALVE SHALL NOT EXCEED 1.8 GALLONS (6.81 L) PER MINUTE AT 80 PSI, OR THE SHOWER SHALL BE DESIGNED TO ALLOW ONLY ONE SHOWER OUTLET TO BE IN OPERATION AT A TIME *WAC 51-56-0400 (408.2. 1 MULTIPLE SHOWERHEADS SERVING ONE SHOWER)*

THE EFFECTIVE FLUSH VOLUME OF ALL WATER CLOSETS SHALL NOT EXCEED 1.28 GALLONS (4.8 L) PER FLUSH WHEN TESTED IN ACCORDANCE WITH ASME A112.19.2/CSA B45.1 *WAC 51-56-0400 (411.2 WATER CONSUMPTION)*

DUAL FLUSH WATER CLOSETS SHALL COMPLY WITH ASME A112.19.14. THE EFFECTIVE FLUSH VOLUME FOR DUAL FLUSH WATER CLOSETS SHALL BE DEFINED AS THE COMPOSITE, AVERAGE FLUSH VOLUME OF TWO REDUCED FLUSHES AND ONE FULL FLUSH. *WAC 51-56-0400 (411.2.1 DUAL FLUSH WATER CLOSETS)*

WATER CLOSETS INSTALLED SHALL MEET OR EXCEED THE MINIMUM PERFORMANCE CRITERIA DEVELOPED FOR CERTIFICATION OF HIGH-EFFICIENCY TOILETS UNDER THE WATERSENSE PROGRAM SPONSERED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) *WAC 51-56-0400 (411.2.2 PERFORMANCE)*

SINK FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 2.2 GPM AT 60 PSI (8.3 LM AT 414 KPA) IN ACCORDANCE WITH ASME A112.18.1/CSA B125.1 *WAC 51-56-0400 (409.2 WATER CONSUMPTION)*

KITCHEN FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. KITCHEN FAUCETS MAY TEMPORARILY INCREASE THE FLOW ABOVE MAXIMUM RATE, BUT NOT TO EXCEED 2.2 GALLONS (8.3 L) PER MINUTE AT 60 PSI, AND MUST DEFAULT TO A MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. *WAC 51-56-0400 (409.2.1 KITCHEN FAUCETS)*

ENERGY:

METHOD OF COMPLIANCE - PRESCRIPTIVE METHOD FOR GROUP R OCCUPANCY, *CLIMATE ZONE PER TABLE R301.1, TABLE R402.1.1, UNLIMITED GLAZING WITH MODIFICATIONS.*

ENERGY CREDITS - x CREDITS REQUIRED, x CREDITS SELECTED

FILL IN SELECTED CREDIT OPTIONS

ALL MATERIALS, WORKMANSHIP AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL RESIDENTIAL CODE AND THE WASHINGTON STATE ENERGY CODE, LATEST EDITION. VERIFY ALL CONDITIONS BEFORE PROCEEDING WITH WORK.

WALLS: INSULATED PER *WSEC Table R402.1.1.*

ROOF AND CEILING: INSULATED PER *WSEC TABLE R402.1.1.* PROVIDE INSULATION IN CEILING WHERE POSSIBLE AND IN 2x12 RAFTERS IF VAULTED CEILING CONDITION EXISTS. MAINTAIN A MINIMUM OF 2" CLEAR BETWEEN TOP OF INSULATION AND BOTTOM OF SHEATHING FOR VENTING. VENTING MUST OCCUR IN EACH JOIST SPACE. WHERE CONTINUOUS VENTING WITHIN A JOIST SPACE IS INTERRUPTED BY A HEADER (I.E., SKYLIGHT OR AT HIP END), PROVIDE (2) 1 1/2" VENTING HOLES AT THE TOP OF THE RAFTER AT THE HEADER TO ALLOW FOR CONTINUAL THROUGH-VENTING INTO THE NEXT JOIST SPACE.

FLOORS: INSULATE PER *WSEC Table R402.1.1*

SLAB ON GRADE: INSULATE PER TABLE R402.1.1. PROVIDE EXTRUDED RIGID CLOSED CELL INSULATION. INSULATION, INSTALLED INSIDE THE FOUNDATION WALL, SHALL EXTEND DOWNWARD FROM THE TOP OF THE SLAB 24" MIN. OR DOWNWARD AND THEN HORIZONTALLY BENEATH THE SLAB FOR A COMBINED 24" MIN. INSULATION INSTALLED OUTSIDE THE FOUNDATION SHALL EXTEND DOWNWARD 24" MIN. OR TO THE FROSTLINE. *WSEC 402.2.9.1*

VAPOR BARRIERS: VAPOR RETARDERS SHALL BE INSTALLED ON THE WARM SIDE (IN WINTER) OF INSULATION PER *TABLE R402.4.1.1*
FLOORS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE MIN. 4 MIL POLYETHYLENE OR KRAFT FACED MATERIAL. ROOF/CEILING ASSEMBLIES WHERE THE VENTILATION SPACE ABOVE THE INSULATION IS LESS THAN AN AVERAGE OF 12 INCHES SHALL BE PROVIDED WITH A VAPOR RETARDER. WALLS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE A VAPOR RETARDER INSTALLED. FACED BATT INSULATION SHALL BE FACE STAPLED. A GROUND COVER OF MIN. 6 MIL BLACK POLYETHYLENE SHALL BE LAID OVER THE GROUND WITHIN CRAWL SPACES W/ JOINTS LAPPED MIN. 12".

GLAZING AND DOORS: GLAZING AND DOOR U-FACTORS SHALL BE DETERMINED IN ACCORDANCE WITH *WSEC SECTIONS R402.1.1 AND R303.1.3(2).* RESPECTIVELY.

GENERAL NOTES

GENERAL:

THESE DRAWINGS ARE THE PROPERTY OF THE ARCHITECT AND MAY BE REPRODUCED ONLY WITH THE WRITTEN PERMISSION OF THE ARCHITECT. AUTHORIZED REPRODUCTIONS MUST BEAR THE NAME OF THE ARCHITECT. © 2024 GELOTTE HOMMAS DRIVDAHL, ARCHITECTURE, P.S. THESE DRAWINGS ARE FULLY PROTECTED BY FEDERAL AND STATE COPYRIGHT LAWS. ANY INFRINGEMENT WILL BE VIGOROUSLY PROSECUTED.

ALL CONSTRUCTION SHALL CONFORM TO THE *2021 INTERNATIONAL RESIDENTIAL CODE (IRC)* AS AMENDED BY THE STATE OF WASHINGTON AND BE IN ACCORDANCE WITH WASHINGTON STATE LAWS, REGULATIONS AND VARIOUS CODES IMPOSED BY LOCAL AUTHORITIES.

DO NOT SCALE DRAWINGS OR DETAILS - USE GIVEN DIMENSIONS. CHECK DETAILS FOR LOCATION OF ALL ITEMS NOT DIMENSIONED ON THE PLANS. DIMENSIONS ON THE PLANS ARE TO FACE OF FRAMING OR CENTERLINE OF COLUMNS UNLESS NOTED OTHERWISE.

DOOR AND CASED OPENINGS WITHOUT DIMENSIONS ARE TO BE 4" FROM FACE OF ADJACENT WALL OR CENTERED BETWEEN WALLS, UNLESS NOTED OTHERWISE.

VERIFY FIELD CONDITIONS PRIOR TO COMMENCEMENT OF EACH PORTION OF THE WORK.

THE CONTRACTOR SHALL COORDINATE ALL PORTIONS OF THE WORK AS DESCRIBED IN THE CONTRACT DOCUMENTS. NOTIFY THE ARCHITECT FOR RESOLUTION OF ALL DISCREPANCIES PRIOR TO CONSTRUCTION.

CONTRACTORS RESPONSIBILITY:

CONTRACTOR TO VERIFY ALL DIMENSIONS AND STRUCTURAL MEMBER SIZES PRIOR TO CONSTRUCTION. CONTRACTOR TO INFORM ARCHITECT OF ANY DISCREPANCIES IN THE DRAWINGS OR FROM THE CODES.

CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE OWNER / ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK.

ALL STRUCTURAL SYSTEMS SUCH AS WOOD TRUSSES WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

CONTRACTOR TO COORDINATE FRAMING LAYOUT WITH ELECTRICAL AND MECHANICAL PLAN.

SOILS:

SOILS DESIGN CRITERIA SHALL BE IN ACCORDANCE WITH THE SOILS REPORT PREPARED BY GEOTECH CONSULTANTS, INC., DATED OCTOBER 5, 2023.

CLEARING AND GRADING (T.E.S.C. MEASURES):

ALL CLEARING AND GRADING MUST BE IN ACCORDANCE WITH LOCAL JURISDICTION CLEARING AND GRADING EROSION CONTROL STANDARDS, DEVELOPMENT STANDARDS, LAND USE CODE, INTERNATIONAL RESIDENTIAL CODE, PERMIT CONDITIONS, AND ALL OTHER APPLICABLE CODES, ORDINANCES AND STANDARDS. THE DESIGN ELEMENTS WITH THESE PLANS HAVE BEEN REVIEWED TO THESE REQUIREMENTS. ANY VARIANCE FROM THE ADOPTED EROSION CONTROL STANDARDS IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY THE LOCAL JURISDICTION PRIOR TO CONSTRUCTION.

A COPY OF THE APPROVED PLANS MUST BE ON-SITE WHENEVER CONSTRUCTION IS IN PROGRESS. THE APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER REQUIRED OR RELATED PERMITS PRIOR TO BEGINNING CONSTRUCTION.

ALL LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD, THEREFORE, BE CONSIDERED ONLY APPROXIMATE AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS AND TO DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN WHICH MAY BE EFFECTED BY THE WORK.

FINAL SITE DRAINAGE MUST DIRECT DRAINAGE AWAY FROM ALL BUILDING STRUCTURES AT A MINIMUM OF 6" WITHIN THE FIRST 10'. *Ref IRC R401.3*

CRAWL SPACE:

UNDER-FLOOR AREAS SHALL BE VENTED BY AN APPROVED MECHANICAL MEANS OR BY OPENINGS IN EXTERIOR FOUNDATION WALLS. SUCH OPENINGS SHALL HAVE A NET AREA OF NOT LESS THAN 1 SQ. FT. FOR EACH 150 SQ. FT. OF UNDER-FLOOR AREA. ONE OPENING SHALL BE WITHIN 3' OF EACH CORNER OF THE BUILDING. *Ref IRC R408.2*

CRAWL SPACE, UNOBSTRUCTED ACCESS, MINIMUM 18" x 24". *Ref IRC R408.4*

PROVIDE 18" MINIMUM CRAWL SPACE UNDER WOOD JOIST AND 12" MINIMUM CRAWL SPACE UNDER WOOD GIRDERS. *Ref IRC R317.1*

A GROUND COVER VAPOR BARRIER OF MIN. 6 MIL. (0.006") POLYETHYLENE (OR EQUIVALENT) SHALL BE INSTALLED IN ALL CRAWL SPACES, JOINTS LAPPED 12", EXTEND UP FOUNDATION WALL AND SECURE TO SILL PLATE WHEREVER PRACTICAL.

ALL WOOD IN CONTACT WITH CONCRETE, CMU OR WITHIN 8" OF SOILS SHALL BE PRESSURE TREATED WOOD. *Ref IRC R317.1*

GARAGES:

OPENINGS FROM A PRIVATE GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED. DOORS BETWEEN GARAGE AND DWELLING SHALL BE SOLID WOOD DOORS; MINIMUM 1 3/8" THICK WITH SELF CLOSING DEVICE. *Ref R302.5.1*

SEPARATION FROM DWELLING TO GARAGE, SHOP OR SIMILAR AREAS SHALL BE SEPARATED FROM RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 1/2" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. GARAGES BENEATH HABITABLE ROOMS SHALL BE SEPARATED FROM ALL HABITABLE ROOMS ABOVE BY NOT LESS THAN 5/8" TYPE X GYPSUM BOARD OR EQUIVALENT. WHERE THE SEPARATION IS A FLOOR-CEILING ASSEMBLY, THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY NOT LESS THAN 1/2" GYPSUM BOARD OR EQUIVALENT. *Ref IRC R302.6 & TABLE 302.6*

HEATING AND/OR COOLING EQUIPMENT LOCATED IN GARAGE SHALL BE INSTALLED WITH PILOTS AND BURNERS OR HEATING ELEMENTS AND SWITCHES AT LEAST 18" ABOVE THE FLOOR LEVEL. *Ref IRC G2408.2*

FIREPLACES:

FACTORY-BUILT FIREPLACES SHALL BE LISTED AND LABELED AND SHALL BE INSTALLED IN ACCORDANCE WITH THE CONDITIONS OF THE LISTING. FACTORY-BUILT FIREPLACES SHALL BE TESTED IN ACCORDANCE WITH UL 127. *Ref IRC R1004.1*

MASONRY FIREPLACES, BARBECUES, SMOKE CHAMBERS AND FIREPLACE CHIMNEYS SHALL BE CONSTRUCTED OF MASONRY OR REINFORCED CONCRETE. FOUNDATIONS SHALL BE MIN. 12" THICK AND EXTEND MIN. 6" BEYOND MASONRY. FIREBOX WALLS MIN. 10" THICK EXCEPT MIN. 8" THICK WHERE A FIREBRICK LINING IS USED. COMBUSTIBLE MATERIALS SHALL NOT BE PLACED WITHIN 2 INCHES OF A FIREPLACE, SMOKE CHAMBER OR CHIMNEY WALLS. COMBUSTIBLE MATERIAL SHALL NOT BE PLACED WITHIN 6" OF THE FIREPLACE OPENING. MIN. 4" THICK NON-COMBUSTIBLE HEARTH EXTENDING 16" IN FRONT AND 8" TO THE SIDE OF THE FIREPLACE OPENING. COMBUSTIBLE MATERIAL WITHIN 12" OF THE FIREPLACE OPENING SHALL NOT PROJECT MORE THAN 1/8" FOR EACH 1" DISTANCE FROM SUCH OPENING. *Ref IRC R1001 - R1003*

CEILING HEIGHTS:

HABITABLE SPACE SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'-0". NOT MORE THAN 50% OF REQUIRED FLOOR AREA OF A SPACE IS PERMITTED TO HAVE A SLOPED CEILING LESS THAN 7'-0" IN HEIGHT WITH NO PORTION LOWER THAN 5'-0". BATHROOM SHALL HAVE A MIN CEILING HEIGHT OF 6'-8" OVER THE FIXTURE AND ITS FRONT CLEARANCE AREA. *Ref IRC R305*

ROOFING:

APPLY ROOFING IN ACCORDANCE WITH *IRC R905.*

BALCONIES, LANDINGS, EXTERIOR STAIRWAYS, OCCUPIED ROOFS AND SIMILAR SURFACES EXPOSED TO THE WEATHER AND SEALED UNDERNEATH SHALL BE WATERPROOFED AND SLOPED A MINIMUM OF 1/4" PER 12" (2% SLOPE) FOR DRAINAGE.

SEIFERT REMODEL

3261 67TH AVE SE
MERCER ISLAND, WA 98040

Job No.	2219
Project Manager:	DG
Issue Date:	08/03/2023

NO.	DATE	REVISION

W.I.P. SET (12.20.2023)

LOWER FLOOR PLAN PROPOSED

A2.01

RE: 2219 Seifert Remodel and Addition PRINTED: Friday, January 5, 2024

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MJ1 - Notched 2x Floor Joist @ Deck

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

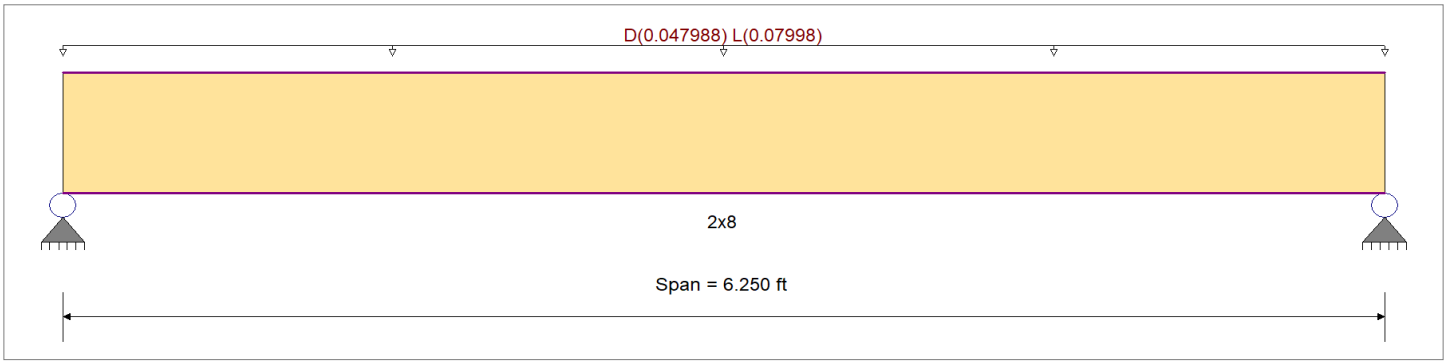
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0360, L = 0.060 ksf, Tributary Width = 1.333 ft, (Deck Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.568 : 1	Maximum Shear Stress Ratio	=	0.303 : 1
Section used for this span		2x8	Section used for this span		2x8
fb: Actual	=	579.64 psi	fv: Actual	=	45.40 psi
F'b	=	1,020.00 psi	F'v	=	150.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	3.125 ft	Location of maximum on span	=	5.657 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.045 in	Ratio =	1681 >=360	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <360	n/a
Max Downward Total Deflection	0.072 in	Ratio =	1034 >=180	Span: 1 : +D+L
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 6.250 ft	1	0.243	0.129	0.90	1.00	1.00	1.00	1.200	1.00	1.00	1.00	0.24	223.0	918.0	0.13	17.5	135.0
+D+L					1.00	1.00	1.00	1.200	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.250 ft	1	0.568	0.303	1.00	1.00	1.00	1.00	1.200	1.00	1.00	1.00	0.63	579.6	1,020.0	0.33	45.4	150.0
+D+0.750L					1.00	1.00	1.00	1.200	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.250 ft	1	0.385	0.205	1.25	1.00	1.00	1.00	1.200	1.00	1.00	1.00	0.54	490.5	1,275.0	0.28	38.4	187.5
+0.60D					1.00	1.00	1.00	1.200	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 6.250 ft	1	0.082	0.044	1.60	1.00	1.00	1.00	1.200	1.00	1.00	1.00	0.15	133.8	1,632.0	0.08	10.5	240.0

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MJ1 - Notched 2x Floor Joist @ Deck

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.0725	3.148		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	0.406	0.406
Max Upward from Load Combinations	0.406	0.406
Max Upward from Load Cases	0.250	0.250
D Only	0.156	0.156
+D+L	0.406	0.406
+D+0.750L	0.344	0.344
+0.60D	0.094	0.094
L Only	0.250	0.250

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MJ2 - New Deck

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

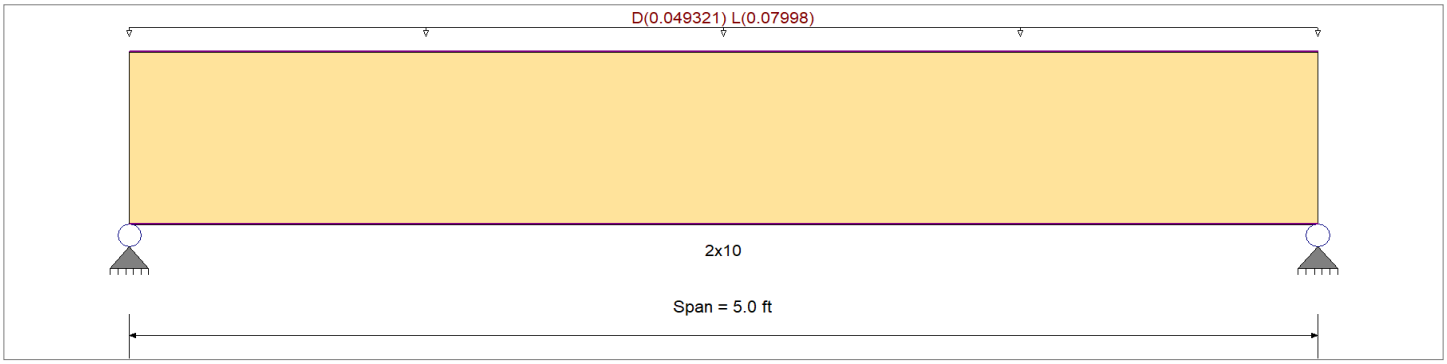
Material Properties

Analysis Method :	Allowable Stress Design
Load Combination :	IBC 2021
Wood Species :	Hem-Fir
Wood Grade :	No.2
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling

Fb +	850 psi
Fb -	850 psi
Fc - Prll	1300 psi
Fc - Perp	405 psi
Fv	150 psi
Ft	525 psi

E : Modulus of Elasticity

Ebend- xx	1300 ksi
Eminbend - xx	470 ksi
Density	26.84 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0370, L = 0.060 ksf, Tributary Width = 1.333 ft, (Deck Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.247 : 1	Maximum Shear Stress Ratio	=	0.165 : 1
Section used for this span		2x10	Section used for this span		2x10
fb: Actual	=	231.21 psi	fv: Actual	=	24.72 psi
F'b	=	935.00 psi	F'v	=	150.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	2.500 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.009 in	Ratio =	6821	>=360	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0	<360	n/a
Max Downward Total Deflection	0.015 in	Ratio =	4136	>=180	Span: 1 : +D+L
Max Upward Total Deflection	0 in	Ratio =	0	<180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 5.0 ft	1	0.108	0.072	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.16	91.0	841.5	0.09	9.7	135.0
+D+L					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.0 ft	1	0.247	0.165	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.41	231.2	935.0	0.23	24.7	150.0
+D+0.750L					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.0 ft	1	0.168	0.112	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.35	196.2	1,168.8	0.19	21.0	187.5
+0.60D					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.0 ft	1	0.036	0.024	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.10	54.6	1,496.0	0.05	5.8	240.0

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MJ2 - New Deck

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.0145	2.518		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	0.330	0.330
Max Upward from Load Combinations	0.330	0.330
Max Upward from Load Cases	0.200	0.200
D Only	0.130	0.130
+D+L	0.330	0.330
+D+0.750L	0.280	0.280
+0.60D	0.078	0.078
L Only	0.200	0.200

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: EMBM1 - (E) 4 2x12 FOR RXN

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

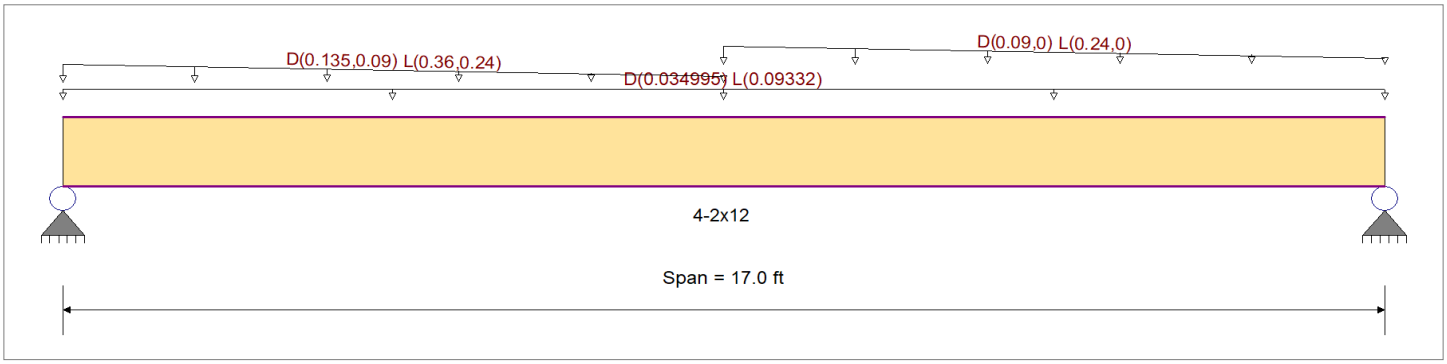
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 2.333 ft, (Floor Load)
Varying Uniform Load : D= 0.0150->0.0150, L= 0.040->0.040 ksf, Extent = 0.0 -->> 8.50 ft, Trib Width = 9.0->6.0 ft, (Floor Load)

Varying Uniform Load : D= 0.0150->0.0150, L= 0.040->0.040 ksf, Extent = 8.50 -->> 17.0 ft, Trib Width = 6.0->0.0 ft, (Floor Load)

DESIGN SUMMARY

Design N.G.

Maximum Bending Stress Ratio	=	1.801 : 1	Maximum Shear Stress Ratio	=	0.558 : 1
Section used for this span		4-2x12	Section used for this span		4-2x12
fb: Actual	=	1,530.96 psi	fv: Actual	=	83.77 psi
F'b	=	850.00 psi	F'v	=	150.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	7.755 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.637 in	Ratio =	320 <480	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <480	n/a
Max Downward Total Deflection	0.902 in	Ratio =	226 <360	Span: 1 : +D+L
Max Upward Total Deflection	0 in	Ratio =	0 <360	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 17.0 ft	1	0.586	0.181	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.73	448.7	765.0	1.10	24.4	135.0
+D+L					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 17.0 ft	1	1.801	0.558	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	16.15	1,531.0	850.0	3.77	83.8	150.0
+D+0.750L					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 17.0 ft	1	1.186	0.368	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	13.29	1,260.4	1,062.5	3.10	68.9	187.5
+0.60D					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0

EXISTING TO REMAIN WITH NO LOAD CHANGE, FOR REACTION ONLY

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: EMBM1 - (E) 4 2x12 FOR RXN

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	M	fb	F'b	V	fv	F'v
Length = 17.0 ft	**1**	0.198	0.061	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.84	269.2	1,360.0	0.66	14.6	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.9018	8.376		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	4.353	2.951
Max Upward from Load Combinations	4.353	2.951
Max Upward from Load Cases	3.088	2.068
D Only	1.265	0.883
+D+L	4.353	2.951
+D+0.750L	3.581	2.434
+0.60D	0.759	0.530
L Only	3.088	2.068

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Project Title:
Engineer:
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Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MBM1 - NFloor Support

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

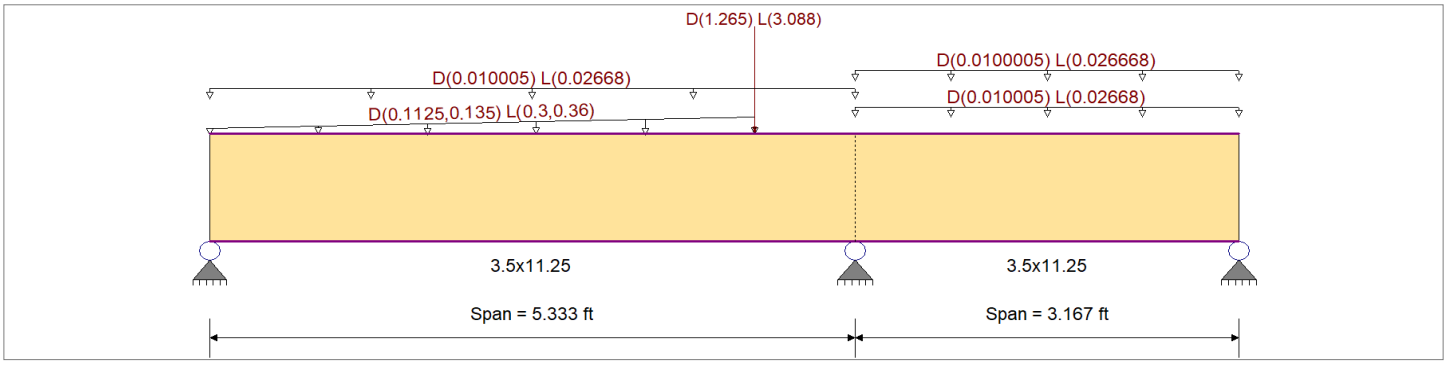
Material Properties

Analysis Method :	Allowable Stress Design
Load Combination :	IBC 2021
Wood Species :	iLevel Truss Joist
Wood Grade :	TimberStrand LSL 1.55E
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling

Fb +	2325 psi
Fb -	2325 psi
Fc - Prll	2050 psi
Fc - Perp	800 psi
Fv	310 psi
Ft	1070 psi

E : Modulus of Elasticity

Ebend- xx	1550 ksi
Eminbend - xx	787.815 ksi
Density	45.01 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Varying Uniform Load : D= 0.0150->0.0150, L= 0.040->0.040 ksf, Extent = 0.0 -->> 4.50 ft, Trib Width = 7.50->9.0 ft, ((E) Floor Load)
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 0.6670 ft, ((N) Floor Load)
Point Load : D = 1.265, L = 3.088 k @ 4.50 ft, (EBM1)
Load for Span Number 2
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 0.6670 ft, ((E) Floor Load)
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 0.6667 ft, ((N) Floor Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.199 : 1	Maximum Shear Stress Ratio	=	0.122 : 1
Section used for this span		3.5x11.25	Section used for this span		3.5x11.25
fb: Actual	=	465.33 psi	fv: Actual	=	37.87 psi
F'b	=	2,341.72 psi	F'v	=	310.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	5.333 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.012 in	Ratio =	5349 >=480	Span: 1 : L Only
Max Upward Transient Deflection	-0.003 in	Ratio =	11286 >=480	Span: 2 : L Only
Max Downward Total Deflection	0.017 in	Ratio =	3799 >=360	Span: 1 : +D+L
Max Upward Total Deflection	-0.005 in	Ratio =	8047 >=360	Span: 2 : +D+L

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 5.333 ft	1	0.065	0.039	0.90	1.00	1.00	1.00	1.007	1.00	1.00	1.00	0.84	136.0	2,107.5	0.29	11.0	279.0
Length = 3.167 ft	2	0.065	0.039	0.90	1.00	1.00	1.00	1.007	1.00	1.00	1.00	0.84	136.0	2,107.5	0.29	11.0	279.0
+D+L					1.00	1.00	1.00	1.007	1.00	1.00	1.00			0.0	0.00	0.0	0.0

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MBM1 - NFloor Support

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 5.333 ft	**1**	0.199	0.122	1.00	1.00	1.00	1.00	1.007	1.00	1.00	1.00	2.86	465.3	2,341.7	0.99	37.9	310.0
Length = 3.167 ft	**2**	0.199	0.122	1.00	1.00	1.00	1.00	1.007	1.00	1.00	1.00	2.86	465.3	2,341.7	0.96	37.9	310.0
+D+0.750L					1.00	1.00	1.00	1.007	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.333 ft	**1**	0.131	0.080	1.25	1.00	1.00	1.00	1.007	1.00	1.00	1.00	2.36	383.0	2,927.1	0.82	31.1	387.5
Length = 3.167 ft	**2**	0.131	0.080	1.25	1.00	1.00	1.00	1.007	1.00	1.00	1.00	2.36	383.0	2,927.1	0.79	31.1	387.5
+0.60D					1.00	1.00	1.00	1.007	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.333 ft	**1**	0.022	0.013	1.60	1.00	1.00	1.00	1.007	1.00	1.00	1.00	0.50	81.6	3,746.7	0.17	6.6	496.0
Length = 3.167 ft	**2**	0.022	0.013	1.60	1.00	1.00	1.00	1.007	1.00	1.00	1.00	0.50	81.6	3,746.7	0.17	6.6	496.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.0168	2.711		0.0000	0.000
	2	0.0000	2.711	+D+L	-0.0047	1.327

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions	1.428	6.268	
Max Upward from Load Combinations	1.428	6.268	
Max Upward from Load Cases	1.013	4.427	
Max Downward from all Load Conditio			-0.768
Max Downward from Load Combinations			-0.768
Max Downward from Load Cases (Resis			-0.555
D Only	0.415	1.841	-0.213
+D+L	1.428	6.268	-0.768
+D+0.750L	1.175	5.161	-0.629
+0.60D	0.249	1.105	-0.128
L Only	1.013	4.427	-0.555

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MBM2 - Support (E) Floor

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

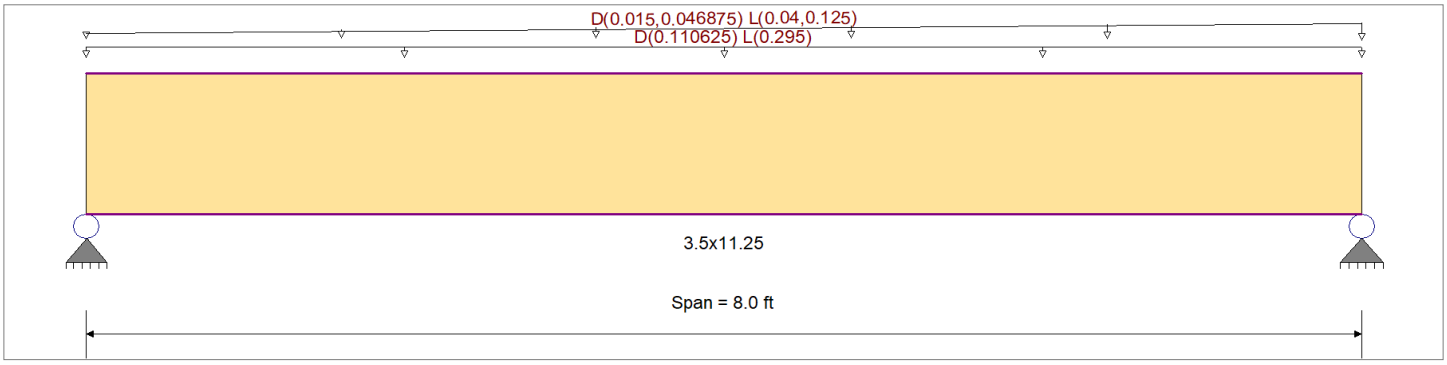
Wood Species : iLevel Truss Joist
Wood Grade : TimberStrand LSL 1.55E

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2325 psi
Fb -	2325 psi
Fc - Prll	2050 psi
Fc - Perp	800 psi
Fv	310 psi
Ft	1070 psi

E : Modulus of Elasticity

Ebend- xx	1550 ksi
Eminbend - xx	787.815 ksi
Density	45.01 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 7.375 ft, ((E) Floor)
Varying Uniform Load : D= 0.0150->0.0150, L= 0.040->0.040 ksf, Extent = 0.0 -->> 8.0 ft, Trib Width = 1.0->3.125 ft, (N Floor)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.296 : 1	Maximum Shear Stress Ratio	=	0.204 : 1
Section used for this span		3.5x11.25	Section used for this span		3.5x11.25
fb: Actual	=	691.17 psi	fv: Actual	=	63.19 psi
F'b	=	2,338.85 psi	F'v	=	310.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	4.088 ft	Location of maximum on span	=	7.066 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.054 in	Ratio =	1765 >=360	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <360	n/a
Max Downward Total Deflection	0.077 in	Ratio =	1254 >=180	Span: 1 : +D+L
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 8.0 ft	1	0.095	0.066	0.90	1.00	1.00	1.00	1.006	1.00	1.00	1.00	1.23	200.1	2,105.0	0.48	18.3	279.0
+D+L					1.00	1.00	1.00	1.006	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.0 ft	1	0.296	0.204	1.00	1.00	1.00	1.00	1.006	1.00	1.00	1.00	4.25	691.2	2,338.8	1.66	63.2	310.0
+D+0.750L					1.00	1.00	1.00	1.006	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.0 ft	1	0.194	0.134	1.25	1.00	1.00	1.00	1.006	1.00	1.00	1.00	3.50	568.4	2,923.6	1.36	52.0	387.5
+0.60D					1.00	1.00	1.00	1.006	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.0 ft	1	0.032	0.022	1.60	1.00	1.00	1.00	1.006	1.00	1.00	1.00	0.74	120.1	3,742.2	0.29	11.0	496.0

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MBM2 - Support (E) Floor

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.0765	4.029		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	2.048	2.203
Max Upward from Load Combinations	2.048	2.203
Max Upward from Load Cases	1.453	1.567
D Only	0.594	0.637
+D+L	2.048	2.203
+D+0.750L	1.684	1.812
+0.60D	0.357	0.382
L Only	1.453	1.567

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MBM3 - Deck/Exterior Wall

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

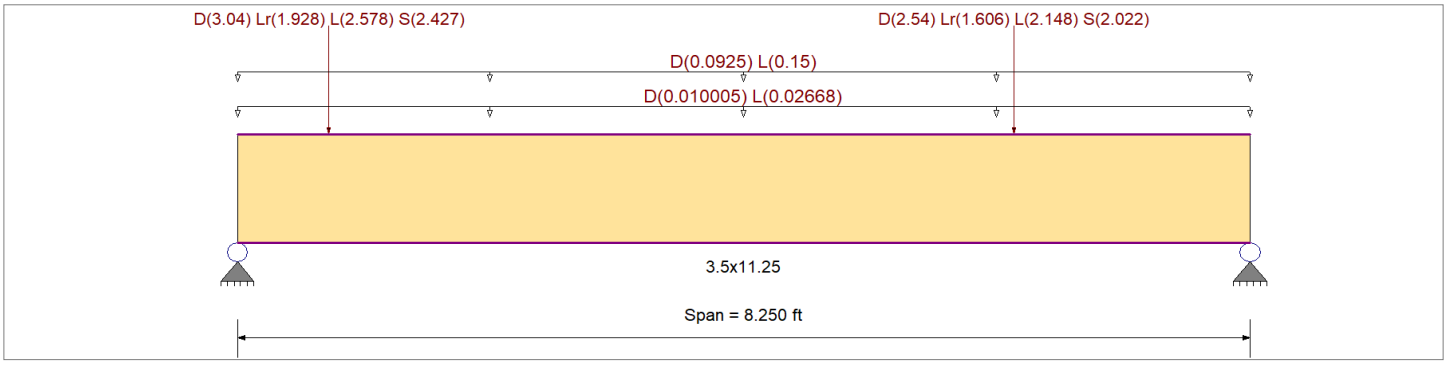
Wood Species : iLevel Truss Joist
Wood Grade : TimberStrand LSL 1.55E

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2,325.0 psi
Fb -	2,325.0 psi
Fc - Prll	2,050.0 psi
Fc - Perp	800.0 psi
Fv	310.0 psi
Ft	1,070.0 psi

E : Modulus of Elasticity

Ebend- xx	1,550.0 ksi
Eminbend - xx	787.82 ksi
Density	45.010 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 0.6670 ft, (Floor Load)
Uniform Load : D = 0.0370, L = 0.060 ksf, Tributary Width = 2.50 ft, (Deck Load)
Point Load : D = 3.040, Lr = 1.928, L = 2.578, S = 2.427 k @ 0.750 ft, (RXN UBM12)
Point Load : D = 2.540, Lr = 1.606, L = 2.148, S = 2.022 k @ 6.333 ft, (RXN UBM12)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.671 : 1	Maximum Shear Stress Ratio	=	0.619 : 1
Section used for this span		3.5x11.25	Section used for this span		3.5x11.25
fb: Actual	=	1,569.22 psi	fv: Actual	=	191.99 psi
F'b	=	2,338.85 psi	F'v	=	310.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	6.112 ft	Location of maximum on span	=	7.317 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.095 in	Ratio =	1045 >=480	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <480	n/a
Max Downward Total Deflection	0.214 in	Ratio =	462 >=360	Span: 1 : +D+0.750L+0.750S
Max Upward Total Deflection	0 in	Ratio =	0 <360	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 8.250 ft	1	0.383	0.354	0.90	1.00	1.00	1.00	1.006	1.00	1.00	1.00	4.96	806.8	2,105.0	2.59	98.8	279.0
+D+L					1.00	1.00	1.00	1.006	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.250 ft	1	0.671	0.619	1.00	1.00	1.00	1.00	1.006	1.00	1.00	1.00	9.65	1,569.2	2,338.8	5.04	192.0	310.0
+D+Lr					1.00	1.00	1.00	1.006	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.250 ft	1	0.426	0.393	1.25	1.00	1.00	1.00	1.006	1.00	1.00	1.00	7.66	1,245.3	2,923.6	4.00	152.4	387.5
+D+S					1.00	1.00	1.00	1.006	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.250 ft	1	0.505	0.466	1.15	1.00	1.00	1.00	1.006	1.00	1.00	1.00	8.36	1,358.8	2,689.7	4.37	166.3	356.5

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MBM3 - Deck/Exterior Wall

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+0.750Lr+0.750L					1.00	1.00	1.00	1.006	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.250 ft	**1**	0.584	0.539	1.25	1.00	1.00	1.00	1.006	1.00	1.00	1.00	10.50	1,706.6	2,923.6	5.48	208.9	387.5
+D+0.750L+0.750S					1.00	1.00	1.00	1.006	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.250 ft	**1**	0.666	0.615	1.15	1.00	1.00	1.00	1.006	1.00	1.00	1.00	11.02	1,791.8	2,689.7	5.76	219.3	356.5
+0.60D					1.00	1.00	1.00	1.006	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.250 ft	**1**	0.129	0.119	1.60	1.00	1.00	1.00	1.006	1.00	1.00	1.00	2.98	484.1	3,742.2	1.56	59.3	496.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S	1	0.2142	4.276		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	8.513	5.988
Max Upward from Load Combinations	8.513	5.988
Max Upward from Load Cases	3.827	2.700
D Only	3.827	2.700
+D+L	7.399	5.312
+D+Lr	5.953	4.108
+D+S	6.504	4.473
+D+0.750Lr+0.750L	8.101	5.715
+D+0.750L+0.750S	8.513	5.988
+0.60D	2.296	1.620
Lr Only	2.126	1.408
L Only	3.572	2.612
S Only	2.676	1.773

Dibble Engineers, Inc.
1029 Market Street
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MBM4 - HDR

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

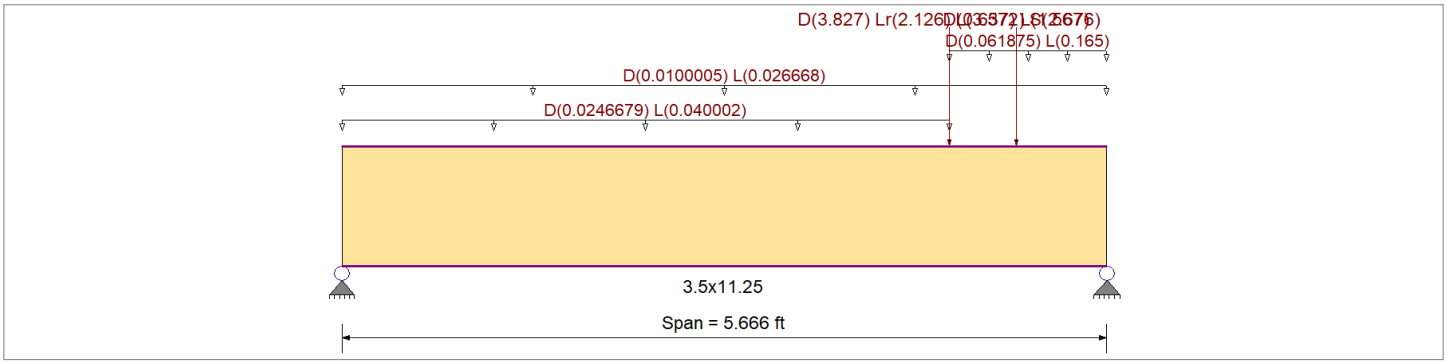
Wood Species : iLevel Truss Joist
Wood Grade : TimberStrand LSL 1.55E

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2,325.0 psi
Fb -	2,325.0 psi
Fc - Prll	2,050.0 psi
Fc - Perp	800.0 psi
Fv	310.0 psi
Ft	1,070.0 psi

E : Modulus of Elasticity

Ebend- xx	1,550.0 ksi
Eminbend - xx	787.82 ksi
Density	45.010 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0370, L = 0.060 ksf, Extent = 0.0 -->> 4.50 ft, Tributary Width = 0.6667 ft, (Deck Load)
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 0.6667 ft, (Floor Load)
Uniform Load : D = 0.0150, L = 0.040 ksf, Extent = 4.50 -->> 5.666 ft, Tributary Width = 4.125 ft, (Floor Load)
Point Load : D = 3.827, Lr = 2.126, L = 3.572, S = 2.676 k @ 4.50 ft, (RXN MBM3)
Point Load : D = 0.6370, L = 1.567 k @ 5.0 ft, (MBM2)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.583 : 1	Maximum Shear Stress Ratio	=	0.721 : 1
Section used for this span		3.5x11.25	Section used for this span		3.5x11.25
fb: Actual	=	1,362.55 psi	fv: Actual	=	257.06 psi
F'b	=	2,338.85 psi	F'v	=	356.50 psi
Load Combination		+D+L	Load Combination		+D+0.750L+0.750S
Location of maximum on span	=	4.487 ft	Location of maximum on span	=	4.735 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.030 in	Ratio =	2252 >=360	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <360	n/a
Max Downward Total Deflection	0.062 in	Ratio =	1093 >=180	Span: 1 : +D+0.750L+0.750S
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 5.666 ft	1	0.310	0.418	0.90	1.00	1.00	1.00	1.006	1.00	1.00	1.00	4.01	652.5	2,105.0	3.06	116.5	279.0
+D+L					1.00	1.00	1.00	1.006	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.666 ft	1	0.583	0.719	1.00	1.00	1.00	1.00	1.006	1.00	1.00	1.00	8.38	1,362.6	2,338.8	5.85	222.9	310.0
+D+Lr					1.00	1.00	1.00	1.006	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.666 ft	1	0.332	0.467	1.25	1.00	1.00	1.00	1.006	1.00	1.00	1.00	5.98	971.6	2,923.6	4.75	180.8	387.5

Dibble Engineers, Inc.
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MBM4 - HDR

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+S					1.00	1.00	1.00	1.006	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.666 ft	1	0.392	0.554	1.15	1.00	1.00	1.00	1.006	1.00	1.00	1.00	6.49	1,054.1	2,689.7	5.18	197.5	356.5
+D+0.750Lr+0.750L					1.00	1.00	1.00	1.006	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.666 ft	1	0.487	0.631	1.25	1.00	1.00	1.00	1.006	1.00	1.00	1.00	8.76	1,424.4	2,923.6	6.42	244.6	387.5
+D+0.750L+0.750S					1.00	1.00	1.00	1.006	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.666 ft	1	0.553	0.721	1.15	1.00	1.00	1.00	1.006	1.00	1.00	1.00	9.14	1,486.3	2,689.7	6.75	257.1	356.5
+0.60D					1.00	1.00	1.00	1.006	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.666 ft	1	0.105	0.141	1.60	1.00	1.00	1.00	1.006	1.00	1.00	1.00	2.41	391.5	3,742.2	1.83	69.9	496.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S	1	0.0622	3.205		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	2.255	8.772
Max Upward from Load Combinations	2.255	8.772
Max Upward from Load Cases	1.123	4.539
D Only	1.000	3.774
+D+L	2.123	8.313
+D+Lr	1.437	5.462
+D+S	1.551	5.899
+D+0.750Lr+0.750L	2.170	8.444
+D+0.750L+0.750S	2.255	8.772
+0.60D	0.600	2.264
Lr Only	0.438	1.688
L Only	1.123	4.539
S Only	0.551	2.125

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MBM5 - Deck Beam

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

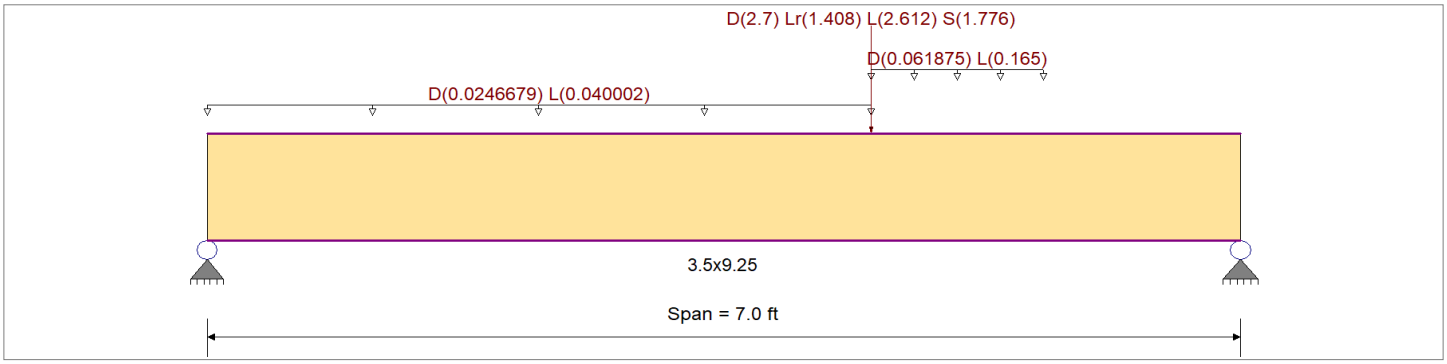
Material Properties

Analysis Method :	Allowable Stress Design
Load Combination :	IBC 2021
Wood Species :	iLevel Truss Joist
Wood Grade :	TimberStrand LSL 1.55E
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling

Fb +	2,325.0 psi
Fb -	2,325.0 psi
Fc - Prll	2,050.0 psi
Fc - Perp	800.0 psi
Fv	310.0 psi
Ft	1,070.0 psi

E : Modulus of Elasticity

Ebend- xx	1,550.0 ksi
Eminbend - xx	787.82 ksi
Density	45.010 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0370, L = 0.060 ksf, Extent = 0.0 -->> 4.50 ft, Tributary Width = 0.6667 ft, (Deck Load)
Uniform Load : D = 0.0150, L = 0.040 ksf, Extent = 4.50 -->> 5.666 ft, Tributary Width = 4.125 ft, (Floor Load)
Point Load : D = 2.70, Lr = 1.408, L = 2.612, S = 1.776 k @ 4.50 ft, (RXN MBM3)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.924 : 1	Maximum Shear Stress Ratio	=	0.557 : 1
Section used for this span		3.5x9.25	Section used for this span		3.5x9.25
fb: Actual	=	2,199.20 psi	fv: Actual	=	172.73 psi
F'b	=	2,381.35 psi	F'v	=	310.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	4.496 ft	Location of maximum on span	=	6.234 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.090 in	Ratio =	928 >=360	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <360	n/a
Max Downward Total Deflection	0.199 in	Ratio =	421 >=180	Span: 1 : +D+0.750L+0.750S
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 7.0 ft	1	0.513	0.307	0.90	1.00	1.00	1.00	1.024	1.00	1.00	1.00	4.57	1,099.0	2,143.2	1.85	85.8	279.0
+D+L					1.00	1.00	1.00	1.024	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	1	0.924	0.557	1.00	1.00	1.00	1.00	1.024	1.00	1.00	1.00	9.15	2,199.2	2,381.3	3.73	172.7	310.0
+D+Lr					1.00	1.00	1.00	1.024	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	1	0.552	0.330	1.25	1.00	1.00	1.00	1.024	1.00	1.00	1.00	6.83	1,642.6	2,976.7	2.76	127.7	387.5
+D+S					1.00	1.00	1.00	1.024	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	1	0.652	0.389	1.15	1.00	1.00	1.00	1.024	1.00	1.00	1.00	7.42	1,784.6	2,738.5	2.99	138.7	356.5

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MBM5 - Deck Beam

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+0.750Lr+0.750L					1.00	1.00	1.00	1.024	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	**1**	0.783	0.471	1.25	1.00	1.00	1.00	1.024	1.00	1.00	1.00	9.70	2,331.8	2,976.7	3.94	182.4	387.5
+D+0.750L+0.750S					1.00	1.00	1.00	1.024	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	**1**	0.890	0.535	1.15	1.00	1.00	1.00	1.024	1.00	1.00	1.00	10.14	2,438.4	2,738.5	4.12	190.7	356.5
+0.60D					1.00	1.00	1.00	1.024	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	**1**	0.173	0.104	1.60	1.00	1.00	1.00	1.024	1.00	1.00	1.00	2.74	659.4	3,810.2	1.11	51.5	496.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S	1	0.1992	3.781		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	2.401	4.123
Max Upward from Load Combinations	2.401	4.123
Max Upward from Load Cases	1.108	1.877
D Only	1.095	1.859
+D+L	2.202	3.736
+D+Lr	1.598	2.764
+D+S	1.729	3.001
+D+0.750Lr+0.750L	2.303	3.946
+D+0.750L+0.750S	2.401	4.123
+0.60D	0.657	1.116
Lr Only	0.503	0.905
L Only	1.108	1.877
S Only	0.634	1.142

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MBM6 - Deck Edge

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

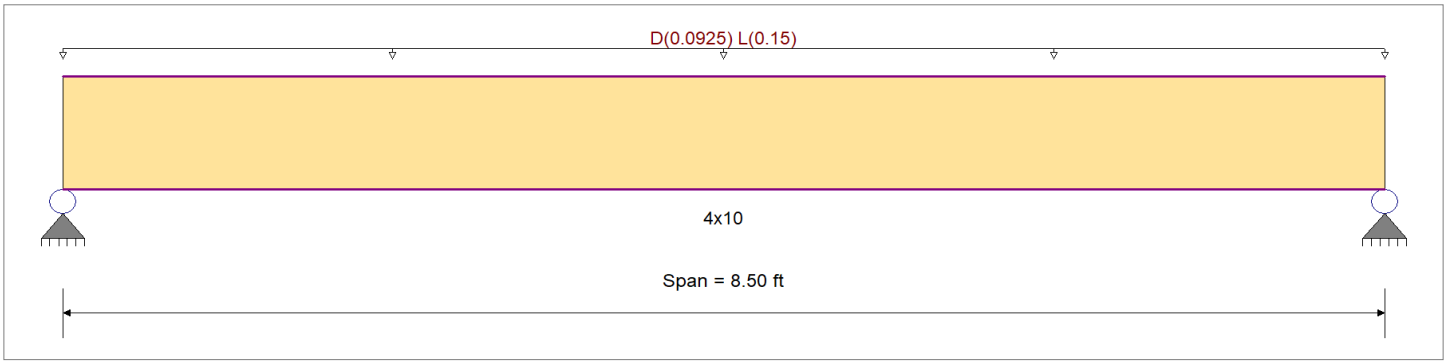
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0370, L = 0.060 ksf, Tributary Width = 2.50 ft, (Deck Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.529 : 1	Maximum Shear Stress Ratio	=	0.269 : 1
Section used for this span		4x10	Section used for this span		4x10
fb: Actual	=	539.65 psi	fv: Actual	=	40.37 psi
F'b	=	1,020.00 psi	F'v	=	150.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	4.250 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.059 in	Ratio =	1727 >=360	Span: 1 : L Only
Max Upward Transient Deflection	0 in	Ratio =	0 <360	n/a
Max Downward Total Deflection	0.098 in	Ratio =	1042 >=180	Span: 1 : +D+L
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 8.50 ft	1	0.233	0.119	0.90	1.00	1.00	1.00	1.200	1.00	1.00	1.00	0.89	214.0	918.0	0.35	16.0	135.0
+D+L					1.00	1.00	1.00	1.200	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.50 ft	1	0.529	0.269	1.00	1.00	1.00	1.00	1.200	1.00	1.00	1.00	2.24	539.7	1,020.0	0.87	40.4	150.0
+D+0.750L					1.00	1.00	1.00	1.200	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.50 ft	1	0.359	0.183	1.25	1.00	1.00	1.00	1.200	1.00	1.00	1.00	1.91	458.2	1,275.0	0.74	34.3	187.5
+0.60D					1.00	1.00	1.00	1.200	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.50 ft	1	0.079	0.040	1.60	1.00	1.00	1.00	1.200	1.00	1.00	1.00	0.53	128.4	1,632.0	0.21	9.6	240.0

Dibble Engineers, Inc.
1029 Market Street
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(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MBM6 - Deck Edge

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.0978	4.281		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	1.056	1.056
Max Upward from Load Combinations	1.056	1.056
Max Upward from Load Cases	0.638	0.638
D Only	0.419	0.419
+D+L	1.056	1.056
+D+0.750L	0.897	0.897
+0.60D	0.251	0.251
L Only	0.638	0.638

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(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MBM7 (Lateral) - Support E SW

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

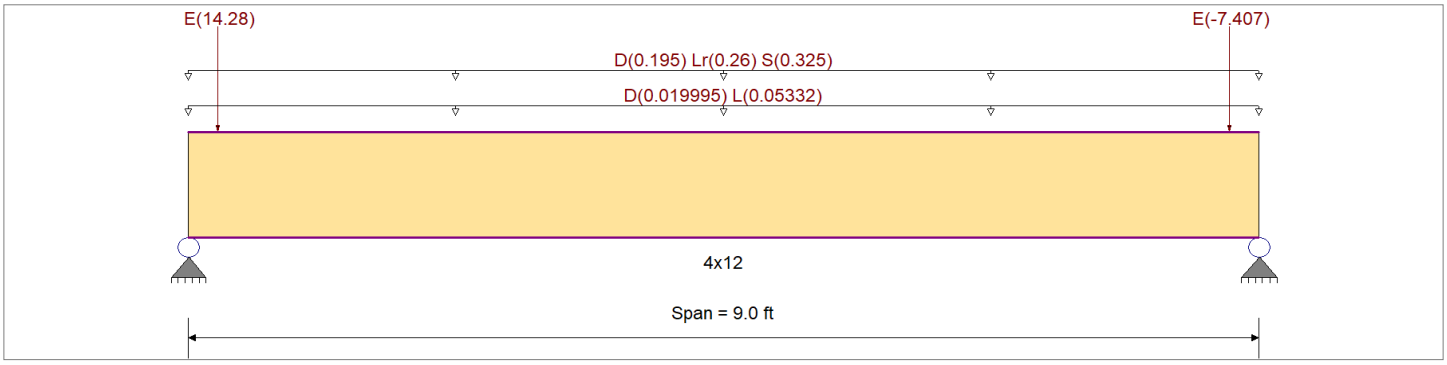
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 1.333 ft, (Floor Load)
Uniform Load : D = 0.0150, Lr = 0.020, S = 0.0250 ksf, Tributary Width = 13.0 ft, (Low Roof)
Point Load : E = 14.280 k @ 0.250 ft, (SW 3.A)
Point Load : E = -7.407 k @ 8.750 ft, (SW 3.A)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.838 : 1	Maximum Shear Stress Ratio	=	0.433 : 1
Section used for this span		4x12	Section used for this span		4x12
fb: Actual	=	900.76 psi	fv: Actual	=	74.65 psi
F'b	=	1,075.25 psi	F'v	=	172.50 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	4.500 ft	Location of maximum on span	=	8.080 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.089 in	Ratio =	1208 >=360	Span: 1 : S Only
Max Upward Transient Deflection	0 in	Ratio =	0 <360	n/a
Max Downward Total Deflection	0.154 in	Ratio =	699 >=180	Span: 1 : +D+0.750L+0.750S+0.5250E
Max Upward Total Deflection	0 in	Ratio =	0 <180	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 9.0 ft	1	0.435	0.225	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	2.25	365.9	841.5	0.80	30.3	135.0
+D+L					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.0 ft	1	0.485	0.251	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.00	2.79	453.6	935.0	0.99	37.6	150.0
+D+Lr					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.0 ft	1	0.679	0.351	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	4.88	793.8	1,168.8	1.73	65.8	187.5
+D+S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.0 ft	1	0.838	0.433	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	5.54	900.8	1,075.3	1.96	74.7	172.5

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MBM7 (Lateral) - Support E SW

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+0.750Lr+0.750L					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.0 ft	**1**	0.644	0.333	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	4.63	752.6	1,168.8	1.64	62.4	187.5
+D+0.750L+0.750S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.0 ft	**1**	0.775	0.400	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	5.12	832.9	1,075.3	1.81	69.0	172.5
+D+0.70E					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.0 ft	**1**	0.353	0.193	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	3.25	528.6	1,496.0	1.22	46.4	240.0
+D+0.750L+0.750S+0.5250E					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.0 ft	**1**	0.616	0.335	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	5.67	922.2	1,496.0	2.11	80.4	240.0
+0.60D					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.0 ft	**1**	0.147	0.076	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.35	219.5	1,496.0	0.48	18.2	240.0
+0.60D+0.70E					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.0 ft	**1**	0.285	0.143	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	2.62	425.6	1,496.0	0.90	34.3	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S+0.5250E	1	0.1543	4.336		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	13.678	2.463
Max Upward from Load Combinations	10.575	2.463
Max Upward from Load Cases	13.678	1.463
Max Downward from all Load Conditio		-6.805
Max Downward from Load Combinations		-4.163
Max Downward from Load Cases (Resis		-6.805
D Only	1.001	1.001
+D+L	1.240	1.240
+D+Lr	2.171	2.171
+D+S	2.463	2.463
+D+0.750Lr+0.750L	2.058	2.058
+D+0.750L+0.750S	2.277	2.277
+D+0.70E	10.575	-3.763
+D+0.750L+0.750S+0.5250E	9.458	-1.295
+0.60D	0.600	0.600
+0.60D+0.70E	10.175	-4.163
Lr Only	1.170	1.170
L Only	0.240	0.240
S Only	1.463	1.463
E Only	13.678	-6.805

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MBM8 - SW Support

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

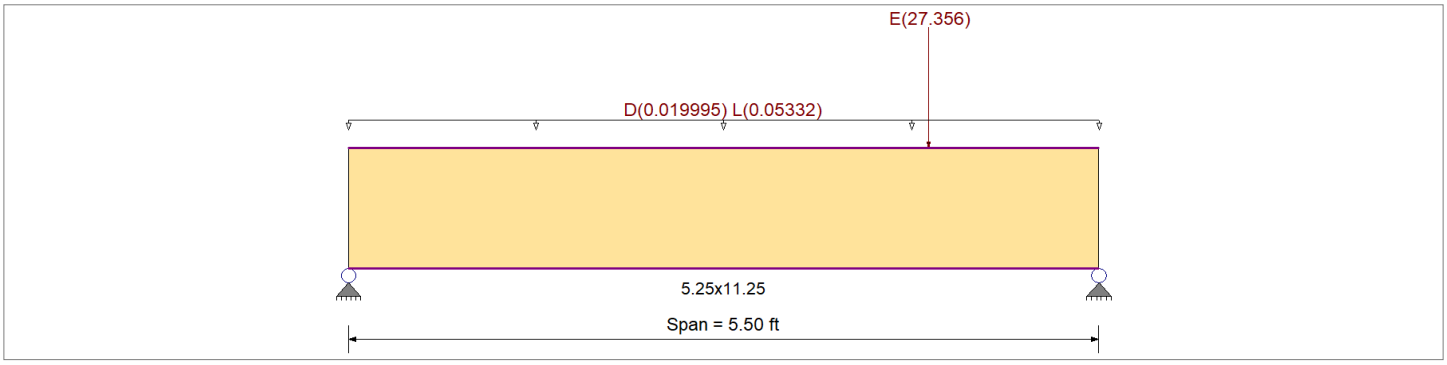
Wood Species : iLevel Truss Joist
Wood Grade : Parallam PSL 2.0E

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2900 psi
Fb -	2900 psi
Fc - Prll	2900 psi
Fc - Perp	750 psi
Fv	290 psi
Ft	2025 psi

E : Modulus of Elasticity

Ebend- xx	2000 ksi
Eminbend - xx	1016.535 ksi
Density	45.07 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 1.333 ft, (Floor Load)
Point Load : E = 27.356 k @ 4.250 ft, (SW B.1 Compression)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.430 : 1	Maximum Shear Stress Ratio	=	0.814 : 1
Section used for this span		5.25x11.25	Section used for this span		5.25x11.25
fb: Actual	=	2,008.55 psi	fv: Actual	=	377.58 psi
F'b	=	4,673.36 psi	F'v	=	464.00 psi
Load Combination		+D+0.70E	Load Combination		+D+0.70E
Location of maximum on span	=	4.235 ft	Location of maximum on span	=	4.577 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.085 in	Ratio =	772 >=480	Span: 1 : E Only
Max Upward Transient Deflection	0 in	Ratio =	0 <480	n/a
Max Downward Total Deflection	0.060 in	Ratio =	1092 >=360	Span: 1 : +D+0.70E
Max Upward Total Deflection	0 in	Ratio =	0 <360	n/a

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.006	0.007	0.90	1.00	1.00	1.00	1.007	1.00	1.00	1.00	0.15	15.8	2,628.8	0.07	1.8	261.0
+D+L					1.00	1.00	1.00	1.007	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.013	0.015	1.00	1.00	1.00	1.00	1.007	1.00	1.00	1.00	0.35	37.6	2,920.8	0.17	4.3	290.0
+D+0.750L					1.00	1.00	1.00	1.007	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.009	0.010	1.25	1.00	1.00	1.00	1.007	1.00	1.00	1.00	0.30	32.2	3,651.1	0.14	3.6	362.5
+D+0.70E					1.00	1.00	1.00	1.007	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	1	0.430	0.814	1.60	1.00	1.00	1.00	1.007	1.00	1.00	1.00	18.54	2,008.5	4,673.4	14.87	377.6	464.0
+D+0.750L+0.5250E					1.00	1.00	1.00	1.007	1.00	1.00	1.00			0.0	0.00	0.0	0.0

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: MBM8 - SW Support

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 5.50 ft	**1**	0.325	0.615	1.60	1.00	1.00	1.00	1.007	1.00	1.00	1.00	14.03	1,520.8	4,673.4	11.24	285.5	464.0
+0.60D					1.00	1.00	1.00	1.007	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	**1**	0.002	0.002	1.60	1.00	1.00	1.00	1.007	1.00	1.00	1.00	0.09	9.5	4,673.4	0.04	1.1	464.0
+0.60D+0.70E					1.00	1.00	1.00	1.007	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 5.50 ft	**1**	0.429	0.812	1.60	1.00	1.00	1.00	1.007	1.00	1.00	1.00	18.49	2,004.1	4,673.4	14.84	376.9	464.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
E Only	1	0.0854	3.111		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	6.217	21.139
Max Upward from Load Combinations	4.458	14.903
Max Upward from Load Cases	6.217	21.139
D Only	0.106	0.106
+D+L	0.252	0.252
+D+0.750L	0.216	0.216
+D+0.70E	4.458	14.903
+D+0.750L+0.5250E	3.480	11.314
+0.60D	0.063	0.063
+0.60D+0.70E	4.416	14.861
L Only	0.147	0.147
E Only	6.217	21.139

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: EBM2 - (E) Deck Beam Check

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

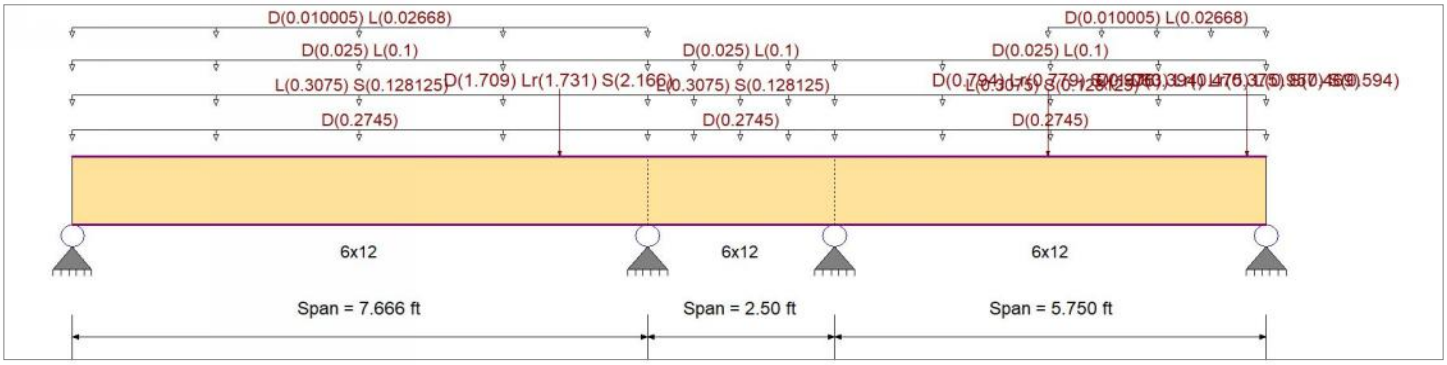
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0360 ksf, Tributary Width = 7.625 ft, (Deck Dead Load)
Uniform Load : L = 0.060, S = 0.0250 ksf, Tributary Width = 5.125 ft, (Deck Loads)
Uniform Load : D = 0.010, L = 0.040 ksf, Tributary Width = 2.50 ft, (INT Floor Load)
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 0.6670 ft, (Upper Floor Load)
Point Load : D = 1.709, Lr = 1.731, S = 2.166 k @ 6.50 ft, (RXN RHDR1)
Load for Span Number 2
Uniform Load : D = 0.0360 ksf, Tributary Width = 7.625 ft, (Deck Dead Load)
Uniform Load : L = 0.060, S = 0.0250 ksf, Tributary Width = 5.125 ft, (Deck Loads)
Uniform Load : D = 0.010, L = 0.040 ksf, Tributary Width = 2.50 ft, (INT Floor Load)
Load for Span Number 3
Uniform Load : D = 0.0360 ksf, Tributary Width = 7.625 ft, (Deck Dead Load)
Uniform Load : L = 0.060, S = 0.0250 ksf, Tributary Width = 5.125 ft, (Deck Loads)
Uniform Load : D = 0.010, L = 0.040 ksf, Tributary Width = 2.50 ft, (INT Floor Load)
Uniform Load : D = 0.0150, L = 0.040 ksf, Extent = 2.833 -->> 5.750 ft, Tributary Width = 0.6670 ft, (Upper Floor Load)
Point Load : D = 0.7940, Lr = 0.7790, S = 0.9760 k @ 2.833 ft, (RHDR1)
Point Load : D = 1.063, Lr = 0.4750, L = 0.9570, S = 0.5940 k @ 5.50 ft, (UBM3)
Point Load : D = 0.3940, Lr = 0.3750, S = 0.4690 k @ 5.50 ft, (RHDR2)

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(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: EBM2 - (E) Deck Beam Check

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.629 : 1	Maximum Shear Stress Ratio	=	0.799 : 1
Section used for this span		6x12	Section used for this span		6x12
fb: Actual	=	615.04 psi	fv: Actual	=	137.90 psi
F'b	=	977.50 psi	F'v	=	172.50 psi
Load Combination		+D+0.750L+0.750S	Load Combination		+D+0.750L+0.750S
Location of maximum on span	=	7.666 ft	Location of maximum on span	=	6.764 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.021 in	Ratio =	4317 >=480	Span: 3 : L Only
Max Upward Transient Deflection	-0.002 in	Ratio =	13737 >=480	Span: 2 : L Only
Max Downward Total Deflection	0.047 in	Ratio =	1940 >=360	Span: 3 : +D+0.750L+0.750S
Max Upward Total Deflection	-0.006 in	Ratio =	4902 >=360	Span: 2 : +D+0.750L+0.750S

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	M	fb	F'b	V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 7.666 ft	1	0.370	0.486	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.86	283.1	765.0	2.76	65.5	135.0
Length = 2.50 ft	2	0.370	0.486	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.86	283.1	765.0	1.30	65.5	135.0
Length = 5.750 ft	3	0.256	0.486	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	1.98	195.9	765.0	1.30	65.5	135.0
+D+L					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.666 ft	1	0.607	0.687	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.22	516.4	850.0	4.34	103.0	150.0
Length = 2.50 ft	2	0.607	0.687	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.22	516.4	850.0	2.34	103.0	150.0
Length = 5.750 ft	3	0.388	0.687	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.33	330.1	850.0	2.34	103.0	150.0
+D+Lr					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.666 ft	1	0.372	0.554	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.99	395.1	1,062.5	4.38	103.9	187.5
Length = 2.50 ft	2	0.372	0.554	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.99	395.1	1,062.5	1.82	103.9	187.5
Length = 5.750 ft	3	0.275	0.554	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.95	292.0	1,062.5	1.82	103.9	187.5
+D+S					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.666 ft	1	0.504	0.722	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.97	492.4	977.5	5.25	124.5	172.5
Length = 2.50 ft	2	0.504	0.722	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.97	492.4	977.5	2.25	124.5	172.5
Length = 5.750 ft	3	0.362	0.722	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.58	354.0	977.5	2.25	124.5	172.5
+D+0.750Lr+0.750L					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.666 ft	1	0.510	0.653	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.48	542.1	1,062.5	5.16	122.4	187.5
Length = 2.50 ft	2	0.510	0.653	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.48	542.1	1,062.5	2.47	122.4	187.5
Length = 5.750 ft	3	0.346	0.653	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.71	367.4	1,062.5	2.47	122.4	187.5
+D+0.750L+0.750S					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.666 ft	1	0.629	0.799	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	6.21	615.0	977.5	5.81	137.9	172.5
Length = 2.50 ft	2	0.629	0.799	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	6.21	615.0	977.5	2.80	137.9	172.5
Length = 5.750 ft	3	0.423	0.799	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.18	413.9	977.5	2.80	137.9	172.5
+0.60D					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.666 ft	1	0.125	0.164	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	1.72	169.9	1,360.0	1.66	39.3	240.0
Length = 2.50 ft	2	0.125	0.164	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	1.72	169.9	1,360.0	0.78	39.3	240.0
Length = 5.750 ft	3	0.086	0.164	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	1.19	117.5	1,360.0	0.78	39.3	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S	1	0.0474	3.672		0.0000	0.000
	2	0.0000	3.672	+D+0.750L+0.750S	-0.0061	1.176
+D+0.750L+0.750S	3	0.0238	3.092		0.0000	1.176

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Max Upward from all Load Conditions	2.545	8.769	2.948	5.235

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: EBM2 - (E) Deck Beam Check

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Max Upward from Load Combinations	2.545	8.769	2.948	5.235
Max Upward from Load Cases	1.357	4.076	1.391	2.480
D Only	1.118	4.076	1.346	2.480
+D+L	2.475	7.088	2.737	4.445
+D+Lr	1.234	5.948	1.607	3.591
+D+S	1.663	7.323	2.091	4.188
+D+0.750Lr+0.750L	2.223	7.739	2.585	4.788
+D+0.750L+0.750S	2.545	8.769	2.948	5.235
+0.60D	0.671	2.446	0.808	1.488
Lr Only	0.116	1.872	0.261	1.112
L Only	1.357	3.011	1.391	1.966
S Only	0.545	3.246	0.745	1.708

Dibble Engineers, Inc.
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: EBM3 - (E) Deck Beam Check

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

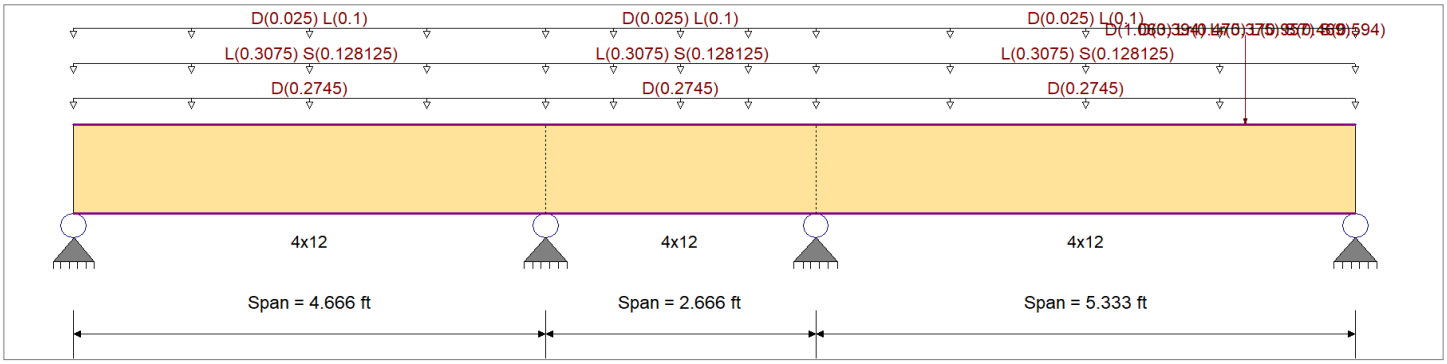
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
- Uniform Load : D = 0.0360 ksf, Tributary Width = 7.625 ft, (Deck Dead Load)
- Uniform Load : L = 0.060, S = 0.0250 ksf, Tributary Width = 5.125 ft, (Deck Loads)
- Uniform Load : D = 0.010, L = 0.040 ksf, Tributary Width = 2.50 ft, (INT Floor Load)

Load for Span Number 2
- Uniform Load : D = 0.0360 ksf, Tributary Width = 7.625 ft, (Deck Dead Load)
- Uniform Load : L = 0.060, S = 0.0250 ksf, Tributary Width = 5.125 ft, (Deck Loads)
- Uniform Load : D = 0.010, L = 0.040 ksf, Tributary Width = 2.50 ft, (INT Floor Load)

Load for Span Number 3
- Uniform Load : D = 0.0360 ksf, Tributary Width = 7.625 ft, (Deck Dead Load)
- Uniform Load : L = 0.060, S = 0.0250 ksf, Tributary Width = 5.125 ft, (Deck Loads)
- Uniform Load : D = 0.010, L = 0.040 ksf, Tributary Width = 2.50 ft, (INT Floor Load)
- Point Load : D = 1.063, Lr = 0.4750, L = 0.9570, S = 0.5940 k @ 4.250 ft, (UBM3)
- Point Load : D = 0.3940, Lr = 0.3750, S = 0.4690 k @ 4.250 ft, (RHDR2)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.560 : 1	Maximum Shear Stress Ratio	=	0.687 : 1
Section used for this span		4x12	Section used for this span		4x12
fb: Actual	=	523.76 psi	fv: Actual	=	103.08 psi
F'b	=	935.00 psi	F'v	=	150.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	4.033 ft	Location of maximum on span	=	4.437 ft
Span # where maximum occurs	=	Span # 3	Span # where maximum occurs	=	Span # 3

Maximum Deflection

Max Downward Transient Deflection	0.012 in	Ratio =	5259 >=480	Span: 3 : L Only
Max Upward Transient Deflection	-0.002 in	Ratio =	16735 >=480	Span: 2 : L Only
Max Downward Total Deflection	0.026 in	Ratio =	2417 >=360	Span: 3 : +D+0.750L+0.750S
Max Upward Total Deflection	-0.004 in	Ratio =	8217 >=360	Span: 2 : +D+0.750L+0.750S

Dibble Engineers, Inc.
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: EBM3 - (E) Deck Beam Check

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 4.666 ft	1	0.125	0.148	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.65	105.0	841.5	0.53	20.0	135.0
Length = 2.666 ft	2	0.242	0.303	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.26	204.1	841.5	1.07	40.9	135.0
Length = 5.333 ft	3	0.330	0.414	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.71	277.4	841.5	1.47	56.0	135.0
+D+L					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.666 ft	1	0.257	0.314	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.48	239.9	935.0	1.24	47.1	150.0
Length = 2.666 ft	2	0.447	0.568	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.00	2.57	418.3	935.0	2.24	85.2	150.0
Length = 5.333 ft	3	0.560	0.687	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.00	3.22	523.8	935.0	2.71	103.1	150.0
+D+Lr					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.666 ft	1	0.093	0.104	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.67	109.0	1,168.8	0.51	19.6	187.5
Length = 2.666 ft	2	0.217	0.265	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.56	253.4	1,168.8	1.30	49.7	187.5
Length = 5.333 ft	3	0.330	0.425	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	2.37	385.3	1,168.8	2.09	79.6	187.5
+D+S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.666 ft	1	0.140	0.163	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.93	151.0	1,075.3	0.74	28.1	172.5
Length = 2.666 ft	2	0.294	0.363	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.94	315.6	1,075.3	1.65	62.7	172.5
Length = 5.333 ft	3	0.419	0.533	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	2.77	450.9	1,075.3	2.41	92.0	172.5
+D+0.750Lr+0.750L					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.666 ft	1	0.179	0.213	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.29	209.1	1,168.8	1.05	40.0	187.5
Length = 2.666 ft	2	0.344	0.430	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	2.47	401.7	1,168.8	2.12	80.7	187.5
Length = 5.333 ft	3	0.463	0.581	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	3.33	541.6	1,168.8	2.86	109.0	187.5
+D+0.750L+0.750S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.666 ft	1	0.224	0.269	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.48	240.7	1,075.3	1.22	46.4	172.5
Length = 2.666 ft	2	0.417	0.525	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	2.76	448.4	1,075.3	2.38	90.5	172.5
Length = 5.333 ft	3	0.549	0.686	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	3.63	590.8	1,075.3	3.11	118.3	172.5
+0.60D					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 4.666 ft	1	0.042	0.050	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.39	63.0	1,496.0	0.32	12.0	240.0
Length = 2.666 ft	2	0.082	0.102	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.75	122.4	1,496.0	0.64	24.6	240.0
Length = 5.333 ft	3	0.111	0.140	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.02	166.5	1,496.0	0.88	33.6	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S	1	0.0100	2.235		0.0000	0.000
	2	0.0000	2.235	+D+0.750L+0.750S	-0.0039	1.501
+D+0.750L+0.750S	3	0.0265	3.092		0.0000	1.501

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Max Upward from all Load Conditions	1.452	2.243	4.632	3.741
Max Upward from Load Combinations	1.452	2.243	4.632	3.741
Max Upward from Load Cases	0.823	1.352	2.342	1.744
Max Downward from all Load Conditio		-0.146		
Max Downward from Load Cases (Resis		-0.146		
D Only	0.630	0.891	2.078	1.744
+D+L	1.452	2.243	4.420	3.346
+D+Lr	0.641	0.745	2.442	2.364
+D+S	0.899	1.185	3.141	2.804
+D+0.750Lr+0.750L	1.255	1.795	4.108	3.411
+D+0.750L+0.750S	1.449	2.125	4.632	3.741
+0.60D	0.378	0.535	1.247	1.046
Lr Only	0.012	-0.146	0.364	0.620
L Only	0.823	1.352	2.342	1.602
S Only	0.269	0.294	1.063	1.060

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: EBM4 - (E) Deck Beam Check

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

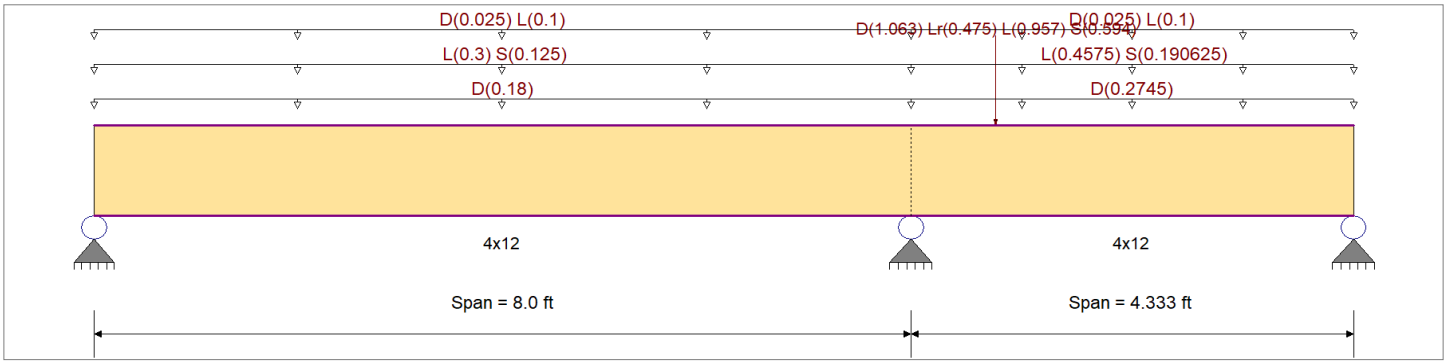
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0360 ksf, Tributary Width = 5.0 ft, (Deck Dead Load)
Uniform Load : L = 0.060, S = 0.0250 ksf, Tributary Width = 5.0 ft, (Deck Loads)
Uniform Load : D = 0.010, L = 0.040 ksf, Tributary Width = 2.50 ft, (INT Floor Load)
Load for Span Number 2
Uniform Load : D = 0.0360 ksf, Tributary Width = 7.625 ft, (Deck Dead Load)
Uniform Load : L = 0.060, S = 0.0250 ksf, Tributary Width = 7.625 ft, (Deck Loads)
Uniform Load : D = 0.010, L = 0.040 ksf, Tributary Width = 2.50 ft, (INT Floor Load)
Point Load : D = 1.063, Lr = 0.4750, L = 0.9570, S = 0.5940 k @ 0.8333 ft, (UBM3)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.751 : 1	Maximum Shear Stress Ratio	=	0.620 : 1
Section used for this span		4x12	Section used for this span		4x12
fb: Actual	=	702.50 psi	fv: Actual	=	93.04 psi
F'b	=	935.00 psi	F'v	=	150.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	8.000 ft	Location of maximum on span	=	7.106 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.034 in	Ratio =	2801 >=480	Span: 2 : L Only
Max Upward Transient Deflection	-0.001 in	Ratio =	46499 >=480	Span: 2 : L Only
Max Downward Total Deflection	0.051 in	Ratio =	1886 >=360	Span: 2 : +D+0.750L+0.750S
Max Upward Total Deflection	-0.001 in	Ratio =	47723 >=360	Span: 2 : +D+L

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 8.0 ft	1	0.306	0.242	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.58	257.2	841.5	0.86	32.7	135.0
Length = 4.333 ft	2	0.306	0.242	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.58	257.2	841.5	0.54	32.7	135.0

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: EBM4 - (E) Deck Beam Check

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+L					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.0 ft	1	0.751	0.620	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.00	4.32	702.5	935.0	2.44	93.0	150.0
Length = 4.333 ft	2	0.751	0.620	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.00	4.32	702.5	935.0	1.69	93.0	150.0
+D+Lr					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.0 ft	1	0.234	0.177	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.68	273.7	1,168.8	0.87	33.1	187.5
Length = 4.333 ft	2	0.234	0.177	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	1.68	273.7	1,168.8	0.48	33.1	187.5
+D+S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.0 ft	1	0.380	0.301	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	2.51	408.8	1,075.3	1.36	51.9	172.5
Length = 4.333 ft	2	0.380	0.301	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	2.51	408.8	1,075.3	0.88	51.9	172.5
+D+0.750Lr+0.750L					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.0 ft	1	0.516	0.418	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	3.71	603.5	1,168.8	2.06	78.3	187.5
Length = 4.333 ft	2	0.516	0.418	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	3.71	603.5	1,168.8	1.35	78.3	187.5
+D+0.750L+0.750S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.0 ft	1	0.656	0.535	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	4.34	704.9	1,075.3	2.42	92.4	172.5
Length = 4.333 ft	2	0.656	0.535	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	4.34	704.9	1,075.3	1.65	92.4	172.5
+0.60D					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 8.0 ft	1	0.103	0.082	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.95	154.3	1,496.0	0.51	19.6	240.0
Length = 4.333 ft	2	0.103	0.082	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.95	154.3	1,496.0	0.33	19.6	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.0509	3.531		0.0000	0.000
+D+0.750L+0.750S	2	0.0035	2.735	L Only	-0.0011	0.629

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions	1.909	7.646	1.308
Max Upward from Load Combinations	1.909	7.646	1.308
Max Upward from Load Cases	1.258	4.556	0.760
Max Downward from all Load Conditio	-0.013		
Max Downward from Load Cases (Resis	-0.013		
D Only	0.652	2.936	0.504
+D+L	1.909	7.491	1.264
+D+Lr	0.639	3.355	0.572
+D+S	1.035	4.660	0.816
+D+0.750Lr+0.750L	1.585	6.667	1.125
+D+0.750L+0.750S	1.882	7.646	1.308
+0.60D	0.391	1.761	0.302
Lr Only	-0.013	0.420	0.068
L Only	1.258	4.556	0.760
S Only	0.383	1.725	0.312

Dibble Engineers, Inc.
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: EBM5 - (E) Deck Beam Check

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2021

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2021

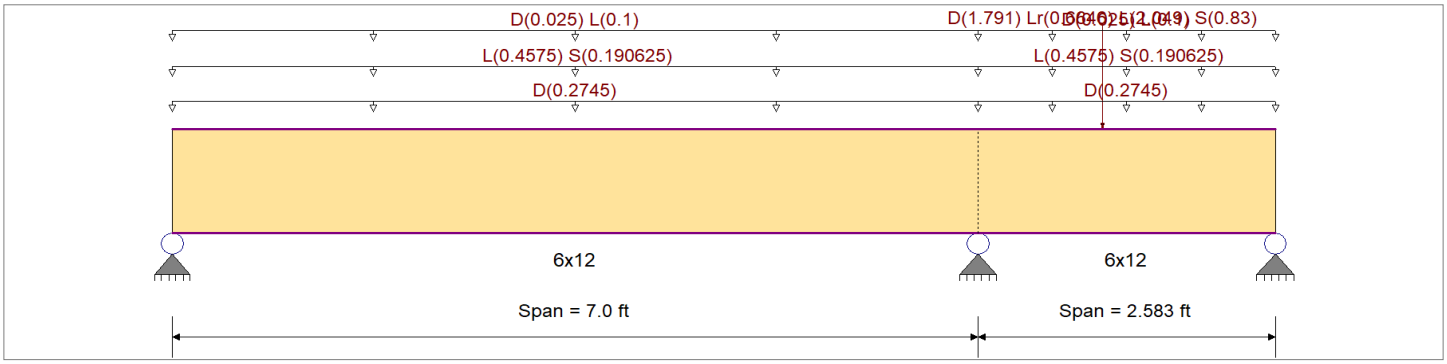
Wood Species : Hem-Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	850.0 psi
Fb -	850.0 psi
Fc - Prll	1,300.0 psi
Fc - Perp	405.0 psi
Fv	150.0 psi
Ft	525.0 psi

E : Modulus of Elasticity

Ebend- xx	1,300.0 ksi
Eminbend - xx	470.0 ksi
Density	26.840 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0360 ksf, Tributary Width = 7.625 ft, (Deck Dead Load)
Uniform Load : L = 0.060, S = 0.0250 ksf, Tributary Width = 7.625 ft, (Deck Loads)
Uniform Load : D = 0.010, L = 0.040 ksf, Tributary Width = 2.50 ft, (INT Floor Load)
Load for Span Number 2
Uniform Load : D = 0.0360 ksf, Tributary Width = 7.625 ft, (Deck Dead Load)
Uniform Load : L = 0.060, S = 0.0250 ksf, Tributary Width = 7.625 ft, (Deck Loads)
Uniform Load : D = 0.010, L = 0.040 ksf, Tributary Width = 2.50 ft, (INT Floor Load)
Point Load : D = 1.791, Lr = 0.6646, L = 2.049, S = 0.830 k @ 1.083 ft, (UBM3)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.535 : 1	Maximum Shear Stress Ratio	=	0.681 : 1
Section used for this span		6x12	Section used for this span		6x12
fb: Actual	=	455.02 psi	fv: Actual	=	102.08 psi
F'b	=	850.00 psi	F'v	=	150.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	7.000 ft	Location of maximum on span	=	7.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.017 in	Ratio =	4987 >=480	Span: 2 : Lr Only
Max Upward Transient Deflection	0 in	Ratio =	0 <480	n/a
Max Downward Total Deflection	0.026 in	Ratio =	3255 >=360	Span: 2 : +D+Lr
Max Upward Total Deflection	-0.001 in	Ratio =	41931 >=360	Span: 2 : +D+L

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 7.0 ft	1	0.220	0.317	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	1.70	168.5	765.0	1.80	42.8	135.0
Length = 2.583 ft	2	0.220	0.317	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	1.70	168.5	765.0	1.80	42.8	135.0

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1029 Market Street
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: Seifert Calcultions.ec6

DESCRIPTION: EBM5 - (E) Deck Beam Check

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+L					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	1	0.535	0.681	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.60	455.0	850.0	4.30	102.1	150.0
Length = 2.583 ft	2	0.535	0.681	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.60	455.0	850.0	4.30	102.1	150.0
+D+Lr					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	1	0.167	0.281	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	1.79	177.4	1,062.5	2.23	52.8	187.5
Length = 2.583 ft	2	0.167	0.281	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	1.79	177.4	1,062.5	2.23	52.8	187.5
+D+S					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	1	0.274	0.377	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.71	268.2	977.5	2.74	65.0	172.5
Length = 2.583 ft	2	0.274	0.377	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.71	268.2	977.5	2.74	65.0	172.5
+D+0.750Lr+0.750L					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	1	0.367	0.505	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.94	390.0	1,062.5	3.99	94.7	187.5
Length = 2.583 ft	2	0.367	0.505	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	3.94	390.0	1,062.5	3.99	94.7	187.5
+D+0.750L+0.750S					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	1	0.469	0.602	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.63	458.2	977.5	4.38	103.9	172.5
Length = 2.583 ft	2	0.469	0.602	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.63	458.2	977.5	4.38	103.9	172.5
+0.60D					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 7.0 ft	1	0.074	0.107	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	1.02	101.1	1,360.0	1.08	25.7	240.0
Length = 2.583 ft	2	0.074	0.107	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	1.02	101.1	1,360.0	1.08	25.7	240.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S	1	0.0258	3.089		0.0000	0.000
+D+Lr	2	0.0006	1.457	+D+L	-0.0007	0.519

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions	2.392	8.927	1.021
Max Upward from Load Combinations	2.392	8.927	1.021
Max Upward from Load Cases	1.538	5.395	0.494
Max Downward from all Load Conditio	-0.013		
Max Downward from Load Cases (Resis	-0.013		
D Only	0.846	3.434	0.494
+D+L	2.384	8.829	0.952
+D+Lr	0.834	3.867	0.738
+D+S	1.370	5.363	0.698
+D+0.750Lr+0.750L	1.990	7.805	1.021
+D+0.750L+0.750S	2.392	8.927	0.991
+0.60D	0.508	2.060	0.296
Lr Only	-0.013	0.433	0.244
L Only	1.538	5.395	0.459
S Only	0.523	1.929	0.204

Dibble Engineers, Inc.
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Column

Project File: Seifert Calcultions.ec6

DESCRIPTION: C1 - UBM5 Support

Code References

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : IBC 2021

General Information

Analysis Method	Allowable Stress Design		
End Fixities	Top & Bottom Pinned		
Overall Column Height	10.5 ft		
(Used for non-slender calculations)			
Wood Species	Douglas Fir-Larch		
Wood Grade	No.1		
Fb +	1200 psi	Fv	170 psi
Fb -	1200 psi	Ft	825 psi
Fc - Prll	1000 psi	Density	31.21 pcf
Fc - Perp	625 psi		

E : Modulus of Elasticity . . .	x-x Bending	y-y Bending	Axial
Basic	1600	1600	1600 ksi
Minimum	580	580	

Wood Section Name	**6x6**		
Wood Grading/Manuf.	Graded Lumber		
Wood Member Type	Sawn		
Exact Width	**5.50** in	Allow Stress Modification Factors	
Exact Depth	**5.50** in	Cf or Cv for Bending	1.0
Area	30.250 in^2	Cf or Cv for Compressio	1.0
Ix	76.255 in^4	Cf or Cv for Tension	1.0
Iy	76.255 in^4	Cm : Wet Use Factor	1.0
		Ct : Temperature Fact	1.0
		Cfu : Flat Use Factor	1.0
		Kf : Built-up columns	1.0 *NDS 15.3.2*
		Use Cr : Repetitive ?	No

Brace condition for deflection (buckling) along columns :
X-X (width) axis : Unbraced Length for buckling ABOUT Y-Y Axis = 10.5 ft
Y-Y (depth) axis : Unbraced Length for buckling ABOUT X-X Axis = 10.5 ft,

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included : 68.841 lbs * Dead Load Factor
AXIAL LOADS . . .
RXN UBM5: Axial Load at 10.50 ft, D = 5.119, Lr = 1.558, L = 8.479, S = 1.947 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.6878 : 1**

Load Combination	+D+L
Governing NDS Forumla	Comp Only, fc/Fc'
Location of max.above base	0.0 ft
At maximum location values are .	
Applied Axial	13.667 k
Applied Mx	0.0 k-ft
Applied My	0.0 k-ft
Fc : Allowable	656.89 psi

PASS Maximum Shear Stress Ratio = **0.0 : 1**

Load Combination	+0.60D
Location of max.above base	10.50 ft
Applied Design Shear	0.0 psi
Allowable Shear	272.0 psi

Maximum SERVICE Lateral Load Reactions . .
Top along Y-Y 0.0 k Bottom along Y-Y 0.0 k
Top along X-X 0.0 k Bottom along X-X 0.0 k

Maximum SERVICE Load Lateral Deflections . . .
Along Y-Y 0.0 in at 0.0 ft above base
for load combination : n/a
Along X-X 0.0 in at 0.0 ft above base
for load combination : n/a

Other Factors used to calculate allowable stresses . . .

	Bending	Compression	Tension

Load Combination Results

Load Combination	C_D	C_P	Maximum Axial + Bending Stress Ratios: Stress Ratio	Status	Location	Maximum Shear Ratios: Stress Ratio	Status	Location
D Only	0.900	0.694	0.2745	PASS	0.0 ft	0.0	PASS	10.50 ft
+D+L	1.000	0.657	0.6878	PASS	0.0 ft	0.0	PASS	10.50 ft
+D+Lr	1.250	0.573	0.3114	PASS	0.0 ft	0.0	PASS	10.50 ft
+D+S	1.150	0.605	0.3391	PASS	0.0 ft	0.0	PASS	10.50 ft
+D+0.750Lr+0.750L	1.250	0.573	0.5869	PASS	0.0 ft	0.0	PASS	10.50 ft
+D+0.750L+0.750S	1.150	0.605	0.6182	PASS	0.0 ft	0.0	PASS	10.50 ft
+0.60D	1.600	0.479	0.1341	PASS	0.0 ft	0.0	PASS	10.50 ft

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Kirkland, WA 98033
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Column

Project File: Seifert Calcultions.ec6

DESCRIPTION: C1 - UBM5 Support

Maximum Reactions

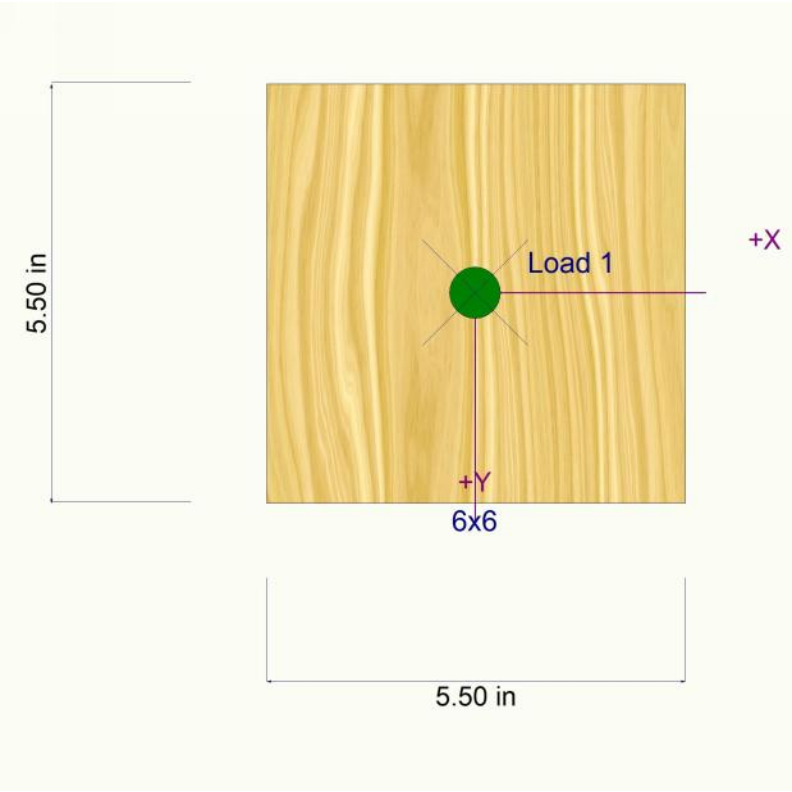
Note: Only non-zero reactions are listed.

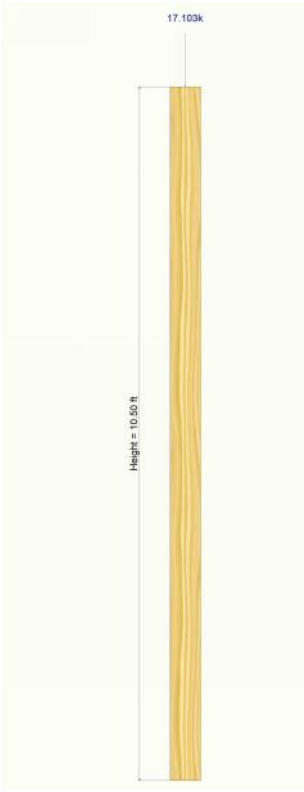
Load Combination	X-X Axis Reaction @ Base	@ Top	k	Y-Y Axis Reaction @ Base	@ Top	Axial Reaction @ Base	My - End Moments @ Base	@ Top	k-ft	Mx - End Moments @ Base	@ Top
D Only						5.188					
+D+L						13.667					
+D+Lr						6.746					
+D+S						7.135					
+D+0.750Lr+0.750L						12.716					
+D+0.750L+0.750S						13.007					
+0.60D						3.113					
Lr Only						1.558					
L Only						8.479					
S Only						1.947					

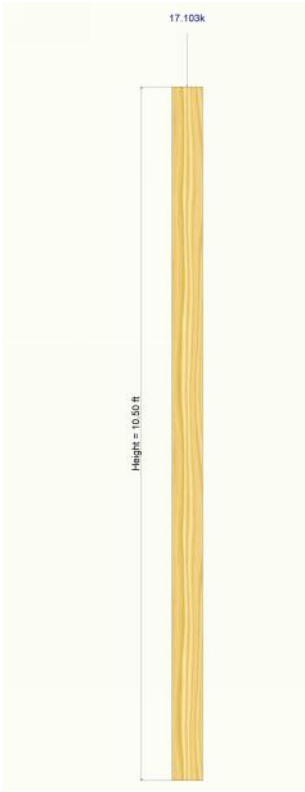
Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+L	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+Lr	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+S	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+0.750Lr+0.750L	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+0.750L+0.750S	0.0000 in	0.000ft	0.000 in	0.000 ft
+0.60D	0.0000 in	0.000ft	0.000 in	0.000 ft
Lr Only	0.0000 in	0.000ft	0.000 in	0.000 ft
L Only	0.0000 in	0.000ft	0.000 in	0.000 ft
S Only	0.0000 in	0.000ft	0.000 in	0.000 ft

Sketches







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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Column

Project File: Seifert Calcultions.ec6

DESCRIPTION: (E) 4x4 Cols @ Deck

Code References

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : IBC 2021

General Information

Analysis Method	Allowable Stress Design		
End Fixities	Top & Bottom Pinned		
Overall Column Height	7.5 ft		
(Used for non-slender calculations)			
Wood Species	Hem-Fir		
Wood Grade	No.2		
Fb +	850.0 psi	Fv	150.0 psi
Fb -	850.0 psi	Ft	525.0 psi
Fc - Prll	1,300.0 psi	Density	26.840 pcf
Fc - Perp	405.0 psi		

E : Modulus of Elasticity . . .	x-x Bending	y-y Bending	Axial
Basic	1,300.0	1,300.0	1,300.0 ksi
Minimum	470.0	470.0	

Wood Section Name	**4x8**		
Wood Grading/Manuf.	Graded Lumber		
Wood Member Type	Sawn		
Exact Width	**3.50** in	Allow Stress Modification Factors	
Exact Depth	**7.250** in	Cf or Cv for Bending	1.30
Area	25.375 in^2	Cf or Cv for Compressio	1.050
Ix	111.148 in^4	Cf or Cv for Tension	1.20
Iy	25.904 in^4	Cm : Wet Use Factor	1.0
		Ct : Temperature Fact	1.0
		Cfu : Flat Use Factor	1.0
		Kf : Built-up columns	1.0 *NDS 15.3.2*
		Use Cr : Repetitive ?	No

Brace condition for deflection (buckling) along columns :
X-X (width) axis : Unbraced Length for buckling ABOUT Y-Y Axis = 7.5 ft,
Y-Y (depth) axis : Unbraced Length for buckling ABOUT X-X Axis = 7.5 ft, l

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included : 35.472 lbs * Dead Load Factor
AXIAL LOADS . . .
WC RXN @ Deck: Axial Load at 7.50 ft, D = 4.076, Lr = 1.872, L = 3.011, S = 3.246 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.6544 : 1**

Load Combination	+D+0.750L+0.750S
Governing NDS Forumla	Comp Only, fc/Fc'
Location of max.above base	0.0 ft
At maximum location values are .	
Applied Axial	8.804 k
Applied Mx	0.0 k-ft
Applied My	0.0 k-ft
Fc : Allowable	530.20 psi

PASS Maximum Shear Stress Ratio = **0.0 : 1**

Load Combination	+0.60D
Location of max.above base	7.50 ft
Applied Design Shear	0.0 psi
Allowable Shear	240.0 psi

Maximum SERVICE Lateral Load Reactions . .

Top along Y-Y	0.0 k	Bottom along Y-Y	0.0 k
Top along X-X	0.0 k	Bottom along X-X	0.0 k

Maximum SERVICE Load Lateral Deflections . . .

Along Y-Y 0.0 in at 0.0 ft above base
for load combination : n/a

Along X-X 0.0 in at 0.0 ft above base
for load combination : n/a

Other Factors used to calculate allowable stresses . . .

	Bending	Compression	Tension

Load Combination Results

Load Combination	C_D	C_P	Maximum Axial + Bending Stress Ratios: Stress Ratio	Status	Location	Maximum Shear Ratios: Stress Ratio	Status	Location
D Only	0.900	0.416	0.3169	PASS	0.0 ft	0.0	PASS	7.50 ft
+D+L	1.000	0.381	0.5396	PASS	0.0 ft	0.0	PASS	7.50 ft
+D+Lr	1.250	0.314	0.4405	PASS	0.0 ft	0.0	PASS	7.50 ft
+D+S	1.150	0.338	0.5469	PASS	0.0 ft	0.0	PASS	7.50 ft
+D+0.750Lr+0.750L	1.250	0.314	0.5723	PASS	0.0 ft	0.0	PASS	7.50 ft
+D+0.750L+0.750S	1.150	0.338	0.6544	PASS	0.0 ft	0.0	PASS	7.50 ft
+0.60D	1.600	0.251	0.1775	PASS	0.0 ft	0.0	PASS	7.50 ft

Dibble Engineers, Inc.
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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Column

Project File: Seifert Calcultions.ec6

DESCRIPTION: (E) 4x4 Cols @ Deck

Maximum Reactions

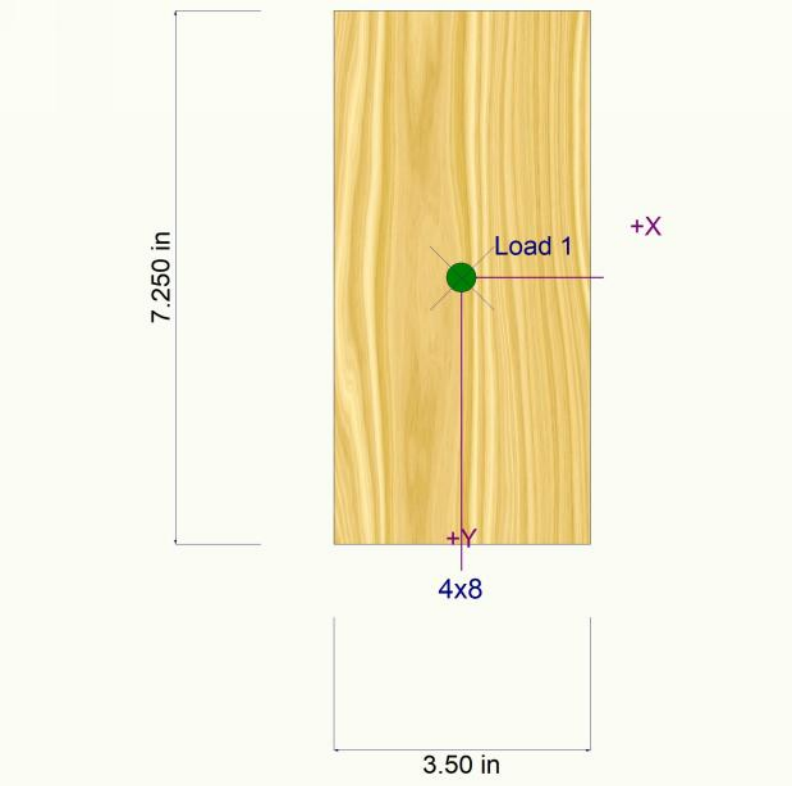
Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction @ Base	@ Top	k	Y-Y Axis Reaction @ Base	@ Top	Axial Reaction @ Base	My - End Moments @ Base	@ Top	k-ft	Mx - End Moments @ Base	@ Top
D Only						4.111					
+D+L						7.122					
+D+Lr						5.983					
+D+S						7.357					
+D+0.750Lr+0.750L						7.774					
+D+0.750L+0.750S						8.804					
+0.60D						2.467					
Lr Only						1.872					
L Only						3.011					
S Only						3.246					

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+L	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+Lr	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+S	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+0.750Lr+0.750L	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+0.750L+0.750S	0.0000 in	0.000ft	0.000 in	0.000 ft
+0.60D	0.0000 in	0.000ft	0.000 in	0.000 ft
Lr Only	0.0000 in	0.000ft	0.000 in	0.000 ft
L Only	0.0000 in	0.000ft	0.000 in	0.000 ft
S Only	0.0000 in	0.000ft	0.000 in	0.000 ft

Sketches



Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Column

Project File: Seifert Calcultions.ec6

DESCRIPTION: C3 - SW Support

Code References

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : IBC 2021

General Information

Analysis Method	Allowable Stress Design		
End Fixities	Top & Bottom Pinned		
Overall Column Height	8.5 ft		
(Used for non-slender calculations)			
Wood Species	Hem-Fir		
Wood Grade	No.2		
Fb +	850 psi	Fv	150 psi
Fb -	850 psi	Ft	525 psi
Fc - Prll	1300 psi	Density	26.84 pcf
Fc - Perp	405 psi		

E : Modulus of Elasticity . . .	x-x Bending	y-y Bending	Axial
Basic	1300	1300	1300 ksi
Minimum	470	470	

Wood Section Name	**4x12**		
Wood Grading/Manuf.	Graded Lumber		
Wood Member Type	Sawn		
Exact Width	**3.50** in	Allow Stress Modification Factors	
Exact Depth	**11.250** in	Cf or Cv for Bending	1.10
Area	39.375 in^2	Cf or Cv for Compressio	1.0
Ix	415.283 in^4	Cf or Cv for Tension	1.0
Iy	40.195 in^4	Cm : Wet Use Factor	1.0
		Ct : Temperature Fact	1.0
		Cfu : Flat Use Factor	1.0
		Kf : Built-up columns	1.0 *NDS 15.3.2*
		Use Cr : Repetitive ?	No

Brace condition for deflection (buckling) along columns :
X-X (width) axis : Unbraced Length for buckling ABOUT Y-Y Axis = 8.5 ft,
Y-Y (depth) axis : Fully braced against buckling ABOUT X-X Axis

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included : 62.382 lbs * Dead Load Factor
AXIAL LOADS . . .
RXN MBM8: Axial Load at 8.50 ft, D = 0.1060, Lr = 0.1470, E = 21.139 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.8794 : 1**

Load Combination	+D+0.70E
Governing NDS Forumla	Comp Only, fc/Fc'
Location of max.above base	0.0 ft
At maximum location values are .	
Applied Axial	14.966 k
Applied Mx	0.0 k-ft
Applied My	0.0 k-ft
Fc : Allowable	432.215 psi

PASS Maximum Shear Stress Ratio = **0.0 : 1**

Load Combination	+0.60D+0.70E
Location of max.above base	8.50 ft
Applied Design Shear	0.0 psi
Allowable Shear	240.0 psi

Maximum SERVICE Lateral Load Reactions . .

Top along Y-Y	0.0 k	Bottom along Y-Y	0.0 k
Top along X-X	0.0 k	Bottom along X-X	0.0 k

Maximum SERVICE Load Lateral Deflections . . .

Along Y-Y 0.0 in at 0.0 ft above base
for load combination : n/a

Along X-X 0.0 in at 0.0 ft above base
for load combination : n/a

Other Factors used to calculate allowable stresses . . .

	Bending	Compression	Tension

Load Combination Results

Load Combination	C_D	C_P	Maximum Axial + Bending Stress Ratios: Stress Ratio	Status	Location	Maximum Shear Ratios: Stress Ratio	Status	Location
D Only	0.900	0.351	0.01042	PASS	0.0 ft	0.0	PASS	8.50 ft
+D+Lr	1.250	0.261	0.01886	PASS	0.0 ft	0.0	PASS	8.50 ft
+D+0.750Lr	1.250	0.261	0.01666	PASS	0.0 ft	0.0	PASS	8.50 ft
+D+0.70E	1.600	0.208	0.8794	PASS	0.0 ft	0.0	PASS	8.50 ft
+D+0.5250E	1.600	0.208	0.6620	PASS	0.0 ft	0.0	PASS	8.50 ft
+0.60D	1.600	0.208	0.005936	PASS	0.0 ft	0.0	PASS	8.50 ft
+0.60D+0.70E	1.600	0.208	0.8754	PASS	0.0 ft	0.0	PASS	8.50 ft

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Project Title:
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Project Descr:

Wood Column

Project File: Seifert Calcultions.ec6

DESCRIPTION: C3 - SW Support

Maximum Reactions

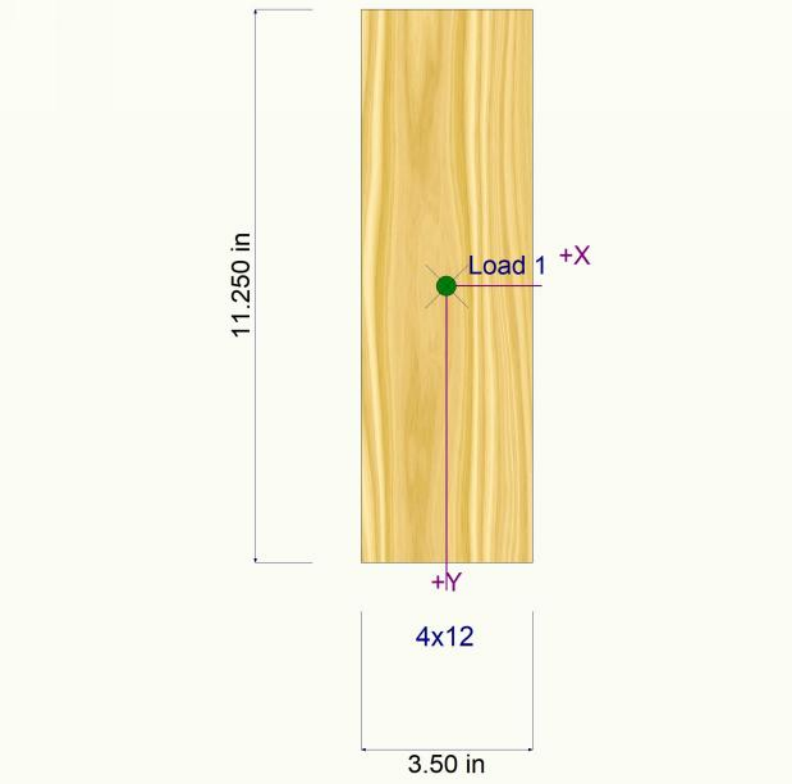
Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction @ Base	@ Top	k	Y-Y Axis Reaction @ Base	@ Top	Axial Reaction @ Base	My - End Moments @ Base	@ Top	k-ft	Mx - End Moments @ Base	@ Top
D Only						0.168					
+D+Lr						0.315					
+D+0.750Lr						0.279					
+D+0.70E						14.966					
+D+0.5250E						11.266					
+0.60D						0.101					
+0.60D+0.70E						14.898					
Lr Only						0.147					
E Only						21.139					

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+Lr	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+0.750Lr	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+0.70E	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+0.5250E	0.0000 in	0.000ft	0.000 in	0.000 ft
+0.60D	0.0000 in	0.000ft	0.000 in	0.000 ft
+0.60D+0.70E	0.0000 in	0.000ft	0.000 in	0.000 ft
Lr Only	0.0000 in	0.000ft	0.000 in	0.000 ft
E Only	0.0000 in	0.000ft	0.000 in	0.000 ft

Sketches



Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: Seifert Calcultions.ec6

DESCRIPTION: NFTG1 - Support Upper Floor UBM4

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : IBC 2021

General Information

Material Properties

f'c : Concrete 28 day strength	=	2.50	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	2.50	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	250.0	pcf
Soil/Concrete Friction Coeff.	=	0.30	

Increases based on footing Depth

Footing base depth below soil surface	=	ft
Allow press. increase per foot of depth	=	ksf
when footing base is below	=	ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=	ksf
when max. length or width is greater than	=	ft

Dimensions

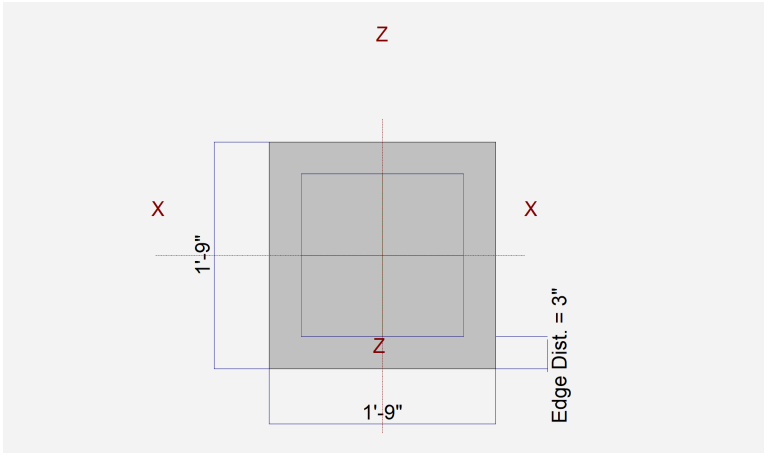
Width parallel to X-X Axis	=	1.750	ft
Length parallel to Z-Z Axis	=	1.750	ft
Footing Thickness	=	12.0	in

Pedestal dimensions...

px : parallel to X-X Axis	=		in
pz : parallel to Z-Z Axis	=		in
Height	=		in

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=	3.0	in



Reinforcing

Bars parallel to X-X Axis			
Number of Bars	=		3
Reinforcing Bar Size	=	#	4
Bars parallel to Z-Z Axis			
Number of Bars	=		3.0
Reinforcing Bar Size	=	#	4

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	2.680	3.284	0.2190	4.106		1.980		k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=								k
V-z	=								k

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Project Title:
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Project ID:
Project Descr:

General Footing

Project File: Seifert Calcultions.ec6

DESCRIPTION: NFTG1 - Support Upper Floor UBM4

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.9676	Soil Bearing	2.419 ksf	2.50 ksf	+D+0.750L+0.750S+0.5250E about Z-
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.09326	Z Flexure (+X)	1.237 k-ft/ft	13.263 k-ft/ft	+1.20D+0.50L+1.60S
PASS	0.09326	Z Flexure (-X)	1.237 k-ft/ft	13.263 k-ft/ft	+1.20D+0.50L+1.60S
PASS	0.09326	X Flexure (+Z)	1.237 k-ft/ft	13.263 k-ft/ft	+1.20D+0.50L+1.60S
PASS	0.09326	X Flexure (-Z)	1.237 k-ft/ft	13.263 k-ft/ft	+1.20D+0.50L+1.60S
PASS	0.04887	1-way Shear (+X)	3.665 psi	75.0 psi	+1.20D+0.50L+1.60S
PASS	0.04887	1-way Shear (-X)	3.665 psi	75.0 psi	+1.20D+0.50L+1.60S
PASS	0.04887	1-way Shear (+Z)	3.665 psi	75.0 psi	+1.20D+0.50L+1.60S
PASS	0.04887	1-way Shear (-Z)	3.665 psi	75.0 psi	+1.20D+0.50L+1.60S
PASS	0.1677	2-way Punching	25.153 psi	150.0 psi	+1.20D+0.50L+1.60S

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.50	n/a	0.0	1.020	1.020	n/a	n/a	0.408
X-X, +D+L	2.50	n/a	0.0	1.092	1.092	n/a	n/a	0.437
X-X, +D+Lr	2.50	n/a	0.0	2.092	2.092	n/a	n/a	0.837
X-X, +D+S	2.50	n/a	0.0	2.361	2.361	n/a	n/a	0.944
X-X, +D+0.750Lr+0.750L	2.50	n/a	0.0	1.878	1.878	n/a	n/a	0.751
X-X, +D+0.750L+0.750S	2.50	n/a	0.0	2.079	2.079	n/a	n/a	0.832
X-X, +D+0.70E	2.50	n/a	0.0	1.473	1.473	n/a	n/a	0.589
X-X, +D+0.750L+0.750S+0.5250E	2.50	n/a	0.0	2.419	2.419	n/a	n/a	0.968
X-X, +0.60D	2.50	n/a	0.0	0.6121	0.6121	n/a	n/a	0.245
X-X, +0.60D+0.70E	2.50	n/a	0.0	1.065	1.065	n/a	n/a	0.426
Z-Z, D Only	2.50	0.0	n/a	n/a	n/a	1.020	1.020	0.408
Z-Z, +D+L	2.50	0.0	n/a	n/a	n/a	1.092	1.092	0.437
Z-Z, +D+Lr	2.50	0.0	n/a	n/a	n/a	2.092	2.092	0.837
Z-Z, +D+S	2.50	0.0	n/a	n/a	n/a	2.361	2.361	0.944
Z-Z, +D+0.750Lr+0.750L	2.50	0.0	n/a	n/a	n/a	1.878	1.878	0.751
Z-Z, +D+0.750L+0.750S	2.50	0.0	n/a	n/a	n/a	2.079	2.079	0.832
Z-Z, +D+0.70E	2.50	0.0	n/a	n/a	n/a	1.473	1.473	0.589
Z-Z, +D+0.750L+0.750S+0.5250E	2.50	0.0	n/a	n/a	n/a	2.419	2.419	0.968
Z-Z, +0.60D	2.50	0.0	n/a	n/a	n/a	0.6121	0.6121	0.245
Z-Z, +0.60D+0.70E	2.50	0.0	n/a	n/a	n/a	1.065	1.065	0.426

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

All units k

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	0.4690	+Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.40D	0.4690	-Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+0.50Lr+1.60L	0.6511	+Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+0.50Lr+1.60L	0.6511	-Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+1.60L+0.50S	0.7024	+Z	Bottom	0.2592	AsMin	0.3429	13.263	OK

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Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: Seifert Calcultions.ec6

DESCRIPTION: NFTG1 - Support Upper Floor UBM4

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D+1.60L+0.50S	0.7024	-Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+1.60Lr+0.50L	1.072	+Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+1.60Lr+0.50L	1.072	-Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+1.60Lr	1.059	+Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+1.60Lr	1.059	-Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+0.50L+1.60S	1.237	+Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+0.50L+1.60S	1.237	-Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+1.60S	1.223	+Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+1.60S	1.223	-Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+0.50Lr+0.50L	0.6209	+Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+0.50Lr+0.50L	0.6209	-Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+0.50L+0.50S	0.6723	+Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+0.50L+0.50S	0.6723	-Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+0.50L+0.70S+E	1.022	+Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +1.20D+0.50L+0.70S+E	1.022	-Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +0.90D	0.3015	+Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +0.90D	0.3015	-Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +0.90D+E	0.5490	+Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
X-X, +0.90D+E	0.5490	-Z	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.40D	0.4690	-X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.40D	0.4690	+X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+0.50Lr+1.60L	0.6511	-X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+0.50Lr+1.60L	0.6511	+X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+1.60L+0.50S	0.7024	-X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+1.60L+0.50S	0.7024	+X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+1.60Lr+0.50L	1.072	-X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+1.60Lr+0.50L	1.072	+X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+1.60Lr	1.059	-X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+1.60Lr	1.059	+X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+0.50L+1.60S	1.237	-X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+0.50L+1.60S	1.237	+X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+1.60S	1.223	-X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+1.60S	1.223	+X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+0.50Lr+0.50L	0.6209	-X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+0.50Lr+0.50L	0.6209	+X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+0.50L+0.50S	0.6723	-X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+0.50L+0.50S	0.6723	+X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+0.50L+0.70S+E	1.022	-X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +1.20D+0.50L+0.70S+E	1.022	+X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +0.90D	0.3015	-X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +0.90D	0.3015	+X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +0.90D+E	0.5490	-X	Bottom	0.2592	AsMin	0.3429	13.263	OK
Z-Z, +0.90D+E	0.5490	+X	Bottom	0.2592	AsMin	0.3429	13.263	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	1.39 psi	1.39 psi	1.39 psi	1.39 psi	1.39 psi	75.00 psi	0.02	OK
+1.20D+0.50Lr+1.60L	1.93 psi	1.93 psi	1.93 psi	1.93 psi	1.93 psi	75.00 psi	0.03	OK
+1.20D+1.60L+0.50S	2.08 psi	2.08 psi	2.08 psi	2.08 psi	2.08 psi	75.00 psi	0.03	OK
+1.20D+1.60Lr+0.50L	3.18 psi	3.18 psi	3.18 psi	3.18 psi	3.18 psi	75.00 psi	0.04	OK
+1.20D+1.60Lr	3.14 psi	3.14 psi	3.14 psi	3.14 psi	3.14 psi	75.00 psi	0.04	OK
+1.20D+0.50L+1.60S	3.67 psi	3.67 psi	3.67 psi	3.67 psi	3.67 psi	75.00 psi	0.05	OK
+1.20D+1.60S	3.62 psi	3.62 psi	3.62 psi	3.62 psi	3.62 psi	75.00 psi	0.05	OK
+1.20D+0.50Lr+0.50L	1.84 psi	1.84 psi	1.84 psi	1.84 psi	1.84 psi	75.00 psi	0.02	OK
+1.20D+0.50L+0.50S	1.99 psi	1.99 psi	1.99 psi	1.99 psi	1.99 psi	75.00 psi	0.03	OK
+1.20D+0.50L+0.70S+E	3.03 psi	3.03 psi	3.03 psi	3.03 psi	3.03 psi	75.00 psi	0.04	OK
+0.90D	0.89 psi	0.89 psi	0.89 psi	0.89 psi	0.89 psi	75.00 psi	0.01	OK
+0.90D+E	1.63 psi	1.63 psi	1.63 psi	1.63 psi	1.63 psi	75.00 psi	0.02	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	9.54 psi	150.00psi	0.06358	OK
+1.20D+0.50Lr+1.60L	13.24 psi	150.00psi	0.08826	OK

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1029 Market Street
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(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: Seifert Calcultions.ec6

DESCRIPTION: NFTG1 - Support Upper Floor UBM4

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.20D+1.60L+0.50S	14.28 psi	150.00 psi	0.09523	OK
+1.20D+1.60Lr+0.50L	21.81 psi	150.00 psi	0.1454	OK
+1.20D+1.60Lr	21.53 psi	150.00 psi	0.1435	OK
+1.20D+0.50L+1.60S	25.15 psi	150.00 psi	0.1677	OK
+1.20D+1.60S	24.88 psi	150.00 psi	0.1658	OK
+1.20D+0.50Lr+0.50L	12.63 psi	150.00 psi	0.08418	OK
+1.20D+0.50L+0.50S	13.67 psi	150.00 psi	0.09115	OK
+1.20D+0.50L+0.70S+E	20.79 psi	150.00 psi	0.1386	OK
+0.90D	6.13 psi	150.00 psi	0.04088	OK
+0.90D+E	11.16 psi	150.00 psi	0.07443	OK

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Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: Seifert Calcultions.ec6

DESCRIPTION: NFTG2 - Support EBM5

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : IBC 2021

General Information

Material Properties

f'c : Concrete 28 day strength	=	2.50	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	2.50	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	250.0	pcf
Soil/Concrete Friction Coeff.	=	0.30	

Increases based on footing Depth

Footing base depth below soil surface	=	ft
Allow press. increase per foot of depth	=	ksf
when footing base is below	=	ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=	ksf
when max. length or width is greater than	=	ft

Dimensions

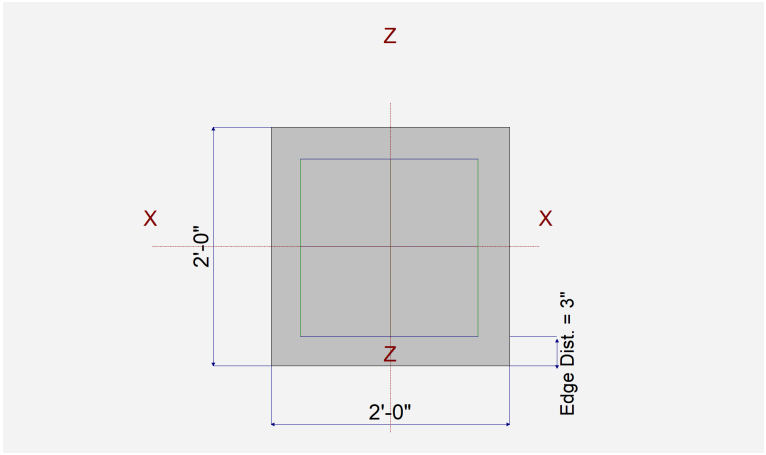
Width parallel to X-X Axis	=	2.0 ft
Length parallel to Z-Z Axis	=	2.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	in
pz : parallel to Z-Z Axis	=	in
Height	=	in

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=	3.0 in



Reinforcing

Bars parallel to X-X Axis			
Number of Bars	=		3.0
Reinforcing Bar Size	=	#	4
Bars parallel to Z-Z Axis			
Number of Bars	=		3.0
Reinforcing Bar Size	=	#	4

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	3.434	0.4330	5.395	1.929		0.0		k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=								k
V-z	=								k

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Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: Seifert Calcultions.ec6

DESCRIPTION: NFTG2 - Support EBM5

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.9508	Soil Bearing	2.377 ksf	2.50 ksf	+D+0.750L+0.750S about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.1469	Z Flexure (+X)	1.715 k-ft/ft	11.674 k-ft/ft	+1.20D+1.60L+0.50S
PASS	0.1469	Z Flexure (-X)	1.715 k-ft/ft	11.674 k-ft/ft	+1.20D+1.60L+0.50S
PASS	0.1469	X Flexure (+Z)	1.715 k-ft/ft	11.674 k-ft/ft	+1.20D+1.60L+0.50S
PASS	0.1469	X Flexure (-Z)	1.715 k-ft/ft	11.674 k-ft/ft	+1.20D+1.60L+0.50S
PASS	0.1016	1-way Shear (+X)	7.621 psi	75.0 psi	+1.20D+1.60L+0.50S
PASS	0.1016	1-way Shear (-X)	7.621 psi	75.0 psi	+1.20D+1.60L+0.50S
PASS	0.1016	1-way Shear (+Z)	7.621 psi	75.0 psi	+1.20D+1.60L+0.50S
PASS	0.1016	1-way Shear (-Z)	7.621 psi	75.0 psi	+1.20D+1.60L+0.50S
PASS	0.2415	2-way Punching	36.224 psi	150.0 psi	+1.20D+1.60L+0.50S

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.50	n/a	0.0	1.004	1.004	n/a	n/a	0.402
X-X, +D+L	2.50	n/a	0.0	2.352	2.352	n/a	n/a	0.941
X-X, +D+Lr	2.50	n/a	0.0	1.112	1.112	n/a	n/a	0.445
X-X, +D+S	2.50	n/a	0.0	1.486	1.486	n/a	n/a	0.594
X-X, +D+0.750Lr+0.750L	2.50	n/a	0.0	2.096	2.096	n/a	n/a	0.838
X-X, +D+0.750L+0.750S	2.50	n/a	0.0	2.377	2.377	n/a	n/a	0.951
X-X, +0.60D	2.50	n/a	0.0	0.6021	0.6021	n/a	n/a	0.241
Z-Z, D Only	2.50	0.0	n/a	n/a	n/a	1.004	1.004	0.402
Z-Z, +D+L	2.50	0.0	n/a	n/a	n/a	2.352	2.352	0.941
Z-Z, +D+Lr	2.50	0.0	n/a	n/a	n/a	1.112	1.112	0.445
Z-Z, +D+S	2.50	0.0	n/a	n/a	n/a	1.486	1.486	0.594
Z-Z, +D+0.750Lr+0.750L	2.50	0.0	n/a	n/a	n/a	2.096	2.096	0.838
Z-Z, +D+0.750L+0.750S	2.50	0.0	n/a	n/a	n/a	2.377	2.377	0.951
Z-Z, +0.60D	2.50	0.0	n/a	n/a	n/a	0.6021	0.6021	0.241

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

Sliding Stability

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	0.6010	+Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.40D	0.6010	-Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+0.50Lr+1.60L	1.621	+Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+0.50Lr+1.60L	1.621	-Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+1.60L+0.50S	1.715	+Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+1.60L+0.50S	1.715	-Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+1.60Lr+0.50L	0.9389	+Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+1.60Lr+0.50L	0.9389	-Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+1.60Lr	0.6017	+Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+1.60Lr	0.6017	-Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+0.50L+1.60S	1.238	+Z	Bottom	0.2592	AsMin	0.30	11.674	OK

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Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: Seifert Calcultions.ec6

DESCRIPTION: NFTG2 - Support EBM5

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D+0.50L+1.60S	1.238	-Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+1.60S	0.9009	+Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+1.60S	0.9009	-Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+0.50Lr+0.50L	0.8794	+Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+0.50Lr+0.50L	0.8794	-Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+0.50L+0.50S	0.9729	+Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+0.50L+0.50S	0.9729	-Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+0.50L+0.70S	1.021	+Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +1.20D+0.50L+0.70S	1.021	-Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +0.90D	0.3863	+Z	Bottom	0.2592	AsMin	0.30	11.674	OK
X-X, +0.90D	0.3863	-Z	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.40D	0.6010	-X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.40D	0.6010	+X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+0.50Lr+1.60L	1.621	-X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+0.50Lr+1.60L	1.621	+X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+1.60L+0.50S	1.715	-X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+1.60L+0.50S	1.715	+X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+1.60Lr+0.50L	0.9389	-X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+1.60Lr+0.50L	0.9389	+X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+1.60Lr	0.6017	-X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+1.60Lr	0.6017	+X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+0.50L+1.60S	1.238	-X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+0.50L+1.60S	1.238	+X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+1.60S	0.9009	-X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+1.60S	0.9009	+X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+0.50Lr+0.50L	0.8794	-X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+0.50Lr+0.50L	0.8794	+X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+0.50L+0.50S	0.9729	-X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+0.50L+0.50S	0.9729	+X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+0.50L+0.70S	1.021	-X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +1.20D+0.50L+0.70S	1.021	+X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +0.90D	0.3863	-X	Bottom	0.2592	AsMin	0.30	11.674	OK
Z-Z, +0.90D	0.3863	+X	Bottom	0.2592	AsMin	0.30	11.674	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	2.67 psi	2.67 psi	2.67 psi	2.67 psi	2.67 psi	75.00 psi	0.04	OK
+1.20D+0.50Lr+1.60L	7.21 psi	7.21 psi	7.21 psi	7.21 psi	7.21 psi	75.00 psi	0.10	OK
+1.20D+1.60L+0.50S	7.62 psi	7.62 psi	7.62 psi	7.62 psi	7.62 psi	75.00 psi	0.10	OK
+1.20D+1.60Lr+0.50L	4.17 psi	4.17 psi	4.17 psi	4.17 psi	4.17 psi	75.00 psi	0.06	OK
+1.20D+1.60Lr	2.67 psi	2.67 psi	2.67 psi	2.67 psi	2.67 psi	75.00 psi	0.04	OK
+1.20D+0.50L+1.60S	5.50 psi	5.50 psi	5.50 psi	5.50 psi	5.50 psi	75.00 psi	0.07	OK
+1.20D+1.60S	4.00 psi	4.00 psi	4.00 psi	4.00 psi	4.00 psi	75.00 psi	0.05	OK
+1.20D+0.50Lr+0.50L	3.91 psi	3.91 psi	3.91 psi	3.91 psi	3.91 psi	75.00 psi	0.05	OK
+1.20D+0.50L+0.50S	4.32 psi	4.32 psi	4.32 psi	4.32 psi	4.32 psi	75.00 psi	0.06	OK
+1.20D+0.50L+0.70S	4.54 psi	4.54 psi	4.54 psi	4.54 psi	4.54 psi	75.00 psi	0.06	OK
+0.90D	1.72 psi	1.72 psi	1.72 psi	1.72 psi	1.72 psi	75.00 psi	0.02	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	12.70 psi	150.00 psi	0.08464	OK
+1.20D+0.50Lr+1.60L	34.25 psi	150.00 psi	0.2283	OK
+1.20D+1.60L+0.50S	36.22 psi	150.00 psi	0.2415	OK
+1.20D+1.60Lr+0.50L	19.84 psi	150.00 psi	0.1322	OK
+1.20D+1.60Lr	12.71 psi	150.00 psi	0.08474	OK
+1.20D+0.50L+1.60S	26.16 psi	150.00 psi	0.1744	OK
+1.20D+1.60S	19.03 psi	150.00 psi	0.1269	OK
+1.20D+0.50Lr+0.50L	18.58 psi	150.00 psi	0.1238	OK
+1.20D+0.50L+0.50S	20.55 psi	150.00 psi	0.137	OK
+1.20D+0.50L+0.70S	21.57 psi	150.00 psi	0.1438	OK
+0.90D	8.16 psi	150.00 psi	0.05441	OK

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Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: Seifert Calcultions.ec6

DESCRIPTION: EFTG1 - 30" square

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : IBC 2021

General Information

Material Properties

f'c : Concrete 28 day strength	=	2.50	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	2.50	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	250.0	pcf
Soil/Concrete Friction Coeff.	=	0.30	

Increases based on footing Depth

Footing base depth below soil surface	=	ft
Allow press. increase per foot of depth	=	ksf
when footing base is below	=	ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=	ksf
when max. length or width is greater than	=	ft

Dimensions

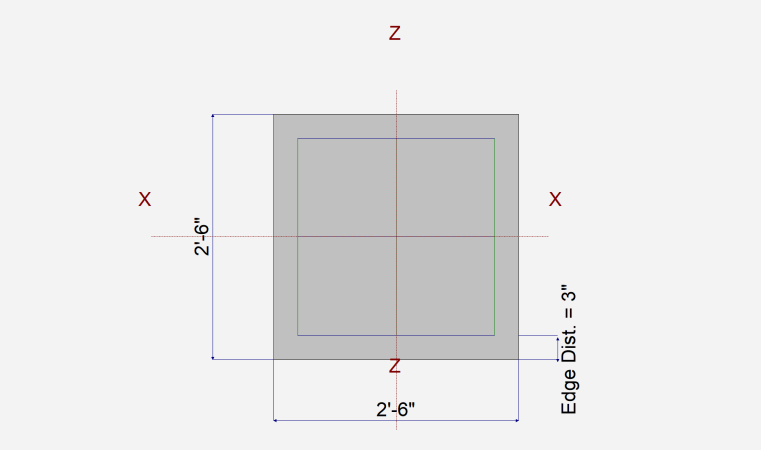
Width parallel to X-X Axis	=	2.50 ft
Length parallel to Z-Z Axis	=	2.50 ft
Footing Thickness	=	8.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	in
pz : parallel to Z-Z Axis	=	in
Height	=	in

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=	3.0 in

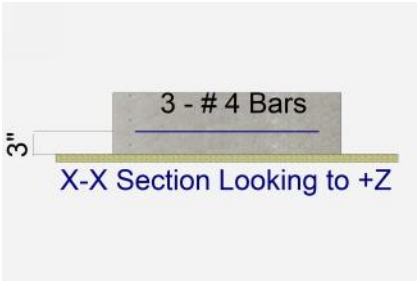


Reinforcing

Bars parallel to X-X Axis			
Number of Bars	=		3
Reinforcing Bar Size	=	#	4
Bars parallel to Z-Z Axis			
Number of Bars	=		3.0
Reinforcing Bar Size	=	#	4

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a



Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	4.076	1.872	3.011	3.246				k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=								k
V-z	=								k

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: Seifert Calcultions.ec6

DESCRIPTION: EFTG1 - 30" square

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.60	Soil Bearing	1.50 ksf	2.50 ksf	+D+0.750L+0.750S about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.2844	Z Flexure (+X)	1.449 k-ft/ft	5.095 k-ft/ft	+1.20D+0.50L+1.60S
PASS	0.2844	Z Flexure (-X)	1.449 k-ft/ft	5.095 k-ft/ft	+1.20D+0.50L+1.60S
PASS	0.2844	X Flexure (+Z)	1.449 k-ft/ft	5.095 k-ft/ft	+1.20D+0.50L+1.60S
PASS	0.2844	X Flexure (-Z)	1.449 k-ft/ft	5.095 k-ft/ft	+1.20D+0.50L+1.60S
PASS	0.340	1-way Shear (+X)	25.499 psi	75.0 psi	+1.20D+0.50L+1.60S
PASS	0.340	1-way Shear (-X)	25.499 psi	75.0 psi	+1.20D+0.50L+1.60S
PASS	0.340	1-way Shear (+Z)	25.499 psi	75.0 psi	+1.20D+0.50L+1.60S
PASS	0.340	1-way Shear (-Z)	25.499 psi	75.0 psi	+1.20D+0.50L+1.60S
PASS	0.7529	2-way Punching	112.936 psi	150.0 psi	+1.20D+0.50L+1.60S

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.50	n/a	0.0	0.7488	0.7488	n/a	n/a	0.300
X-X, +D+L	2.50	n/a	0.0	1.231	1.231	n/a	n/a	0.492
X-X, +D+Lr	2.50	n/a	0.0	1.048	1.048	n/a	n/a	0.419
X-X, +D+S	2.50	n/a	0.0	1.268	1.268	n/a	n/a	0.507
X-X, +D+0.750Lr+0.750L	2.50	n/a	0.0	1.335	1.335	n/a	n/a	0.534
X-X, +D+0.750L+0.750S	2.50	n/a	0.0	1.50	1.50	n/a	n/a	0.600
X-X, +0.60D	2.50	n/a	0.0	0.4493	0.4493	n/a	n/a	0.180
Z-Z, D Only	2.50	0.0	n/a	n/a	n/a	0.7488	0.7488	0.300
Z-Z, +D+L	2.50	0.0	n/a	n/a	n/a	1.231	1.231	0.492
Z-Z, +D+Lr	2.50	0.0	n/a	n/a	n/a	1.048	1.048	0.419
Z-Z, +D+S	2.50	0.0	n/a	n/a	n/a	1.268	1.268	0.507
Z-Z, +D+0.750Lr+0.750L	2.50	0.0	n/a	n/a	n/a	1.335	1.335	0.534
Z-Z, +D+0.750L+0.750S	2.50	0.0	n/a	n/a	n/a	1.50	1.50	0.600
Z-Z, +0.60D	2.50	0.0	n/a	n/a	n/a	0.4493	0.4493	0.180

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

Sliding Stability

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	0.7133	+Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.40D	0.7133	-Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+0.50Lr+1.60L	1.331	+Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+0.50Lr+1.60L	1.331	-Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+1.60L+0.50S	1.416	+Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+1.60L+0.50S	1.416	-Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+1.60Lr+0.50L	1.174	+Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+1.60Lr+0.50L	1.174	-Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+1.60Lr	0.9858	+Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+1.60Lr	0.9858	-Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+0.50L+1.60S	1.449	+Z	Bottom	0.1728	AsMin	0.240	5.095	OK

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Project Title:
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Project ID:
Project Descr:

General Footing

Project File: Seifert Calcultions.ec6

DESCRIPTION: EFTG1 - 30" square

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D+0.50L+1.60S	1.449	-Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+1.60S	1.261	+Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+1.60S	1.261	-Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+0.50Lr+0.50L	0.9166	+Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+0.50Lr+0.50L	0.9166	-Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+0.50L+0.50S	1.002	+Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+0.50L+0.50S	1.002	-Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+0.50L+0.70S	1.084	+Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +1.20D+0.50L+0.70S	1.084	-Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +0.90D	0.4586	+Z	Bottom	0.1728	AsMin	0.240	5.095	OK
X-X, +0.90D	0.4586	-Z	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.40D	0.7133	-X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.40D	0.7133	+X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+0.50Lr+1.60L	1.331	-X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+0.50Lr+1.60L	1.331	+X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+1.60L+0.50S	1.416	-X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+1.60L+0.50S	1.416	+X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+1.60Lr+0.50L	1.174	-X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+1.60Lr+0.50L	1.174	+X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+1.60Lr	0.9858	-X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+1.60Lr	0.9858	+X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+0.50L+1.60S	1.449	-X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+0.50L+1.60S	1.449	+X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+1.60S	1.261	-X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+1.60S	1.261	+X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+0.50Lr+0.50L	0.9166	-X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+0.50Lr+0.50L	0.9166	+X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+0.50L+0.50S	1.002	-X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+0.50L+0.50S	1.002	+X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+0.50L+0.70S	1.084	-X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +1.20D+0.50L+0.70S	1.084	+X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +0.90D	0.4586	-X	Bottom	0.1728	AsMin	0.240	5.095	OK
Z-Z, +0.90D	0.4586	+X	Bottom	0.1728	AsMin	0.240	5.095	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	12.55 psi	12.55 psi	12.55 psi	12.55 psi	12.55 psi	75.00 psi	0.17	OK
+1.20D+0.50Lr+1.60L	23.42 psi	23.42 psi	23.42 psi	23.42 psi	23.42 psi	75.00 psi	0.31	OK
+1.20D+1.60L+0.50S	24.93 psi	24.93 psi	24.93 psi	24.93 psi	24.93 psi	75.00 psi	0.33	OK
+1.20D+1.60Lr+0.50L	20.66 psi	20.66 psi	20.66 psi	20.66 psi	20.66 psi	75.00 psi	0.28	OK
+1.20D+1.60Lr	17.35 psi	17.35 psi	17.35 psi	17.35 psi	17.35 psi	75.00 psi	0.23	OK
+1.20D+0.50L+1.60S	25.50 psi	25.50 psi	25.50 psi	25.50 psi	25.50 psi	75.00 psi	0.34	OK
+1.20D+1.60S	22.19 psi	22.19 psi	22.19 psi	22.19 psi	22.19 psi	75.00 psi	0.30	OK
+1.20D+0.50Lr+0.50L	16.13 psi	16.13 psi	16.13 psi	16.13 psi	16.13 psi	75.00 psi	0.22	OK
+1.20D+0.50L+0.50S	17.64 psi	17.64 psi	17.64 psi	17.64 psi	17.64 psi	75.00 psi	0.24	OK
+1.20D+0.50L+0.70S	19.07 psi	19.07 psi	19.07 psi	19.07 psi	19.07 psi	75.00 psi	0.25	OK
+0.90D	8.07 psi	8.07 psi	8.07 psi	8.07 psi	8.07 psi	75.00 psi	0.11	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	55.60 psi	150.00 psi	0.3707	OK
+1.20D+0.50Lr+1.60L	103.72 psi	150.00 psi	0.6915	OK
+1.20D+1.60L+0.50S	110.42 psi	150.00 psi	0.7361	OK
+1.20D+1.60Lr+0.50L	91.52 psi	150.00 psi	0.6101	OK
+1.20D+1.60Lr	76.85 psi	150.00 psi	0.5123	OK
+1.20D+0.50L+1.60S	112.94 psi	150.00 psi	0.7529	OK
+1.20D+1.60S	98.27 psi	150.00 psi	0.6551	OK
+1.20D+0.50Lr+0.50L	71.45 psi	150.00 psi	0.4763	OK
+1.20D+0.50L+0.50S	78.14 psi	150.00 psi	0.521	OK
+1.20D+0.50L+0.70S	84.47 psi	150.00 psi	0.5631	OK
+0.90D	35.75 psi	150.00 psi	0.2383	OK

Dibble Engineers, Inc.
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Project Title:
Engineer:
Project ID:
Project Descr:

Beam on Elastic Foundation

Project File: Seifert Calcultions.ec6

LIC# : KW-06014989, Build:20.23.04.05 DIBBLE ENGINEERS INC.

DESCRIPTION: EFTG2 - Support UBM1

CODE REFERENCES

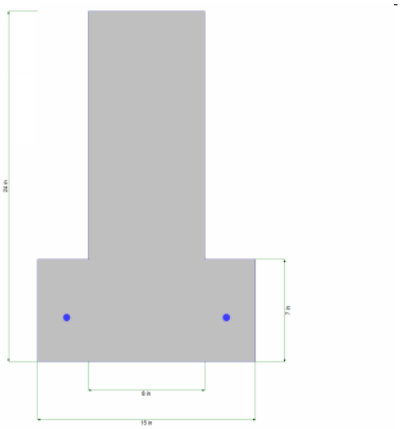
Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : IBC 2021

Material Properties

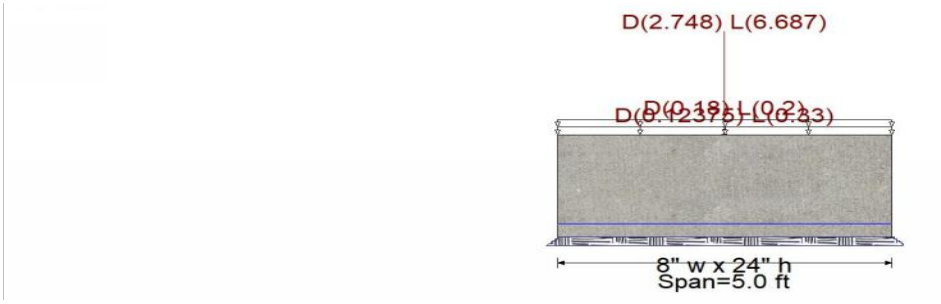
f'c	=	2.50 ksi	ϕ Phi Values	Flexure :	0.90
fr = f'c^1/2 *7.50	=	375.0 psi		Shear :	0.750
ψ Density	=	145.0 pcf	β 1	=	0.850
λ Lt Wt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi			

Soil Subgrade Modulus = 250.0 psi / (inch deflection)
Load Combination IBC 2021

fy - Main Rebar	=	60.0 ksi	Fy - Stirrups	=	40.0 ksi
E - Main Rebar	=	29,000.0 ksi	E - Stirrups	=	29,000.0 ksi
			Stirrup Bar Size #	=	# 3
		Number of Resisting Legs Per Stirrup			2



Beam is supported on an elastic foundation,



Cross Section & Reinforcing Details

Inverted Tee Section, Stem Width = 8.0 in, Total Height = 24.0 in, Top Flange Width = 15.0 in, Flange Thickness = 7.0 in
Span #1 Reinforcing....
2-#4 at 3.0 in from Bottom, from 0.0 to 5.0 ft in this span

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Point Load : D = 2.748, L = 6.687 k @ 2.50 ft
Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 8.250 ft, (Floor Load)
Uniform Load : D = 0.0360, L = 0.040 ksf, Tributary Width = 5.0 ft, ((E) DECK into (N) Floor)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.233 : 1	Maximum Deflection		
Section used for this span	Typical Section	Max Downward L+Lr+S Deflection	0.000 in	
Mu : Applied	8.528 k-ft	Max Upward L+Lr+S Deflection	0.000 in	
Mn * Phi : Allowable	36.529 k-ft	Max Downward Total Deflection	0.066 in	
Load Combination	+1.20D+1.60L	Max Upward Total Deflection	0.005 in	
Location of maximum on span	2.529 ft			
Span # where maximum occurs	Span # 1			

Maximum Soil Pressure =	2.377 ksf	at	2.50 ft	LdComb: +D+L
Allowable Soil Pressure =	2.50 ksf	OK		

Shear Stirrup Requirements

Entire Beam Span Length : Vu < PhiVc/2, Req'd Vs = Not Reqd, use stirrups spaced at 0.000 in

Maximum Forces & Stresses for Load Combinatior

Load Combination / Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft Mu : Max	Phi*Mnx	Stress Ratio
MAXimum Bending Envelope					
Span # 1	1	2.529	8.53	36.53	0.23
+1.40D					
Span # 1	1	2.471	2.34	36.53	0.06

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DESCRIPTION: EFTG2 - Support UBM1

Load Combination / Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft) Mu : Max	Phi*Mnx	Stress Ratio
+1.20D+1.60L					
Span # 1	1	2.529	8.53	36.53	0.23
+1.20D+0.50L					
Span # 1	1	2.529	4.05	36.53	0.11
+1.20D					
Span # 1	1	2.529	2.01	36.53	0.06
+0.90D					
Span # 1	1	2.471	1.51	36.53	0.04

Overall Maximum Deflections - Unfactored Lo

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
Span 1	1	0.0660	2.500		0.0000	0.000

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in) Req'd	Suggest
+1.20D+1.60L	1	0.00	21.00	0.12	0.12	0.00	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	0.06	21.00	0.29	0.29	0.00	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	0.12	21.00	0.45	0.45	0.02	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	0.18	21.00	0.62	0.62	0.04	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	0.24	21.00	0.78	0.78	0.08	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	0.29	21.00	0.94	0.94	0.12	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	0.35	21.00	1.11	1.11	0.17	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	0.41	21.00	1.27	1.27	0.24	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	0.47	21.00	1.44	1.44	0.31	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	0.53	21.00	1.60	1.60	0.39	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	0.59	21.00	1.76	1.76	0.48	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	0.65	21.00	1.93	1.93	0.58	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	0.71	21.00	2.09	2.09	0.69	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	0.76	21.00	2.26	2.26	0.81	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	0.82	21.00	2.42	2.42	0.94	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	0.88	21.00	2.59	2.59	1.08	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	0.94	21.00	2.75	2.75	1.23	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.00	21.00	2.92	2.92	1.39	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.06	21.00	3.08	3.08	1.56	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.12	21.00	3.24	3.24	1.74	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.18	21.00	3.41	3.41	1.93	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.24	21.00	3.57	3.57	2.13	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.29	21.00	3.74	3.74	2.34	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.35	21.00	3.90	3.90	2.55	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.41	21.00	4.07	4.07	2.78	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.47	21.00	4.23	4.23	3.02	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.53	21.00	4.40	4.40	3.26	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.59	21.00	4.56	4.56	3.52	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.65	21.00	4.73	4.73	3.79	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.71	21.00	4.89	4.89	4.06	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.76	21.00	5.06	5.06	4.35	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.82	21.00	5.22	5.22	4.64	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.88	21.00	5.39	5.39	4.95	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	1.94	21.00	5.55	5.55	5.26	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	2.00	21.00	5.72	5.72	5.58	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	2.06	21.00	5.88	5.88	5.92	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	2.12	21.00	6.05	6.05	6.26	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	2.18	21.00	6.21	6.21	6.62	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	2.24	21.00	6.38	6.38	6.98	1.00	12.72	PhiVc/2 < Vu <= PhiVc	Not Reqd 11.5.6.1	0.00	0.00
+1.20D+1.60L	1	2.29	21.00	6.55	6.55	7.35	1.00	12.72	PhiVc/2 < Vu <= PhiVc	Not Reqd 11.5.6.1	0.00	0.00
+1.20D+1.60L	1	2.35	21.00	6.71	6.71	7.73	1.00	12.72	PhiVc/2 < Vu <= PhiVc	Not Reqd 11.5.6.1	0.00	0.00
+1.20D+1.60L	1	2.41	21.00	6.88	6.88	8.13	1.00	12.72	PhiVc/2 < Vu <= PhiVc	Not Reqd 11.5.6.1	0.00	0.00
+1.20D+1.60L	1	2.47	21.00	7.04	7.04	8.53	1.00	12.72	PhiVc/2 < Vu <= PhiVc	Not Reqd 11.5.6.1	0.00	0.00
+1.20D+1.60L	1	2.53	21.00	-6.79	6.79	8.53	1.00	12.72	PhiVc/2 < Vu <= PhiVc	Not Reqd 11.5.6.1	0.00	0.00
+1.20D+1.60L	1	2.59	21.00	-6.62	6.62	8.13	1.00	12.72	PhiVc/2 < Vu <= PhiVc	Not Reqd 11.5.6.1	0.00	0.00
+1.20D+1.60L	1	2.65	21.00	-6.46	6.46	7.73	1.00	12.72	PhiVc/2 < Vu <= PhiVc	Not Reqd 11.5.6.1	0.00	0.00
+1.20D+1.60L	1	2.71	21.00	-6.29	6.29	7.35	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	2.76	21.00	-6.13	6.13	6.98	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	2.82	21.00	-5.96	5.96	6.62	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	2.88	21.00	-5.80	5.80	6.26	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	2.94	21.00	-5.63	5.63	5.92	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.00	21.00	-5.47	5.47	5.58	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.06	21.00	-5.30	5.30	5.26	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00

Dibble Engineers, Inc.
1029 Market Street
Kirkland, WA 98033
(424) 828-4200

Project Title:
Engineer:
Project ID:
Project Descr:

Beam on Elastic Foundation

Project File: Seifert Calcultions.ec6

DESCRIPTION: EFTG2 - Support UBM1

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu Actual	(k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in) Req'd	Spacing (in) Suggest
+1.20D+1.60L	1	3.12	21.00	-5.14	5.14	4.95	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.18	21.00	-4.97	4.97	4.64	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.24	21.00	-4.81	4.81	4.35	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.29	21.00	-4.64	4.64	4.06	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.35	21.00	-4.48	4.48	3.79	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.41	21.00	-4.31	4.31	3.52	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.47	21.00	-4.15	4.15	3.26	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.53	21.00	-3.98	3.98	3.02	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.59	21.00	-3.82	3.82	2.78	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.65	21.00	-3.65	3.65	2.55	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.71	21.00	-3.49	3.49	2.34	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.76	21.00	-3.32	3.32	2.13	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.82	21.00	-3.16	3.16	1.93	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.88	21.00	-2.99	2.99	1.74	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.94	21.00	-2.83	2.83	1.56	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.00	21.00	-2.66	2.66	1.39	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.06	21.00	-2.50	2.50	1.23	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.12	21.00	-2.34	2.34	1.08	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.18	21.00	-2.17	2.17	0.94	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.24	21.00	-2.01	2.01	0.81	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.29	21.00	-1.84	1.84	0.69	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.35	21.00	-1.68	1.68	0.58	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.41	21.00	-1.51	1.51	0.48	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.47	21.00	-1.35	1.35	0.39	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.53	21.00	-1.19	1.19	0.31	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.59	21.00	-1.02	1.02	0.24	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.65	21.00	-0.86	0.86	0.17	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.71	21.00	-0.69	0.69	0.12	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.76	21.00	-0.53	0.53	0.08	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.82	21.00	-0.37	0.37	0.04	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.88	21.00	-0.20	0.20	0.02	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	4.94	21.00	-0.04	0.04	0.00	1.00	12.72	Vu < PhiVc/2	Not Reqd	0.00	0.00

DEI
DIBBLE ENGINEERS INC

LATERAL

Seifert Residence Remodel; DEI Job #24-005

DEI DIBBLE ENGINEERS INC

PROJECT		SHEET No.	
PROJECT No	23-230	DATE	2/1/2024
SUBJECT	SEISMIC BASE SHEAR	BY	

SEISMIC BASE SHEAR CALCULATION

References: 2018 IBC (Ch16), ASCE 7-16 (Ch.11,12,& 22),

Method ASD

Lateral System A. BEARING WALL SYSTEM

[Tab. 12.2-1] 15. Light-framed (wood) walls sheathed with wood structural panels rated for shear resistance

Risk Category II [IBC Tab. 1604.5]

Site Class D [ASCE Ch.20]

Design Category D [IBC Sec.1613.2.5;Tab 1613.2.5]

Building Height Limit (ft) 65 [Tab. 12.2-1]

**Using Metric? Check Table 12.8-2

*ATC Hazards (Default Site Class if no Geotech)	S_s*	1.415	[ASCE Tab. 12.8-2]	C_t**	0.02	**Cs Limits** [ASCE 7-16]		
	S_1*	0.492	[ASCE Tab. 12.8-2]	x**	0.75	S_{DS} / (R/I)=	0.145	[Eqn.12.8-2]
[IBC Tab 1613.2.3(1)]	F_a	1	[ASCE 12.8.2.1]	h_n	31.833	S_{D1} / [T*(R/I)] =MAX	0.340	[Eqn.12.8-3]
[IBC Tab. 1613.2.3(2)]	F_v	1.808	[ASCE Eqn. 12.8-7]	T_a	0.268	(S_{D1}*T_L) /[T^2 *(R/I)] =MAX	7.62	[Eqn.12.8-4]
[IBC Eqn. 16-36]	S_{MS}	1.415	[ASCE Tab. 12.8-1]	C_u	1.4	0.044*S_{DS}*I ≥ 0.01 =MIN	0.042	[Eqn.12.8-5]
[IBC Eqn. 16-37]	S_{M1}	0.88954	[ASCE 12.8.2]	T_{MODAL}		(0.5*S_1) / (R/I) =MIN	0.038	[Eqn.12.8-6]
[IBC Eqn. 16-38]	S_{DS}	0.943	[ASCE 12.8.2]	T	0.268	Absolute Cs MIN	0.038	
[IBC Eqn. 16-39]	S_{D1}	0.593	[ASCE Fig. 22-14 to 17]	T_L	6	Absolute Cs MAX	7.62	

[ASCE Tab. 1.5-2]	I	1
[ASCE Tab. 12.2-1]	R	6.5
[ASCE Tab. 12.2-1]	Ω_0	3
[ASCE Tab. 12.2-1]	C_d	4
[ASCE Sec.12.3.4]	ρ	1.3

Cs (Design) =	0.145
W =	89.01 K
V =	11.76 K ASD

Vertical Distribution of Forces ASCE 7-16, Sec. 12.8.3

Expontent related to structural period

k = 1.0 [Sec. 12.8.3]

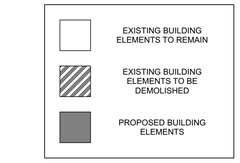
Level	Weight, w_x	Height, h_x	$w_x h_x^k$	[Eqn. 12.8-12] C_{vx}	[Eqn. 12.8-11] $F_x = C_s \cdot C_{vx} \cdot \Sigma w$	[Eqn. 12.8-13] V_x (Design)
U.Roof 1	5.7 K	29 ft	164 k-ft	0.071	0.83 K	0.83 K
U.Roof 2	40.6 K	29 ft	1178 k-ft	0.510	5.99 K	6.82 K
U.Roof 3	10.0 K	29 ft	288.9 k-ft	0.125	1.47 K	8.30 K
U.Floor 1	4.5 K	29 ft	129.8 k-ft	0.056	0.66 K	8.78 K
U.Floor 2	28.3 K	21 ft	584.6 k-ft	0.253	2.98 K	11.76 K
Σ	89.01 K		2308 k-ft	1.000	11.76 K	

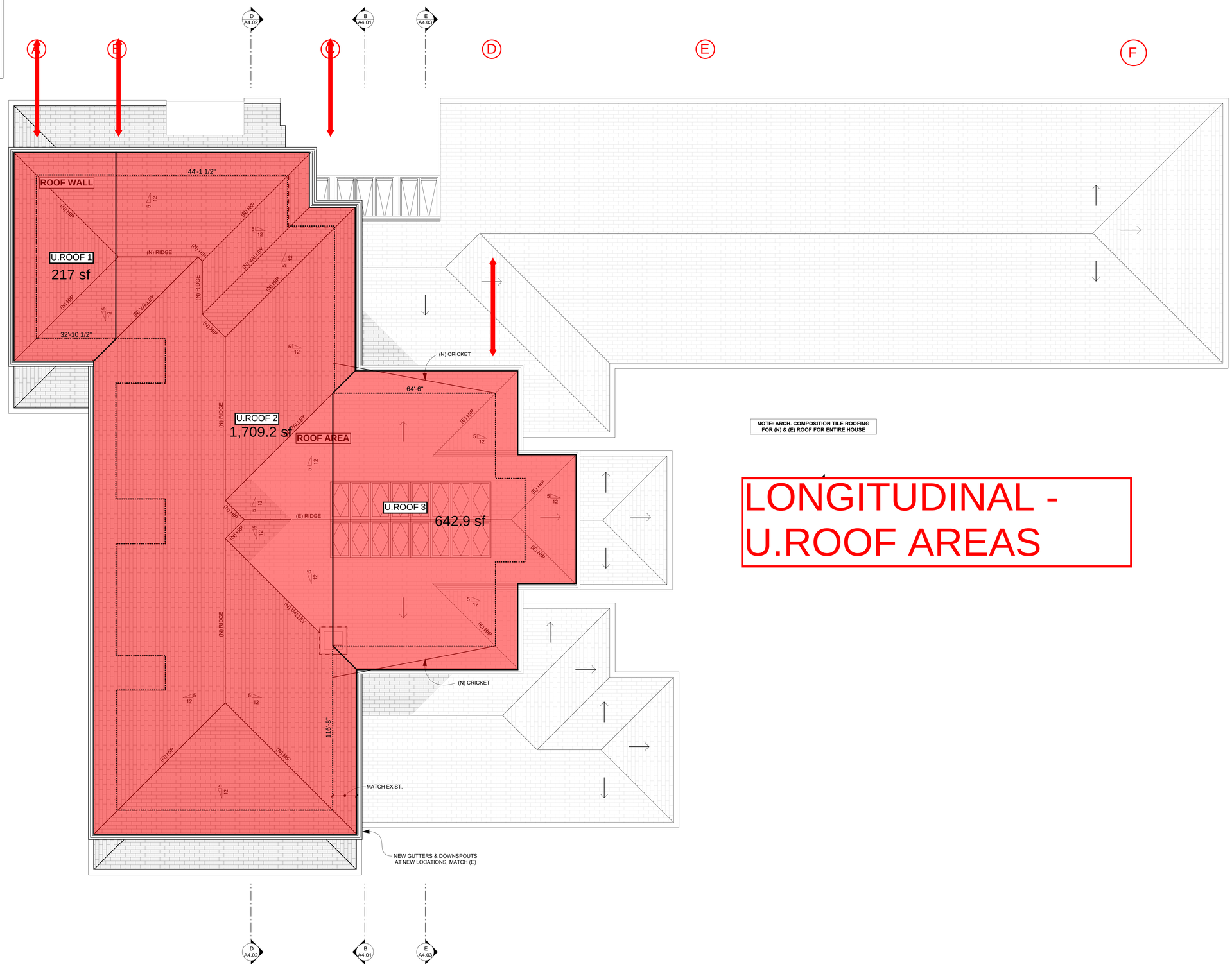
SEE SUMMARIES FOR LONGITUDINAL AND TRANSVERSE DIRECTIONS

Diaphragm Design Forces ASCE 7-16 12.10.1.1

Precast Concrete Diaphragm? no See ASCE12.10.3

Level	w_x	F_x [Eqn. 12.10-1]	F_{px} Eqn.12.10-3	F_{px}, max [Eqn.12.10-2]	F_{px},min. 12.10.1.1	F_{px}, (Design)
U.Roof 1	5.7 K	0.64 K	0.64 K	1.49 K	0.75 K	0.75 K
U.Roof 2	40.6 K	4.61 K	4.61 K	10.73 K	5.36 K	5.36 K
U.Roof 3	10.0 K	1.13 K	1.13 K	2.63 K	1.32 K	1.32 K
U.Floor 1	4.5 K	0.36 K	0.50 K	1.19 K	0.59 K	0.59 K
U.Floor 2	28.3 K	2.29 K	2.87 K	7.47 K	3.74 K	3.74 K
Σ	**89.01 K**	**9.04 K**	**9.76 K**	**23.51 K**	**11.76 K**	**11.76 K**





NOTE: ARCH. COMPOSITION TILE ROOFING FOR (N) & (E) ROOF FOR ENTIRE HOUSE

LONGITUDINAL - U.ROOF AREAS

N

ROOF PLAN PROPOSED

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

GELOTTE HOMMAS DRIVDAHL ARCHITECTURE
2340 130th Ave. NE, Suite 100, Bellevue, WA 98005
425.828.3081

SEIFERT REMODEL

3261 67TH AVE SE
MERCER ISLAND, WA 98040

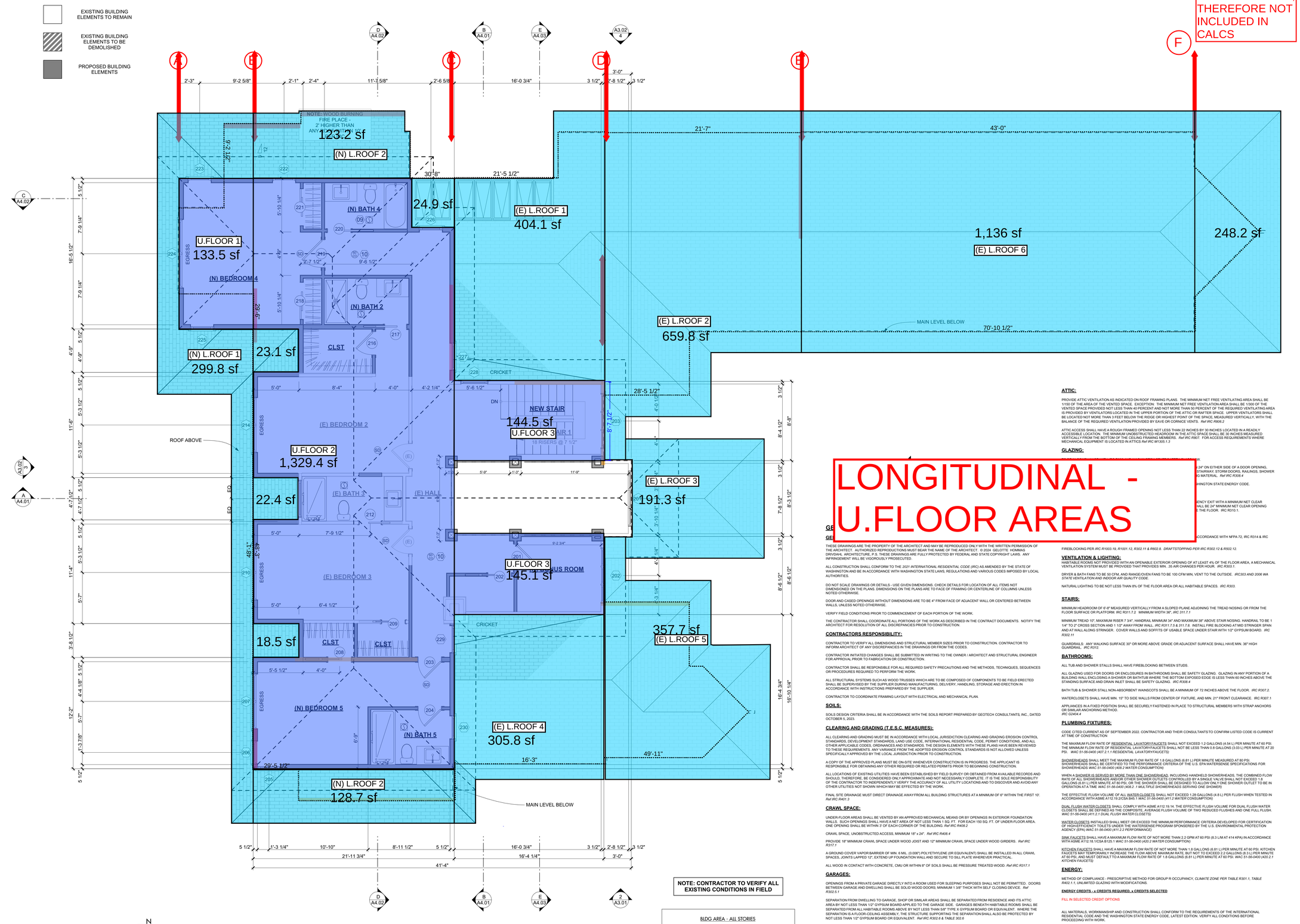
Job No.	2219
Project Manager:	DG
Issue Date:	08/03/2023

NO.	DATE	REVISION

W.I.P. SET (12.20.2023)

ROOF PLAN PROPOSED

A2.04



NOTE: CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS IN FIELD

BLDG AREA - ALL STORIES

LOWER FLOOR	
(E) FINISHED AREAS	1,096
(N) FINISHED AREAS	536
MAIN FLOOR	
(E) FINISHED AREAS	3,265
(E) GARAGE	1,075
(N) FINISHED AREAS	175
UPPER FLOOR	
(E) FINISHED AREAS	789
(N) FINISHED AREAS	967
	7,903 ft²

ATTIC:

PROVIDE ATTIC VENTILATION AS INDICATED ON ROOF FRAMING PLANS. THE MINIMUM NET FREE VENTILATING AREA SHALL BE 1/150 OF THE AREA OF THE VENTED SPACE. EXCEPTION: THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/300 OF THE VENTED SPACE PROVIDED NOT LESS THAN 40 PERCENT AND NOT MORE THAN 50 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE ATTIC OR RAFTER SPACE. UPPER VENTILATORS SHALL BE LOCATED NOT MORE THAN 3 FEET BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE, MEASURED VERTICALLY, WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS. *Ref IRC R806.2*

ATTIC ACCESS SHALL HAVE A ROUGH FRAMED OPENING NOT LESS THAN 22 INCHES BY 30 INCHES LOCATED IN A READILY ACCESSIBLE LOCATION. THE MINIMUM UNOBSTRUCTED HEADROOM IN THE ATTIC SPACE SHALL BE 30 INCHES MEASURED VERTICALLY FROM THE BOTTOM OF THE CEILING FRAMING MEMBERS. *Ref IRC R807.* FOR ACCESS REQUIREMENTS WHERE MECHANICAL EQUIPMENT IS LOCATED IN ATTICS *Ref IRC M1305.1.3*

GLAZING:

…24" ON EITHER SIDE OF A DOOR OPENING, …STAIRWAY, STORM DOORS, RAILINGS, SHOWER …G MATERIAL. *Ref IRC R308.4*

…HINGTON STATE ENERGY CODE.

…ENCY EXIT WITH A MIMIMUM NET CLEAR …ALL BE 24" MINIMUM NET CLEAR OPENING …E THE FLOOR. IRC R310.1

…CCORDANCE WITH NFPA 72, IRC R314 & IRC

FIREBLOCKING PER *IRC R1003.19, R1001.12, R302.11 & R602.8. DRAFTSTOPPING PER IRC R302.12 & R502.12.*

VENTILATION & LIGHTING:

HABITABLE ROOMS NOT PROVIDED WITH AN OPENABLE EXTERIOR OPENING OF AT LEAST 4% OF THE FLOOR AREA, A MECHANICAL VENTILATION SYSTEM MUST BE PROVIDED THAT PROVIDES MIN. .35 AIR CHANGES PER HOUR. *IRC R303.1.*

DRYER & BATH FANS TO BE 50 CFM, AND RANGE/OVEN FANS TO BE 100 CFM MIN, VENT TO THE OUTSIDE. *IRC303 AND 2006 WA STATE VENTILATION AND INDOOR AIR QUALITY CODE*

NATURAL LIGHTING TO BE NOT LESS THAN 8% OF THE FLOOR AREA OR ALL HABITABLE SPACES. *IRC R303.*

STAIRS:

MINIMUM HEADROOM OF 6'-8" MEASURED VERTICALLY FROM A SLOPED PLANE ADJOINING THE TREAD NOSING OR FROM THE FLOOR SURFACE OR PLATFORM. IRC R311.7.2 MINIMUM WIDTH 36", *IRC 311.7.1*

MINIMUM TREAD 10", MAXIMUM RISER 7 3/4", HANDRAIL MINIMUM 34" AND MAXIMUM 38" ABOVE STAIR NOSING. HANDRAIL TO BE 1 1/4" TO 2" CROSS SECTION AND 1 1/2" AWAY FROM WALL. *IRC R311.7.5 & 311.7.8.* INSTALL FIRE BLOCKING AT MID STRINGER SPAN AND AT WALL ALONG STRINGER. COVER WALLS AND SOFFITS OF USABLE SPACE UNDER STAIR WITH 1/2" GYPSUM BOARD. *IRC R302.11*

GUARDRAILS: ANY WALKING SURFACE 30" OR MORE ABOVE GRADE OR ADJACENT SURFACE SHALL HAVE MIN. 36" HIGH GUARDRAIL. *IRC R312.*

BATHROOMS:

ALL TUB AND SHOWER STALLS SHALL HAVE FIREBLOCKING BETWEEN STUDS.

ALL GLAZING USED FOR DOORS OR ENCLOSURES IN BATHROOMS SHALL BE SAFETY GLAZING. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING A SHOWER OR BATHTUB WHERE THE BOTTOM EXPOSED EDGE IS LESS THAN 60 INCHES ABOVE THE STANDING SURFACE AND DRAIN INLET SHALL BE SAFETY GLAZING. *IRC R308.4*

BATH TUB & SHOWER STALL NON-ABSORBENT WAINSCOTS SHALL BE A MINIMUM OF 72 INCHES ABOVE THE FLOOR. *IRC R307.2.*

WATERCLOSETS SHALL HAVE MIN. 15" TO SIDE WALLS FROM CENTER OF FIXTURE, AND MIN. 21" FRONT CLEARANCE. IRC R307.1

APPLIANCES IN A FIXED POSITION SHALL BE SECURELY FASTENED IN PLACE TO STRUCTURAL MEMBERS WITH STRAP ANCHORS OR SIMILAR ANCHORING METHOD. *IRC G2404.4*

PLUMBING FIXTURES:

CODE CITED CURRENT AS OF SEPTEMBER 2022. CONTRACTOR AND THEIR CONSULTANTS TO CONFIRM LISTED CODE IS CURRENT AT TIME OF CONSTRUCTION

THE MAXIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT EXCEED 1.2 GALLONS (4.54 L) PER MINUTE AT 60 PSI. THE MIMIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT BE LESS THAN 0.8 GALLONS (3.05 L) PER MINUTE AT 20 PSI. *WAC 51-56-0400 (411.2.1 RESIDENTIAL LAVATORY FAUCETS)*

SHOWERHEADS SHALL MEET THE MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE MEASURED AT 80 PSI. SHOWERHEADS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATERSENSE SPECIFICATIONS FOR SHOWERHEADS *WAC 51-56-0400 (408.2 WATER CONSUMPTION)*

WHEN A SHOWER IS SERVED BY MORE THAN ONE SHOWERHEAD, INCLUDING HANDHELD SHOWERHEADS, THE COMBINED FLOW RATE OF ALL SHOWERHEADS AND/OR OTHER SHOWER OUTLETS CONTROLLED BY A SINGLE VALVE SHALL NOT EXCEED 1.8 GALLONS (6.81 L) PER MINUTE AT 80 PSI, OR THE SHOWER SHALL BE DESIGNED TO ALLOW ONLY ONE SHOWER OUTLET TO BE IN OPERATION AT A TIME. *WAC 51-56-0400 (408.2.1 MULTIPLE SHOWERHEADS SERVING ONE SHOWER)*

THE EFFECTIVE FLUSH VOLUME OF ALL WATER CLOSETS SHALL NOT EXCEED 1.28 GALLONS (4.8 L) PER FLUSH WHEN TESTED IN ACCORDANCE WITH ASME A112.19.2/CSA B45.1 *WAC 51-56-0400 (411.2 WATER CONSUMPTION)*

DUAL FLUSH WATER CLOSETS SHALL COMPLY WITH ASME A112.19.14. THE EFFECTIVE FLUSH VOLUME FOR DUAL FLUSH WATER CLOSETS SHALL BE DEFINED AS THE COMPOSITE, AVERAGE FLUSH VOLUME OF TWO REDUCED FLUSHES AND ONE FULL FLUSH. *WAC 51-56-0400 (411.2.1 DUAL FLUSH WATER CLOSETS)*

WATER CLOSETS INSTALLED SHALL MEET OR EXCEED THE MINIMUM PERFORMANCE CRITERIA DEVELOPED FOR CERTIFICATION OF HIGH-EFFICIENCY TOILETS UNDER THE WATERSENSE PROGRAM SPONSERED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) *WAC 51-56-0400 (411.2.2 PERFORMANCE)*

SINK FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 2.2 GPM AT 60 PSI (8.3 LMA AT 414 KPA) IN ACCORDANCE WITH ASME A112.18.1/CSA B125.1 *WAC 51-56-0400 (420.2 WATER CONSUMPTION)*

KITCHEN FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. KITCHEN FAUCETS MAY TEMPORARILY INCREASE THE FLOW ABOVE MAXIMUM RATE, BUT NOT TO EXCEED 2.2 GALLONS (8.3 L) PER MINUTE AT 60 PSI, AND MUST DEFAULT TO A MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. *WAC 51-56-0400 (420.2.1 KITCHEN FAUCETS)*

ENERGY:

METHOD OF COMPLIANCE - PRESCRIPTIVE METHOD FOR GROUP R OCCUPANCY, *CLIMATE ZONE PER TABLE R301.1, TABLE R402.1.1, UNLIMITED GLAZING* WITH MODIFICATIONS.

ENERGY CREDITS - x CREDITS REQUIRED, x CREDITS SELECTED

FILL IN SELECTED CREDIT OPTIONS

ALL MATERIALS, WORKMANSHIP AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL RESIDENTIAL CODE AND THE WASHINGTON STATE ENERGY CODE, LATEST EDITION. VERIFY ALL CONDITIONS BEFORE PROCEEDING WITH WORK.

WALLS: INSULATED PER *WSEC TABLE R402.1.1.*

ROOF AND CEILING: INSULATED PER *WSEC TABLE R402.1.1.* PROVIDE INSULATION IN CEILING WHERE POSSIBLE AND IN 2x12 RAFTERS IF VAULTED CEILING CONDITION EXISTS. MAINTAIN A MINIMUM OF 2" CLEAR BETWEEN TOP OF INSULATION AND BOTTOM OF SHEATHING FOR VENTING. VENTING MUST OCCUR IN EACH JOIST SPACE. WHERE CONTINUOUS VENTING WITHIN A JOIST SPACE IS INTERRUPTED BY A HEADER (I.E., SKYLIGHT OR AT HIP END), PROVIDE (2) 1 1/2" VENTING HOLES AT THE TOP OF THE RAFTER AT THE HEADER TO ALLOW FOR CONTINUAL THROUGH-VENTING INTO THE NEXT JOIST SPACE.

FLOORS: INSULATE PER *WSEC TABLE R402.1.1*

SLAB ON GRADE: INSULATE PER TABLE R402.1.1. PROVIDE EXTRUDED RIGID CLOSED CELL INSULATION. INSULATION, INSTALLED INSIDE THE FOUNDATION WALL, SHALL EXTEND DOWNWARD FROM THE TOP OF THE SLAB 24" MIN. OR DOWNWARD AND THEN HORIZONTALLY BENEATH THE SLAB FOR A COMBINED 24" MIN. INSULATION INSTALLED OUTSIDE THE FOUNDATION SHALL EXTEND DOWNWARD 24" MIN. OR TO THE FROSTLINE. *WSEC 402.2.9.1*

VAPOR BARRIERS: VAPOR RETARDERS SHALL BE INSTALLED ON THE WARM SIDE (IN WINTER) OF INSULATION PER *TABLE R402.4.1.1*

FLOORS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE MIN. 4 MIL POLYETHYLENE OR KRAFT FACED MATERIAL. ROOF/CEILING ASSEMBLIES WHERE THE VENTILATION SPACE ABOVE THE INSULATION IS LESS THAN AN AVERAGE OF 12 INCHES SHALL BE PROVIDED WITH A VAPOR RETARDER. WALLS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE A VAPOR RETARDER INSTALLED. FACED BATT INSULATION SHALL BE FACE STAPLED. A GROUND COVER OF MIN. 6 MIL BLACK POLYETHYLENE SHALL BE LAID OVER THE GROUND WITHIN CRAWL SPACES W/ JOINTS LAPPED MIN. 12".

GLAZING AND DOORS: GLAZING AND DOOR U-FACTORS SHALL BE DETERMINED IN ACCOURDANCE WITH *WSEC SECTIONS R402.1.1 AND R303.1.3(2),* RESPECTIVELY.

ALL CONSTRUCTION SHALL CONFORM TO THE *2021 INTERNATIONAL RESIDENTIAL CODE (IRC)* AS AMENDED BY THE STATE OF WASHINGTON AND BE IN ACCORDANCE WITH WASHINGTON STATE LAWS, REGULATIONS AND VARIOUS CODES IMPOSED BY LOCAL AUTHORITIES.

DO NOT SCALE DRAWINGS OR DETAILS - USE GIVEN DIMENSIONS. CHECK DETAILS FOR LOCATION OF ALL ITEMS NOT DIMENSIONED ON THE PLANS. DIMENSIONS ON THE PLANS ARE TO FACE OF FRAMING OR CENTERLINE OF COLUMNS UNLESS NOTED OTHERWISE.

DOOR AND CASED OPENINGS WITHOUT DIMENSIONS ARE TO BE 4" FROM FACE OF ADJACENT WALL OR CENTERED BETWEEN WALLS, UNLESS NOTED OTHERWISE.

VERIFY FIELD CONDITIONS PRIOR TO COMMENCEMENT OF EACH PORTION OF THE WORK.

THE CONTRACTOR SHALL COORDINATE ALL PORTIONS OF THE WORK AS DESCRIBED IN THE CONTRACT DOCUMENTS. NOTIFY THE ARCHITECT FOR RESOLUTION OF ALL DISCREPANCIES PRIOR TO CONSTRUCTION.

CONTRACTORS RESPONSIBILITY:

CONTRACTOR TO VERIFY ALL DIMENSIONS AND STRUCTURAL MEMBER SIZES PRIOR TO CONSTRUCTION. CONTRACTOR TO INFORM ARCHITECT OF ANY DISCREPANCIES IN THE DRAWINGS OR FROM THE CODES.

CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE OWNER / ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK.

ALL STRUCTURAL SYSTEMS SUCH AS WOOD TRUSSES WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

CONTRACTOR TO COORDINATE FRAMING LAYOUT WITH ELECTRICAL AND MECHANICAL PLAN.

SOILS:

SOILS DESIGN CRITERIA SHALL BE IN ACCORDANCE WITH THE SOILS REPORT PREPARED BY GEOTECH CONSULTANTS, INC., DATED OCTOBER 5, 2023.

CLEARING AND GRADING (T.E.S.C. MEASURES):

ALL CLEARING AND GRADING MUST BE IN ACCORDANCE WITH LOCAL JURISDICTION CLEARING AND GRADING EROSION CONTROL STANDARDS, DEVELOPMENT STANDARDS, LAND USE CODE, INTERNATIONAL RESIDENTIAL CODE, PERMIT CONDITIONS, AND ALL OTHER APPLICABLE CODES, ORDINANCES AND STANDARDS. THE DESIGN ELEMENTS WITH THESE PLANS HAVE BEEN REVIEWED TO THESE REQUIREMENTS. ANY VARIANCE FROM THE ADOPTED EROSION CONTROL STANDARDS IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY THE LOCAL JURISDICTION PRIOR TO CONSTRUCTION.

A COPY OF THE APPROVED PLANS MUST BE ON-SITE WHENEVER CONSTRUCTION IS IN PROGRESS. THE APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER REQUIRED OR RELATED PERMITS PRIOR TO BEGINNING CONSTRUCTION.

ALL LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD, THEREFORE, BE CONSIDERED ONLY APPROXIMATE AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS AND TO DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN WHICH MAY BE EFFECTED BY THE WORK.

FINAL SITE DRAINAGE MUST DIRECT DRAINAGE AWAY FROM ALL BUILDING STRUCTURES AT A MINIMUM OF 6" WITHIN THE FIRST 10'. *Ref IRC R401.3*

CRAWL SPACE:

UNDER-FLOOR AREAS SHALL BE VENTED BY AN APPROVED MECHANICAL MEANS OR BY OPENINGS IN EXTERIOR FOUNDATION WALLS. SUCH OPENINGS SHALL HAVE A NET AREA OF NOT LESS THAN 1 SQ. FT. FOR EACH 150 SQ. FT. OF UNDER-FLOOR AREA. ONE OPENING SHALL BE WITHIN 3' OF EACH CORNER OF THE BUILDING. *Ref IRC R408.2*

CRAWL SPACE, UNOBSTRUCTED ACCESS, MINIMUM 18" x 24". *Ref IRC R408.4*

PROVIDE 18" MINIMUM CRAWL SPACE UNDER WOOD JOIST AND 12" MINIMUM CRAWL SPACE UNDER WOOD GIRDERS. *Ref IRC R317.1.*

A GROUND COVER VAPOR BARRIER OF MIN. 6 MIL. (0.006") POLYETHYLENE (ER EQUIVALENT) SHALL BE INSTALLED IN ALL CRAWL SPACES, JOINTS LAPPED 12", EXTEND UP FOUNDATION WALL AND SECURE TO SILL PLATE WHEREVER PRACTICAL.

ALL WOOD IN CONTACT WITH CONCRETE, CMU OR WITHIN 8" OF SOILS SHALL BE PRESSURE TREATED WOOD. *Ref IRC R317.1*

GARAGES:

OPENINGS FROM A PRIVATE GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED. DOORS BETWEEN GARAGE AND DWELLING SHALL BE SOLID WOOD DOORS; MINIMUM 1 3/8" THICK WITH SELF CLOSING DEVICE. *Ref R302.5.1*

SEPARATION FROM DWELLING TO GARAGE, SHOP OR SIMILAR AREAS SHALL BE SEPARATED FROM RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 1/2" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. GARAGES BENEATH HABITABLE ROOMS SHALL BE SEPARATED FROM ALL HABITABLE ROOMS ABOVE BY NOT LESS THAN 5/8" TYPE X GYPSUM BOARD OR EQUIVALENT. WHERE THE SEPARATION IS A FLOOR-CEILING ASSEMBLY, THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY NOT LESS THAN 1/2" GYPSUM BOARD OR EQUIVALENT. *Ref IRC R302.6 & TABLE 302.6*

HEATING AND/OR COOLING EQUIPMENT LOCATED IN GARAGE SHALL BE INSTALLED WITH PILOTS AND BURNERS OR HEATING ELEMENTS AND SWITCHES AT LEAST 18" ABOVE THE FLOOR LEVEL. *Ref IRC G2408.2*

FIREPLACES:

FACTORY-BUILT FIREPLACES SHALL BE LISTED AND LABELED AND SHALL BE INSTALLED IN ACCORDANCE WITH THE CONDITIONS OF THE LISTING. FACTORY-BUILT FIREPLACES SHALL BE TESTED IN ACCORDANCE WITH UL 127. *Ref IRC R1004.1*

MASONRY FIREPLACES, BARBECUES, SMOKE CHAMBERS AND FIREPLACE CHIMNEYS SHALL BE CONSTRUCTED OF MASONRY OR REINFORCED CONCRETE. FOUNDATIONS SHALL BE MIN. 12" THICK AND EXTEND MIN. 6" BEYOND MASONRY. FIREBOX WALLS MIN. 10" THICK EXCEPT MIN. 8" THICK WHERE A FIREBRICK LINING IS USED. COMBUSTIBLE MATERIALS SHALL NOT BE PLACED WITHIN 2 INCHES OF FIREPLACE, SMOKE CHAMBER OR CHIMNEY WALLS. COMBUSTIBLE MATERIAL SHALL NOT BE PLACED WITHIN 6" OF THE FIREPLACE OPENING. MIN. 4" THICK NON-COMBUSTIBLE HEARTH EXTENDING 16" IN FRONT AND 8" TO THE SIDE OF THE FIREPLACE OPENING. COMBUSTIBLE MATERIAL WITHIN 12" OF THE FIREPLACE OPENING SHALL NOT PROJECT MORE THAN 1/8" FOR EACH 1" DISTANCE FROM SUCH OPENING. *Ref IRC R1001 - R1003*

CEILING HEIGHTS:

HABITABLE SPACE SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'-0". NOT MORE THAN 50% OF REQUIRED FLOOR AREA OF A SPACE IS PERMITTED TO HAVE A SLOPED CEILING LESS THAN 7'-0" IN HEIGHT WITH NO PORTION LOWER THAN 5'-0". BATHROOM SHALL HAVE A MIN CEILING HEIGHT OF 6'-8" OVER THE FIXTURE AND ITS FRONT CLEARANCE AREA. *Ref IRC R305*

ROOFING:

APPLY ROOFING IN ACCORDANCE WITH *IRC R905.*

BALCONIES, LANDINGS, EXTERIOR STAIRWAYS, OCCUPIED ROOFS AND SIMILAR SURFACES EXPOSED TO THE WEATHER AND SEALED UNDERNEATH SHALL BE WATERPROOFED AND SLOPED A MINIMUM OF 1/4" PER 12" (2% SLOPE) FOR DRAINAGE.

GELOTTE HOMMAS DRIVDAHL ARCHITECTURE
2340 130th Ave. NE, Suite 100, Bellevue, WA 98005
425.828.3081

SEIFERT REMODEL

3261 67TH AVE SE
MERCER ISLAND, WA 98040

Job No. 2219
Project Manager: DG
Issue Date: 08/03/2023

NO.	DATE	REVISION

W.I.P. SET (12.20.2023)

UPPER FLOOR PLAN PROPOSED

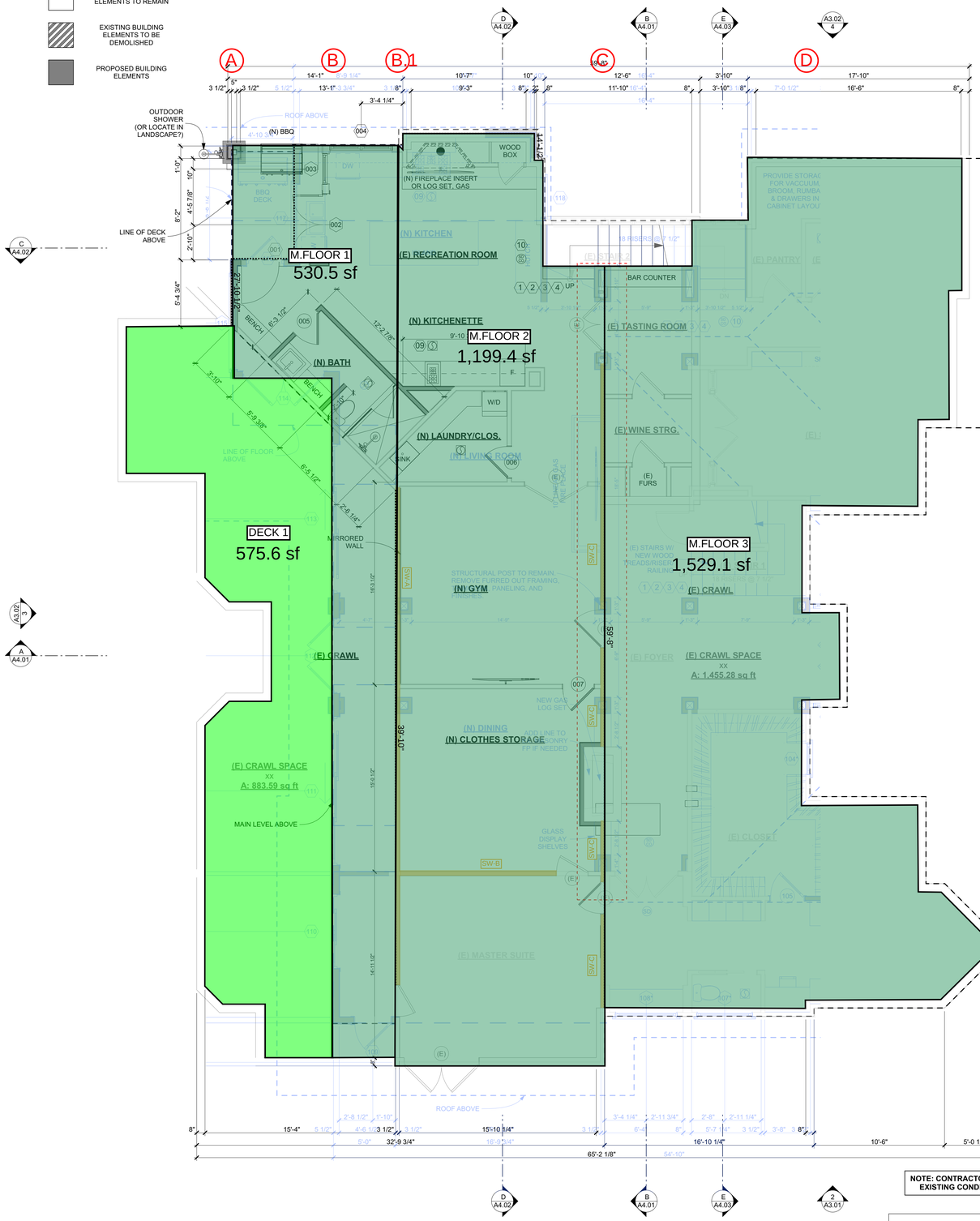
A2.03

RE: 2219 Seifert Remodel and Addition PRINTED: Friday, January 12, 2024

EXISTING BUILDING ELEMENTS TO REMAIN

EXISTING BUILDING ELEMENTS TO BE DEMOLISHED

PROPOSED BUILDING ELEMENTS



N

LOWER FLOOR PROPOSED

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

NOTE: CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS IN FIELD

BLDG AREA - ALL STORIES

LOWER FLOOR		
	(E) FINISHED AREAS	1,096
	(N) FINISHED AREAS	536
MAIN FLOOR		
	(E) FINISHED AREAS	3,265
	(E) GARAGE	1,075
	(N) FINISHED AREAS	175
UPPER FLOOR		
	(E) FINISHED AREAS	789
	(N) FINISHED AREAS	967
		7,903 ft²

LONGITUDINAL - M.FLOOR AREAS

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HABITABLE SPACE SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'-0". NOT MORE THAN 50% OF REQUIRED FLOOR AREA OF A SPACE IS PERMITTED TO HAVE A SLOPED CEILING LESS THAN 7'-0" IN HEIGHT WITH NO PORTION LOWER THAN 5'-0". BATHROOM SHALL HAVE A MIN CEILING HEIGHT OF 6'-8" OVER THE FIXTURE AND ITS FRONT CLEARANCE AREA. *Ref IRC R305*

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APPLY ROOFING IN ACCORDANCE WITH *IRC R905.*

BALCONIES, LANDINGS, EXTERIOR STAIRWAYS, OCCUPIED ROOFS AND SIMILAR SURFACES EXPOSED TO THE WEATHER AND SEALED UNDERNEATH SHALL BE WATERPROOFED AND SLOPED A MINIMUM OF 1/4" PER 12" (2% SLOPE) FOR DRAINAGE.

ATTIC:

PROVIDE ATTIC VENTILATION AS INDICATED ON ROOF FRAMING PLANS. THE MINIMUM NET FREE VENTILATING AREA SHALL BE 1/150 OF THE AREA OF THE VENTED SPACE. EXCEPTION: THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/300 OF THE VENTED SPACE PROVIDED NOT LESS THAN 40 PERCENT AND NOT MORE THAN 50 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE ATTIC OR RAFTER SPACE. UPPER VENTILATORS SHALL BE LOCATED NOT MORE THAN 3 FEET BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE, MEASURED VERTICALLY, WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS. *Ref IRC R806.2*

ATTIC ACCESS SHALL HAVE A ROUGH FRAMED OPENING NOT LESS THAN 22 INCHES BY 30 INCHES LOCATED IN A READILY ACCESSIBLE LOCATION. THE MINIMUM UNOBSTRUCTED HEADROOM IN THE ATTIC SPACE SHALL BE 30 INCHES MEASURED VERTICALLY FROM THE BOTTOM OF THE CEILING FRAMING MEMBERS. *Ref IRC R807.* FOR ACCESS REQUIREMENTS WHERE MECHANICAL EQUIPMENT IS LOCATED IN ATTICS *Ref IRC M1305.1.3*

GLAZING:

…W.

…24" ON EITHER SIDE OF A DOOR OPENING, …STAIRWAY, STORM DOORS, RAILINGS, SHOWER …G MATERIAL. *Ref IRC R308.4*

…HINGTON STATE ENERGY CODE.

…ENCY EXIT WITH A MIMIMUM NET CLEAR …ALL BE 24" MINIMUM NET CLEAR OPENING …E THE FLOOR. IRC R310.1

…CCORDANCE WITH NFPA 72, IRC R314 & IRC

FIREBLOCKING PER *IRC R1003.19, R1001.12, R302.11 & R602.8. DRAFTSTOPPING PER IRC R302.12 & R502.12.*

VENTILATION & LIGHTING:

HABITABLE ROOMS NOT PROVIDED WITH AN OPENABLE EXTERIOR OPENING OF AT LEAST 4% OF THE FLOOR AREA, A MECHANICAL VENTILATION SYSTEM MUST BE PROVIDED THAT PROVIDES MIN. .35 ARI CHANGES PER HOUR. *IRC R303.1.*

DRYER & BATH FANS TO BE 50 CFM, AND RANGE/OVEN FANS TO BE 100 CFM MIN, VENT TO THE OUTSIDE. *IRC303 AND 2006 WA STATE VENTILATION AND INDOOR AIR QUALITY CODE*

NATURAL LIGHTING TO BE NOT LESS THAN 8% OF THE FLOOR AREA OR ALL HABITABLE SPACES. *IRC R303.*

STAIRS:

MINIMUM HEADROOM OF 6'-8" MEASURED VERTICALLY FROM A SLOPED PLANE ADJOINING THE TREAD NOSING OR FROM THE FLOOR SURFACE OR PLATFORM. IRC R311.7.2 MINIMUM WIDTH 36", *IRC 311.7.1*

MINIMUM TREAD 10", MAXIMUM RISER 7 3/4", HANDRAIL MINIMUM 34" AND MAXIMUM 38" ABOVE STAIR NOSING. HANDRAIL TO BE 1 1/4" TO 2" CROSS SECTION AND 1 1/2" AWAY FROM WALL. *IRC R311.7.5 & 311.7.8.* INSTALL FIRE BLOCKING AT MID STRINGER SPAN AND AT WALL ALONG STRINGER. COVER WALLS AND SOFFITS OF USABLE SPACE UNDER STAIR WITH 1/2" GYPSUM BOARD. *IRC R302.11*

GUARDRAILS: ANY WALKING SURFACE 30" OR MORE ABOVE GRADE OR ADJACENT SURFACE SHALL HAVE MIN. 36" HIGH GUARDRAIL. *IRC R312.*

BATHROOMS:

ALL TUB AND SHOWER STALLS SHALL HAVE FIREBLOCKING BETWEEN STUDS.

ALL GLAZING USED FOR DOORS OR ENCLOSURES IN BATHROOMS SHALL BE SAFETY GLAZING. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING A SHOWER OR BATHTUB WHERE THE BOTTOM EXPOSED EDGE IS LESS THAN 60 INCHES ABOVE THE STANDING SURFACE AND DRAIN INLET SHALL BE SAFETY GLAZING. *IRC R308.4*

BATH TUB & SHOWER STALL NON-ABSORBENT WAINSCOTS SHALL BE A MINIMUM OF 72 INCHES ABOVE THE FLOOR. *IRC R307.2.*

WATERCLOSETS SHALL HAVE MIN. 15" TO SIDE WALLS FROM CENTER OF FIXTURE, AND MIN. 21" FRONT CLEARANCE. IRC R307.1

APPLIANCES IN A FIXED POSITION SHALL BE SECURELY FASTENED IN PLACE TO STRUCTURAL MEMBERS WITH STRAP ANCHORS OR SIMILAR ANCHORING METHOD. *IRC G2404.4*

PLUMBING FIXTURES:

CODE CITED CURRENT AS OF SEPTEMBER 2022. CONTRACTOR AND THEIR CONSULTANTS TO CONFIRM LISTED CODE IS CURRENT AT TIME OF CONSTRUCTION

THE MAXIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT EXCEED 1.2 GALLONS (4.54 L) PER MINUTE AT 60 PSI. THE MINIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT BE LESS THAN 0.8 GALLONS (3.03 L) PER MINUTE AT 20 PSI. *WAC 51-56-0400 (407.2.1.1 RESIDENTIAL LAVATORY FAUCETS)*

SHOWERHEADS SHALL MEET THE MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE MEASURED AT 80 PSI. SHOWERHEADS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATERSENSE SPECIFICATIONS FOR SHOWERHEADS *WAC 51-56-0400 (408.2 WATER CONSUMPTION)*

WHEN A SHOWER IS SERVED BY MORE THAN ONE SHOWERHEAD, INCLUDING HANDHELD SHOWERHEADS. THE COMBINED FLOW RATE OF ALL SHOWERHEADS AND/OR OTHER OUTLETS CONTROLLED BY A SINGLE VALVE SHALL NOT EXCEED 1.8 GALLONS (6.81 L) PER MINUTE AT 80 PSI. OR THE SHOWER SHALL BE DESIGNED TO ALLOW ONLY ONE SHOWER OUTLET TO BE IN OPERATION AT A TIME. *WAC 51-56-0400 (408.2. 1 MULTIPLE SHOWERHEADS SERVING ONE SHOWER).*

THE EFFECTIVE FLUSH VOLUME OF ALL WATER CLOSETS SHALL NOT EXCEED 1.28 GALLONS (4.8 L) PER FLUSH WHEN TESTED IN ACCORDANCE WITH ASME A112.19.2/CSA B45.1 *WAC 51-56-0400 (411.2 WATER CONSUMPTION)*

DUAL FLUSH WATER CLOSETS SHALL COMPLY WITH ASME A112.19.14. THE EFFECTIVE FLUSH VOLUME FOR DUAL FLUSH WATER CLOSETS SHALL BE DEFINED AS THE COMPOSITE, AVERAGE FLUSH VOLUME OF TWO REDUCED FLUSHES AND ONE FULL FLUSH. *WAC 51-56-0400 (411.2.1 DUAL FLUSH WATER CLOSETS)*

WATER CLOSETS INSTALLED SHALL MEET OR EXCEED THE MINIMUM PERFORMANCE CRITERIA DEVELOPED FOR CERTIFICATION OF HIGH-EFFICIENCY TOILETS UNDER THE WATERSENSE PROGRAM SPONSERED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) *WAC 51-56-0400 (411.2.2 PERFORMANCE)*

SINK FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 2.2 GPM AT 60 PSI (8.3 LM AT 414 KPA) IN ACCORDANCE WITH ASME A112.18.1/CSA B125.1 *WAC 51-56-0400 (420.2 WATER CONSUMPTION)*

KITCHEN FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. KITCHEN FAUCETS MAY TEMPORARILY INCREASE THE FLOW ABOVE MAXIMUM RATE, BUT NOT TO EXCEED 2.2 GALLONS (8.3 L) PER MINUTE AT 60 PSI, AND MUST DEFAULT TO A MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. *WAC 51-56-0400 (420.2.1 KITCHEN FAUCETS)*

ENERGY:

METHOD OF COMPLIANCE - PRESCRIPTIVE METHOD FOR GROUP R OCCUPANCY, *CLIMATE ZONE PER TABLE R301.1, TABLE R402.1.1, UNLIMITED GLAZING* WITH MODIFICATIONS.

ENERGY CREDITS - x CREDITS REQUIRED, x CREDITS SELECTED

FILL IN SELECTED CREDIT OPTIONS

ALL MATERIALS, WORKMANSHIP AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL RESIDENTIAL CODE AND THE WASHINGTON STATE ENERGY CODE, LATEST EDITION. VERIFY ALL CONDITIONS BEFORE PROCEEDING WITH WORK.

WALLS: INSULATED PER *WSEC Table R402.1.1.*

ROOF AND CEILING: INSULATED PER *WSEC Table R402.1.1.* PROVIDE INSULATION IN CEILING WHERE POSSIBLE AND IN 2x12 RAFTERS IF UNLITED CEILING CONDITION EXISTS. MAINTAIN A MINIMUM OF 2" CLEAR BETWEEN TOP OF INSULATION AND BOTTOM OF SHEATHING FOR VENTING. VENTING MUST OCCUR IN EACH JOIST SPACE. WHERE CONTINUOUS VENTING WITHIN A JOIST SPACE IS INTERRUPTED BY A HEADER (I.E., SKYLIGHT OR AT HIP END), PROVIDE (2) 1 1/2" VENTING HOLES AT THE TOP OF THE RAFTER AT THE HEADER TO ALLOW FOR CONTINUAL THROUGH-VENTING INTO THE NEXT JOIST SPACE.

FLOORS: INSULATE PER *WSEC Table R402.1.1*

SLAB ON GRADE: INSULATE PER TABLE R402.1.1. PROVIDE EXTRUDED RIGID CLOSED CELL INSULATION. INSULATION, INSTALLED INSIDE THE FOUNDATION WALL, SHALL EXTEND DOWNWARD FROM THE TOP OF THE SLAB 24" MIN. OR DOWNWARD AND THEN HORIZONTALLY BENEATH THE SLAB FOR A COMBINED 24" MIN. INSULATION INSTALLED OUTSIDE THE FOUNDATION SHALL EXTEND DOWNWARD 24" MIN. OR TO THE FROSTLINE. *WSEC 402.2.9.1*

VAPOR BARRIERS: VAPOR RETARDERS SHALL BE INSTALLED ON THE WARM SIDE (IN WINTER) OF INSULATION PER *TABLE R402.4.1.1*

FLOORS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE MIN. 4 MIL POLYETHYLENE OR KRAFT FACED MATERIAL. ROOF/CEILING ASSEMBLIES WHERE THE VENTILATION SPACE ABOVE THE INSULATION IS LESS THAN AN AVERAGE OF 12 INCHES SHALL BE PROVIDED WITH A VAPOR RETARDER. WALLS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE A VAPOR RETARDER INSTALLED. FACED BATT INSULATION SHALL BE FACE STAPLED. A GROUND COVER OF MIN. 6 MIL BLACK POLYETHYLENE SHALL BE LAID OVER THE GROUND WITHIN CRAWL SPACES W/ JOINTS LAPPED MIN. 12".

GLAZING AND DOORS: GLAZING AND DOOR U-FACTORS SHALL BE DETERMINED IN ACCOURDANCE WITH *WSEC SECTIONS R402.1.1 AND R303.1.3(2),* RESPECTIVELY.

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SEIFERT REMODEL

3261 67TH AVE SE
MERCER ISLAND, WA 98040

Job No.	2219
Project Manager:	DG
Issue Date:	08/03/2023

NO.	DATE	REVISION

W.I.P. SET (12.20.2023)

LOWER FLOOR PLAN PROPOSED

A2.01

FILE: 2219 Seifert Remodel and Addition PRINTED: Friday, January 12, 2024

Material Weights	
(N) Roof - Trusses	20 psf
(E) or (N) Roof - Stick	15 psf
Floors	15 psf
Walls	10 psf
(E) Deck	36 psf

Key
Input
Add Relevant Wall WT from Above

Longitudinal Direction (See Keyplans)

Upper Roof

U. Roof 1		
Roof Area	217	ft^2
Wall Length	32.833	ft
Height	8	ft
Wall Area	131.332	ft^2
Roof WT	4340	lbs.
Wall WT	1313.32	lbs.
Sum WT	5653.32	lbs.

U. Roof 2		
Roof Area (N)	1709.2	ft^2
Roof Area (E)	0	ft^2
Wall Length	160.66	ft
Height	8	ft
Wall Area	642.64	ft^2
Roof WT (N)	34184	lbs.
Roof WT (E)	0	
Wall WT	6426.4	lbs.
Sum WT	40610.4	lbs.

U. Roof 3		
Roof Area	642.9	ft^2
Wall Length	8	ft
Height	8	ft
Wall Area	32	ft^2
Roof WT	9643.5	lbs.
Wall WT	320	lbs.
Sum WT	9963.5	lbs.

Upper Floor & Low Roof

U. Floor 1		
Floor Area	133.5	ft^2
Wall Length	29.5	ft
Height	8	ft
Wall Area	118	ft^2
Floor WT	2002.5	lbs.
Wall WT	1180	lbs.
Walls From Above	1313.32	lbs.
Sum WT	4495.82	lbs.

U. Floor 2		
Floor Area	1329.4	ft^2
Wall Length	48	ft
Height	8	ft
Wall Area	192	ft^2
Floor WT	19941	lbs.
Wall WT	1920	lbs.
Walls From Above	6426.4	lbs.
Sum WT	28287.4	lbs.

U. Floor 3		
Floor Area	292.6	ft^2
Wall Length	16	ft
Height	8	ft
Wall Area	64	ft^2
Floor WT	4389	lbs.
Wall WT	640	lbs.
Walls From Above	320	lbs.
Sum WT	5349	lbs.

(N) L. Roof 1		
Roof Area	299.8	ft^2
Wall Length	9.25	ft
Height	10.167	ft
Wall Area	47.02238	ft^2
Floor WT	4497	lbs.
Wall WT	470.2238	lbs.
Walls From Above	0	lbs.
Sum WT	4967.224	lbs.

(E) L. Roof 1		
Roof Area	404.1	ft^2
Wall Length	21.5	ft
Height	10.167	ft
Wall Area	109.2953	ft^2
Floor WT	6061.5	lbs.
Wall WT	1092.953	lbs.
Walls From Above	0	lbs.
Sum WT	7154.453	lbs.

(E) L. Roof 2		
Roof Area	659.8	ft^2
Wall Length	50	ft
Height	10.167	ft
Wall Area	254.175	ft^2
Floor WT	9897	lbs.
Wall WT	2541.75	lbs.
Walls From Above	0	lbs.
Sum WT	12438.75	lbs.

(E) L. Roof 3		
Roof Area	191.3	ft^2
Wall Length	0	ft
Height	10.167	ft
Wall Area	0	ft^2
Floor WT	2869.5	lbs.
Wall WT	0	lbs.
Walls From Above	0	lbs.
Sum WT	2869.5	lbs.

(E) L. Roof 4		
Roof Area	305.8	ft^2
Wall Length	16.25	ft
Height	10.167	ft
Wall Area	82.60688	ft^2
Floor WT	4587	lbs.
Wall WT	826.0688	lbs.
Walls From Above	0	lbs.
Sum WT	5413.069	lbs.

(N) L. Roof 2		
Roof Area	340.8	ft^2
Wall Length	29.5	ft
Height	10.167	ft
Wall Area	149.9633	ft^2
Floor WT	5112	lbs.
Wall WT	1499.633	lbs.
Walls From Above	0	lbs.
Sum WT	6611.633	lbs.

(E) L. Roof 5		
Roof Area	357.7	ft^2
Wall Length	50	ft
Height	10.167	ft
Wall Area	254.175	ft^2
Floor WT	5365.5	lbs.
Wall WT	2541.75	lbs.
Walls From Above	0	lbs.
Sum WT	7907.25	lbs.

(E) L. Roof 6		
Roof Area	1136	ft^2
Wall Length	113.833	ft
Height	10.167	ft
Wall Area	578.6700555	ft^2
Floor WT	17040	lbs.
Wall WT	5786.700555	lbs.
Walls From Above	0	lbs.
Sum WT	22826.70056	lbs.

Main Floor

M. Floor 1		
Floor Area	530.5	ft^2
Wall Length	28	ft
Height	8.25	ft
Wall Area	115.5	ft^2
Floor WT	7957.5	lbs.
Wall WT	1155	lbs.
Walls From Above	1650.224	lbs.
Sum WT	10762.72	lbs.

M. Floor 2		
Floor Area	1199.4	ft^2
Wall Length	14	ft
Height	8.25	ft
Wall Area	57.75	ft^2
Floor WT	17991	lbs.
Wall WT	577.5	lbs.
Walls From Above	1920	lbs.
Sum WT	20488.5	lbs.

M. Floor 3		
Floor Area	1529.1	ft^2
Wall Length	0	ft
Height	8.25	ft
Wall Area	0	ft^2
Floor WT	22936.5	lbs.
Wall WT	0	lbs.
Walls From Above	3181.75	lbs.
Sum WT	26118.25	lbs.

Deck 1		
Floor Area	575.6	ft^2
Wall Length	0	ft
Height	0	ft
Wall Area	0	ft^2
Floor WT	20721.6	lbs.
Wall WT	0	lbs.
Walls From Above	0	lbs.
Sum WT	20721.6	lbs.

LONGITUDINAL

Level	Weight, w_x	Height, h_x	$w_x h_x^k$	C_{vx}	$F_x = C_s * C_{vx} * \Sigma w * \rho$	V_x (Design)
U.Roof 1	5.7 K	29 ft	6 k-ft	0.023	0.68	0.68 K
U.Roof 2	40.6 K	29 ft	41 k-ft	0.167	4.88	5.56 K
U.Roof 3	10.0 K	29 ft	10.0 k-ft	0.041	1.20	6.75 K
U.Floor 1	4.5 K	21 ft	4.5 k-ft	0.019	0.54	7.29 K
U.Floor 2	28.3 K	21 ft	28.3 k-ft	0.117	3.40	10.69 K
U.Floor 3	5.3 K	21 ft	5 k-ft	0.022	0.64	11.33 K
(N) L.Roof 1	5.0 K	21 ft	5 k-ft	0.020	0.60	11.93 K
(E) L.Roof 1	7.2 K	21 ft	7.2 k-ft	0.029	0.86	12.79 K
(E) L.Roof 2	12.4 K	21 ft	12.4 k-ft	0.051	1.49	14.28 K
(E) L.Roof 3	2.9 K	21 ft	2.9 k-ft	0.012	0.34	14.63 K
(E) L.Roof 4	5.4 K	21 ft	5 k-ft	0.022	0.65	15.28 K
(E) L.Roof 5	7.9 K	21 ft	8 k-ft	0.033	0.95	16.23 K
(E) L.Roof 6	22.8 K	21 ft	22.8 k-ft	0.094	2.74	18.97 K
(N) L.Roof 2	6.6 K	21 ft	6.6 k-ft	0.027	0.79	19.77 K
M. Floor 1	10.8 K	8 ft	10.8 k-ft	0.044	1.29	21.06 K
M. Floor 2	20.5 K	8 ft	20 k-ft	0.084	2.46	23.52 K
M. Floor 3	26.1 K	8 ft	26 k-ft	0.108	3.14	26.66 K
Deck 1	20.7 K	8 ft	20.7 k-ft	0.085	2.49	29.15 K
Σ	242.64 K		243 k-ft	1.000	28.47 K	

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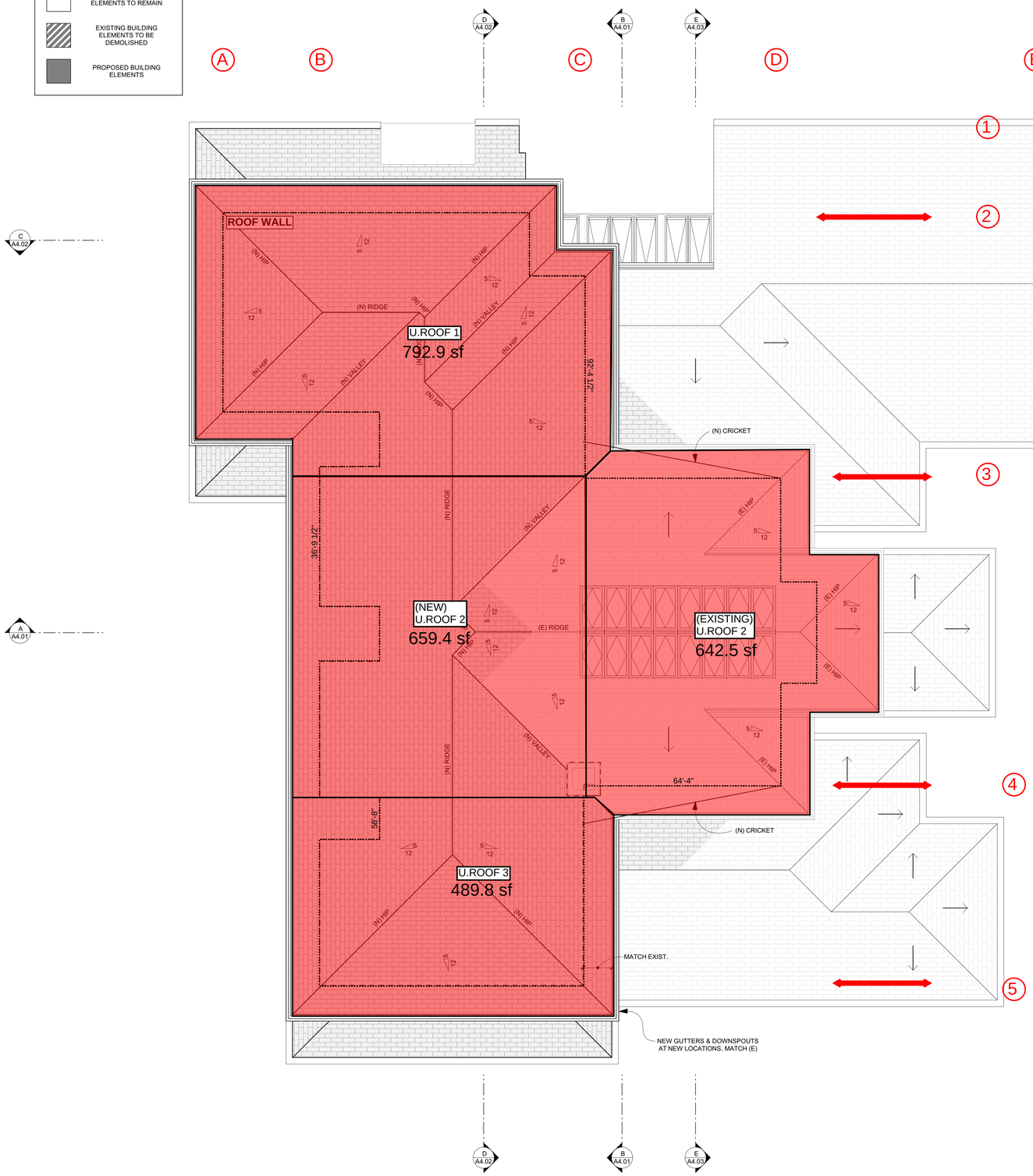
EXISTING BUILDING ELEMENTS TO REMAIN

EXISTING BUILDING ELEMENTS TO BE DEMOLISHED

PROPOSED BUILDING ELEMENTS



NOTE: ARCH. COMPOSITION TILE ROOFING FOR (N) & (E) ROOF FOR ENTIRE HOUSE

TRANSVERSE - U.ROOF AREAS

ROOF PLAN PROPOSED

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

SEIFERT REMODEL

3261 67TH AVE SE
MERCER ISLAND, WA 98040

Job No.	2219
Project Manager:	DG
Issue Date:	08/03/2023

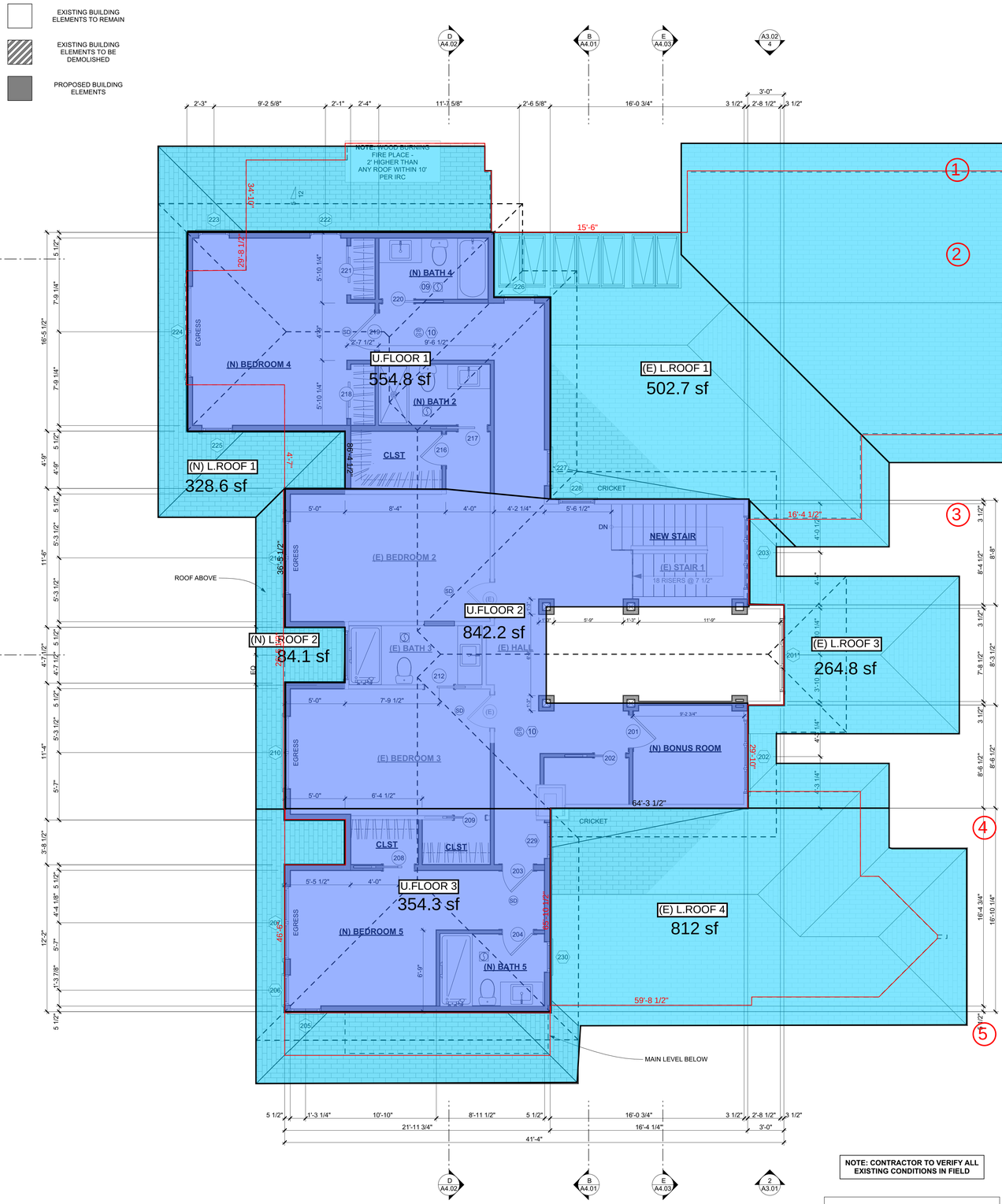
NO.	DATE	REVISION

W.I.P. SET (12.20.2023)

ROOF PLAN PROPOSED

A2.04

FILE: 2219 Seifert Remodel and Addition PRINTED: Friday, January 12, 2024



TRANSVERSE - U.FLOOR AREAS

NOTE: CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS IN FIELD

BLDG AREA - ALL STORIES

LOWER FLOOR		
	(E) FINISHED AREAS	1,096
	(N) FINISHED AREAS	536
MAIN FLOOR		
	(E) FINISHED AREAS	3,265
	(E) GARAGE	1,075
	(N) FINISHED AREAS	175
UPPER FLOOR		
	(E) FINISHED AREAS	789
	(N) FINISHED AREAS	967
		7,903 ft²

ATTIC:

PROVIDE ATTIC VENTILATION AS INDICATED ON ROOF FRAMING PLANS. THE MINIMUM NET FREE VENTILATING AREA SHALL BE 1/150 OF THE AREA OF THE VENTED SPACE. EXCEPTION: THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/300 OF THE VENTED SPACE PROVIDED NOT LESS THAN 40 PERCENT AND NOT MORE THAN 50 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE ATTIC OR RAFTER SPACE. UPPER VENTILATORS SHALL BE LOCATED NOT MORE THAN 3 FEET BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE, MEASURED VERTICALLY, WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS. *Ref IRC R806.2*

ATTIC ACCESS SHALL HAVE A ROUGH FRAMED OPENING NOT LESS THAN 22 INCHES BY 30 INCHES LOCATED IN A READILY ACCESSIBLE LOCATION. THE MINIMUM UNOBSTRUCTED HEADROOM IN THE ATTIC SPACE SHALL BE 30 INCHES MEASURED VERTICALLY FROM THE BOTTOM OF THE CEILING FRAMING MEMBERS. *Ref IRC R807.* FOR ACCESS REQUIREMENTS WHERE MECHANICAL EQUIPMENT IS LOCATED IN ATTICS *Ref IRC M1305.1.3*

GLAZING:

…W.
…24" ON EITHER SIDE OF A DOOR OPENING.
…STAIRWAY, STORM DOORS, RAILINGS, SHOWER
…G MATERIAL. *Ref IRC R308.4*

…HINGTON STATE ENERGY CODE.

…ENCY EXIT WITH A MINIMUM NET CLEAR
…ALL BE 24" MINIMUM NET CLEAR OPENING
…E THE FLOOR. IRC R310.1

…CCORDANCE WITH NFPA 72, IRC R314 & IRC

FIREBLOCKING PER *IRC R1003.19, R1001.12, R302.11 & R602.8. DRAFTSTOPPING PER IRC R302.12 & R502.12.*

VENTILATION & LIGHTING:

HABITABLE ROOMS NOT PROVIDED WITH AN OPENABLE EXTERIOR OPENING OF AT LEAST 4% OF THE FLOOR AREA, A MECHANICAL VENTILATION SYSTEM MUST BE PROVIDED THAT PROVIDES MIN. .35 AIR CHANGES PER HOUR. *IRC R303.1.*

DRYER & BATH FANS TO BE 50 CFM, AND RANGE/OVEN FANS TO BE 100 CFM MIN, VENT TO THE OUTSIDE. *IRC303 AND 2006 WA STATE VENTILATION AND INDOOR AIR QUALITY CODE*

NATURAL LIGHTING TO BE NOT LESS THAN 8% OF THE FLOOR AREA OR ALL HABITABLE SPACES. *IRC R303.*

STAIRS:

MINIMUM HEADROOM OF 6'-8" MEASURED VERTICALLY FROM A SLOPED PLANE ADJOINING THE TREAD NOSING OR FROM THE FLOOR SURFACE OR PLATFORM. *IRC* R311.7.2 MINIMUM WIDTH 36", *IRC 311.7.1*

MINIMUM TREAD 10", MAXIMUM RISER 7 3/4", HANDRAIL MINIMUM 34" AND MAXIMUM 38" ABOVE STAIR NOSING. HANDRAIL TO BE 1 1/4" TO 2" CROSS SECTION AND 1 1/2" AWAY FROM WALL. *IRC R311.7.5 & 311.7.8.* INSTALL FIRE BLOCKING AT MID STRINGER SPAN AND AT WALL ALONG STRINGER. COVER WALLS AND SOFFITS OF USABLE SPACE UNDER STAIR WITH 1/2" GYPSUM BOARD. *IRC R302.11*

GUARDRAILS: ANY WALKING SURFACE 30" OR MORE ABOVE GRADE OR ADJACENT SURFACE SHALL HAVE MIN. 36" HIGH GUARDRAIL. *IRC R312.*

BATHROOMS:

ALL TUB AND SHOWER STALLS SHALL HAVE FIREBLOCKING BETWEEN STUDS.

ALL GLAZING USED FOR DOORS OR ENCLOSURES IN BATHROOMS SHALL BE SAFETY GLAZING. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING A SHOWER OR BATHTUB WHERE THE BOTTOM EXPOSED EDGE IS LESS THAN 60 INCHES ABOVE THE STANDING SURFACE AND DRAIN INLET SHALL BE SAFETY GLAZING. *IRC R308.4*

BATH TUB & SHOWER STALL NON-ABSORBENT WAINSCOTS SHALL BE A MINIMUM OF 72 INCHES ABOVE THE FLOOR. *IRC R307.2.*

WATERCLOSETS SHALL HAVE MIN. 15" TO SIDE WALLS FROM CENTER OF FIXTURE, AND MIN. 21" FRONT CLEARANCE. IRC R307.1

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IRC G2404.4

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SHOWERHEADS SHALL MEET THE MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE MEASURED AT 80 PSI. SHOWERHEADS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATERSENSE SPECIFICATIONS FOR SHOWERHEADS *WAC 51-56-0400 (408.2 WATER CONSUMPTION)*

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METHOD OF COMPLIANCE - PRESCRIPTIVE METHOD FOR GROUP R OCCUPANCY, *CLIMATE ZONE PER TABLE R301.1, TABLE R402.1.1, UNLIMITED GLAZING* WITH MODIFICATIONS.

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FLOORS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE MIN. 4 MIL POLYETHYLENE OR KRAFT FACED MATERIAL. ROOF/CEILING ASSEMBLIES WHERE THE VENTILATION SPACE ABOVE THE INSULATION IS LESS THAN AN AVERAGE OF 12 INCHES SHALL BE PROVIDED WITH A VAPOR RETARDER. WALLS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE A VAPOR RETARDER INSTALLED. FACED BATT INSULATION SHALL BE STAPLED. A GROUND COVER OF MIN. 6 MIL BLACK POLYETHYLENE SHALL BE LAID OVER THE GROUND WITHIN CRAWL SPACES W/ JOINTS LAPPED MIN. 12".

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GENERAL NOTES:

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CRAWL SPACE:

UNDER-FLOOR AREAS SHALL BE VENTED BY AN APPROVED MECHANICAL MEANS OR BY OPENINGS IN EXTERIOR FOUNDATION WALLS. SUCH OPENINGS SHALL HAVE A NET AREA OF NOT LESS THAN 1 SQ. FT. FOR EACH 150 SQ. FT. OF UNDER-FLOOR AREA. ONE OPENING SHALL BE WITHIN 3' OF EACH CORNER OF THE BUILDING. *Ref IRC R408.2*

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PROVIDE 18" MINIMUM CRAWL SPACE UNDER WOOD JOIST AND 12" MINIMUM CRAWL SPACE UNDER WOOD GIRDERS. *Ref IRC R317.1*

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ALL WOOD IN CONTACT WITH CONCRETE, CMU OR WITHIN 8" OF SOILS SHALL BE PRESSURE TREATED WOOD. *Ref IRC R317.1*

GARAGES:

OPENINGS FROM A PRIVATE GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED. DOORS BETWEEN GARAGE AND DWELLING SHALL BE SOLID WOOD DOORS; MINIMUM 1 3/8" THICK WITH SELF CLOSING DEVICE. *Ref. R302.5.1*

SEPARATION FROM DWELLING TO GARAGE, SHOP OR SIMILAR AREAS SHALL BE SEPARATED FROM RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 1/2" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. GARAGES BENEATH HABITABLE ROOMS SHALL BE SEPARATED FROM ALL HABITABLE ROOMS ABOVE BY NOT LESS THAN 5/8" TYPE X GYPSUM BOARD OR EQUIVALENT. WHERE THE SEPARATION IS A FLOOR-CEILING ASSEMBLY, THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY NOT LESS THAN 1/2" GYPSUM BOARD OR EQUIVALENT. *Ref IRC R302.6 & TABLE 302.6*

HEATING AND/OR COOLING EQUIPMENT LOCATED IN GARAGE SHALL BE INSTALLED WITH PILOTS AND BURNERS OR HEATING ELEMENTS AND SWITCHES AT LEAST 18" ABOVE THE FLOOR LEVEL. *Ref IRC G2408.2*

FIREPLACES:

FACTORY-BUILT FIREPLACES SHALL BE LISTED AND LABELED AND SHALL BE INSTALLED IN ACCORDANCE WITH THE CONDITIONS OF THE LISTING. FACTORY-BUILT FIREPLACES SHALL BE TESTED IN ACCORDANCE WITH UL 127. *Ref IRC R1004.1*

MASONRY FIREPLACES, BARBECUES, SMOKE CHAMBERS AND FIREPLACE CHIMNEYS SHALL BE CONSTRUCTED OF MASONRY OR REINFORCED CONCRETE. FOUNDATIONS SHALL BE MIN. 12" THICK AND EXTEND MIN. 6" BEYOND MASONRY. FIREBOX WALLS MIN. 10" THICK EXCEPT MIN. 8" THICK WHERE A FIREBRICK LINING IS USED. COMBUSTIBLE MATERIALS SHALL NOT BE PLACED WITHIN 2 INCHES OF FIREPLACE, SMOKE CHAMBER OR CHIMNEY WALLS. COMBUSTIBLE MATERIAL SHALL NOT BE PLACED WITHIN 6" OF THE FIREPLACE OPENING. MIN. 4" THICK NON-COMBUSTIBLE HEARTH EXTENDING 16" IN FRONT AND 8" TO THE SIDE OF THE FIREPLACE OPENING. COMBUSTIBLE MATERIAL WITHIN 12" OF THE FIREPLACE OPENING SHALL NOT PROJECT MORE THAN 1/8" FOR EACH 1" DISTANCE FROM SUCH OPENING. *Ref IRC R1001 - R1003*

CEILING HEIGHTS:

HABITABLE SPACE SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'-0". NOT MORE THAN 50% OF REQUIRED FLOOR AREA OF A SPACE IS PERMITTED TO HAVE A SLOPED CEILING LESS THAN 7'-0" IN HEIGHT WITH NO PORTION LOWER THAN 5'-0". BATHROOM SHALL HAVE A MIN CEILING HEIGHT OF 6'-8" OVER THE FIXTURE AND ITS FRONT CLEARANCE AREA. *Ref IRC R305*

ROOFING:

APPLY ROOFING IN ACCORDANCE WITH *IRC R905.*

BALCONIES, LANDINGS, EXTERIOR STAIRWAYS, OCCUPIED ROOFS AND SIMILAR SURFACES EXPOSED TO THE WEATHER AND SEALED UNDERNEATH SHALL BE WATERPROOFED AND SLOPED A MINIMUM OF 1/4" PER 12" (2% SLOPE) FOR DRAINAGE.

GELOTTE HOMMAS DRIVDAHL ARCHITECTURE
2340 130th Ave. NE, Suite 100, Bellevue, WA 98005
425.828.3081

SEIFERT REMODEL

3261 67TH AVE SE
MERCER ISLAND, WA 98040

Job No. 2219
Project Manager: DG
Issue Date: 08/03/2023

NO.	DATE	REVISION

W.I.P. SET (12.20.2023)

UPPER FLOOR PLAN PROPOSED

A2.03

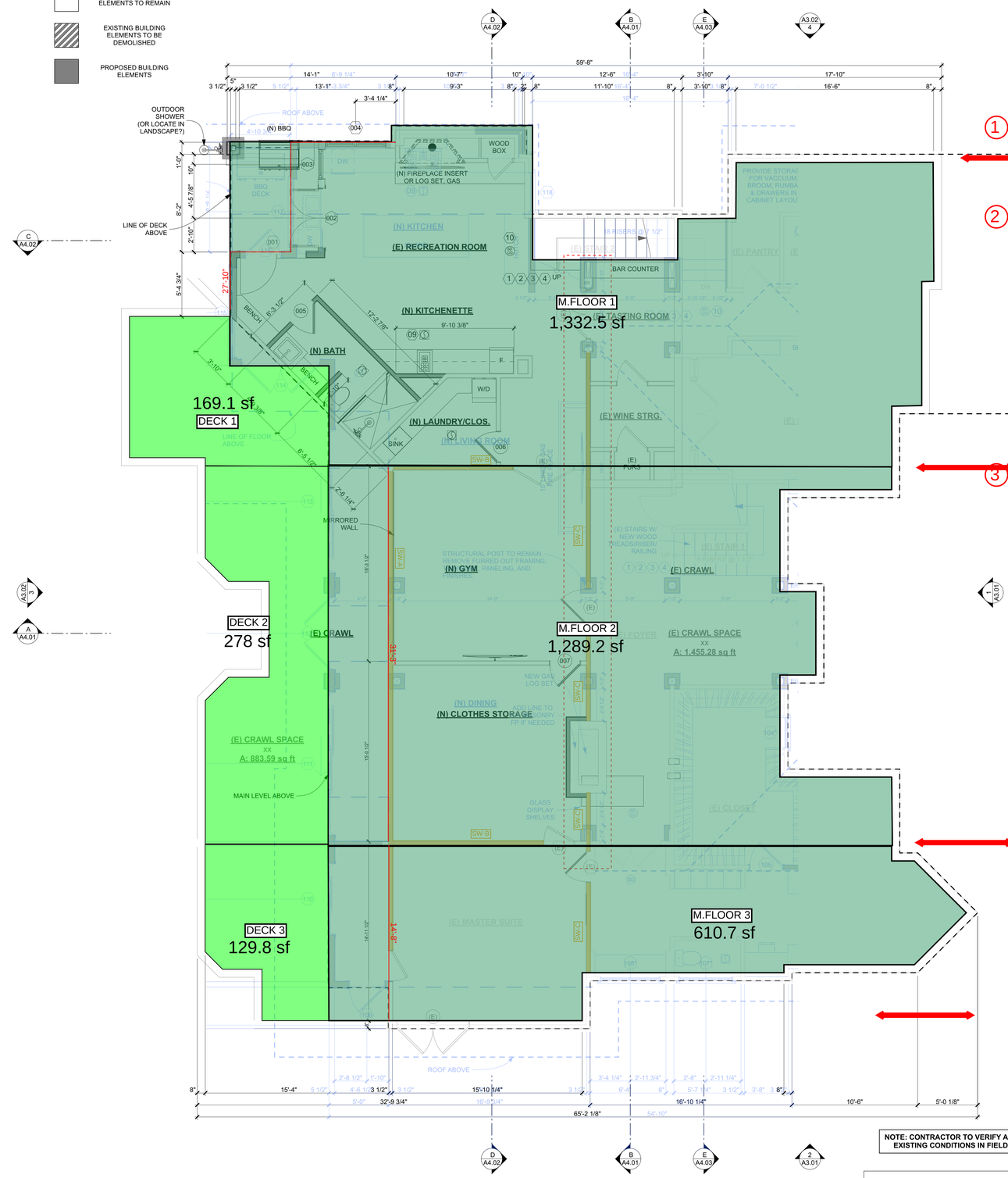
FILE: 23129 Seifert Remodel and Addition PRINTED: Friday, January 12, 2024

TRANSVERSE - M.FLOOR AREAS

EXISTING BUILDING ELEMENTS TO REMAIN

EXISTING BUILDING ELEMENTS TO BE DEMOLISHED

PROPOSED BUILDING ELEMENTS



N

LOWER FLOOR PROPOSED

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

NOTE: CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS IN FIELD

BLDG AREA - ALL STORIES		
LOWER FLOOR		
	(E) FINISHED AREAS	1,096
	(N) FINISHED AREAS	536
MAIN FLOOR		
	(E) FINISHED AREAS	3,265
	(E) GARAGE	1,075
	(N) FINISHED AREAS	175
UPPER FLOOR		
	(E) FINISHED AREAS	789
	(N) FINISHED AREAS	967
		7,903 ft²

ATTIC:

PROVIDE ATTIC VENTILATION AS INDICATED ON ROOF FRAMING PLANS. THE MINIMUM NET FREE VENTILATING AREA SHALL BE 1/150 OF THE AREA OF THE VENTED SPACE. EXCEPTION: THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/300 OF THE VENTED SPACE PROVIDED NOT LESS THAN 40 PERCENT AND NOT MORE THAN 50 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE ATTIC OR RAFTER SPACE. UPPER VENTILATORS SHALL BE LOCATED NOT MORE THAN 3 FEET BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE, MEASURED VERTICALLY, WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS. *Ref IRC R806.2*

ATTIC ACCESS SHALL HAVE A ROUGH FRAMED OPENING NOT LESS THAN 22 INCHES BY 30 INCHES LOCATED IN A READILY ACCESSIBLE LOCATION. THE MINIMUM UNOBSTRUCTED HEADROOM IN THE ATTIC SPACE SHALL BE 30 INCHES MEASURED VERTICALLY FROM THE BOTTOM OF THE CEILING FRAMING MEMBERS. *Ref IRC R807.* FOR ACCESS REQUIREMENTS WHERE MECHANICAL EQUIPMENT IS LOCATED IN ATTICS *Ref IRC M1305.1.3*

GLAZING:

…W.

…24" ON EITHER SIDE OF A DOOR OPENING, …STAIRWAY, STORM DOORS, RAILINGS, SHOWER …G MATERIAL. *Ref IRC R308.4*

…HINGTON STATE ENERGY CODE.

…ENCY EXIT WITH A MIMIMUM NET CLEAR …ALL BE 24" MINIMUM NET CLEAR OPENING …E THE FLOOR. IRC R310.1

…CCORDANCE WITH NFPA 72, IRC R314 & IRC

FIREBLOCKING PER *IRC R1003.19, R1001.12, R302.11 & R602.8. DRAFTSTOPPING PER IRC R302.12 & R502.12.*

VENTILATION & LIGHTING:

HABITABLE ROOMS NOT PROVIDED WITH AN OPENABLE EXTERIOR OPENING OF AT LEAST 4% OF THE FLOOR AREA, A MECHANICAL VENTILATION SYSTEM MUST BE PROVIDED THAT PROVIDES MIN. .35 AIR CHANGES PER HOUR. *IRC R303.1.*

DRYER & BATH FANS TO BE 50 CFM, AND RANGE/OVEN FANS TO BE 100 CFM MIN, VENT TO THE OUTSIDE. *IRC303 AND 2006 WA STATE VENTILATION AND INDOOR AIR QUALITY CODE*

NATURAL LIGHTING TO BE NOT LESS THAN 8% OF THE FLOOR AREA OR ALL HABITABLE SPACES. *IRC R303.*

STAIRS:

MINIMUM HEADROOM OF 6'-8" MEASURED VERTICALLY FROM A SLOPED PLANE ADJOINING THE TREAD NOSING OR FROM THE FLOOR SURFACE OR PLATFORM. IRC R311.7.2 MINIMUM WIDTH 36", *IRC 311.7.1*

MINIMUM TREAD 10", MAXIMUM RISER 7 3/4", HANDRAIL MINIMUM 34" AND MAXIMUM 38" ABOVE STAIR NOSING. HANDRAIL TO BE 1 1/4" TO 2" CROSS SECTION AND 1 1/2" AWAY FROM WALL. *IRC R311.7.5 & 311.7.8.* INSTALL FIRE BLOCKING AT MID STRINGER SPAN AND AT WALL ALONG STRINGER. COVER WALLS AND SOFFITS OF USABLE SPACE UNDER STAIR WITH 1/2" GYPSUM BOARD. *IRC R302.11*

GUARDRAILS: ANY WALKING SURFACE 30" OR MORE ABOVE GRADE OR ADJACENT SURFACE SHALL HAVE MIN. 36" HIGH GUARDRAIL. *IRC R312.*

BATHROOMS:

ALL TUB AND SHOWER STALLS SHALL HAVE FIREBLOCKING BETWEEN STUDS.

ALL GLAZING USED FOR DOORS OR ENCLOSURES IN BATHROOMS SHALL BE SAFETY GLAZING. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING A SHOWER OR BATHTUB WHERE THE BOTTOM EXPOSED EDGE IS LESS THAN 60 INCHES ABOVE THE STANDING SURFACE AND DRAIN INLET SHALL BE SAFETY GLAZING. *IRC R308.4*

BATH TUB & SHOWER STALL NON-ABSORBENT WAINSCOTS SHALL BE A MINIMUM OF 72 INCHES ABOVE THE FLOOR. *IRC R307.2.*

WATERCLOSETS SHALL HAVE MIN. 15" TO SIDE WALLS FROM CENTER OF FIXTURE, AND MIN. 21" FRONT CLEARANCE. IRC R307.1

APPLIANCES IN A FIXED POSITION SHALL BE SECURELY FASTENED IN PLACE TO STRUCTURAL MEMBERS WITH STRAP ANCHORS OR SIMILAR ANCHORING METHOD.
IRC G2404.4

PLUMBING FIXTURES:

CODE CITED CURRENT AS OF SEPTEMBER 2022. CONTRACTOR AND THEIR CONSULTANTS TO CONFIRM LISTED CODE IS CURRENT AT TIME OF CONSTRUCTION

THE MAXIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT EXCEED 1.2 GALLONS (4.54 L) PER MINUTE AT 60 PSI. THE MINIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT BE LESS THAN 0.8 GALLONS (3.03 L) PER MINUTE AT 20 PSI. *WAC 51-56-0400 (407.2.1.1 RESIDENTIAL LAVATORY FAUCETS)*

SHOWERHEADS SHALL MEET THE MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE MEASURED AT 80 PSI. SHOWERHEADS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATERSENSE SPECIFICATIONS FOR SHOWERHEADS *WAC 51-56-0400 (408.2 WATER CONSUMPTION)*

WHEN A SHOWER IS SERVED BY MORE THAN ONE SHOWERHEAD, INCLUDING HANDHELD SHOWERHEADS. THE COMBINED FLOW RATE OF ALL SHOWERHEADS AND/OR OTHER SHOWER OUTLETS CONTROLLED BY A SINGLE VALVE SHALL NOT EXCEED 1.8 GALLONS (6.81 L) PER MINUTE AT 80 PSI. OR THE SHOWER SHALL BE DESIGNED TO ALLOW ONLY ONE SHOWER OUTLET TO BE IN OPERATION AT A TIME. *WAC 51-56-0400 (408.2.1 MULTIPLE SHOWERHEADS SERVING ONE SHOWER).*

THE EFFECTIVE FLUSH VOLUME OF ALL WATER CLOSETS SHALL NOT EXCEED 1.28 GALLONS (4.8 L) PER FLUSH WHEN TESTED IN ACCORDANCE WITH ASME A112.19.2/CSA B45.1 *WAC 51-56-0400 (411.2 WATER CONSUMPTION)*

DUAL FLUSH WATER CLOSETS SHALL COMPLY WITH ASME A112.19.14. THE EFFECTIVE FLUSH VOLUME FOR DUAL FLUSH WATER CLOSETS SHALL BE DEFINED AS THE COMPOSITE, AVERAGE FLUSH VOLUME OF TWO REDUCED FLUSHES AND ONE FULL FLUSH. *WAC 51-56-0400 (411.2.1 DUAL FLUSH WATER CLOSETS)*

WATER CLOSETS INSTALLED SHALL MEET OR EXCEED THE MINIMUM PERFORMANCE CRITERIA DEVELOPED FOR CERTIFICATION OF HIGH-EFFICIENCY TOILETS UNDER THE WATERSENSE PROGRAM SPONSERED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) *WAC 51-56-0400 (411.2.2 PERFORMANCE)*

SINK FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 2.2 GPM AT 60 PSI (8.3 LM AT 414 KPA) IN ACCORDANCE WITH ASME A112.18.1/CSA B125.1 *WAC 51-56-0400 (420.2 WATER CONSUMPTION)*

KITCHEN FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. KITCHEN FAUCETS MAY TEMPORARILY INCREASE THE FLOW ABOVE MAXIMUM RATE, BUT NOT TO EXCEED 2.2 GALLONS (8.3 L) PER MINUTE AT 60 PSI, AND MUST DEFAULT TO A MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. *WAC 51-56-0400 (420.2.1 KITCHEN FAUCETS)*

ENERGY:

METHOD OF COMPLIANCE - PRESCRIPTIVE METHOD FOR GROUP R OCCUPANCY, *CLIMATE ZONE PER TABLE R301.1, TABLE R402.1.1, UNLIMITED GLAZING* WITH MODIFICATIONS.

ENERGY CREDITS - x CREDITS REQUIRED, x CREDITS SELECTED

FILL IN SELECTED CREDIT OPTIONS

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ALL WOOD IN CONTACT WITH CONCRETE, CMU OR WITHIN 8" OF SOILS SHALL BE PRESSURE TREATED WOOD. *Ref IRC R317.1*

GARAGES:

OPENINGS FROM A PRIVATE GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED. DOORS BETWEEN GARAGE AND DWELLING SHALL BE SOLID WOOD DOORS; MINIMUM 1 3/8" THICK WITH SELF CLOSING DEVICE. *Ref. R302.5.1*

SEPARATION FROM DWELLING TO GARAGE, SHOP OR SIMILAR AREAS SHALL BE SEPARATED FROM RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 1/2" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. GARAGES BENEATH HABITABLE ROOMS SHALL BE SEPARATED FROM ALL HABITABLE ROOMS ABOVE BY NOT LESS THAN 5/8" TYPE X GYPSUM BOARD OR EQUIVALENT. WHERE THE SEPARATION IS A FLOOR-CEILING ASSEMBLY, THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY NOT LESS THAN 1/2" GYPSUM BOARD OR EQUIVALENT. *Ref IRC R302.6 & TABLE 302.6*

HEATING AND/OR COOLING EQUIPMENT LOCATED IN GARAGE SHALL BE INSTALLED WITH PILOTS AND BURNERS OR HEATING ELEMENTS AND SWITCHES AT LEAST 18" ABOVE THE FLOOR LEVEL. *Ref IRC G2408.2*

FIREPLACES:

FACTORY-BUILT FIREPLACES SHALL BE LISTED AND LABELED AND SHALL BE INSTALLED IN ACCORDANCE WITH THE CONDITIONS OF THE LISTING. FACTORY-BUILT FIREPLACES SHALL BE TESTED IN ACCORDANCE WITH UL 127. *Ref IRC R1004.1*

MASONRY FIREPLACES, BARBECUES, SMOKE CHAMBERS AND FIREPLACE CHIMNEYS SHALL BE CONSTRUCTED OF MASONRY OR REINFORCED CONCRETE. FOUNDATIONS SHALL BE MIN. 12" THICK AND EXTEND MIN. 6" BEYOND MASONRY. FIREBOX WALLS MIN. 10" THICK EXCEPT MIN. 8" THICK WHERE A FIREBRICK LINING IS USED. COMBUSTIBLE MATERIALS SHALL NOT BE PLACED WITHIN 2 INCHES OF FIREPLACE, SMOKE CHAMBER OR CHIMNEY WALLS. COMBUSTIBLE MATERIAL SHALL NOT BE PLACED WITHIN 8" OF THE FIREPLACE OPENING. MIN. 4" THICK NON-COMBUSTIBLE HEARTH EXTENDING 16" IN FRONT AND 8" TO THE SIDE OF THE FIREPLACE OPENING. COMBUSTIBLE MATERIAL WITHIN 12" OF THE FIREPLACE OPENING SHALL NOT PROJECT MORE THAN 1/8" FOR EACH 1" DISTANCE FROM SUCH OPENING. *Ref IRC R1001 - R1003*

CEILING HEIGHTS:

HABITABLE SPACE SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'-0". NOT MORE THAN 50% OF REQUIRED FLOOR AREA OF A SPACE IS PERMITTED TO HAVE A SLOPED CEILING LESS THAN 7'-0" IN HEIGHT WITH NO PORTION LOWER THAN 5'-0". BATHROOM SHALL HAVE A MIN CEILING HEIGHT OF 6'-8" OVER THE FIXTURE AND ITS FRONT CLEARANCE AREA. *Ref IRC R305*

ROOFING:

APPLY ROOFING IN ACCORDANCE WITH *IRC R905.*

BALCONIES, LANDINGS, EXTERIOR STAIRWAYS, OCCUPIED ROOFS AND SIMILAR SURFACES EXPOSED TO THE WEATHER AND SEALED UNDERNEATH SHALL BE WATERPROOFED AND SLOPED A MINIMUM OF 1/4" PER 12" (2% SLOPE) FOR DRAINAGE.

GELOTTE HOMMAS DRIVDAHL ARCHITECTURE
2340 130th Ave. NE, Suite 100, Bellevue, WA 98005
425.828.3081

SEIFERT REMODEL

3261 67TH AVE SE
MERCER ISLAND, WA 98040

Job No.	2219
Project Manager:	DG
Issue Date:	08/03/2023

NO.	DATE	REVISION

W.I.P. SET (12.20.2023)

LOWER FLOOR PLAN PROPOSED

A2.01

FILE: 2219 Seifert Remodel and Addition PRINTED: Friday, January 12, 2024

Material Weights	
(N) Roof - Trusses	20 psf
(E) or (N) Roof - Stick	15 psf
Floors	15 psf
Walls	10 psf
(E) Deck	36 psf

Key
Input
Add Relevant Wall WT from Above

Transverse Direction (See Keyplans)

Upper Roof

U. Roof 1		
Roof Area	792.9	ft^2
Wall Length	92.333	ft
Height	8	ft
Wall Area	369.332	ft^2
Roof WT	15858	lbs.
Wall WT	3693.32	lbs.
Sum WT	19551.32	lbs.

(N) + (E) U. Roof 2		
Roof Area (N)	659.4	ft^2
Roof Area (E)	642.5	ft^2
Wall Length	101.083	ft
Height	8	ft
Wall Area	404.332	ft^2
Roof WT (N)	13188	lbs.
Roof WT (E)	9637.5	
Wall WT	4043.32	lbs.
Sum WT	26868.82	lbs.

U. Roof 3		
Roof Area	489.8	ft^2
Wall Length	58.666	ft
Height	8	ft
Wall Area	234.664	ft^2
Roof WT	9796	lbs.
Wall WT	2346.64	lbs.
Sum WT	12142.64	lbs.

Upper Floor & Low Roof

U. Floor 1		
Floor Area	554.8	ft^2
Wall Length	29.666	ft
Height	8	ft
Wall Area	118.664	ft^2
Floor WT	8322	lbs.
Wall WT	1186.64	lbs.
Walls From Above	3693.32	lbs.
Sum WT	13201.96	lbs.

U. Floor 2		
Floor Area	842.2	ft^2
Wall Length	56.3333	ft
Height	8	ft
Wall Area	225.3332	ft^2
Floor WT	12633	lbs.
Wall WT	2253.332	lbs.
Walls From Above	4043.32	lbs.
Sum WT	18929.65	lbs.

U. Floor 3		
Floor Area	354.3	ft^2
Wall Length	46.5	ft
Height	8	ft
Wall Area	186	ft^2
Floor WT	5314.5	lbs.
Wall WT	1860	lbs.
Walls From Above	2346.64	lbs.
Sum WT	9521.14	lbs.

(N) L. Roof 1		
Roof Area	328.6	ft^2
Wall Length	39.333	ft
Height	10.167	ft
Wall Area	199.9493	ft^2
Floor WT	4929	lbs.
Wall WT	1999.493	lbs.
Walls From Above	0	lbs.
Sum WT	6928.493	lbs.

(E) L. Roof 1		
Roof Area	502.7	ft^2
Wall Length	31.833	ft
Height	10.167	ft
Wall Area	161.8231	ft^2
Floor WT	7540.5	lbs.
Wall WT	1618.231	lbs.
Walls From Above	0	lbs.
Sum WT	9158.731	lbs.

(E) L. Roof 2		
Roof Area	1953.1	ft^2
Wall Length	157.666	ft
Height	10.167	ft
Wall Area	801.4951	ft^2
Floor WT	29296.5	lbs.
Wall WT	8014.951	lbs.
Walls From Above	0	lbs.
Sum WT	37311.45	lbs.

(E) L. Roof 3		
Roof Area	264.8	ft^2
Wall Length	0	ft
Height	10.167	ft
Wall Area	0	ft^2
Floor WT	3972	lbs.
Wall WT	0	lbs.
Walls From Above	0	lbs.
Sum WT	3972	lbs.

(E) L. Roof 4		
Roof Area	812	ft^2
Wall Length	59.666	ft
Height	10.167	ft
Wall Area	303.3121	ft^2
Floor WT	12180	lbs.
Wall WT	3033.121	lbs.
Walls From Above	0	lbs.
Sum WT	15213.12	lbs.

(N) L. Roof 2		
Roof Area	84.1	ft^2
Wall Length	0	ft
Height	10.167	ft
Wall Area	0	ft^2
Floor WT	1261.5	lbs.
Wall WT	0	lbs.
Walls From Above	0	lbs.
Sum WT	1261.5	lbs.

Main Floor

M. Floor 1		
Floor Area	1332.5	ft^2
Wall Length	27.833	ft
Height	8.25	ft
Wall Area	114.8111	ft^2
Floor WT	19987.5	lbs.
Wall WT	1148.111	lbs.
Walls From Above	4804.364	lbs.
Sum WT	25939.97	lbs.

M. Floor 2		
Floor Area	1289.2	ft^2
Wall Length	31.25	ft
Height	8.25	ft
Wall Area	128.9063	ft^2
Floor WT	19338	lbs.
Wall WT	1289.063	lbs.
Walls From Above	2253.332	lbs.
Sum WT	22880.39	lbs.

M. Floor 3		
Floor Area	610.7	ft^2
Wall Length	14.666	ft
Height	8.25	ft
Wall Area	60.49725	ft^2
Floor WT	9160.5	lbs.
Wall WT	604.9725	lbs.
Walls From Above	4893.121	lbs.
Sum WT	14658.59	lbs.

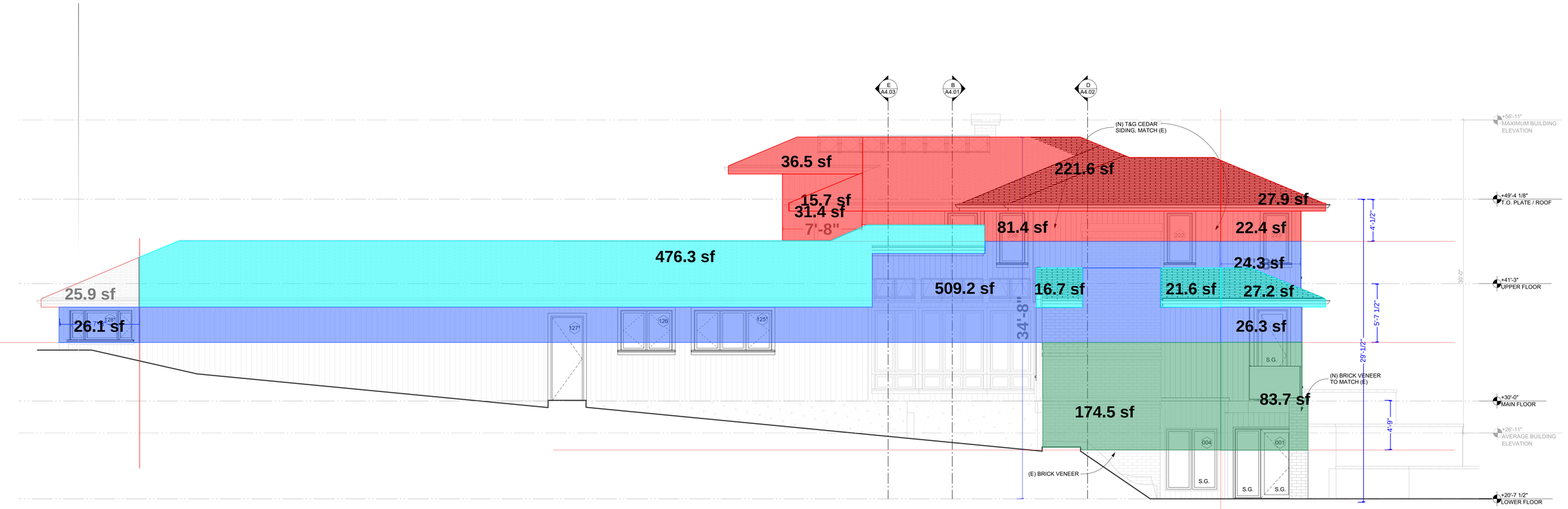
Deck 1		
Floor Area	169.1	ft^2
Wall Length	0	ft
Height	0	ft
Wall Area	0	ft^2
Floor WT	6087.6	lbs.
Wall WT	0	lbs.
Walls From Above	0	lbs.
Sum WT	6087.6	lbs.

Deck 2		
Floor Area	278	ft^2
Wall Length	0	ft
Height	0	ft
Wall Area	0	ft^2
Floor WT	10008	lbs.
Wall WT	0	lbs.
Walls From Above	0	lbs.
Sum WT	10008	lbs.

Deck 3		
Floor Area	129.8	ft^2
Wall Length	0	ft
Height	0	ft
Wall Area	0	ft^2
Floor WT	4672.8	lbs.
Wall WT	0	lbs.
Walls From Above	0	lbs.
Sum WT	4672.8	lbs.

TRANSVERSE

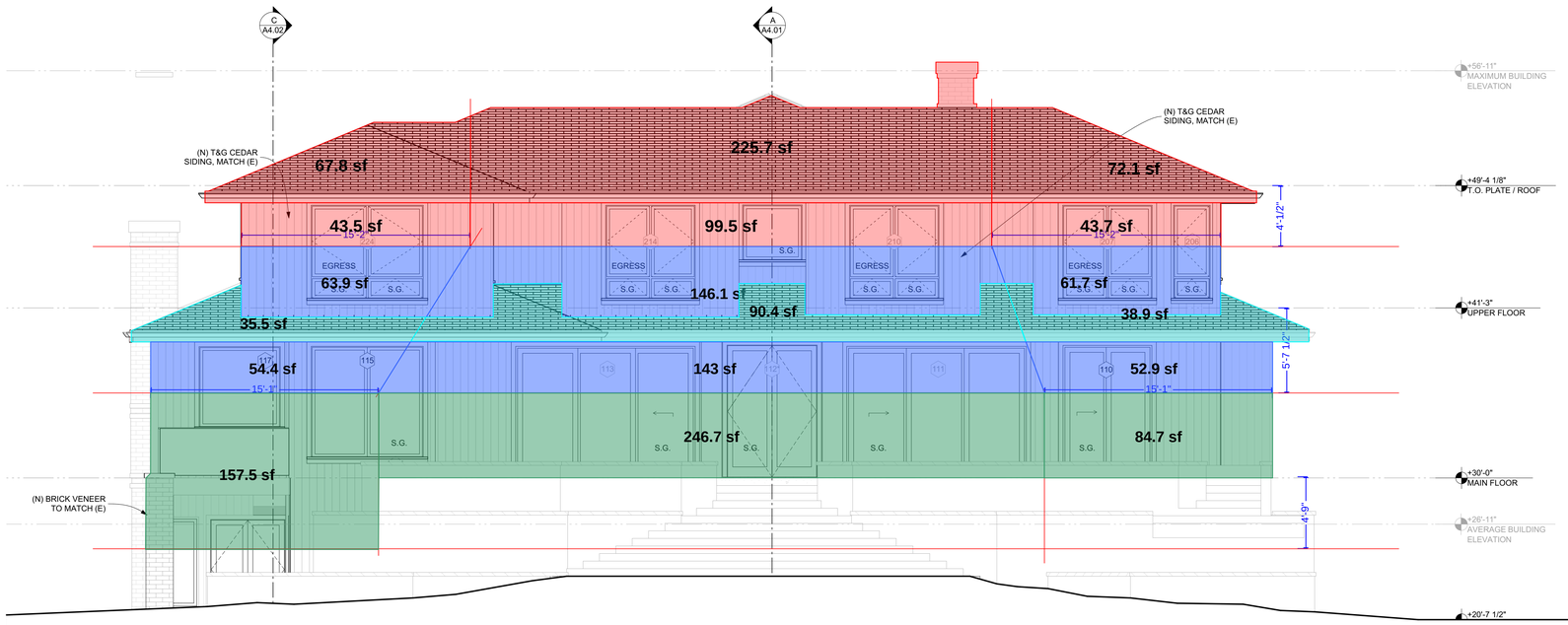
Level	Weight, w_x	Height, h_x	$w_x h_x^k$	C_{vx}	$F_x = C_s * C_{vx} * \Sigma w * \rho$	V_x (Design)
U.Roof 1	19.6 K	29 ft	20 k-ft	0.076	2.31	2.31 K
U.Roof 2	26.9 K	29 ft	27 k-ft	0.104	3.17	5.48 K
U.Roof 3	12.1 K	29 ft	12.1 k-ft	0.047	1.43	6.91 K
U.Floor 1	13.2 K	21 ft	13.2 k-ft	0.051	1.56	8.46 K
U.Floor 2	18.9 K	21 ft	18.9 k-ft	0.073	2.23	10.70 K
U.Floor 3	9.5 K	21 ft	10 k-ft	0.037	1.12	11.82 K
(N) L.Roof 1	6.9 K	21 ft	7 k-ft	0.027	0.82	12.64 K
(E) L.Roof 1	9.2 K	21 ft	9.2 k-ft	0.035	1.08	13.72 K
(E) L.Roof 2	37.3 K	21 ft	37.3 k-ft	0.144	4.40	18.12 K
(E) L.Roof 3	4.0 K	21 ft	4.0 k-ft	0.015	0.47	18.59 K
(N) L.Roof 2	1.3 K	21 ft	1 k-ft	0.005	0.15	18.74 K
(E) L. Roof 4	15.2 K	21 ft	15 k-ft	0.059	1.79	20.53 K
M. Floor 1	25.9 K	8 ft	25.9 k-ft	0.100	3.06	23.59 K
M. Floor 2	22.9 K	8 ft	22.9 k-ft	0.089	2.70	26.29 K
M. Floor 3	14.7 K	8 ft	14.7 k-ft	0.057	1.73	28.02 K
Deck 1	6.1 K	8 ft	6 k-ft	0.024	0.72	28.74 K
Deck 2	10.0 K	8 ft	10 k-ft	0.039	1.18	29.92 K
Deck 3	4.7 K	8 ft	5 k-ft	0.018	0.55	30.47 K
Σ	253.64 K		258 k-ft	1.000	30.47 K	



LONGITUDINAL SAIL

4 NORTH ELEVATION PROPOSED

SCALE: 1/4" = 1'-0"



TRANSVERSE SAIL

3 WEST ELEVATION PROPOSED

SCALE: 1/4" = 1'-0"

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SEIFERT REMODEL

3261 67TH AVE SE
MERCER ISLAND, WA 98040

Job No.	2219
Project Manager:	DG
Issue Date:	08/03/2023

NO.	DATE	REVISION

W.I.P. SET (12.20.2023)

EXTERIOR ELEVATIONS PROPOSED

A3.02

FILE: 2219 Seifert Remodel and Addition PRINTED: Friday, January 12, 2024

Wind Roof Loading

Transverse

Roof			
	Area	Pressure	V
I Wall	99.5	19.1	1900.45
I Roof	225.7	8	1805.6
E Wall	87.2	27.4	2389.28
E Roof	109.9	8	879.2
		Sum	6974.53
		V_asd	**4.18** K

Upper			
	Area	Pressure	V
I Wall	288.1	19.1	5502.71
I Roof	90.4	8	723.2
E Wall	232.9	27.4	6381.46
E Roof	74.4	8	595.2
		Sum	13202.6
		V_asd	**7.92** K

Main			
	Area	Pressure	V
I Wall	246.7	19.1	4711.97
I Roof	0	8	0
E Wall	242.2	27.4	6636.28
E Roof	0	8	0
		Sum	11348.3
		V_asd	**6.81** K

Sum V_asd **18.92** **K**

Longitudinal

Roof			
	Area	Pressure	V
I Wall	81.4	16	1302.4
I Roof	221.6	8	1772.8
E Wall	53.8	20.8	1119.04
E Roof	64.4	8	515.2
		Sum	4709.44
		V_asd	**2.83** K

Upper			
	Area	Pressure	V
I Wall	509.2	16	8147.2
I Roof	514.6	8	4116.8
E Wall	76.7	20.8	1595.36
E Roof	53.1	8	424.8
		Sum	14284.16
		V_asd	**8.57** K

Main			
	Area	Pressure	V
I Wall	174.5	16	2792
I Roof	0	8	0
E Wall	83.7	20.8	1740.96
E Roof	0	8	0
		Sum	4532.96
		V_asd	**2.72** K

Sum V_asd **14.12** **K**

WIND BASE SHEAR < SEISMIC IN BOTH DIRECTIONS, THEREFORE DESIGN SHEARWALLS FOR SEISMIC & WIND OK BY INSPECTION

SUMMARY OF LOADS AT EA. LINE

Seismic - Longitudinal

Lines

Levels	A	B	B.1	C	D	E	**Sum**
Roof	0.340	2.780	0.000	3.040	0.600	0.000	6.760
Σ @ Roof	**0.340**	**2.780**	**0.000**	**3.040**	**0.600**	**0.000**	**6.760**
Upper Floor/Low Roof	0.570	2.665	0.000	3.170	2.635	2.115	11.155
Transfer A	-0.910	0.910	0.000	0.000	0.000	0.000	
Σ @ Upper Floor/Low Roo	**0.000**	**6.355**	**0.000**	**6.210**	**3.235**	**2.115**	**17.915**
Main	1.890	0.000	3.120	2.800	0.000	0.000	7.810
Transfer B	2.587	-6.355	3.768	0.000	0.000	0.000	
Σ @ Main	**4.477**	**0.000**	**6.888**	**9.010**	**3.235**	**2.115**	25.725

Seismic - Transverse

Lines

Levels	1	2	3	4	5	**Sum**
Roof	0.000	1.155	2.740	2.300	0.715	6.910
Σ @ Roof	**0.000**	**1.155**	**2.740**	**2.300**	**0.715**	6.910
Upper Floor/Low Roof	1.730	0.000	3.155	2.880	1.455	9.220
Transfer 2	0.923	-1.155	0.232	0.000	0.000	
Σ @ Upper Floor/Low Roo	**1.730**	**0.000**	**5.895**	**5.180**	**2.170**	14.975
Main	1.890	0.000	3.830	3.080	1.140	9.940
Σ @ Main	**3.620**	**0.000**	**9.725**	**8.260**	**3.310**	24.915

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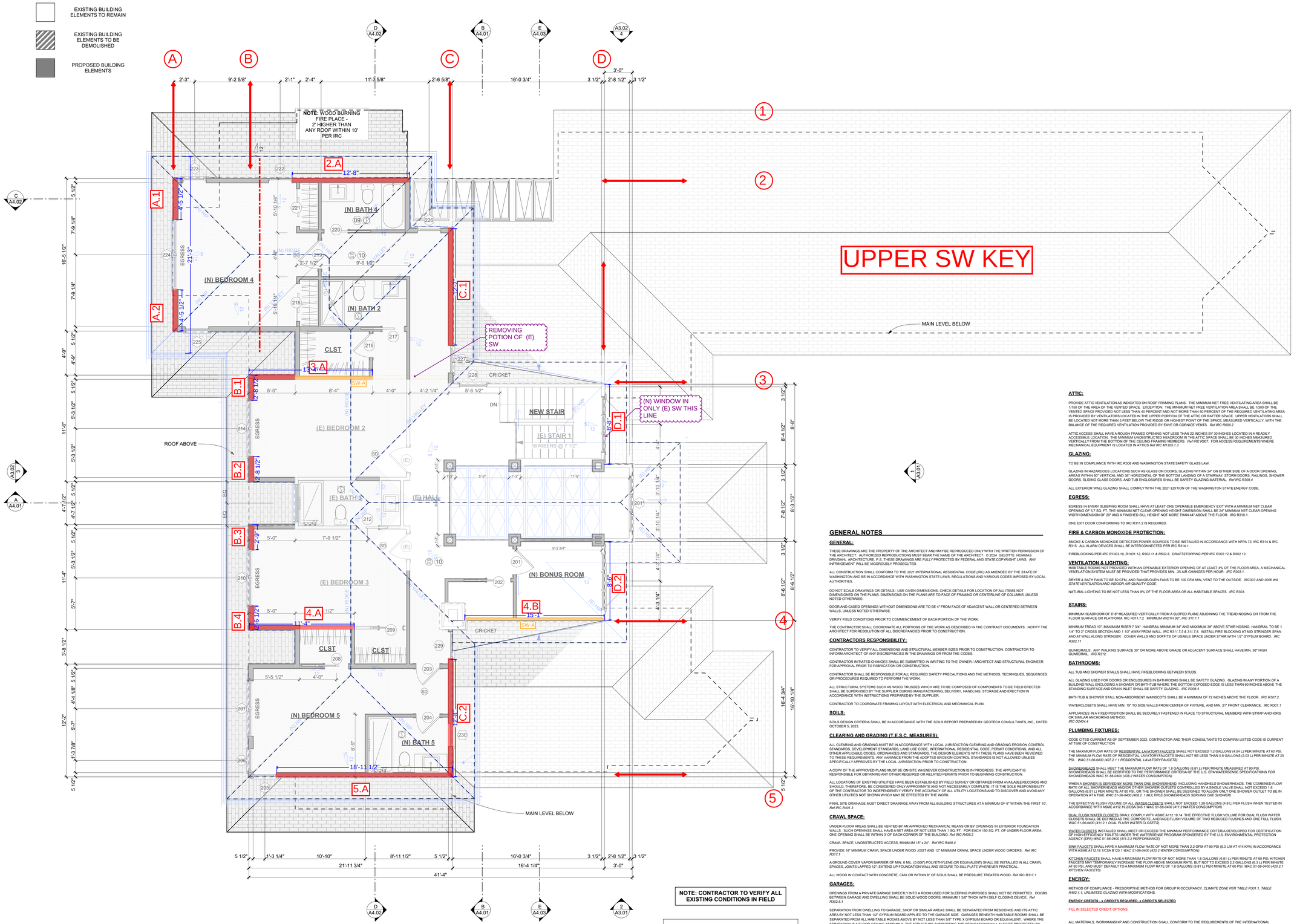
EXISTING BUILDING ELEMENTS TO REMAIN

EXISTING BUILDING ELEMENTS TO BE DEMOLISHED

PROPOSED BUILDING ELEMENTS



1 A3.01

N

UPPER FLOOR PROPOSED

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

NOTE: CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS IN FIELD

BLDG AREA - ALL STORIES	
LOWER FLOOR	
(E) FINISHED AREAS	1,096
(N) FINISHED AREAS	536
MAIN FLOOR	
(E) FINISHED AREAS	3,265
(E) GARAGE	1,075
(N) FINISHED AREAS	175
UPPER FLOOR	
(E) FINISHED AREAS	789
(N) FINISHED AREAS	967
	7,903 ft²

GENERAL NOTES

GENERAL:

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ALL CONSTRUCTION SHALL CONFORM TO THE 2021 *INTERNATIONAL RESIDENTIAL CODE (IRC)* AS AMENDED BY THE STATE OF WASHINGTON AND BE IN ACCORDANCE WITH WASHINGTON STATE LAWS, REGULATIONS AND VARIOUS CODES IMPOSED BY LOCAL AUTHORITIES.

DO NOT SCALE DRAWINGS OR DETAILS - USE GIVEN DIMENSIONS. CHECK DETAILS FOR LOCATION OF ALL ITEMS NOT DIMENSIONED ON THE PLANS. DIMENSIONS ON THE PLANS ARE TO FACE OF FRAMING OR CENTERLINE OF COLUMNS UNLESS NOTED OTHERWISE.

DOOR AND CASED OPENINGS WITHOUT DIMENSIONS ARE TO BE 4" FROM FACE OF ADJACENT WALL OR CENTERED BETWEEN WALLS, UNLESS NOTED OTHERWISE.

VERIFY FIELD CONDITIONS PRIOR TO COMMENCEMENT OF EACH PORTION OF THE WORK.

THE CONTRACTOR SHALL COORDINATE ALL PORTIONS OF THE WORK AS DESCRIBED IN THE CONTRACT DOCUMENTS. NOTIFY THE ARCHITECT FOR RESOLUTION OF ALL DISCREPANCIES PRIOR TO CONSTRUCTION.

CONTRACTORS RESPONSIBILITY:

CONTRACTOR TO VERIFY ALL DIMENSIONS AND STRUCTURAL MEMBER SIZES PRIOR TO CONSTRUCTION. CONTRACTOR TO INFORM ARCHITECT OF ANY DISCREPANCIES IN THE DRAWINGS OR FROM THE CODES.

CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE OWNER / ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK.

ALL STRUCTURAL SYSTEMS SUCH AS WOOD TRUSSES WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

CONTRACTOR TO COORDINATE FRAMING LAYOUT WITH ELECTRICAL AND MECHANICAL PLAN.

SOILS:

SOILS DESIGN CRITERIA SHALL BE IN ACCORDANCE WITH THE SOILS REPORT PREPARED BY GEOTECH CONSULTANTS, INC., DATED OCTOBER 5, 2023.

CLEARING AND GRADING IT.E.S.C. MEASURES):

ALL CLEARING AND GRADING MUST BE IN ACCORDANCE WITH LOCAL JURISDICTION CLEARING AND GRADING EROSION CONTROL STANDARDS, DEVELOPMENT STANDARDS, LAND USE CODE, INTERNATIONAL RESIDENTIAL CODE, PERMIT CONDITIONS, AND ALL OTHER APPLICABLE CODES, ORDINANCES AND STANDARDS. THE DESIGN ELEMENTS WITH THESE PLANS HAVE BEEN REVIEWED TO THESE REQUIREMENTS. ANY VARIANCE FROM THE ADOPTED EROSION CONTROL STANDARDS IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY THE LOCAL JURISDICTION PRIOR TO CONSTRUCTION.

A COPY OF THE APPROVED PLANS MUST BE ON-SITE WHENEVER CONSTRUCTION IS IN PROGRESS. THE APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER REQUIRED OR RELATED PERMITS PRIOR TO BEGINNING CONSTRUCTION.

ALL LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD, THEREFORE, BE CONSIDERED ONLY APPROXIMATE AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS AND TO DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN WHICH MAY BE EFFECTED BY THE WORK.

FINAL SITE DRAINAGE MUST DIRECT DRAINAGE AWAY FROM ALL BUILDING STRUCTURES AT A MINIMUM OF 6" WITHIN THE FIRST 10'. *Ref IRC R401.3*

CRAWL SPACE:

UNDER-FLOOR AREAS SHALL BE VENTED BY AN APPROVED MECHANICAL MEANS OR BY OPENINGS IN EXTERIOR FOUNDATION WALLS. SUCH OPENINGS SHALL HAVE A NET AREA OF NOT LESS THAN 1 SQ. FT. FOR EACH 150 SQ. FT. OF UNDER-FLOOR AREA. ONE OPENING SHALL BE WITHIN 3' OF EACH CORNER OF THE BUILDING. *Ref IRC R408.2*

CRAWL SPACE. UNOBSTRUCTED ACCESS, MINIMUM 18" x 24". *Ref IRC R408.4*

PROVIDE 18" MINIMUM CRAWL SPACE UNDER WOOD JOIST AND 12" MINIMUM CRAWL SPACE UNDER WOOD GIRDERS. *Ref IRC R317.1*

A GROUND COVER VAPOR BARRIER OF MIN. 6 MIL. (0.006") POLYETHYLENE (OR EQUIVALENT) SHALL BE INSTALLED IN ALL CRAWL SPACES, JOINTS LAPPED 12", EXTEND UP FOUNDATION WALL AND SECURE TO SILL PLATE WHEREVER PRACTICAL.

ALL WOOD IN CONTACT WITH CONCRETE, CMU OR WITHIN 8" OF SOILS SHALL BE PRESSURE TREATED WOOD. *Ref IRC R317.1*

GARAGES:

OPENINGS FROM A PRIVATE GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED. DOORS BETWEEN GARAGE AND DWELLING SHALL BE SOLID WOOD DOORS; MINIMUM 1 3/8" THICK WITH SELF CLOSING DEVICE. *Ref R302.5.1*

SEPARATION FROM DWELLING TO GARAGE, SHOP OR SIMILAR AREAS SHALL BE SEPARATED FROM RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 1/2" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. GARAGES BENEATH HABITABLE ROOMS SHALL BE SEPARATED FROM ALL HABITABLE ROOMS ABOVE BY NOT LESS THAN 5/8" TYPE X GYPSUM BOARD OR EQUIVALENT. WHERE THE SEPARATION IS A FLOOR-CEILING ASSEMBLY, THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY NOT LESS THAN 1/2" GYPSUM BOARD OR EQUIVALENT. *Ref IRC R302.6 & TABLE 302.6*

HEATING AND/OR COOLING EQUIPMENT LOCATED IN GARAGE SHALL BE INSTALLED WITH PILOTS AND BURNERS OR HEATING ELEMENTS AND SWITCHES AT LEAST 18" ABOVE THE FLOOR LEVEL. *Ref IRC G2408.2*

FIREPLACES:

FACTORY-BUILT FIREPLACES SHALL BE LISTED AND LABELED AND SHALL BE INSTALLED IN ACCORDANCE WITH THE CONDITIONS OF THE LISTING. FACTORY-BUILT FIREPLACES SHALL BE TESTED IN ACCORDANCE WITH UL 127. *Ref IRC R1004.1*

MASONRY FIREPLACES, BARBECUES, SMOKE CHAMBERS AND FIREPLACE CHIMNEYS SHALL BE CONSTRUCTED OF MASONRY OR REINFORCED CONCRETE. FOUNDATIONS SHALL BE MIN. 12" THICK AND EXTEND MIN. 6" BEYOND MASONRY. FIREBOX WALLS MIN. 10" THICK EXCEPT MIN. 8" THICK WHERE A FIREBRICK LINING IS USED. COMBUSTIBLE MATERIALS SHALL NOT BE PLACED WITHIN 2 INCHES OF FIREPLACE, SMOKE CHAMBER OR CHIMNEY WALLS. COMBUSTIBLE MATERIAL SHALL NOT BE PLACED WITHIN 6" OF THE FIREPLACE OPENING. MIN. 4" THICK NON-COMBUSTIBLE HEARTH EXTENDING 16" IN FRONT AND 8" TO THE SIDE OF THE FIREPLACE OPENING. COMBUSTIBLE MATERIAL WITHIN 12" OF THE FIREPLACE OPENING SHALL NOT PROJECT MORE THAN 1/8" FOR EACH 1" DISTANCE FROM SUCH OPENING. *Ref IRC R1001 - R1003*

CEILING HEIGHTS:

HABITABLE SPACE SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'-0". NOT MORE THAN 50% OF REQUIRED FLOOR AREA OF A SPACE IS PERMITTED TO HAVE A SLOPED CEILING LESS THAN 7'-0" IN HEIGHT WITH NO PORTION LOWER THAN 5'-0". BATHROOM SHALL HAVE A MIN CEILING HEIGHT OF 6'-8" OVER THE FIXTURE AND ITS FRONT CLEARANCE AREA. *Ref IRC R305*

ROOFING:

APPLY ROOFING IN ACCORDANCE WITH *IRC R905.*

BALCONIES, LANDINGS, EXTERIOR STAIRWAYS, OCCUPIED ROOFS AND SIMILAR SURFACES EXPOSED TO THE WEATHER AND SEALED UNDERNEATH SHALL BE WATERPROOFED AND SLOPED A MINIMUM OF 1/4" PER 12" (2% SLOPE) FOR DRAINAGE.

ATTIC:

PROVIDE ATTIC VENTILATION AS INDICATED ON ROOF FRAMING PLANS. THE MINIMUM NET FREE VENTILATING AREA SHALL BE 1/150 OF THE AREA OF THE VENTED SPACE. EXCEPTION: THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/300 OF THE VENTED SPACE PROVIDED NOT LESS THAN 40 PERCENT AND NOT MORE THAN 50 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE ATTIC OR RAFTER SPACE. UPPER VENTILATORS SHALL BE LOCATED NOT MORE THAN 3 FEET BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE, MEASURED VERTICALLY, WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS. *Ref IRC R806.2*

ATTIC ACCESS SHALL HAVE A ROUGH FRAMED OPENING NOT LESS THAN 22 INCHES BY 30 INCHES LOCATED IN A READILY ACCESSIBLE LOCATION. THE MINIMUM UNOBSTRUCTED HEADROOM IN THE ATTIC SPACE SHALL BE 30 INCHES MEASURED VERTICALLY FROM THE BOTTOM OF THE CEILING FRAMING MEMBERS. *Ref IRC R807.* FOR ACCESS REQUIREMENTS WHERE MECHANICAL EQUIPMENT IS LOCATED IN ATTICS *Ref IRC M1305.1.3*

GLAZING:

TO BE IN COMPLIANCE WITH IRC R308 AND WASHINGTON STATE SAFETY GLASS LAW.

GLAZING IN HAZARDOUS LOCATIONS SUCH AS GLASS ON DOORS, GLAZING WITHIN 24" ON EITHER SIDE OF A DOOR OPENING, AREAS WITHIN 60" VERTICAL AND 36" HORIZONTAL OF THE BOTTOM LANDING OF A STAIRWAY, STORM DOORS, RAILINGS, SHOWER DOORS, SLIDING GLASS DOORS, AND TUB ENCLOSURES SHALL BE SAFETY GLAZING MATERIAL. *Ref IRC R308.4*

ALL EXTERIOR WALL GLAZING SHALL COMPLY WITH THE 2021 EDITION OF THE WASHINGTON STATE ENERGY CODE.

EGRESS:

EGRESS IN EVERY SLEEPING ROOM SHALL HAVE AT LEAST ONE OPERABLE EMERGENCY EXIT WITH A MINIMUM NET CLEAR OPENING OF 5.7 SQ. FT. THE MINIMUM NET CLEAR OPENING HEIGHT DIMENSION SHALL BE 24" MINIMUM NET CLEAR OPENING WIDTH DIMENSION OF 20" AND A FINISHED SILL HEIGHT NOT MORE THAN 44" ABOVE THE FLOOR. IRC R310.1.

ONE EXIT DOOR CONFORMING TO IRC R311.2 IS REQUIRED.

FIRE & CARBON MONOXIDE PROTECTION:

SMOKE & CARBON MONOXIDE DETECTOR POWER SOURCES TO BE INSTALLED IN ACCORDANCE WITH NFPA 72, IRC R314 & IRC R315. ALL ALARM DEVICES SHALL BE INTERCONNECTED PER IRC R314.1.

FIREBLOCKING PER *IRC R1003.19, R1001.12, R302.11 & R602.8. DRAFTSTOPPING PER IRC R302.12 & R502.12.*

VENTILATION & LIGHTING:

HABITABLE ROOMS NOT PROVIDED WITH AN OPENABLE EXTERIOR OPENING OF AT LEAST 4% OF THE FLOOR AREA, A MECHANICAL VENTILATION SYSTEM MUST BE PROVIDED THAT PROVIDES MIN. .35 AIR CHANGES PER HOUR. *IRC R303.1.*

DRYER & BATH FANS TO BE 50 CFM, AND RANGE/OVEN FANS TO BE 100 CFM MIN, VENT TO THE OUTSIDE. *IRC303 AND 2006 WA STATE VENTILATION AND INDOOR AIR QUALITY CODE.*

NATURAL LIGHTING TO BE NOT LESS THAN 8% OF THE FLOOR AREA OR ALL HABITABLE SPACES. *IRC R303.*

STAIRS:

MINIMUM HEADROOM OF 6'-8" MEASURED VERTICALLY FROM A SLOPED PLANE ADJOINING THE TREAD NOSING OR FROM THE FLOOR SURFACE OR PLATFORM. IRC R311.7.2 MINIMUM WIDTH 36", *IRC 311.7.1*

MINIMUM TREAD 10", MAXIMUM RISER 7 3/4", HANDRAIL MINIMUM 34" AND MAXIMUM 38" ABOVE STAIR NOSING. HANDRAIL TO BE 1 1/4" TO 2" CROSS SECTION AND 1 1/2" AWAY FROM WALL. IRC R311.7.5 & 311.7.8. INSTALL FIRE BLOCKING AT MID STRINGER SPAN AND AT WALL ALONG STRINGER. COVER WALLS AND SOFFITS OF USABLE SPACE UNDER STAIR WITH 1/2" GYPSUM BOARD. *IRC R302.11*

GUARDRAILS: ANY WALKING SURFACE 30" OR MORE ABOVE GRADE OR ADJACENT SURFACE SHALL HAVE MIN. 36" HIGH GUARDRAIL. *IRC R312.*

BATHROOMS:

ALL TUB AND SHOWER STALLS SHALL HAVE FIREBLOCKING BETWEEN STUDS.

ALL GLAZING USED FOR DOORS OR ENCLOSURES IN BATHROOMS SHALL BE SAFETY GLAZING. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING A SHOWER OR BATHTUB WHERE THE BOTTOM EXPOSED EDGE IS LESS THAN 60 INCHES ABOVE THE STANDING SURFACE AND DRAIN INLET SHALL BE SAFETY GLAZING. *IRC R308.4*

BATH TUB & SHOWER STALL NON-ABSORBENT WAINSCOTS SHALL BE A MINIMUM OF 72 INCHES ABOVE THE FLOOR. *IRC R307.2.*

WATERCLOSETS SHALL HAVE MIN. 15" TO SIDE WALLS FROM CENTER OF FIXTURE, AND MIN. 21" FRONT CLEARANCE. IRC R307.1

APPLIANCES IN A FIXED POSITION SHALL BE SECURELY FASTENED IN PLACE TO STRUCTURAL MEMBERS WITH STRAP ANCHORS OR SIMILAR ANCHORING METHOD. *IRC G2404.4*

PLUMBING FIXTURES:

CODE CITED CURRENT AS OF SEPTEMBER 2022. CONTRACTOR AND THEIR CONSULTANTS TO CONFIRM LISTED CODE IS CURRENT AT TIME OF CONSTRUCTION

THE MAXIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT EXCEED 1.2 GALLONS (4.54 L) PER MINUTE AT 60 PSI. THE MINIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT BE LESS THAN 0.8 GALLONS (3.03 L) PER MINUTE AT 20 PSI. *WAC 51-56-0400 (407.2.1.1 RESIDENTIAL LAVATORY FAUCETS).*

SHOWERHEADS SHALL MEET THE MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE MEASURED AT 80 PSI. SHOWERHEADS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATERSENSE SPECIFICATIONS FOR SHOWERHEADS *WAC 51-56-0400 (408.2 WATER-CONSUMPTION)*

WHEN A SHOWER IS SERVED BY MORE THAN ONE SHOWERHEAD, INCLUDING HANDHELD SHOWERHEADS, THE COMBINED FLOW RATE OF ALL SHOWERHEADS AND/OR OTHER SHOWER OUTLETS CONTROLLED BY A SINGLE VALVE SHALL NOT EXCEED 1.8 GALLONS (6.81 L) PER MINUTE AT 80 PSI, OR THE SHOWER SHALL BE DESIGNED TO ALLOW ONLY ONE SHOWER OUTLET TO BE IN OPERATION AT A TIME *WAC 51-56-0400 (408.2. 1 MULTIPLE SHOWERHEADS SERVING ONE SHOWER)*

THE EFFECTIVE FLUSH VOLUME OF ALL WATER CLOSETS SHALL NOT EXCEED 1.28 GALLONS (4.8 L) PER FLUSH WHEN TESTED IN ACCORDANCE WITH ASME A112.19.2/CSA B45.1 *WAC 51-56-0400 (411.2 WATER CONSUMPTION)*

DUAL FLUSH WATER CLOSETS SHALL COMPLY WITH ASME A112.19.14. THE EFFECTIVE FLUSH VOLUME FOR DUAL FLUSH WATER CLOSETS SHALL BE DEFINED AS THE COMPOSITE, AVERAGE FLUSH VOLUME OF TWO REDUCED FLUSHES AND ONE FULL FLUSH. *WAC 51-56-0400 (411.2.1 DUAL FLUSH WATER CLOSETS)*

WATER CLOSETS INSTALLED SHALL MEET OR EXCEED THE MINIMUM PERFORMANCE CRITERIA DEVELOPED FOR CERTIFICATION OF HIGH-EFFICIENCY TOILETS UNDER THE WATERSENSE PROGRAM SPONSERED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) *WAC 51-56-0400 (411.2.2 PERFORMANCE)*

SINK FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 2.2 GPM AT 60 PSI (8.3 LM AT 414 KPA) IN ACCORDANCE WITH ASME A112.18.1/CSA B125.1 *WAC 51-56-0400 (405.2 WATER CONSUMPTION)*

KITCHEN FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. KITCHEN FAUCETS MAY TEMPORARILY INCREASE THE FLOW ABOVE MAXIMUM RATE, BUT NOT TO EXCEED 2.2 GALLONS (8.3 L) PER MINUTE AT 60 PSI, AND MUST DEFAULT TO A MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. *WAC 51-56-0400 (402.2.1 KITCHEN FAUCETS)*

ENERGY:

METHOD OF COMPLIANCE - PRESCRIPTIVE METHOD FOR GROUP R OCCUPANCY, *CLIMATE ZONE PER TABLE R301.1, TABLE R402.1.1, UNLIMITED GLAZING WITH MODIFICATIONS.*

ENERGY CREDITS - x CREDITS REQUIRED; x CREDITS SELECTED

FILL IN SELECTED CREDIT OPTIONS

ALL MATERIALS, WORKMANSHIP AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL RESIDENTIAL CODE AND THE WASHINGTON STATE ENERGY CODE, LATEST EDITION. VERIFY ALL CONDITIONS BEFORE PROCEEDING WITH WORK.

WALLS: INSULATED PER *WSEC TABLE R402.1.1.*

ROOF AND CEILING: INSULATED PER *WSEC TABLE R402.1.1.* PROVIDE INSULATION IN CEILING WHERE POSSIBLE AND IN 2x12 RAFTERS IF VAULTED CEILING CONDITION EXISTS. MAINTAIN A MINIMUM OF 2" CLEAR BETWEEN TOP OF INSULATION AND BOTTOM OF SHEATHING FOR VENTING. VENTING MUST OCCUR IN EACH JOIST SPACE. WHERE CONTINUOUS VENTING WITHIN A JOIST SPACE IS INTERRUPTED BY A HEADER (I.E., SKYLIGHT OR AT HIP END), PROVIDE (2) 1 1/2" VENTING HOLES AT THE TOP OF THE RAFTER AT THE HEADER TO ALLOW FOR CONTINUAL THROUGH-VENTING INTO THE NEXT JOIST SPACE.

FLOORS: INSULATE PER *WSEC TABLE R402.1.1*

SLAB ON GRADE: INSULATE PER TABLE R402.1.1. PROVIDE EXTRUDED RIGID CLOSED CELL INSULATION. INSULATION, INSTALLED INSIDE THE FOUNDATION WALL, SHALL EXTEND DOWNWARD FROM THE TOP OF THE SLAB 24" MIN. OR DOWNWARD AND THEN HORIZONTALLY BENEATH THE SLAB FOR A COMBINED 24" MIN. INSULATION INSTALLED OUTSIDE THE FOUNDATION SHALL EXTEND DOWNWARD 24" MIN. OR TO THE FROSTLINE. *WSEC 402.2.8.1*

VAPOR BARRIERS: VAPOR RETARDERS SHALL BE INSTALLED ON THE WARM SIDE (IN WINTER) OF INSULATION PER *TABLE R402.4.1.1*
FLOORS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE MIN. 4 MIL POLYETHYLENE OR KRAFT FACED MATERIAL. ROOF/CEILING ASSEMBLIES WHERE THE VENTILATION SPACE ABOVE THE INSULATION IS LESS THAN AN AVERAGE OF 12 INCHES SHALL BE PROVIDED WITH A VAPOR-RETARDER. WALLS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE A VAPOR RETARDER INSTALLED. FACED BATT INSULATION SHALL BE FACE STAPLED. A GROUND COVER OF MIN. 6 MIL BLACK POLYETHYLENE SHALL BE LAID OVER THE GROUND WITHIN CRAWL SPACES W/ JOINTS LAPPED MIN. 12".

GLAZING AND DOORS: GLAZING AND DOOR U-FACTORS SHALL BE DETERMINED IN ACCOURDANCE WITH *WSEC SECTIONS R402.1.1 AND R303.1.3(2),* RESPECTIVELY.

SEIFERT REMODEL

3261 67TH AVE SE
MERCER ISLAND, WA 98040

Job No.	2219
Project Manager:	DG
Issue Date:	08/03/2023

NO.	DATE	REVISION

W.I.P. SET (12.20.2023)

UPPER FLOOR PLAN PROPOSED

A2.03

FILE: 2219 Seifert Remodel and Addition PRINTED: Friday, January 12, 2024

Seismic - Roof							
Wall ID	Height	Length	V	Shear	Wt	T	C
Transverse							
2.A	8.083	2.666	1.155	0.497	0.780	4.086	4.853
3.A	8.083	13.333	2.740	0.206	3.900	0.778	4.019
4.A	8.083	11.333	0.990	0.087	1.360	0.406	1.544
4.B	8.083	15	1.310	0.087	1.800	0.295	1.784
5.A	8.083	19	0.715	0.038	3.705	-0.578	2.466
Longitudinal							
A.1	8.083	4.5	0.170	0.038	0.795	0.134	0.850
A.2	8.083	4.5	0.170	0.038	0.795	0.134	0.850
B.1	8.083	2.666	0.690	0.297	0.911	2.311	3.208
B.2	8.083	2.666	0.690	0.297	0.911	2.311	3.208
B.3	8.083	2.666	0.690	0.297	0.911	2.311	3.208
B.4	8.083	2.75	0.711	0.293	0.940	2.287	3.205
C.1	8.083	12.583	1.515	0.120	4.299	-0.034	3.548
C.2	8.083	12.666	1.525	0.120	4.327	-0.041	3.563
D.1	8.083	8.666	0.303	0.035	0.953	0.063	0.872
D.2	8.083	8.5	0.297	0.035	0.935	0.068	0.862

Sds	0.943

Seismic with Omega - Roof							
Wall ID	Height	Length	V	Shear	Wt	T	C
Transverse							
2.A	8.083	2.666	2.888	1.243	0.780	10.551	11.319
3.A	8.083	13.333	6.850	0.514	3.900	3.366	6.608
4.A	8.083	11.333	2.475	0.218	1.360	1.514	2.652
4.B	8.083	15	3.275	0.218	1.800	1.390	2.880
5.A	8.083	19	1.788	0.094	3.705	-0.109	2.935
Longitudinal							
A.1	8.083	4.5	0.425	0.094	0.795	0.650	1.365
A.2	8.083	4.5	0.425	0.094	0.795	0.650	1.365
B.1	8.083	2.666	1.724	0.742	0.911	6.171	7.068
B.2	8.083	2.666	1.724	0.742	0.911	6.171	7.068
B.3	8.083	2.666	1.724	0.742	0.911	6.171	7.068
B.4	8.083	2.75	1.778	0.733	0.940	6.120	7.038
C.1	8.083	12.583	3.788	0.301	4.299	1.486	5.068
C.2	8.083	12.666	3.812	0.301	4.327	1.479	5.083
D.1	8.083	8.666	0.757	0.087	0.953	0.513	1.322
D.2	8.083	8.5	0.743	0.087	0.935	0.518	1.313

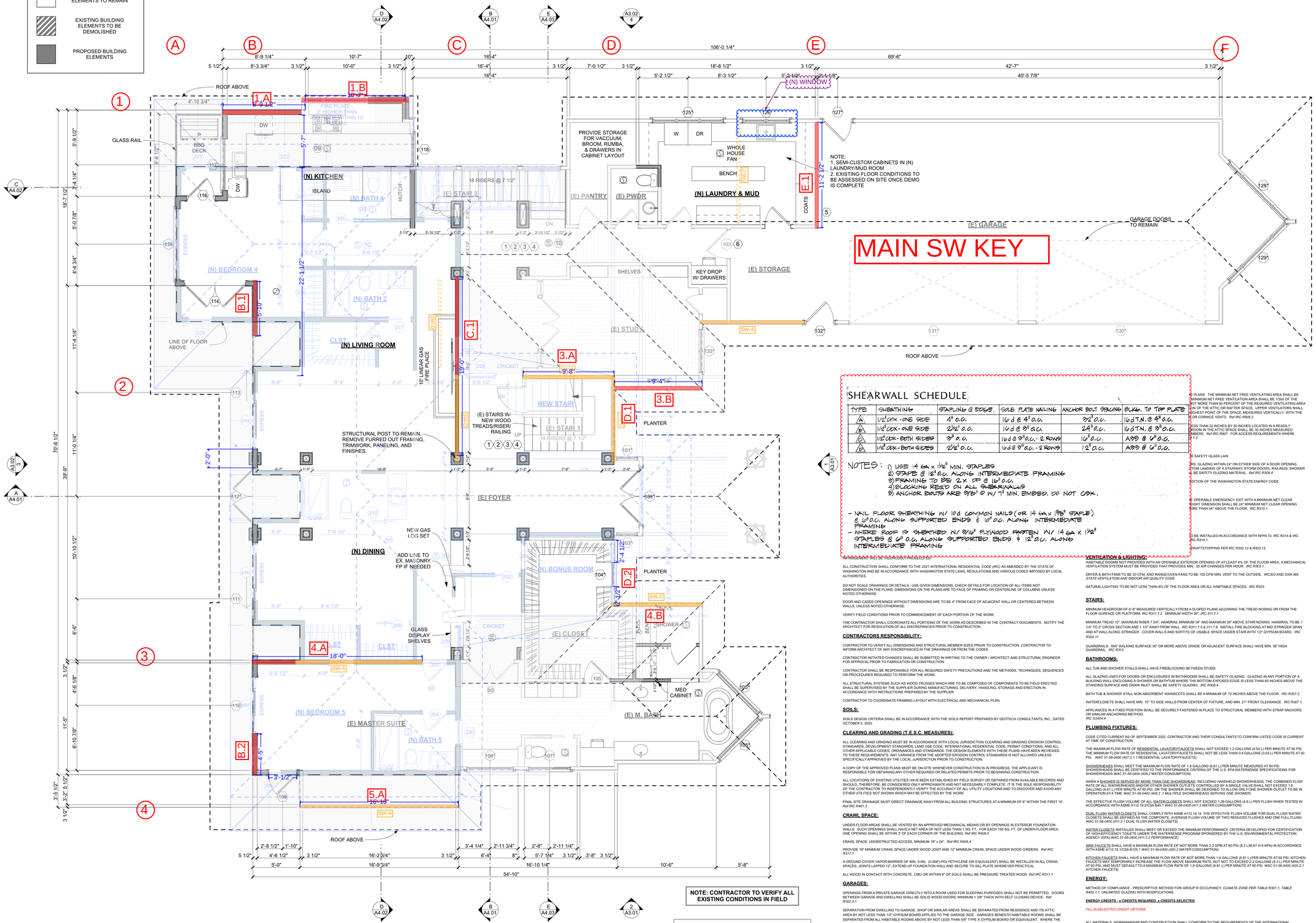
Sds	0.943

GELOTTE HOMMAS DRIVDAHL
ARCHITECTURE
2340 130th Ave. NE, Suite 100, Bellevue, WA 98005
425.828.3081

EXISTING BUILDING ELEMENTS TO REMAIN

EXISTING BUILDING ELEMENTS TO BE DEMOLISHED

PROPOSED BUILDING ELEMENTS



SHEARWALL SCHEDULE

TYPE	SHEATHING	STAPLING @ EDGE	SOLE PLATE NAILING	ANCHOR BOLT SPACING	BLKG. TO TOP PLATE
A	1/2" CDX - ONE SIDE	4" O.C.	16d @ 4" O.C.	32" O.C.	16d T.N. @ 4" O.C.
B	1/2" CDX - ONE SIDE	2 1/2" O.C.	16d @ 8" O.C.	24" O.C.	16d T.N. @ 8" O.C.
C	1/2" CDX - BOTH SIDES	8" O.C.	16d @ 8" O.C. - 2 ROWS	16" O.C.	A35 @ 6" O.C.
D	1/2" CDX - BOTH SIDES	2 1/2" O.C.	16d @ 8" O.C. - 2 ROWS	12" O.C.	A35 @ 6" O.C.

NOTES:
1) USE 14 GA x 1 1/2" MIN. STAPLES
2) STAPLE @ 12" O.C. ALONG INTERMEDIATE FRAMING
3) FRAMING TO BE 2X DF @ 16" O.C.
4) BLOCKING REQ'D ON ALL SHEARWALLS
5) ANCHOR BOLTS ARE 5/8" Ø W/ 7" MIN. EMBED. DO NOT CBK.

- NAIL FLOOR SHEATHING W/ 10d COMMON NAILS (OR 14 GA x 1 3/8" STAPLE) @ 6" O.C. ALONG SUPPORTED ENDS & 10" O.C. ALONG INTERMEDIATE FRAMING
- WHERE ROOF IS SHEATHED W/ 7/16" PLYWOOD FASTEN W/ 14 GA x 1 1/2" STAPLES @ 6" O.C. ALONG SUPPORTED ENDS & 12" O.C. ALONG INTERMEDIATE FRAMING

NOTE: CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS IN FIELD

BLDG AREA - ALL STORIES	
LOWER FLOOR	
(E) FINISHED AREAS	1,096
(N) FINISHED AREAS	536
MAIN FLOOR	
(E) FINISHED AREAS	3,265
(E) GARAGE	1,075
(N) FINISHED AREAS	175
UPPER FLOOR	
(E) FINISHED AREAS	789
(N) FINISHED AREAS	967
	7,903 ft²

N

MAIN FLOOR PROPOSED

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

GENERAL NOTES

ALL CONSTRUCTION SHALL CONFORM TO THE *2021 INTERNATIONAL RESIDENTIAL CODE (IRC)* AS AMENDED BY THE STATE OF WASHINGTON AND BE IN ACCORDANCE WITH WASHINGTON STATE LAWS, REGULATIONS AND VARIOUS CODES IMPOSED BY LOCAL AUTHORITIES.

DO NOT SCALE DRAWINGS OR DETAILS - USE GIVEN DIMENSIONS. CHECK DETAILS FOR LOCATION OF ALL ITEMS NOT DIMENSIONED ON THE PLANS. DIMENSIONS ON THE PLANS ARE TO FACE OF FRAMING OR CENTERLINE OF COLUMNS UNLESS NOTED OTHERWISE.

DOOR AND CASED OPENINGS WITHOUT DIMENSIONS ARE TO BE 4" FROM FACE OF ADJACENT WALL OR CENTERED BETWEEN WALLS, UNLESS NOTED OTHERWISE.

VERIFY FIELD CONDITIONS PRIOR TO COMMENCEMENT OF EACH PORTION OF THE WORK.

THE CONTRACTOR SHALL COORDINATE ALL PORTIONS OF THE WORK AS DESCRIBED IN THE CONTRACT DOCUMENTS. NOTIFY THE ARCHITECT FOR RESOLUTION OF ALL DISCREPANCIES PRIOR TO CONSTRUCTION.

CONTRACTORS RESPONSIBILITY:

CONTRACTOR TO VERIFY ALL DIMENSIONS AND STRUCTURAL MEMBER SIZES PRIOR TO CONSTRUCTION. CONTRACTOR TO INFORM ARCHITECT OF ANY DISCREPANCIES IN THE DRAWINGS OR FROM THE CODES.

CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE OWNER / ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK.

ALL STRUCTURAL SYSTEMS SUCH AS WOOD TRUSSES WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

CONTRACTOR TO COORDINATE FRAMING LAYOUT WITH ELECTRICAL AND MECHANICAL PLAN.

SOILS:

SOILS DESIGN CRITERIA SHALL BE IN ACCORDANCE WITH THE SOILS REPORT PREPARED BY GEOTECH CONSULTANTS, INC., DATED OCTOBER 5, 2023.

CLEARING AND GRADING (T.E.S.C. MEASURES):

ALL CLEARING AND GRADING MUST BE IN ACCORDANCE WITH LOCAL JURISDICTION CLEARING AND GRADING EROSION CONTROL STANDARDS, DEVELOPMENT STANDARDS, LAND USE CODE, INTERNATIONAL RESIDENTIAL CODE, PERMIT CONDITIONS, AND ALL OTHER APPLICABLE CODES, ORDINANCES AND STANDARDS. THE DESIGN ELEMENTS WITH THESE PLANS HAVE BEEN REVIEWED TO THESE REQUIREMENTS. ANY VARIANCE FROM THE ADOPTED EROSION CONTROL STANDARDS IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY THE LOCAL JURISDICTION PRIOR TO CONSTRUCTION.

A COPY OF THE APPROVED PLANS MUST BE ON-SITE WHENEVER CONSTRUCTION IS IN PROGRESS. THE APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER REQUIRED OR RELATED PERMITS PRIOR TO BEGINNING CONSTRUCTION.

ALL LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD, THEREFORE, BE CONSIDERED ONLY APPROXIMATE AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS AND TO DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN WHICH MAY BE EFFECTED BY THE WORK.

FINAL SITE DRAINAGE MUST DIRECT DRAINAGE AWAY FROM ALL BUILDING STRUCTURES AT A MINIMUM OF 6" WITHIN THE FIRST 10'. *Ref IRC R401.3*

CRAWL SPACE:

UNDER-FLOOR AREAS SHALL BE VENTED BY AN APPROVED MECHANICAL MEANS OR BY OPENINGS IN EXTERIOR FOUNDATION WALLS. SUCH OPENINGS SHALL HAVE A NET AREA OF NOT LESS THAN 1 SQ. FT. FOR EACH 150 SQ. FT. OF UNDER-FLOOR AREA. ONE OPENING SHALL BE WITHIN 3' OF EACH CORNER OF THE BUILDING. *Ref IRC R408.2*

CRAWL SPACE, UNOBSTRUCTED ACCESS, MINIMUM 18" x 24". *Ref IRC R408.4*

PROVIDE 18" MINIMUM CRAWL SPACE UNDER WOOD JOIST AND 12" MINIMUM CRAWL SPACE UNDER WOOD GIRDERS. *Ref IRC R317.1*

A GROUND COVER VAPOR BARRIER OF MIN. 6 MIL. (0.006") POLYETHYLENE (ER EQUIVALENT) SHALL BE INSTALLED IN ALL CRAWL SPACES, JOINTS LAPPED 12", EXTEND UP FOUNDATION WALL AND SECURE TO SILL PLATE WHEREVER PRACTICAL.

ALL WOOD IN CONTACT WITH CONCRETE, CMU OR WITHIN 8" OF SOILS SHALL BE PRESSURE TREATED WOOD. *Ref IRC R317.1*

GARAGES:

OPENINGS FROM A PRIVATE GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED. DOORS BETWEEN GARAGE AND DWELLING SHALL BE SOLID WOOD DOORS; MINIMUM 1 3/8" THICK WITH SELF CLOSING DEVICE. *Ref R302.5.1*

SEPARATION FROM DWELLING TO GARAGE, SHOP OR SIMILAR AREAS SHALL BE SEPARATED FROM RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 1/2" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. GARAGES BENEATH HABITABLE ROOMS SHALL BE SEPARATED FROM ALL HABITABLE ROOMS ABOVE BY NOT LESS THAN 5/8" TYPE X GYPSUM BOARD OR EQUIVALENT. WHERE THE SEPARATION IS A FLOOR-CEILING ASSEMBLY, THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY NOT LESS THAN 1/2" GYPSUM BOARD OR EQUIVALENT. *Ref IRC R302.6 & Table 302.6*

HEATING AND/OR COOLING EQUIPMENT LOCATED IN GARAGE SHALL BE INSTALLED WITH PILOTS AND BURNERS OR HEATING ELEMENTS AND SWITCHES AT LEAST 18" ABOVE THE FLOOR LEVEL. *Ref IRC G2408.2*

FIREPLACES:

FACTORY-BUILT FIREPLACES SHALL BE LISTED AND LABELED AND SHALL BE INSTALLED IN ACCORDANCE WITH THE CONDITIONS OF THE LISTING. FACTORY-BUILT FIREPLACES SHALL BE TESTED IN ACCORDANCE WITH UL 127. *Ref IRC R1004.1*

MASONRY FIREPLACES, BARBECUES, SMOKE CHAMBERS AND FIREPLACE CHIMNEYS SHALL BE CONSTRUCTED OF MASONRY OR REINFORCED CONCRETE. FOUNDATIONS SHALL BE MIN. 12" THICK AND EXTEND MIN. 6" BEYOND MASONRY. FIREBOX WALLS MIN. 10" THICK EXCEPT MIN. 8" THICK WHERE A FIREBRICK LINING IS USED. COMBUSTIBLE MATERIALS SHALL NOT BE PLACED WITHIN 2 INCHES OF FIREPLACE; SMOKE CHAMBER OR CHIMNEY WALLS. COMBUSTIBLE MATERIAL SHALL NOT BE PLACED WITHIN 6" OF THE FIREPLACE OPENING. MIN. 4" THICK NON-COMBUSTIBLE HEARTH EXTENDING 16" IN FRONT AND 8" TO THE SIDE OF THE FIREPLACE OPENING. COMBUSTIBLE MATERIAL WITHIN 12" OF THE FIREPLACE OPENING SHALL NOT PROJECT MORE THAN 1/8" FOR EACH 1" DISTANCE FROM SUCH OPENING. *Ref IRC R1001 - R1003*

CEILING HEIGHTS:

HABITABLE SPACE SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'-0". NOT MORE THAN 50% OF REQUIRED FLOOR AREA OF A SPACE IS PERMITTED TO HAVE A SLOPED CEILING LESS THAN 7'-0" IN HEIGHT WITH NO PORTION LOWER THAN 5'-0". BATHROOM SHALL HAVE A MIN CEILING HEIGHT OF 6'-8" OVER THE FIXTURE AND ITS FRONT CLEARANCE AREA. *Ref IRC R305*

ROOFING:

APPLY ROOFING IN ACCORDANCE WITH *IRC R905.*

BALCONIES, LANDINGS, EXTERIOR STAIRWAYS, OCCUPIED ROOFS AND SIMILAR SURFACES EXPOSED TO THE WEATHER AND SEALED UNDERNEATH SHALL BE WATERPROOFED AND SLOPED A MINIMUM OF 1/4" PER 12" (2% SLOPE) FOR DRAINAGE.

VENTILATION & LIGHTING:

HABITABLE ROOMS NOT PROVIDED WITH AN OPENABLE EXTERIOR OPENING OF AT LEAST 4% OF THE FLOOR AREA, A MECHANICAL VENTILATION SYSTEM MUST BE PROVIDED THAT PROVIDES MIN. .35 AIR CHANGES PER HOUR. *IRC R303.1.*

DRYER & BATH FANS TO BE 50 CFM, AND RANGE/OVEN FANS TO BE 100 CFM MIN, VENT TO THE OUTSIDE. *IRC303 AND 2006 WA STATE VENTILATION AND INDOOR AIR QUALITY CODE*

NATURAL LIGHTING TO BE NOT LESS THAN 8% OF THE FLOOR AREA OR ALL HABITABLE SPACES. *IRC R303.*

STAIRS:

MINIMUM HEADROOM OF 6'-8" MEASURED VERTICALLY FROM A SLOPED PLANE ADJOINING THE TREAD NOSING OR FROM THE FLOOR SURFACE OR PLATFORM. *IRC R311.7.2 MINIMUM WIDTH 36", IRC 311.7.1*

MINIMUM TREAD 10", MAXIMUM RISER 7 3/4", HANDRAIL MINIMUM 34" AND MAXIMUM 38" ABOVE STAIR NOSING. HANDRAIL TO BE 1 1/4" TO 2" CROSS SECTION AND 1 1/2" AWAY FROM WALL. *IRC R311.7.5 & 311.7.8.* INSTALL FIRE BLOCKING AT MID STRINGER SPAN AND AT WALL ALONG STRINGER. COVER WALLS AND SOFFITS OF USABLE SPACE UNDER STAIR WITH 1/2" GYPSUM BOARD. *IRC R302.11*

GUARDRAILS: ANY WALKING SURFACE 30" OR MORE ABOVE GRADE OR ADJACENT SURFACE SHALL HAVE MIN. 36" HIGH GUARDRAIL. *IRC R312.*

BATHROOMS:

ALL TUB AND SHOWER STALLS SHALL HAVE FIREBLOCKING BETWEEN STUDS.

ALL GLAZING USED FOR DOORS OR ENCLOSURES IN BATHROOMS SHALL BE SAFETY GLAZING. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING A SHOWER OR BATHTUB WHERE THE BOTTOM EXPOSED EDGE IS LESS THAN 60 INCHES ABOVE THE STANDING SURFACE AND DRAIN INLET SHALL BE SAFETY GLAZING. *IRC R308.4*

BATH TUB & SHOWER STALL NON-ABSORBENT WAINSCOTS SHALL BE A MINIMUM OF 72 INCHES ABOVE THE FLOOR. *IRC R307.2.*

WATERCLOSETS SHALL HAVE MIN. 15" TO SIDE WALLS FROM CENTER OF FIXTURE, AND MIN. 21" FRONT CLEARANCE. *IRC R307.1*

APPLIANCES IN A FIXED POSITION SHALL BE SECURELY FASTENED IN PLACE TO STRUCTURAL MEMBERS WITH STRAP ANCHORS OR SIMILAR ANCHORING METHOD. *IRC G2404.4*

PLUMBING FIXTURES:

CODE CITED CURRENT AS OF SEPTEMBER 2022. CONTRACTOR AND THEIR CONSULTANTS TO CONFIRM LISTED CODE IS CURRENT AT TIME OF CONSTRUCTION

THE MAXIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT EXCEED 1.2 GALLONS (4.54 L) PER MINUTE AT 60 PSI. THE MINIMUM FLOW RATE OF RESIDENTIAL LAVATORY FAUCETS SHALL NOT BE LESS THAN 0.8 GALLONS (3.05 L) PER MINUTE AT 20 PSI. *WAC 51-56-0400 (407.2.1.1 RESIDENTIAL LAVATORY FAUCETS)*

SHOWERHEADS SHALL MEET THE MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE MEASURED AT 80 PSI. SHOWERHEADS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATERSENSE SPECIFICATIONS FOR SHOWERHEADS *WAC 51-56-0400 (408.2 WATER CONSUMPTION)*

WHEN A SHOWER IS SERVED BY MORE THAN ONE SHOWERHEAD, INCLUDING HANDHELD SHOWERHEADS, THE COMBINED FLOW RATE OF ALL SHOWERHEADS AND/OR OTHER OUTLETS CONTROLLED BY A SINGLE VALVE SHALL NOT EXCEED 1.8 GALLONS (6.81 L) PER MINUTE AT 80 PSI, OR THE SHOWER SHALL BE DESIGNED TO ALLOW ONLY ONE SHOWER OUTLET TO BE IN OPERATION AT A TIME. *WAC 51-56-0400 (408.2 .1 MULTIPLE SHOWERHEADS SERVING ONE SHOWER)*

THE EFFECTIVE FLUSH VOLUME OF ALL WATER CLOSETS SHALL NOT EXCEED 1.28 GALLONS (4.8 L) PER FLUSH WHEN TESTED IN ACCORDANCE WITH ASME A112.19.2/CSA B45.1 *WAC 51-56-0400 (411.2 WATER CONSUMPTION)*

DUAL FLUSH WATER CLOSETS SHALL COMPLY WITH ASME A112.19.14. THE EFFECTIVE FLUSH VOLUME FOR DUAL FLUSH WATER CLOSETS SHALL BE DEFINED AS THE COMPOSITE, AVERAGE FLUSH VOLUME OF TWO REDUCED FLUSHES AND ONE FULL FLUSH. *WAC 51-56-0400 (411.2.1 DUAL FLUSH WATER CLOSETS)*

WATER CLOSETS INSTALLED SHALL MEET OR EXCEED THE MINIMUM PERFORMANCE CRITERIA DEVELOPED FOR CERTIFICATION OF HIGH-EFFICIENCY TOILETS UNDER THE WATERSENSE PROGRAM SPONSERED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) *WAC 51-56-0400 (411.2.2 PERFORMANCE)*

SINK FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 2.2 GPM AT 60 PSI (8.3 LM AT 414 KPA) IN ACCORDANCE WITH ASME A112.18.1/CSA B125.1 *WAC 51-56-0400 (420.2 WATER CONSUMPTION)*

KITCHEN FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. KITCHEN FAUCETS MAY TEMPORARILY INCREASE THE FLOW ABOVE MAXIMUM RATE, BUT NOT TO EXCEED 2.2 GALLONS (8.3 L) PER MINUTE AT 60 PSI, AND MUST DEFAULT TO A MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. *WAC 51-56-0400 (420.2.1 KITCHEN FAUCETS)*

ENERGY:

METHOD OF COMPLIANCE - PRESCRIPTIVE METHOD FOR GROUP R OCCUPANCY, *CLIMATE ZONE PER TABLE R301.1, TABLE R402.1.1, UNLIMITED GLAZING* WITH MODIFICATIONS.

ENERGY CREDITS - x CREDITS REQUIRED, x CREDITS SELECTED

FILL IN SELECTED CREDIT OPTIONS

ALL MATERIALS, WORKMANSHIP AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL RESIDENTIAL CODE AND THE WASHINGTON STATE ENERGY CODE, LATEST EDITION. VERIFY ALL CONDITIONS BEFORE PROCEEDING WITH WORK.

WALLS: INSULATED PER *WSEC Table R402.1.1.*

ROOF AND CEILING: INSULATED PER *WSEC Table R402.1.1.* PROVIDE INSULATION IN CEILING WHERE POSSIBLE AND IN 2x12 RAFTERS IF VAULTED CEILING CONDITION EXISTS. MAINTAIN A MINIMUM OF 2" CLEAR BETWEEN TOP OF INSULATION AND BOTTOM OF SHEATHING FOR VENTING. VENTING MUST OCCUR IN EACH JOIST SPACE. WHERE CONTINUOUS VENTING WITHIN A JOIST SPACE IS INTERRUPTED BY A HEADER (I.E., SKYLIGHT OR AT HIP END), PROVIDE (2) 1 1/2" VENTING HOLES AT THE TOP OF THE RAFTER AT THE HEADER TO ALLOW FOR CONTINUAL THROUGH-VENTING INTO THE NEXT JOIST SPACE.

FLOORS: INSULATE PER *WSEC Table R402.1.1*

SLAB ON GRADE: INSULATE PER TABLE R402.1.1. PROVIDE EXTRUDED RIGID CLOSED CELL INSULATION. INSULATION, INSTALLED INSIDE THE FOUNDATION WALL, SHALL EXTEND DOWNWARD FROM THE TOP OF THE SLAB 24" MIN. OR DOWNWARD AND THEN HORIZONTALLY BENEATH THE SLAB FOR A COMBINED 24" MIN. INSULATION INSTALLED OUTSIDE THE FOUNDATION SHALL EXTEND DOWNWARD 24" MIN. OR TO THE FROSTLINE. *WSEC 402.2.9.1*

VAPOR BARRIERS: VAPOR RETARDERS SHALL BE INSTALLED ON THE WARM SIDE (IN WINTER) OF INSULATION PER *TABLE R402.4.1.1*

FLOORS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE MIN. 4 MIL POLYETHYLENE OR KRAFT FACED MATERIAL. ROOF/CEILING ASSEMBLIES WHERE THE VENTILATION SPACE ABOVE THE INSULATION IS LESS THAN AN AVERAGE OF 12 INCHES SHALL BE PROVIDED WITH A VAPOR RETARDER. WALLS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE A VAPOR RETARDER INSTALLED. FACED BATT INSULATION SHALL BE FACE STAPLED. A GROUND COVER OF MIN. 6 MIL BLACK POLYETHYLENE SHALL BE LAID OVER THE GROUND WITHIN CRAWL SPACES W/ JOINTS LAPPED MIN. 12".

GLAZING AND DOORS: GLAZING AND DOOR U-FACTORS SHALL BE DETERMINED IN ACCOURDANCE WITH *WSEC SECTIONS R402.1.1 AND R303.1.3(2),* RESPECTIVELY.

IC RATED PLANS. THE MINIMUM NET FREE VENTILATING AREA SHALL BE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/300 OF THE NOT MORE THAN 50 PERCENT OF THE REQUIRED VENTILATING AREA ION OF THE ATTIC OR RAFTER SPACE. UPPER VENTILATORS SHALL HIGHEST POINT OF THE SPACE, MEASURED VERTICALLY, WITH THE OR CORNICE VENTS. *Ref IRC R806.2*

ESS THAN 22 INCHES BY 30 INCHES LOCATED IN A READILY ROOM IN THE ATTIC SPACE SHALL BE 30 INCHES MEASURED MBERS. *Ref IRC R807.* FOR ACCESS REQUIREMENTS WHERE 1.3

E SAFETY GLASS LAW.

RS, GLAZING WITHIN 24" ON EITHER SIDE OF A DOOR OPENING, TOM LANDING OF A STAIRWAY, STORM DOORS, RAILINGS, SHOWER E. BE SAFETY GLAZING MATERIAL. *Ref IRC R308.4*

DITION OF THE WASHINGTON STATE ENERGY CODE.

E OPERABLE EMERGENCY EXIT WITH A MINIMUM NET CLEAR IGHT DIMENSION SHALL BE 24" MINIMUM NET CLEAR OPENING RE THAN 44" ABOVE THE FLOOR. IRC R310.1.

D TO BE INSTALLED IN ACCORDANCE WITH NFPA 72, IRC R314 & IRC RC R314.1.

DRAFTSTOPPING PER IRC R302.12 & R502.12.

SEIFERT REMODEL

3261 67TH AVE SE
MERCER ISLAND, WA 98040

Job No.	2219
Project Manager:	DG
Issue Date:	08/03/2023

NO.	DATE	REVISION

W.I.P. SET (12.20.2023)

MAIN FLOOR PLAN PROPOSED

A2.02

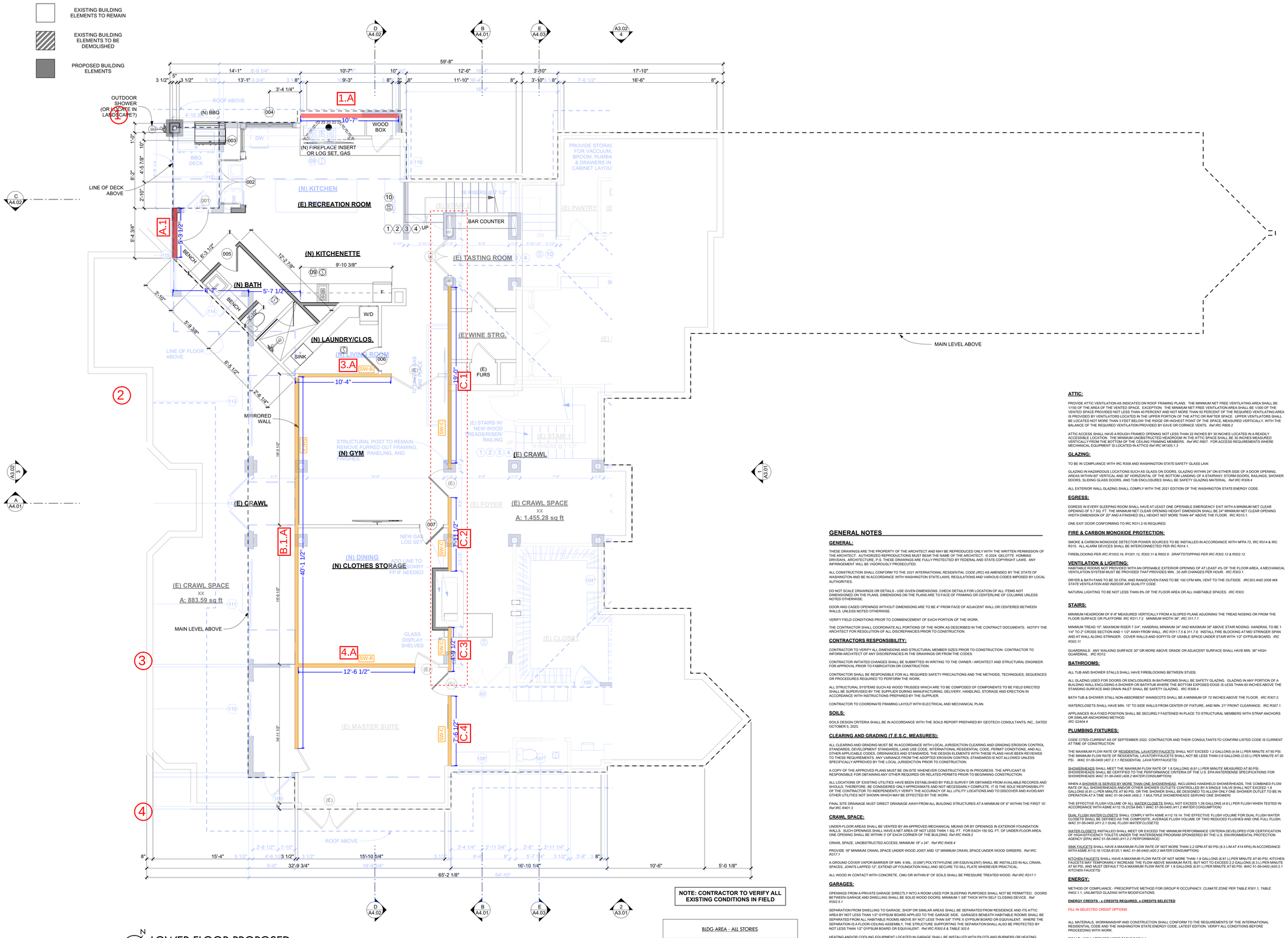
RE: 2219 Seifert Remodel and Addition PRINTED: Friday, January 12, 2024

Seismic - Upper							
Wall ID	Height	Length	V	Shear	Wt	T	C
Transverse							
1.A	10.25	8.75	1.730	0.198	1.291	1.829	2.924
1.B	10.25	0	0.000	#DIV/0!	0.000	0.000	0.000
3.A	10.25	9.666	2.999	0.310	5.703	1.947	6.758
3.B	10.25	9.333	2.896	0.310	5.506	1.999	6.654
4.A	10.25	18	5.180	0.288	7.380	1.258	7.331
5.A	10.25	16.833	2.170	0.129	6.439	-0.191	5.118
Longitudinal							
B.1	10.25	5.833	3.617	0.620	2.853	6.221	8.717
B.2	10.25	4.4167	2.738	0.646	2.160	6.596	8.545
C.1	10.25	19	6.210	0.327	8.819	1.321	8.567
D.1	4	8.666	1.633	0.188	1.842	0.343	1.906
D.2	10.25	8.5	1.602	0.188	1.806	1.603	3.139
E.1	10.25	11.25	2.115	0.188	2.953	1.293	3.766

Sds	0.943

Seismic with Omega - Upper							
Wall ID	Height	Length	V	Shear	Wt	T	C
Transverse							
1.A	10.25	8.75	4.325	0.494	1.291	5.053	6.148
1.B	10.25	0	0.000	#DIV/0!	0.000	0.000	0.000
3.A	10.25	9.666	7.498	0.776	5.703	6.977	11.789
3.B	10.25	9.333	7.240	0.776	5.506	7.040	11.694
4.A	10.25	18	12.950	0.719	7.380	5.809	11.882
5.A	10.25	16.833	5.425	0.322	6.439	1.852	7.160
Longitudinal							
B.1	10.25	5.833	9.041	1.550	2.853	16.647	19.144
B.2	10.25	4.4167	6.846	1.615	2.160	17.346	19.295
C.1	10.25	19	15.525	0.817	8.819	6.482	13.728
D.1	4	8.666	4.083	0.471	1.842	1.543	3.106
D.2	10.25	8.5	4.005	0.471	1.806	4.682	6.217
E.1	10.25	11.25	5.288	0.470	2.953	4.318	6.791

Sds	0.943



NOTE: CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS IN FIELD

BLDG AREA - ALL STORIES	
LOWER FLOOR	
(E) FINISHED AREAS	1,096
(N) FINISHED AREAS	536
MAIN FLOOR	
(E) FINISHED AREAS	3,265
(E) GARAGE	1,075
(N) FINISHED AREAS	175
UPPER FLOOR	
(E) FINISHED AREAS	789
(N) FINISHED AREAS	967
	7,903 ft²

GENERAL NOTES

GENERAL:

THESE DRAWINGS ARE THE PROPERTY OF THE ARCHITECT AND MAY BE REPRODUCED ONLY WITH THE WRITTEN PERMISSION OF THE ARCHITECT. AUTHORIZED REPRODUCTIONS MUST BEAR THE NAME OF THE ARCHITECT. © 2024 GELOTTE HOMMAS DRIVDAHL, ARCHITECTURE, P.S. THESE DRAWINGS ARE FULLY PROTECTED BY FEDERAL AND STATE COPYRIGHT LAWS. ANY INFRINGEMENT WILL BE VIGOROUSLY PROSECUTED.

ALL CONSTRUCTION SHALL CONFORM TO THE 2021 *INTERNATIONAL RESIDENTIAL CODE (IRC)* AS AMENDED BY THE STATE OF WASHINGTON AND BE IN ACCORDANCE WITH WASHINGTON STATE LAWS, REGULATIONS AND VARIOUS CODES IMPOSED BY LOCAL AUTHORITIES.

DO NOT SCALE DRAWINGS OR DETAILS - USE GIVEN DIMENSIONS. CHECK DETAILS FOR LOCATION OF ALL ITEMS NOT DIMENSIONED ON THE PLANS. DIMENSIONS ON THE PLANS ARE TO FACE OF FRAMING OR CENTERLINE OF COLUMNS UNLESS NOTED OTHERWISE.

DOOR AND CASED OPENINGS WITHOUT DIMENSIONS ARE TO BE 4" FROM FACE OF ADJACENT WALL OR CENTERED BETWEEN WALLS, UNLESS NOTED OTHERWISE.

VERIFY FIELD CONDITIONS PRIOR TO COMMENCEMENT OF EACH PORTION OF THE WORK.

THE CONTRACTOR SHALL COORDINATE ALL PORTIONS OF THE WORK AS DESCRIBED IN THE CONTRACT DOCUMENTS. NOTIFY THE ARCHITECT FOR RESOLUTION OF ALL DISCREPANCIES PRIOR TO CONSTRUCTION.

CONTRACTORS RESPONSIBILITY:

CONTRACTOR TO VERIFY ALL DIMENSIONS AND STRUCTURAL MEMBER SIZES PRIOR TO CONSTRUCTION. CONTRACTOR TO INFORM ARCHITECT OF ANY DISCREPANCIES IN THE DRAWINGS OR FROM THE CODES.

CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE OWNER / ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK.

ALL STRUCTURAL SYSTEMS SUCH AS WOOD TRUSSES WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

CONTRACTOR TO COORDINATE FRAMING LAYOUT WITH ELECTRICAL AND MECHANICAL PLAN.

SOILS:

SOILS DESIGN CRITERIA SHALL BE IN ACCORDANCE WITH THE SOILS REPORT PREPARED BY GEOTECH CONSULTANTS, INC., DATED OCTOBER 5, 2023.

CLEARING AND GRADING (T.E.S.C. MEASURES):

ALL CLEARING AND GRADING MUST BE IN ACCORDANCE WITH LOCAL JURISDICTION CLEARING AND GRADING EROSION CONTROL STANDARDS, DEVELOPMENT STANDARDS, LAND USE CODE, INTERNATIONAL RESIDENTIAL CODE, PERMIT CONDITIONS, AND ALL OTHER APPLICABLE CODES, ORDINANCES AND STANDARDS. THE DESIGN ELEMENTS WITH THESE PLANS HAVE BEEN REVIEWED TO THESE REQUIREMENTS. ANY VARIANCE FROM THE ADOPTED EROSION CONTROL STANDARDS IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY THE LOCAL JURISDICTION PRIOR TO CONSTRUCTION.

A COPY OF THE APPROVED PLANS MUST BE ON-SITE WHENEVER CONSTRUCTION IS IN PROGRESS. THE APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER REQUIRED OR RELATED PERMITS PRIOR TO BEGINNING CONSTRUCTION.

ALL LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD, THEREFORE, BE CONSIDERED ONLY APPROXIMATE AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS AND TO DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN WHICH MAY BE EFFECTED BY THE WORK.

FINAL SITE DRAINAGE MUST DIRECT DRAINAGE AWAY FROM ALL BUILDING STRUCTURES AT A MINIMUM OF 6" WITHIN THE FIRST 10'. *Ref IRC R401.3*

CRAWL SPACE:

UNDER-FLOOR AREAS SHALL BE VENTED BY AN APPROVED MECHANICAL MEANS OR BY OPENINGS IN EXTERIOR FOUNDATION WALLS. SUCH OPENINGS SHALL HAVE A NET AREA OF NOT LESS THAN 1 SQ. FT. FOR EACH 150 SQ. FT. OF UNDER-FLOOR AREA. ONE OPENING SHALL BE WITHIN 3' OF EACH CORNER OF THE BUILDING. *Ref IRC R408.2*

CRAWL SPACE, UNOBSTRUCTED ACCESS, MINIMUM 18" x 24". *Ref IRC R408.4*

PROVIDE 18" MINIMUM CRAWL SPACE UNDER WOOD JOIST AND 12" MINIMUM CRAWL SPACE UNDER WOOD GIRDERS. *Ref IRC R317.1*

A GROUND COVER VAPOR BARRIER OF MIN. 6 MIL. (0.006") POLYETHYLENE (ER EQUIVALENT) SHALL BE INSTALLED IN ALL CRAWL SPACES, JOINTS LAPPED 12", EXTEND UP FOUNDATION WALL AND SECURE TO SILL PLATE WHEREVER PRACTICAL.

ALL WOOD IN CONTACT WITH CONCRETE, CMU OR WITHIN 8" OF SOILS SHALL BE PRESSURE TREATED WOOD. *Ref IRC R317.1*

GARAGES:

OPENINGS FROM A PRIVATE GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED. DOORS BETWEEN GARAGE AND DWELLING SHALL BE SOLID WOOD DOORS; MINIMUM 1 3/8" THICK WITH SELF CLOSING DEVICE. *Ref R302.5.1*

SEPARATION FROM DWELLING TO GARAGE, SHOP OR SIMILAR AREAS SHALL BE SEPARATED FROM RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 1/2" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. GARAGES BENEATH HABITABLE ROOMS SHALL BE SEPARATED FROM ALL HABITABLE ROOMS ABOVE BY NOT LESS THAN 5/8" TYPE X GYPSUM BOARD OR EQUIVALENT. WHERE THE SEPARATION IS A FLOOR-CEILING ASSEMBLY, THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY NOT LESS THAN 1/2" GYPSUM BOARD OR EQUIVALENT. *Ref IRC R302.6 & TABLE 302.6*

HEATING AND/OR COOLING EQUIPMENT LOCATED IN GARAGE SHALL BE INSTALLED WITH PILOTS AND BURNERS OR HEATING ELEMENTS AND SWITCHES AT LEAST 18" ABOVE THE FLOOR LEVEL. *Ref IRC G2408.2*

FIREPLACES:

FACTORY-BUILT FIREPLACES SHALL BE LISTED AND LABELED AND SHALL BE INSTALLED IN ACCORDANCE WITH THE CONDITIONS OF THE LISTING. FACTORY-BUILT FIREPLACES SHALL BE TESTED IN ACCORDANCE WITH UL 127. *Ref IRC R1004.1*

MASONRY FIREPLACES, BARBECUES, SMOKE CHAMBERS AND FIREPLACE CHIMNEYS SHALL BE CONSTRUCTED OF MASONRY OR REINFORCED CONCRETE. FOUNDATIONS SHALL BE MIN. 12" THICK AND EXTEND MIN. 6" BEYOND MASONRY. FIREBOX WALLS MIN. 10" THICK EXCEPT MIN. 8" THICK WHERE A FIREBRICK LINING IS USED. COMBUSTIBLE MATERIALS SHALL NOT BE PLACED WITHIN 2 INCHES OF FIREPLACE, SMOKE CHAMBER OR CHIMNEY WALLS. COMBUSTIBLE MATERIAL SHALL NOT BE PLACED WITHIN 6" OF THE FIREPLACE OPENING. MIN. 4" THICK NON-COMBUSTIBLE HEARTH EXTENDING 16" IN FRONT AND 8" TO THE SIDE OF THE FIREPLACE OPENING. COMBUSTIBLE MATERIAL WITHIN 12" OF THE FIREPLACE OPENING SHALL NOT PROJECT MORE THAN 1/8" FOR EACH 1" DISTANCE FROM SUCH OPENING. *Ref IRC R1001 - R1003*

CEILING HEIGHTS:

HABITABLE SPACE SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'-0". NOT MORE THAN 50% OF REQUIRED FLOOR AREA OF A SPACE IS PERMITTED TO HAVE A SLOPED CEILING LESS THAN 7'-0" IN HEIGHT WITH NO PORTION LOWER THAN 5'-0". BATHROOM SHALL HAVE A MIN CEILING HEIGHT OF 6'-8" OVER THE FIXTURE AND ITS FRONT CLEARANCE AREA. *Ref IRC R305*

ROOFING:

APPLY ROOFING IN ACCORDANCE WITH *IRC R905.*

BALCONIES, LANDINGS, EXTERIOR STAIRWAYS, OCCUPIED ROOFS AND SIMILAR SURFACES EXPOSED TO THE WEATHER AND SEALED UNDERNEATH SHALL BE WATERPROOFED AND SLOPED A MINIMUM OF 1/4" PER 12" (2% SLOPE) FOR DRAINAGE.

ATTIC:

PROVIDE ATTIC VENTILATION AS INDICATED ON ROOF FRAMING PLANS. THE MINIMUM NET FREE VENTILATING AREA SHALL BE 1/150 OF THE AREA OF THE VENTED SPACE. EXCEPTION: THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/300 OF THE VENTED SPACE PROVIDED NOT LESS THAN 40 PERCENT AND NOT MORE THAN 50 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE ATTIC OR RAFTER SPACE. UPPER VENTILATORS SHALL BE LOCATED NOT MORE THAN 3 FEET BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE, MEASURED VERTICALLY, WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS. *Ref IRC R806.2*

ATTIC ACCESS SHALL HAVE A ROUGH FRAMED OPENING NOT LESS THAN 22 INCHES BY 30 INCHES LOCATED IN A READILY ACCESSIBLE LOCATION. THE MINIMUM UNOBSTRUCTED HEADROOM IN THE ATTIC SPACE SHALL BE 30 INCHES MEASURED VERTICALLY FROM THE BOTTOM OF THE CEILING FRAMING MEMBERS. *Ref IRC R807.* FOR ACCESS REQUIREMENTS WHERE MECHANICAL EQUIPMENT IS LOCATED IN ATTICS *Ref IRC M1305.1.3*

GLAZING:

TO BE IN COMPLIANCE WITH IRC R308 AND WASHINGTON STATE SAFETY GLASS LAW.

GLAZING IN HAZARDOUS LOCATIONS SUCH AS GLASS ON DOORS, GLAZING WITHIN 24" ON EITHER SIDE OF A DOOR OPENING, AREAS WITHIN 60" VERTICAL AND 36" HORIZONTAL OF THE BOTTOM LANDING OF A STAIRWAY, STORM DOORS, RAILINGS, SHOWER DOORS, SLIDING GLASS DOORS, AND TUB ENCLOSURES SHALL BE SAFETY GLAZING MATERIAL. *Ref IRC R308.4*

ALL EXTERIOR WALL GLAZING SHALL COMPLY WITH THE 2021 EDITION OF THE WASHINGTON STATE ENERGY CODE.

EGRESS:

EGRESS IN EVERY SLEEPING ROOM SHALL HAVE AT LEAST ONE OPERABLE EMERGENCY EXIT WITH A MINIMUM NET CLEAR OPENING OF 5.7 SQ. FT. THE MINIMUM NET CLEAR OPENING HEIGHT DIMENSION SHALL BE 24" MINIMUM NET CLEAR OPENING WIDTH DIMENSION OF 20" AND A FINISHED SILL HEIGHT NOT MORE THAN 44" ABOVE THE FLOOR. IRC R310.1

ONE EXIT DOOR CONFORMING TO IRC R311.2 IS REQUIRED.

FIRE & CARBON MONOXIDE PROTECTION:

SMOKE & CARBON MONOXIDE DETECTOR POWER SOURCES TO BE INSTALLED IN ACCORDANCE WITH NFPA 72, IRC R314 & IRC R315. ALL ALARM DEVICES SHALL BE INTERCONNECTED PER IRC R314.1.

FIREBLOCKING PER *IRC R1003.19, R1001.12, R302.11 & R602.8. DRAFTSTOPPING PER IRC R302.12 & R502.12.*

VENTILATION & LIGHTING:

HABITABLE ROOMS NOT PROVIDED WITH AN OPENABLE EXTERIOR OPENING OF AT LEAST 4% OF THE FLOOR AREA, A MECHANICAL VENTILATION SYSTEM MUST BE PROVIDED THAT PROVIDES MIN. .35 AIR CHANGES PER HOUR. *IRC R303.1.*

DRYER & BATH FANS TO BE 50 CFM, AND RANGE/OVEN FANS TO BE 100 CFM MIN, VENT TO THE OUTSIDE. *IRC303 AND 2006 WA STATE VENTILATION AND INDOOR AIR QUALITY CODE*

NATURAL LIGHTING TO BE NOT LESS THAN 8% OF THE FLOOR AREA OR ALL HABITABLE SPACES. *IRC R303.*

STAIRS:

MINIMUM HEADROOM OF 6'-8" MEASURED VERTICALLY FROM A SLOPED PLANE ADJOINING THE TREAD NOSING OR FROM THE FLOOR SURFACE OR PLATFORM. IRC R311.7.2 MINIMUM WIDTH 36", *IRC 311.7.1*

MINIMUM TREAD 10", MAXIMUM RISER 7 3/4", HANDRAIL MINIMUM 34" AND MAXIMUM 38" ABOVE STAIR NOSING. HANDRAIL TO BE 1 1/4" TO 2" CROSS SECTION AND 1 1/2" AWAY FROM WALL. *IRC R311.7.5 & 311.7.8.* INSTALL FIRE BLOCKING AT MID STRINGER SPAN AND AT WALL ALONG STRINGER. COVER WALLS AND SOFFITS OF USABLE SPACE UNDER STAIR WITH 1/2" GYPSUM BOARD. *IRC R303.11*

GUARDRAILS: ANY WALKING SURFACE 30" OR MORE ABOVE GRADE OR ADJACENT SURFACE SHALL HAVE MIN. 36" HIGH GUARDRAIL. *IRC R312.*

BATHROOMS:

ALL TUB AND SHOWER STALLS SHALL HAVE FIREBLOCKING BETWEEN STUDS.

ALL GLAZING USED FOR DOORS OR ENCLOSURES IN BATHROOMS SHALL BE SAFETY GLAZING. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING A SHOWER OR BATHTUB WHERE THE BOTTOM EXPOSED EDGE IS LESS THAN 60 INCHES ABOVE THE STANDING SURFACE AND DRAIN INLET SHALL BE SAFETY GLAZING. *IRC R308.4*

BATH TUB & SHOWER STALL NON-ABSORBENT WAINSCOTS SHALL BE A MINIMUM OF 72 INCHES ABOVE THE FLOOR. *IRC R307.2.*

WATERCLOSETS SHALL HAVE MIN. 15" TO SIDE WALLS FROM CENTER OF FIXTURE, AND MIN. 21" FRONT CLEARANCE. IRC R307.1

APPLIANCES IN A FIXED POSITION SHALL BE SECURELY FASTENED IN PLACE TO STRUCTURAL MEMBERS WITH STRAP ANCHORS OR SIMILAR ANCHORING METHOD. *IRC G2404.4*

PLUMBING FIXTURES:

CODE CITED CURRENT AS OF SEPTEMBER 2022. CONTRACTOR AND THEIR CONSULTANTS TO CONFIRM LISTED CODE IS CURRENT AT TIME OF CONSTRUCTION

THE MAXIMUM FLOW RATE OF RESIDENTIAL LAVATORY/FAUCETS SHALL NOT EXCEED 1.2 GALLONS (4.54 L) PER MINUTE AT 60 PSI. THE MINIMUM FLOW RATE OF RESIDENTIAL LAVATORY/FAUCETS SHALL NOT BE LESS THAN 0.8 GALLONS (3.05 L) PER MINUTE AT 20 PSI. *WAC 51-56-0400 (407.2.1.1 RESIDENTIAL LAVATORY/FAUCETS)*

SHOWERHEADS SHALL MEET THE MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE MEASURED AT 80 PSI. SHOWERHEADS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATERSENSE SPECIFICATIONS FOR SHOWERHEADS *WAC 51-56-0400 (408.2 WATER CONSUMPTION)*

WHEN A SHOWER IS SERVED BY MORE THAN ONE SHOWERHEAD, INCLUDING HANDHELD SHOWERHEADS, THE COMBINED FLOW RATE OF ALL SHOWERHEADS AND/OR OTHER SHOWER OUTLETS CONTROLLED BY A SINGLE VALVE SHALL NOT EXCEED 1.8 GALLONS (6.81 L) PER MINUTE AT 80 PSI, OR THE SHOWER SHALL BE DESIGNED TO ALLOW ONLY ONE SHOWER OUTLET TO BE IN OPERATION AT A TIME. *WAC 51-56-0400 (408.2.1 MULTIPLE SHOWERHEADS SERVING ONE SHOWER)*

THE EFFECTIVE FLUSH VOLUME OF ALL WATER CLOSETS SHALL NOT EXCEED 1.28 GALLONS (4.8 L) PER FLUSH WHEN TESTED IN ACCORDANCE WITH ASME A112.19.2/CSA B45.1 *WAC 51-56-0400 (411.2 WATER CONSUMPTION)*

DUAL FLUSH WATER CLOSETS SHALL COMPLY WITH ASME A112.19.14. THE EFFECTIVE FLUSH VOLUME FOR DUAL FLUSH WATER CLOSETS SHALL BE DEFINED AS THE COMPOSITE, AVERAGE FLUSH VOLUME OF TWO REDUCED FLUSHES AND ONE FULL FLUSH. *WAC 51-56-0400 (411.2.1 DUAL FLUSH WATER CLOSETS)*

WATER CLOSETS INSTALLED SHALL MEET OR EXCEED THE MINIMUM PERFORMANCE CRITERIA DEVELOPED FOR CERTIFICATION OF HIGH-EFFICIENCY TOILETS UNDER THE WATERSENSE PROGRAM SPONSERED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) *WAC 51-56-0400 (411.2.2 PERFORMANCE)*

SINK FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 2.2 GPM AT 60 PSI (8.3 LM AT 414 KPA) IN ACCORDANCE WITH ASME A112.18.1/CSA B125.1 *WAC 51-56-0400 (420.2 WATER CONSUMPTION)*

KITCHEN FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. KITCHEN FAUCETS MAY TEMPORARILY INCREASE THE FLOW ABOVE MAXIMUM RATE, BUT NOT TO EXCEED 2.2 GALLONS (8.3 L) PER MINUTE AT 60 PSI. AND MUST DEFAULT TO A MAXIMUM FLOW RATE OF 1.8 GALLONS (6.81 L) PER MINUTE AT 60 PSI. *WAC 51-56-0400 (420.2.1 KITCHEN FAUCETS)*

ENERGY:

METHOD OF COMPLIANCE - PRESCRIPTIVE METHOD FOR GROUP R OCCUPANCY, *CLIMATE ZONE PER TABLE R301.1, TABLE R402.1.1, UNLIMITED GLAZING* WITH MODIFICATIONS.

ENERGY CREDITS - x CREDITS REQUIRED, x CREDITS SELECTED

FILL IN SELECTED CREDIT OPTIONS

ALL MATERIALS, WORKMANSHIP AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL RESIDENTIAL CODE AND THE WASHINGTON STATE ENERGY CODE, LATEST EDITION. VERIFY ALL CONDITIONS BEFORE PROCEEDING WITH WORK.

WALLS: INSULATED PER *WSEC TABLE R402.1.1.*

ROOF AND CEILING: INSULATED PER *WSEC TABLE R402.1.1.* PROVIDE INSULATION IN CEILING WHERE POSSIBLE AND IN 2x12 RAFTERS IF VAULTED CEILING CONDITION EXISTS. MAINTAIN A MINIMUM OF 2" CLEAR BETWEEN TOP OF INSULATION AND BOTTOM OF SHEATHING FOR VENTING. VENTING MUST OCCUR IN EACH JOIST SPACE. WHERE CONTINUOUS VENTING WITHIN A JOIST SPACE IS INTERRUPTED BY A HEADER (I.E., SKYLIGHT OR AT HIP END), PROVIDE (2) 1 1/2" VENTING HOLES AT THE TOP OF THE RAFTER AT THE HEADER TO ALLOW FOR CONTINUAL THROUGH-VENTING INTO THE NEXT JOIST SPACE.

FLOORS: INSULATE PER *WSEC TABLE R402.1.1*

SLAB ON GRADE: INSULATE PER TABLE R402.1.1. PROVIDE EXTRUDED RIGID CLOSED CELL INSULATION. INSULATION, INSTALLED INSIDE THE FOUNDATION WALL, SHALL EXTEND DOWNWARD FROM THE TOP OF THE SLAB 24" MIN. OR DOWNWARD AND THEN HORIZONTALLY BENEATH THE SLAB FOR A COMBINED 24" MIN. INSULATION INSTALLED OUTSIDE THE FOUNDATION SHALL EXTEND DOWNWARD 24" MIN. OR TO THE FROSTLINE. *WSEC 402.2.9.1*

VAPOR BARRIERS: VAPOR RETARDERS SHALL BE INSTALLED ON THE WARM SIDE (IN WINTER) OF INSULATION PER *TABLE R402.4.1.1*

FLOORS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE MIN. 4 MIL POLYETHYLENE OR KRAFT FACED MATERIAL. ROOF/CEILING ASSEMBLIES WHERE THE VENTILATION SPACE ABOVE THE INSULATION IS LESS THAN AN AVERAGE OF 12 INCHES SHALL BE PROVIDED WITH A VAPOR RETARDER. WALLS SEPARATING CONDITIONED SPACE FROM UNCONDITIONED SPACE SHALL HAVE A VAPOR RETARDER INSTALLED. FACED BATT INSULATION SHALL BE FACE STAPLED. A GROUND COVER OF MIN. 6 MIL BLACK POLYETHYLENE SHALL BE LAID OVER THE GROUND WITHIN CRAWL SPACES W/ JOINTS LAPPED MIN. 12".

GLAZING AND DOORS: GLAZING AND DOOR U-FACTORS SHALL BE DETERMINED IN ACCORDANCE WITH *WSEC SECTIONS R402.1.1 AND R303.1.3(2),* RESPECTIVELY.

GELOTTE HOMMAS DRIVDAHL ARCHITECTURE
2340 130th Ave. NE, Suite 100, Bellevue, WA 98005
425.828.3081

SEIFERT REMODEL

3261 67TH AVE SE
MERCER ISLAND, WA 98040

Job No. 2219
Project Manager: DG
Issue Date: 08/03/2023

NO.	DATE	REVISION

W.I.P. SET (12.20.2023)

LOWER FLOOR PLAN PROPOSED

A2.01

FILE: 2219 Seifert Remodel and Addition PRINTED: Friday, June 21, 2024

Seismic - Upper							
Wall ID	Height	Length	V	Shear	Wt	T	C
Transverse							
1.A	8.25	10.583	3.620	0.342	3.016	2.221	4.754
3.A	8.25	10.333	9.725	0.941	7.362	6.349	12.538
4.A	8.25	12.5	8.260	0.661	6.656	4.056	9.603
Longitudinal							
A.1	8.25	5.25	4.477	0.853	2.056	7.244	9.062
B.1.A	8.25	40	6.888	0.172	10.450	-1.037	7.428
C.1	8.25	19	4.371	0.230	14.115	-1.443	10.154
C.2	8.25	7.9167	1.821	0.230	5.881	0.557	5.579
C.3	8.25	4.75	1.093	0.230	3.529	1.198	4.353
C.4	8.25	7.5	1.725	0.230	5.572	0.637	5.412

Sds	0.943

Seismic with Omega - Upper							
Wall ID	Height	Length	V	Shear	Wt	T	C
Transverse							
1.A	8.25	10.583	9.050	0.855	3.016	6.664	9.197
3.A	8.25	10.333	24.313	2.353	7.362	18.588	24.777
4.A	8.25	12.5	20.650	1.652	6.656	12.574	18.121
Longitudinal							
A.1	8.25	5.25	11.193	2.132	2.056	18.908	20.726
B.1.A	8.25	40	17.220	0.431	10.450	1.120	9.586
C.1	8.25	19	10.927	0.575	14.115	1.481	13.078
C.2	8.25	7.9167	4.553	0.575	5.881	3.596	8.618
C.3	8.25	4.75	2.732	0.575	3.529	4.380	7.535
C.4	8.25	7.5	4.313	0.575	5.572	3.687	8.462

Sds	0.943

Force Transfer Around Openings Calculator

ONE OPENING

The force transfer around openings (FTAO) method of shear wall analysis is an approach that aims to reinforce the wall such that it performs as if there was no opening. This approach lends certain advantages over segmented shear walls: more versatility, because it allows for narrower wall segments while still meeting the height-to-width ratios and, often, fewer required hold-downs.

Project Information

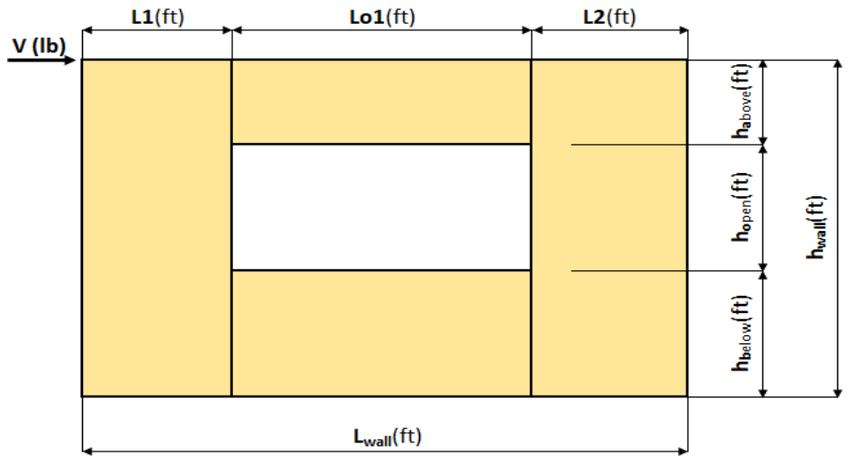
Code: **Date:**

Designer:

Client:

Project:

Wall Line: UPPER D.1 & D.2 - Seismic



Shear Wall Calculation Variables

V	1936 lbf	Opening 1	
L1	2.00 ft	h_a	1.25 ft
L2	2.00 ft	h_o	5.00 ft
h_{wall}	14.25 ft	h_b	8.00 ft
L_{wall}	8.33 ft	Lo1	4.33 ft

Adj. Factor Method =		1.25-0.125h/bs
Wall Pier Aspect Ratio		Adj. Factor
P1=h_o/L1=	2.50	0.938
P2=h_o/L2=	2.50	0.938

1. Hold-down forces: H = Vh_{wall}/L_{wall} 3311 lbf

2. Unit shear above + below opening

First opening: va1 = vb1 = H/(h_a+h_b) = 358 plf

3. Total boundary force above + below openings

First opening: O1 = va1 x (Lo1) = 1551 lbf

4. Corner forces

F1 = O1(L1)/(L1+L2) = 775 lbf

F2 = O1(L2)/(L1+L2) = 775 lbf

5. Tributary length of openings

T1 = (L1*Lo1)/(L1+L2) = 2.17 ft

T2 = (L2*Lo1)/(L1+L2) = 2.17 ft

6. Unit shear beside opening

v1 = (V/L)(L1+T1)/L1 = 484 plf

v2 = (V/L)(T2+L2)/L2 = 484 plf

Check v1*L1+v2*L2=V? 1936 lbf **OK**

7. Resistance to corner forces

R1 = v1*L1 = 968 lbf

R2 = v2*L2 = 968 lbf

8. Difference corner force + resistance

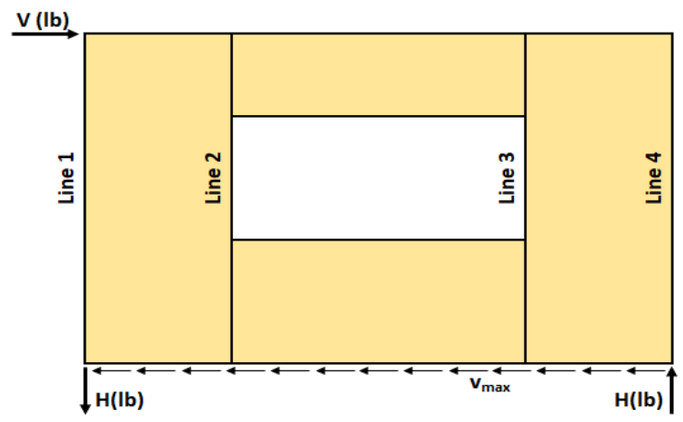
R1-F1 = 193 lbf

R2-F2 = 193 lbf

9. Unit shear in corner zones

vc1 = (R1-F1)/L1 = 96 plf

vc2 = (R2-F2)/L2 = 96 plf



Check Summary of Shear Values for One Opening

Line 1: vc1(h_a+h_b)+v1(h_o)=H?		891	2420	3311 lbf
Line 2: va1(h_a+h_b)-vc1(h_a+h_b)-v1(h_o)=0?	3311	891	2420	0
Line 3: va1(h_a+h_b)-vc2(h_a+h_b)-v1(h_o)=0?	3311	891	2420	0
Line 4: vc2(h_a+h_b)+v2(h_o)=H?		891	2420	3311 lbf

Design Summary*

Req. Sheathing Capacity	516 plf **	**4-Term Deflection**	4.314 in.	**3-Term Deflection**	3.481 in.
Req. Strap Force	775 lbf	**4-Term Story Drift %**	0.101 %	**3-Term Story Drift %**	0.081 %
Req. HD Force (H)	3311 lbf				
Req. Shear Wall Anchorage Force (v_{max})	232 plf				

****Req. Sheathing Capacity has been adjusted per the Aspect Ratio Adjustment Factor**

***The Design Summary assumes that the shear wall is designed as blocked.**

Force Transfer Around Openings Calculator

ONE OPENING

The force transfer around openings (FTAO) method of shear wall analysis is an approach that aims to reinforce the wall such that it performs as if there was no opening. This approach lends certain advantages over segmented shear walls: more versatility, because it allows for narrower wall segments while still meeting the height-to-width ratios and, often, fewer required hold-downs.

Project Information

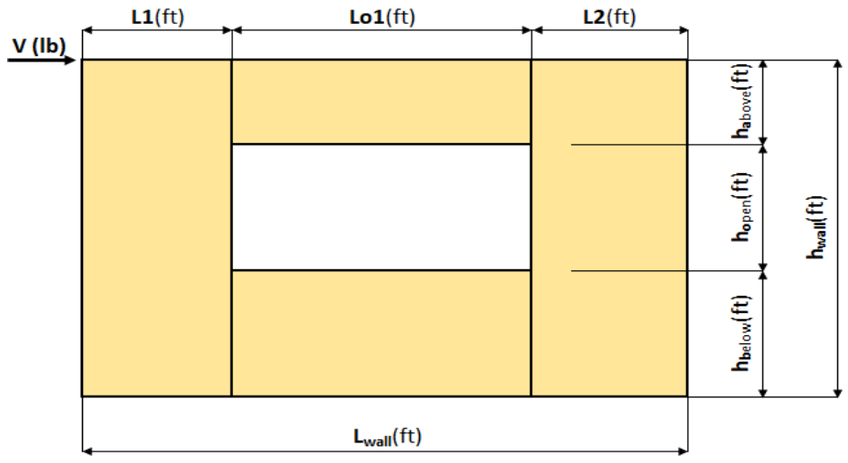
Code: **Date:**

Designer:

Client:

Project:

Wall Line: UPPER C.2 - Seismic



Shear Wall Calculation Variables

V	1525 lbf	Opening 1	
L1	3.25 ft	h_a	1.33 ft
L2	6.83 ft	h_o	4.00 ft
h_{wall}	8.17 ft	h_b	2.83 ft
L_{wall}	12.67 ft	Lo1	2.58 ft

Adj. Factor Method =	1.25-0.125h/bs
Wall Pier Aspect Ratio	Adj. Factor
P1=h_o/L1= 1.23	N/A
P2=h_o/L2= 0.59	N/A

1. Hold-down forces: H = Vh_{wall}/L_{wall} 983 lbf

2. Unit shear above + below opening

First opening: va1 = vb1 = H/(h_a+h_b) = 236 plf

3. Total boundary force above + below openings

First opening: O1 = va1 x (Lo1) = 610 lbf

4. Corner forces

F1 = O1(L1)/(L1+L2) = 196 lbf

F2 = O1(L2)/(L1+L2) = 413 lbf

5. Tributary length of openings

T1 = (L1*Lo1)/(L1+L2) = 0.83 ft

T2 = (L2*Lo1)/(L1+L2) = 1.75 ft

6. Unit shear beside opening

v1 = (V/L)(L1+T1)/L1 = 151 plf

v2 = (V/L)(T2+L2)/L2 = 151 plf

Check v1*L1+v2*L2=V? 1525 lbf **OK**

7. Resistance to corner forces

R1 = v1*L1 = 492 lbf

R2 = v2*L2 = 1033 lbf

8. Difference corner force + resistance

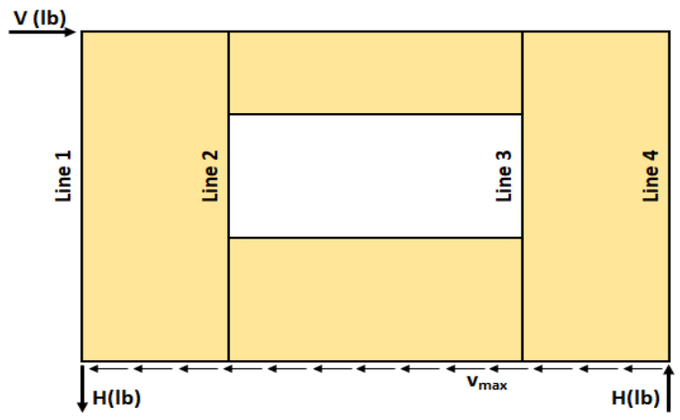
R1-F1 = 295 lbf

R2-F2 = 620 lbf

9. Unit shear in corner zones

vc1 = (R1-F1)/L1 = 91 plf

vc2 = (R2-F2)/L2 = 91 plf



Check Summary of Shear Values for One Opening

Line 1: vc1(h_a+h_b)+v1(h_o)=H?		378	605	983 lbf
Line 2: va1(h_a+h_b)-vc1(h_a+h_b)-v1(h_o)=0?	983	378	605	0
Line 3: va1(h_a+h_b)-vc2(h_a+h_b)-v1(h_o)=0?	983	378	605	0
Line 4: vc2(h_a+h_b)+v2(h_o)=H?		378	605	983 lbf

Design Summary*

Req. Sheathing Capacity	236 plf	**4-Term Deflection**	0.303 in.	**3-Term Deflection**	0.360 in.
Req. Strap Force	413 lbf	**4-Term Story Drift %**	0.012 %	**3-Term Story Drift %**	0.015 %
Req. HD Force (H)	983 lbf				
Req. Shear Wall Anchorage Force (v_{max})	120 plf				

***The Design Summary assumes that the shear wall is designed as blocked.**

Force Transfer Around Openings Calculator

ONE OPENING

The force transfer around openings (FTAO) method of shear wall analysis is an approach that aims to reinforce the wall such that it performs as if there was no opening. This approach lends certain advantages over segmented shear walls: more versatility, because it allows for narrower wall segments while still meeting the height-to-width ratios and, often, fewer required hold-downs.

Project Information

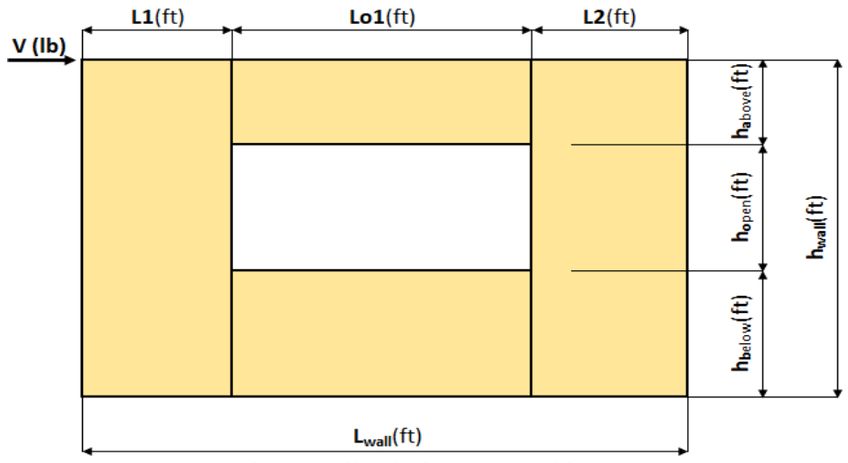
Code: **Date:**

Designer:

Client:

Project:

Wall Line: MAIN D.2 - Seismic



Shear Wall Calculation Variables

V	1602 lbf	Opening 1	
L1	2.00 ft	h_a	2.50 ft
L2	2.33 ft	h_o	3.00 ft
h_{wall}	11.17 ft	h_b	5.67 ft
L_{wall}	8.67 ft	Lo1	4.33 ft

Adj. Factor Method =	1.25-0.125h/bs
Wall Pier Aspect Ratio	Adj. Factor
P1=h_o/L1= 1.50	N/A
P2=h_o/L2= 1.29	N/A

1. Hold-down forces: H = Vh_{wall}/L_{wall} 2064 lbf

2. Unit shear above + below opening

First opening: va1 = vb1 = H/(h_a+h_b) = 253 plf

3. Total boundary force above + below openings

First opening: O1 = va1 x (Lo1) = 1095 lbf

4. Corner forces

F1 = O1(L1)/(L1+L2) = 506 lbf

F2 = O1(L2)/(L1+L2) = 590 lbf

5. Tributary length of openings

T1 = (L1*Lo1)/(L1+L2) = 2.00 ft

T2 = (L2*Lo1)/(L1+L2) = 2.33 ft

6. Unit shear beside opening

v1 = (V/L)(L1+T1)/L1 = 370 plf

v2 = (V/L)(T2+L2)/L2 = 370 plf

Check v1*L1+v2*L2=V? 1602 lbf **OK**

7. Resistance to corner forces

R1 = v1*L1 = 739 lbf

R2 = v2*L2 = 863 lbf

8. Difference corner force + resistance

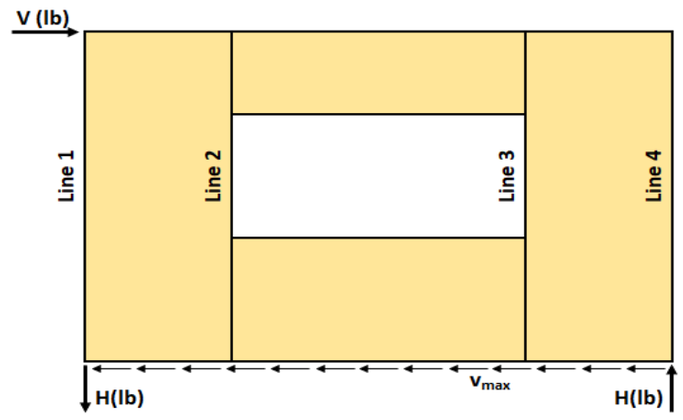
R1-F1 = 234 lbf

R2-F2 = 273 lbf

9. Unit shear in corner zones

vc1 = (R1-F1)/L1 = 117 plf

vc2 = (R2-F2)/L2 = 117 plf



Check Summary of Shear Values for One Opening

Line 1: vc1(h_a+h_b)+v1(h_o)=H?		955	1109	2064 lbf
Line 2: va1(h_a+h_b)-vc1(h_a+h_b)-v1(h_o)=0?	2064	955	1109	0
Line 3: va1(h_a+h_b)-vc2(h_a+h_b)-v1(h_o)=0?	2064	955	1109	0
Line 4: vc2(h_a+h_b)+v2(h_o)=H?		955	1109	2064 lbf

Design Summary*

Req. Sheathing Capacity	370 plf	**4-Term Deflection**	2.484 in.	**3-Term Deflection**	1.998 in.
Req. Strap Force	590 lbf	**4-Term Story Drift %**	0.074 %	**3-Term Story Drift %**	0.060 %
Req. HD Force (H)	2064 lbf				
Req. Shear Wall Anchorage Force (v_{max})	185 plf				

***The Design Summary assumes that the shear wall is designed as blocked.**