$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	SERIAL NO:	17066	Beam Ca	lculations - 7	Truss:	<u>HM983404</u>	Main House	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Microlam Design Values	17066 SPF #2 De	sign Values	Formulas	used in C	alculations		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Fb = 2925	psi Fb =	875 psi	$\mathbf{A} = (\mathbf{b})(\mathbf{d})$	1	A _{REO'D} = Max Shear/	$F_{v}' = I_{REO'D} (TL) = \Delta_{TL} (1.875) (W_{TL}) (L)^{3}$	/E
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Fv = 285	psi Fv=	135 psi	$S = (b)(d)^2$	2/6 5	$S_{REOD} = 12(W)^2/8(F_b)^2$) $I_{\text{REOD}}(LL) = \Delta_{LL}(1.875)(W_{TL})(L)^3$	/E
Barn 21: Londow Disting Kitchen ELONG ABOYE Londing Condition: 2 (1) (2) (2) (2) Londing Condition: 2 (1) (2) (2) (2) (2) Support Wall Reight 0: 2 (1) (2) </th <th>E = 2,000,000</th> <th>psi E =</th> <th>1,400,000 psi</th> <th>$I = (b)(d)^3$</th> <th>/12</th> <th>KEQD (1999) (19</th> <th>/ REQUIT / EECONOMIST /</th> <th></th>	E = 2,000,000	psi E =	1,400,000 psi	$I = (b)(d)^3$	/12	KEQD (1999) (19	/ REQUIT / EECONOMIST /	
Leading Condition: 7 (form cover sheet) M (1A ^A for Microlan) With = 584.5 pf Longsh of Resn: 12.3 $h = 1$. (TS ^A for Microlan) With = 584.5 pf Support Wall Height: 2 h Max Near =WL2 [bs: 0 3584.1 bs Max Def (TL) =L(12)240 in = h Member Analysei: Microlan Allument Factors Max Def (TL) =L(12)240 in = h	Beam #1: Location:	Dining/Kitchen			FLOOR	ABOVE		
Lating condition: 7 Lating condition: 7 Lating condition: 7 Lating to Ream: 7 Lating to Ream: 7 Lating to Ream: 7 Ream Lating: Mr (Mr for Mate Line) (CF for Exercice) Max Moment -WL/2 fish = 3994 fish Max Moment -WL/2 fish = 3994 fish Max Moment -WL/2 fish = 1 Mr (Mr for Mate Line) (CF for Exercice) Max Moment -WL/2 fish = 1 Cash	Loading Parame	ters:		Beam Type	e:		Loading Conditions:	
Longih of Boun: 123 n + L (S^{n} for Mate Line) Rom Location: 124 ($1/2$ for Mate Line) (Cf' for Externin) Max Shear = WL2 flue 3390 flue Max Moment = WL2 flue 3390 flue Name Part Mark Minister Minis	Loading Condition:	7 (from cove	er sheet)	M ("M" for M	/icrolam)		WTL= 584.3 plf	
Beam Location:Max Monent = WL ?8 his = 1051 ft-lisMax Monent = WL ?8 his = 1051 ft-lisMax Deft (11) = L(12) 236 in = 0Support Wall Height:A diaster WL ?8 his = 1051 ft-lisMicrolan Ream PASSESMicrolan Aliastment FactorsColspan="2">Adiaster Microlan Design ValueDomiticColspan="2">Adiaster Microlan Design ValueDistantia:Colspan="2">Colspan="2"Colspan="2"Adiaster Microlan Design ValueSupport Wall Height:Part Sources ColleanColspan="2"Adiaster Microlan Design ValueDistantia:Colspan="2"Colspan="2"Adiaster Microlan Design ValueSupport Wall Height:Distantia:Colspan="2"Colspan="2"Location: Distantia:Colspan="2"Location: Distantia:Colspan="2"Location: Collection:Location: Distantia:Microlan Microlantia:Location: Collection:Location: Collection:Location: Collection:Location: Collection:Location: Collection:Location: Collection:Location: Collection:Location: Collection:Loca	Length of Beam:	12.3 ft = L		("S" for SI	PF#2)		WLL= 374.3 plf	
$\begin{aligned} \begin{array}{c} \mbox{Support Wall Height:} & \mbox{C} (CF for Exercise) \\ \mbox{Support Wall Height:} & \mbox{C} (CF for Exercise) \\ \mbox{Mondert = WL^2 B height = 1081 Height = 0 \\ \mbox{Max Definitional Factors } & \mbox{Max Definitional Factors } \\ \mbox{Mondert = ML^2 B height = 1.15 \\ \mbox{Definitional Factors } & \mbox{Max Definitional Factors } \\ \mbox{Mondert = ML^2 B height = 1.15 \\ \mbox{Definitional Factors } & \mbox{Max Definitional Factors } \\ \mbox{Definitional Factor Posters Of Height = 1.15 \\ \mbox{Definitional Factors } & \mbox{Max Definitional Factors } \\ \mbox{Mondert = ML^2 B height = 1.15 \\ \mbox{Definition } & \mbox{Definitional Factors } & \mbox{Max Definitional Factors } \\ \mbox{Memoder = ML^2 B height = 1.15 \\ \mbox{Definition } & \mbox{Definition } & \mbox{Definition } \\ \mbox{Memoder = ML^2 B height = 1.15 \\ \mbox{Definition } & \mbox{Definition } & \mbox{Definition } \\ \mbox{A = 97 is } & \mbox{A occess = 1000 fm} & \mbox{Definition } \\ \mbox{A = 97 is } & \mbox{A occess = 1000 fm} & \mbox{Definition } \\ \mbox{A = 97 is } & \mbox{A occess = 1000 fm} & \mbox{Definition } \\ \mbox{A = 97 is } & \mbox{A occess = 1000 fm} & \mbox{Definition } \\ \mbox{A = 97 is } & \mbox{A = 97 is } & \mbox{A = 97 is } \\ \mbox{A = 1000 fm} & \mbox{Definition } & \mbox{Definition } \\ \mbox{Definition } & \mbox{Definition } & \mbox{Definition } \\ \mbox{Definition } & \mbox{Definition } & \mbox{Definition } \\ \mbox{Definition } & \mbox{Definition } & \mbox{Definition } \\ \mbox{Definition } & \mbox{Definition } & \mbox{Definition } \\ \mbox{Definition } & \mbox{Definition } & \mbox{Definition } \\ \mbox{Definition } \\ \mbox{Definition } & $	Beam Location:	M ("M" for N	fate Line)					
Support Wall Height: 2 n Max Moment =WL ² 8 n-bs = 1051 n-bs Max Def(L1) =L(12)360 n = 0 Member Analyzet: Microlan Ecan PASSES Microlan Height: 2 n Microlan Maintener Factors Death 2 n + 1/2 <u>9.25</u> n		("E" for E	(terior)	Max Shear =W	L/2 lbs =	3594 lbs	Max Defl (TL) =L(12)/240 in	= 0.62 in
Member Analyzei:Microlan Beam PASSEsMicrolan Atlustment FactorsAdjusted Microlan Design ValuesDuantity0:122_00	Support Wall Height:	<u>9</u> ft	М	ax Moment =WL ² /	8 ft-lbs =	11051 ft-lbs	Max Defl (LL) = $L(12)/360$ in	= 0.41 in
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Member Analyzed:	Mircolam Beam	PASSES	Microlam	Adjustm	ent Factors	Adjusted Microlam Design	Values
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Quentity	Donth		CD(4) =	1.15	$C_{\rm eff}$ = 1	Et - 2262 8 pei	
$\begin{array}{c} \hline & \mathbf{F} + \mathbf{F} + \mathbf{F} & \mathbf{F} \\ \hline & \mathbf{F} + \mathbf{F} & \mathbf{F} \\ \hline \hline & \mathbf{F} \\ \hline \hline & \mathbf{F} \\ \hline \hline & \mathbf{F} \\ \hline & \mathbf{F} \\ \hline \hline & \mathbf{F} \\ \hline & \mathbf{F} \\ \hline \hline \\ \hline & \mathbf{F} \\ \hline \hline & \mathbf{F} \\ \hline \hline & \mathbf{F} \\ \hline \hline & $		@ 1 1/2v 9 25	in	CD(fb) = CD(fv) =	1.15	Cr(FD) - 1	$F_{V} = 3303.8 \text{ psi}$	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	2	······································	1	CE(IV) =	1.15		E = 2 000 000	
Kequired Properties OF BeamKequired Properties OF BeamS =57 m² >Ageong =30.4 m²09%23.5 m²23.5 m²23.5 m²23.5 m²23.5 m²23.5 m²23.5 m²23.5 m²23.5 m²73.5 m²50.5 m²73.5 m²73.6 m² <td>L</td> <td></td> <td>D 1 1 D</td> <td>Cr(ro) =</td> <td>1</td> <td></td> <td>E = 2,000,000 psi</td> <td></td>	L		D 1 1 D	Cr(ro) =	1		E = 2,000,000 psi	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		27 . 2 ~	Required Propert	10.06 in ²	200/		Required Posts	
$S = 2 f(m) > S_{11}(m) > S_{11}(m) = \frac{224}{10} m = 0^{27h} > 243 s = 2$ $I = 263.8 m^{2} > I_{12}(m) = \frac{224}{10} m = 0^{27h} > 0^{2} 24^{2} s = 2$ $I_{12}(m) = \frac{225.05}{10} m = 0^{27h} > 0^{2} 24^{2} s = \frac{2}{NA}$ $\frac{Rem \#2}{12} Location: Dining/Kitchen \qquad CEILINC$ $Loading Condition: 5 (from ever sheet) \qquad M ('M' for Marclam) \qquad Wr. = \frac{49}{0} plf$ $Longht of Ream: 122 m = 1. \qquad ('M' for Marclam) \qquad Wr. = \frac{49}{0} plf$ $Ream Location: M ('M' for Marclam) \qquad Wr. = \frac{49}{0} plf$ $Ream Location: M ('M' for Marclam) \qquad Wr. = \frac{49}{0} plf$ $Ream Location: M ('M' for Marclam) \qquad Wr. = \frac{49}{0} plf$ $Ream Location: M ('M' for Marclam) \qquad Wr. = \frac{49}{0} plf$ $Ream Location: M ('M' for Marclam) \qquad Wr. = \frac{49}{0} plf$ $Ream Location: M ('M' for Marclam) \qquad Wr. = \frac{49}{0} plf$ $Ream Location: M ('M' for Marclam) \qquad Wr. = \frac{49}{0} plf$ $Ream Location: M ('M' for Marclam) \qquad Wr. = \frac{49}{0} plf$ $Ream Location: M ('M' for Marclam) \qquad Marclam Adjustment Factors Marclam Design Yahas: China = 27f ft-lbs Marclam Design Yahas: China = 1.12 m^{2} 1.12 m^{2} 1.14^{2} m^{2} 1.4^{2} m^{2} 5.5^{2} pi 1.15^{2} p$	A =	3/ m² >	$A_{(REQD)} =$	10.90 m	50%		2-21- 5	
$I = 20.58 \text{ in}^{2} > I_{Loscop} = \frac{244.66}{235.05 \text{ in}^{2}} = 39\% \qquad \text{or } 246 \text{ s} = N/A$ $I_{Loscop} = \frac{245.66}{235.05 \text{ in}^{2}} = 39\% \qquad \text{or } 226.6 \text{ s} N/A$ $I_{Loscop} = \frac{225.05}{10} \text{ in}^{2} = 39\% \qquad \text{or } 226.6 \text{ s} N/A$ $I_{Loscop} = \frac{1}{225.05 \text{ in}^{2}} = 39\% \qquad \text{or } 226.6 \text{ s} N/A$ $I_{Loscop} = \frac{1}{225.05 \text{ in}^{2}} = 39\% \qquad \text{or } 226.6 \text{ s} N/A$ $I_{Loscop} = \frac{1}{20} \text{ for } M_{CO} \text{ for Mitc Line} \qquad \text{WL} = \frac{49}{9} \text{ pl}^{2}$ $I_{Loscop} = \frac{1}{20} \text{ for } M_{CO} \text{ for Mitc Line} \qquad \text{WL} = \frac{49}{9} \text{ pl}^{2}$ $I_{Loscop} = \frac{1}{20} \text{ for } M_{CO} \text{ for Mitc Line} \qquad \text{WL} = \frac{49}{9} \text{ pl}^{2}$ $I_{Loscop} = \frac{1}{10} \qquad \text{Max Shear = WL/2 lbs} = 301 \text{ lbs} \qquad \text{Max Defl} (L) = L(12)180 \text{ in } = 0$ $Member Analyzed: \qquad \frac{Mircolam Beam PASSES}{Microlam Adustment = WL/2 lbs} = 301 \text{ lbs} \qquad Max Defl (L) = L(12)180 \text{ in } = 0$ $Member Analyzed: \qquad \frac{Mircolam Beam PASSES}{Microlam Adustment = WL/2 lbs} = 327 \text{ for lbs} \qquad \frac{Max Defl (L) = L(12)240 \text{ in } = 0}{1} \text{ for } \frac{1}{2} \frac{1}{2} \text{ in}^{2} \text{ for } 55\% \qquad 223^{3} \text{ s} = 1$ $I_{LO} = 0.9 Cr(h) = 0.9 Cr(h) = 1$ $F_{0} = 2023.5 \text{ pri}$ $F_{0} = 2023.5 \text{ pri}$ $Support Wall Height: \qquad \frac{Mircolam Beam PASSES}{I_{1} = 0, Cr(h) = 0} \frac{1}{1} \frac{1}{2} \text{ in}^{2} \text{ for } 55\% \qquad 223^{3} \text{ s} = 1$ $I_{LO} = 0.9 Cr(h) = 0.9 Cr(h) = 1$ $F_{0} = 2000,000 \text{ pri}$ $\frac{Eequired Properties Of Beam}{I_{LO} = 0, 0} \frac{1}{1} \frac{1}{2} \text{ in}^{2} \text{ for } 55\% \qquad 223^{3} \text{ s} = 1$ $I_{0} = 0.6 \text{ in}^{3} > \text{ A}_{0000} = \frac{1}{1} \frac{1}{2} \text{ in}^{3} \text{ for } 55\% \qquad 07 \text{ 224^{3} \text{ s} = 1$ $I_{0} \text{ or } 3 \text{ or } 286^{5} \text{ pri}$ $I_{0} \text{ or } 286^{5$	S =	57 in ³ >	S _(REQ'D) =	<u>39.4</u> m	09%		2x3 s = 5	
125.05 in' 89% of 240.5 NA Seam #2: Location: Dining/Kitchen CELLING Laading Condition: Colspan="2">Colspan="2">CellING Laading Condition: Colspan="2">Colspan="2">Colspan="2">CellING Laading Condition: Colspan="2">Colspan="2">CellING Laading Condition: Colspan="2">Colspan="2">Colspan="2">Celling Conditions: Laading Condition: Colspan="2">Colspan="2">Colspan="2">Celling Conditions: Laading Condition: Colspan="2">Celling Conditions: Member Analyzed: Microlam Beam PASSES Microlam Adiastment Factors Adiasted Microlam Desin Values Member Analyzed: Microlam Beam PASSES Microlam Adiastment Factors Adiasted Microlam Desin Values Econicel Properties Of Beam Required Protection Of Beam Required Posts A = 8.3 in' > Aquetype 15.41 in' 14% 23.43 pif S = 7.6 in' > Space Space Max Moment = WL 2 Bs = 3098 lbs Max Deft (L1) = L(12)/240 in = Coline Conditions: Loading Condition: 3 (from cover sheet) S ('M' for Marclam) Win = 95.33 pif Loading Conditions: 30	I =	$263.8 \text{ in}^4 >$	$I_{TL(REQ'D)} =$	244.66 m	93%		or $2x4's = 2$	
Beam #2: Location: Dining/Kitchen CELLNC; Loading Condition: 5 (form ever sheet) M ('M' for Marcolam) WL = 49 pif Longing Condition: 5 (form ever sheet) M ('S' for SFF#2) WL = 0 pif Beam Location: M ('N' for Mate Line) Max Memet = WL/2 lbs = 301 lbs Max Defl (TL) = L(12)/180 in = 0 Support Wall Height: 2 n Max Memet = WL/2 lbs = 301 lbs Max Defl (TL) = L(12)/180 in = 0 Member Analyzed: Mircolam Beam PASSES Microlam Adiasument Factors: Adiasted Mircolam Design Values 0 0.9 Curlss = 0.9 Curlss = 1 Fs = 2603.25 pii 1 0 1.0 1.12 in ² 14% 55% 23's = 1 53's = 23's = 1 23's = 1 20.000.00 pis Ream #3: Location: Floor Girders FLOOR Max Memet = WL/2 lbs = 3098 lbs Max Defl (TL) = L(12)/240 in = 0 Loading Condition:: 5 fif or Marcolam) Win = 93.3 pif Max Memet = WL/2 lbs = 3098 lbs Max Defl ($I_{LL(REQ'D)} =$	<u>235.05</u> in*	89%		of $2\mathbf{x}0 \mathbf{s} = \underline{\mathbf{N}/\mathbf{A}}$	
Loading Parameters:Beam Type:Loading Conditions:Loading Condition:5(from cover sheet)M(M* for Microlam)Wr.t. =40PitBeam Location:M(M* for Mate Line)Wr.t. =40pitBeam Location:M(M* for Mate Line)Max Shear =WL/2 Ibs =301 IbsMax Defl (TL) =L(12)(130 in =0Support Wall Height:2nMax Moment =WL/2 Ibs =301 IbsMax Defl (TL) =L(12)(2)(20 in =0Contint:DepthDepthCor(h) =0.9C(h) =1h =26325 psiContint:DepthCor(h) =0.9C(h) =1h =26325 psiCor(h) =1.2DepthCor(h) =0.9C(h) =1h =26325 psiRequired Properties Of BeamAqueory =1.12 in' 11.12 in' 1.4%62.33's =1S =7.6 in' >Squarry =1.12 in' 1.4%0' 2.44's =11S =7.6 in' >Squarry =1.12 in' 1.4%0' 2.44's =1Leading Conditions:3(from cover sheet)S('M' for Microlam)Wr.t. =933.3 pitLaading Conditions:3(from cover sheet)S('M' for Microlam)Wr.t. =933.3 pitLaading Conditions:M('M' for Mate Line)Max Shear =WL/2 Ibs =3098 IbsMax Defl (TL) =L(12)(240 in =0Laading Conditions:M('M' for Mate Line)Max Shear =WL/2 Ibs =3098 IbsMax Defl (TL) =L(12)(240 in = </td <td>Beam #2: Location:</td> <td>Dining/Kitchen</td> <td></td> <td></td> <td>CEILIN</td> <td>G</td> <td></td> <td></td>	Beam #2: Location:	Dining/Kitchen			CEILIN	G		
Loading Condition: Length of Beam: Length of Beam: Length of Beam: Length of Beam: M ('M' for Mate Line) ('E' for Sterior) Max Shear =WL/2 lbs = 301 lbs Support Wall Height: 2 ft ('M' for Mate Line) ('E' for Exterior) Max Moment =WL/2 lbs = 301 lbs Max Moment =WL/2 lbs = 301 lbs Max Deft ('LL) =L(12)/180 in = (Max Moment =WL/2 lbs = 927 ft-lbs Max Deft ('LL) =L(12)/240 in = (Member Analyzed: Member Anal	Loading Parame	ters:		Beam Type	<u>e:</u>		Loading Conditions:	
Length of Beam: 12.3 $h = L$ ('S' for SPF#2) WLL = 0 plf Beam Location: M ('M' for Mate Line) ('E' for Exterior) Max Shear =WL2 lbs = 301 lbs Max Defl (LL) =L(12)/180 in = 0 Max Moment =WL?8 h-lbs = 927 ft-lbs Max Defl (LL) =L(12)/240 in = 0 Member Analyzed: Mircolam Beam PASSES Mircolam Adjustment Factors Ch(h) = 0 9 Ch(fb) = 1 P_{2} = 263.25 psi F_{2} = 256.5 psi Location: Floor Girders FLOOR Required Properties Of Beam A = 8.3 in ² > A _{parcon} = 1.17 in ² 14% S = 7.6 in ² > I _{LL,RAUOD} = 1.17 in ² 14% S = 7.6 in ² > I _{LL,RAUOD} = 1.17 in ² 14% S = 7.6 in ² > I _{LL,RAUOD} = 1.17 in ² 14% S = 7.6 in ² > I _{LL,RAUOD} = 1.17 in ² 0% Required Posts A = 8.3 in ² > A _{parcon} = 1.17 in ² 14% S = 7.6 in ² > I _{LL,RAUOD} = 1.5.41 in ² 74% Or 2x4's = 1 Loading Condition: 3 (from cover sheet) S ('M' for Microlam) WIL = 953.3 plf Length of Beam: 6.5 ft = L ('S' for SFF#2) WLL = 3098 lbs Max Defl ('LL) =L(12)/240 in = 0 ('E' for Exterior) Max Shear =WL2 lbs = 3098 lbs Max Defl ('LL) =L(12)/240 in = 0 ('E' for SFF#2) WLL = 5035 ft-lbs Max Defl ('LL) =L(12)/240 in = 0 ('E' for Exterior) Max Shear =WL2 lbs = 3098 lbs Max Defl ('LL) =L(12)/240 in = 0 ('E' for Exterior) Max Moment =WL?8 ft-lbs = 5035 ft-lbs Max Defl ('LL) =L(12)/240 in = 0 ('E' for Exterior) Max Moment =WL?8 ft-lbs = 5035 ft-lbs Max Defl ('LL) =L(12)/240 in = 0 ('E' for Exterior) Max Moment =WL?8 ft-lbs = 5035 ft-lbs Max Defl ('LL) =L(12)/240 in = 0 ('E' for Exterior) Max Moment =WL?8 ft-lbs = 5035 ft-lbs Max Defl ('LL) =L(12)/240 in = 0 ('E' for Exterior) Max Moment =WL?8 ft-lbs = 5035 ft-lbs Max Defl ('LL) =L(12)/240 in = 0 ('E' for Exterior) Max Moment =WL?8 ft-lbs = 5035 ft-lbs Max Defl ('LL) =L(12)/240 in = 0 ('E' for Exterior) Max Moment =WL?8 ft-lbs = 5035 ft-lbs Max Defl ('LL) =L(12)/340 in = 0 ('E' for Exterior) Max Moment =WL?8 ft-lbs = 5035 ft-lbs Max Defl ('LL) =L(12)/340 in = 0 ('E' for Exterior) Max Moment =WL?8 ft-lbs = 5035 ft-lbs Max Defl ('LL) =L(12)/340 in = 0 ('E' for Exterior) Max Moment =WL?8	Loading Condition:	5 (from cove	er sheet)	M ("M" for M	/icrolam)		WTL = 49 plf	
Beam Location:Max Shear =WL/2 lbs = 301 lbsMax Dear =WL/2 lbs = 301 lbsMax Moment =WL/2 lbs = 301 lbsMax Dear =WL/2 lbs = 301 lbsMax Dear EWL/2 lbs = 301 lbsMomber Analyzed:Mircolam Beam PASSESMircolam Adjustment FactorsAdjusted Mircolam Design ValuesDuantityP = 2632.5 psiEquired Properties Of BeamRequired Properties Of BeamA = 8.3 in² > A party = 1ILT in² 14%Sequired Properties Of BeamRequired Properties Of BeamA = 8.3 in² > A party = 1ILT in² 14%Sequired Properties Of BeamRequired Properties Of BeamA = 8.3 in² > A party = 1ILT in² 14%Sequired Properties Of BeamRequired Properties Of BeamA = 8.3 in² > A party = 1ILT in² 14%Sequired Properties Of BeamRequired Properties Of BeamA = 8.3 in² > A party = 1ILT in² 14%Sequired Properties Of BeamRequired Properties Of BeamA = 8.3 in² > A party = 1ILT in² 14%Sequired Properties Of BeamRequired Properties Of BeamA = 5.3 in² > A party = 1ILT in² 14%Sequired Properties Of BeamRequired Properties Of BeamILT in²	Length of Beam:	12.3 ft = L		("S" for SI	PF#2)		$W_{LL} = 0$ plf	
Support Wall Height: Support Wall Height: 2 th Max Moment = WL ² Bs = 301 lbs Max Defl (1L) = L(12)/180 in = 0 Member Analyzed: Microlam Beam PASSES Microlam Adjustment Factors Ch(b) = 0.9 Cr(b) = 1 Ch(b) = 1.15 Cr(b) =	Beam Location:	M ("M" for N	fate Line)					
Support Wall Height:2f.Max Moment = WL/8 ft-bsJoin TooMax Defl ((15) = (12)/00 m = 0)Member Analyzed: Mircolam Beam PASSESMircolam Adjustment = VL/8 ft-bsAdjusted Mircolam Beam PASSESDiamiticDiamiticDiamiticDiamiticAdjusted Mircolam BeamAdjusted Mircolam BeamMember Analyzed:Mircolam Adjustment = VL/8 ft-bsMircolam Adjustment FactorsAdjusted Mircolam Beam ValuesCh(h) = 0.9Cu(h) = 0.9Cu(h) = 1Ps = 2632.5 psiEECh(h) = 0.9Cu(h) = 1E = 2.000,000 psiRequired Properties Of BeamRequired PostsA =8.3 in² >Aquotop =1.17 in²14%S =7.6 in² >Station =15.41 in³74%or 2xd/s = 1I =20.8 in² >I ruteiton =15.41 in³74%or 2xd/s = 1Beam #3:Location:Floor GirdersFLOORLoading Condition:3(for over sheet)S('T'' for SPF#2)Wrt.=Support Wall Height:8 ftMax Moment = WL/2 ft-bs =3098 lbsMax Defl ((L) = L(12)/240 in =Member Analyzed:SPF #2 Adjustment FactorsAdjusted SPF #2 Designs ValuesOmather Analyzed:SPF #2 Ream PASSESSPF #2 Adjustment FactorsAdjusted SPF #2 Designs ValuesDiading Condition:3('T'' for Mate Line)SPF #2 Adjustment FactorsAdjusted SPF #2 Designs ValuesDiading Condition:3for mate colored spinSPF #2 Adjustment FactorsAdjusted SPF #2 Designs Values<		("F" for F	sterior)	Max Shear =W	I/2 lbs =	301 lbs	Max Defl (TI) =I (12)/180 in	= 0.82 it
$\begin{tabular}{l lllllllllllllllllllllllllllllllllll$	Support Wall Height:	2 ft	M	ax Moment = $WL^2/3$	8 ft-lbs =	927 ft-lbs	Max Defl (LL) = $L(12)/240$ in	= 0.62 in
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Member Analyzed:	Mircolam Beam	PASSES	Microlam	Adjustm	ent Factors	Adjusted Microlam Design	Values
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Quantity	Depth		CD(fb) =	0.9	Cr(Fb) = 1	$F_{b} = 2632.5 \text{ psi}$	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1	@ 1-1/2x 5.5	in	CD(fv) =	0.9		$F_v = 256.5 \text{ psi}$	
Required Properties Of BeamRequired PostsA =8.3in² >Aqueop) =1.17in²14%Required PostsS =7.6in³ >Squeop) =4.2in³55%2x3's =1I =20.8in⁴ >IT_L(MEOD) =15.41in⁴74%or 2x4's =1J =20.8in⁴ >IT_L(MEOD) =15.41in⁴74%or 2x4's =1J =20.8in⁴ >IT_L(MEOD) =0in⁴0%or 2x6's =N/ALoading Parameters:Eeam Type:Loading Conditions:Loading Condition:3(from cover sheet)S("M" for Microlam)WTL =953.3plfLoading Condition:3(from cover sheet)S("M" for Microlam)WTL =953.4plfBeam Location:M("M" for Mate Line)("S" for SPF#2)WLL =584.3plfBeam Location:M("M" for Atat Line)("S" for SPF#2)WLL =5035 ft-lbsMax Defl (TL) =L(12)/240 in =0Support Wall Height:SftMax Moment =WL/2 lbs =3098 lbsMax Defl (TL) =L(12)/360 in =02@ 2x10inCD(h) =1.15Cr(b) =1Fv =155.3 psi2@ 2x10inCD(h) =1.15Cr(b) =1Fv =154.3 psi2@ 2x10inSqueop) =10.9015.44in³96%2x3's =	-			CF(Fb) =	1		E = 2.000.000 psi	
Interface of near particle of near partex particle of near particle of near parti			Dogwinod Duonout	ica Of Boom	1		E = 2,000,000 psi	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Δ -	83:2	A	1.17 in^2	1.4%		<u>Required rosis</u>	
$I = 20.8 \text{ in}^{3} > I_{L(REQD)} = \frac{2.2}{15.41} \text{ in}^{4} 74\% \qquad \text{or } 2x3 \text{ s} = \frac{1}{2}$ $I = 20.8 \text{ in}^{4} > I_{T_{L(REQD)}} = \frac{15.41}{9} \text{ in}^{4} 74\% \qquad \text{or } 2x4^{4}\text{s} = \frac{1}{1}$ $I_{L(REQD)} = 0 \text{ in}^{4} 0\% \qquad \text{or } 2x6^{6}\text{s} = \frac{N/A}{N/A}$ Beam #3: Location: Floor Girders FLOOR $I_{Loading Condition: 3} (from cover sheet) \qquad S ("M" for Microlam) \qquad WTL = 953.3 \text{ plf}$ Length of Beam: 6.5 ft = L ("S" for SPF#2) WLL = 584.3 plf Beam Location: M ("M" for Mate Line) ("S" for SPF#2) WLL = 584.3 plf Beam Location: M ("M" for Mate Line) ("S" for SPF#2) WLL = 5035 ft-lbs Max Defl (TL) = L(12)/240 \text{ in } = (1000) $I_{Longerover} Wall Height: 8 ft Max Moment = WL^{2}/8 ft-lbs = 5035 ft-lbs Max Defl (TL) = L(12)/360 \text{ in } = (1000)$ $I_{Longerover} Wall Height: 8 ft Max Moment = WL^{2}/8 ft-lbs = 5035 ft-lbs Max Defl (TL) = L(12)/360 \text{ in } = (1000)$ $I_{Longerover} Wall Height: 8 ft Max Moment = WL^{2}/8 ft-lbs = 5035 ft-lbs Max Defl (TL) = L(12)/360 \text{ in } = (1000)$ $I_{Longerover} Wall Height: 8 ft Max Moment = WL^{2}/8 ft-lbs = 5035 ft-lbs Max Defl (TL) = L(12)/360 \text{ in } = (1000)$ $I_{Longerover} Wall Height: 8 ft Max Moment = WL^{2}/8 ft-lbs = 5035 ft-lbs Max Defl (TL) = L(12)/360 \text{ in } = (1000)$ $I_{Longerover} Wall Height: 8 ft Max Moment = WL^{2}/8 ft-lbs = 5035 ft-lbs Max Defl (TL) = L(12)/360 \text{ in } = (1000)$ $I_{Longerover} Wall Height: 8 ft Max Moment = WL^{2}/8 ft-lbs = 5035 ft-lbs Max Defl (TL) = L(12)/360 \text{ in } = (1000)$ $I_{Longerover} Wall Height: 8 ft Max Moment = WL^{2}/8 ft-lbs = 5035 ft-lbs Max Defl (TL) = L(12)/360 \text{ in } = (1000)$ $I_{Longerover} Wall Height: 8 ft Max Moment = WL^{2}/8 ft-lbs = 1000 \text{ pi}$ $I_{Longerover} Wall Height: 8 ft Max Moment = 1100 \text{ pi}$ $I_{Longerover} Wall Height: 8 ft Max Moment = 1100 \text{ pi}$ $I_{Longerover} Wall Height: 8 ft Max Moment = 0 \text{ pi}$ $I_{Longerover} Wall Height: 8 ft Max Moment = 0 \text{ pi}$ $I_{Longerover} Wall Height: 9 ft Max Moment = 0 \text{ pi}$ $I_{Longerover} Wall Height: 9 ft Max Moment = 0 \text{ pi}$ $I_{Longerover}$	A- S-	7.6 : 3 >	A (REQ'D) -	<u>1.17</u> in <u>1.2</u> in ³	550/		2v2!a= 1	
$I = 20.6 \text{ in } > I_{TL(REOD)} = 12.41 \text{ in } 74\% \qquad \text{or } 2X6 \text{ s} = 1 \text{ in } 106.9 \text{ s} = 1 \text{ or } 106.9 \text{ s} = 1 \text{ in } 10$	5=	20.8 · 4 >	G _(REQD) =	<u>4.2</u> III	740/		$2x^{3} = \frac{1}{1}$	
IdentityEndParameters:East Type:Loading Conditions:Image: Loading Condition:3(from cover sheet)S("M" for Microlam)WTL =953.3 plfImage: Loading Condition:3(from cover sheet)S("M" for Microlam)WTL =953.3 plfImage: Loading Condition:3(from cover sheet)S("M" for Microlam)WTL =953.3 plfImage: Loading Condition:6.5 ft = L("S" for SPF#2)WLL =584.3 plfImage: Loading Condition:M("M" for Mate Line)("S" for Exterior)Max Shear =WL/2 lbs =3098 lbsMax Defl (TL) =L(12)/240 in =Image: Loading Condition:("C" for Exterior)Max Shear =WL/2 lbs =3098 lbsMax Defl (TL) =L(12)/360 in =(Max Moment = WL ² /8 ft-lbs =5035 ft-lbsImage: Loading Condition:("E" for Exterior)Max Moment =WL ² /8 ft-lbs =5035 ft-lbsMax Defl (LL) =L(12)/360 in =(Max Defl (LL) =L(12)/360 in =Image: Loading Condition:("E" for Exterior)Max Moment =WL ² /8 ft-lbs =5035 ft-lbsMax Defl (LL) =L(12)/360 in =Image: Loading Condition:("E" for Exterior)Max Moment = WL ² /8 ft-lbs =1Fb =1106.9 psiImage: Loading Condition:("E" for Exterior)Max Defl (LL) = L(12)/360 in =1Fb =1106.9 psiImage: Loading Condition:("E" for Exterior)("E" for Exterior)Set (Fb) =1Fb =1106.9 psiImage: Loading Condition:("E" for Exterior)("E" for Exterior)("E" for Exterior)Set (Fb)	1=	20.0 m ² >	$\mathbf{I}_{TL(REQD)} =$	<u>13.41</u> m 0 :-4	/4%		or $2x6's = n/4$	
Beam #3:Location:Floor GirdersFLOORLoading Parameters:Beam Type:Loading Condition:3(from cover sheet)S("M" for Microlam)WTL = 953.3 plfLength of Beam:6.5ft = L("S" for SPF#2)WLL = 584.3 plfBeam Location:M("M" for Mate Line)WTL = 953.3 plfBeam Location:M("M" for Mate Line)WTL = 953.3 plfSupport Wall Height:§ftMax Shear =WL/2 lbs = 3098 lbsMax Defl (TL) =L(12)/240 in = 0Member Analyzed:SPF #2 Beam PASSESSPF #2 Adjusted SPF #2 Designs ValuesConditivDepthCD(h) = 1.15Cr(Fb) = 1Fb = 1106.9 psi2 $@ 2x_1 10$ inCD(h) = 1.15Cr(Fb) = 1Fb = 1106.9 psi2 $@ 2x_1 10$ inCD(h) = 1.15Cr(Fb) = 1Fb = 1106.9 psi2 $@ 2x_1 10$ inCD(h) = 1.15Cr(Fb) = 1Fb = 1106.9 psi2 $@ 2x_1 10$ inCD(h) = 1.15Cr(Fb) = 1Fb = 1106.9 psi2 $@ 2x_1 10$ inCD(h) = 1.25CD(h) = 1.25Fi = 1,400,000 psi3CD(h) = 1.15Cr(Fb) = 1.1E = 1,400,000 psi3CD(h) = 1.25SSS437 in 2 > A_{(BCO)} = 19.95 in 2S4%S5S in 3 > S(BCO) = 54.65 in 396%2x3's= 44263.8 in 4 > H_{L(BCO)} = 84.15 in 332%or 2x4's= 2			LL(REQ'D) =	<u>u</u> in	070		<u></u>	
Loading Parameters:Beam Type:Loading Conditions:Loading Condition:3(from cover sheet)S("M" for Microlam)WTL = 953.3 plfLength of Beam:6.5ft = L("S" for SPF#2)WLL = 584.3 plfBeam Location:M("M" for Mate Line)	Beam #3: Location:	Floor Girders			FLOOR	<u>.</u>		
Loading Condition:3(from cover sheet)S("M" for Microlam)WTL =953.3plfLength of Beam:6.5ft = L("S" for SPF#2)WLL =584.3plfBeam Location:M("M" for Mate Line)("E" for Exterior)Max Shear =WL/2 lbs =3098 lbsMax Defl (TL) =L(12)/240 in =(Defl (TL) =L(12)/240 in =Support Wall Height:8ftMax Moment =WL/8 ft-lbs =5035 ft-lbsMax Defl (LL) =L(12)/360 in =(Defl (LL) =L(12)/360 in =Member Analyzed:SPF #2 Beam PASSESSPF #2 Adjustment FactorsAdjusted SPF #2 Designs ValuesQuantityDepthCD(fb) =1.15Cr(Fb) =12 $@ 2x_1 10^{1}$ inE1.15Cr(Fb) =12 $@ 2x_1 10^{1}$ inE1.15Fv =155.3 psiCD(fb) =1.15Cr(Fb) =1.1E =1,400,000 psi4 $=$ 37 in² >A(REOD) =19.95 in²54%2x3's =44263.8 in ⁴ >IrL(REOD) =S4.6 in³96%2x3's =44263.8 in ⁴ >IrL(REOD) =84.15 in ⁴ 32%or 2x4's =2	Loading Parame	ters:		Beam Type	<u>e:</u>		Loading Conditions:	
Length of Beam:6.5ft = L("S" for SPF#2)WLL = 584.3 plfBeam Location:M("M" for Mate Line)Max Shear =WL/2 lbs =3098 lbsMax Defl (TL) =L(12)/240 in =(CSupport Wall Height:8ftMax Moment =WL/8 ft-lbs =5035 ft-lbsMax Defl (LL) =L(12)/360 in =(CMember Analyzed:SPF #2 Beam PASSESSPF #2 Adjustment FactorsAdjusted SPF #2 Designs ValuesQuantityDepthCD(fb) =1.15Cr(Fb) =1Fb =1106.9 psiQuantityDepthCD(fb) =1.15Cr(Fb) =1E =1,400,000 psiRequired Properties Of BeamRequired PosetsRequired PostsRequired PostsA =37 in² >A _(REGOD) =19.95 in²54%S2x3's =4I =263.8 in ⁴ >I _{TL(REGOD}) =84.15 in ⁴ 32%or 2x4's =2	Loading Condition:	3 (from cove	er sheet)	S ("M" for M	/licrolam)		WTL = 953.3 plf	
Beam Location:MM("M" for Mate Line)("E" for Exterior)Max Shear =WL/2 lbs =3098 lbsMax Defl (TL) =L(12)/240 in =Support Wall Height:8ftMax Moment =WL/8 ft-lbs =5035 ft-lbsMax Defl (TL) =L(12)/360 in =Member Analyzed:SPF #2 Beam PASSESSPF #2 Adjustment FactorsAdjusted SPF #2 Designs ValuesOuantityDepthCD(fb) =1.15Cr(Fb) =1QuantityDepthCD(fb) =1.15Fv =155.3 psiCCP(Fb) =1.1E =1,400,000 psiRequired Properties Of BeamRequired PostsRequired PostsA =37 in² >A (REGOD) =19.95 in²54%S =57 in³ >S (REGOD) =54.6 in³96%2x3's= 4I =263.8 in ⁴ >I T _L (REGOD) =84.15 in ⁴ 32%or 2x4's= 2	Length of Beam:	6.5 ft = L		("S" for SI	PF#2)		WLL = 584.3 plf	
Max Shear =WL/2 lbs = 3098 lbsMax Defl (TL) =L(12)/240 in = 0Support Wall Height:8ftMax Moment =WL/8 ft-lbs3098 lbsMax Defl (TL) =L(12)/240 in = 0Member Analyzed:SPF #2 Beam PASSESSPF #2 Adjustment FactorsAdjusted SPF #2 Designs ValuesQuantityDepthCD(fb) = 1.15Cr(Fb) = 1Fb = 1106.9 psi2 $@ 2x_1 10^{10}$ in $CD(fb) = 1.15$ $Cr(Fb) = 1$ Fb = 1106.9 psiEcquired Properties Of BeamRequired PosetsRequired PostsA =37 in² > A(REOD) = 19.95 in²54%Se = 57 in³ > S(REOD) = 54.6 in³96% $2x3's = 4$ I =263.8 in ⁴ > Ir _{L(REOD}) = 84.15 in ⁴ 32%or $2x4's = 2$	Beam Location:	M ("M" for N	fate Line)	,	,			
Number Analyzed:SPF #2 Beam PASSESSPF #2 Beam PASSESOuantityDepthChi (L)SPF #2 Designs Values000000Member Analyzed:SPF #2 Beam PASSESSPF #2 Adjustment FactorsAdjusted SPF #2 Designs Values000000202x000100000202x000300000437in²A (REOD)19.95437in²A (REOD)19.95557in³S (REOD)54.642263.8in⁴1420%005002x3's= 44112%502x4's= 2		("F" for F	sterior)	Max Shear =W	1./2 lbs =	3098 lbs	Max Defl (TI) =I (12)/240 in	= 0.33 ii
Member Analyzed:SPF #2 Beam PASSESSPF #2 Adjustment FactorsAdjusted SPF #2 Designs ValuesQuantityDepth2@ 2x 10in $CD(h) = 1.15$ CD($iv) = 1.15$ $Cr(Fb) = 1$ CD($iv) = 1.15$ $Cr(Fb) = 1$ CP(Fb) = 1.15 $Cr(Fb) = 1.15$ CP(Fb) = 1.15 $Cr(Fb) = 1.15$ CP(Fb) = 1.15 $E = 1,400,000$ psiE $1,925$ in²A = 37 in² > A _(REQD) =SPF #2 Adjustment Factors $Required Posts$ A = 57 in³ > S _(REQD) =SP = 54.6 in³I = 263.8 in⁴ > Ir _{L(REQD)} =A = $31 in²$ > 1 1 1 1 1 2% CP = 54.6 in³CP = 263.8 in⁴ > Ir _{L(REQD)} =A = 32% CP = 263.8 in⁴ > Ir _{L(REQD)} =A = 31% in² > 32% CP = 37% in² > 32% CP = 32% CP = 37% in² > 32% CP = 32% <td< td=""><td>Support Wall Height:</td><td><u>8</u> ft</td><td>М</td><td>ax Moment =WL²/</td><td>8 ft-lbs =</td><td>5035 ft-lbs</td><td>Max Defl (LL) =$L(12)/360$ in</td><td>= 0.22 in</td></td<>	Support Wall Height:	<u>8</u> ft	М	ax Moment =WL ² /	8 ft-lbs =	5035 ft-lbs	Max Defl (LL) = $L(12)/360$ in	= 0.22 in
Member Analyzed:SPF #2 Beam PASSESSPF #2 Adjustment FactorsAdjusted SPF #2 Designs ValuesQuantityDepth $CD(b) = 1.15$ $Cr(Fb) = 1$ $Fb = 1106.9$ psi2@ 2x 10in $CD(b) = 1.15$ $Fv = 155.3$ psiCD(b) = 1.15 $Cr(Fb) = 1.1$ $Fv = 155.3$ psiCF(Fb) = 1.1 $CF(Fb) = 1.1$ $E = 1,400,000$ psiRequired Properties Of BeamA =37 in ² > A _(REQD) = 19.95 in ² 54%S =57 in ³ > S _(REQD) = 54.6 in ³ 96%2x3's = 4I =263.8 in ⁴ > I _{TL(REQD)} = 84.15 in ⁴ 32%or 2x4's = 2		(DDT)	D. COPC					
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Member Analyzed:	SPF #2 Beam	PASSES	<u>SPF #2 A</u>	djustment	Factors	Adjusted SPF #2 Designs V	alues
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	<u>Ouantity</u>	<u>Depth</u>	n I	CD(fb) =	1.15	Cr(Fb) = 1	Fb = 1106.9 psi	
CF(Fb) = 1.1 E = 1,400,000 psi Required Properties Of Beam Required Posts A = 37 in ² > A _(REQD) = 19.95 in ² 54% S = 57 in ³ > S _(REQD) = 54.6 in ³ 96% 2x3's = I = 263.8 in ⁴ > I _{TL(REQD)} = 84.15 in ⁴ 32% or 2x4's = 2	2	@ 2x 10	in	CD(fv) =	1.15		Fv = 155.3 psi	
Required Properties Of Beam Required Posts A = 37 in ² > $A_{(REQD)} =$ 19.95 in ² 54% S = 57 in ³ > $S_{(REQD)} =$ 54.6 in ³ 96% 2x3's = 4 I = 263.8 in ⁴ > $I_{TL(REQD)} =$ 84.15 in ⁴ 32% or 2x4's = 2				CF(Fb) =	1.1		E = 1,400,000 psi	
A = 37 in ² > $A_{(REQD)}$ = 19.95 in ² 54% S = 57 in ³ > $S_{(REQD)}$ = 54.6 in ³ 96% 2x3's = 4 I = 263.8 in ⁴ > $I_{TL(REQD)}$ = 84.15 in ⁴ 32% or 2x4's = 2			Required Propert	ies Of Beam			Required Posts	
$S = 57 \text{ in}^3 > S_{(\text{REQD})} = \frac{54.6}{10} \text{ in}^3 96\% 2x3's = \frac{4}{2}$ $I = 263.8 \text{ in}^4 > I_{\text{TL}(\text{REQD})} = \frac{84.15}{10} \text{ in}^4 32\% \text{ or } 2x4's = \frac{2}{2}$	A =	37 in ² >	$\mathbf{A}_{(\text{REQ'D})} =$	<u>19.95</u> in ²	54%			
$I = 263.8 \text{ in}^4 > I_{TL(REQD)} = \underline{84.15} \text{ in}^4 32\% \text{ or } 2x4's = \underline{2}$	S =	57 in ³ >	$\mathbf{S}_{(\text{REQ'D})} =$	<u>54.6</u> in ³	96%		2x3's = 4	
	I =	263.8 in ⁴ >	$I_{TL(REQ'D)} =$	84.15 in4	32%		or 2x4's= <u>2</u>	
$I_{LL(REOD)} = \frac{77.36}{29\%}$ in ⁴ 29% or 2x6's= <u>N/A</u>	mo.		ILL(REO'D) =	77.36 in ⁴	29%		or 2x6's= <u>N/A</u>	