

# 20'x36' Rectangle PVC Pavilion

This drawing is the property of Country Lane Woodworking, LLC, provided by Timber Tech Engineering, Inc. and reproduction, alteration or use of this drawing without the written consent of Country Lane Woodworking, LLC is prohibited. Drawings shall not be scaled to obtain dimensions. The contractors and builders involved on this project shall verify all dimensions and conditions before starting work and any discrepancy shall be reported to the engineer in writing before starting work.

## Drawing Index

Page 1 - Elevations  
 Page 2 - Post Layout Plan  
 Page 3 - Roof Framing  
 Page 4 - Cross Section, Details  
 Page 5 - Page 10 - Details  
 Page 11 - Column Nail Schedule

### 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)	30	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)	38	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/-94 psf	
6. Earthquake Design Data:  
(Analysis based on equivalent lateral force procedure)
 

A. Spectral Response Acceleration at 1 sec, S	0.42
B. Spectral Response Acceleration at short periods, S	0.83
C. Seismic Use Group	1
D. Occupancy Importance Factor, I	1.0
E. Site Class	D
F. Basic Structural System	Canilevered Column: Timber Frame
G. Response Modification Factor (R)	1.5
H. Deflection Amplification Factor (Cd)	1.5

### ABBREVIATIONS:

at	mil.	millimeter
beam	min.	minimum
concr.	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.	psf	pounds per square inch
ga.	req'd.	required
hdw.	s.s.	stainless steel
hdr.	st.	steel
jst.	thk.	thick
kai	trd.	treated
lbs.	typ.	typical
max.	w/	with
	mfr.	manufacturer

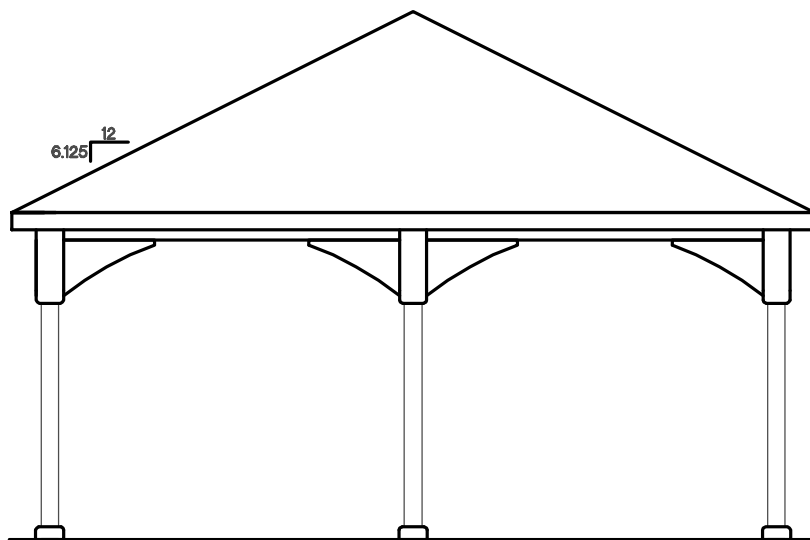
### WOOD

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.

### Polyvinyl Chloride Compound (PVC)

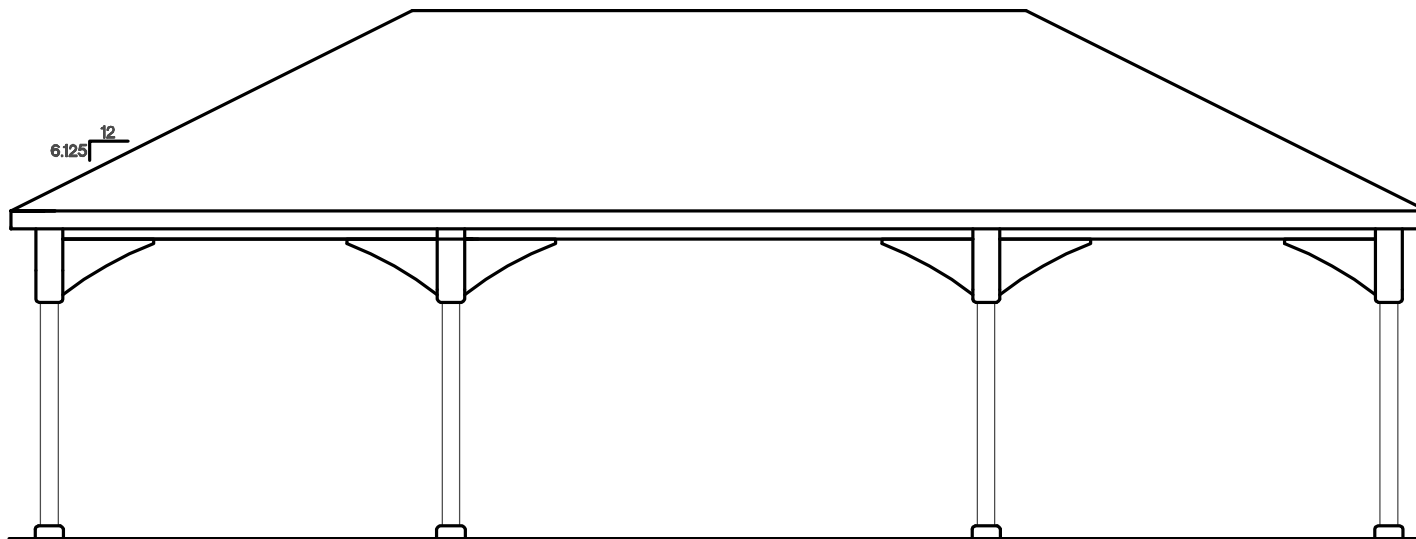
1. General Requirements
  - A. PVC sleeve material used to wrap wood members to be supplied according to Certified corporation specifications or equivalent.
  - B. PVC sleeve material to be 0.160" thick for posts, and 0.105" thick for other structural members

Design Reaction Chart	
Max. Moment in column	5,900 lb-ft.
Max. uplift at column base	3,175 lb
Max. downward force at column base	6,775 lb
Max. shear at column base	925 lb



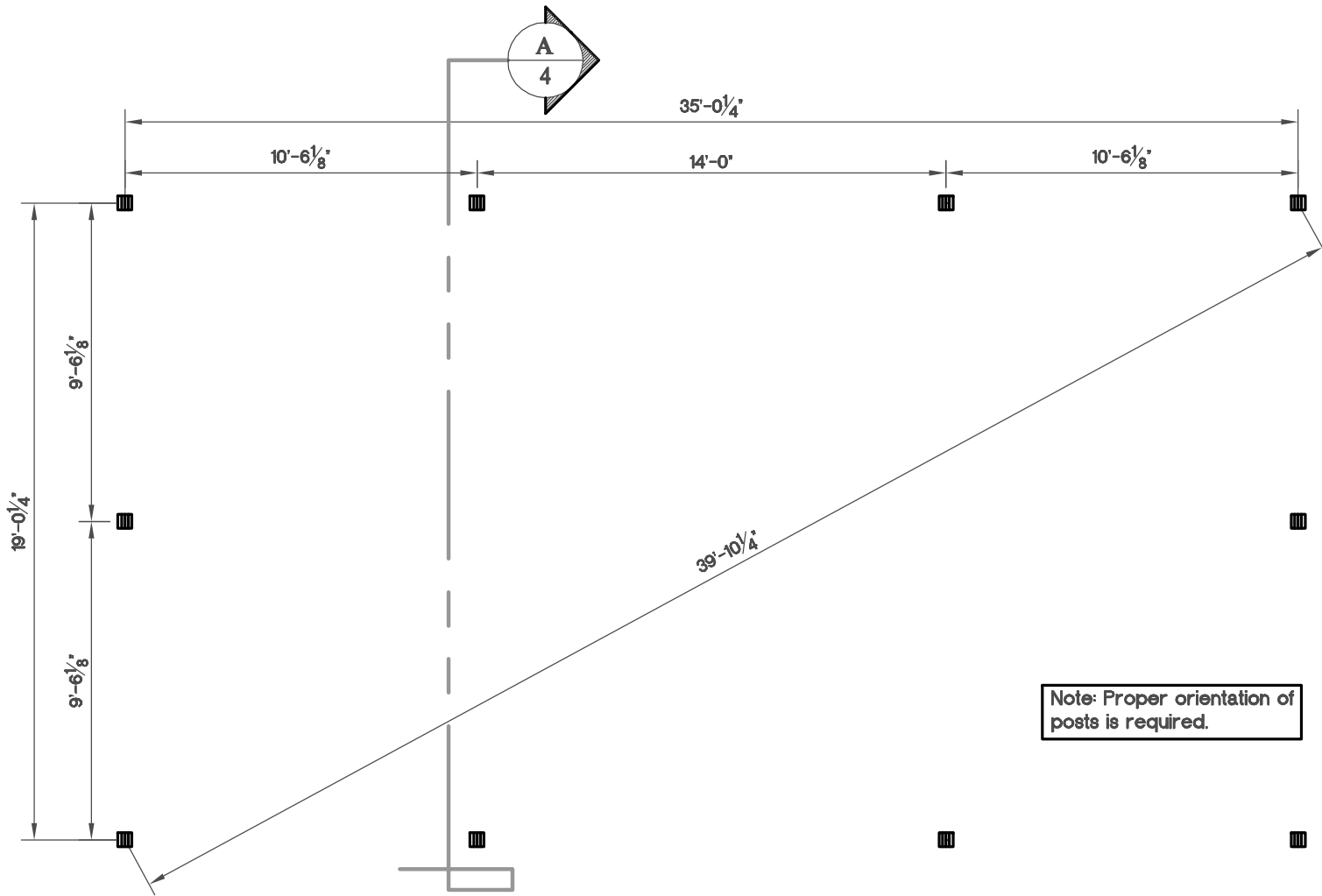
End Elevation

NTS



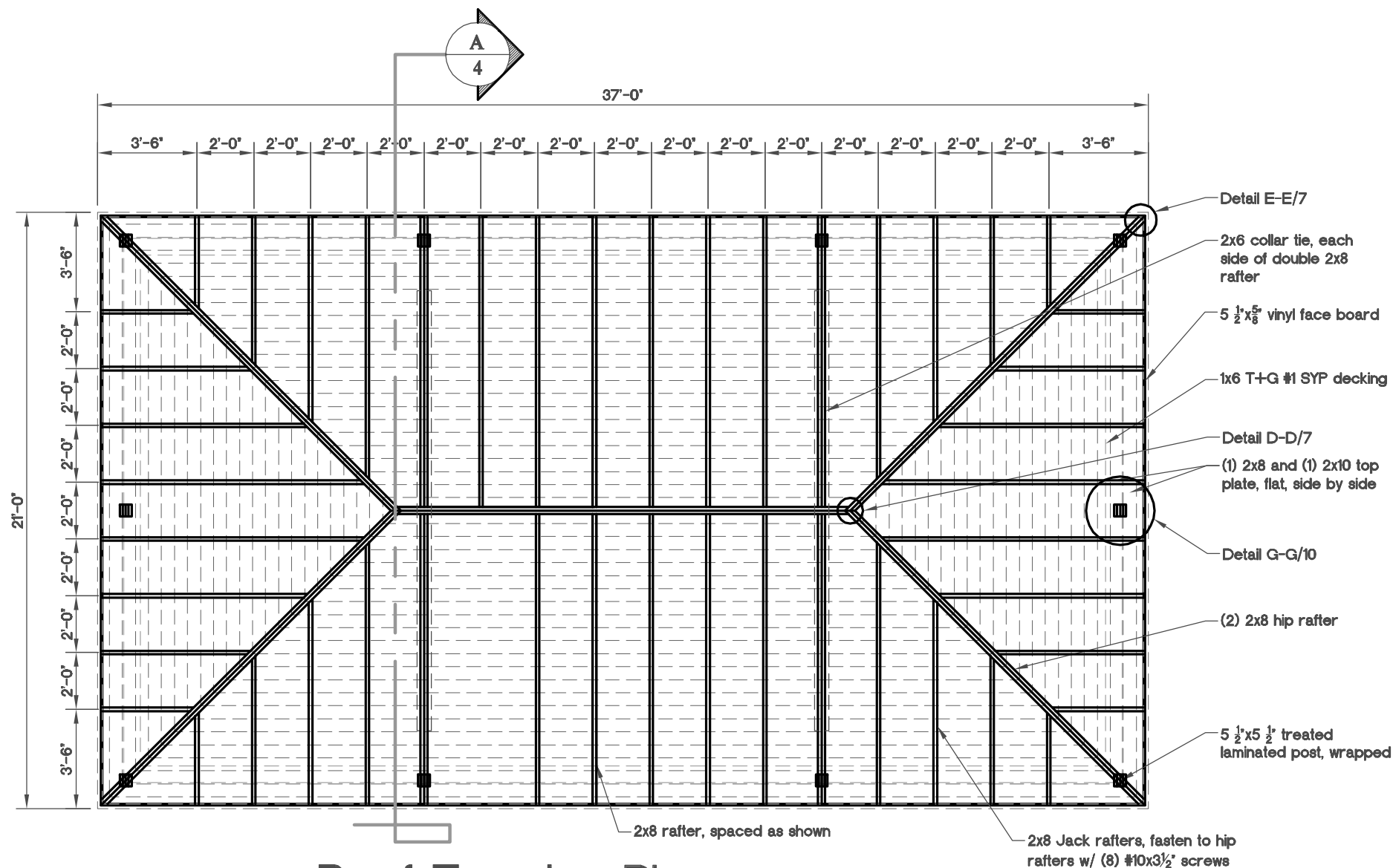
Side Elevation

NTS



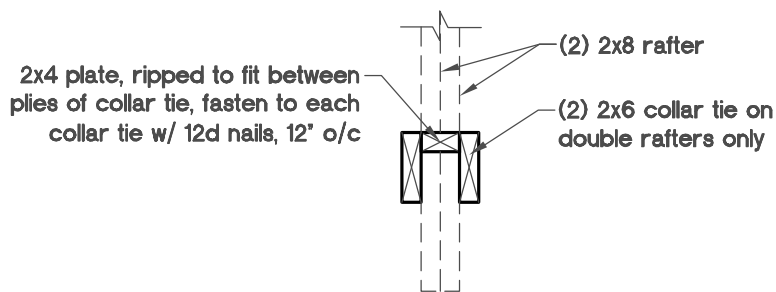
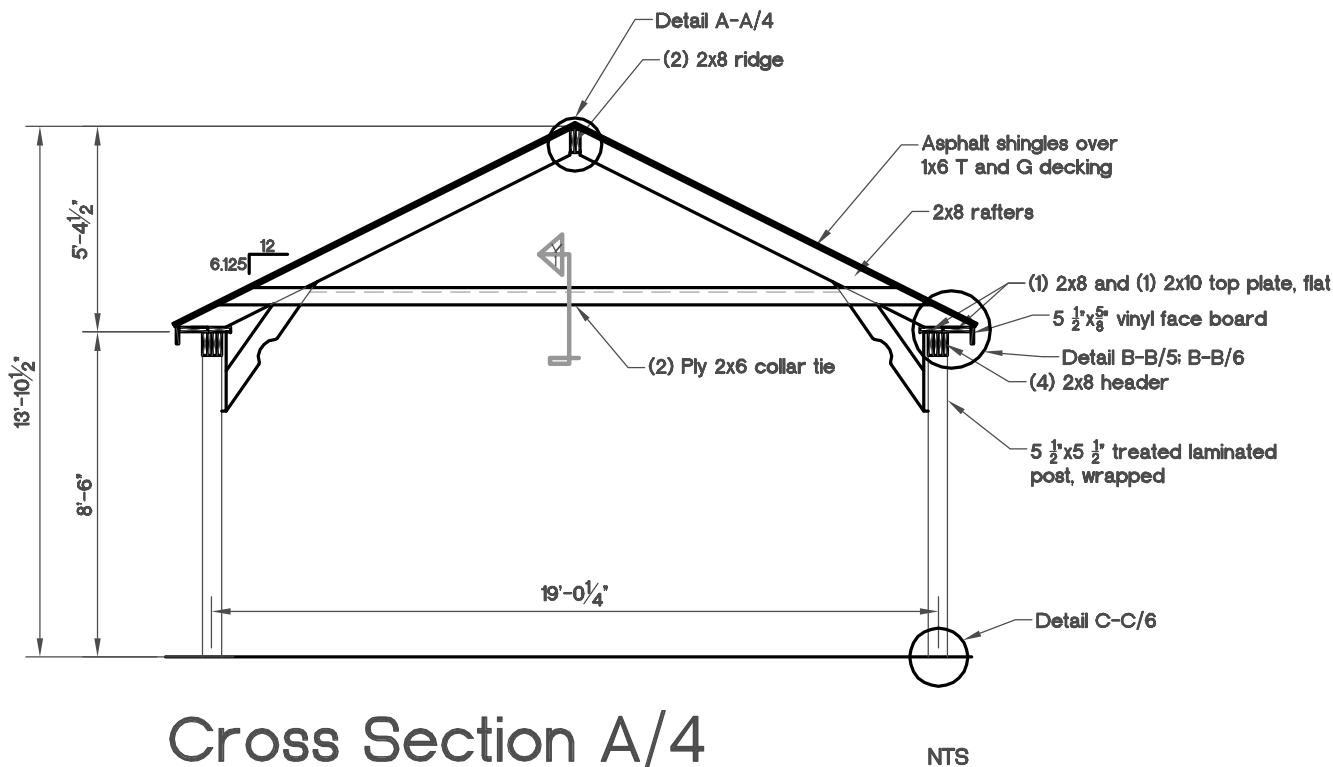
Post Layout Plan

NTS

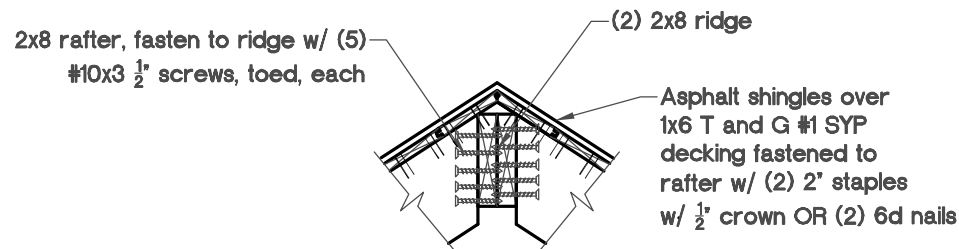


# Roof Framing Plan

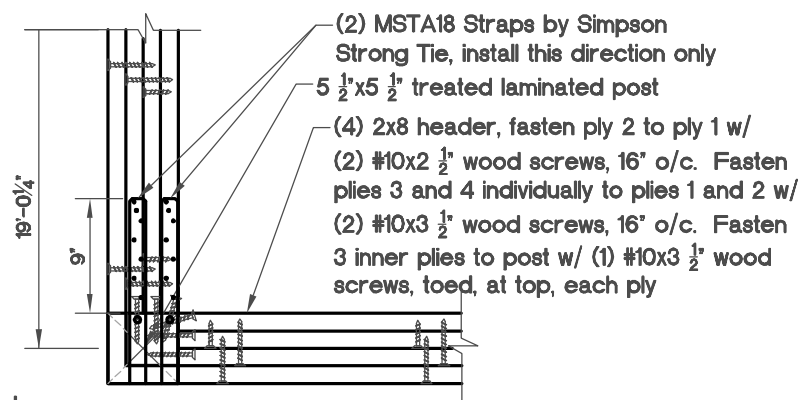
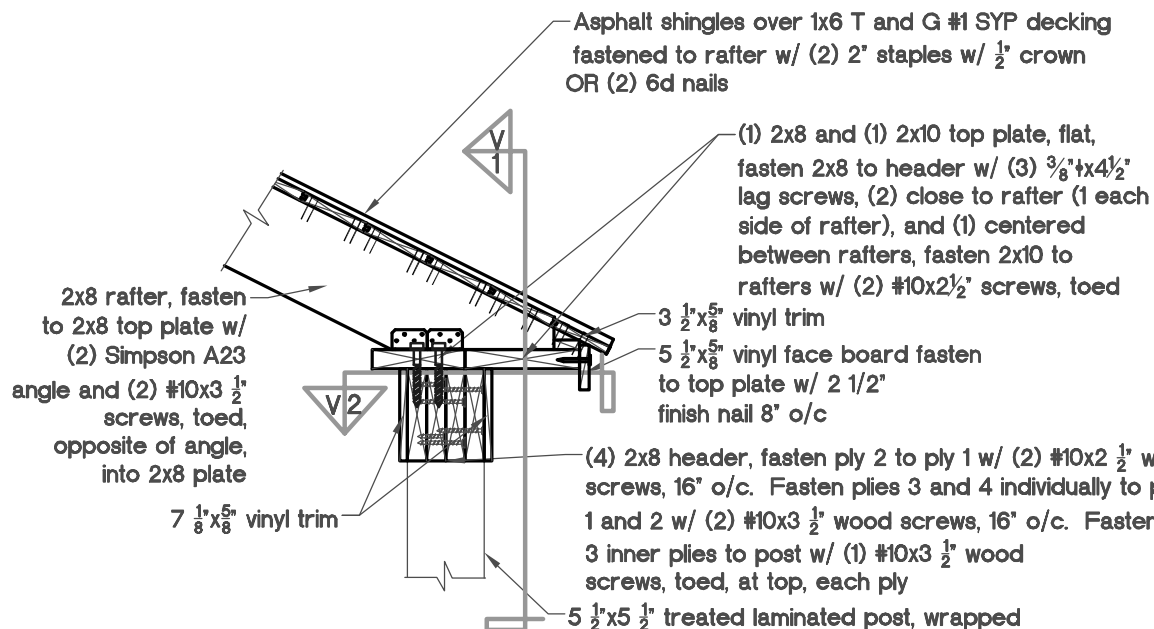
NTS



**View 1 Cross Section A/4** NTS



**Detail A-A/4**  
Typical Single Rafter NTS

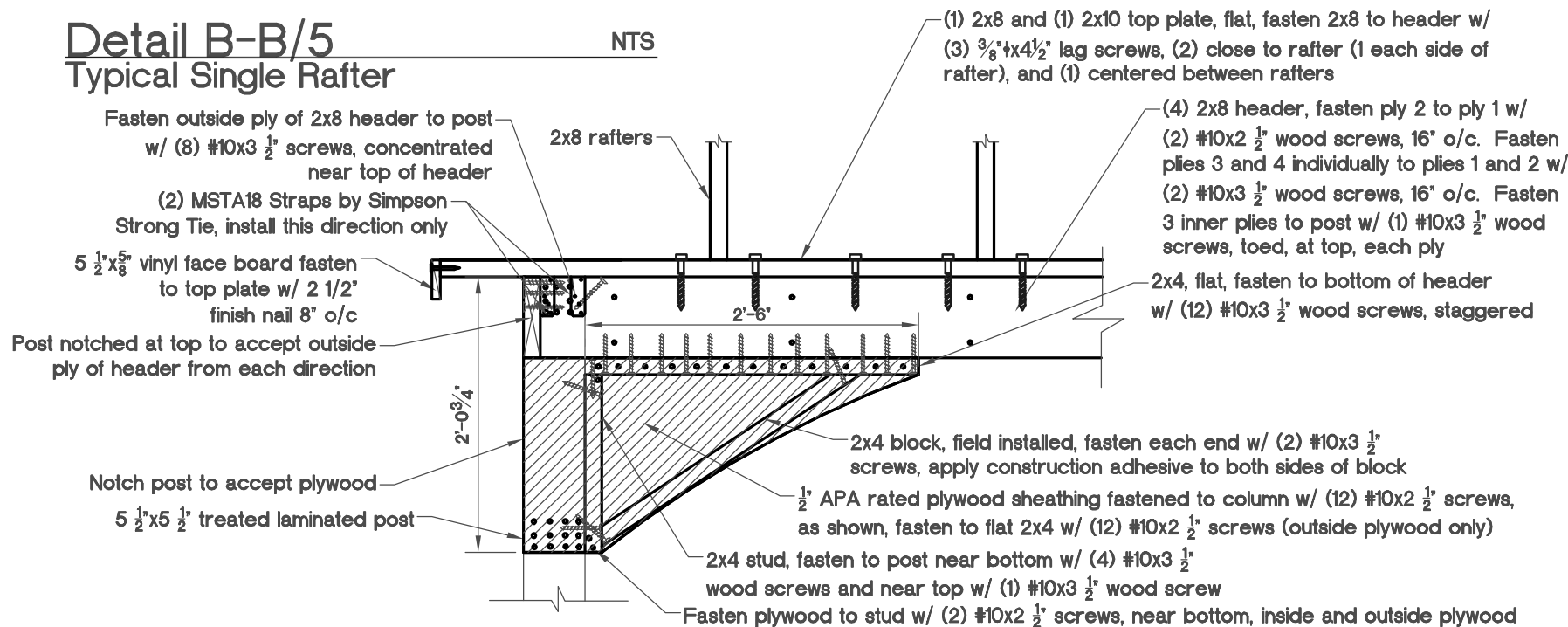


View 2 Detail B-B/5

NTS

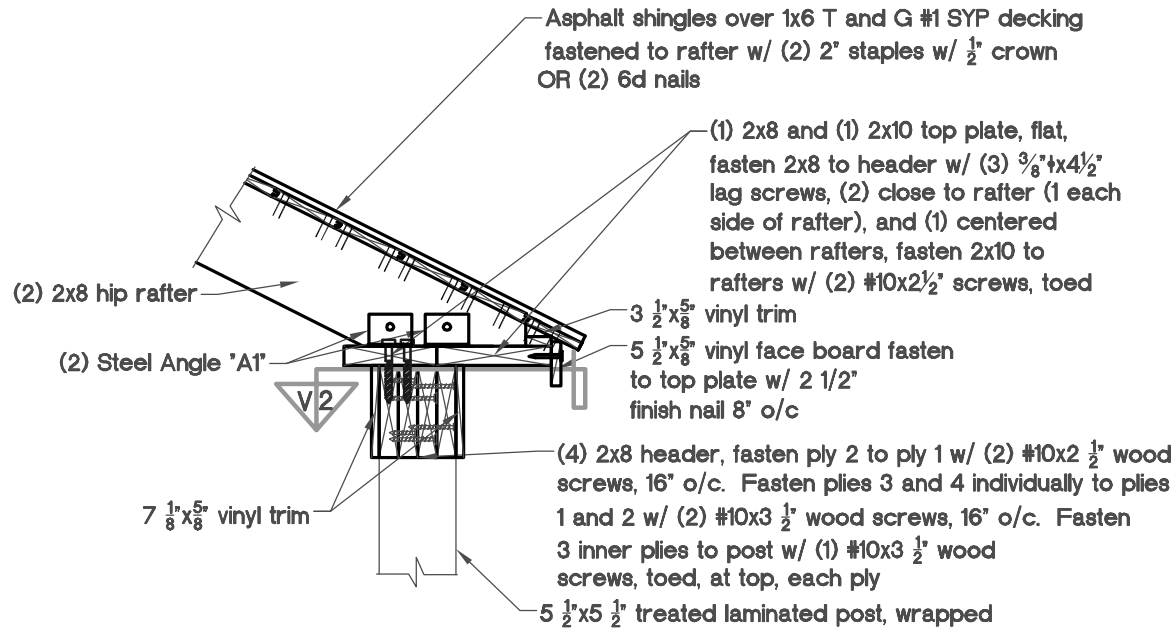
Detail B-B/5  
Typical Single Rafter

NTS



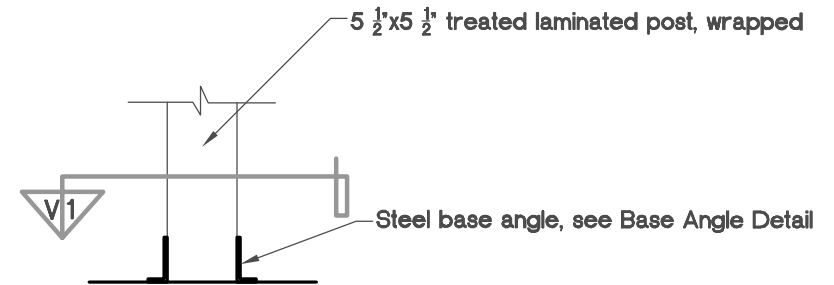
View 1 Detail B-B/5

NTS



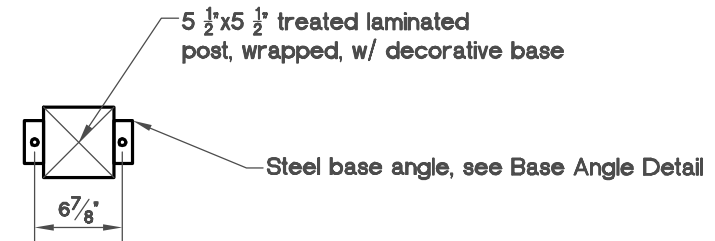
**Detail B-B/6**  
Hip Rafter Connection

NTS



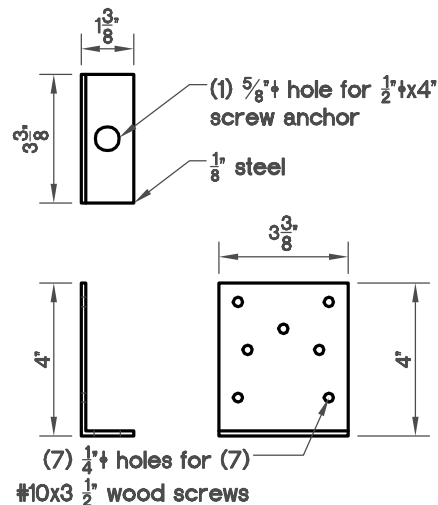
**Detail C-C/6**

NTS



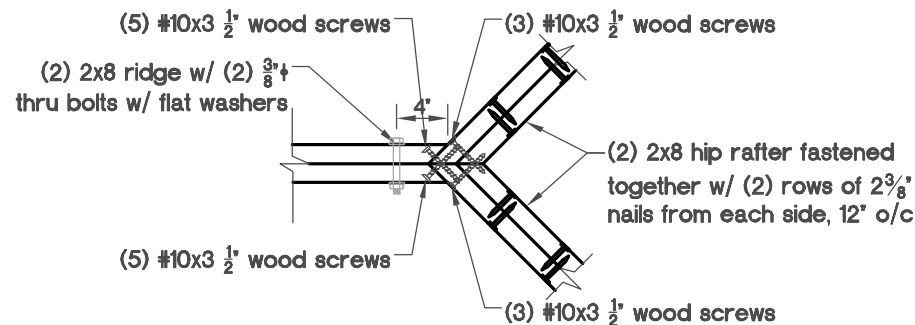
**View 1 Detail C-C/6**

NTS



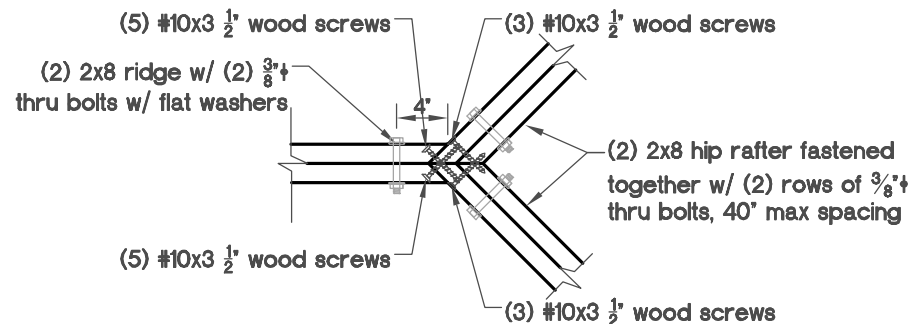
**Base Angle Detail**

NTS



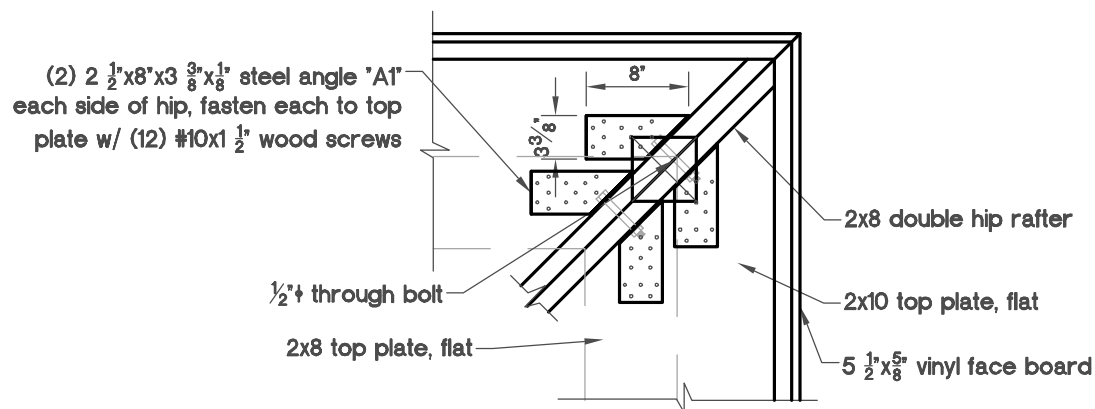
**Detail D-D/7**  
Option 1

NTS



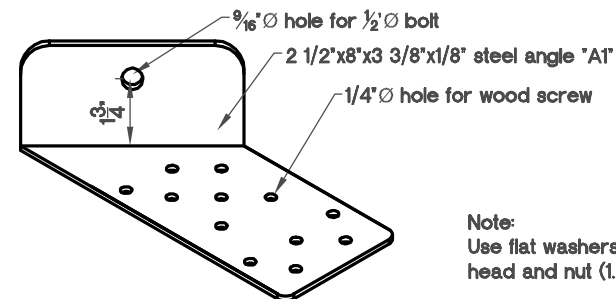
**Detail D-D/7**  
Option 2

NTS



**Detail E-E/7**

NTS

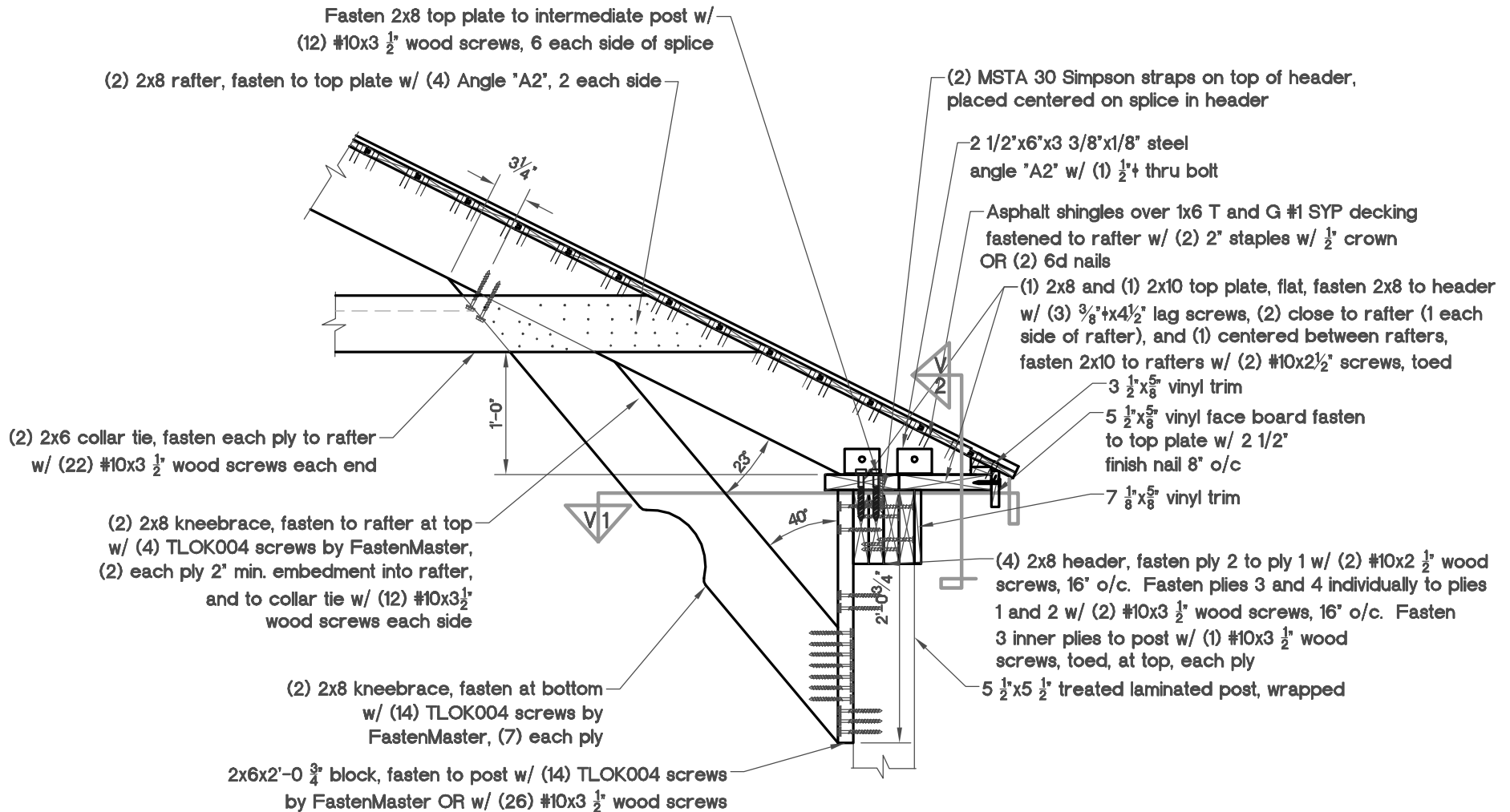


Note:  
Use flat washers under bolt head and nut (1.25" O.D. min.)

**Angle "A1"**

NTS





**Detail F-F/8**  
Center Double Rafter

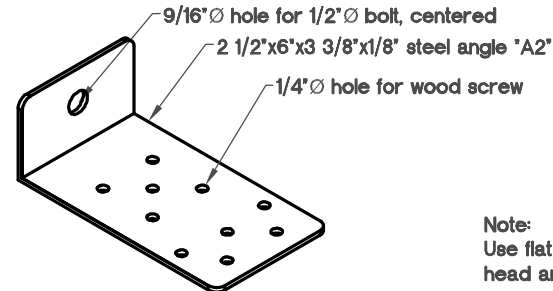
NTS

Fasten 2x8 top plate to intermediate post w/  
(12) #10x3 $\frac{1}{2}$ " wood screws, 6 each side of splice

(2) 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)

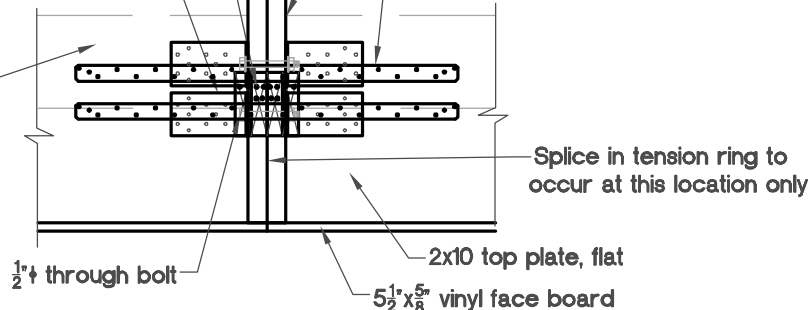
2x8 double rafter, fasten  
to 2x8 tension ring w/ angle "A2"  
and (1) #10x3 $\frac{1}{2}$ " screw, each ply

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



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

2x8 top plate, flat



Splice in tension ring to  
occur at this location only

1" through bolt

2x10 top plate, flat  
5 $\frac{1}{2}$ "x5 $\frac{5}{8}$ " vinyl face board

Angle "A2"

NTS

## View 1 Detail F-F/8

NTS

(2) 2x8 rafter, intermediate post locations only

Fasten outside ply of 2x8 header to post  
w/ (8) #10x3 $\frac{1}{2}$ " screws, concentrated  
near top of header

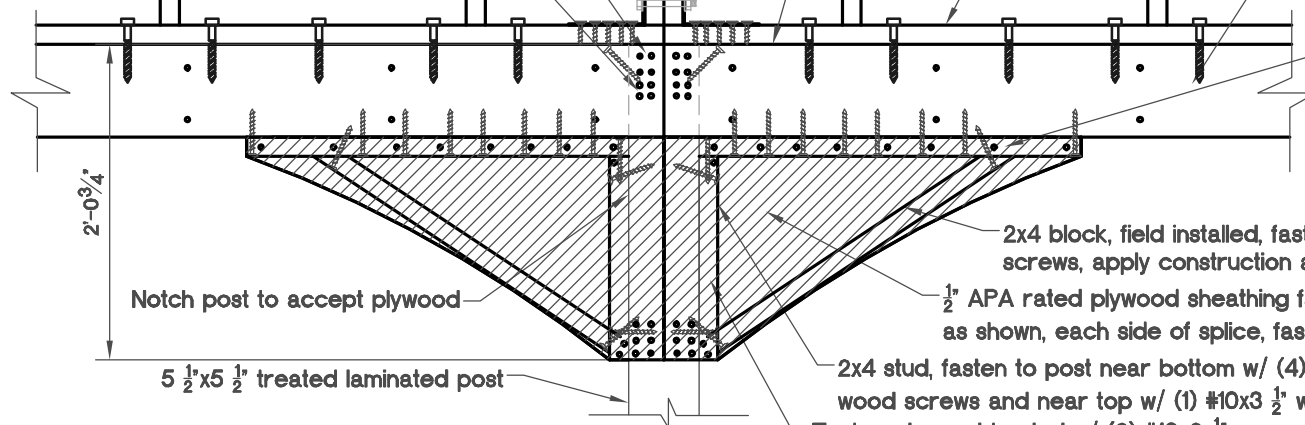
Post notched at top to accept outside  
ply of header from each side

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

(1) 2x8 and (1) 2x10 top plate, flat, fasten 2x8 to header w/  
(3)  $\frac{3}{8}$ "x4 $\frac{1}{2}$ " lag screws, (2) close to rafter (1 each side of  
rafter), and (1) centered between rafters

(4) 2x8 header, fasten ply 2 to ply 1 w/  
(2) #10x2 $\frac{1}{2}$ " wood screws, 16" o/c. Fasten  
plies 3 and 4 individually to plies 1 and 2 w/  
(2) #10x3 $\frac{1}{2}$ " wood screws, 16" o/c. Fasten  
3 inner plies to post w/ (1) #10x3 $\frac{1}{2}$ " wood  
screws, toed, at top, each ply

2x4, flat, fasten to bottom of header  
w/ (8) #10x3 $\frac{1}{2}$ " wood screws, staggered



2'-0 $\frac{3}{4}$ "

Notch post to accept plywood

5 $\frac{1}{2}$ "x5 $\frac{1}{2}$ " treated laminated post

2x4 block, field installed, fasten each end w/ (2) #10x3 $\frac{1}{2}$ "  
screws, apply construction adhesive to both sides of block

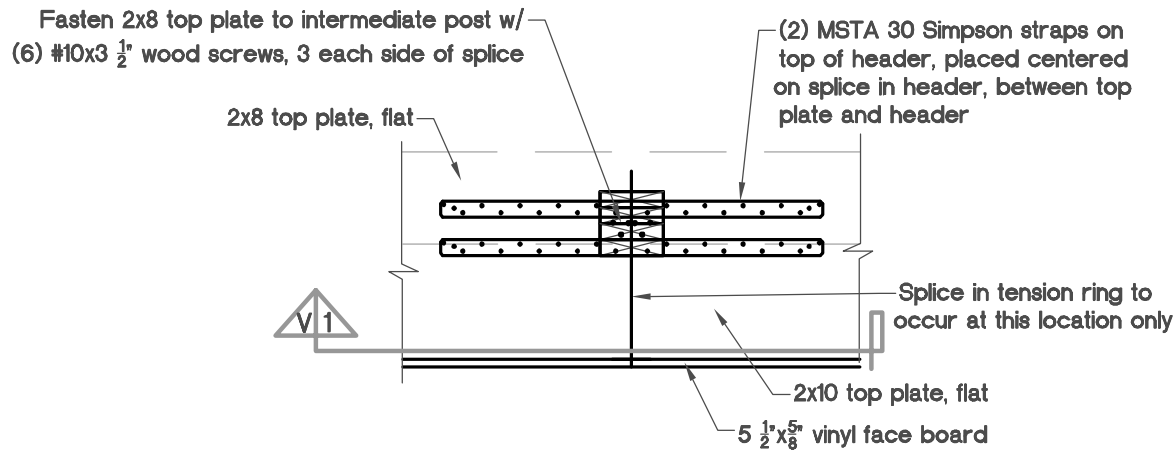
1" APA rated plywood sheathing fastened to column w/ (6) #10x2 $\frac{1}{2}$ " screws,  
as shown, each side of splice, fasten to flat 2x4 w/ (8) #10x2 $\frac{1}{2}$ " screws

2x4 stud, fasten to post near bottom w/ (4) #10x3 $\frac{1}{2}$ "  
wood screws and near top w/ (1) #10x3 $\frac{1}{2}$ " wood screw

Fasten plywood to stud w/ (2) #10x2 $\frac{1}{2}$ " screws, near bottom, inside and outside plywood

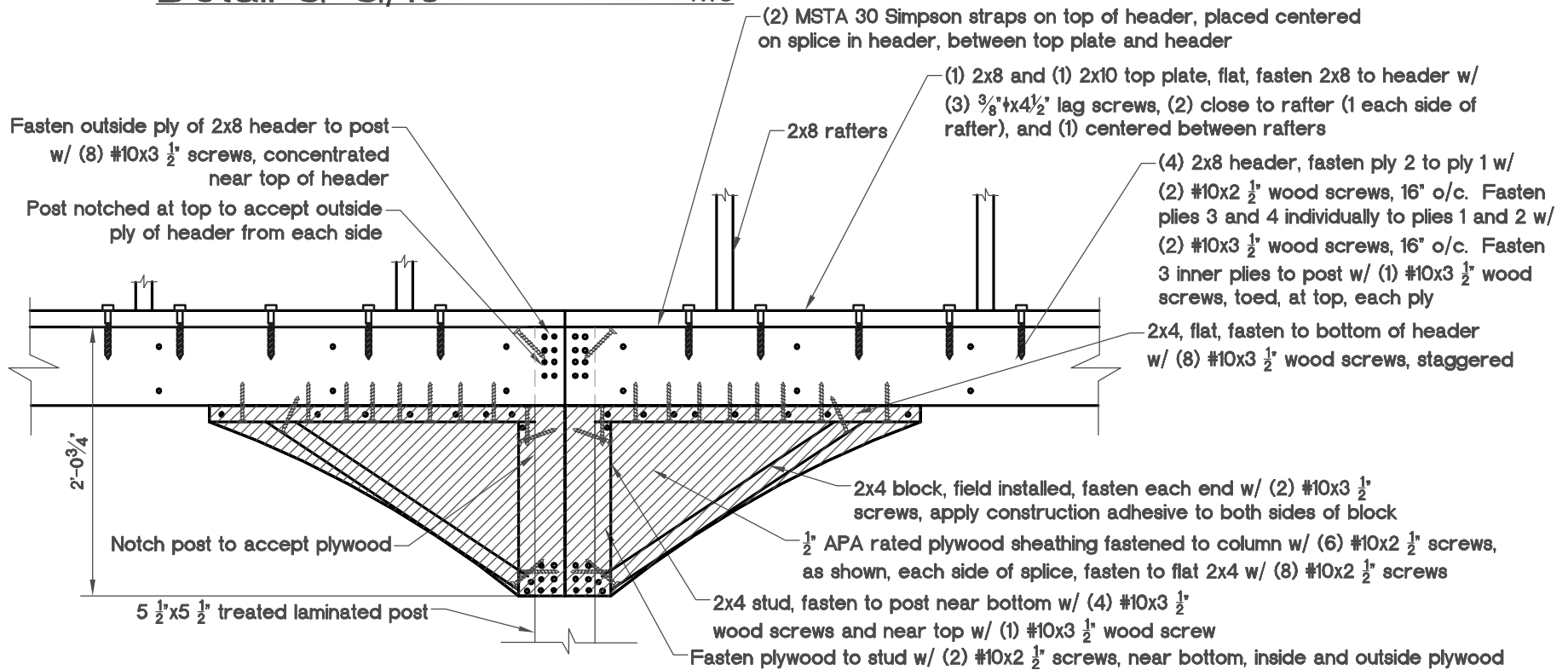
## View 2 Detail F-F/8

NTS



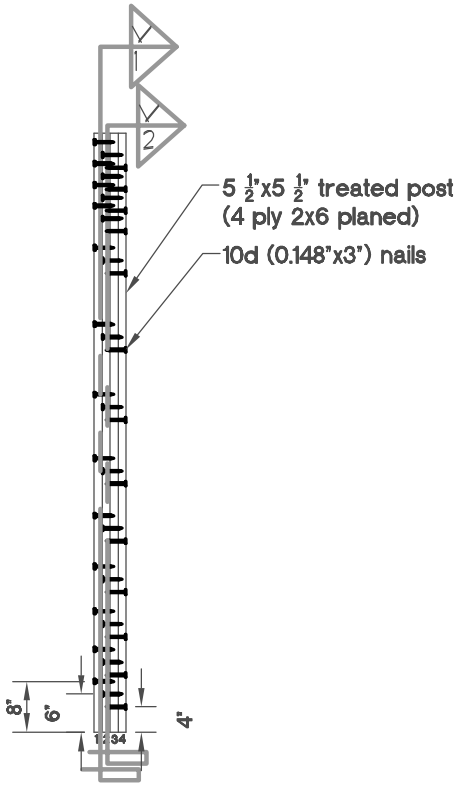
Detail G-G/10

NTS



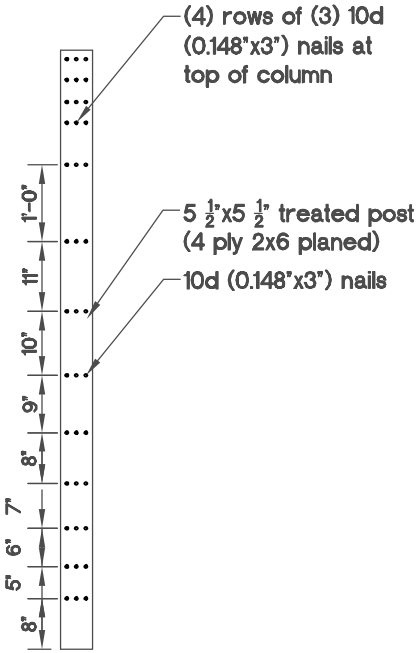
View 1 Detail G-G/10

NTS



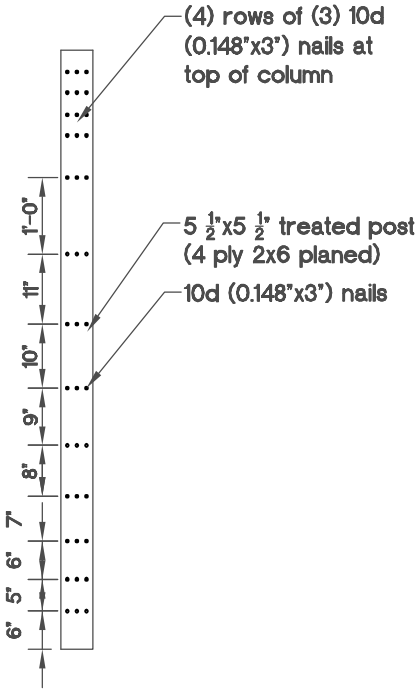
Nail-Laminated Post  
Nailing Detail

NTS



View 1  
Nailing Detail for Ply 2 to Ply 3

NTS



View 2  
Nailing Detail for Ply 1 to Ply 2

NTS