Climba Jimmens



# STRUCTURAL DESIGN

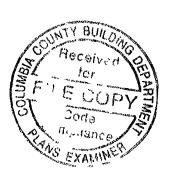
# **ENCLOSED BUILDING**

# MAXIMUM 40'-0" WIDE X 20'-0" EAVE HEIGHT- BOX EAVE FRAME

8 April 2013 Revision 2 M&A Project No. 12130S

Prepared for:

Mr. Danny Lowery President- Steel Structures 1660 Dixon Airline Road Augusta, Georgia 30906



### Prepared by:

Moore and Associates Engineering and Consulting, Inc. 1009 East Avenue North Augusta, SC 29841



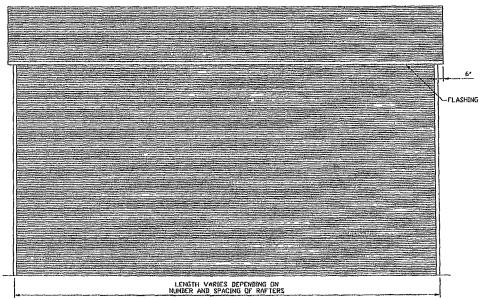
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# INSTALLATION PLANS, DETAILS AND NOTES FRAMING AND FASTENER SPECIFICATIONS

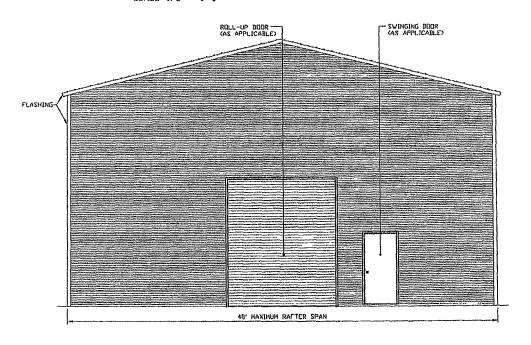
- 1 DESIGN IS FOR A MAXIMUM 40' WIDE x 20' EAVE HEIGHT STRUCTURES
- 2 DESIGN WAS DONE IN ACCORDANCE WITH THE 2010 FLORIDA BUILDING CODE (FBC), 2006 INTERNATIONAL BUILDING CODE (IBC) AND 2009 IBC.
- 3. 2010 FBC WIND PRESSURES GOVERN OVER 2006 IBC AND 2009 IBC WIND PRESSURES.
- 4. DESIGN LOADS ARE AS FOLLOWS:
  - A) DEAD LOAD
- = 1.5 PSF
- B) ROOF LIVE LOAD
- B) ROOF LIVE LOAD = 12 PSF C) DRIFT SNOW LOAD = 24.2 PSF
- 5 ULTIMATE WIND SPEED 115 TO 150 MPH (NOMINAL WIND SPEED 89 TO 116 MPH) MAXIMUM RAFTER/POST AND END POST SPACING = 5.0 FEET
- 6 ULTIMATE WIND SPEED 151 TO 180 MPH (NOMINAL WIND SPEED 117 TO 139 MPH): MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET
- 7 RISK CATEGORY I OR II
- 8 WIND EXPOSURE CATEGORY B, C, OR D.
- 9 SPECIFICATIONS APPLICABLE TO 26 AND 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 14 GAGE STEEL TUBE RAFTER FRAMES.
- 10. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS AND POSTS (INTERIOR OR END) = 6 INCHES
- 11 FASTENERS CONSIST OF 1/4'-14x3/4' SELF-DRILLING FASTENERS WITH CONTROL SEAL WASHER SPECIFICATIONS APPLICABLE ONLY FOR MEAN RUO! HEIGHT UP 20 FEET OR LESS, AND ROUF SLOPES OF 14' (3:12 PITCH) SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY
- 12 OPTIONAL BASE RAIL ANCHORAGE MAY BE USED FOR LOW AND HIGH ( > 117 MPH 139 MPH NOMINAL) WIND SPEEDS

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# BOX EAVE FRAME RAFTER ENCLOSED BUILDING

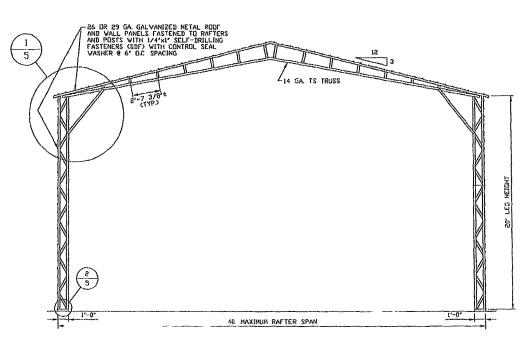


 $\frac{\text{TYPICAL SIDE ELEVATION-HORIZONTAL ROOF}}{\text{SCALE } 1/8' = 1'-0'}$ 

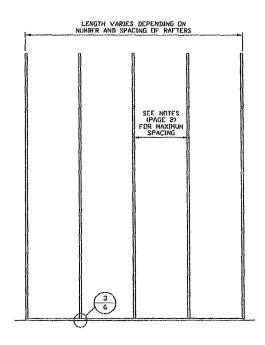


TYPICAL END ELEVATION-HORIZONTAL ROOF SCALE 1/8' = 1'-0'

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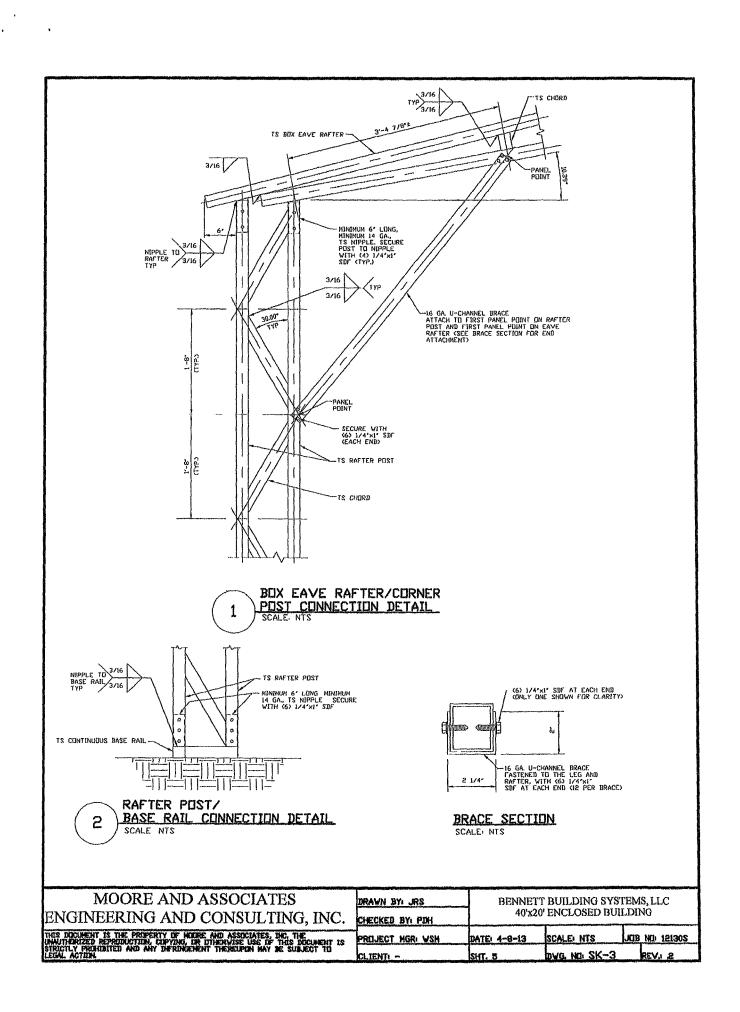


 $\frac{\text{TYPICAL RAFTER/POST END FRAME SECTION}}{\text{SCALE: } 1/8^{\prime} = 1^{\prime} - 0^{\prime}}$ 

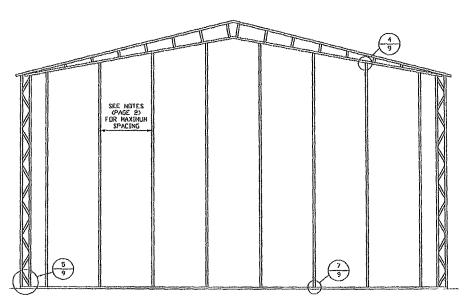


TYPICAL RAFTER/POST SIDE FRAMING SECTION
SCALE: 1/8' = 1'-0'

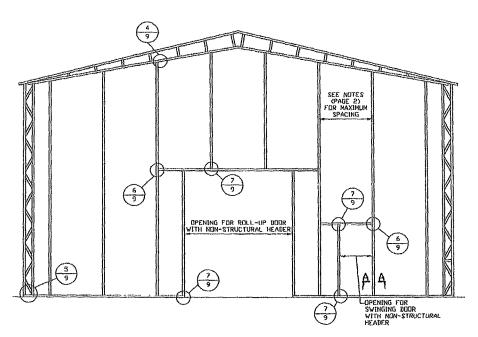
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# BOX EAVE RAFTER END WALL AND WALL OPENINGS



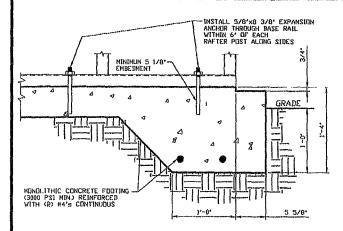
TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION
SCALE: 1/8' = 1'-0'

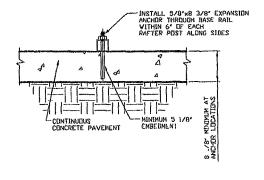


 $\frac{\text{TYPICAL BUX EAVE RAFTER END WALL OPENINGS FRAMING SECTION}}{\text{SCALE } 1/8' = 1'-0'}$ 

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ENGINEERING AND CONSULTING, INC.	CHECKED BY PDH	40'x20' ENCLOSED BUILDING		
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### BASE RAIL ANCHORAGE OPTIONS FOR LOW AND HIGH WIND SPEEDS





**3A** 

#### CONCRETE MONOLITHIC SLAB BASE RAIL ANCHURAGE

(MINIMUM ANCHOR EDGE DISTANCE IS 6 3/4')

# GENERAL NOTES

#### CUNCRETE

CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH DF 3,000 PSI AT 28 DAYS

#### COVER OVER REINFORCING STEEL

FOR FOUNDATIONS, MINIMUM CONCRETE COVER OVER REINFORCING BARS SHALL BE PER ACI-318 3 INCHES IN FOUNDATIONS WHERE THE CONCRETE IS CAST AGAINST AND PERMANENTLY IN CONTACT WITH THE EARTH OR EXPOSED TO THE EARTH OR WEATHER AND 1 1/2 INCHES ELSEWHERE

#### REINFORCING STEEL

THE REINFURCING STEEL SHALL BE MINIMUM GRADE 60

#### **GALVANIZATION**

METAL ACCESSORIES FOR USE IN EXTERIOR WALL CONSTRUCTION AND NOT DIRECTLY EXPOSED TO THE WEATHER SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 153, CLASS B-2. METAL PLATE CONNECTORS, SCREWS, BOLTS AND NAILS EXPOSED DIRECTLY TO THE WEATHER SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED

#### REINFORCEMENT MAY BE BENT IN THE SHOP OR THE FIELD PROVIDED:

- REINFORCEMENT IS BENT COLD;

  THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE BAR, IS NOT LESS THAN SIX-BAR DIAMETERS; AND

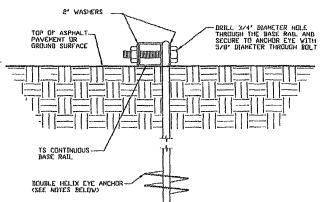
  REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT
- BE FIELD BENT

#### HELIX ANCHOR NOTES

- 1 FOR VERY DENSE AND/UR CEMENTED SANDS, FOARSE GRAVEL AND COBBLES, CALICHE, PRELOADED SILTS AND CLAYS, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30 INCH EMBEDMENT
- FOR CORAL, USE MINIMUM (2) 4' HELICES WITH MINIMUM 30 INCH EMBEDMENT
- 3 FOR MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS, AND CLAYS, USE MINIMUM (2) 4' HELICES WITH MINIMUM 30 INCH EMBEDMENT
- FOR LODSE TO MEDIUM DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS, ALLUVIAL FILL USE MINIMUM (2) 6' HELICES WITH MINIMUM 50 INCH EMBEDMENT
- FUR VERY LOSE TO MEDIUM DENSE SANDS FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 8' HELICES WITH MINIMUM 60 INCH EMBEDMENT



SCALE: NTS (MINIMUM ANCHOR EDGE DISTANCE IS 6 3/4")



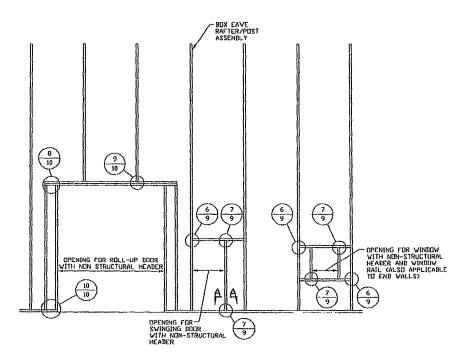
GROUND BASE HELIX ANCHORAGE 3C (CAN BE USED FOR ASPHALT)

# MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.

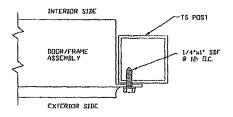
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# BOX EAVE RAFTER END WALL AND WALL OPENINGS



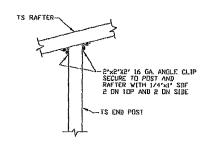
# TYPICAL BOX EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION SCALE: 1/8" = 1'-0"



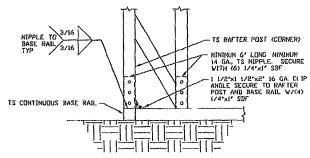
# SECTION A-A

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I	CHECKED BY: PDH	40'X20'	ENCLOSED BUI	אומט
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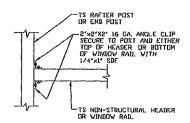
# BOX EAVE RAFTER WALL OPENING DETAILS



4 END PUST/RAFTER CUNNECTION DETAIL
SCALE NTS



5 END POST/BASE RAIL CONNECTION DETAIL SCALE NTS



NON-STRUCTURAL HEADER OR WINDOW RAIL TO POST CONNECTION DETAIL

6

TS TRUSSED RAFTER CHORD,
OR MON-STRUCTURAL HEADER

2'%2'%2' 16 GA ANGLE CLIP
SECURE TO POST GEACH
SIDEN AND RAFTER
CHURDDYRAIL WITH 1/4'%1'
SOF 2 ON BOTTOM AND 2 ON
SIDE

NOTE: AT ROLL-UP DOOR
PENINGS, POST SHOULD BE
FLUSH WITH RAIL END. CLIP
POST TO RAIL ONLY ON SIDE
OPPOSITE THE OPENING.

POST TO NON-STRUCTURAL HEADER, BASE RAIL, OR WINDOW RAIL CONNECTION DETAIL

SCALE: NTS

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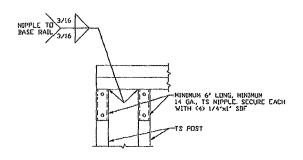
#### BOX EAVE RAFTER LEAN-TO OPTIONS 11 13 L14 GA. TS TRUSS 12 13 ROOF EXTENSION OPTION MAIN STRUCTURE STANDARD (LEAN-TU OPTION 14 14 3 (P) 5 $\frac{2}{5}$ TYPICAL BOX EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION (BOTH OPTIONS SHOWN) TS BOX EAVE RAFTER TS BOX FAVE BAFTER NIPPLE TO 3/16 3/16 12' LONG TS 14 GA.— NIPPLE SECURE POST TO NIPPLE WITH (4) 1/4'x1' SDF MINIMUM 6' LONG MINIMUM 14 GA., TS NIPPLE SECURE POST TO NIPPLE WITH (4) 1/4'x1' SDF (TYP.) MINIMUM 6' LONG, MINIMUM 14 GA. TS NIPPLE SECURE POST TO NIPPLE VITH (4) 1/4'x1' SBF LTS EXTENSION RAFTER NIPPLE TO RAFTER 24' 16 GA. U-CHANNEL BRACE (5' TO 8' RAFTER POST) TS CHORD (5' TO 8' RAFTER POST) OR 48' 16 GA. U-CHANNEL BRACE (9' TO 20') RAFTER POST) -TS RAFTER POST SECURE VITH (4) 1/4'x1' SBF (EACH END) TS RAFTER POST LEAN-TO RAFTER/ CORNER POST DETAIL SIDE EXTENSION RAFTER/ 13 CURNER PUST DETAIL 11 TS RAFTER POST MINIMUM 6' LONG, MINIMUM 14 GA., IS NIPPLE. SECURE WITH (6) 1/4'xl' SDF 2'x2'X2' 16 GA. ANGLE CLIP SECURE TO POST AND RAFTER WITH 1/4'X1' SDF 2 ON TOP AND 2 ON BOTTOM TS RAFTER TS CONTINUOUS BASE RAIL -TS RAFTER POST LEAN-TO RAFTER TO RAFTER POST CONNECTION DETAIL LEAN-TO RAFTER POST CONNECTION DETAIL 12 14 SCALE NTS SCALE: NTS MOORE AND ASSOCIATES DRAWN BY: JRS BENNETT BUILDING SYSTEMS, LLC 40'x20' ENCLOSED BUILDING ENGINEERING AND CONSULTING, INC. CHECKED BY PDH THIS DUCLMENT IS THE PROPERTY OF MODRE AND ASSOCIATES, DIC, THE UNLITHDRIZED REPRODUCTION, COPYDIA, OR DITIENVISE USE OF THIS DOCUMENT IS STRICTLY PROMOTION AND ANY DIFFONCION THRESPON MAY BE SUBJECT TO USE SOLUTION. JOB NO 12130S SCALE: NTS PROJECT MGR: WSM DATE: 4-8-13

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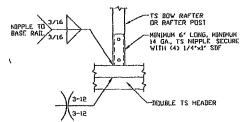
REV. 2

# BOX EAVE RAFTER WALL OPENING DETAILS

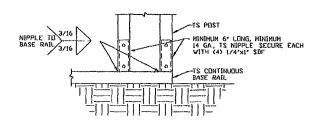


8 DOUBLE HEADER/POST
SCALE: NTS

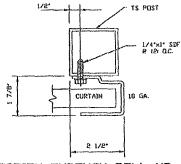
DOUBLE HEADER/POST



9 RAFTER POST/DOUBLE HEADER CONNECTION DETAIL
SCALE: NTS



RAFTER POST/BASE RAIL
CONNECTION DETAIL
SCALE NTS



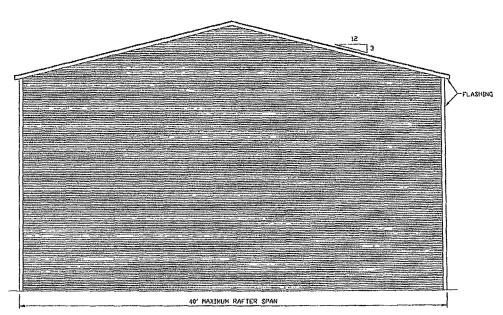
SECTION THROUGH ROLL UP DOOR HEADER

SCALE: NTS

(NOTE: CURTAIN IS 26 GA GALVANIZED STEEL WITH BAKED ON EPOXY PRIMER & POLYESTER TOP COAT)

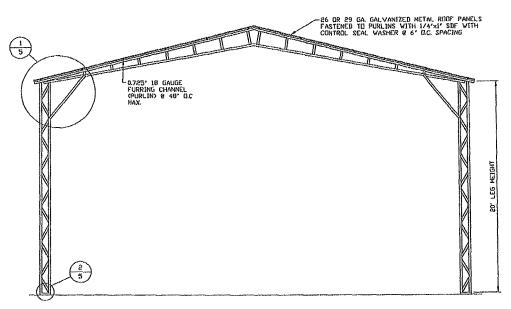
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# BOX EAVE RAFTER VERTICAL ROOF OPTION



### TYPICAL END ELEVATION VERTICAL ROOF

SCALE: 1/8" = 1'-0"



TYPICAL SECTION VERTICAL ROOF OPTION
SCALE: 1/8' = 1'-0'

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# BOX EAVE RAFTER VERTICAL ROOF OPTION FLASHING LENGTH VARIES DEPENDING ON NUMBER AND SPACING OF RAFTERS TYPICAL SIDE ELEVATION VERTICAL ROOF SCALE 1/8' = 1'-0' LENGTH VARIES DEPENDING ON NUMBER AND SPACING OF RAFTERS -0.725' 18 GAUGE FURRING CHANNEL FASTENED TO EACH RAFTER WITH (2) 1/4'X1' SDF SPACED NOT MORE THAN 48' D.C. SEE NOTES (PAGE 2) FOR MAXIMUM SPACING 6. $\frac{3}{5}$ TYPICAL FRAMING SECTION VERTICAL SCALE: 1/8' = 1'-0' , ROOF OPTION 0.725' 18 GAUGE FURRING CHANNEL -FASTENED TO EACH RAFTER WITH (2) 1/4'X1' SDF SPACED NOT MORE THAN 48' U.C. TSE ESXE ES ROOF PANEL ATTACHMENT (ALTERNATE FOR VERTICAL ROOF PANELS) SCALE: NTS MOORE AND ASSOCIATES BENNETT BUILDING SYSTEMS, LLC DRAWN BY JRS 40'x20' ENCLOSED BUILDING ENGINEERING AND CONSULTING, INC. CHECKED BY: PDH THIS DOCUMENT IS THE PROPERTY OF HOUSE AND ASSOCIATES, INC. THE UNAUTHERIZED REPRINCIPIEM, CUPYING, OR CITIERVISE USE OF THIS DOCUMENT IN STRUCTLY PROBUBITED AND ANY INFRONCEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION. 306131 4DK 8DK PROJECT MGR: VSM DATE: 4-8-13 SCALE: NTS

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