

# 20'x24' Rectangle Wood Pavilion

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## Drawing Index

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### GENERAL NOTES

All notes do not necessarily apply due to different requirements on each project. This plan is intended to reflect only the structural design of this building. The contractor shall review all applicable local, state, and federal building codes prior to the start of construction to ensure building conformance. Timber Tech Engineering, Inc. is not responsible for information pertaining to this project if not shown on drawings or listed below. Revisions to the plans shall be approved by engineer of record.

### DESIGN REQUIREMENTS

- 1. Governing Code:  
Including, not limited to: IBC 2009
- 2. Dead Loads:
  - A. Roof 5 psf
  - B. Floor n/a psf
  - C. Other n/a psf
- 3. Live Loads:
  - A. Roof (See also note #4) 37.8 psf
  - B. Floor n/a psf
  - C. Other n/a psf
- 4. Snow Loads:
  - A. Ground Snow (Pg) 45 psf
  - B. Flat Roof Snow (Pt) 37.8 psf
  - C. Snow Exposure Factor (Ce) 1.0
  - D. Snow Load Importance Factor (I) 1.0
  - E. Unbalanced Snow
    - i. Windward Roof 0 psf
    - ii. Leeward Roof 45 psf
- 5. Wind Load
  - A. Basic Wind Speed (V) 140 mph
  - B. Wind Load Importance Factor (I) 1.0
  - C. Wind Exposure Category C
  - D. Enclosure Category Open
  - E. Components and Cladding: +72 psf/-93 psf
- 6. Earthquake Design Data:  
(Analysis based on equivalent lateral force procedure)
  - A. Spectral Response Acceleration at 1 sec, S 0.3
  - B. Spectral Response Acceleration at short periods, S 0.6
  - C. Seismic Use Group 1
  - D. Occupancy Importance Factor, I 1.0
  - E. Site Class D
  - F. Basic Structural System  
Cantilevered Column: Timber Frame
  - G. Response Modification Factor (R) 1.5
  - H. Deflection Amplification Factor (Cd) 1.5

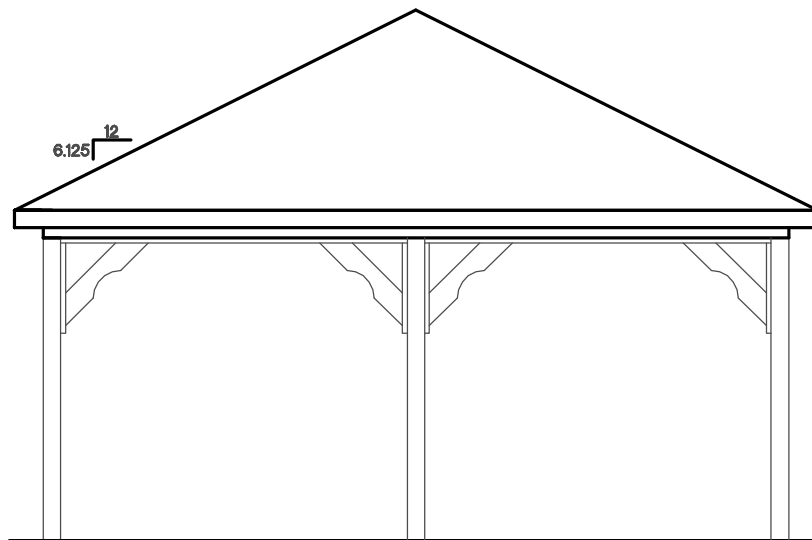
### ABBREVIATIONS

at	mil.	millimeter
beam	min.	minimum
conc.	nts	not to scale
cont.	o/c	on center
dia.	pcf	pounds per cubic foot
exist.	pl	plywood
flr.	psf	pounds per square foot
ft.	psl	pounds per square inch
ga.	req'd.	required
hdw.	s.s.	stainless steel
hdr.	stl.	steel
jst.	thk.	thick
kai	trd.	treated
lbs.	typ.	typical
max.	w/	with
	mfr.	manufacturer

### WOOD

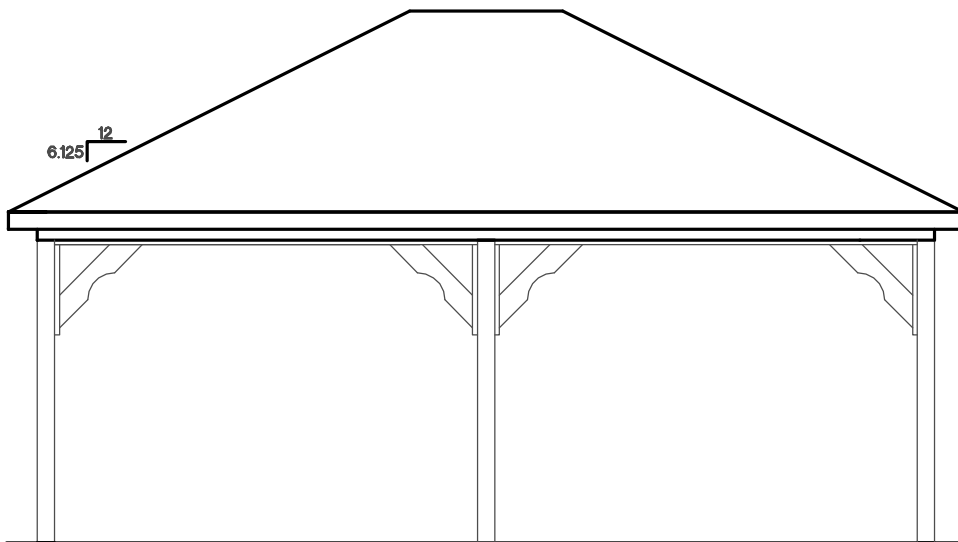
- 1. General Requirements
  - A. Structural wood members and connections shall be of sufficient size or capacity to carry all design loads without exceeding the allowable design values specified in 'The National Design specification for Wood Construction' (NDS), 2005 edition, and its 'Supplement' by the American Forest and Paper Association (AF+PA).
  - B. Wood members used for load supporting purposes shall have the grade mark of a lumber grading agency certified by the American Lumber Standards Committee.
- 2. Dimension Lumber
  - A. All lumber species, graded visually or mechanically, shall comply with the NDS by AF+PA, and the 'American Softwood Lumber Standard' (PS 20-94) by the U.S. Department of Commerce.
  - B. The minimum grade and species for posts, beams, headers, and other primary structural members shall be Dense Select Structural Southern Pine, unless specified otherwise.
  - C. Lumber used for secondary framing shall be #1 Southern Yellow Pine (SYP) or better.
  - D. Post frame headers shall be two-span continuous beams with all multiple ply headers overlapping so that the butt joints for each ply do not occur at the same post.
  - E. Mechanically laminated columns shall conform with ANSI/ASAE EP 559.
- 3. Pressure Preservative Treatment (PPT)
  - A. Pressure treatment to be performed according to the American Wood Preservers' Association (AWPA) standards.
  - B. Pressure treated members shall have the inspection mark of an agency accredited by the American Lumber Standards Committee.
  - C. Preservative: Ammonia Copper Quaternary ammonia (ACQ) or Copper Boron Azole (CBA)
  - D. Minimum waterborne treatment retention shall be 0.4 pcf for members above ground, and 0.6 pcf for members in contact with earth.
  - E. Treat indicated items and the following:
    - 1. Wood members exposed to weather or insect infestation.
    - 2. Wood members in direct contact with earth or concrete.
    - 3. Wood members exposed to high moisture content (>19% for dimension lumber, >16% for glued laminated timber).
    - 4. Wood members less than 12 inches above grade.
    - F. Field treat newly exposed wood where cutting, drilling or notching pressure treated lumber.
    - G. Metal connectors used in treated wood shall be hot-dip galvanized as per ASTM A153-01a.
- 4. Connections shall be designed and constructed according to the NDS by AF+PA and shall conform to the following:
  - A. The minimum connection shall be two 12 penny nails, or as detailed on the drawings.
  - B. Other connections as per standard construction practice.

Design Reaction Chart	
Max. Moment in column	3,300 lb-ft
Max. uplift at column base	3,000 lb
Max. downward force at column base	5,600 lb
Max. shear at column base	525 lb



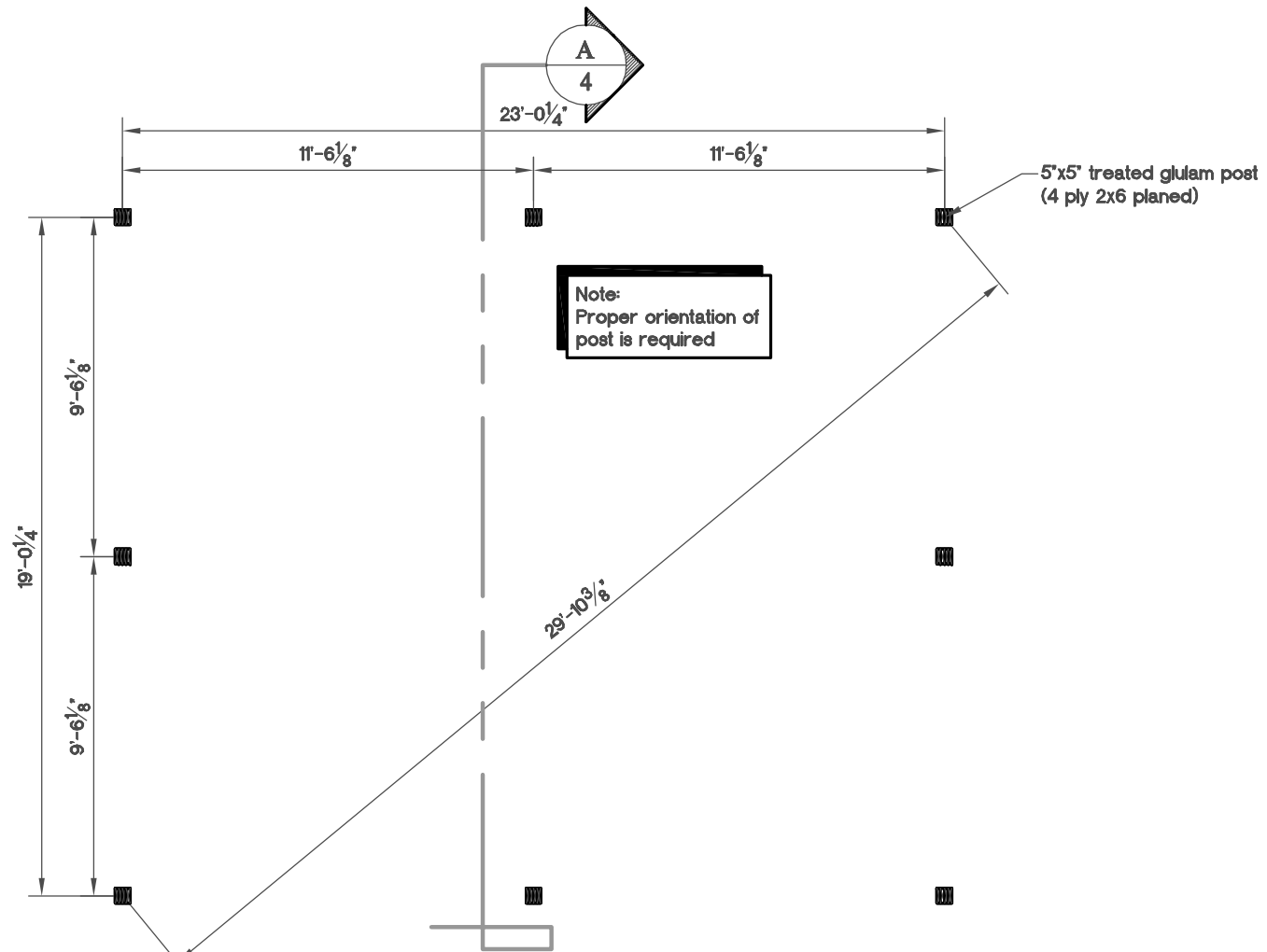
End Elevation

N.T.S.



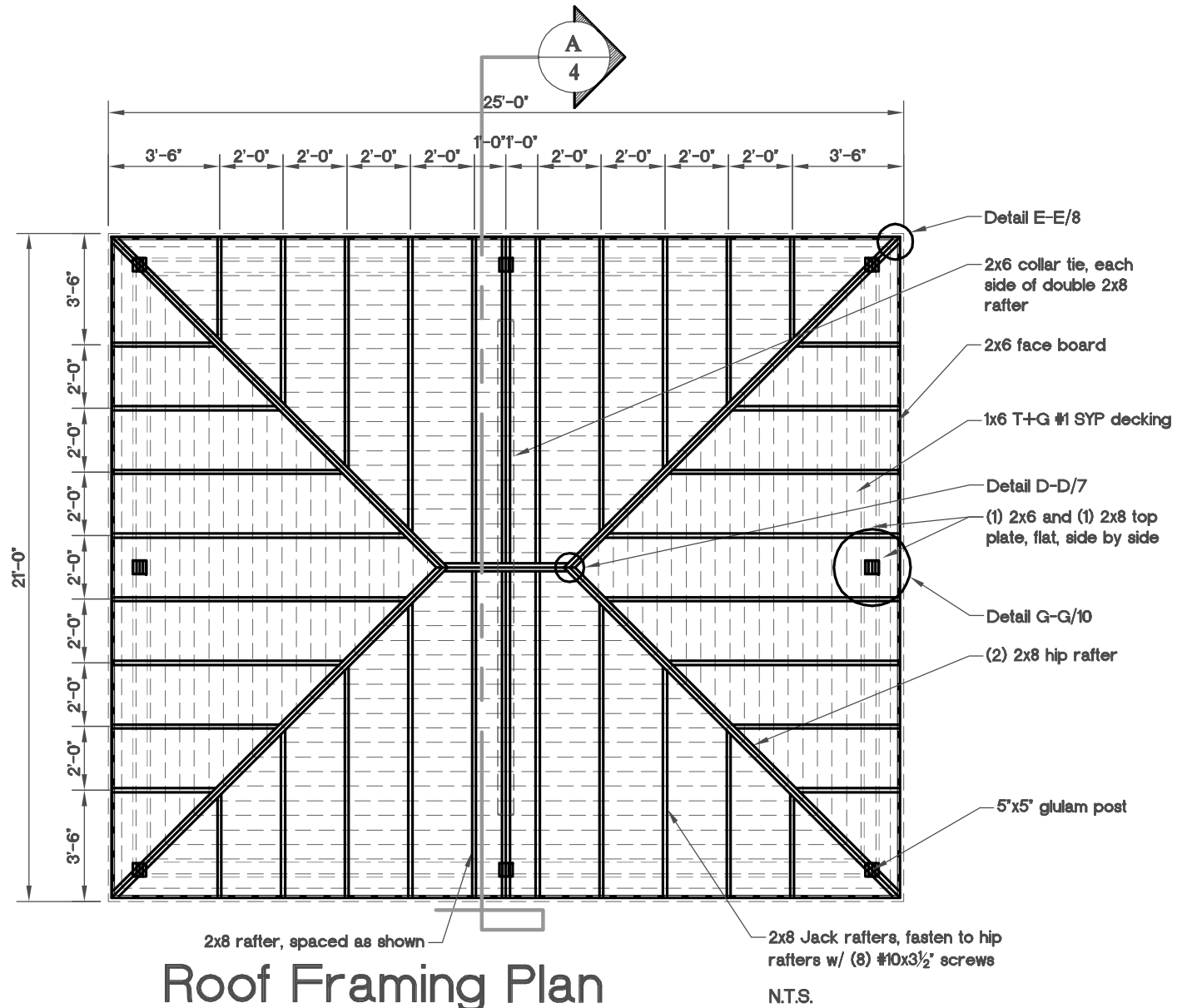
Side Elevation

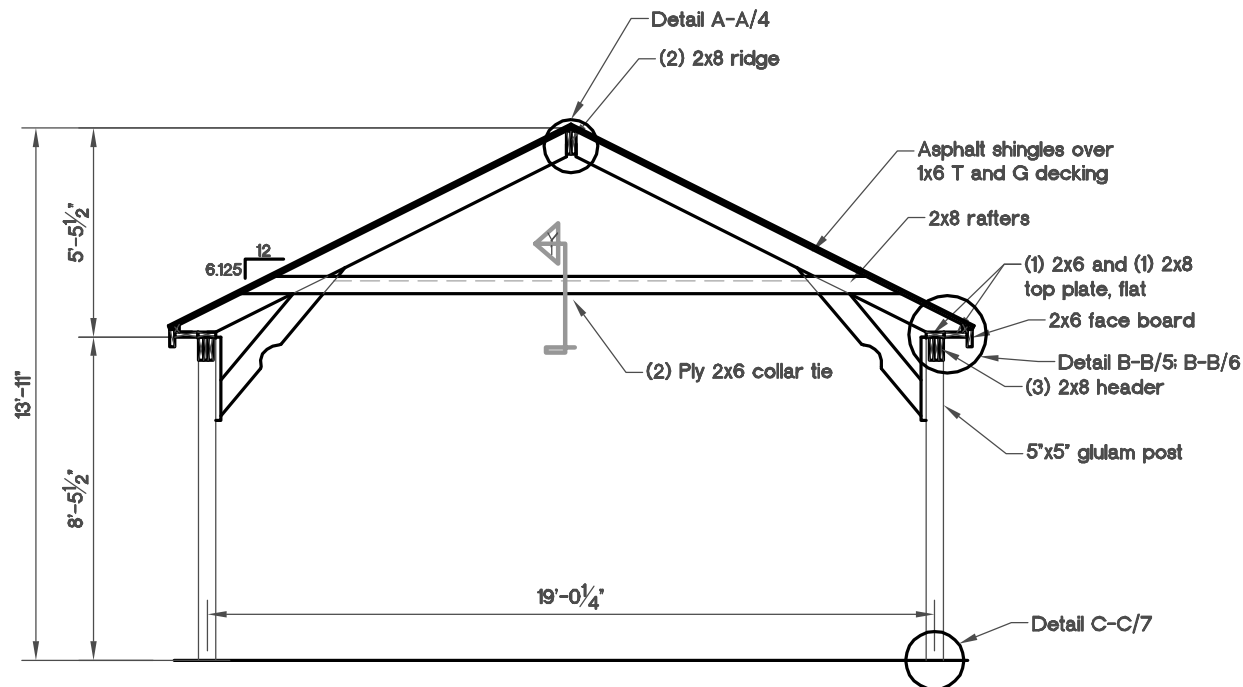
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Post Layout Plan

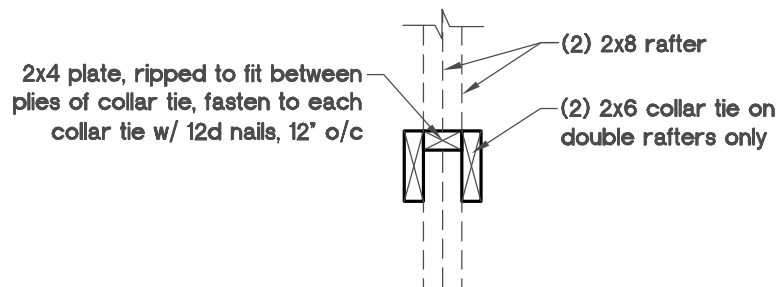
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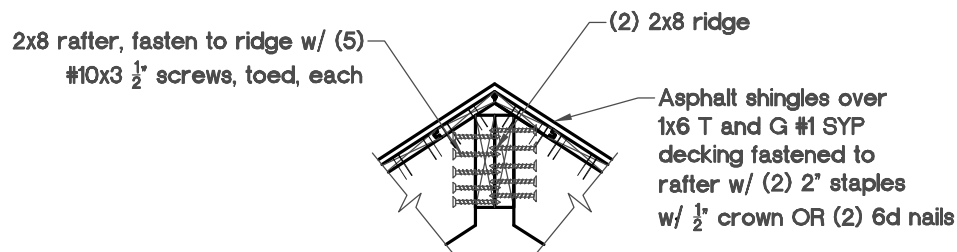
Cross Section A/4

N.T.S.

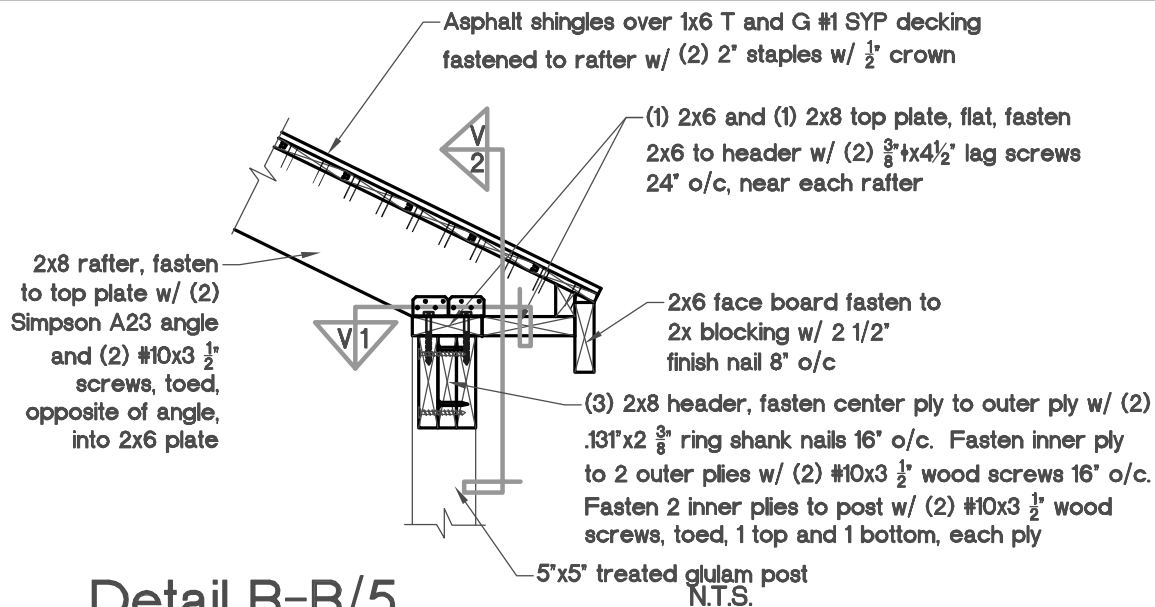
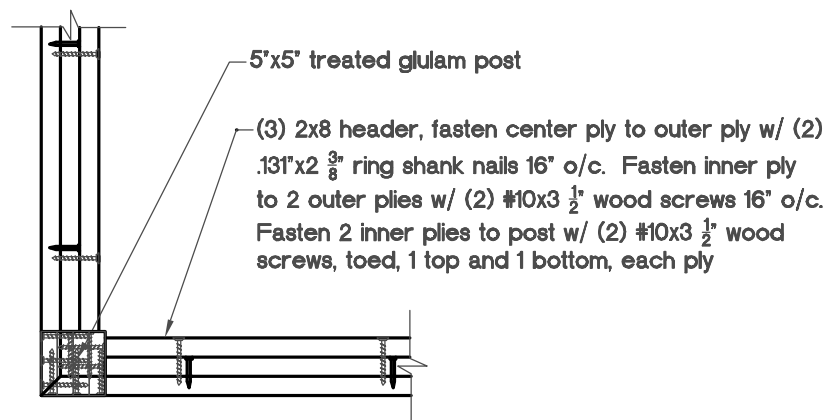


View 1 Cross Section A/4

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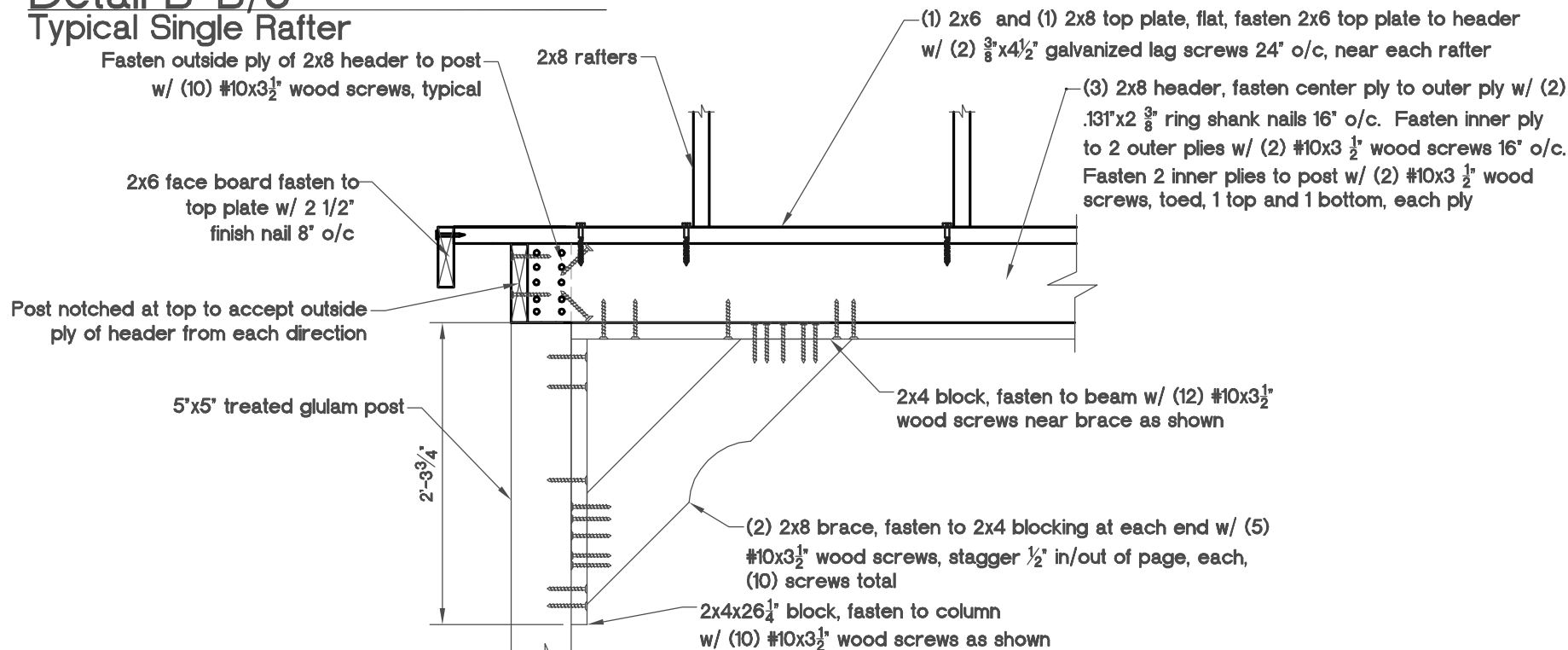
Detail A-A/4  
Typical Single Rafter

N.T.S.

Detail B-B/5  
Typical Single Rafter

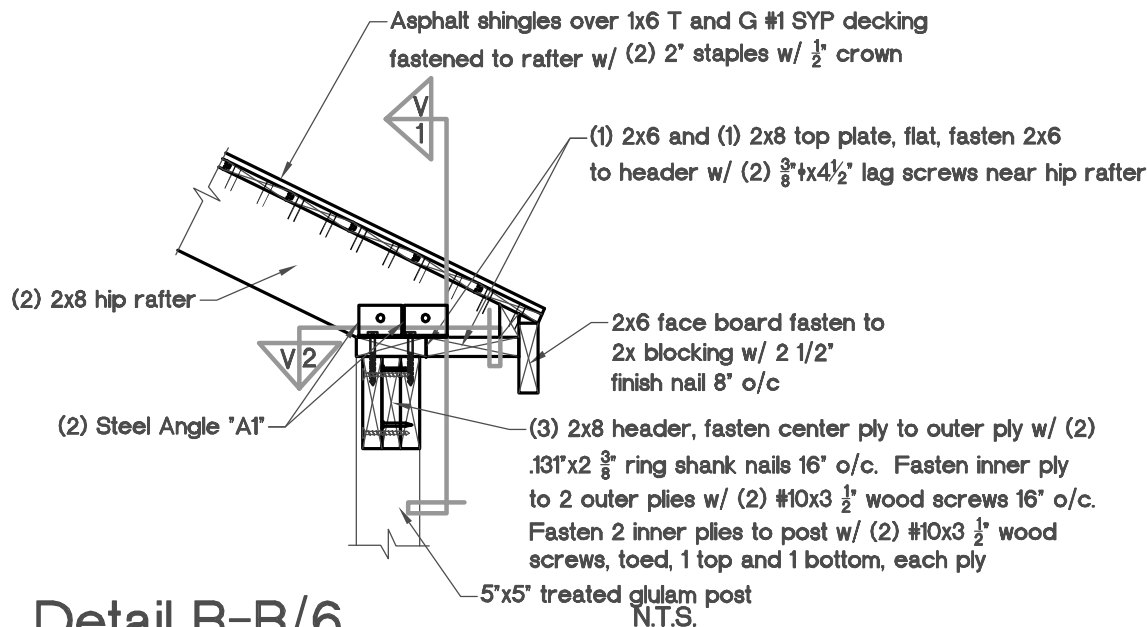
View 1 Detail B-B/5

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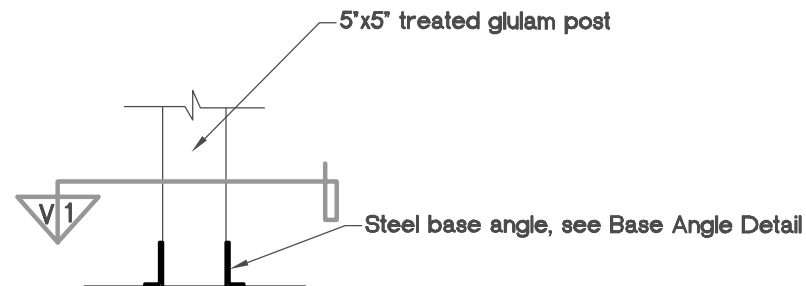


View 2 Detail B-B/5

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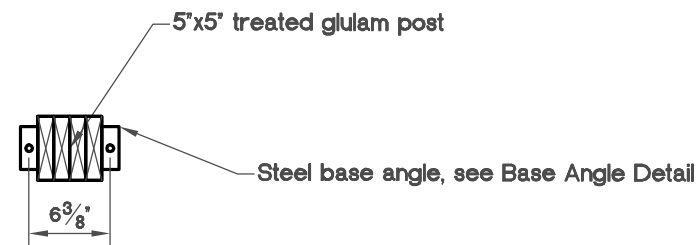


**Detail B-B/6**  
Hip Rafter Connection



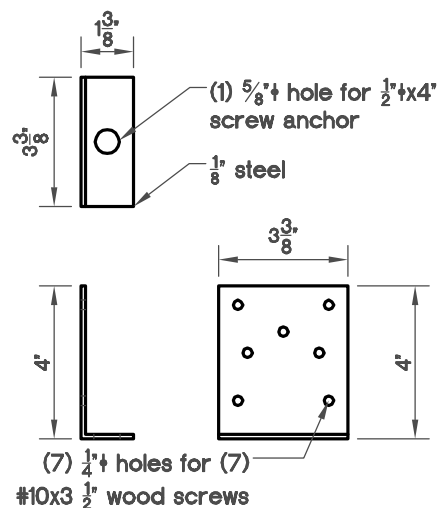
**Detail C-C/6**

N.T.S.



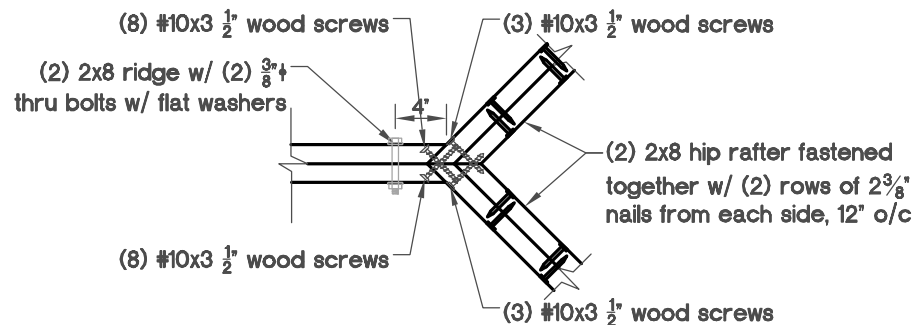
**View 1 Detail C-C/6**

N.T.S.

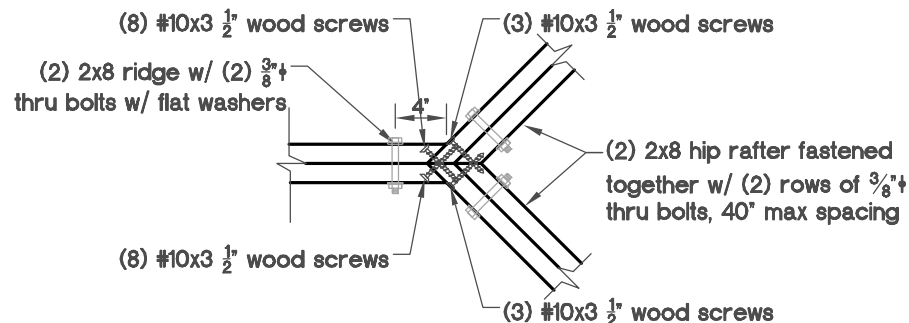


**Base Angle Detail**

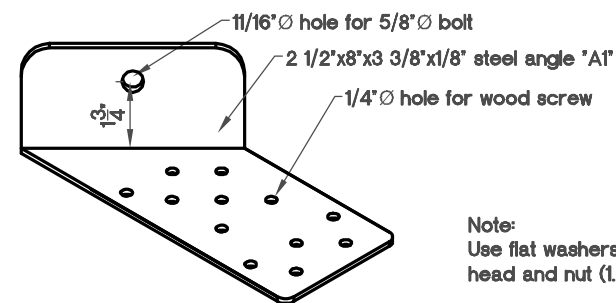
N.T.S.

**Detail D-D/7**  
Option 1

N.T.S.

**Detail D-D/7**  
Option 2

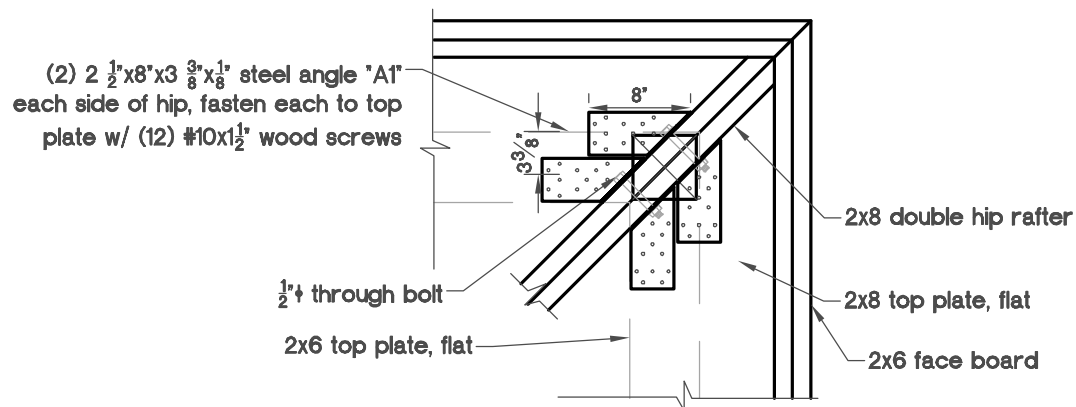
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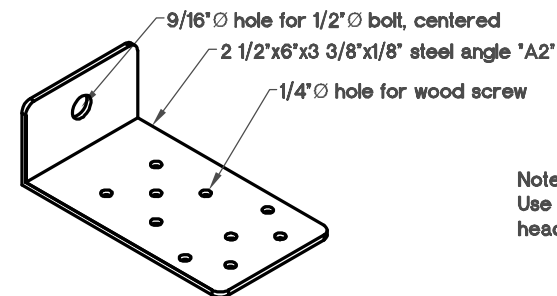
Note:  
Use flat washers under bolt head and nut (1.25" O.D. min.)

**Angle "A1"**

N.T.S.

**Detail E-E/7**

N.T.S.

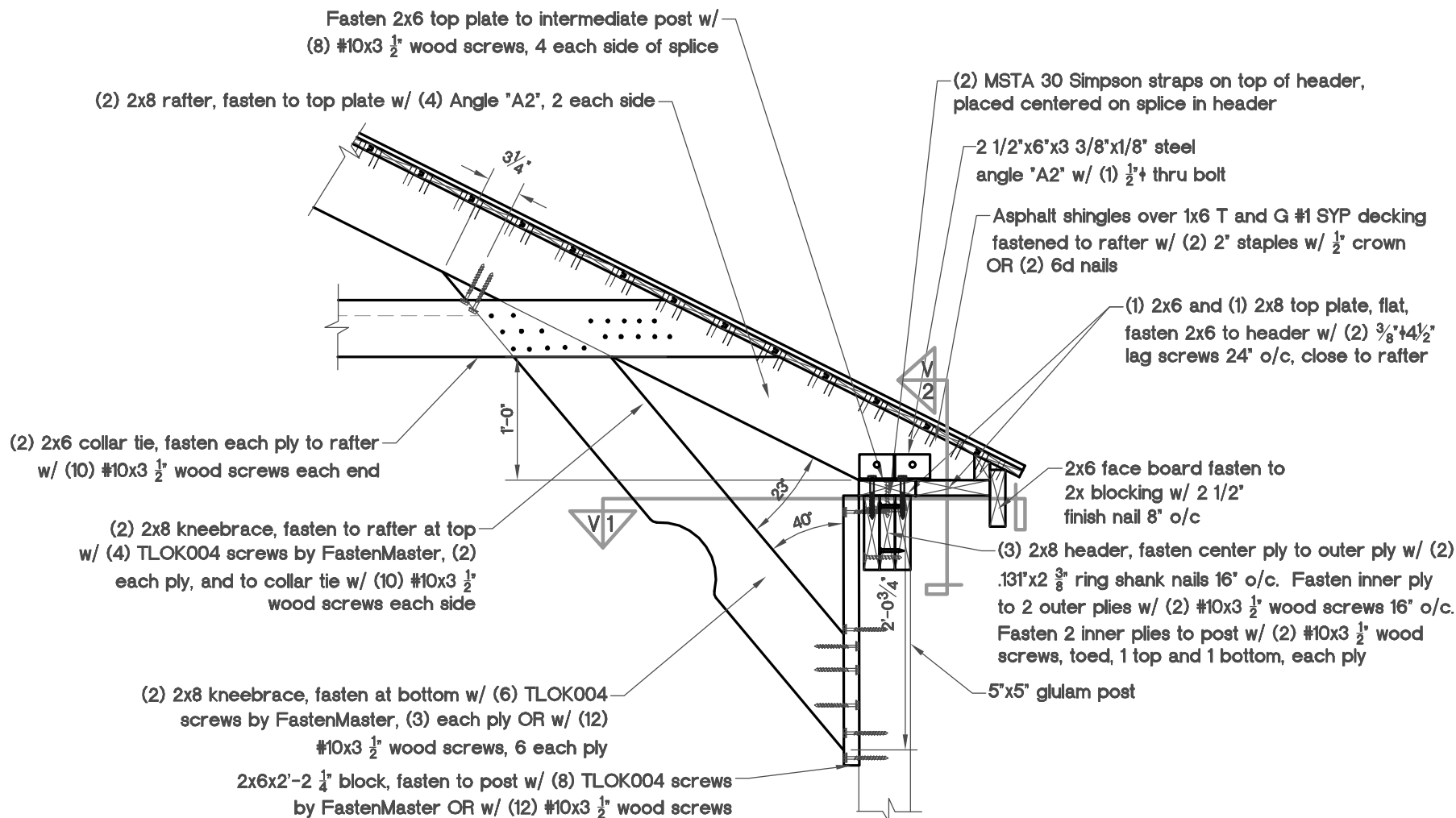


Note:  
Use flat washers under bolt head and nut (1.25" O.D. min.)

**Angle "A2"**

N.T.S.





# Detail F-F/8

## Center Double Rafter

N.T.S.

Fasten 2x6 top plate to intermediate post w/  
(8) #10x3 $\frac{1}{2}$ " wood screws, 4 each side of splice

(1) 2 $\frac{1}{2}$ "x9"x3 $\frac{3}{8}$ "x $\frac{1}{8}$ " steel angle "A3"  
each side of double rafter, fasten each  
to top plate w/ (18) #10 wood screws  
(1 $\frac{1}{2}$ " screws typical except (2) 3 $\frac{1}{2}$ " screws  
each angle)

2x6 top plate, flat

(1) 2 $\frac{1}{2}$ "x6"x3 $\frac{3}{8}$ "x $\frac{1}{8}$ " steel angle "A2"  
each side of double rafter,  
fasten each to top plate w/ (10)  
#10 wood screws (1 $\frac{1}{2}$ " screws  
typical except (2) 3 $\frac{1}{2}$ " screws  
each angle)

Plate "P2"

$\frac{1}{2}$ " through bolt

2x6 double rafter, fasten  
to tension ring w/ angle "A2"

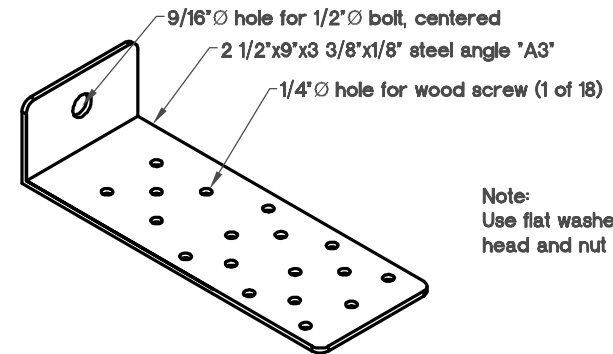
(2) MSTA 30 Simpson straps on  
top of header, placed centered  
on splice in header, between top  
plate and header

Align straps w/ outer  
header plies below

Splice in tension ring to  
occur at this location only

2x8 top plate, flat

2x6 face board



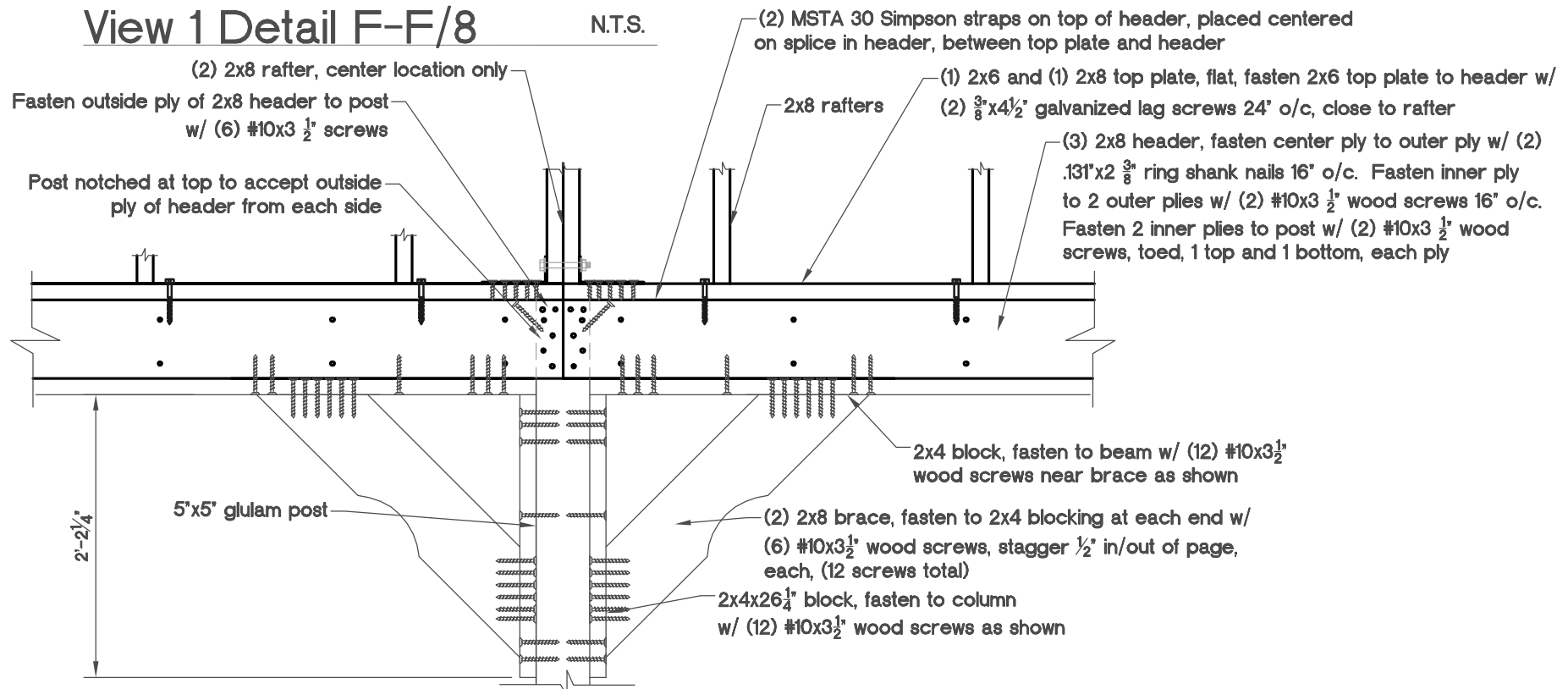
Note:  
Use flat washers under bolt  
head and nut (1.25" O.D. min.)

Angle "A3"

N.T.S.

## View 1 Detail F-F/8

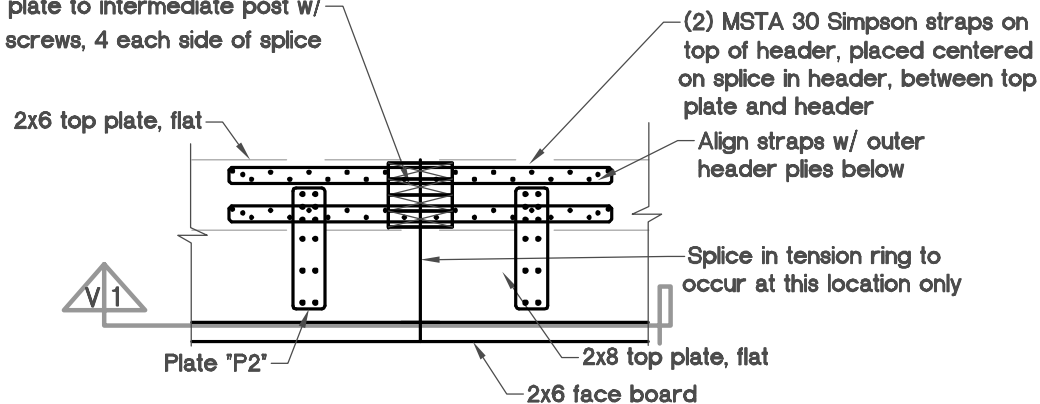
N.T.S.



## View 2 Detail F-F/8

N.T.S.

Fasten 2x6 top plate to intermediate post w/  
(8) #10x3 $\frac{1}{2}$ " wood screws, 4 each side of splice



Detail G-G/10

N.T.S.

2  $\frac{1}{2}$ "x9  $\frac{1}{2}$ "x 10 gauge steel plate "P2"  
w/ (12)  $\frac{1}{4}$ " holes for #10x1  $\frac{1}{2}$ " screws,  
(6) into each top plate member

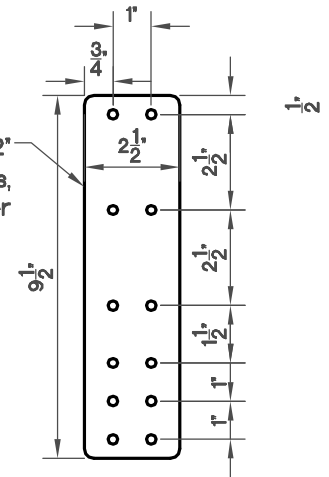
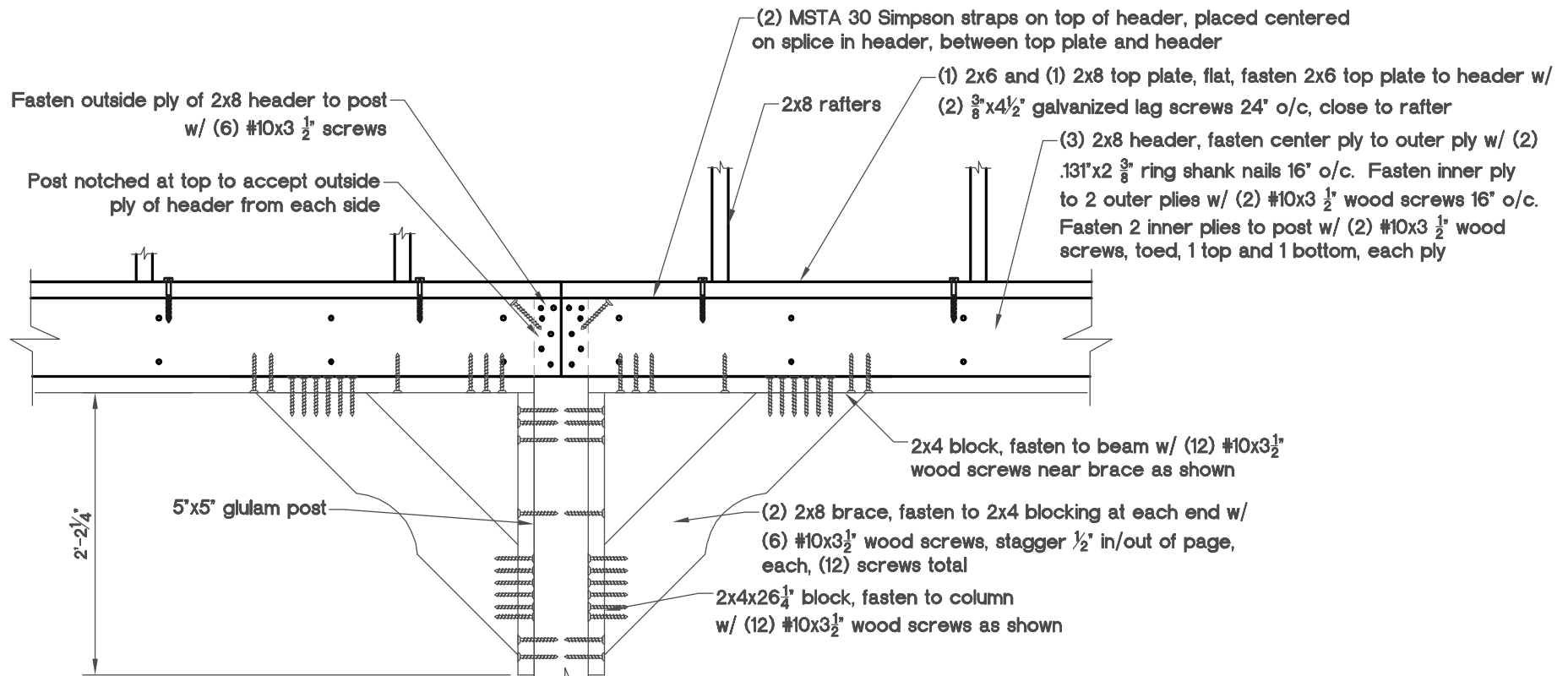


Plate "P2"

N.T.S.



View 1 Detail G-G/10

N.T.S.