

8' Marco Series Gambrel Building

Engineering Building
Plans for 8x8

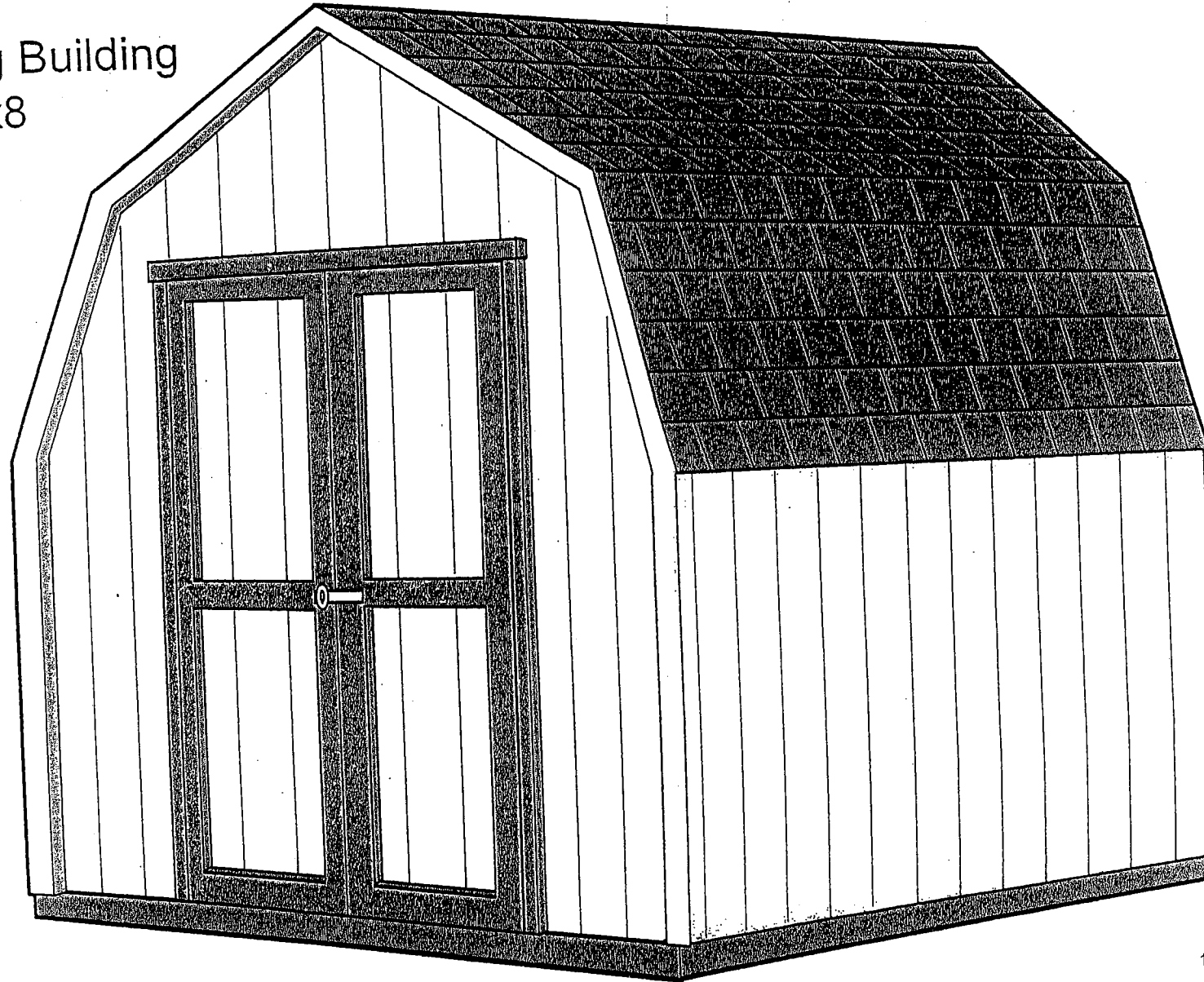
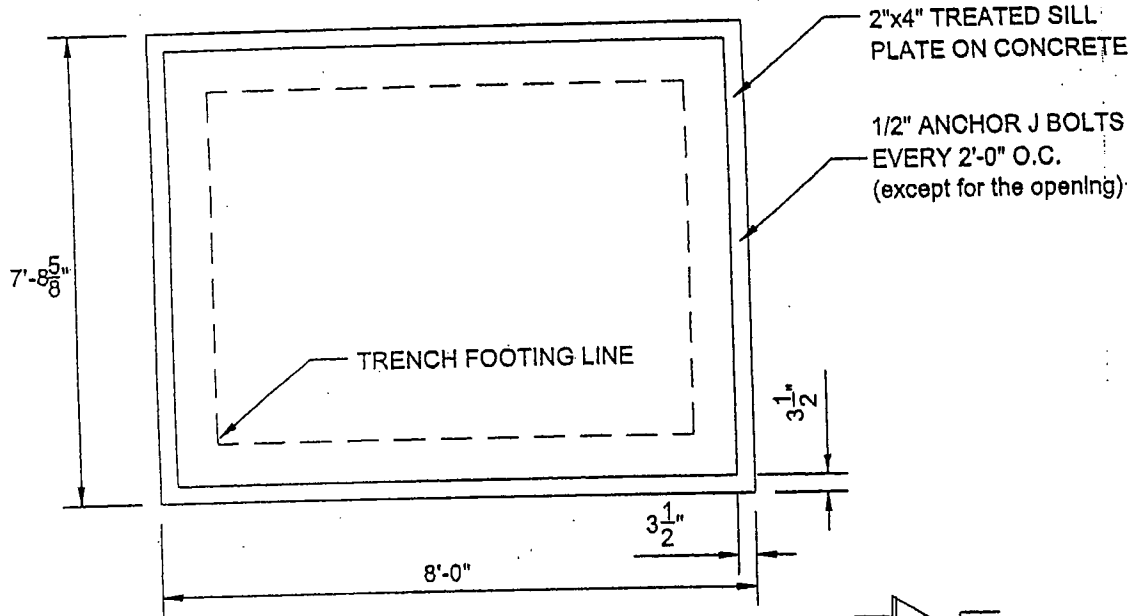
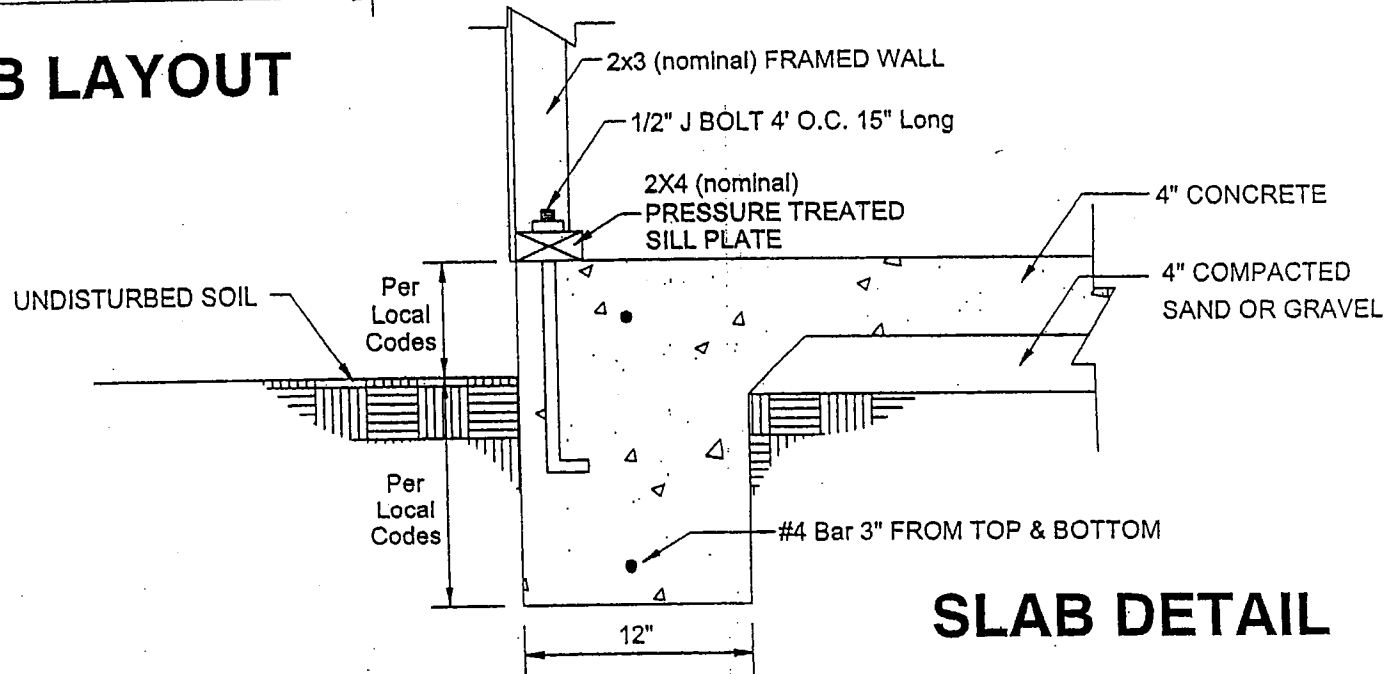


Exhibit A 1 of 8

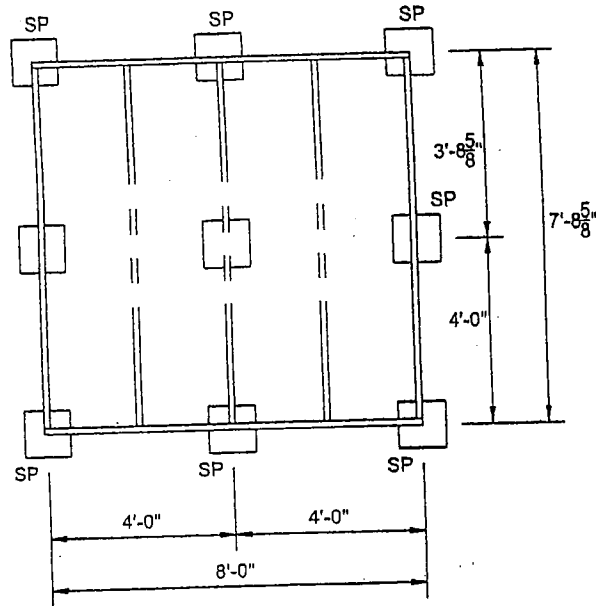
10/7/03



SLAB LAYOUT



SLAB DETAIL



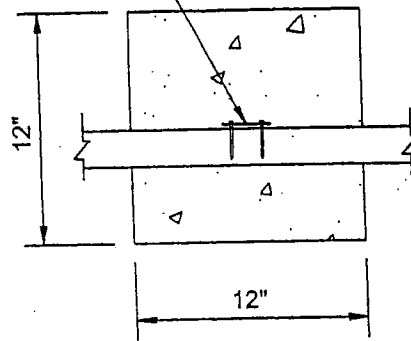
NOTE:

- 1.) ONLY THE PIERS INDICATED WITH SP ARE REQUIRED TO HAVE SIMPSON STRONG TIES

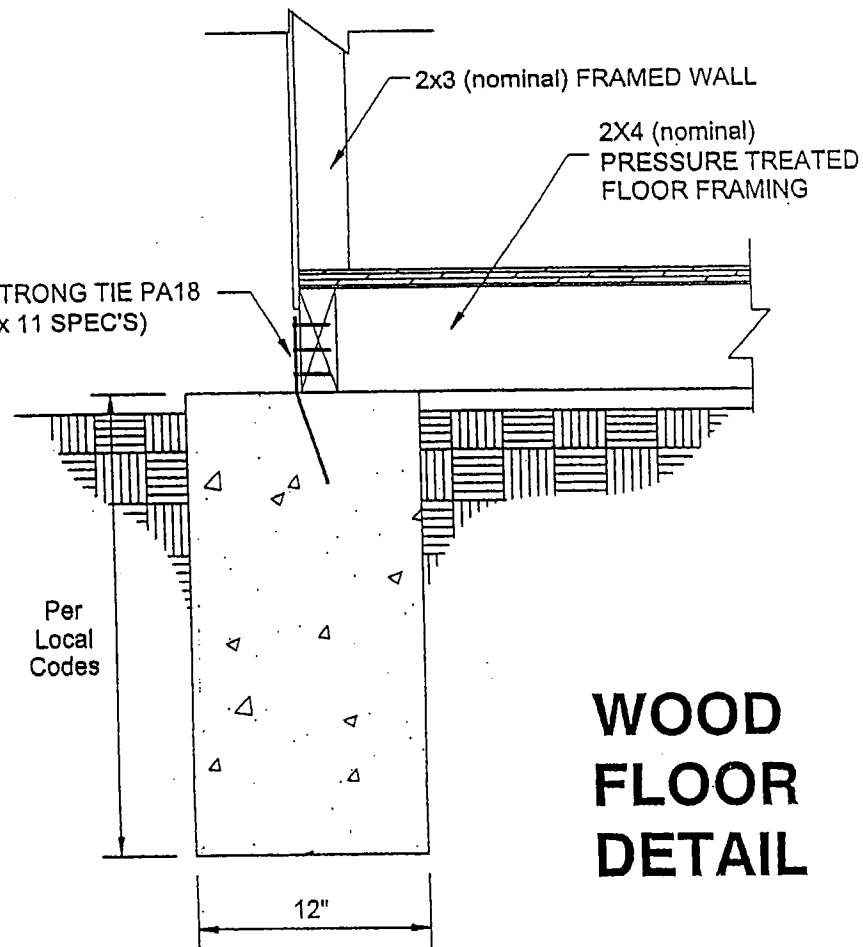
WOOD FLOOR LAYOUT

SIMPSON STRONG TIE PA18
(SEE 8 1/2" x 11 SPEC'S)

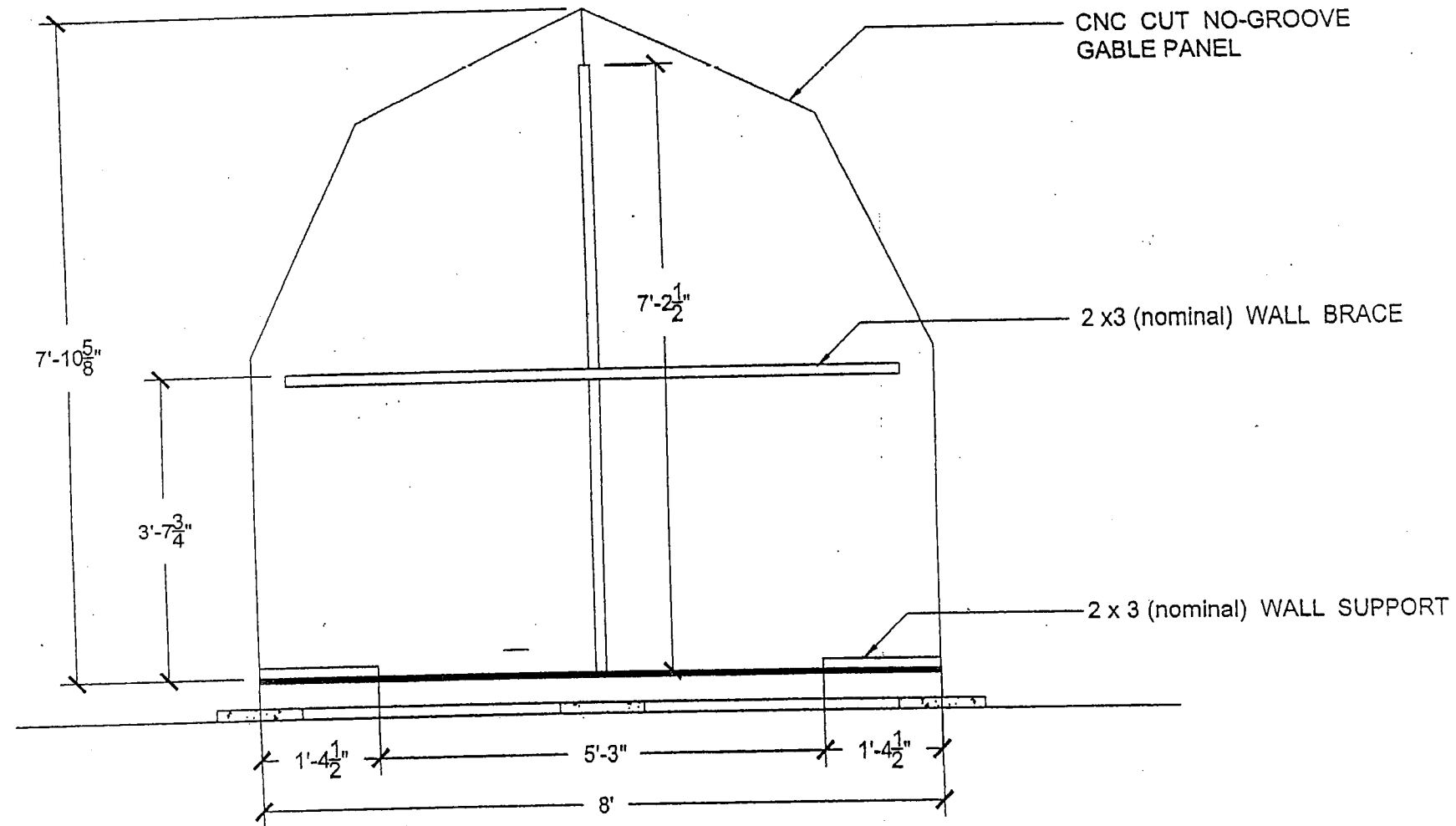
SIMPSON STRONG TIE PA18
(SEE 8 1/2" x 11 SPEC'S)



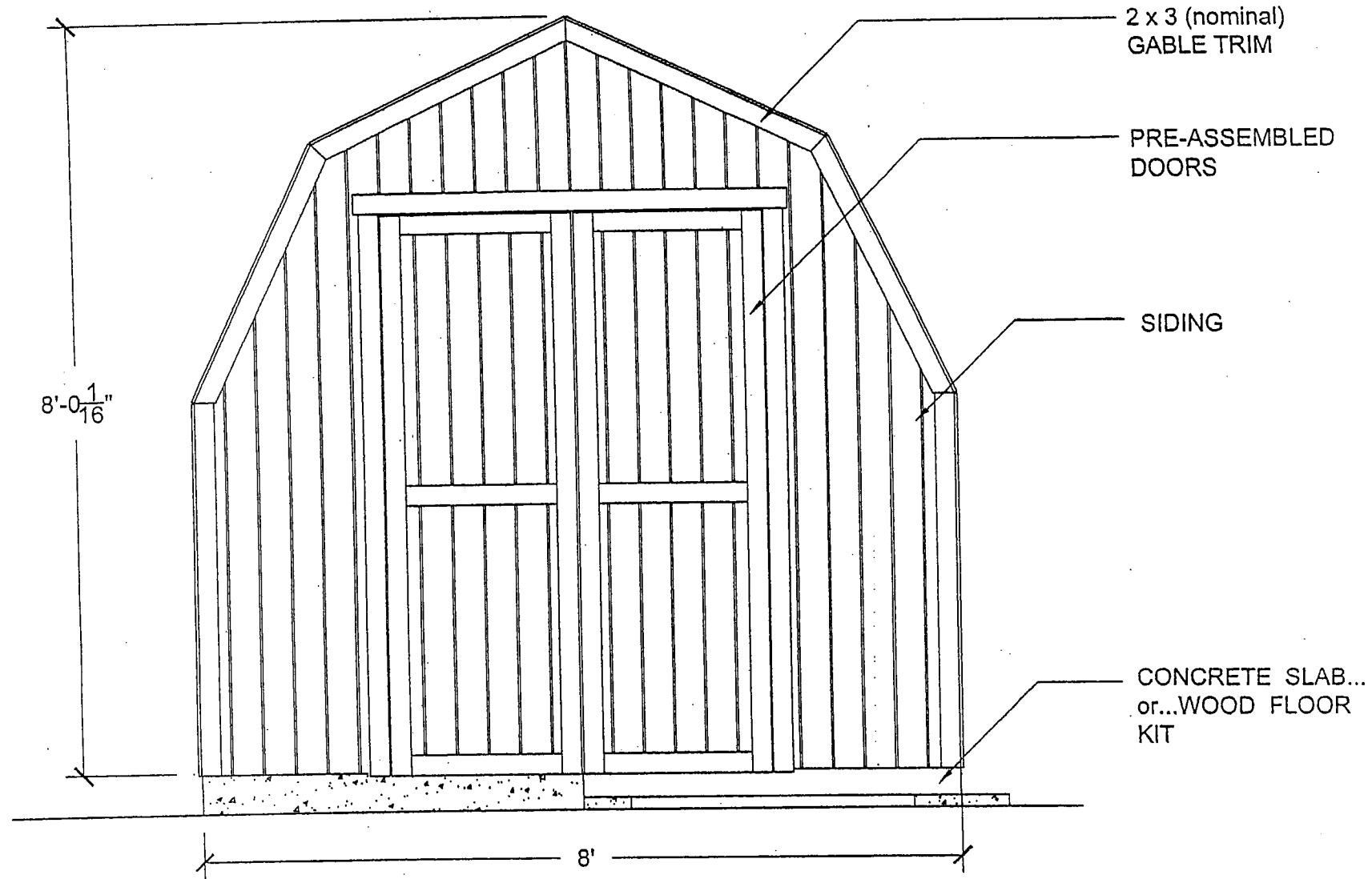
PLAN DETAIL



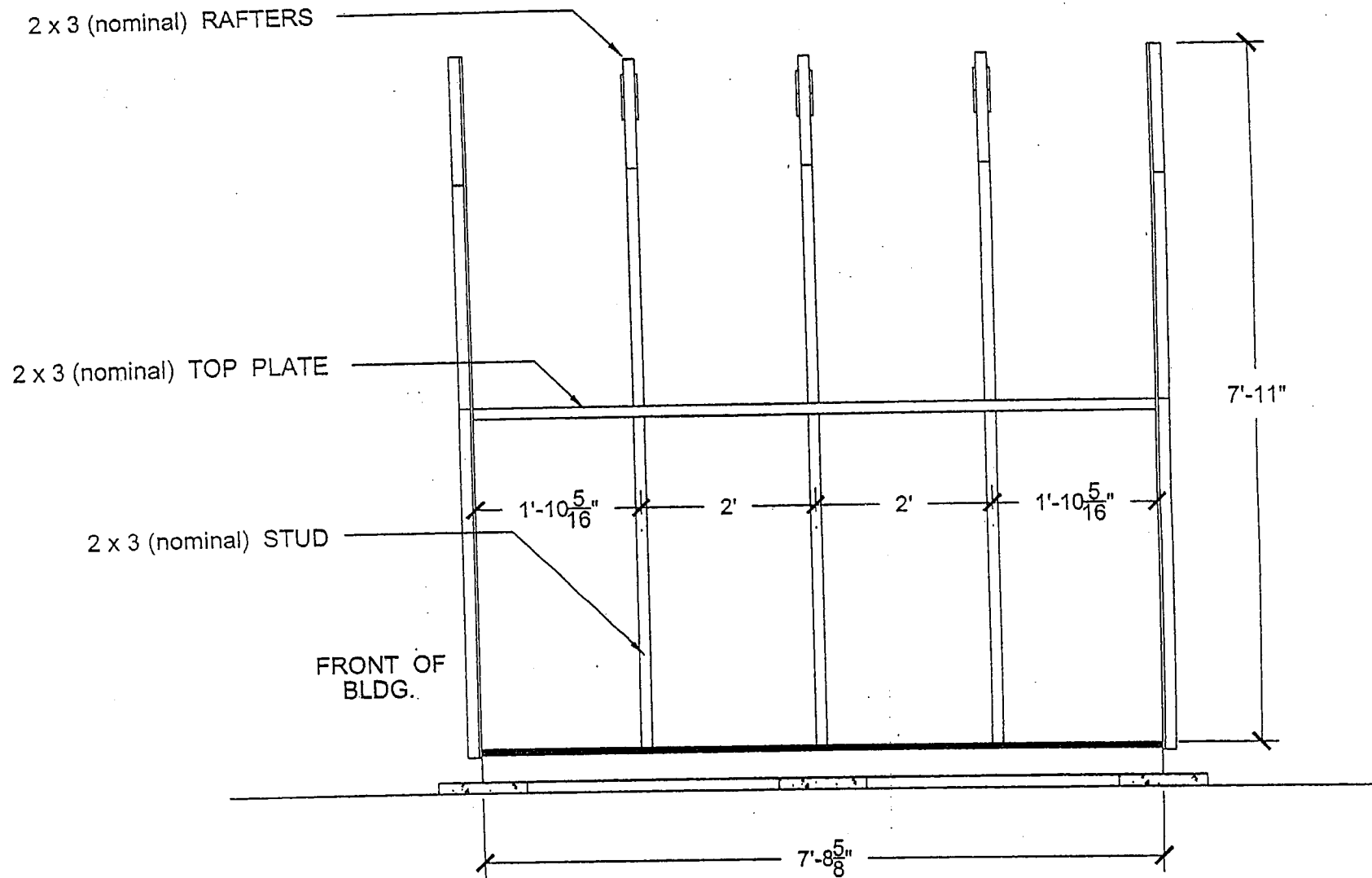
WOOD FLOOR DETAIL



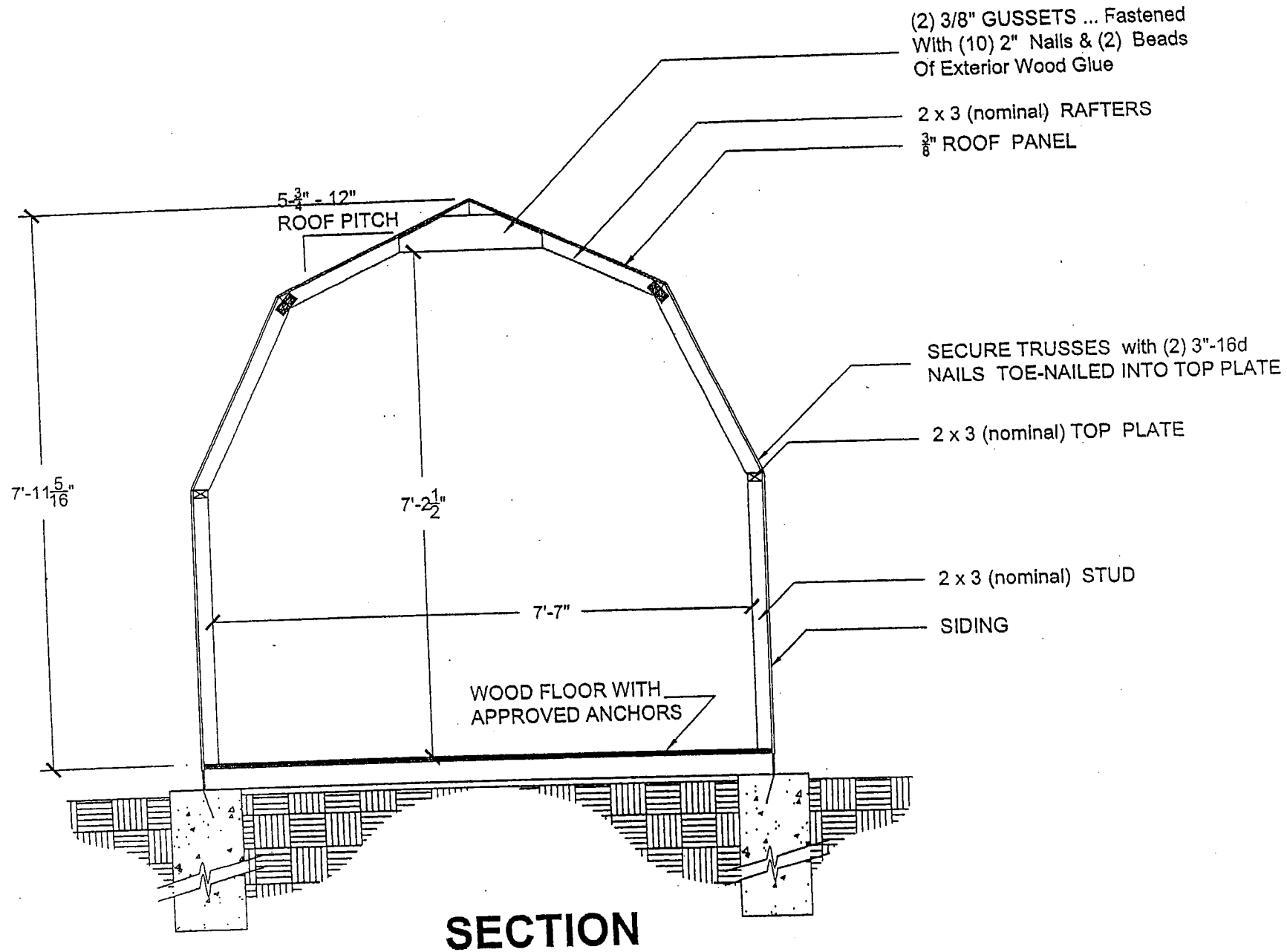
BACK WALL FRAMING



FRONT ELEVATION



SIDE FRAMING



NOTES: 1) The Roof System of this 8 ft. wide Gabrel style building has a live load capacity of 35 PSF.
The equivalent ground snow load per ANCE 7-97 is 68 PSF which exceeds the 16.2 PSF pressure for a
110 mph wind per ASCE 7-97.
2) This plan supplements assembly instructions.

STRUCTURAL ANALYSIS:

$f_b = 1200$ PSC

$f_v = 80$ psi

Sx 2"x3" = 1.56 in Area = 3.75 in

DEAD LOAD:

Max Rafter Moment = $f_b S_x / 12 = 156$ ft.lb.

Max Rafter Shear = $80 \times 3.75 = 300$ lb.

Max Stud Moment = 156 ft. lb.

ROOF SYSTEM:

1) Rafters 2x3@2'cc w=8M/L2 = 78PLF=39 PSF-4

2) Rafter Shear w=2V/L = 150 PLF=75 PSF-4

3) Sheathing w=49PSF-4=45psf

4) Ground Snow Load: Ref ASCE 7-97

$P_s = 35$ PSF $I = 0.8$

$C_s = 0.95$ $C_e = 0.8$

$C_t = 1.2$ $P_f = 35 / 0.95 = 36$ PSF

$P_g = P_f / .7 C_e C_t I = 68$ PSF Ground Snow Capacity

WALL SYSTEM:

1) Studs 2x3@24"cc L=3.3ft. w=8M/L2=114PLF=57 PSF

2) Wind Loading V = 110 mph EXP 1

$K_z = 0.37$ $G_h = 1.65$ $G_{Cpl} = -0.25$

$I = 0.95$ $C_p = 0.8$

Velocity Pressure = $8z = .00256 K_z (IV) = 10.3$ PSF

Design Pressure = $P = q_f G_h C_p - (q_h G_{Cpl}) = 16.2$ PSF

ok < 57PSF

8' Marco Series Gable Building

Engineering Building
Plans

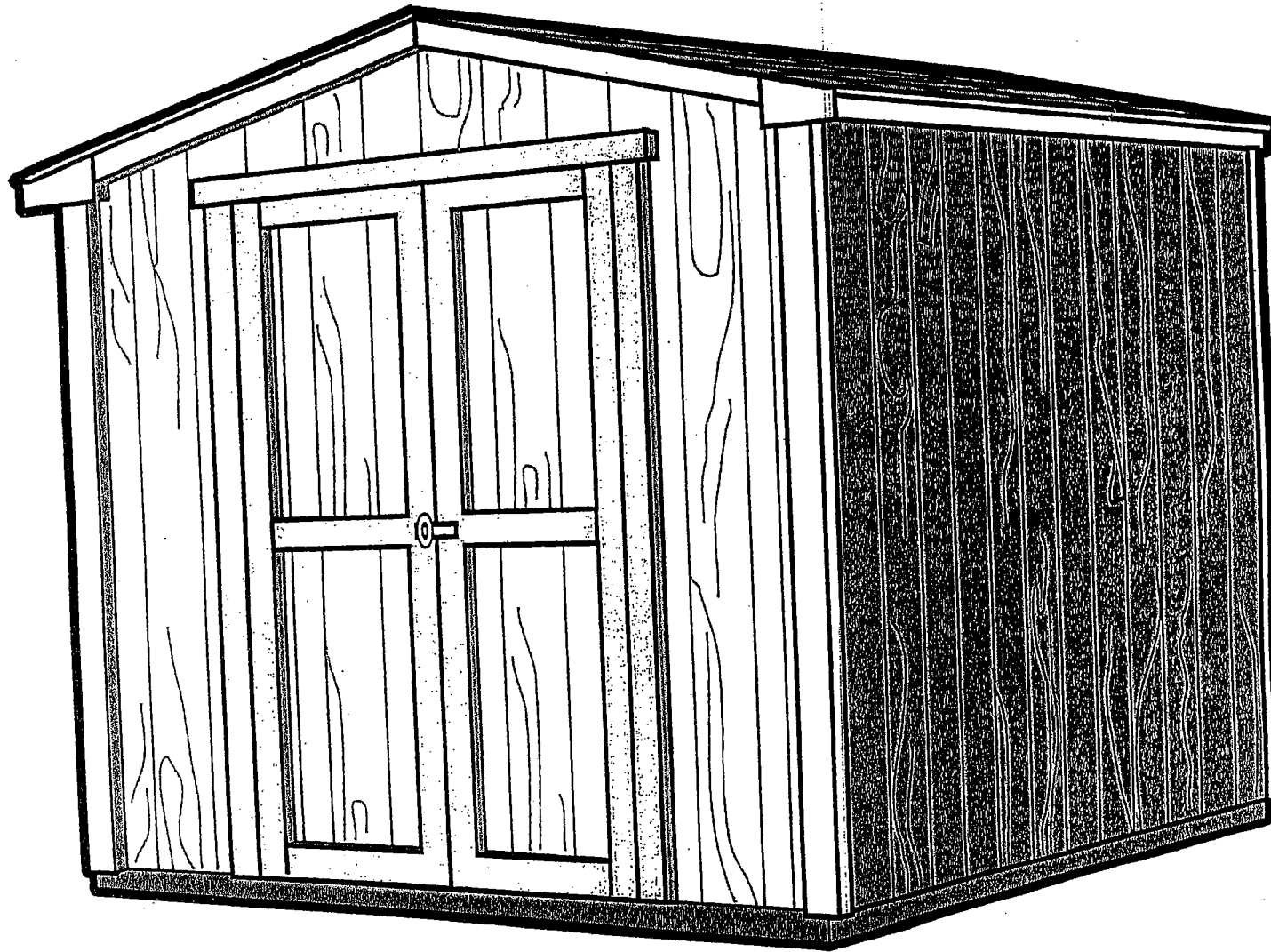
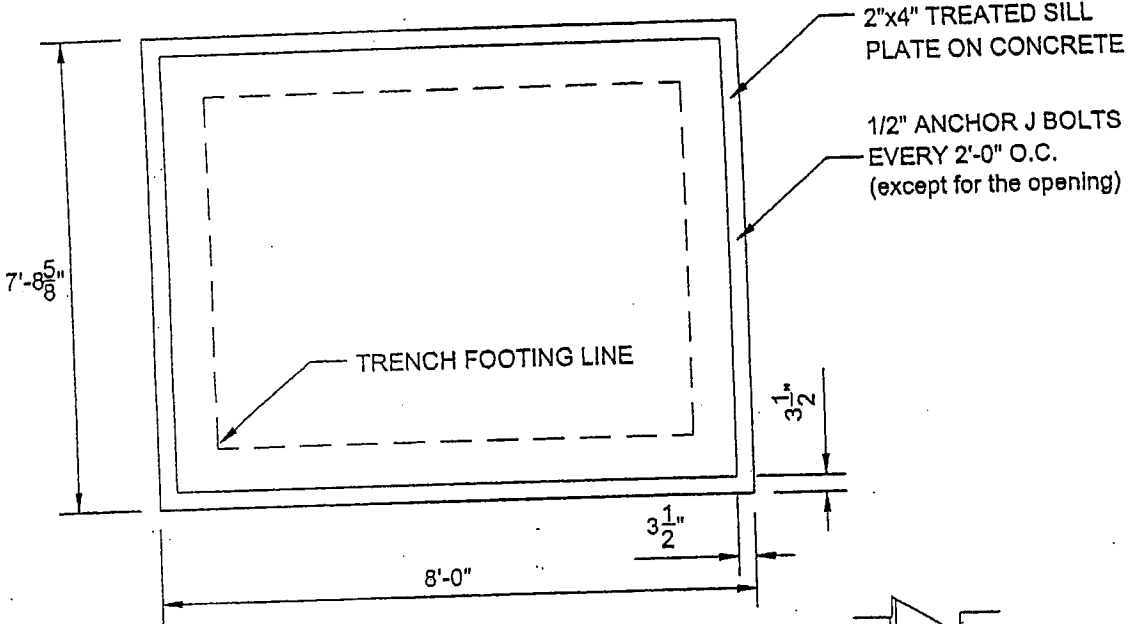
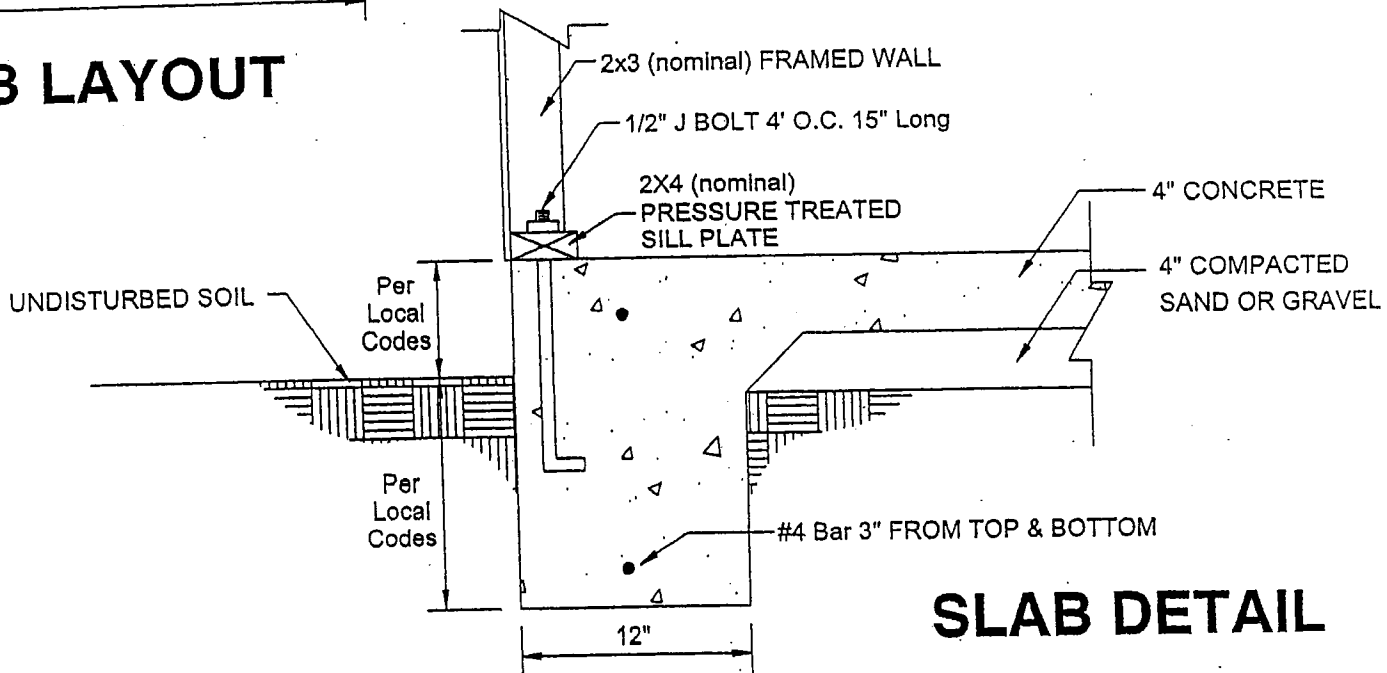


Exhibit B 1 of 8

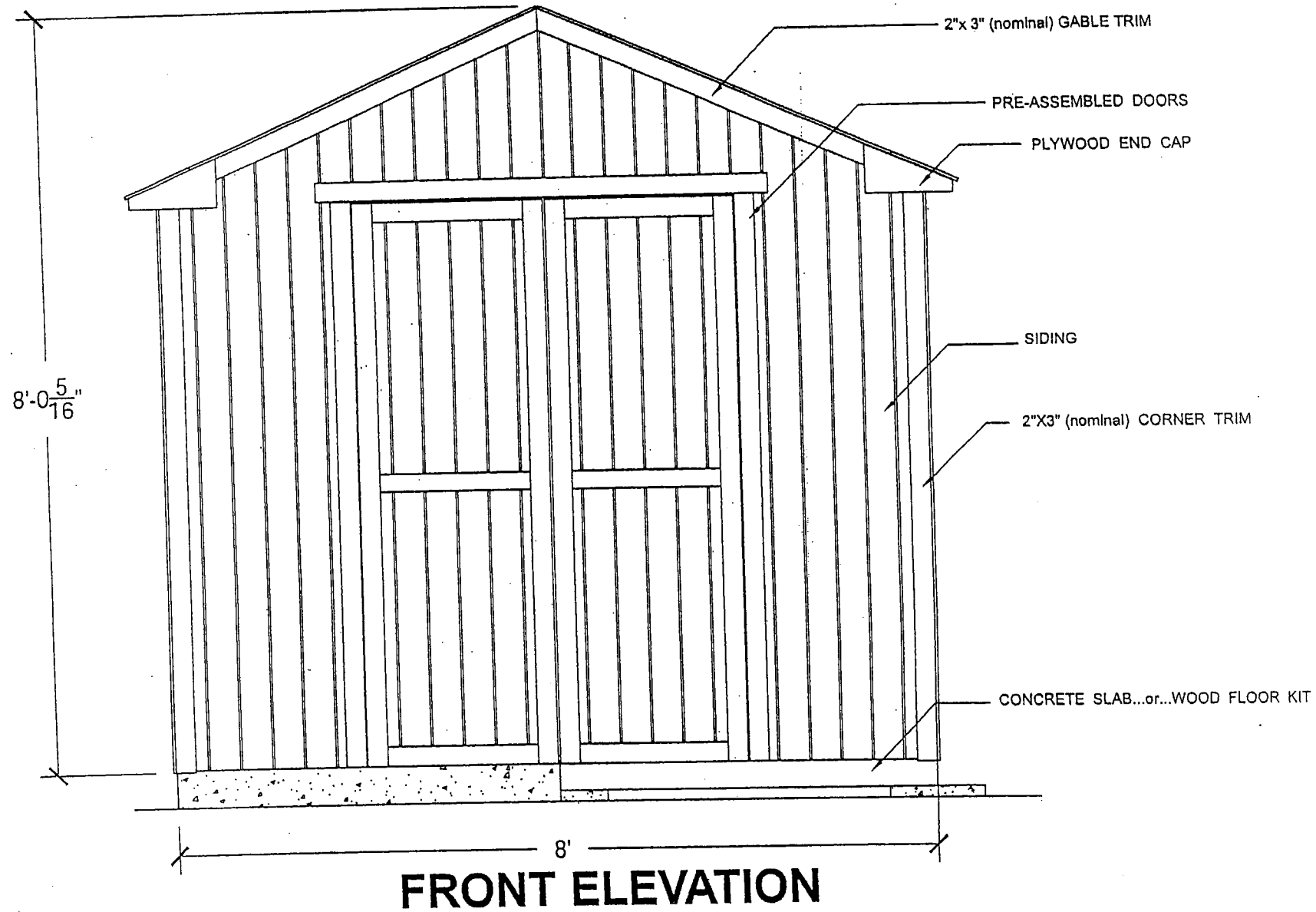


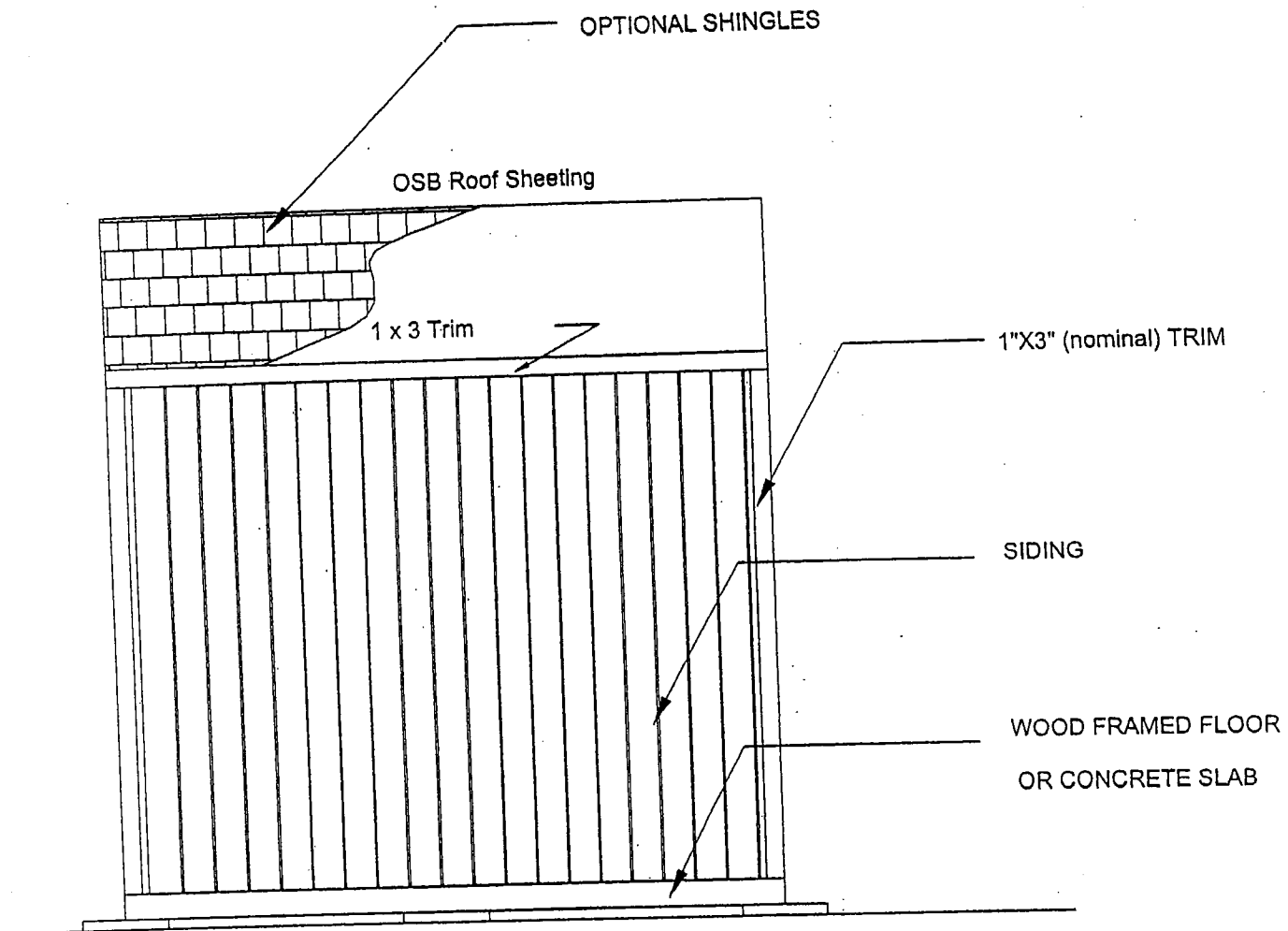
SLAB LAYOUT



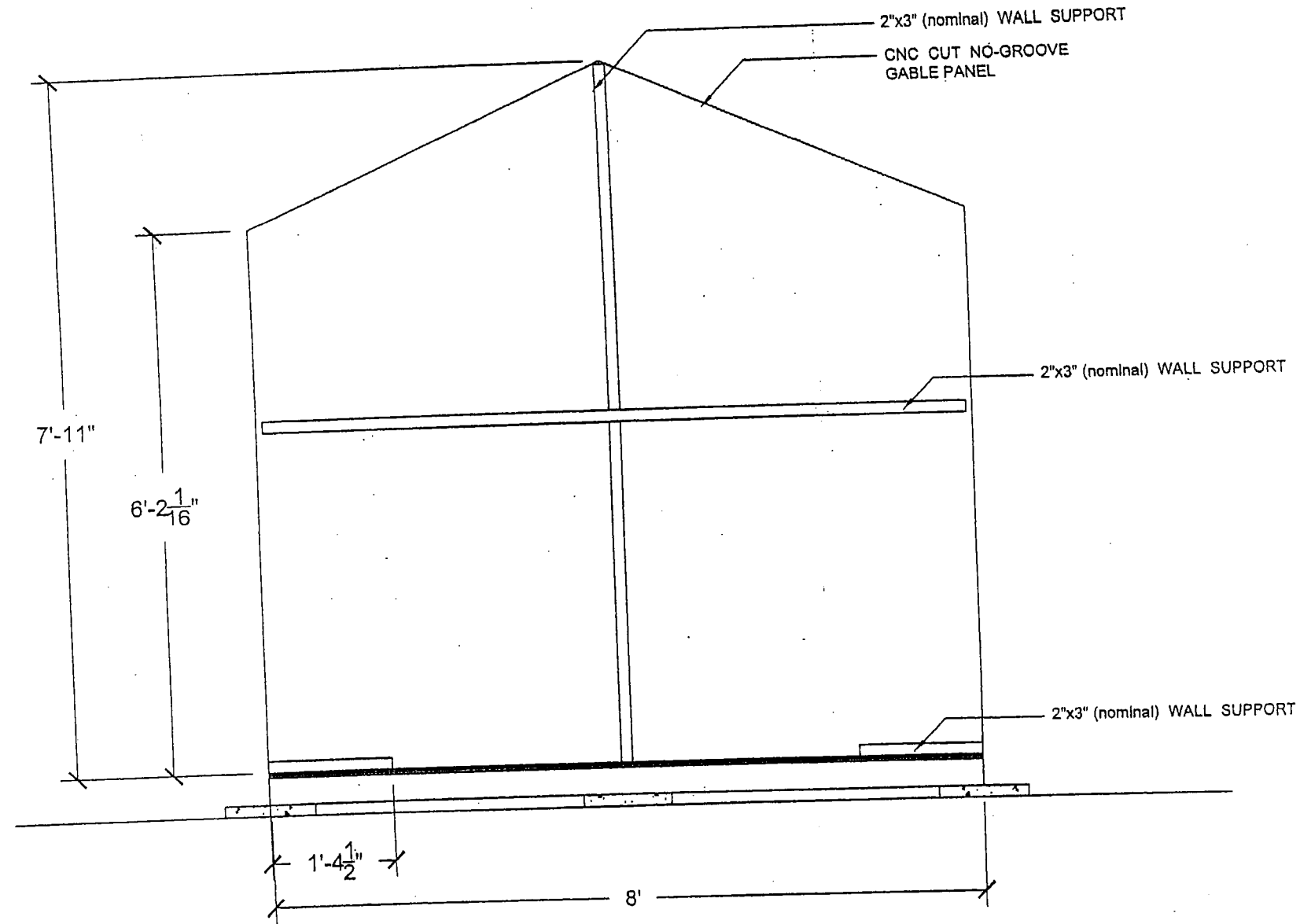
SLAB DETAIL



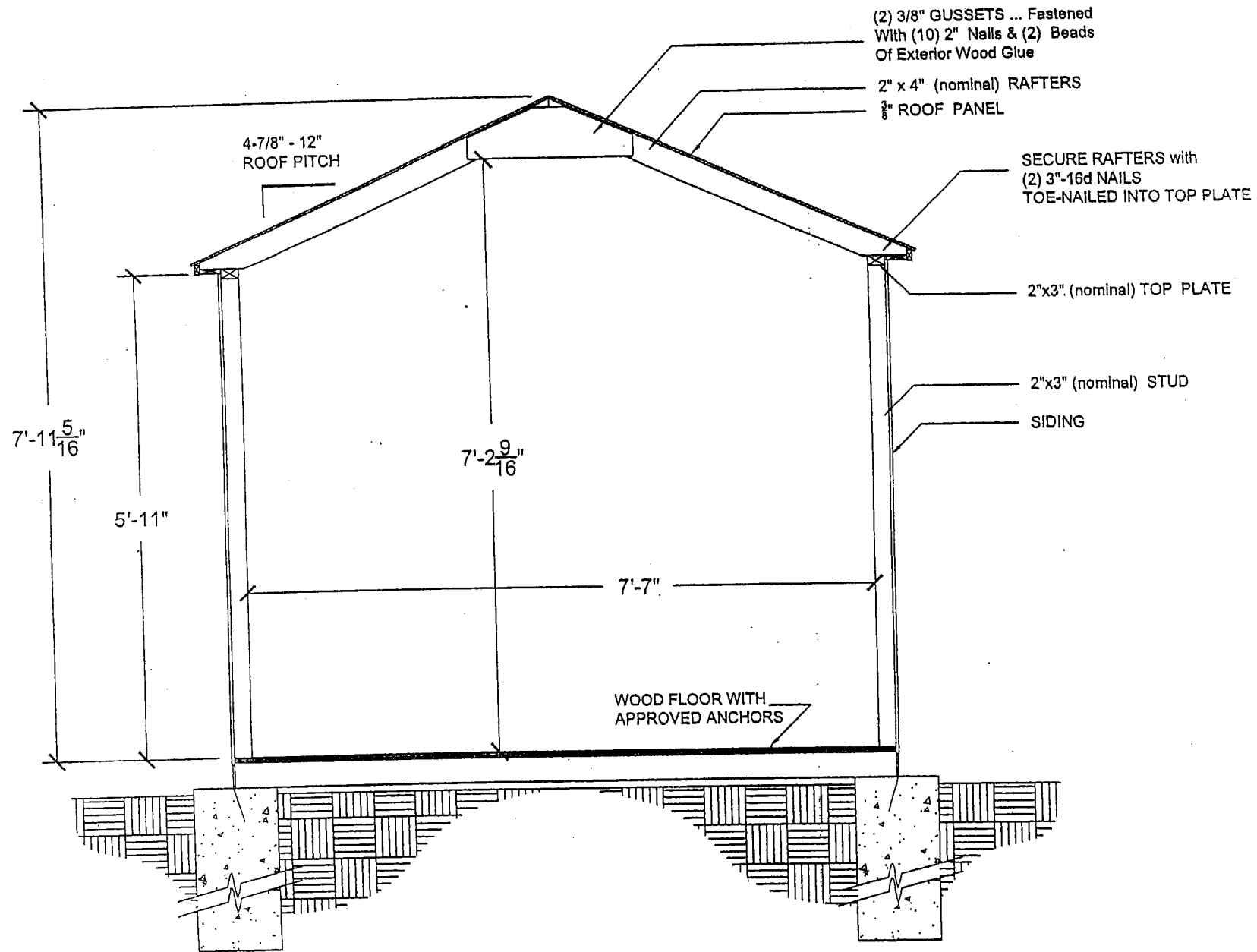




LEFT ELEVATION



BACK WALL FRAMING



SECTION DETAIL

- NOTES: 1) The Roof System of this 8 ft. wide Gable style building has a live load capacity of 45 PSF.
The equivalent ground snow load per ANCE 7-98 is 88 PSF which exceeds the 17.3 PSF pressure for a
110 mph wind per ASCE 7-98.
- 2) This plan supplements assembly instructions.

STRUCTURAL ANALYSIS:

$f_b = 1200 \text{ PSC}$
 $f_v = 80 \text{ psi}$
 $S_x 2"x3" = 1.56 \text{ in Area} = 3.75 \text{ in}$
Dead Load = 4 PSF (Roof)
Max Rafter Moment = $f_b S_x / 12 = 306 \text{ ft. lb.}$
Max Rafter Shear = $80 \times 3.75 = 300 \text{ lb.}$

Max Stud Moment = 156 ft. lb.

WALL SYSTEM:

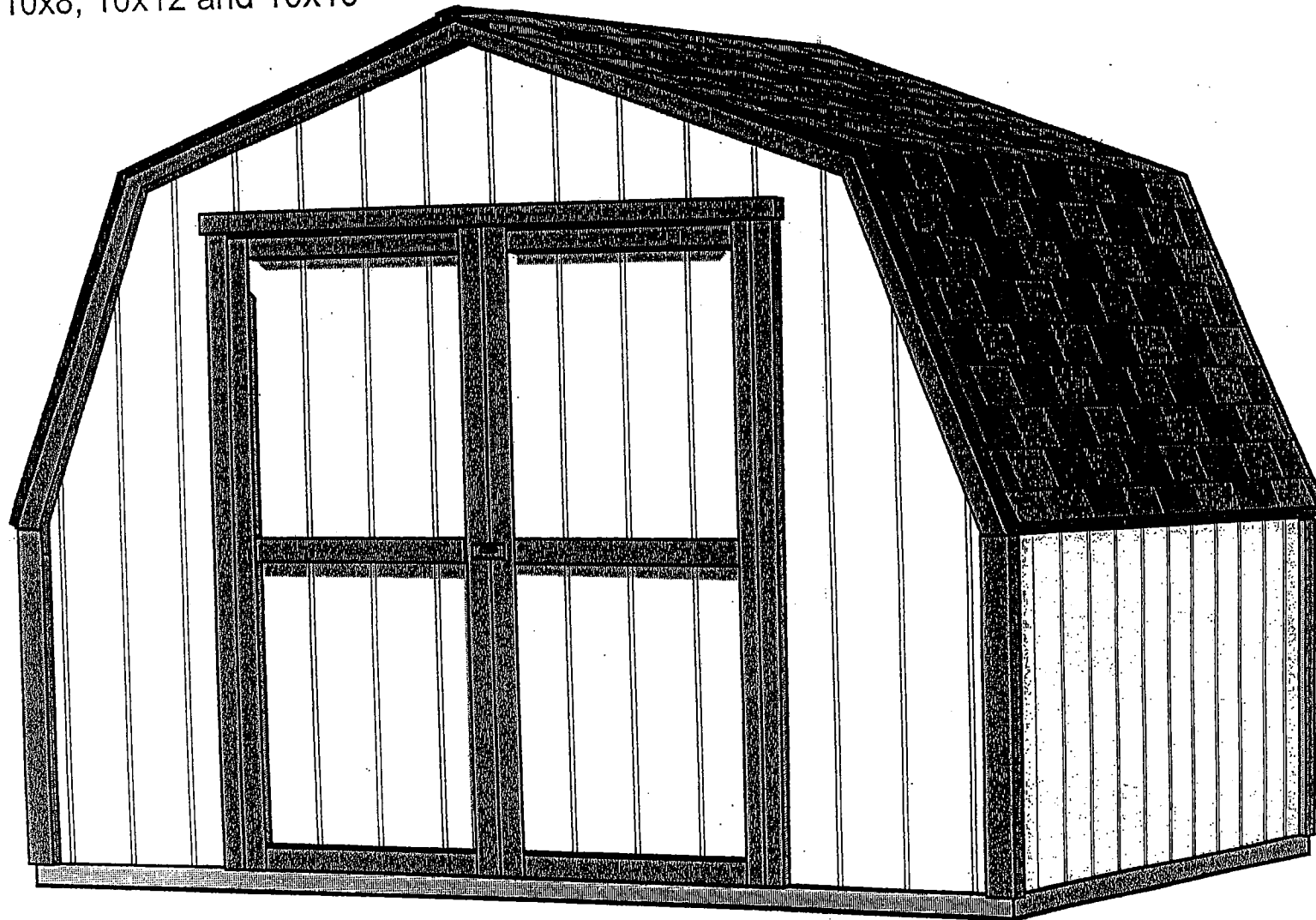
1) Studs $2 \times 3 @ 24" \text{ cc } L = 3.3 \text{ ft. } w = 8 \text{ M/L} = 114 \text{ PLF} = 57 \text{ PSF}$
2) Wind Loading $V = 110 \text{ mph EXP 1}$
 $K_z = 0.37 \quad G_h = 1.65 \quad G_{Cpl} = -0.25$
 $I = 0.95 \quad C_p = 0.8$
Velocity Pressure = $8z = .00256 K_z (IV) = 10.3 \text{ PSF}$
Design Pressure = $P = q_f G_h C_p - (q_h G_{Cpl}) = 16.2 \text{ PSF}$
 $ok < 57 \text{ PSF}$

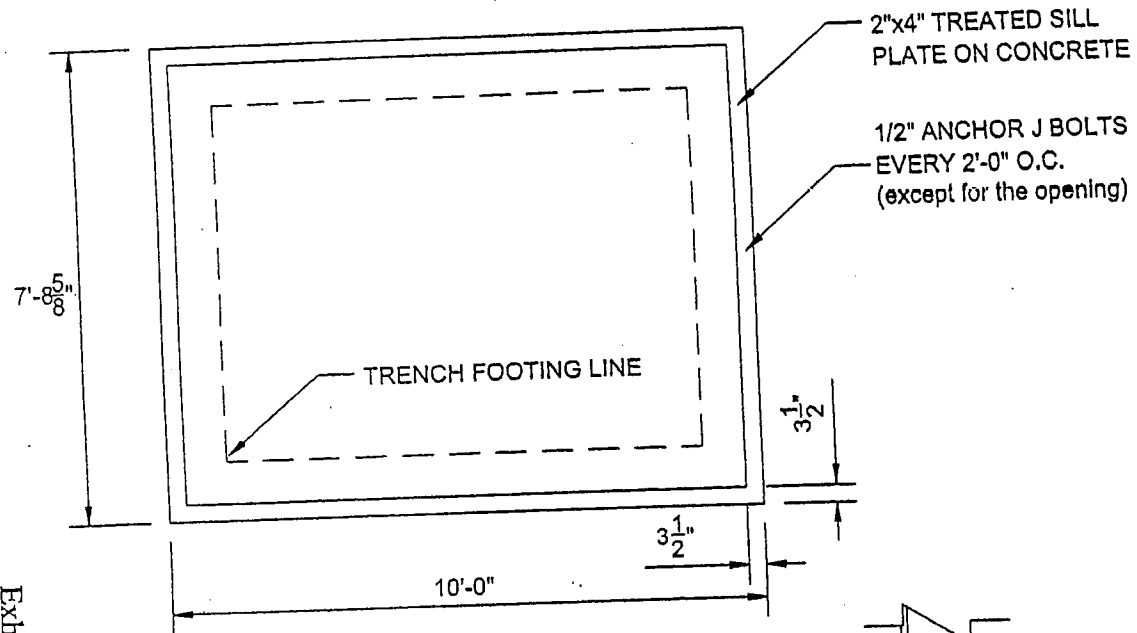
ROOF SYSTEM:

1) Rafters $2 \times 4 @ 2' \text{ cc } w = 8 \text{ M/L} = 76 \text{ PLF} = 45 \text{ PSF-4}$
2) Rafter Shear $w = 2V/L = 117 \text{ PLF} = 92 \text{ PSF-4}$
3) Sheathing $w = 45 \text{ PSF-4} = 45 \text{ psf}$
4) Ground Snow Load: Ref ASCE 7-98
 $P_s = 45 \text{ PSF} \quad I = 0.8$
 $C_s = 0.95 \quad C_e = 0.8$
 $C_t = 1.2 \quad P_f = 45 / 0.95 = 47.4 \text{ PSF}$
 $P_g = P_f / 1.7 C_e C_t I = 88 \text{ PSF Ground Snow Capacity}$

10' Marco Series Gambrel Building

Engineering Building
Plans for 10x8, 10x12 and 10x16

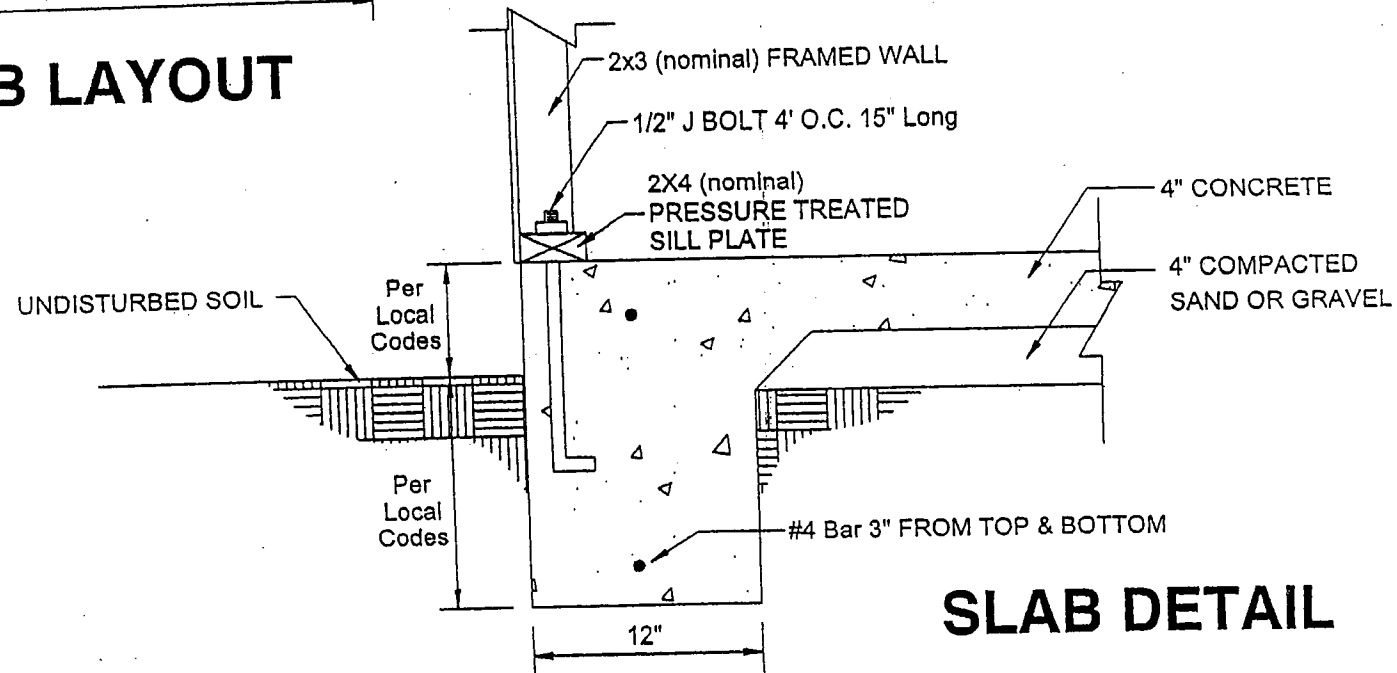




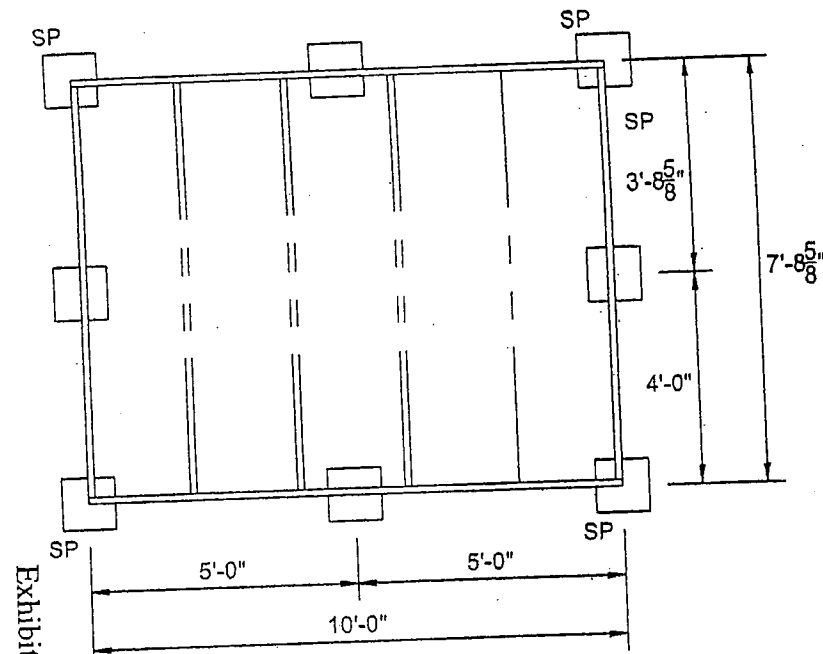
SLAB LAYOUT

10'x12'
Slab size is 10' x 11' 8-5/8"

10'x16'
Slab size is 10' x 15' 8-5/8"



SLAB DETAIL



WOOD FLOOR LAYOUT

NOTE:

- 1.) ONLY THE PIERS INDICATED WITH SP ARE REQUIRED TO HAVE SIMPSON STRONG TIES

10'x12'

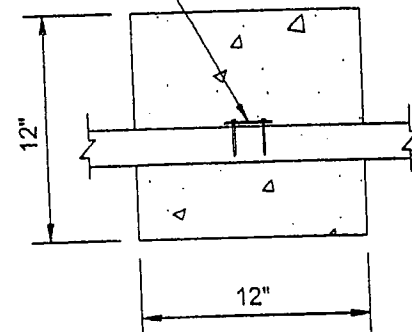
Wood Floor size is 10' x 11' 8-5/8"

10'x16'

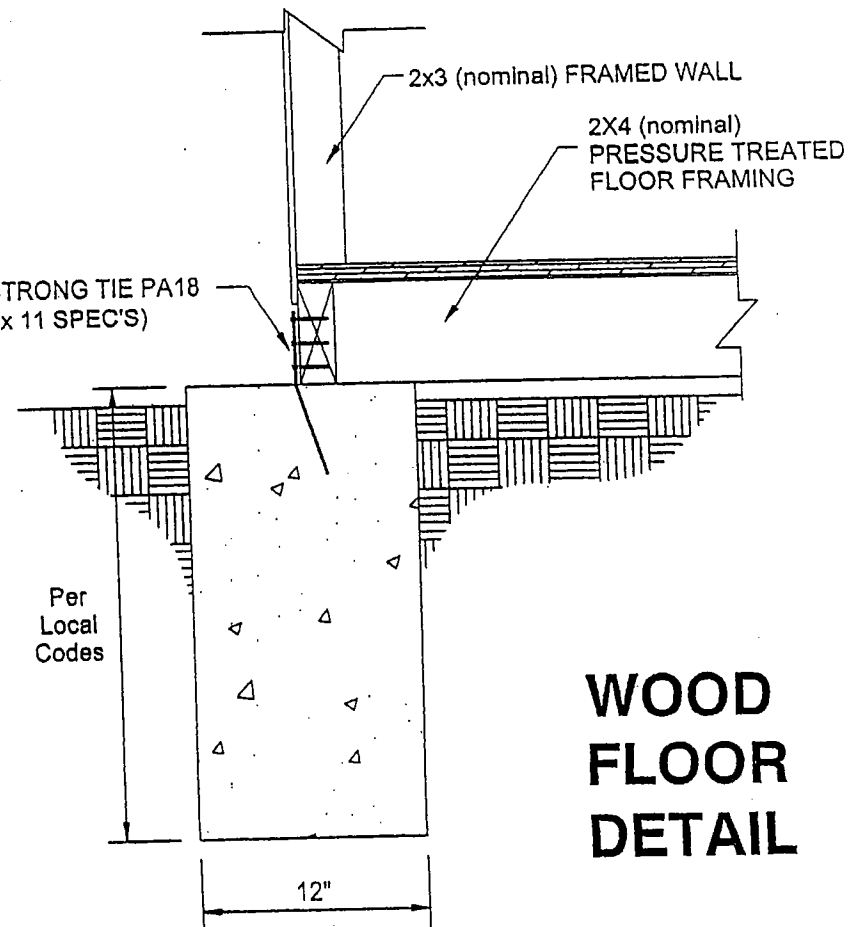
Wood Floor size is 10' x 15' 8-5/8"

SIMPSON STRONG TIE PA18
(SEE 8 1/2" x 11 SPEC'S)

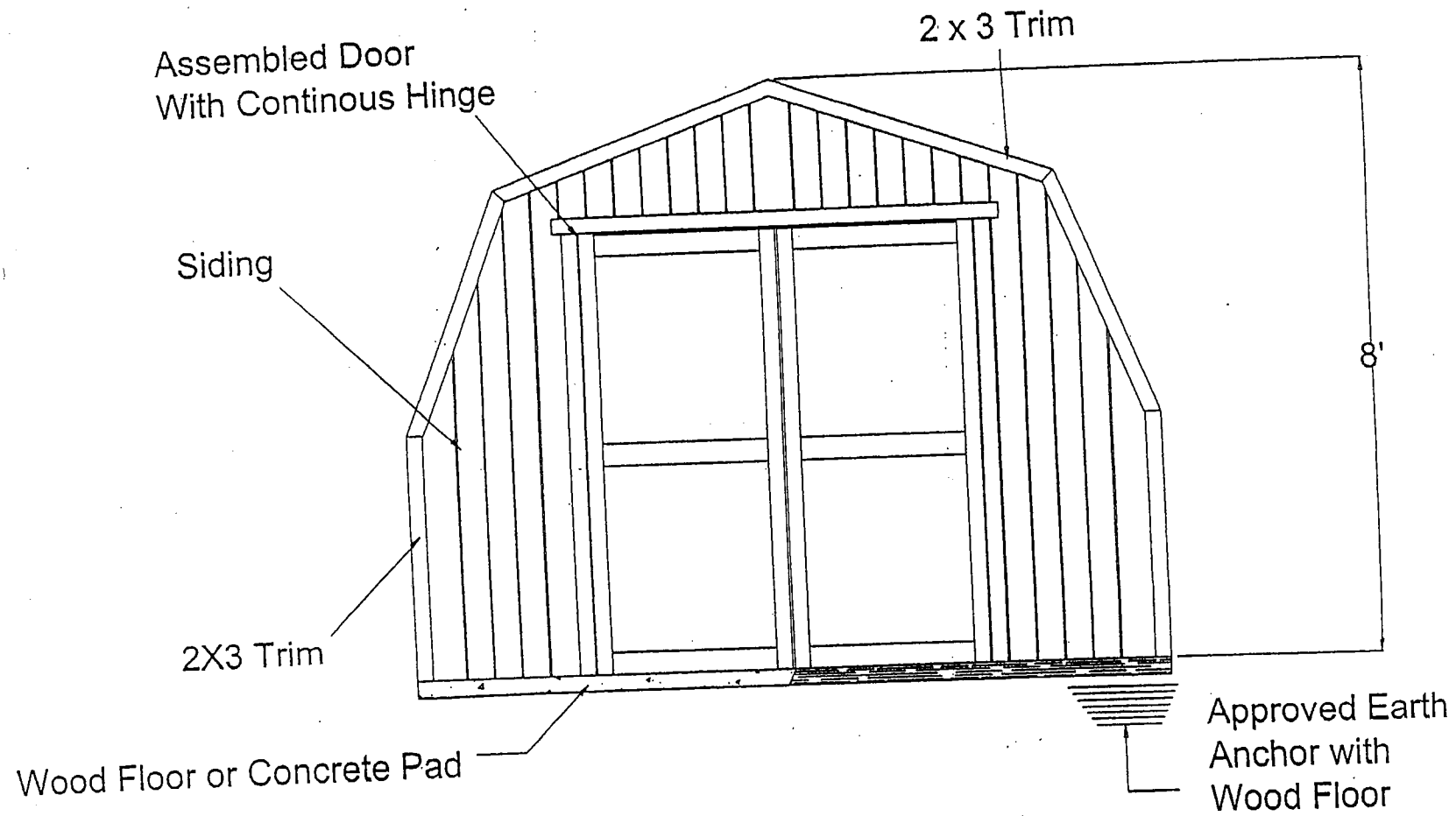
SIMPSON STRONG TIE PA18
(SEE 8 1/2" x 11 SPEC'S)



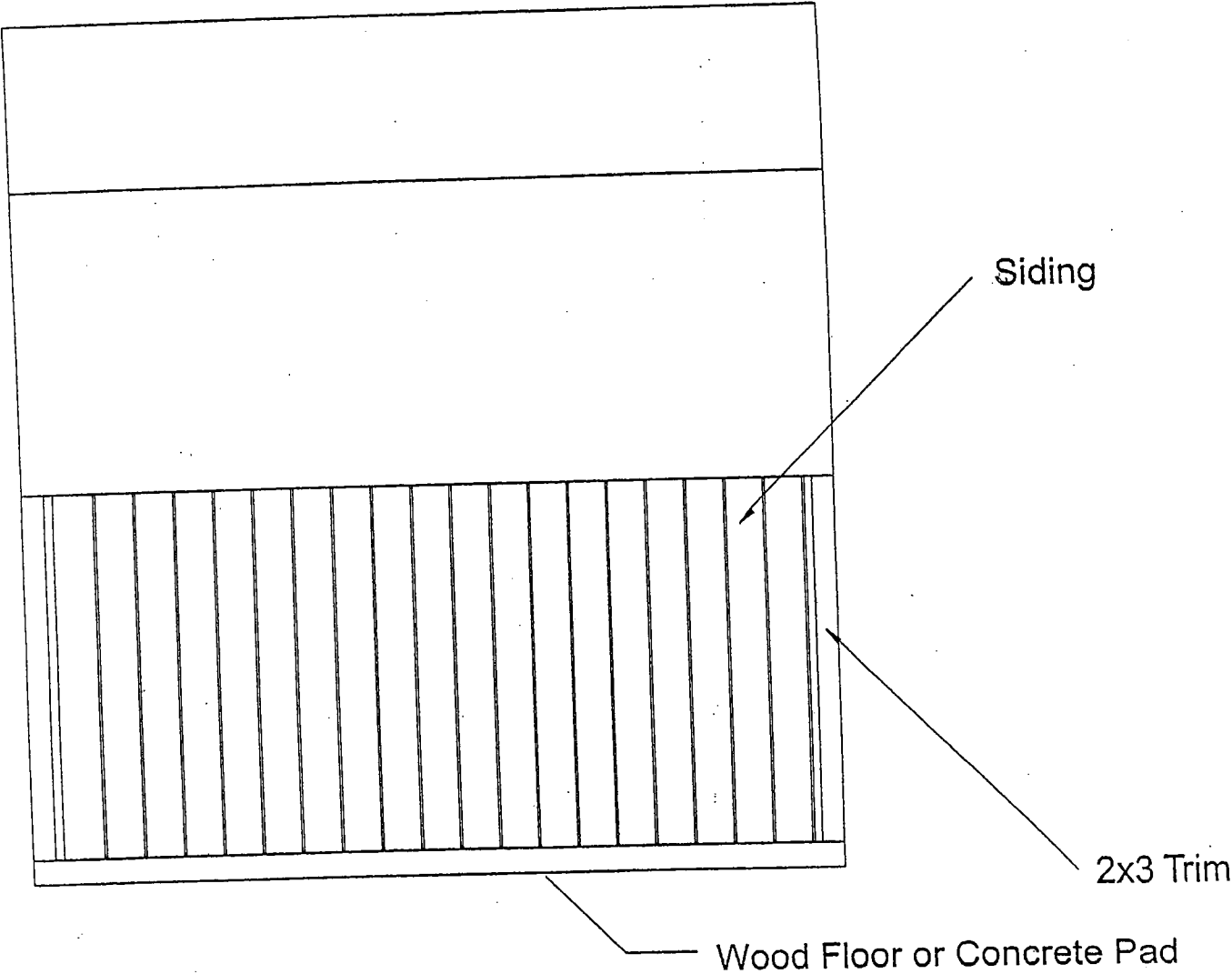
PLAN DETAIL



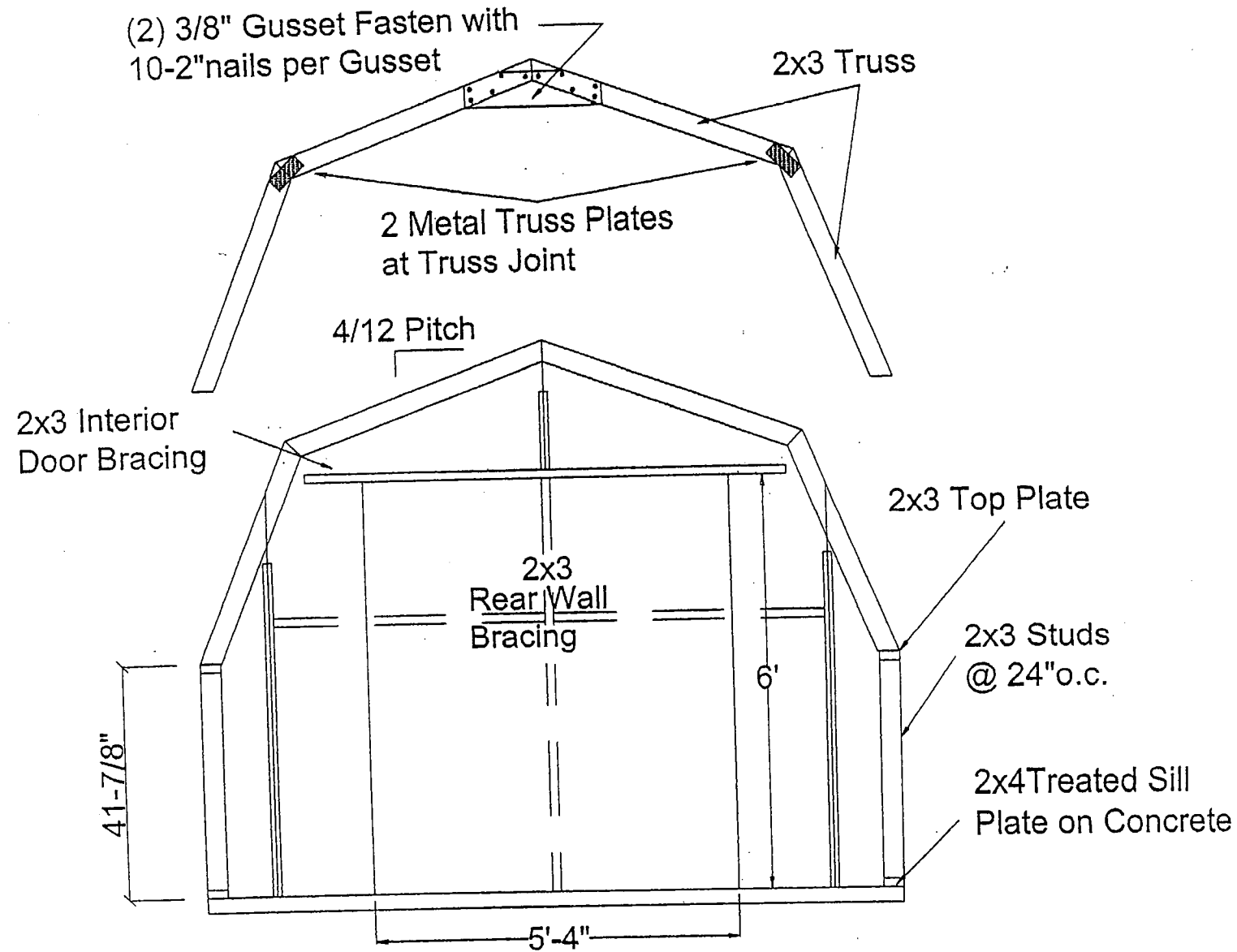
WOOD FLOOR DETAIL



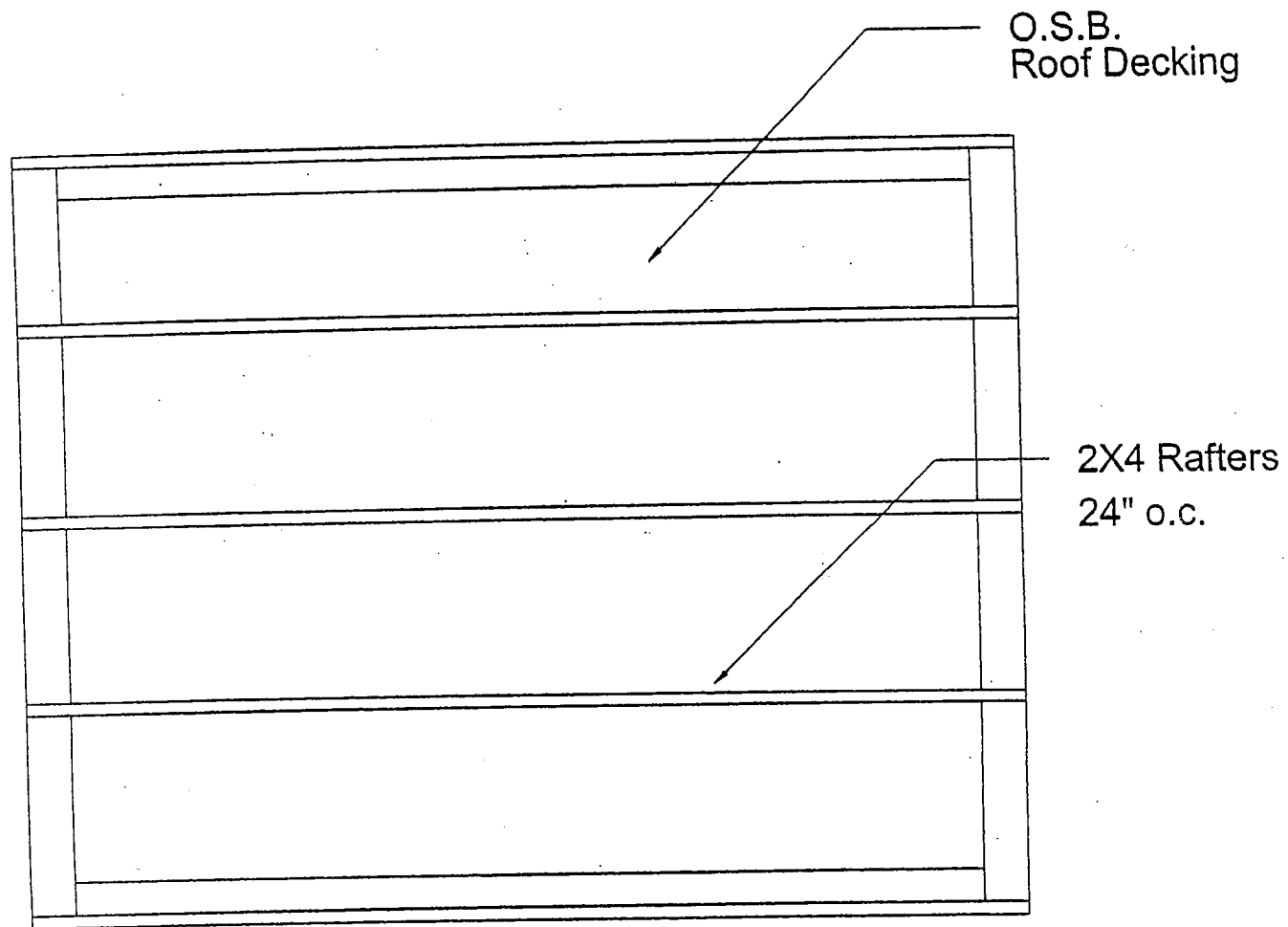
FRONT ELEVATION



LEFT SIDE ELEVATION



FRONT/REAR WALL FRAMING



ROOF FRAMING

- NOTES: 1) The Roof System of this 10 ft. wide Gabrel style building has a live load capacity of 35 PSF.
The equivalent ground snow load per ANCE 7-97 is 68 PSF which exceeds the 16.2 PSF pressure for a 110 mph wind per ASCE 7-97.
- 2) This plan supplements assembly instructions prepared by Handy Home Products.
- 3) Kits for extending the building in 4 ft. increments are identical in construction to the basic building.

STRUCTURAL ANALYSIS:

$f_b = 1200 \text{ PSC}$

$f_v = 80 \text{ psi}$

$S_x 2"x3" = 1.56 \text{ in Area} = 3.75 \text{ in}$

DEAD LOAD:

Max Rafter Moment = $f_b S_x / 12 = 156 \text{ ft. lb.}$

Max Rafter Shear = $80 \times 3.75 = 300 \text{ lb.}$

Max Stud Moment = 156 ft. lb.

ROOF SYSTEM:

1) Rafters $2 \times 3 @ 2' \text{cc } w = 8 \text{ M/L2} = 78 \text{ PLF} = 39 \text{ PSF-4}$

2) Rafter Shear $w = 2 \text{ V/L} = 150 \text{ PLF} = 75 \text{ PSF-4}$

3) Sheathing $w = 49 \text{ PSF-4} = 45 \text{ psf}$

4) Ground Snow Load: Ref ASCE 7-97

$P_s = 35 \text{ PSF } I = 0.8$

$C_s = 0.95 \quad C_e = 0.8$

$C_t = 1.2 \quad P_f = 35 / 0.95 = 36 \text{ PSF}$

$P_g = P_f / .7 C_e C_t I = 68 \text{ PSF Ground Snow Capacity}$

WALL SYSTEM:

1) Studs $2 \times 3 @ 24" \text{cc } L = 3.3 \text{ ft. } w = 8 \text{ M/L2} = 114 \text{ PLF} = 57 \text{ PSF}$

2) Wind Loading $V = 110 \text{ mph EXP 1}$

$K_z = 0.37 \quad G_h = 1.65 \quad G C_{pi} = -0.25$

$I = 0.95 \quad C_p = 0.8$

Velocity Pressure $= 8z = .00256 K_z (IV) = 10.3 \text{ PSF}$

Design Pressure $= P = q_f G_h C_p - (q_h G C_{pi}) = 16.2 \text{ PSF}$

ok $< 57 \text{ PSF}$

10' Marco Series Gable Building

Engineering Building
Plans

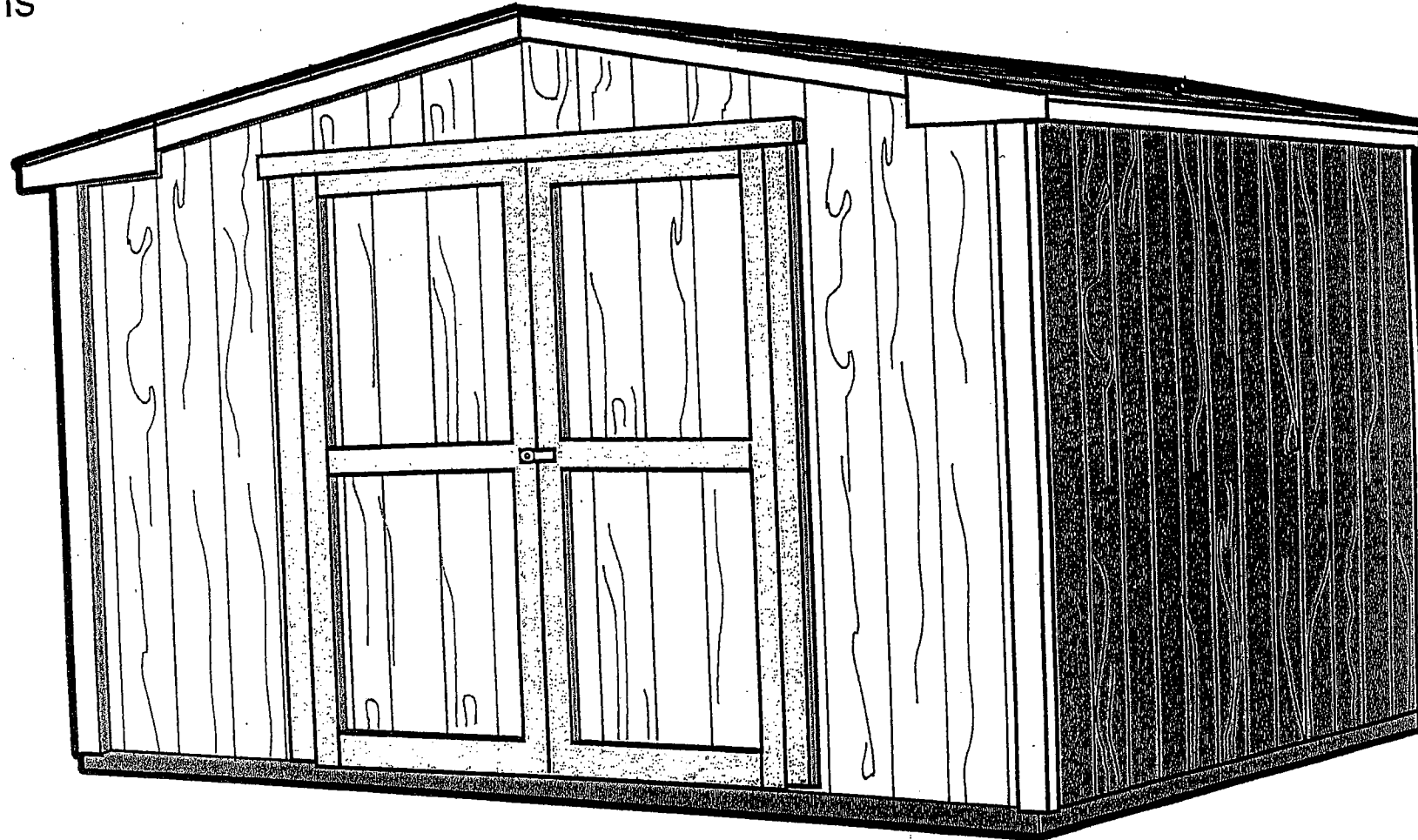


Exhibit D 1 of 8

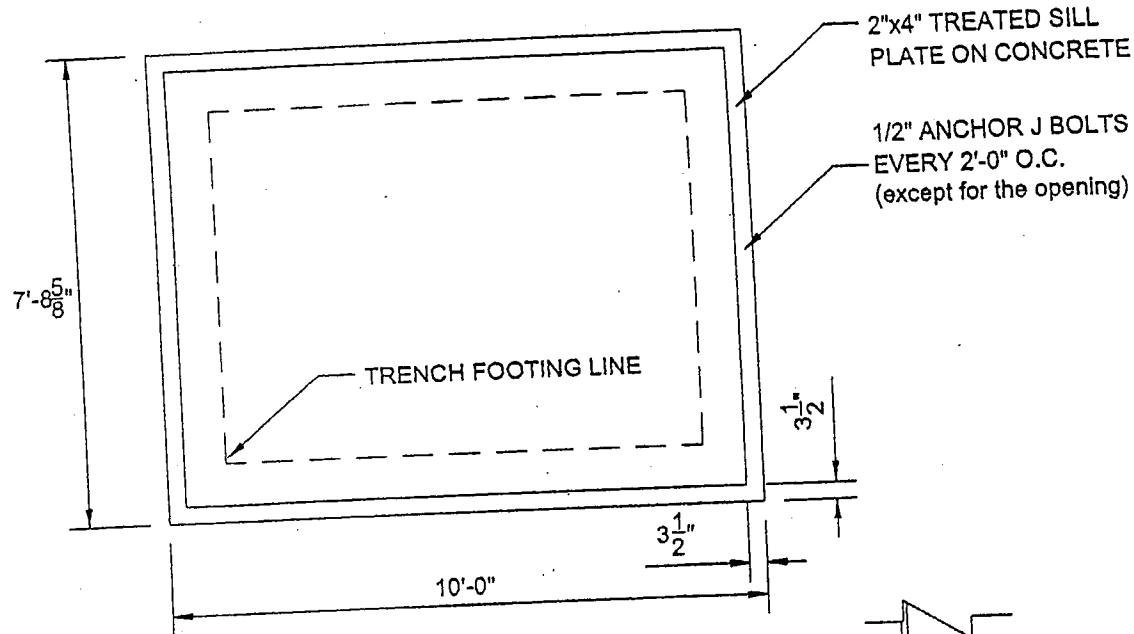
10-7-03

10'x12'

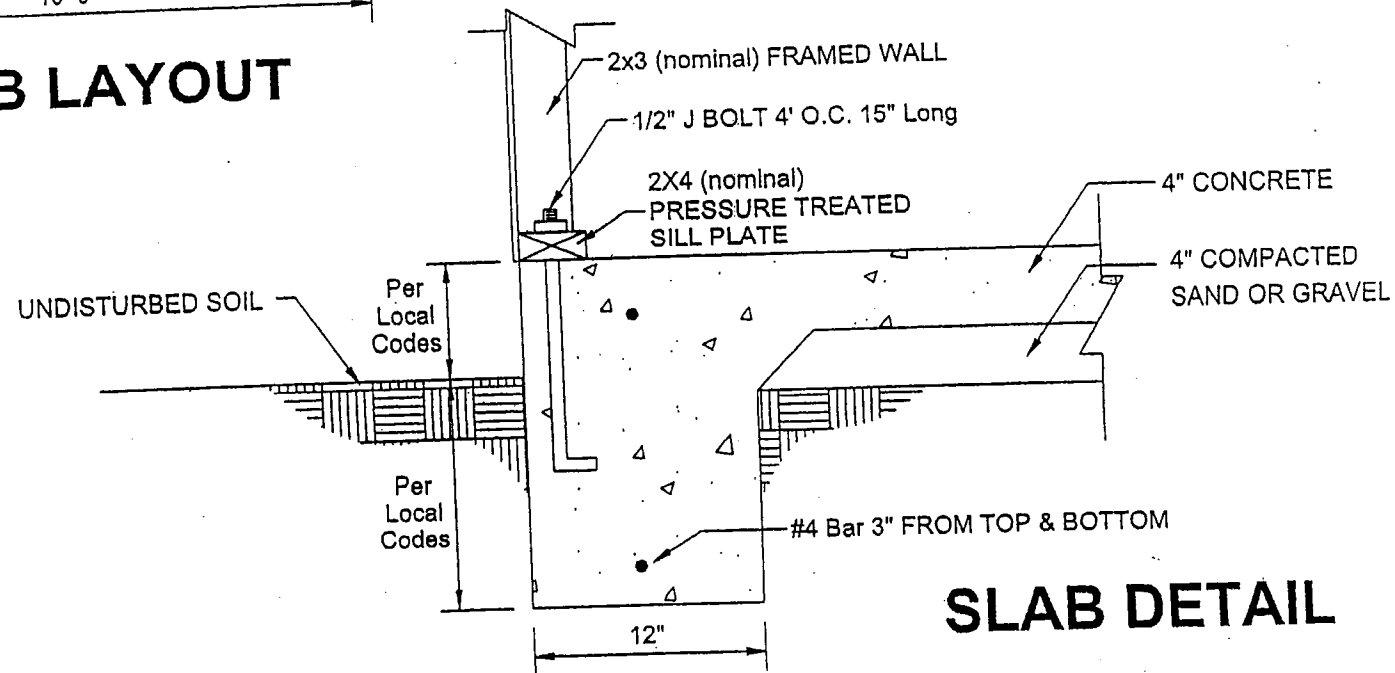
Slab size is 10' x 11' 8-5/8"

10'x16'

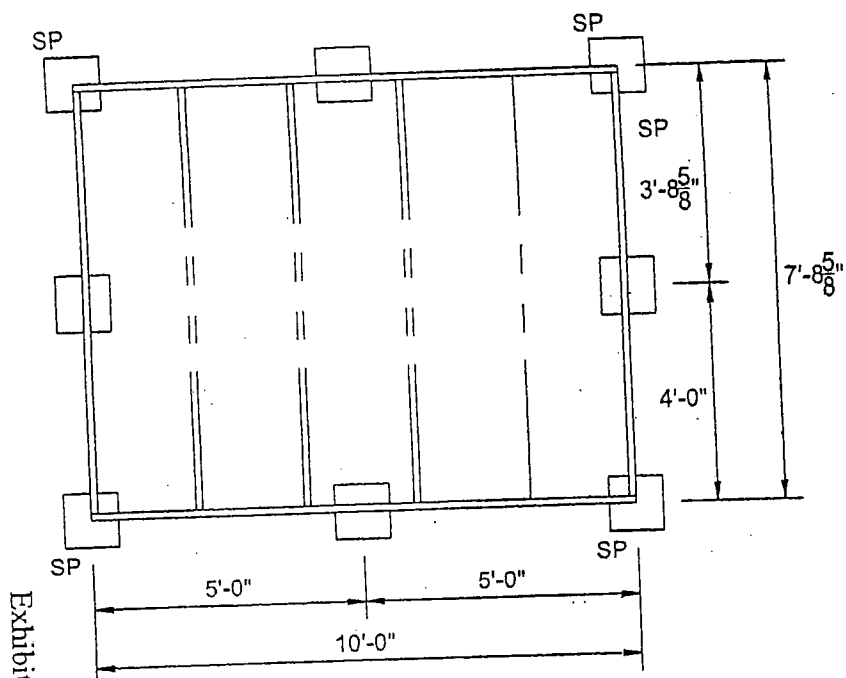
Slab size is 10' x 15' 8-5/8"



SLAB LAYOUT



SLAB DETAIL



NOTE:

1.) ONLY THE PIERS INDICATED WITH SP ARE
REQUIRED TO HAVE SIMPSON STRONG TIES

10'x12'

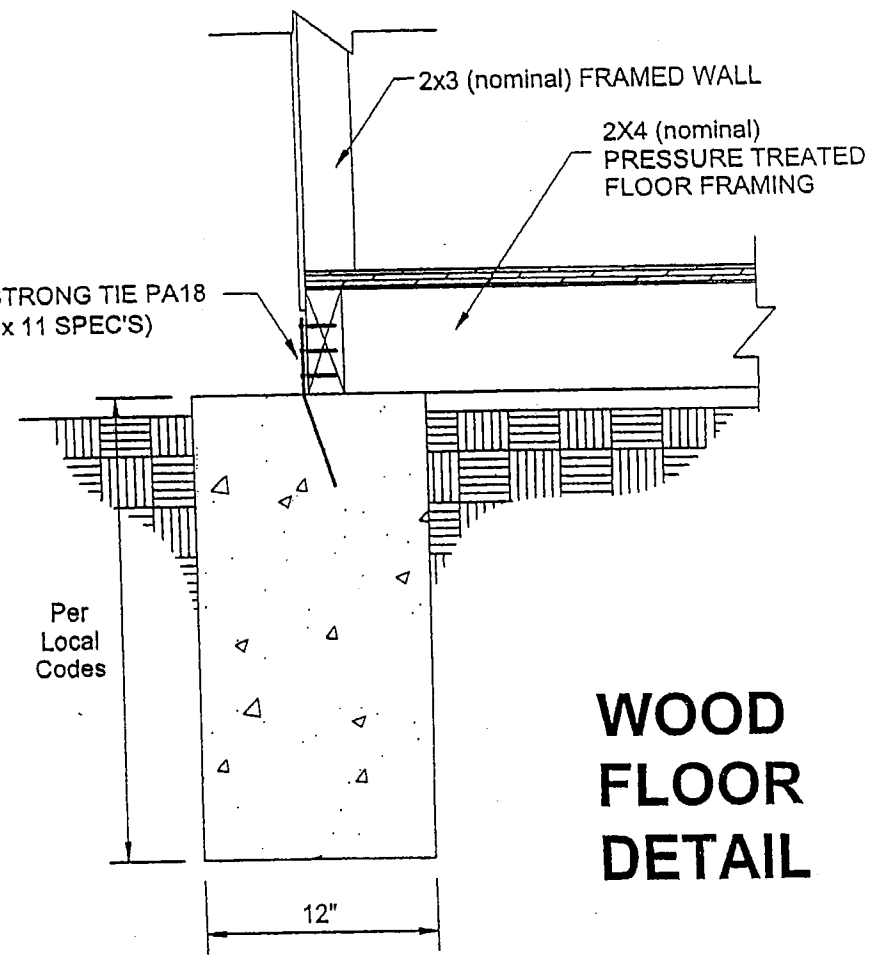
Wood Floor size is 10' x 11' 8-5/8"

10'x16'

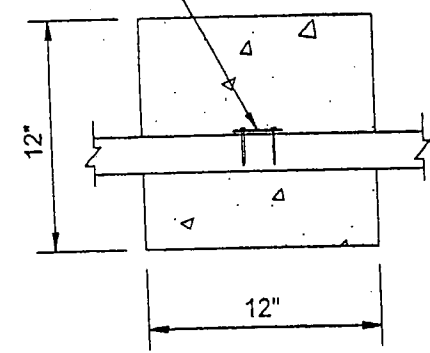
Wood Floor size is 10' x 15' 8-5/8"

WOOD FLOOR LAYOUT

SIMPSON STRONG TIE PA18
(SEE 8 1/2" x 11 SPEC'S)

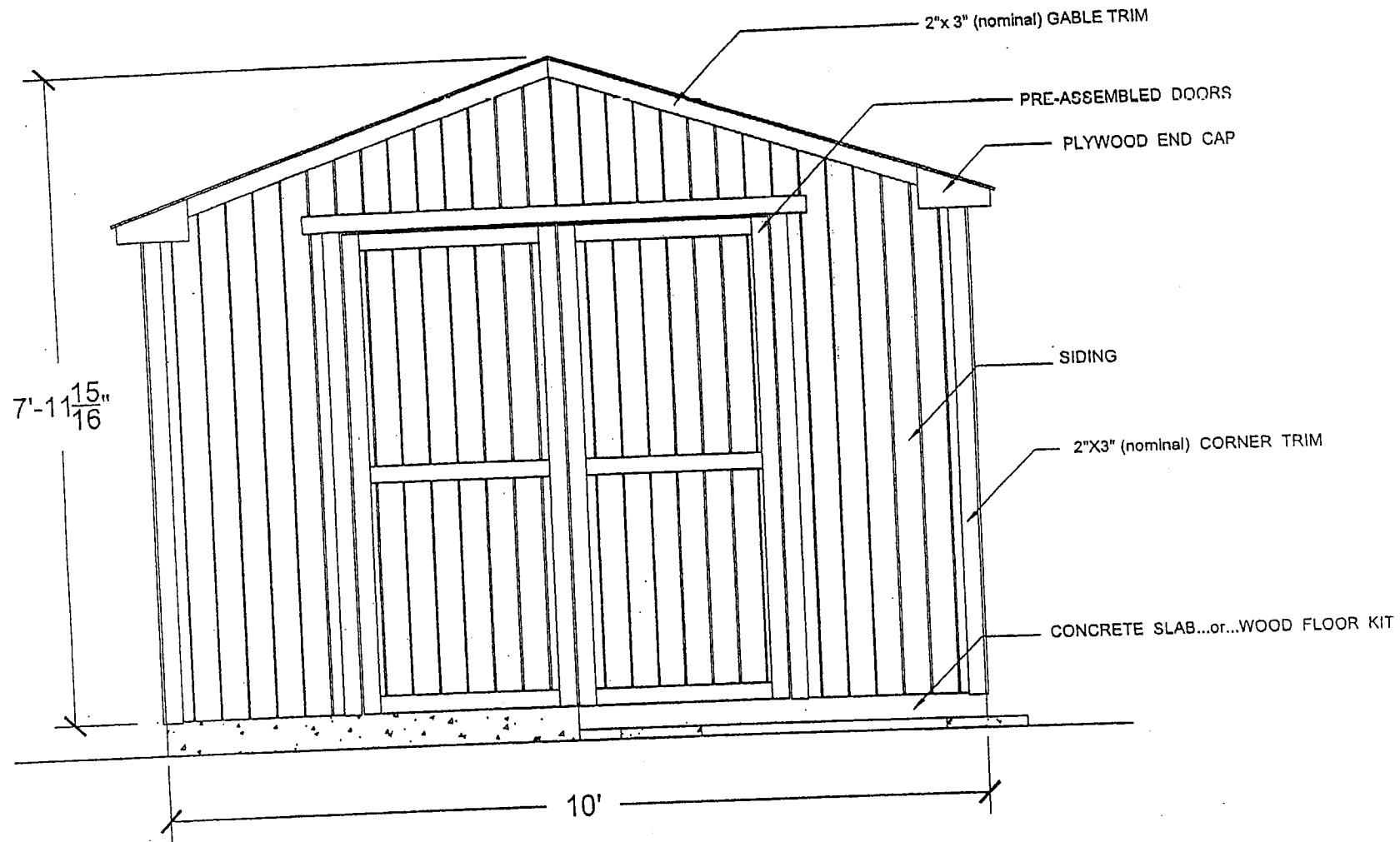


SIMPSON STRONG TIE PA18
(SEE 8 1/2" x 11 SPEC'S)

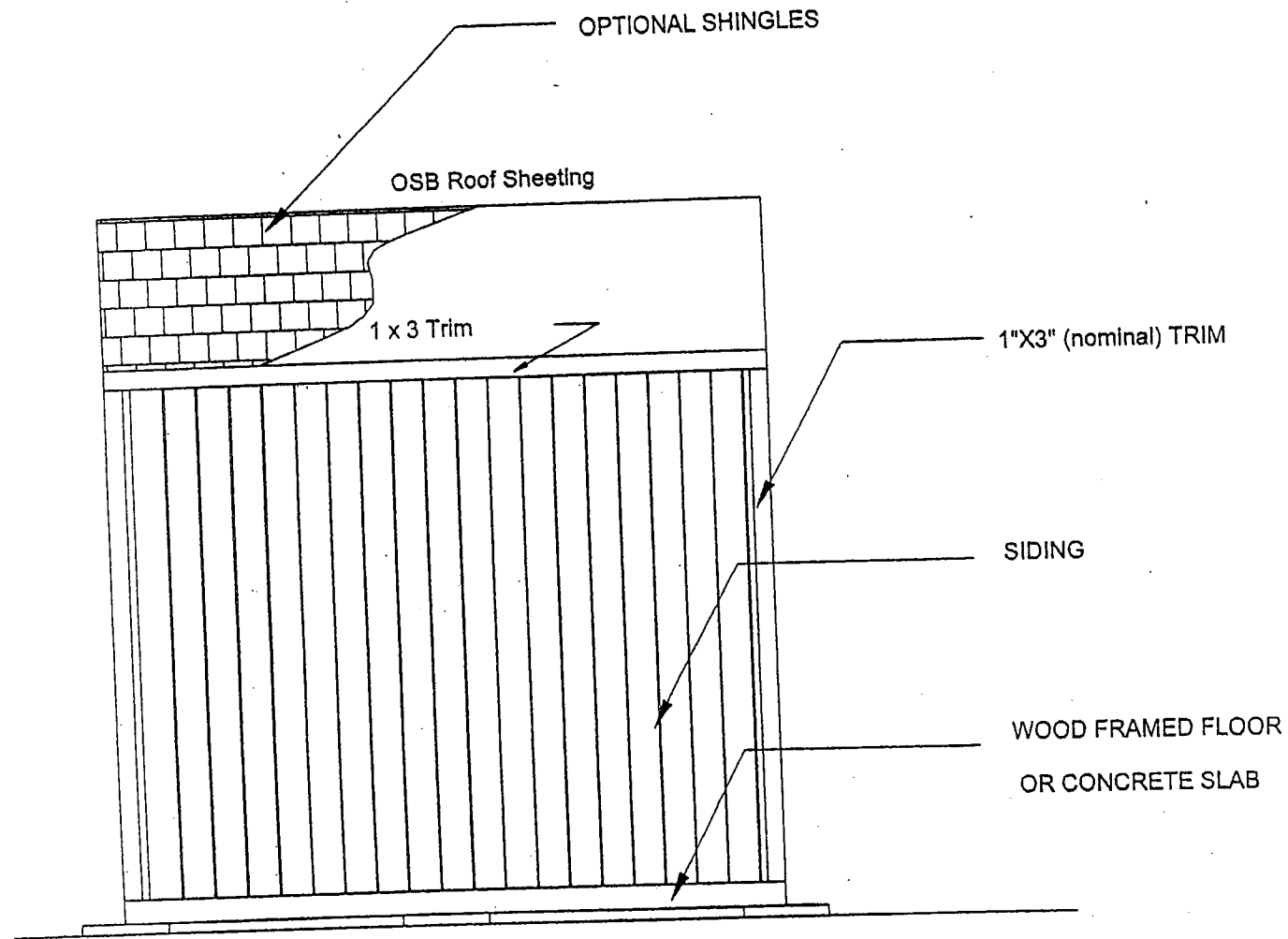


PLAN DETAIL

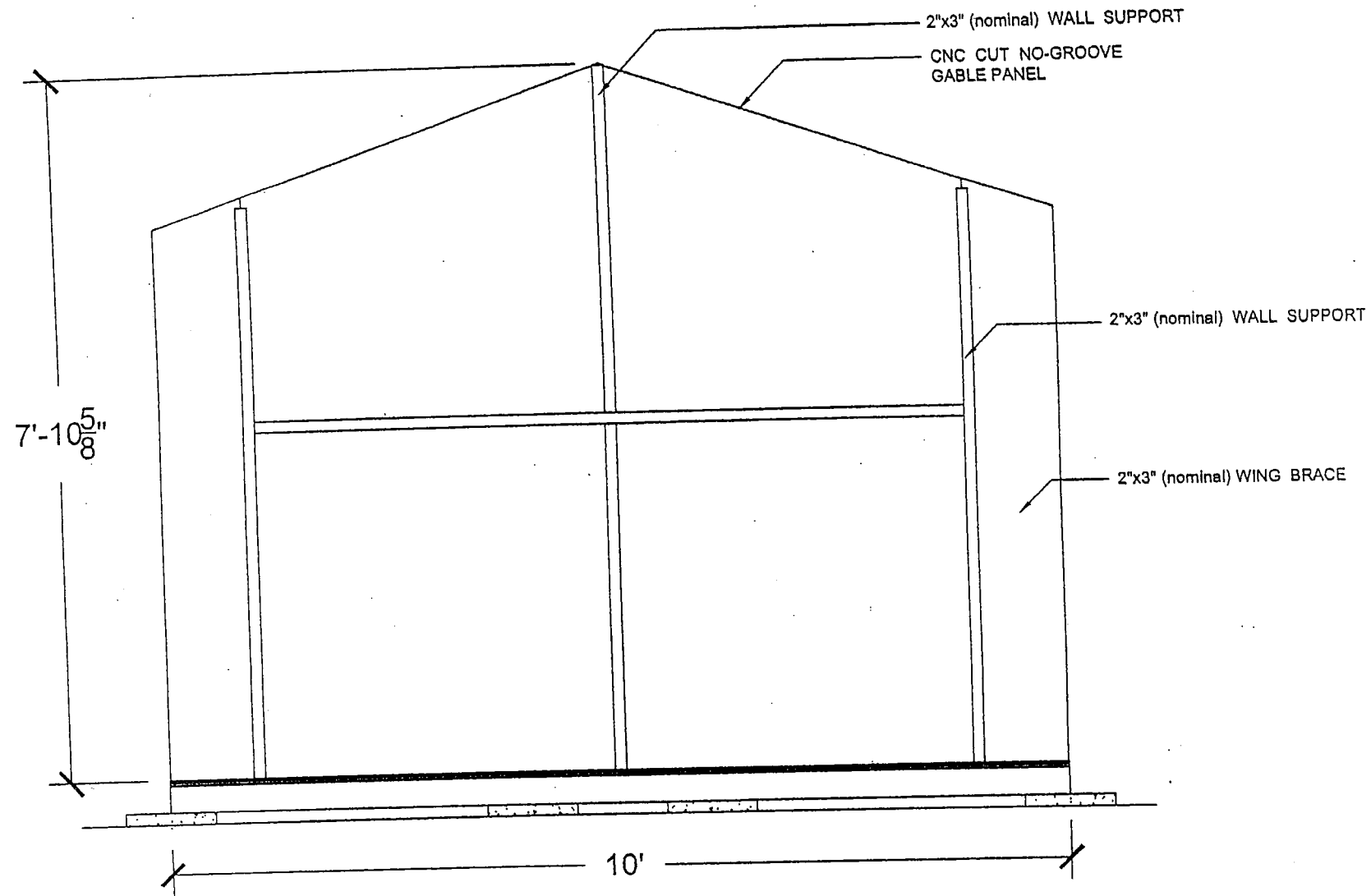
**WOOD
FLOOR
DETAIL**



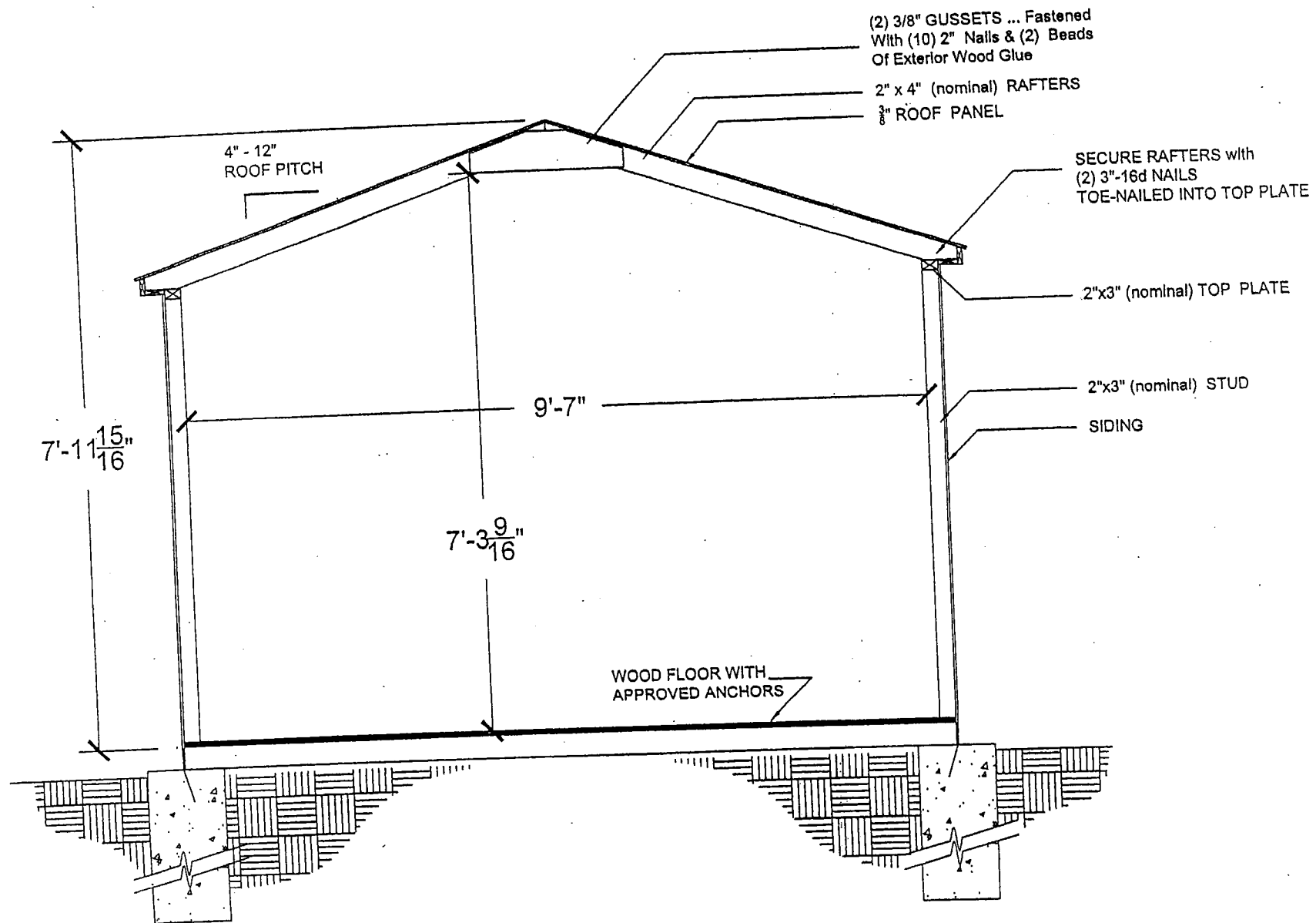
FRONT ELEVATION



LEFT ELEVATION



BACK WALL FRAMING



SECTION DETAIL

- NOTES: 1) The Roof System of this 10 ft. wide Gable style building has a live load capacity of 45 PSF.
The equivalent ground snow load per ANCE 7-98 is 88 PSF which exceeds the 17.3 PSF pressure for a
110 mph wind per ASCE 7-98.
- 2) This plan supplements assembly instructions prepared by Handy Home Products.

STRUCTURAL ANALYSIS:

$f_b = 1200 \text{ PSC}$

$f_v = 80 \text{ psi}$

$S_x 2" \times 3" = 1.56 \text{ in Area} = 3.75 \text{ in}$

Dead Load = 4 PSF (Roof)

Max Rafter Moment = $f_b S_x / 12 = 306 \text{ ft. lb.}$

Max Rafter Shear = $80 \times 3.75 = 300 \text{ lb.}$

Max Stud Moment = 156 ft. lb.

WALL SYSTEM:

1) Studs $2 \times 3 @ 24" \text{ cc } L = 3.3 \text{ ft. } w = 8 \text{ M/L} = 114 \text{ PLF} = 57 \text{ PSF}$

2) Wind Loading $V = 110 \text{ mph EXP 1}$

$K_z = 0.37 \quad G_h = 1.65 \quad G_{Cpl} = -0.25$

$I = 0.95 \quad C_p = 0.8$

Velocity Pressure = $8z = .00256 K_z (IV) = 10.3 \text{ PSF}$

Design Pressure = $P = q_f G_h C_p - (q_h G_{Cpl}) = 16.2 \text{ PSF}$
ok < 57 PSF

ROOF SYSTEM:

1) Rafters $2 \times 4 @ 2' \text{ cc } w = 8 \text{ M/L} = 76 \text{ PLF} = 45 \text{ PSF-4}$

2) Rafter Shear $w = 2V/L = 117 \text{ PLF} = 92 \text{ PSF-4}$

3) Sheathing $w = 45 \text{ PSF-4} = 45 \text{ psf}$

4) Ground Snow Load: Ref ASCE 7-98

$P_s = 45 \text{ PSF} \quad I = 0.8$

$C_s = 0.95 \quad C_e = 0.8$

$C_t = 1.2 \quad P_f = 45 / 0.95 = 47.4 \text{ PSF}$

$P_g = P_f / .7 C_e C_t = 88 \text{ PSF Ground Snow Capacity}$