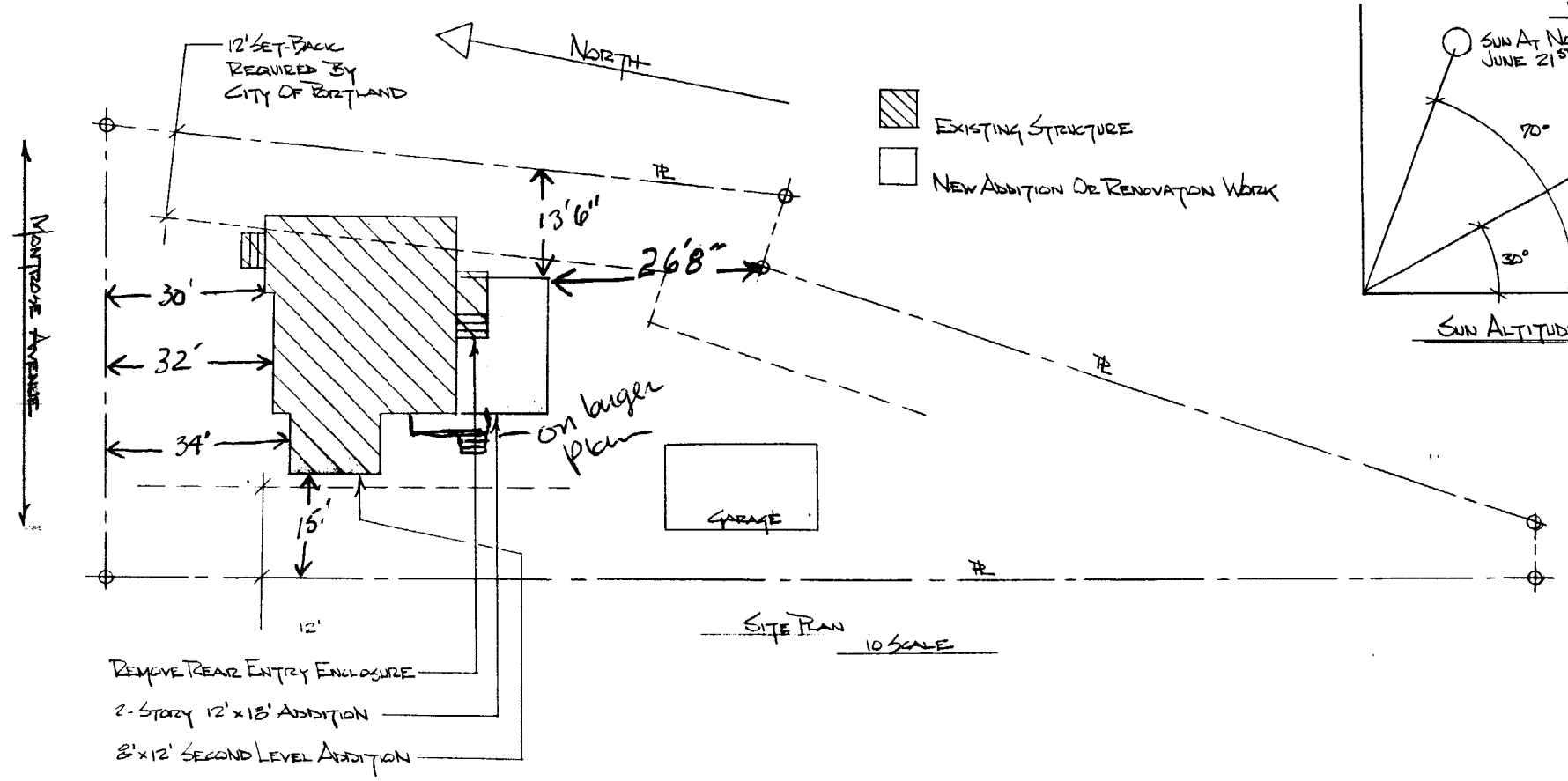
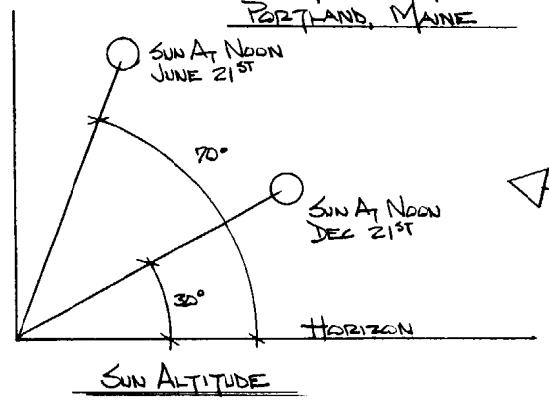
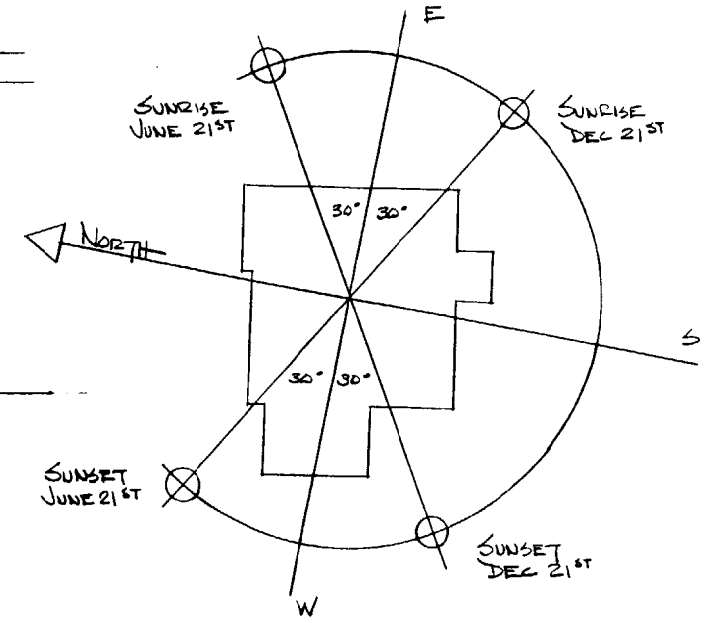


SITE PLAN 10 SCALE



SUN ALTITUDE



SUN AZIMUTH

SUN & WIND DATA
PORTLAND, MAINE

THESE DIAGRAMS SHOW THE APPROXIMATE POSITIONS OF THE SUN FOR THE LONGEST AND SHORTEST DAYS OF THE YEAR. INTERPOLATION BETWEEN THESE POSITIONS WILL SUPPLY INFORMATION FOR OTHER DAYS IN THE YEAR. COOL SUMMER BREEZES WILL COME FROM THE SOUTH AND SOUTH WEST DIRECTIONS. COLD WINTER WINDS WILL COME FROM THE NORTH AND NORTH-WEST DIRECTIONS. CLOSE POSITION OF THIS PROPERTY TO THE ATLANTIC OCEAN MAY ALTER THESE WIND FLOW PATTERNS FROM TIME TO TIME DURING PERIODS OF HARSH WEATHER EVENTS.

R-5 Zone

6,827 ± allowed 40% coverage = 2,730

Existing = 950
New = 255
1205 OK

Front = 20' Req 34' Shown
Rear = 20' Req 26'8" Shown
Side = 12' Req 13'6" & 15' Shown

AUGUST 2002

ASBURY PROJECT
40 MONTROSE AVENUE
PORTLAND, MAINE 04103 828-2933

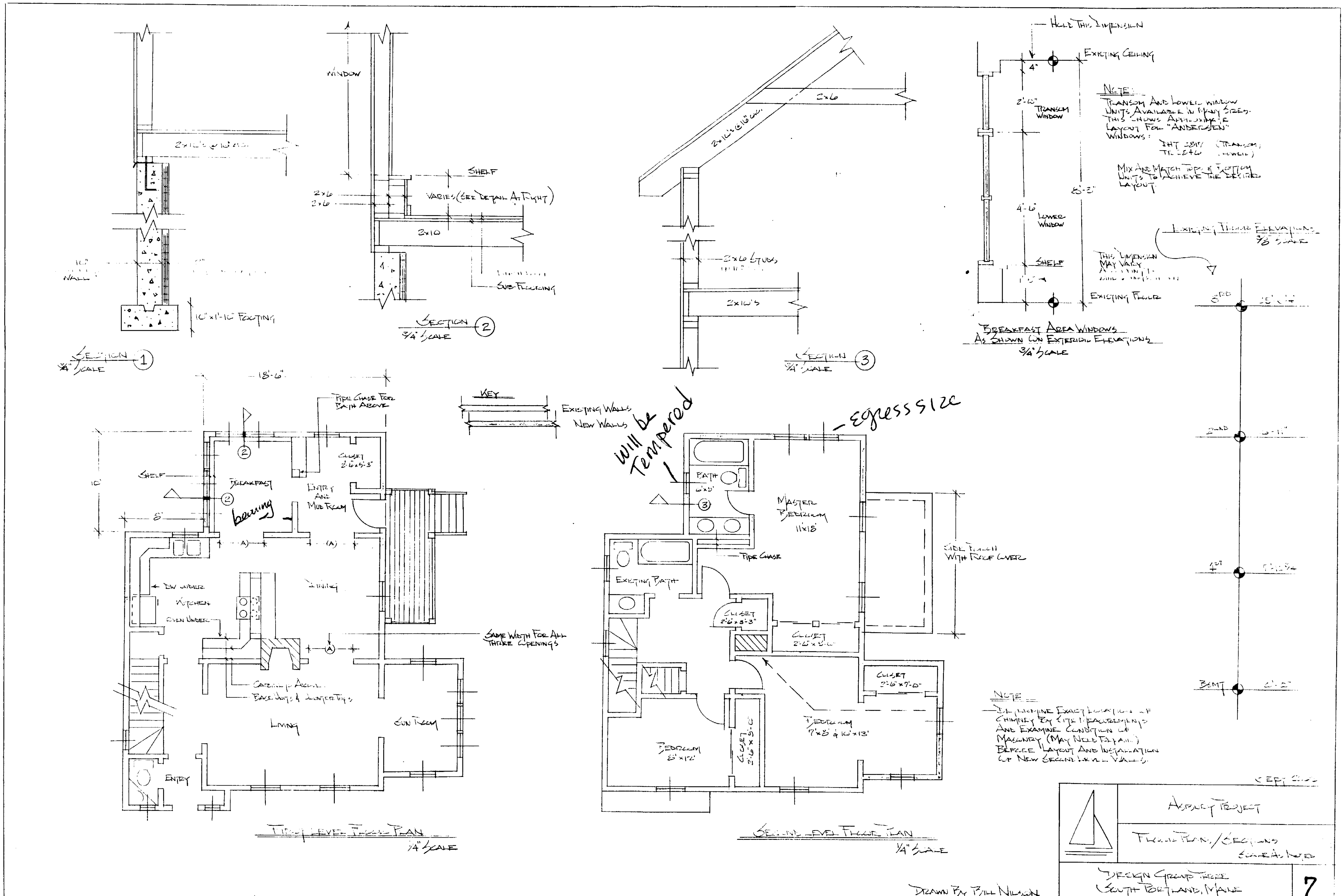
SITE PLAN AND DETAILS
SCALE AS NOTED

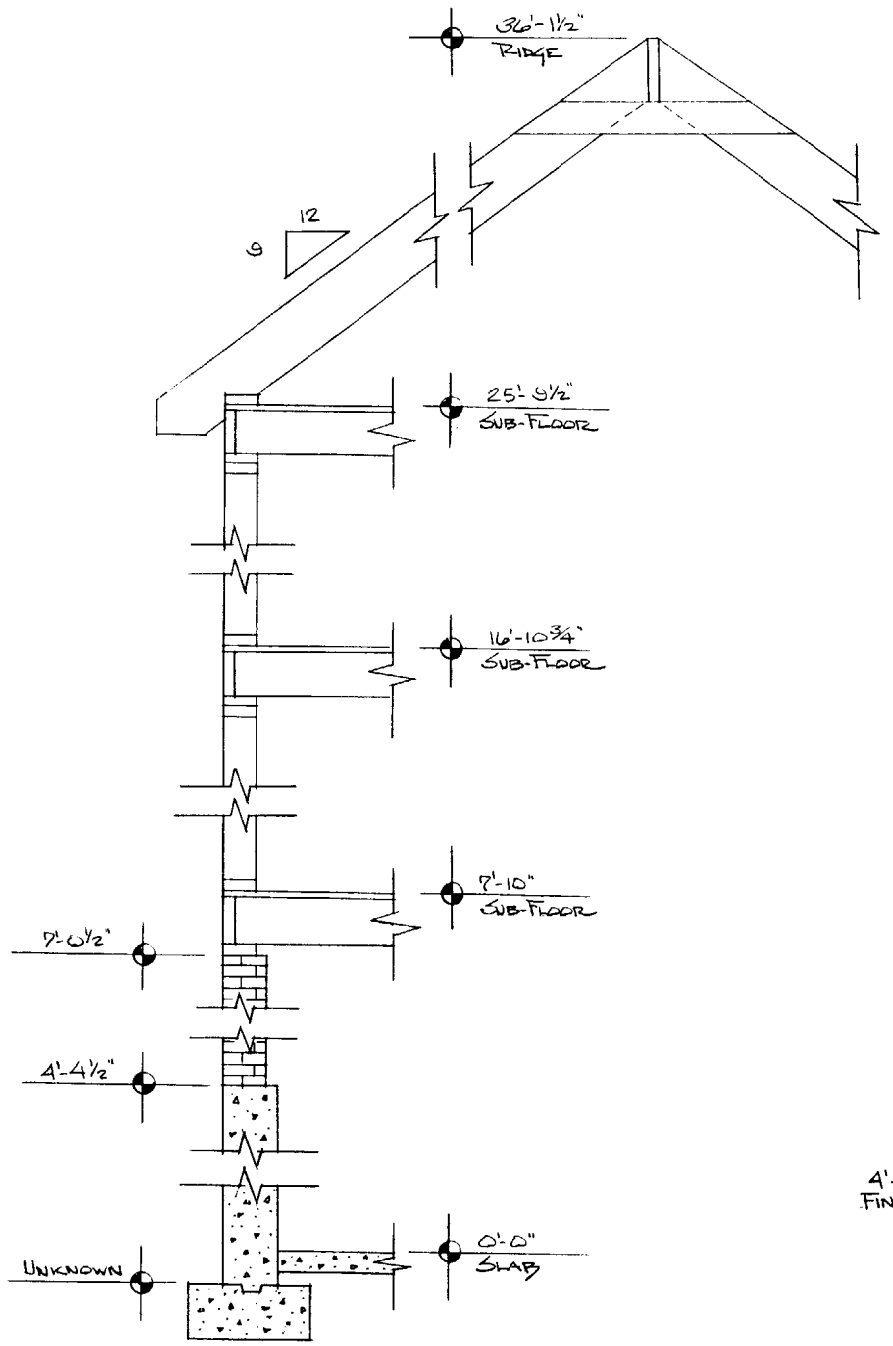
DESIGN GROUP THREE 799-3484
4 BOYD ROAD
SOUTH PORTLAND, MAINE 04106

DRAWN BY BILL NILSON

1

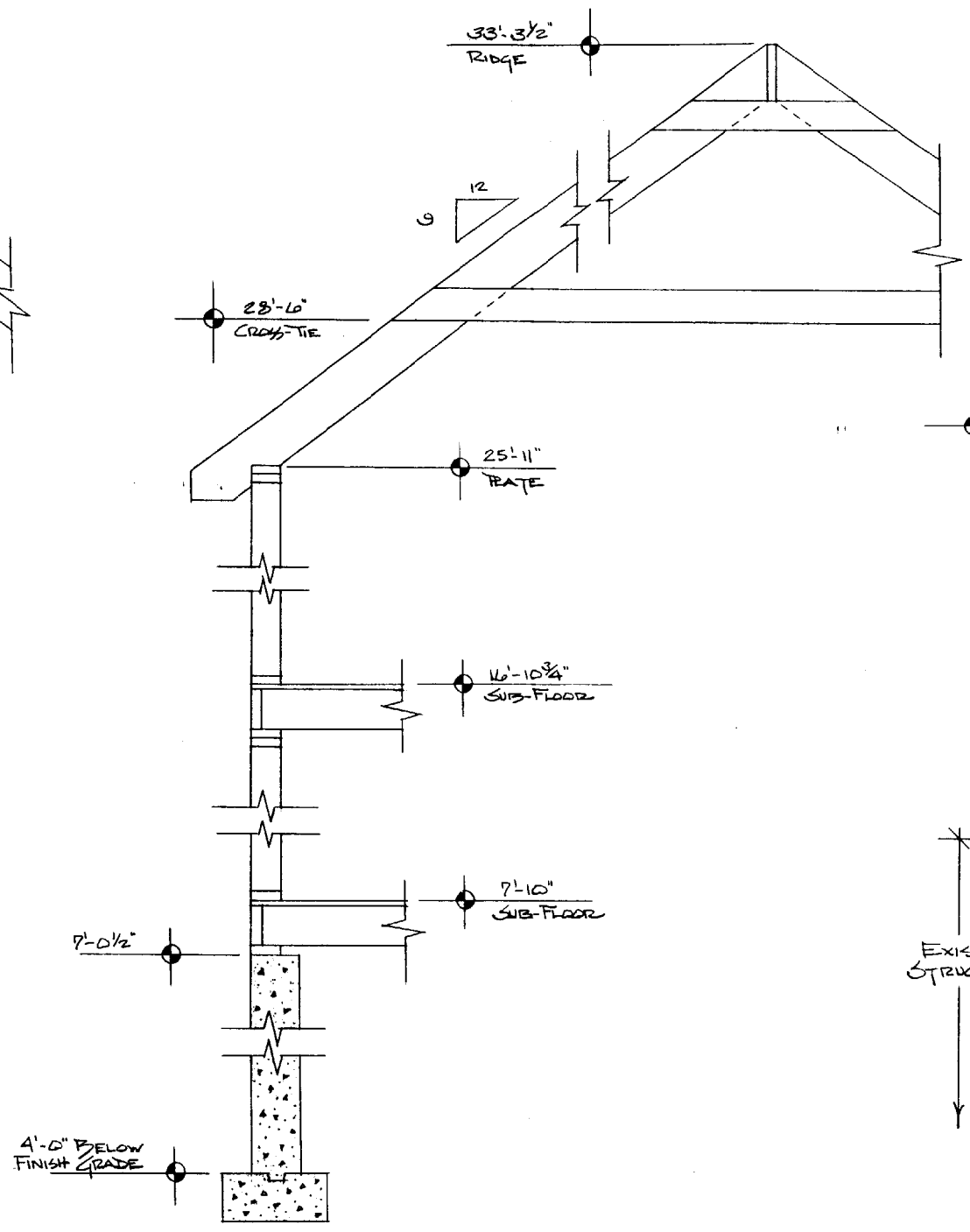
Rear Elevation (1)
1/4" Scale
Partial Elevation (4)
1/4" Scale
Shown With Dormer
Side Elevation (2)
1/4" Scale
Partial Elevation (6)
1/4" Scale
Shown Without Dormer
Existing House and Roof Framing
New Framing For Bedroom Area Over Sun Porch (Including Dormer)
±6'
6'
8'
12'
Foot Print
Partial (See Notes)
Key Plan No Scale
Note There is sufficient height in the framing system of the existing house to make a dormer unnecessary
See Partial Elevations (4)(5)(6)
Not Shown on Plot plan
OK on Larger plan
Partial Elevation (5)
1/4" Scale
Shown Without Dormer
Side Elevation (3)
1/4" Scale
Shown With Dormer
Drawn By Bill Nelson
Sept
Asbury Project
Exterior Elevations
Design Group Three
South Portland, Maine
6


Section 1
3/4" Scale
10"x1'-10" Footing
Section 2
3/4" Scale
Window
Shelf
Varies (See Detail At Right)
2x6
2x6
2x10
Sub-Flooring
Section 3
3/4" Scale
2x6
2x6 Studs
2x10's
Hold This Dimension
Existing Ceiling
Note:
Transom And Lower Window Units Available In Many Sizes. This Shows Appropriate Layout For "Andersen" Windows:
Mix And Match Top & Bottom Units To Achieve The Desired Layout.
2'-0" Transom Window
4'-6" Lower Window
8'-3"
Shelf
This Dimension May Vary
Existing Floor
Breakfast Area Windows As Shown On Exterior Elevations
3/4" Scale
Existing Floor Elevations
1/8" Scale
3RD
2ND
1ST
BSMT
18'-6"
Pipe Chase For Bath Above
Closet 2'-6"x5'-3"
Shelf
Breakfast
Entry And Mud Room
bearing
Dining
Kitchen
DW Under
Oven Under
Same Width For All Three Openings
Ceiling Above Base Units & Counter Tops
Living
Sun Room
Entry
First Level Floor Plan
1/4" Scale
Key
Existing Walls
New Walls
Will be Tempered
Egress size
Bath
Master Bedroom 11x18
Pipe Chase
Existing Bath
Closet 2'-6"x3'-3"
Closet
Closet 2'-6"x7'-0"
Bedroom 7'x8' & 10'x13'
Bedroom 8'x12'
Side Porch With Roof Cover
Second Level Floor Plan
1/4" Scale
Note:
Determine Exact Location Of Chimney By Site Measurements And Examine Condition Of Masonry (May Need Repair) Before Layout And Installation Of New Second Level Walls.
Asbury Project
Floor Plan / Sections
Scale As Noted
Design Group Three
South Portland, Maine
Drawn By Bill Nilsson
7



EXISTING STRUCTURAL ELEVATIONS

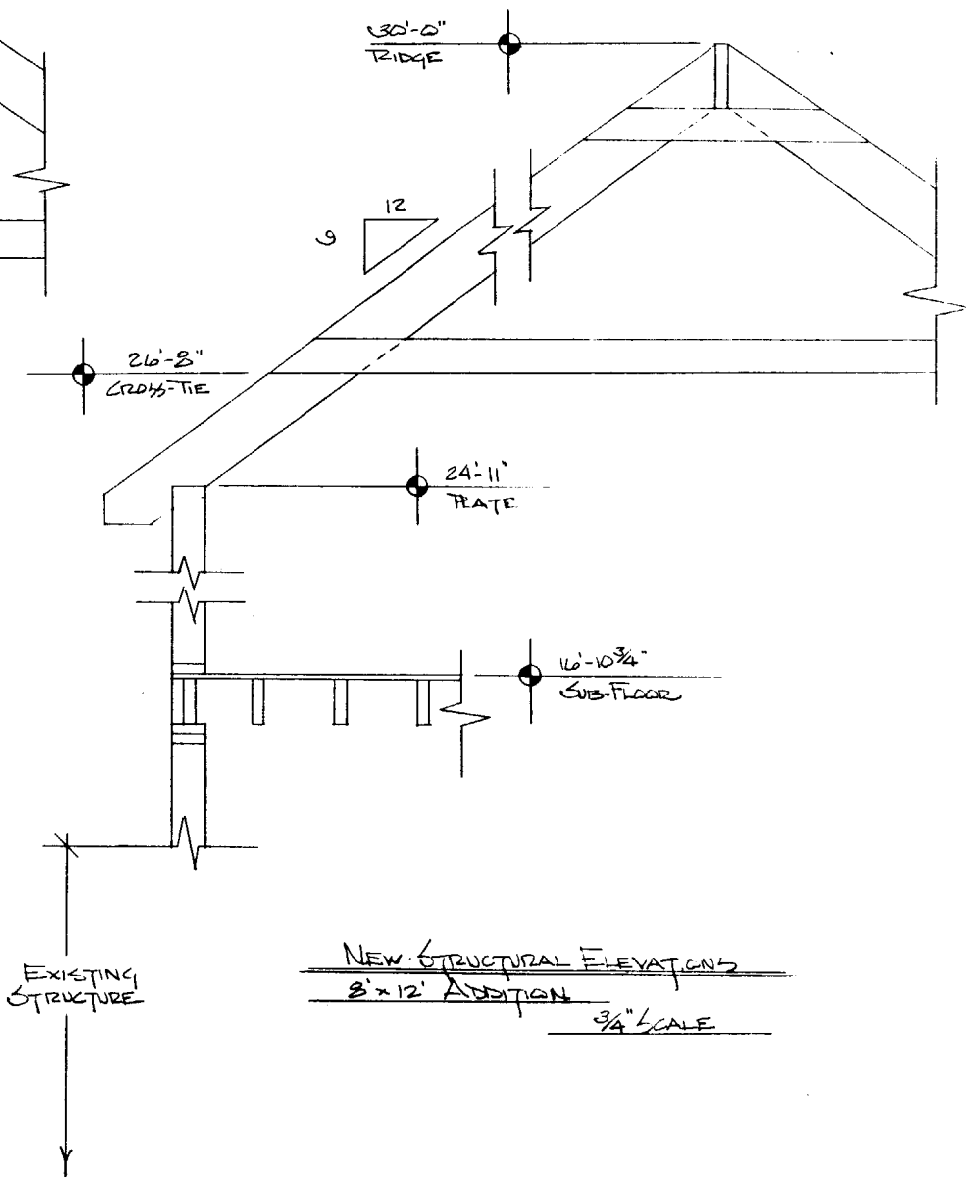
3/4" SCALE



NEW STRUCTURAL ELEVATIONS

10'x18' ADDITION

3/4" SCALE



NEW STRUCTURAL ELEVATIONS

8'x12' ADDITION

3/4" SCALE

NOTE:

SEE FRAMING PLANS, SECTIONS, AND DETAILS FOR ADDITIONAL INFORMATION.

NOTE:

SOME OF THESE VALUES ARE ESTIMATES. MANY STRUCTURAL ELEMENTS ARE HIDDEN FROM VIEW BY FINISH MATERIALS. VERIFY WHERE REQUIRED BY SITE MEASUREMENT.

SEPT. 2002

ASBURY PROJECT

EXISTING & NEW STRUCTURAL ELEVATIONS

3/4" SCALE

DESIGN GROUP THREE
SOUTH PORTLAND, MAINE

DRAWN BY BILL NILSON

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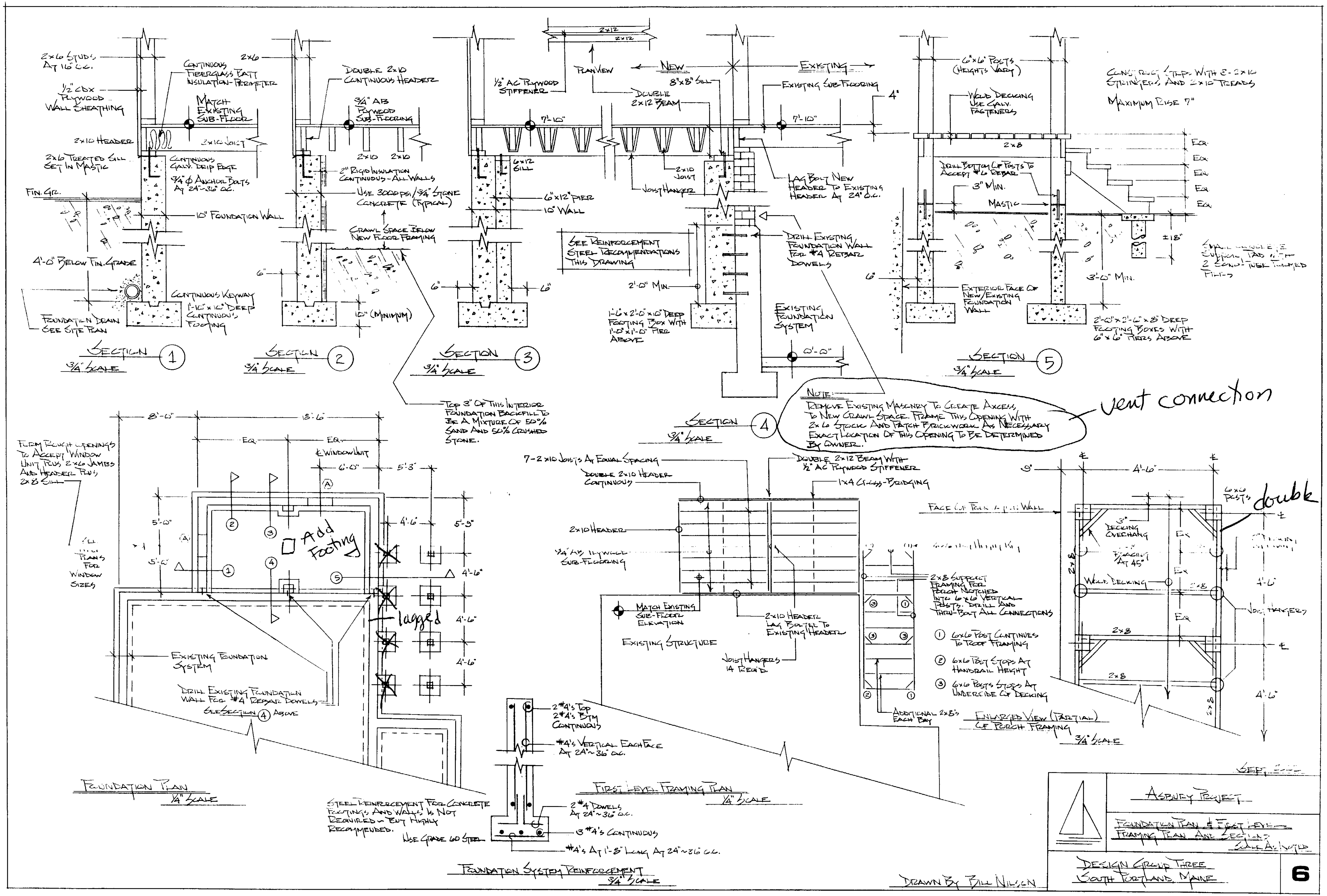
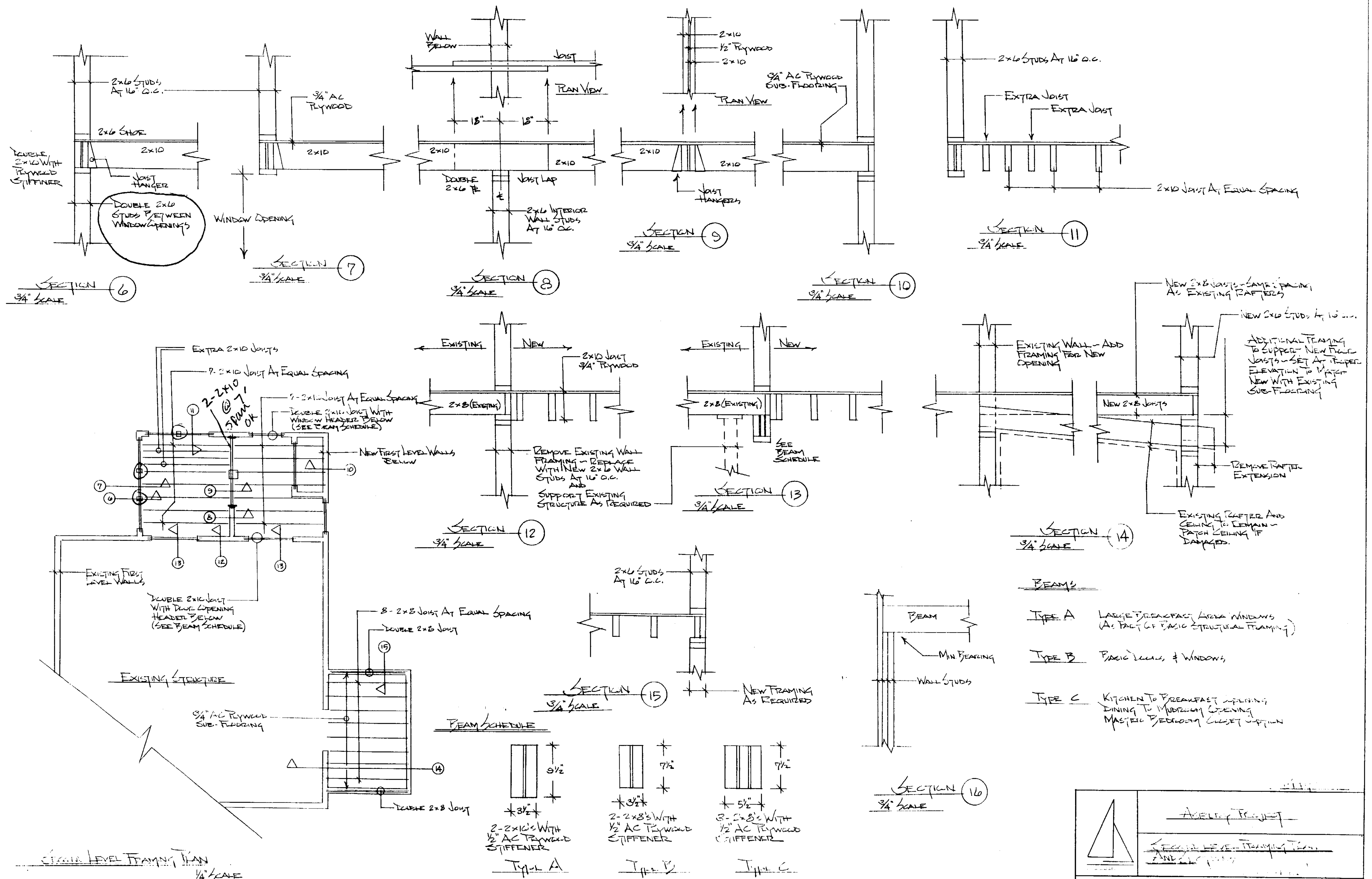

2x6 Studs At 16" O.C.
1/2" CDX Plywood Wall Sheathing
Continuous Fiberglass Batt Insulation-Perimeter
Match Existing Sub-Floor
2x10 Header
2x10 Joist
2x6 Treated Sill Set In Mastic
Continuous Galv. Drip Edge
3/4" Ø Anchor Bolts At 24"-36" O.C.
Fin. Gr.
10" Foundation Wall
4'-0" Below Fin. Grade
Continuous Keyway 1 1/2" x 1 1/2" Deep Continuous Footing
Foundation Drain See Site Plan
Section 1
3/4" Scale
Double 2x10 Continuous Header
3/4" AB Plywood Sub-Flooring
2" Rigid Insulation Continuous - All Walls
Use 3000 psi/3/4" Stone Concrete (Typical)
Crawl Space Below New Floor Framing
10" (Minimum)
Section 2
3/4" Scale
1/2" AC Plywood Stiffener
Plan View
New
Existing
8"x8" Sill
Double 2x12 Beam
Existing Sub-Flooring
6x12 Sill
6"x12" Pier
10" Wall
2x10 Joist
Joist Hanger
Lag Bolt New Header To Existing Header At 24" O.C.
See Reinforcement Steel Recommendations This Drawing
Drill Existing Foundation Wall For #4 Rebar Dowels
2'-0" Min.
1'-6"x2'-0"x10" Deep Footing Box With 1'-0"x1'-0" Pier Above
Existing Foundation System
Section 3
3/4" Scale
Section 4
3/4" Scale
6"x6" Posts (Heights Vary)
Wood Decking Use Galv. Fasteners
Construct Steps With 3-2x12 Stringers And 2x10 Treads
Maximum Rise 7"
Drill Bottom Of Posts To Accept #6 Rebar
3" Min.
Mastic
Exterior Face Of New/Existing Foundation Wall
3'-0" Min.
2'-0"x2'-6"x8" Deep Footing Boxes With 6"x6" Piers Above
Section 5
3/4" Scale
Top 3" Of This Interior Foundation Backfill To Be A Mixture Of 50% Sand And 50% Crushed Stone.
Note:
Remove Existing Masonry To Create Access To New Crawl Space. Frame This Opening With 2x6 Stock And Patch Brickwork As Necessary. Exact Location Of This Opening To Be Determined By Owner.
vent connection
Form Rough Openings To Accept Window Unit Plus 2x6 Jambs And Header Plus 2x8 Sill
Window Sizes
℄ Window Unit
Add Footing
lagged
Existing Foundation System
Drill Existing Foundation Wall For #4 Rebar Dowels See Section 4 Above
Foundation Plan
1/4" Scale
2#4's Top 2#4's Btm Continuous
#4's Vertical Each Face At 24"-36" O.C.
2#4 Dowels At 24"-36" O.C.
3#4's Continuous
#4's At 1'-8" Long At 24"-36" O.C.
Steel Reinforcement For Concrete Footings And Walls Is Not Required - But Highly Recommended.
Use Grade 60 Steel
Foundation System Reinforcement
3/4" Scale
7-2x10 Joists At Equal Spacing
Double 2x10 Header Continuous
Double 2x12 Beam With 1/2" AC Plywood Stiffener
1x4 Cross-Bridging
2x10 Header
3/4" AB Plywood Sub-Flooring
Match Existing Sub-Floor Elevation
Existing Structure
2x10 Header Lag Bolted To Existing Header
Joist Hangers 14 Req'd.
First Level Framing Plan
1/4" Scale
2x8 Support Framing For Porch Notched Into 6x6 Vertical Posts. Drill And Thru-Bolt All Connections
1 6x6 Post Continues To Roof Framing
2 6x6 Post Stops At Handrail Height
3 6x6 Posts Stops At Underside Of Decking
Additional 2x8's Each Bay
Face Of Foundation Wall
6x6 Posts
double
3" Decking Overhang
Bracing At 45°
Wood Decking
Joist Hangers
Enlarged View (Partial) Of Porch Framing
3/4" Scale
Asbury Project
Foundation Plan & First Level Framing Plan And Sections
Design Group Three
South Portland, Maine
Drawn By Bill Nilsen
6



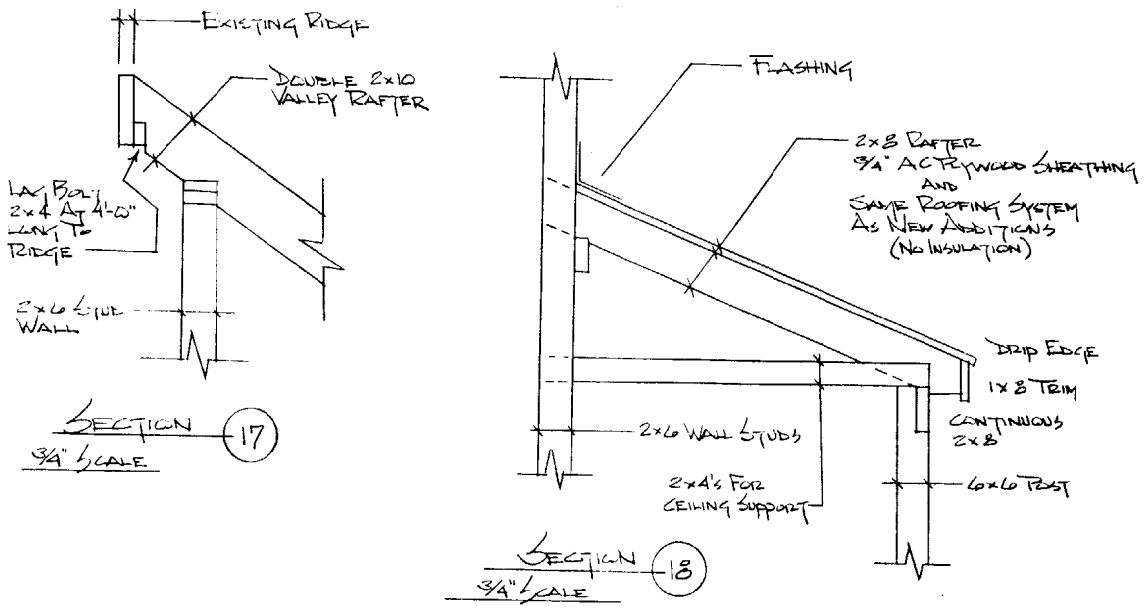
Drawn By Bill Nilson

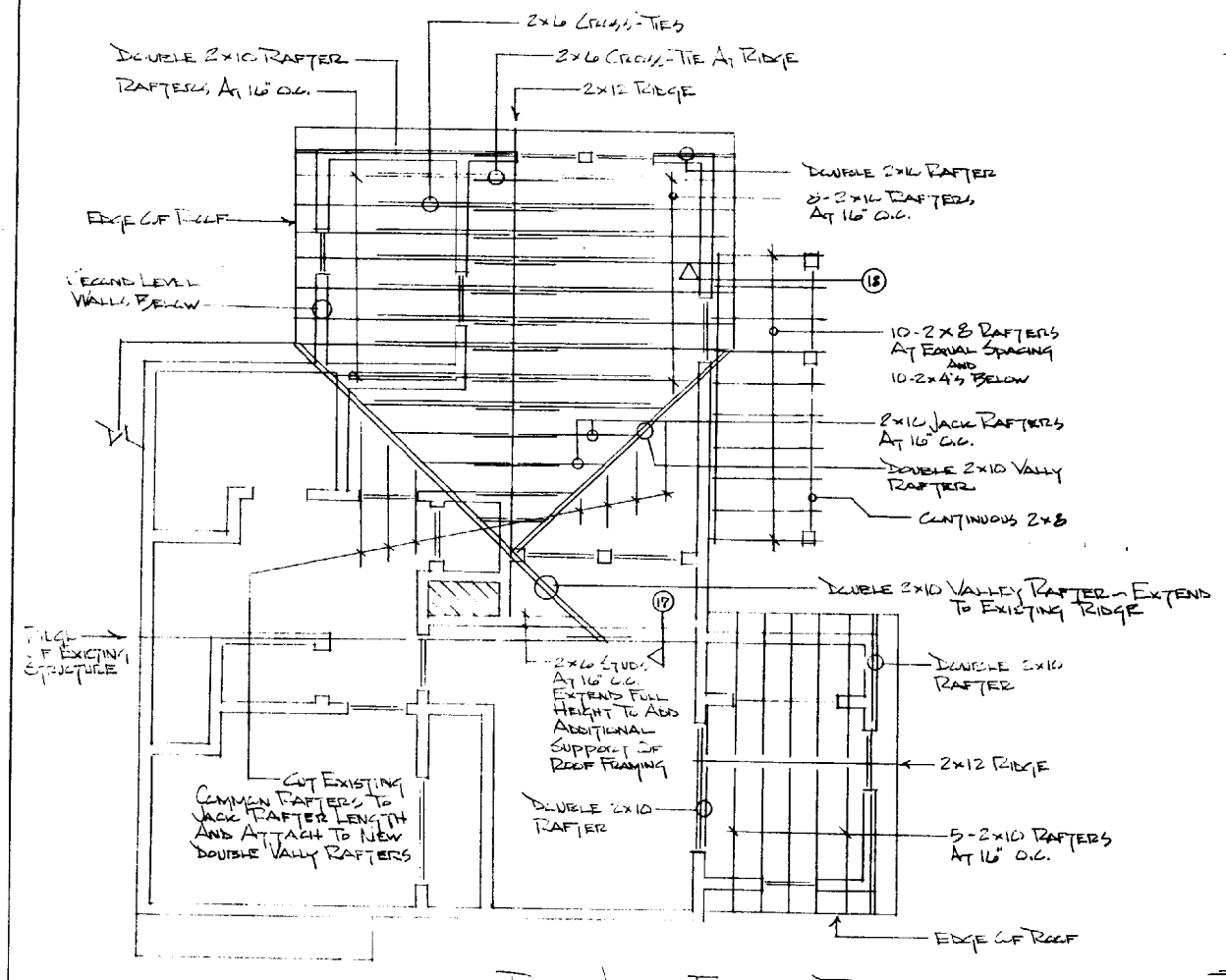
Addition Project

Second Level Framing Plan And Sections

South Portland, Maine

7





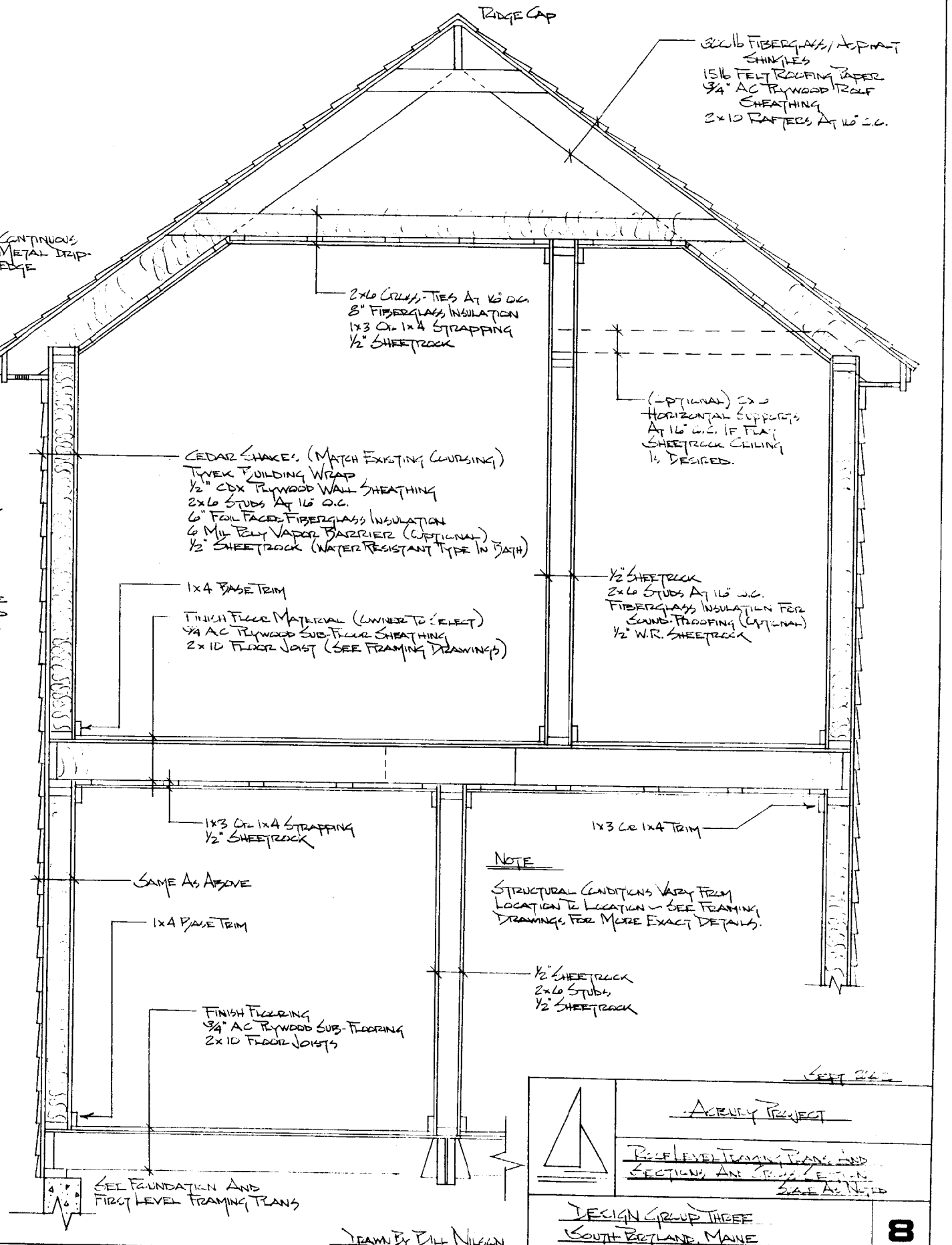
Roof Level Framing Plan

1/4" Scale

1x6 Pine Trim
1x8 Pine Trim
3/4 AC Plywood Soffit With Vent
1x6 Pine Trim
All Prime Painted Prior To Installation

Option

Owner And Contractor May Select To Duplicate Edge Of Roof Trim Used On Existing Structure.



Note

Structural Conditions Vary From Location To Location - See Framing Drawings For More Exact Details.

Cross-Section

16' x 18' Addition

3/4" Scale

Drawn By Bill Nilsen

Agency Project

Roof Level Framing Plan And Sections And Details

Scale As Noted

Design Group Three
South Portland, Maine

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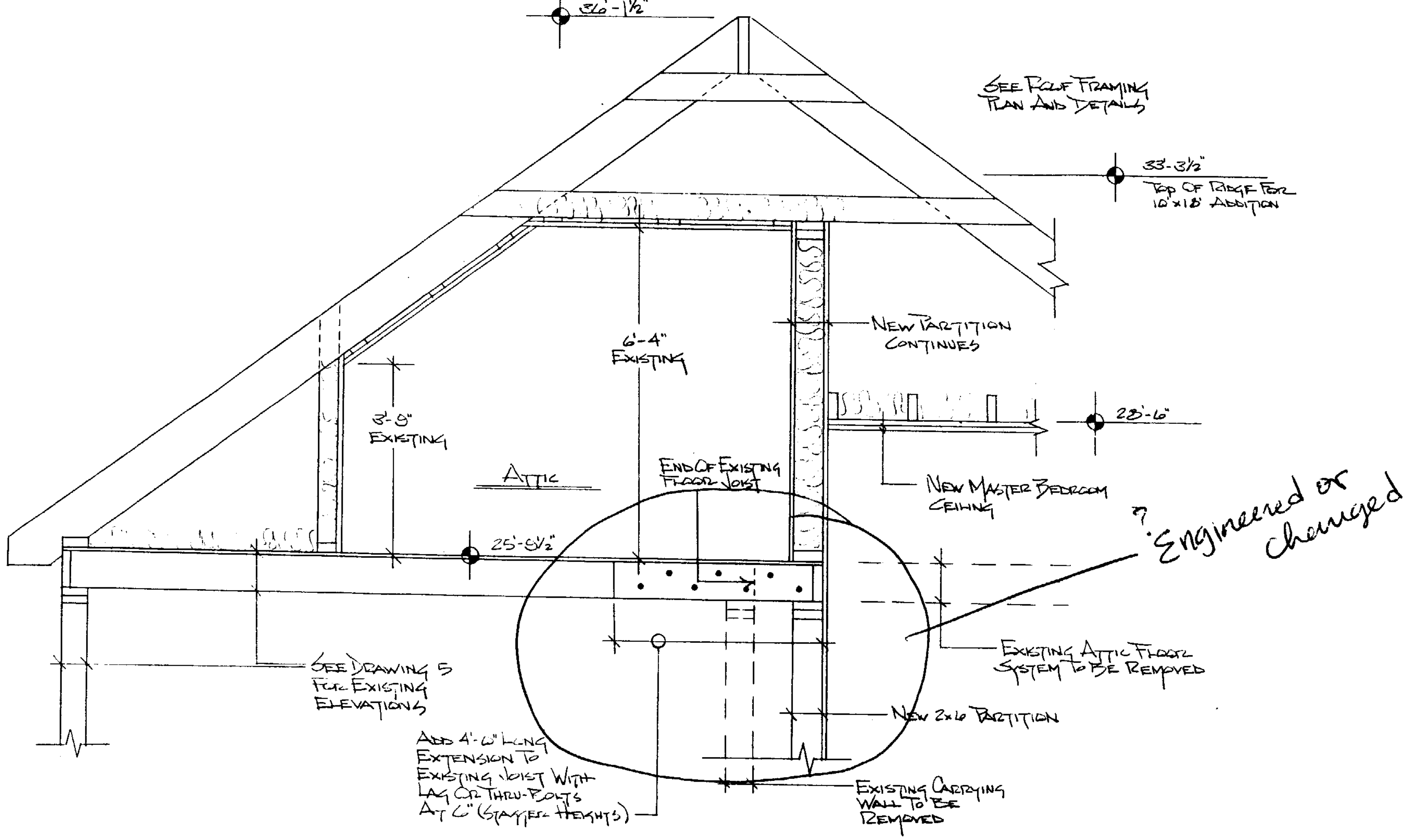
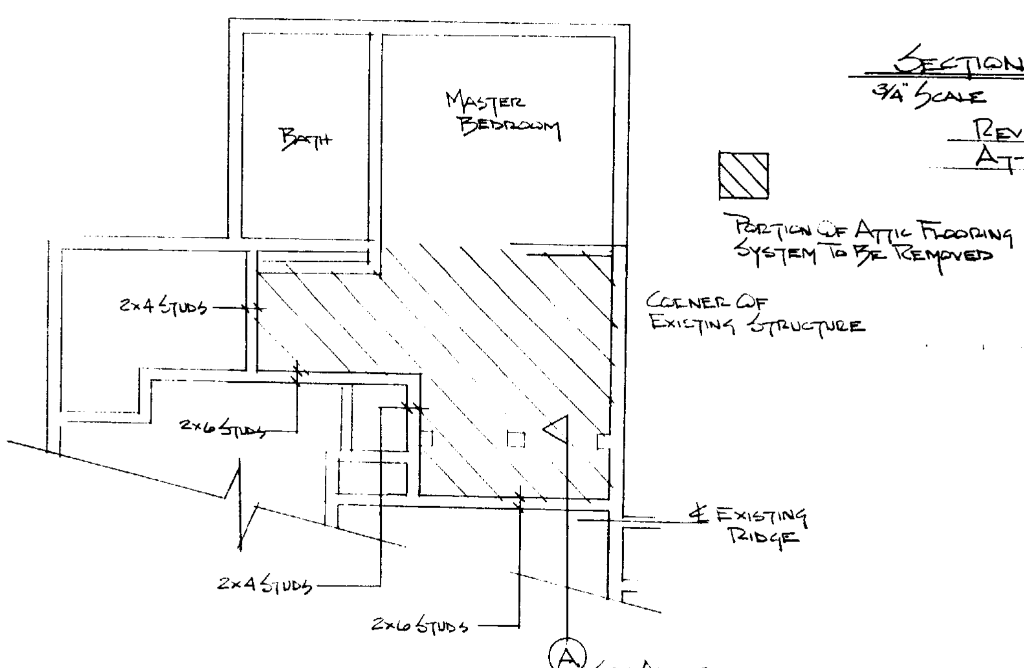
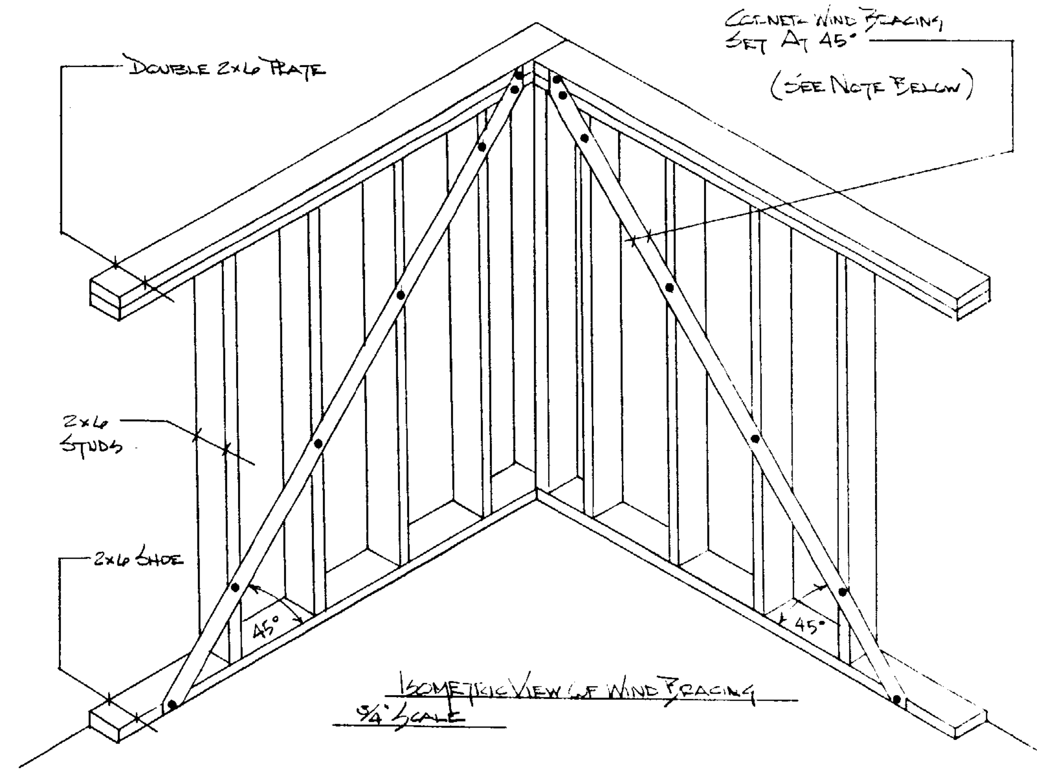


Section (A)
¾" Scale

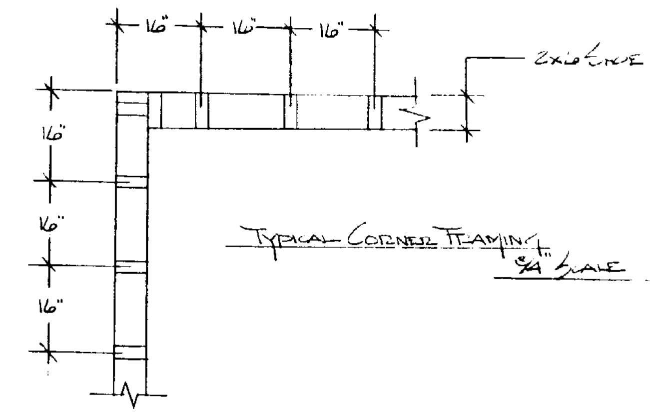
Revisions To Third Level
Attic Area



Partial View
Second Level Floor Plan
¼" Scale



Isometric View Of Wind Bracing
¾" Scale



Typical Corner Framing
¾" Scale

Wind Bracing

Use 16 ga. Steel Strap At 1½" Wide Set At Approximately 45° As Shown Above. Fasten To 2x6 Shoe, 2x6 Double Plate, And Each 2x6 Wall Stud. Installation Can Be On The Interior Or Exterior Face Of Wall Studs – Although Exterior Installation Is Most Common.

An Alternative Method Is To Use 1x4 Strapping Instead Of Steel. If This Is Installed, Notch Each Stud, Shoe, And Plate For A Flush Joint With The Framing System.

Install At Second Level Of 10'x18' Addition, Each Exterior Corner. Use A 8'x12' ... Is Optional.

Drawn By Bill Nilson

Asbury Project

Additional Structural Details

Design Group Three
South Portland, Maine

9

Partial View of Elevation (4)

1/4" Scale

Note "A" 2x6 Horizontal Rail Cap @ 3'-0" Above Decking

Note "B" 1 1/4" x 1 1/4" (Minimum) Verticals At 4" ℄ To ℄

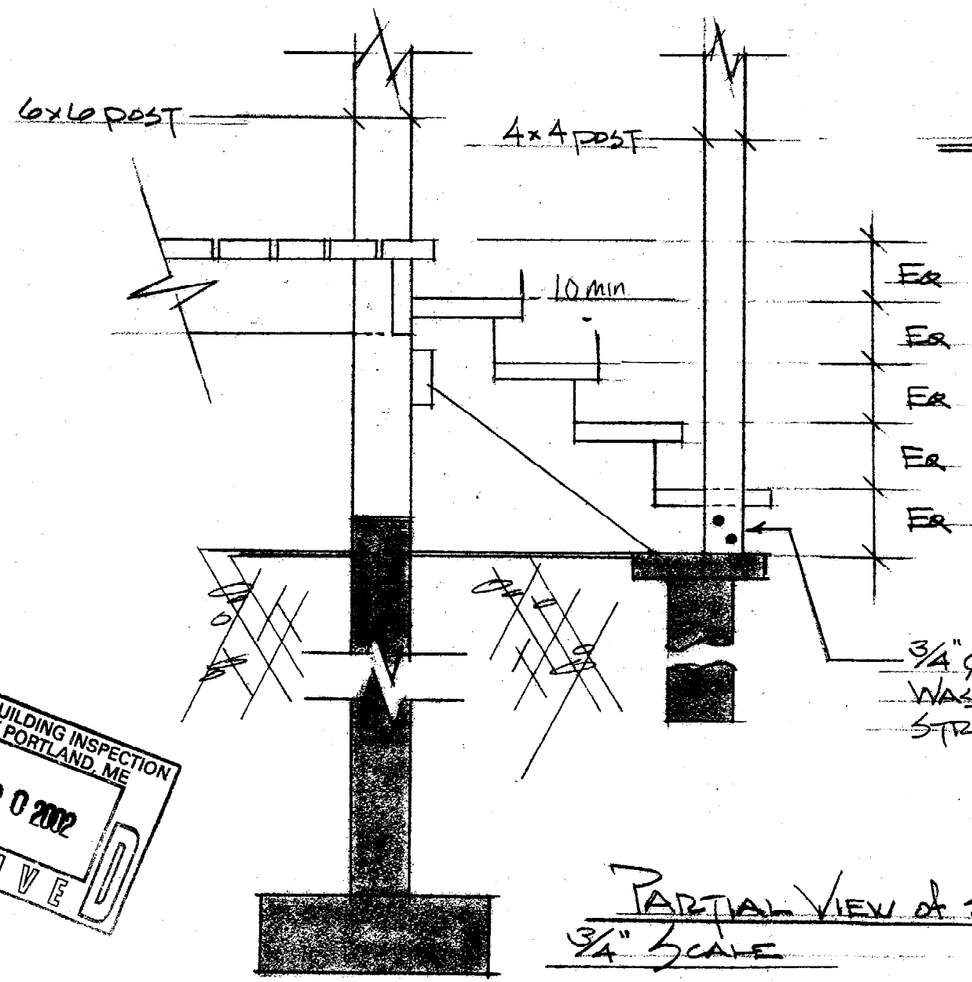
Partial View of Elevation (2)

1/4" Scale

Note "C" 2x6 Handrailing Each Side Of Stairway. Same Slope As Stringers. Maximum Height 3'-0" Minimum Height 2'-8" Above Treads.

Note "D" 2"x2" Verticals

HR = 34" to 38" HT w/ Returns



Partial View of Section (5)

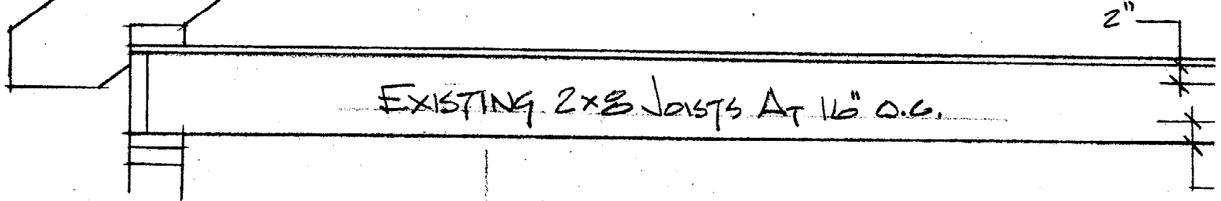
3/4" Scale

Stair Construction Notes:

Use 3-2x10 or 3-2x12 Stringers

Use 2x12 Treads

Maximum Rise 7" Between Treads



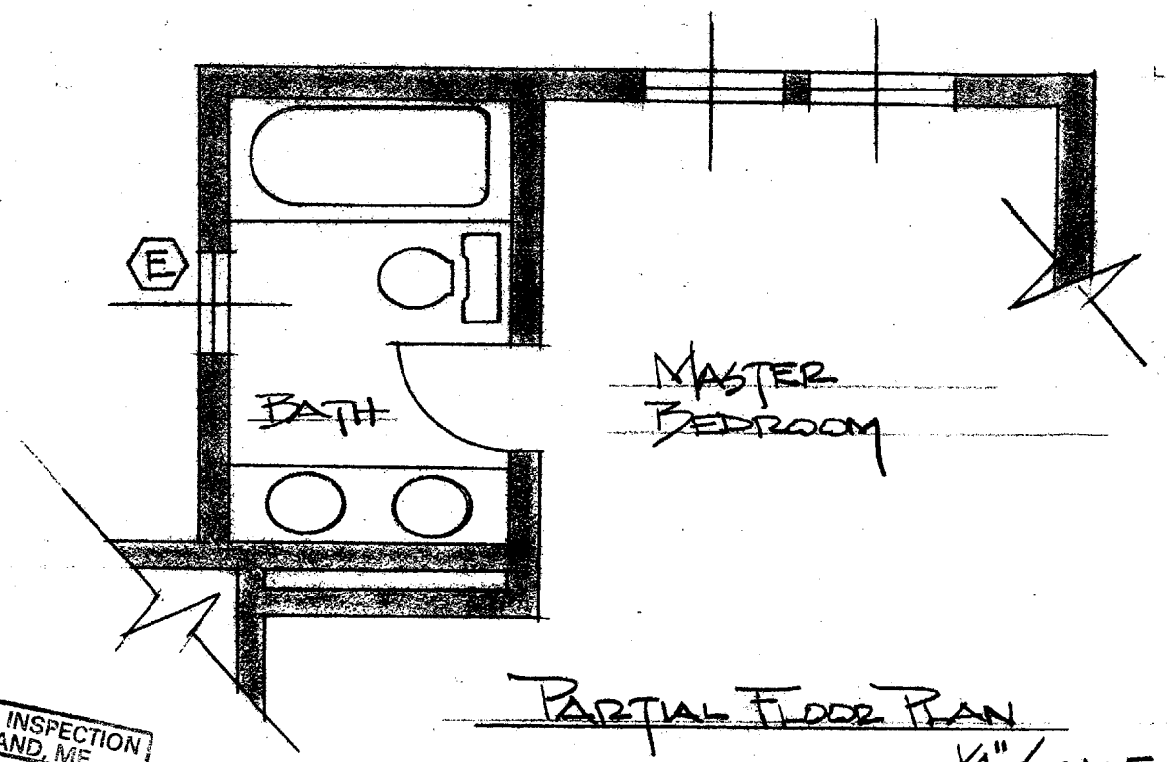
3/4" ∅ Galv Bolts-Nuts-Washers 4x4 Post To Stringer

Add 4'-0" Long Extension To Each Side Of Existing Joist With 5/8" ∅ (Minimum) Thru-Bolts And Nuts And Washers As Shown.

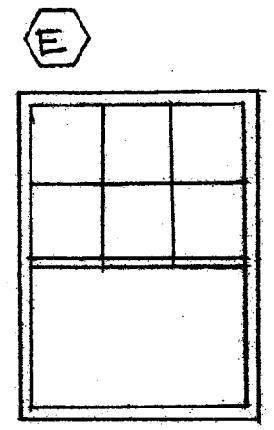
Partial View of Section (A)

3/4" Scale

REVISIONS TO DRAWING 3



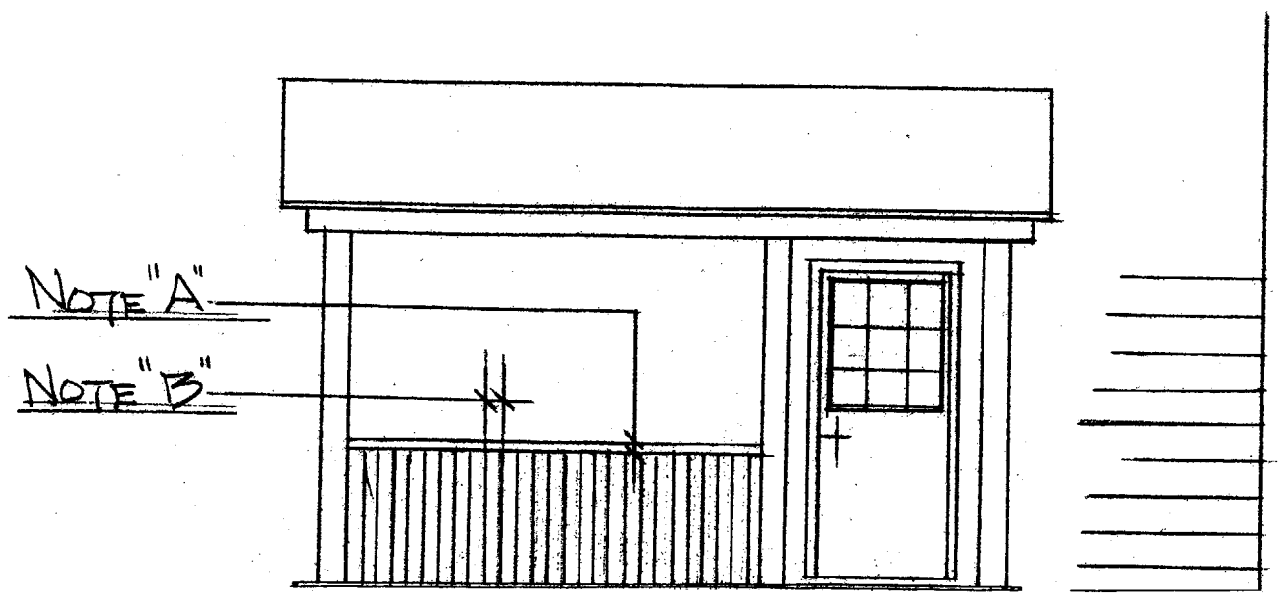
PARTIAL FLOOR PLAN
1/4" SCALE

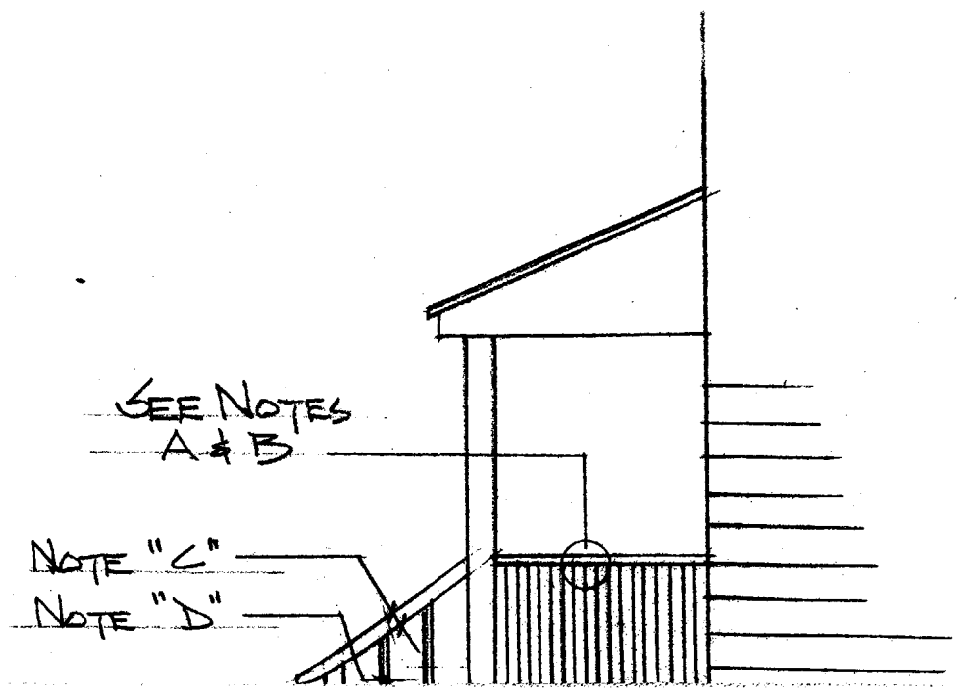


DOUBLE HUNG
2-5⅝ x 3-4⅞
#TW-2432
TEMPERED GLASS REQUIRED

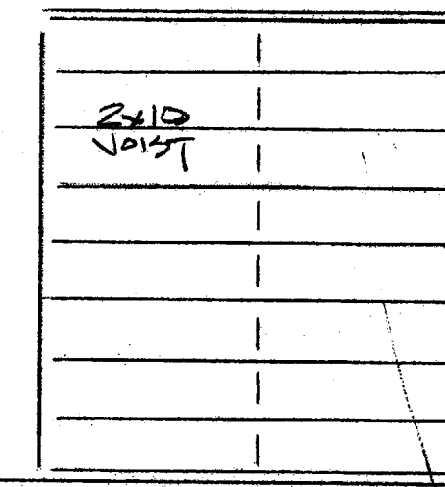
WINDOW ELEVATION
NO SCALE

REVISIONS TO DRAWINGS 4 & 6





1 REVISIONS TO D



FRAMING AS SHO
1/4

2-2x12 BEAM (AS S
ASSUME 50 lb/SF FL
CALCULATE BEAM DE

$$D = \frac{5WL^3}{384EI}$$

$$D = \frac{(5)(4625)(1.2\times10^2)^3}{(384)(1.4\times10^6)(320)}$$

$D = .19"$ ($\cong 1/5"$)

MAXIMUM DEFLECTION
BEAM IS $1/250$: $\frac{1}{250}$ =

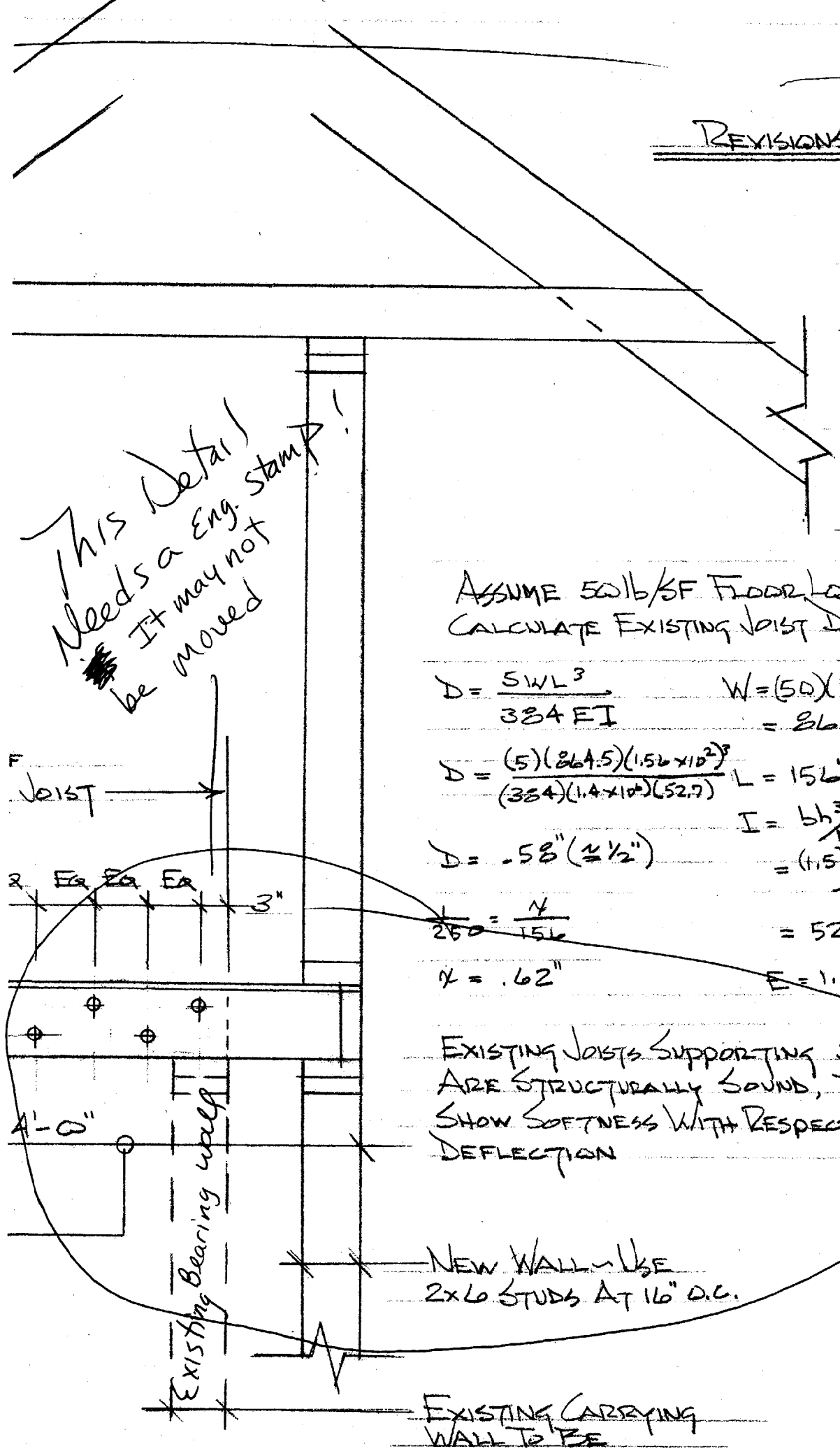
Δ =

$D = .19"$ IS WELL WITHIN

"A" AND "B" ARE STRONGER.

REVISIONS TO DRAWING 9

This Detail Needs a Eng. stamp! It may not be moved



ASSUME 50lb/SF FLOOR LOADING
CALCULATE EXISTING JOIST DEFLECTION

$D = \frac{5WL^3}{384EI}$

$D = \frac{(5)(864.5)(1.56\times10^2)^3}{(384)(1.4\times10^6)(52.7)}$

$D = .58" (\approx \frac{1}{2}")$

$\frac{1}{250} = \frac{X}{156}$

$X = .62"$

$W = (50)(1.33)(13')$
$= 864.5 lbs$

$L = 156" (1.56\times10^2)$

$I = \frac{bh^3}{12}$
$= \frac{(1.5)(7.5)^3}{12}$
$= 52.7$

$E = 1.4\times10^6$

EXISTING JOISTS SUPPORTING 3rd LEVEL ARE STRUCTURALLY SOUND, BUT SHOW SOFTNESS WITH RESPECT TO DEFLECTION

ASSUME 50lbs/SF FLOOR LOADING
CALCULATE DEFLECTION WITH ADDED JOIST EXTENSIONS

(ADD 4' LONG 2x6 EXTENSION ON EACH SIDE OF EXISTING JOIST)

$D = \frac{5WL^3}{384EI}$

$D = \frac{(5)(964.25)(1.74\times10^2)^3}{(384)(1.4\times10^6)(84.4)}$

$D = .55" (\approx \frac{1}{2}")$

$\frac{1}{250} = \frac{X}{174}$

$X = .69$

$W = (50)(1.33)(14.5)$
$= 964.25 lbs$

$L = 174" (1.74\times10^2)$

$I = \left(\frac{bh^3}{12}\right)(.70) + \left(\frac{bh^3}{12}\right)(.30)$

$I = \left[\frac{(1.5)(7.5)^3}{12}\times.70\right] + \left[\frac{(4.5)(7.5)^3}{12}\times.30\right]$

$I = 36.5 + 47.5$

$I = 84.4$

$E = 1.4\times10^6$

{ 70% SINGLE JOIST
30% JOIST EXTENSION }

ADDING 4' LONG 2x6 EXTENSIONS TO EACH SIDE OF EXISTING 2x6 FLOOR JOISTS IS STRUCTURALLY SOUND (DEFLECTION FALLS WITHIN THE 1/250 RATIO) AND WILL RESULT IN A FLOORING SYSTEM THAT IS 19% STIFFER THAN THE EXISTING CONDITIONS.

$(.58)(X) = .62$ $X = 1.06$ (EXISTING)

$(.55)(X) = .69$ $X = 1.25$ (NEW)

$1.25 - 1.06 = .19$ (19%)

NOV. 2002

ASBURY PROJECT

REVISIONS TO DRAWINGS 1 THRU 9
REQUESTED BY CITY of PORTLAND
SCALE AS NOTED

DESIGN GROUP THREE

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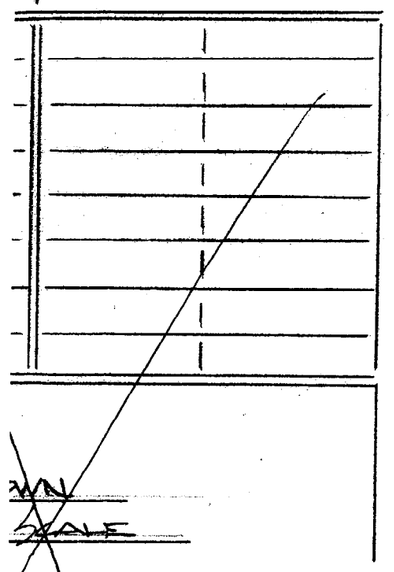
AWING 6

DOUBLE 2x12 BEAM



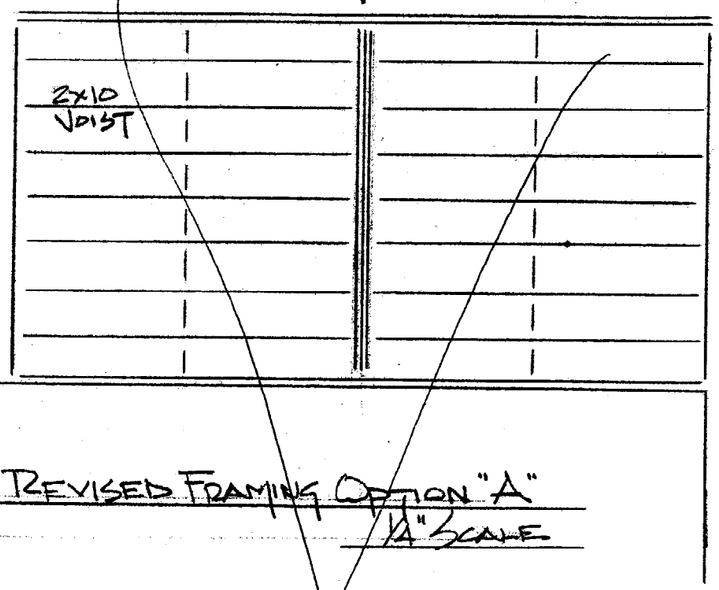
WN
CALE

OWN)
OOR LOADING
FLECTION:

W = (50)(10')(9.25')
= 4625 lbs
L = 120" (1.2x10²)
E = 1.4x10⁶
I = bh³/12
= (3)(11.5)³/12
= 380

LENGTH RATIO FOR A
x/120
.88" (≅ ½")
THIS RATIO FOR SAFETY

TRIPLE 2x12 BEAM



REVISED FRAMING OPTION "A"
¼" SCALE

3-2x12 BEAM (REVISION)
ASSUME 50lb/SF FLOOR LOADING
CALCULATE BEAM DEFLECTION:

$D = \frac{5WL^3}{384EI}$

$D = \frac{(5)(4625)(1.2\times10^2)^3}{(384)(1.4\times10^6)(570)}$

D = .12" (≅ ⅛")

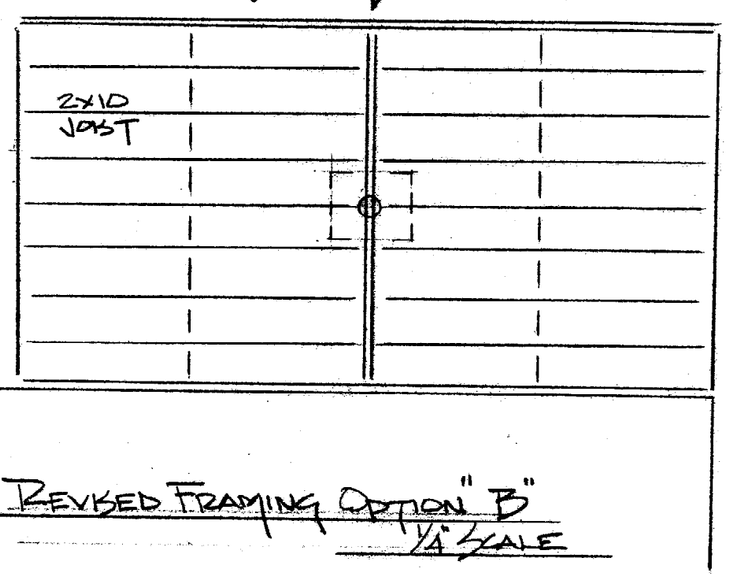
W = (50)(10')(9.25')
= 4625
L = 120" (1.2x10²)
E = 1.4x10⁶
I = bh³/12
= (4.5)(11.5)³/12
= 570

COMPARE D=.19" VS D=.12" : .19/100% = .12/x%
x = 63%

THIS OPTION WILL REDUCE BEAM DEFLECTION BY 63%

This is the Plan ↓

DOUBLE 2x12 BEAM WITH 2'-0" x 2'-0" x 10" DEEP FOOTING AND 4½" ø LALLY COLUMN SUPPORT AT MID-SPAN.



REVISED FRAMING OPTION "B"
¼" SCALE

2-2x12 BEAM WITH MID-SPAN SUPPORT (REVISION)
ASSUME 50lb/SF FLOOR LOADING
CALCULATE BEAM DEFLECTION:

$D = \frac{5WL^3}{384EI}$

$D = \frac{(5)(2312.5)(.6\times10^2)^3}{(384)(1.4\times10^6)(380)}$

D = .034" (≅ 1/32")

W = (50)(5')(9.25)
= 2312.5
L = 60" (.6x10²)
E = 1.4x10⁶
I = bh³/12
= (3)(11.5)³/12
= 380

THIS OPTION WILL VIRTUALLY ELIMINATE ANY BEAM DEFLECTION

OVERALL RESULT: DOUBLE 2x12 BEAM AS SHOWN IS A STRUCTURALLY SOUND CHOICE. BUT OPTIONS