



GARAGE REMODEL FOR:

**BRETT SANVILLE**  
**4513 BLUFF CREEK DR.**  
**MODESTO, CA 95355**

**PELTON WYLIE+FAHRNEY**  
**ENGINEERING, INC**  
**STRUCTURAL ENGINEERS**

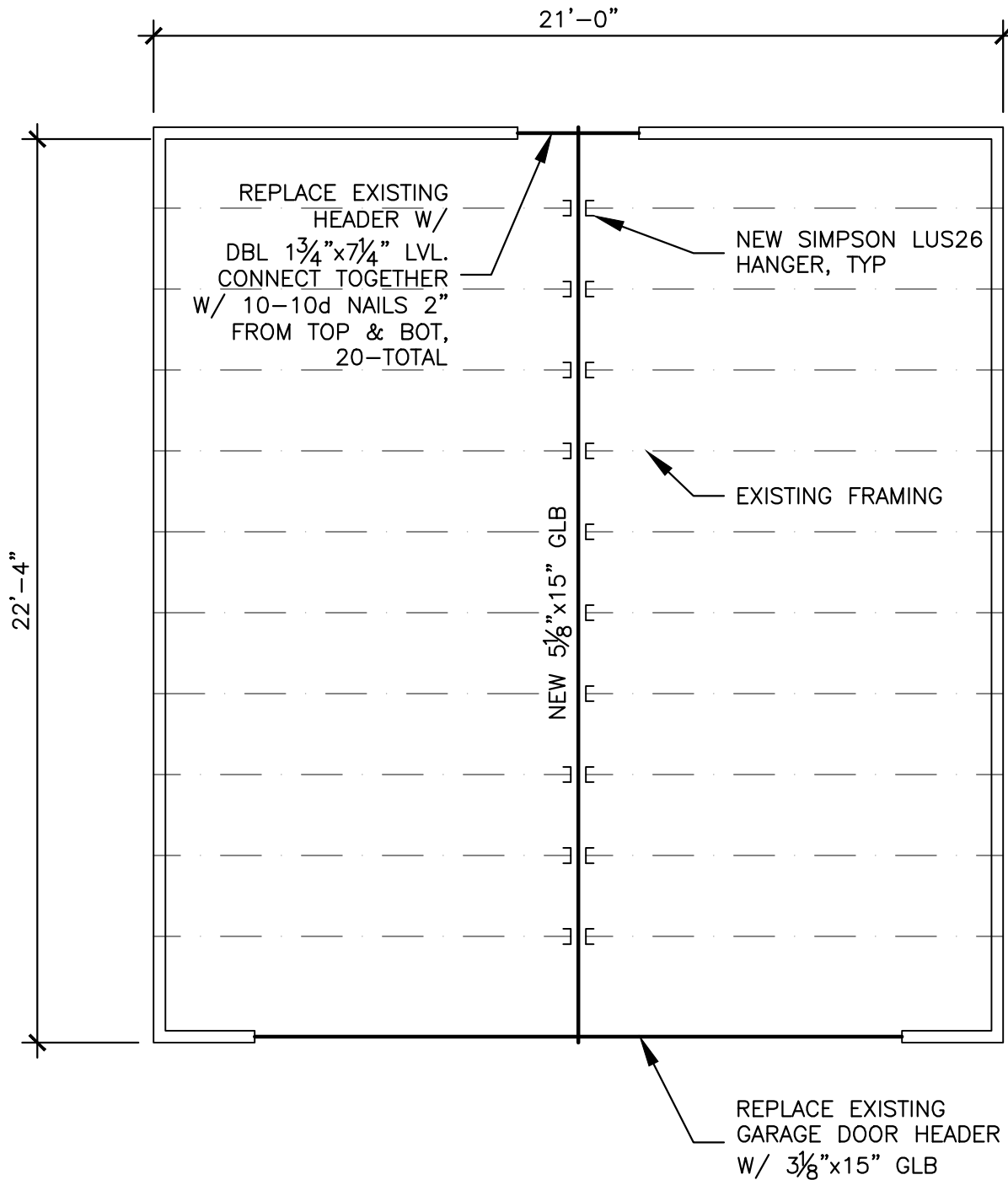
2813 COFFEE ROAD, SUITE D1  
MODESTO, CALIFORNIA 95355  
TEL: (209)575-9619 | WWW.PWF-ENG.COM

BY: NF

SHEET: 1 / 5

DATE: 8/5/2020

JOB: MII 344-20



## GARAGE FRAMING PLAN

1/4" = 1'-0"

## Wood Beam

Lic. #: KW-06006005

File: MII344-20 CALCS.ec6  
Software copyright ENERCALC, INC. 1983-2020, Build:12.20.5.31  
J.D. WYLIE ENGINEERING

DESCRIPTION: **New Ceiling Beam**

### CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16

Load Combination Set : IBC 2018

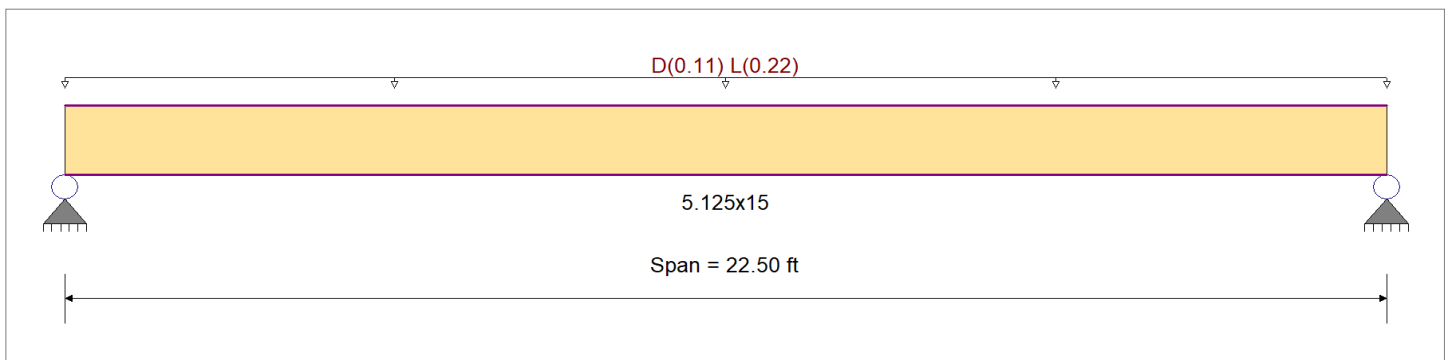
### Material Properties

Analysis Method : **Allowable Stress Design**  
Load Combination **IBC 2018**

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

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

|           |          |                           |           |
|-----------|----------|---------------------------|-----------|
| Fb +      | 2400 psi | E : Modulus of Elasticity |           |
| Fb -      | 1850 psi | Ebend- xx                 | 1800 ksi  |
| Fc - Prll | 1650 psi | Eminbend - xx             | 950 ksi   |
| Fc - Perp | 650 psi  | Ebend- yy                 | 1600 ksi  |
| Fv        | 265 psi  | Eminbend - yy             | 850 ksi   |
| Ft        | 1100 psi | Density                   | 31.21 pcf |



### Applied Loads

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

Uniform Load : D = 0.010, L = 0.020 ksf, Tributary Width = 11.0 ft

### DESIGN SUMMARY

**Design OK**

|                                   |   |                 |                             |   |                   |
|-----------------------------------|---|-----------------|-----------------------------|---|-------------------|
| Maximum Bending Stress Ratio      | = | <b>0.559</b> 1  | Maximum Shear Stress Ratio  | = | <b>0.243</b> : 1  |
| Section used for this span        | = | <b>5.125x15</b> | Section used for this span  | = | <b>5.125x15</b>   |
|                                   | = | 1,303.90 psi    |                             | = | 64.51 psi         |
|                                   | = | 2,330.90 psi    |                             | = | 265.00 psi        |
| Load Combination                  | = | +D+L            | Load Combination            | = | +D+L              |
| Location of maximum on span       | = | 11.250 ft       | Location of maximum on span | = | 21.268 ft         |
| Span # where maximum occurs       | = | Span # 1        | Span # where maximum occurs | = | Span # 1          |
| <b>Maximum Deflection</b>         |   |                 |                             |   |                   |
| Max Downward Transient Deflection |   | 0.492 in        | Ratio =                     |   | <b>548</b> >= 360 |
| Max Upward Transient Deflection   |   | 0.000 in        | Ratio =                     |   | <b>0</b> < 360    |
| Max Downward Total Deflection     |   | 0.738 in        | Ratio =                     |   | <b>365</b> >= 240 |
| Max Upward Total Deflection       |   | 0.000 in        | Ratio =                     |   | <b>0</b> < 240    |

### Overall Maximum Deflections

| Load Combination | Span | Max. "-" Defl | Location in Span | Load Combination | Max. "+" Defl | Location in Span |
|------------------|------|---------------|------------------|------------------|---------------|------------------|
| +D+L             | 1    | 0.7377        | 11.332           |                  | 0.0000        | 0.000            |

### Vertical Reactions

Support notation : Far left is #1

Values in KIPS

| Load Combination | Support 1 | Support 2 |
|------------------|-----------|-----------|
| Overall MAXimum  | 3.713     | 3.713     |
| Overall MINimum  | 2.475     | 2.475     |
| D Only           | 1.238     | 1.238     |
| +D+L             | 3.713     | 3.713     |
| +D+0.750L        | 3.094     | 3.094     |
| +0.60D           | 0.743     | 0.743     |
| L Only           | 2.475     | 2.475     |

## Wood Beam

Lic. #: KW-06006005

File: MII344-20 CALCS.ec6  
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J.D. WYLIE ENGINEERING

DESCRIPTION: New Garage Door Header

### CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16

Load Combination Set : IBC 2018

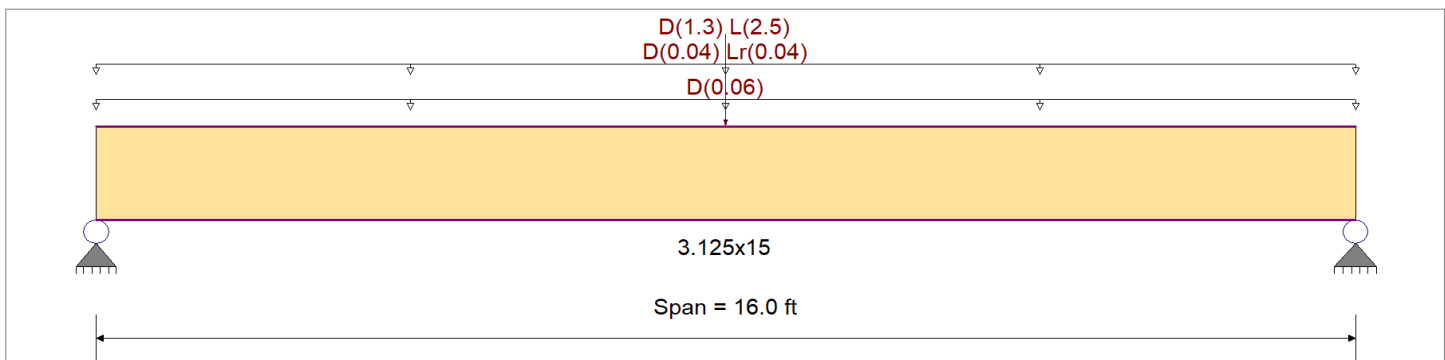
### Material Properties

Analysis Method : Allowable Stress Design  
Load Combination IBC 2018

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

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

|           |             |                           |             |
|-----------|-------------|---------------------------|-------------|
| Fb +      | 2,400.0 psi | E : Modulus of Elasticity |             |
| Fb -      | 1,850.0 psi | Ebend- xx                 | 1,800.0 ksi |
| Fc - Prll | 1,650.0 psi | Eminbend - xx             | 950.0 ksi   |
| Fc - Perp | 650.0 psi   | Ebend- yy                 | 1,600.0 ksi |
| Fv        | 265.0 psi   | Eminbend - yy             | 850.0 ksi   |
| Ft        | 1,100.0 psi | Density                   | 31.210 pcf  |



### Applied Loads

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

Uniform Load : D = 0.0150 ksf, Tributary Width = 4.0 ft, (Wall)  
Uniform Load : D = 0.020, Lr = 0.020 ksf, Tributary Width = 2.0 ft, (Roof)  
Point Load : D = 1.30, L = 2.50 k @ 8.0 ft, (New Beam)

### DESIGN SUMMARY

**Design OK**

|                                   |   |                 |         |                             |    |                 |   |
|-----------------------------------|---|-----------------|---------|-----------------------------|----|-----------------|---|
| Maximum Bending Stress Ratio      | = | <b>0.785</b>    | 1       | Maximum Shear Stress Ratio  | =  | <b>0.311</b>    | 1 |
| Section used for this span        | = | <b>3.125x15</b> |         | Section used for this span  | =  | <b>3.125x15</b> |   |
|                                   | = | 1,884.16 psi    |         |                             | =  | 82.48 psi       |   |
|                                   | = | 2,400.00 psi    |         |                             | =  | 265.00 psi      |   |
| Load Combination                  | = | +D+L            |         | Load Combination            | =  | +D+L            |   |
| Location of maximum on span       | = | 8.000 ft        |         | Location of maximum on span | =  | 14.774 ft       |   |
| Span # where maximum occurs       | = | Span # 1        |         | Span # where maximum occurs | =  | Span # 1        |   |
| <b>Maximum Deflection</b>         |   |                 |         |                             |    |                 |   |
| Max Downward Transient Deflection |   | 0.234 in        | Ratio = | 819                         | >= | 360             |   |
| Max Upward Transient Deflection   |   | 0.000 in        | Ratio = | 0                           | <  | 360             |   |
| Max Downward Total Deflection     |   | 0.450 in        | Ratio = | 426                         | >= | 240             |   |
| Max Upward Total Deflection       |   | 0.000 in        | Ratio = | 0                           | <  | 240             |   |

### Overall Maximum Deflections

| Load Combination | Span | Max. "-" Defl | Location in Span | Load Combination | Max. "+" Defl | Location in Span |
|------------------|------|---------------|------------------|------------------|---------------|------------------|
| +D+L             | 1    | 0.4499        | 8.058            |                  | 0.0000        | 0.000            |

### Vertical Reactions

Support notation : Far left is #1

Values in KIPS

| Load Combination  | Support 1 | Support 2 |
|-------------------|-----------|-----------|
| Overall MAXimum   | 2.700     | 2.700     |
| Overall MINimum   | 1.250     | 1.250     |
| D Only            | 1.450     | 1.450     |
| +D+L              | 2.700     | 2.700     |
| +D+Lr             | 1.770     | 1.770     |
| +D+0.750Lr+0.750L | 2.628     | 2.628     |
| +D+0.750L         | 2.388     | 2.388     |
| +0.60D            | 0.870     | 0.870     |
| Lr Only           | 0.320     | 0.320     |

## Wood Beam

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J.D. WYLIE ENGINEERING

DESCRIPTION: New Garage Door Header

### Vertical Reactions

Support notation : Far left is #1

Values in KIPS

| Load Combination | Support 1 | Support 2 |
|------------------|-----------|-----------|
| L Only           | 1.250     | 1.250     |

## Wood Beam

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File: MII344-20 CALCS.ec6  
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J.D. WYLIE ENGINEERING

DESCRIPTION: New Man Door Header

### CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16

Load Combination Set : IBC 2018

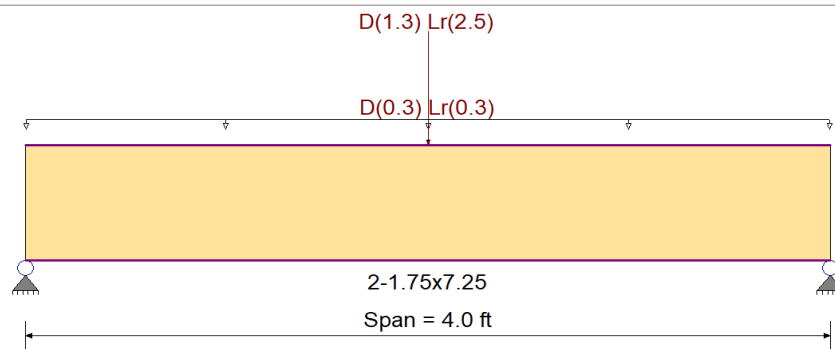
### Material Properties

Analysis Method : Allowable Stress Design  
Load Combination IBC 2018

Wood Species : iLevel Truss Joist  
Wood Grade : MicroLam LVL 2.0 E

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

Fb + 2600 psi E : Modulus of Elasticity  
Fb - 2600 psi Ebend- xx 2000 ksi  
Fc - Prll 2510 psi Eminbend - xx 1016.535 ksi  
Fc - Perp 750 psi  
Fv 285 psi  
Ft 1555 psi Density 42.01 pcf



### Applied Loads

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

Uniform Load : D = 0.020, Lr = 0.020 ksf, Tributary Width = 15.0 ft, (Roof)

Point Load : D = 1.30, Lr = 2.50 k @ 2.0 ft, (New Beam)

### DESIGN SUMMARY

Design OK

|                                   |   |              |              |                             |   |             |   |
|-----------------------------------|---|--------------|--------------|-----------------------------|---|-------------|---|
| Maximum Bending Stress Ratio      | = | 0.602        | 1            | Maximum Shear Stress Ratio  | = | 0.455       | 1 |
| Section used for this span        | = | 2-1.75x7.25  |              | Section used for this span  | = | 2-1.75x7.25 |   |
|                                   | = | 1,956.85 psi |              |                             | = | 162.02 psi  |   |
|                                   | = | 3,250.00 psi |              |                             | = | 356.25 psi  |   |
| Load Combination                  |   | +D+Lr        |              | Load Combination            |   | +D+Lr       |   |
| Location of maximum on span       | = | 2.000 ft     |              | Location of maximum on span | = | 3.401 ft    |   |
| Span # where maximum occurs       | = | Span # 1     |              | Span # where maximum occurs | = | Span # 1    |   |
| <b>Maximum Deflection</b>         |   |              |              |                             |   |             |   |
| Max Downward Transient Deflection |   | 0.034 in     | Ratio = 1417 | >=360                       |   |             |   |
| Max Upward Transient Deflection   |   | 0.000 in     | Ratio = 0    | <360                        |   |             |   |
| Max Downward Total Deflection     |   | 0.055 in     | Ratio = 868  | >=240                       |   |             |   |
| Max Upward Total Deflection       |   | 0.000 in     | Ratio = 0    | <240                        |   |             |   |

### Overall Maximum Deflections

| Load Combination | Span | Max. "-" Defl | Location in Span | Load Combination | Max. "+" Defl | Location in Span |
|------------------|------|---------------|------------------|------------------|---------------|------------------|
| +D+Lr            | 1    | 0.0552        | 2.015            |                  | 0.0000        | 0.000            |

### Vertical Reactions

Support notation : Far left is #1

Values in KIPS

| Load Combination | Support 1 | Support 2 |
|------------------|-----------|-----------|
| Overall MAXimum  | 3.100     | 3.100     |
| Overall MINimum  | 1.850     | 1.850     |
| D Only           | 1.250     | 1.250     |
| +D+Lr            | 3.100     | 3.100     |
| +D+0.750Lr       | 2.638     | 2.638     |
| +0.60D           | 0.750     | 0.750     |
| Lr Only          | 1.850     | 1.850     |