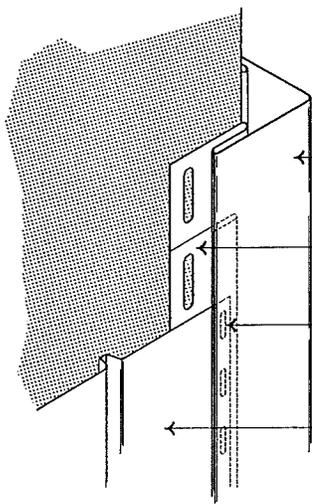
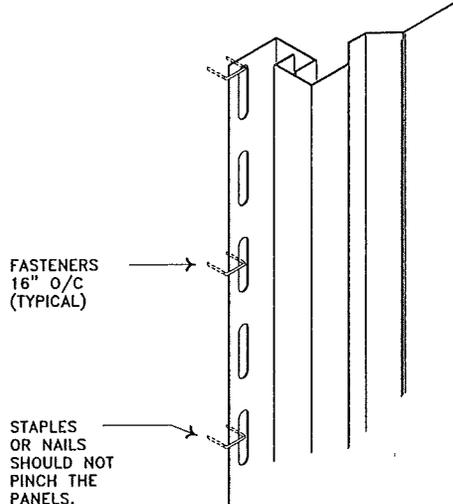


INSTALL THE BOTTOM 'J'-CHANNEL SO THAT THE CHANNELS OVERLAP 3/4".



USE A SNAP LOCK PUNCH TO CREATE LOCKING LUGS ALONG THE CUT EDGE AT 6'-8" INTERVALS.



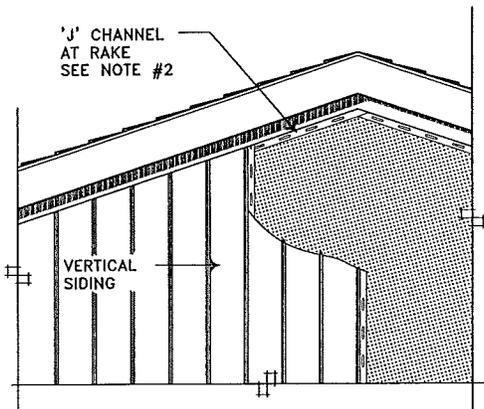
BE SURE TO LEAVE A 1/4" SPACE AT THE TOP 'J'-CHANNEL AND BOTTOM 'J'-CHANNEL FOR EXPANSION AND CONTRACTION OF PANELS.

'J' CHANNEL LAPPING DETAIL

A CORNER TRIM

B FASTENING DETAIL

C



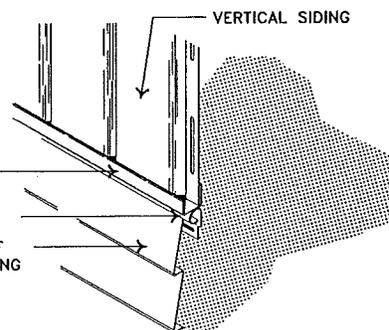
'J' CHANNEL AT RAKE SEE NOTE #2

VERTICAL SIDING

'J' CHANNEL AT RAKE OF GABLE

D 'J' CHANNEL

E

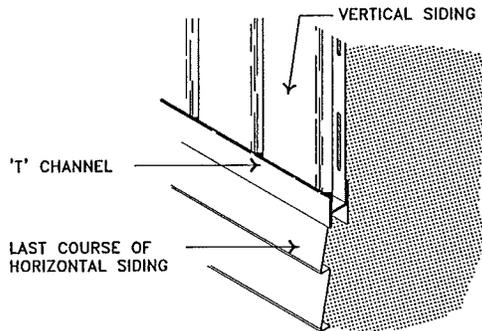


VERTICAL SIDING

'J' CHANNEL

FINISHING TRIM

LAST COURSE OF HORIZONTAL SIDING



VERTICAL SIDING

'T' CHANNEL

LAST COURSE OF HORIZONTAL SIDING

'T' CHANNEL

F

NOTES:

1. USE 3/8" OSB SHEATHING UNDER VERTICAL SIDING, FASTENED WITH 7/16" x 1 1/2" x 16 GA STAPLES AT 6" O/C EDGES AND FIELD.
2. AS AN ALTERNATE TO THE 'J' CHANNEL AT RAKE, THE 1-PIECE METAL SOFFIT CAN BE SUBSTITUTED.

(TEST REPORT NO. NTA 960918)

VERTICAL VINYL SIDING

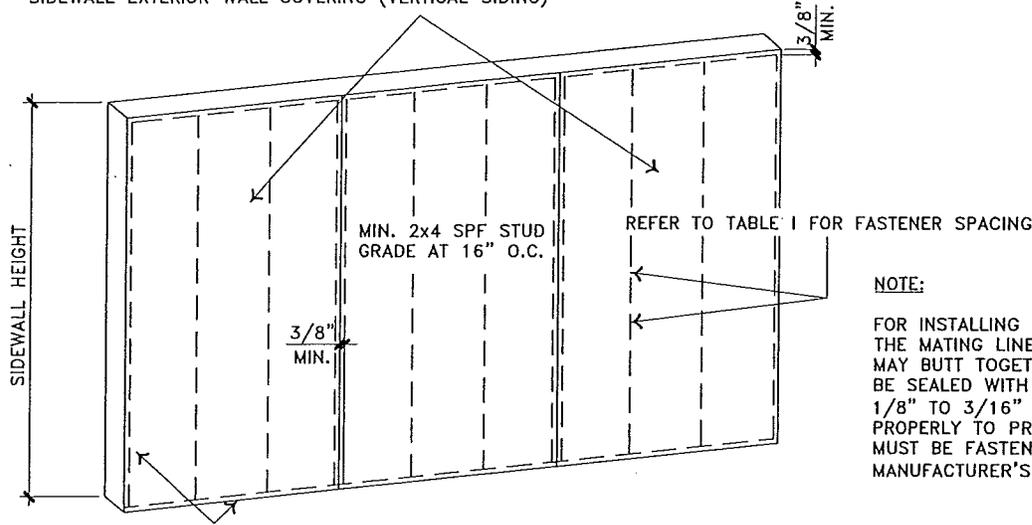
DRAWN BY: JBM

DATE: 12/2/98

REV: -

1 - 4.34

SIDEWALL EXTERIOR WALL COVERING (VERTICAL SIDING)



NOTE:
 FOR INSTALLING HARDBOARD SIDING ACROSS THE MATING LINE, TWO SQUARE CUT EDGES MAY BUTT TOGETHER. EACH CUT EDGE MUST BE SEALED WITH PAINT. LEAVE A GAP OF 1/8" TO 3/16" AND CAULK THE GAP PROPERLY TO PREVENT LEAKS. EACH EDGE MUST BE FASTENED TO THE STUD PER MANUFACTURER'S INSTRUCTIONS.

REFER TO TABLE I FOR FASTENER SPACING

WITH 420 PLF EXTERIOR SHEARWALL
 USE 7/16" OSB SHEATHING THEN
 ADD THE HARDIPANEL.

USE NON-COMPOSITE FRAMING
 FOR WINDOWS AND DOORS
 IN WIND ZONE 2.

FASTENING REQUIREMENTS:

BLOCKING MUST BE INSTALLED BETWEEN STUDS WHERE HARDIPANEL SIDING JOINTS WILL FALL FOR WOOD FRAMING. USE NOMINAL 2x4 LUMBER FASTENERS AND PLACE NO CLOSER THAN 3/8" FROM SHEET EDGES AND NO CLOSER THAN 2" FROM SHEET CORNERS.

JOINING METHODS:

HARDIPANEL VERTICAL SIDING IS INSTALLED VERTICALLY TO WALLS WITH JOINTS OVER STUDS. HARDIPANEL STUCCO MUST BE INSTALLED WITH THE TROWEL TEXTURE SWEEPING UPWARD TO GIVE THE CORRECT STUCCO APPEARANCE. JOINTS ARE FASTENED BY ABUTTING EDGES AND OPTIONALLY COVERED BY LUMBER BATTENS OR CAULKED.

FASTENER TYPES AND SIZES:

USE THE FASTENERS DESCRIBED IN TABLE I TO ATTACH HARDIPANEL VERTICAL SIDING.

SIZES:

THICKNESS: 5/16"
 WEIGHT: 2.3 LBS./SQ. FT.
 SHEET SIZES: 4'x8', 4'x9', AND 4'x10'

BASIC COMPOSITION:

PORTLAND CEMENT, GROUND SAND, CELLULOSE FIBER, SELECTED ADDITIVES AND WATER. HARDIPANEL SIDINGS CONTAIN NO ASBESTOS, FIBERGLASS OR FORMALDEHYDE.

CUTTING FIBER-CEMENT PRODUCTS:

HARDIPANEL SIDING CAN BE CUT WITH A HANDSAW, A POWER SAW, OR A CIRCULAR SAW EQUIPPED WITH A CARBIDE BLADE OR DRY DIAMOND BLADE. THE USE OF A GUILLOTINE OR THE SCORE AND SNAP METHOD IS A FAST AND EFFICIENT WAY TO CUT HARDIPANEL SIDING. HARDIE'S TUNGSTEN TIPPED KNIFE IS DESIGNED ESPECIALLY FOR THE SCORE AND SNAP METHOD.

VERTICAL HARDIPANEL SIDING

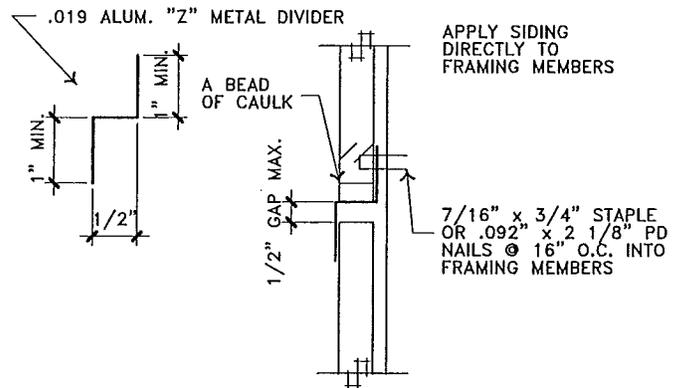
A

TABLE I				
WIND ZONE 1 ALT. FAST. WZ 1 .099" x 2 1/2" NAIL				
PRODUCT TYPE	THICKNESS	FASTENER	FAST. SPACING	STUD SPACING
HARDIPANEL	5/16"	4d COMMON NAIL x 1 1/2" LONG	8" O.C.	16" O.C.
WIND ZONE 2				
PRODUCT TYPE	THICKNESS	FASTENER	FAST. SPACING	STUD SPACING
HARDIPANEL	5/16"	.099" x 2 1/4" NAIL	4" O.C.	16" O.C.
WIND ZONE 3				
PRODUCT TYPE	THICKNESS	FASTENER	FAST. SPACING	STUD SPACING
HARDIPANEL	5/16"	5d COMMON NAIL x 2" LONG	5" O.C.	16" O.C.
HARDIPANEL	5/16"	.092" x 2" NAIL	5" O.C.	16" O.C.

HARDIPANEL SIDINGS ARE PRIMED WITH AN OPAQUE ACRYLIC PAINT AND SHALL BE COVERED WITH A HIGH QUALITY, EXTERIOR GRADE ACRYLIC, LATEX, PVA, SEMIGLOSS OR FLAT PAINT.
 NER - 405 REPORT
 REFER TO TEST # IC 1270-94

TABLE I CHART

B



HORIZONTAL JOINT APPLICATION

C

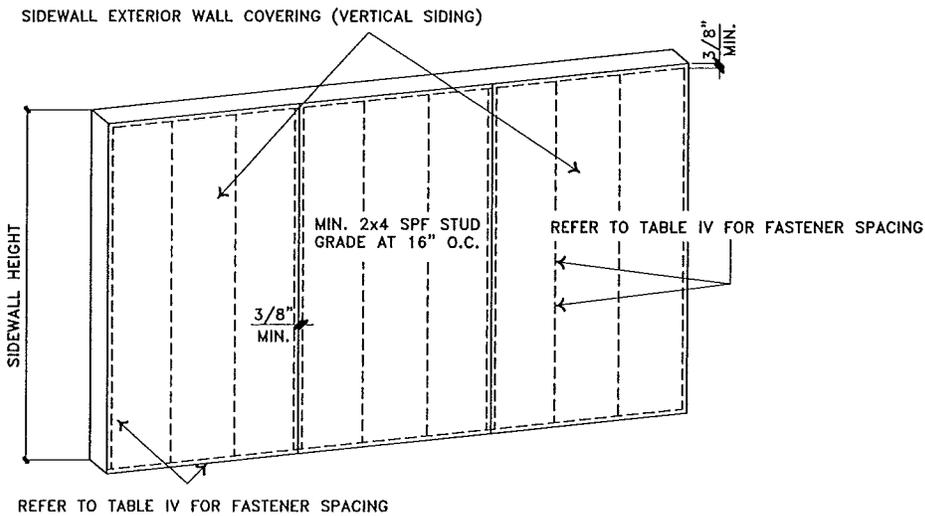
HARDIPANEL VERTICAL SIDING

DRAWN BY: JBM

DATE: 12/2/98

REV: 4/16/03

I - 4.35



ALL FASTENERS MUST BE CORROSION RESISTANT.

FASTENING REQUIREMENTS:
BLOCKING MUST BE INSTALLED BETWEEN STUDS WHERE SIDING JOINTS WILL FALL FOR WOOD FRAMING. USE NOMINAL 2x4 LUMBER FASTENERS AND PLACE NO CLOSER THAN 3/8" FROM SHEET EDGES AND NO CLOSER THAN 2" FROM SHEET CORNERS.

APPLY 2.5 MILS OF FINISH PAINT TO PRIMED SIDING.

FASTENER TYPES AND SIZES:
USE THE FASTENERS DESCRIBED IN TABLE IV TO ATTACH LOUISIANA PACIFIC VERTICAL SIDING.

CAULKING:
CAULK AROUND ALL OPENINGS SUCH AS WINDOW AND DOOR FRAMES, UTILITY FIXTURES AND WHERE SIDING BUTTS AGAINST ANOTHER MATERIAL, UNLESS JOINTS HAVE BEEN OTHERWISE WEATHERPROOFED. UTILIZE A NON-HARDENING, MILDEW RESISTANT EXTERIOR GRADE CAULKING MATERIAL.

JOINING METHODS:
ALL PANEL SIDING EDGES MUST BE LOCATED ON AND SUPPORTED BY FRAMING MEMBERS.

VERTICAL JOINTS:
BRING PANEL EDGES TO LIGHT CONTACT OR LEAVE A SLIGHT GAP. NEVER FORCE A PANEL EDGE TOGETHER.

HORIZONTAL JOINTS:
HORIZONTAL JOINTS MUST ALWAYS BE SUPPORTED BY CONTINUOUS FRAMING.

SIZES:
THICKNESS: 3/8"
SHEET SIZES: 4'x8' AND 4'x9'

HORIZONTAL JOINT APPLICATION

TABLE IV				
WIND ZONE 1				
PRODUCT TYPE	THICKNESS	FASTENER	FAST. SPACING	STUD SPACING
LOUISIANA PACIFIC HARDBOARD	3/8"	6d NAIL	6" EDGE 12" FIELD	16" O.C.
WIND ZONE 2				
PRODUCT TYPE	THICKNESS	FASTENER	FAST. SPACING	STUD SPACING
LOUISIANA PACIFIC HARDBOARD	3/8"	.092" x 2 3/8" GALVANIZED NAILS	6" EDGE 12" FIELD**	16" O.C. ***

** 12" O.C. PER FRAMING MEMBER STAGGERED IN FIELD STUDS.
*** STUDS DOUBLED WITHIN 3' OF CORNER.

LOUISIANA PACIFIC SIDINGS ARE PRIMED WITH AN OPAQUE ACRYLIC PAINT AND SHALL BE COVERED WITH A HIGH QUALITY, EXTERIOR GRADE ACRYLIC, LATEX, SEMIGLOSS OR OR FLAT PAINT. ALL SIDING SURFACES JOINTS AND EDGES.

REFER TO TEST REPORT NTA200206 AND NTA200206A

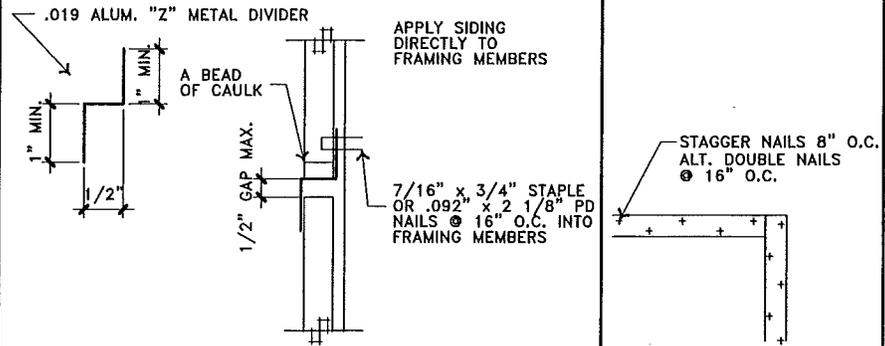


TABLE IV CHART

HORIZONTAL JOINT APPLICATION

TRIM

NOTE:

- FOR INSTALLING HARDBOARD SIDING ACROSS THE MATING LINE, TWO SQUARE CUT EDGES MAY BUTT TOGETHER. EACH CUT EDGE MUST BE SEALED WITH PAINT. LEAVE A GAP OF 1/8" TO 3/16" AND CAULK THE GAP PROPERLY TO PREVENT LEAKS. EACH EDGE MUST BE FASTENED TO THE STUD PER MANUFACTURER'S INSTRUCTIONS.

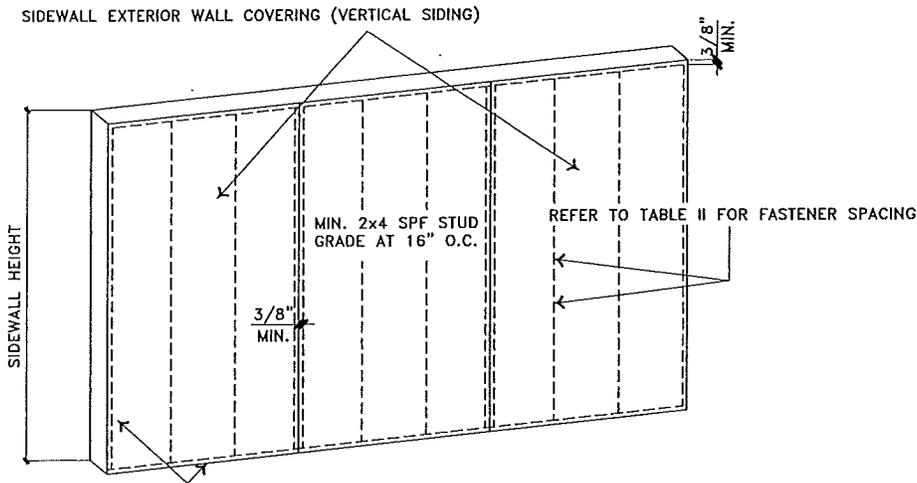
LOUISIANA PACIFIC HARDBOARD SIDING

DRAWN BY: JBM

DATE: 4/16/03

REV: -

1 - 4.35.1



REFER TO TABLE II FOR FASTENER SPACING

WITH 420 PLF EXTERIOR SHEARWALL, USE 7/16" OSB SHEATHING THEN ADD THE ABTCO SIDING.

USE NON-COMPOSITE FRAMING FOR WINDOWS AND DOORS IN WIND ZONE 2.

JOINING METHODS:
ALL PANEL SIDING EDGES MUST BE LOCATED ON AND SUPPORTED BY FRAMING MEMBERS.

ALL FASTENERS MUST BE CORROSION RESISTANT.

VERTICAL JOINTS:
BRING PANEL EDGES TO LIGHT CONTACT OR LEAVE A SLIGHT GAP. NEVER FORCE A PANEL EDGE TOGETHER.

FASTENING REQUIREMENTS:
BLOCKING MUST BE INSTALLED BETWEEN STUDS WHERE ABTCO SIDING JOINTS WILL FALL FOR WOOD FRAMING. USE NOMINAL 2x4 LUMBER FASTENERS AND PLACE NO CLOSER THAN 3/8" FROM SHEET EDGES AND NO CLOSER THAN 2" FROM SHEET CORNERS.

HORIZONTAL JOINTS:
HORIZONTAL JOINTS MUST ALWAYS BE SUPPORTED BY CONTINUOUS FRAMING. FASTENING AT LAP JOINT CAN BE MADE w/ (1) FASTENER THRU (2) LAYERS OF SHEATHING AS LONG AS THE FASTENER HAS 1" MIN. PENETRATION INTO THE FRAMING MEMBER.

APPLY 2.5 MILS OF FINISH PAINT TO PRIMED SIDING.

SIZES:
THICKNESS: 7/16"
SHEET SIZES: 4'x8', 4'x9', AND 4'x10'

FASTENER TYPES AND SIZES:
USE THE FASTENERS DESCRIBED IN TABLE II TO ATTACH ABTCO VERTICAL SIDING.

CAULKING:
CAULK AROUND ALL OPENINGS SUCH AS WINDOW AND DOOR FRAMES, UTILITY FIXTURES AND WHERE SIDING BUTTS AGAINST ANOTHER MATERIAL, UNLESS JOINTS HAVE BEEN OTHERWISE WEATHERPROOFED. UTILIZE A NON-HARDENING, MILDEW RESISTANT EXTERIOR GRADE CAULKING MATERIAL.

ABTCO VERTICAL SIDING

A

TABLE II				
WIND ZONE 1				
PRODUCT TYPE	THICKNESS	FAST.	FAST. SPACE	STUD SPACE
ABTCO HARDBOARD	7/16"	.092" x 1 7/8" NAIL	6" EDGE 12" FIELD	16" O.C.
WIND ZONE 2				
PRODUCT TYPE	THICKNESS	FAST.	FAST. SPACE	STUD SPACE
ABTCO HARDBOARD	7/16"	.092" x 2 1/4" NAIL	6" EDGE 12" FIELD	16" O.C.
WIND ZONE 3				
PRODUCT TYPE	THICKNESS	FAST.	FAST. SPACE	STUD SPACE
ABTCO HARDBOARD	7/16"	.092" x 2 1/4" NAIL	6" EDGE 12" FIELD	16" O.C.

ABTCO SIDINGS ARE PRIMED WITH AN OPAQUE ACRYLIC PAINT AND SHALL BE COVERED WITH A HIGH QUALITY, EXTERIOR GRADE ACRYLIC, LATEX, PVA, SEMIGLOSS OR FLAT PAINT.

REFER TO TEST # 94-982 (06/28/94)

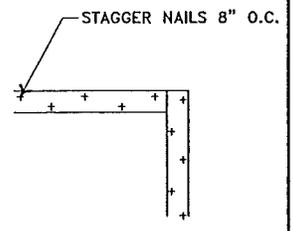
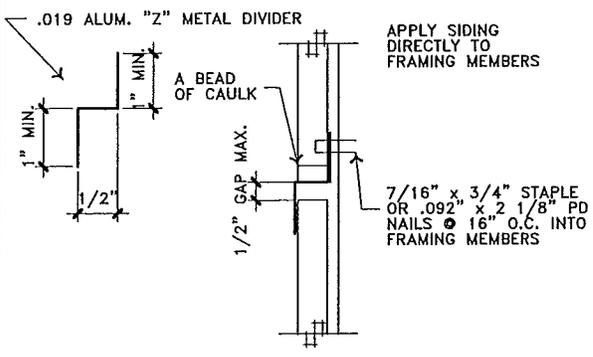


TABLE II CHART

B HORIZONTAL JOINT APPLICATION

C TRIM

D

NOTE:

- FOR INSTALLING HARDBOARD SIDING ACROSS THE MATING LINE, TWO SQUARE CUT EDGES MAY BUTT TOGETHER. EACH CUT EDGE MUST BE SEALED WITH PAINT. LEAVE A GAP OF 1/8" TO 3/16" AND CAULK THE GAP PROPERLY TO PREVENT LEAKS. EACH EDGE MUST BE FASTENED TO THE STUD PER MANUFACTURER'S INSTRUCTIONS.

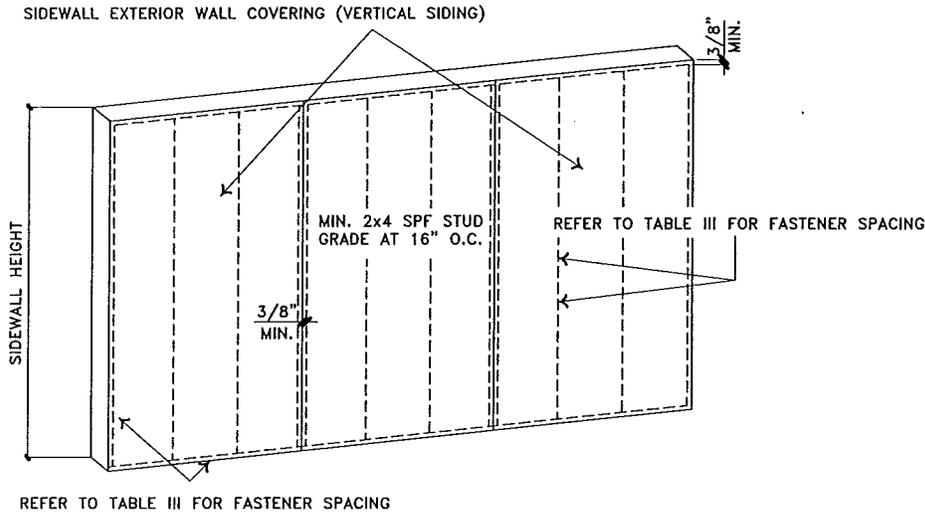
ABTCO VERTICAL SIDING

DRAWN BY: JBM

DATE: 12/2/98

REV: 4/16/03

I - 4.36



ALL FASTENERS MUST BE CORROSION RESISTANT.

FASTENING REQUIREMENTS:
BLOCKING MUST BE INSTALLED BETWEEN STUDS WHERE CLADWOOD HARDBOARD SIDING JOINTS WILL FALL FOR WOOD FRAMING. USE NOMINAL 2x4 LUMBER FASTENERS AND PLACE NO CLOSER THAN 3/8" FROM SHEET EDGES AND NO CLOSER THAN 2" FROM SHEET CORNERS.

APPLY 2.0 MILS OF FINISH PAINT TO PRIMED SIDING.

FASTENER TYPES AND SIZES:
USE THE FASTENERS DESCRIBED IN TABLE III TO ATTACH CLADWOOD VERTICAL SIDING.

CAULKING:
CAULK AROUND ALL OPENINGS SUCH AS WINDOW AND DOOR FRAMES, UTILITY FIXTURES AND WHERE SIDING BUTTS AGAINST ANOTHER MATERIAL, UNLESS JOINTS HAVE BEEN OTHERWISE WEATHERPROOFED. UTILIZE A NON-HARDENING, MILDEW RESISTANT EXTERIOR GRADE CAULKING MATERIAL.

JOINING METHODS:
ALL PANEL SIDING EDGES MUST BE LOCATED ON AND SUPPORTED BY FRAMING MEMBERS.

VERTICAL JOINTS:
BRING PANEL EDGES TO LIGHT CONTACT OR LEAVE A SLIGHT GAP. NEVER FORCE A PANEL EDGE TOGETHER.

HORIZONTAL JOINTS:
HORIZONTAL JOINTS MUST ALWAYS BE SUPPORTED BY CONTINUOUS FRAMING.

SIZES:
THICKNESS: 7/16"
SHEET SIZES: 4'x8' AND 4'x9'

HORIZONTAL JOINT APPLICATION

TABLE III				
WIND ZONE I				
PRODUCT TYPE	THICKNESS	FAST.	FAST. SPACE	STUD SPACE
CLADWOOD HARDBOARD	7/16" MIN.	6d NAIL	6" EDGE 12" FIELD	16" O.C.
CLADWOOD HARDBOARD	7/16" MIN.	.099" x 1 7/8" RING SHANK NAIL	6" EDGE 12" FIELD	16" O.C.

CLADWOOD SIDINGS ARE PRIMED WITH AN OPAQUE ACRYLIC PAINT AND SHALL BE COVERED WITH A HIGH QUALITY, EXTERIOR GRADE ACRYLIC, LATEX, PVA, SEMIGLOSS OR FLAT PAINT.

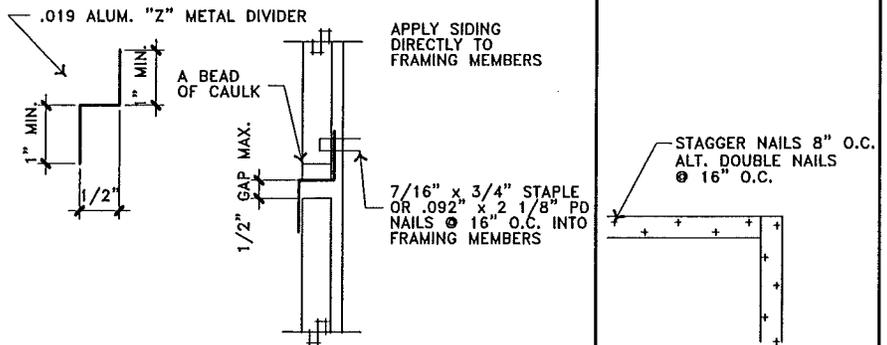


TABLE III CHART

HORIZONTAL JOINT APPLICATION

TRIM

NOTE:

- FOR INSTALLING HARDBOARD SIDING ACROSS THE MATING LINE, TWO SQUARE CUT EDGES MAY BUTT TOGETHER. EACH CUT EDGE MUST BE SEALED WITH PAINT. LEAVE A GAP OF 1/8" TO 3/16" AND CAULK THE GAP PROPERLY TO PREVENT LEAKS. EACH EDGE MUST BE FASTENED TO THE STUD PER MANUFACTURER'S INSTRUCTIONS.

CLADWOOD HARDBOARD

DRAWN BY: JBM

DATE: 12/2/98

REV: 4/16/03

I - 4.37

30 GA. x 6 CONT. STRAP FASTENED TO SHEATHING AT 2" O.C. WITH 0.092" MIN. ROOFING NAILS.

ROOF SHEATHING

OVERHANG EXTENSION MADE FROM 2x6 BLOCKS 16" O.C. SPF STUD GRADE. INSTALL ONE-PIECE FASCIA SOFFIT COMBO PER PAGE I-4.31 (ALT. DETAIL 'B').

#8 x 3" WOOD SCREWS; (2) PER BAY FASTENED INTO 2x6.

1x6 SPF ANY GRADE

12" MAX.

ROOF IS BUILT OUT TO MATCH 2x4 OR 2x6 SIDEWALL

2x4 OR 2x6 EXTERIOR WALL

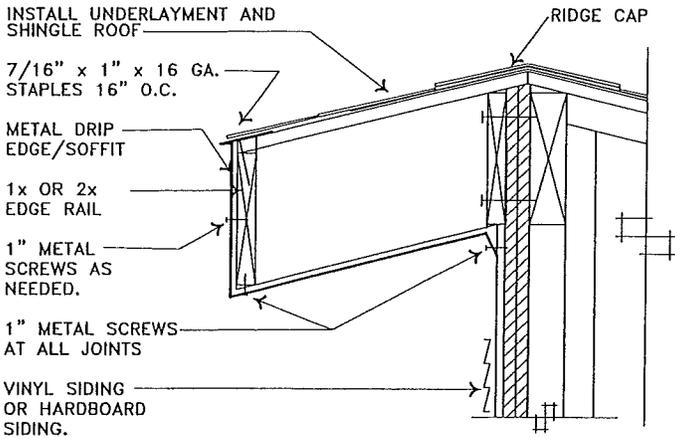
EXTERIOR SIDING INSTALLED PER MANUFACTURERS INSTRUCTION

FLOOR IS BUILT OUT TO MATCH 2x4 OR 2x6 WALL

1' 60"

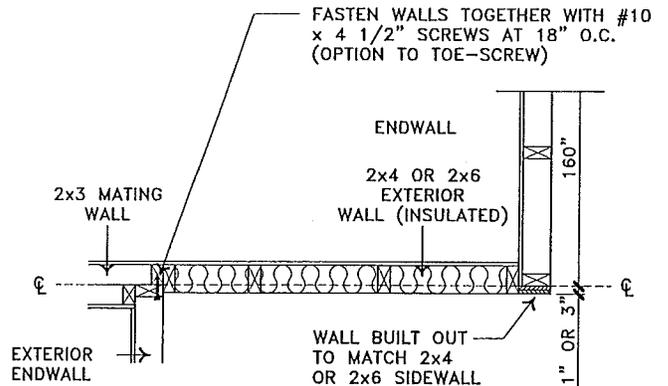
ADD-ON EAVE DETAIL

A



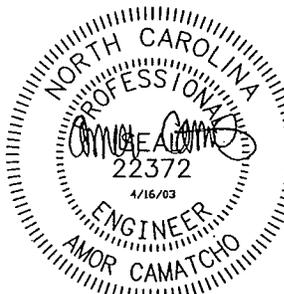
SOFFIT DETAIL

B



PLAN VIEW

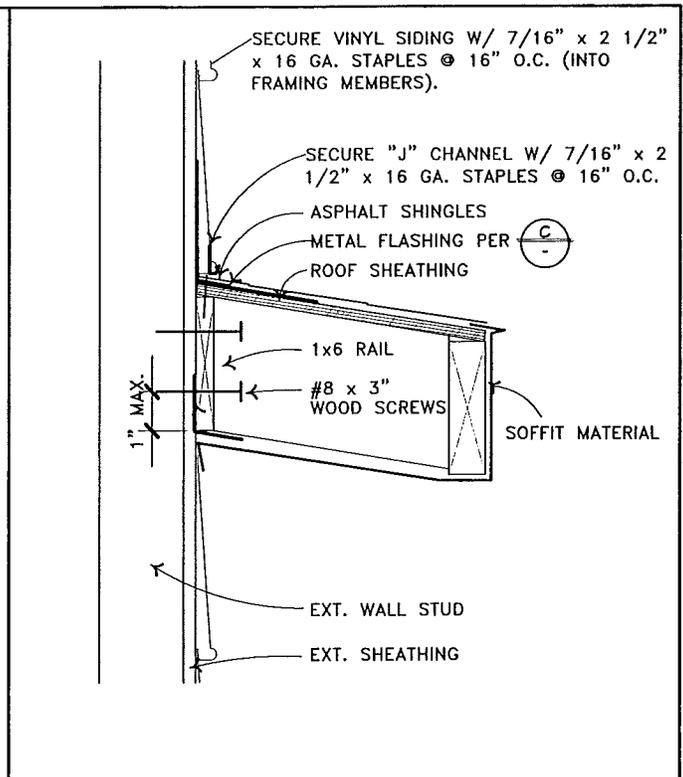
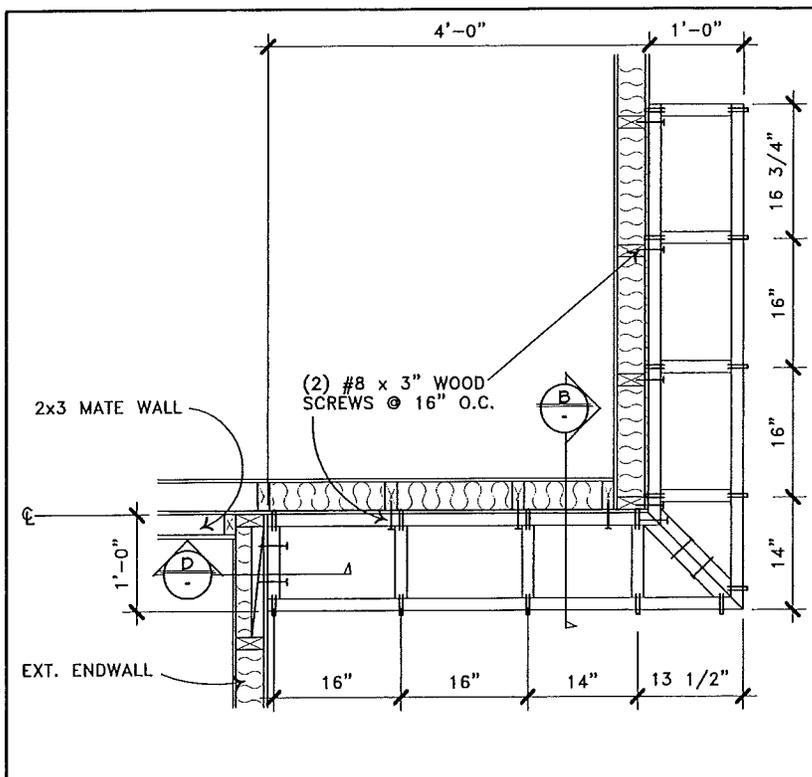
C



ADD-ON EAVE DETAIL
OFFSET BOX

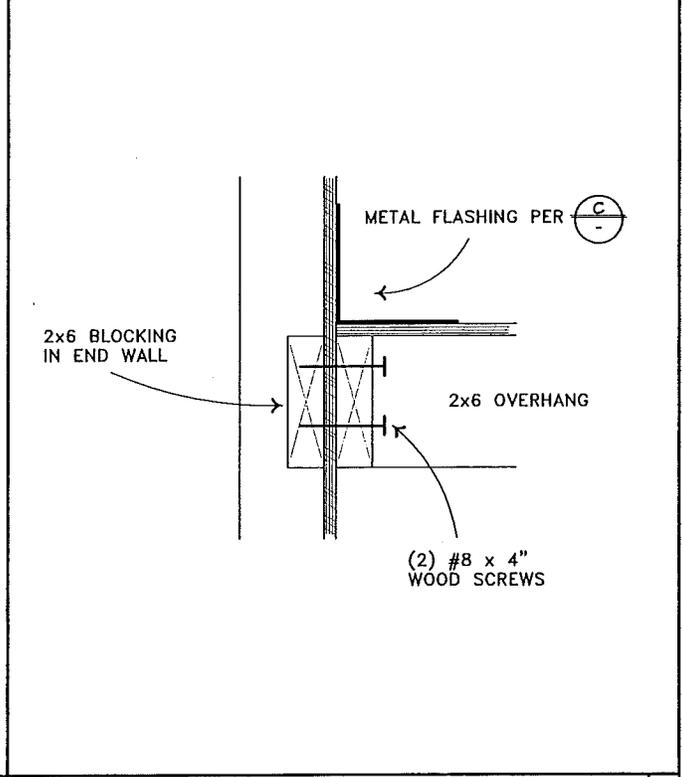
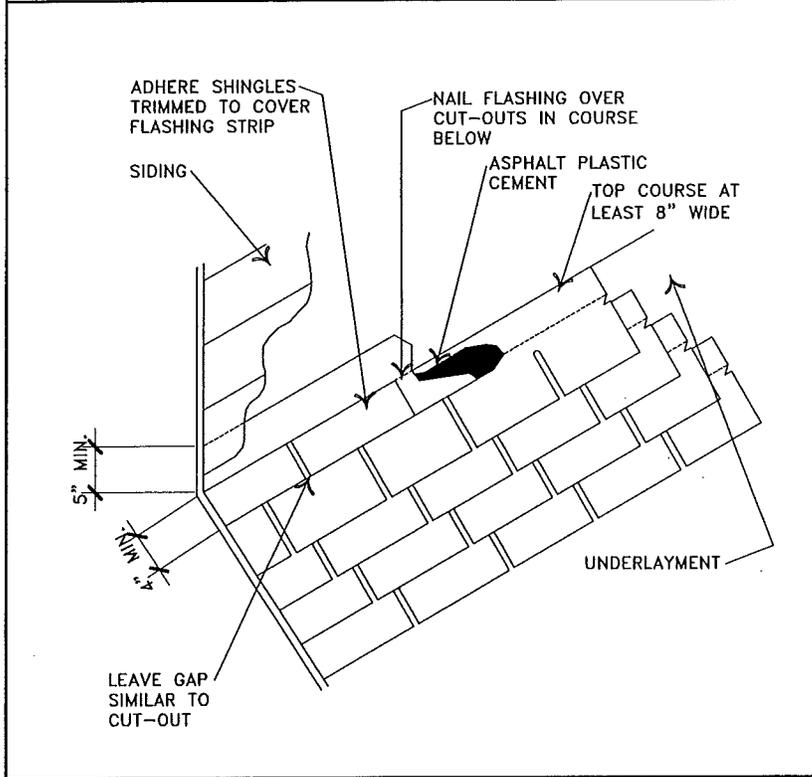
DRAWN BY: JBM
DATE: 12/2/98
REV: 4/16/03
WIND ZONE: All

I - 4.38



PLAN VIEW AT WRAP CORNER EYEBROW

SECTION THRU WRAP CORNER EYEBROW

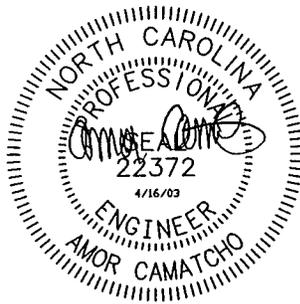


FLASHING DETAIL

SECTION THRU CONNECTION AT ENDWALL

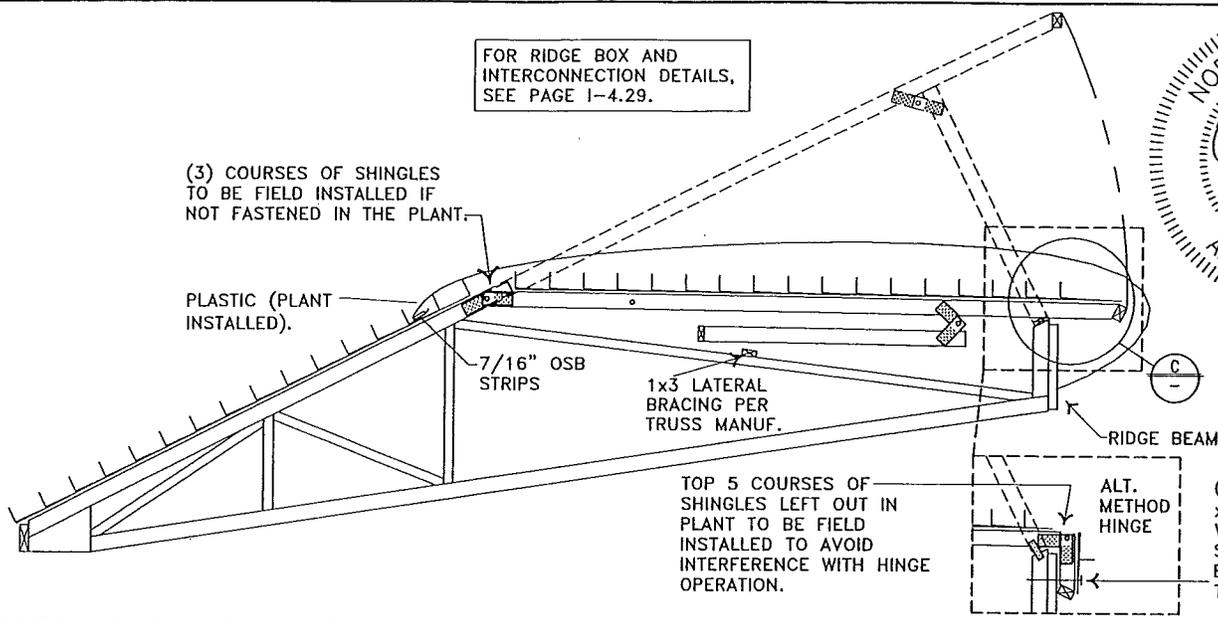
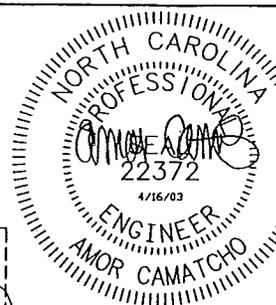
NOTES:

- CORNER EYEBROW IS TO BE CONSTRUCTED IN ONE PIECE IN THE PLANT AND INSTALLED ON SITE.

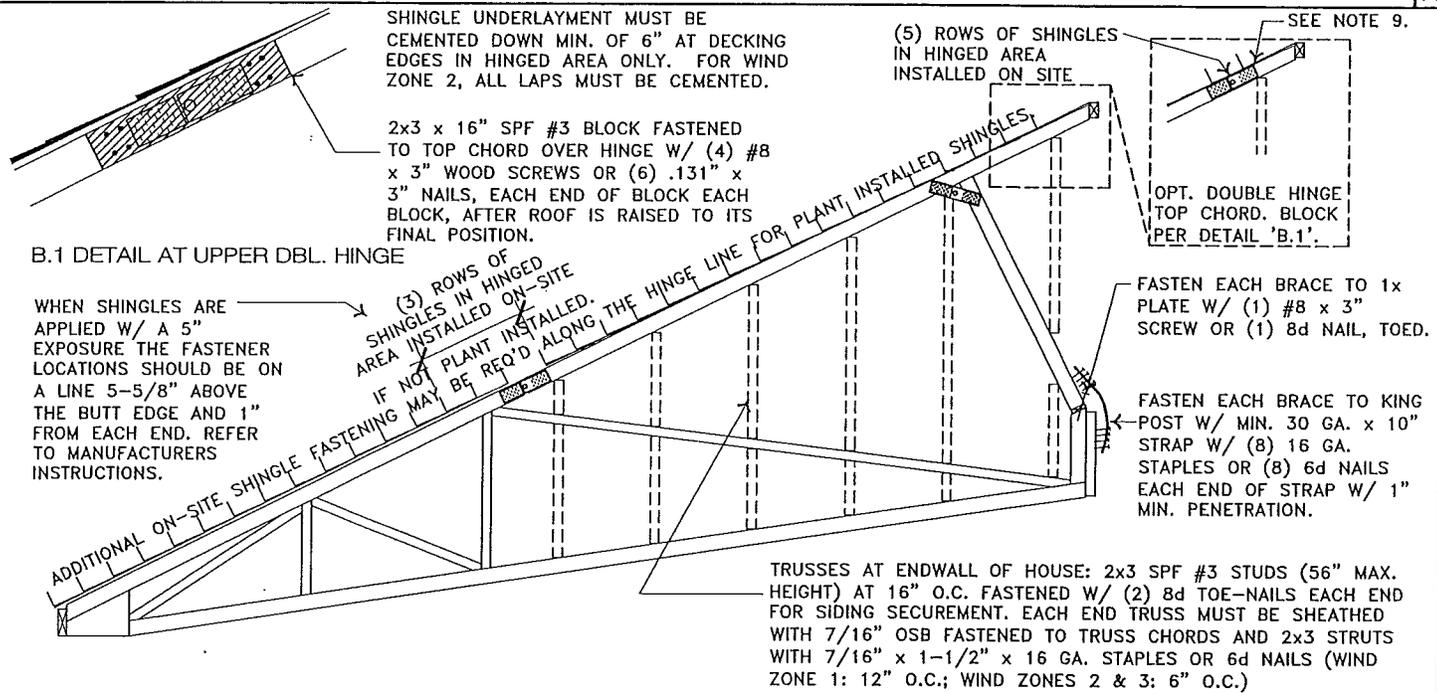


OFFSET BOX CORNER EYEBROW	
DRAWN BY: JBM	1 - 4.39
DATE: 12/2/98	
REV: 4/16/03	

FOR RIDGE BOX AND INTERCONNECTION DETAILS, SEE PAGE I-4.29.



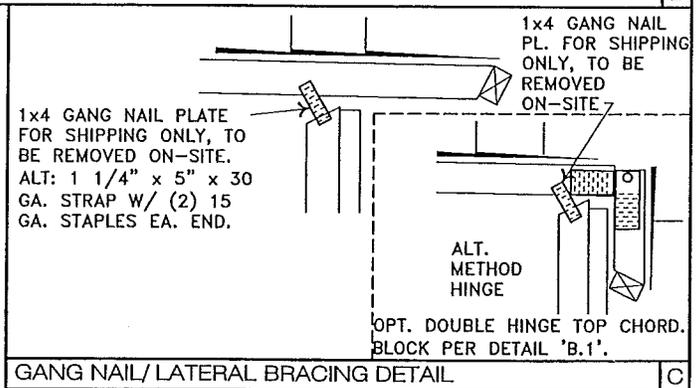
HINGED TRUSS IN LOWERED SHIPPING POSITION



HINGED TRUSS IN RAISED SETUP POSITION

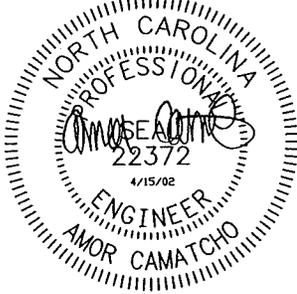
NOTES:

1. REMOVE ALL SHIPPING MATERIALS FROM ROOF AND MARRIAGE WALL.
2. ENTIRE ROOF MUST BE RAISED SIMULTANEOUSLY TO PREVENT DISTORTION IN THE ROOF SYSTEM AND TO ALLOW FOR PROPER KING POST INSTALLATION. LIFTING POINTS TO BE A MAXIMUM OF 12 FT. O.C. ALONG THE LENGTH OF THE UNIT.
3. FASTEN WEB BRACE TO KING POST PER DETAIL "B" ON PAGE I-4.40.
4. INSTALL ALL REQUIRED ROOF VENTS AND ACCESSORIES PER EACH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
5. UNFOLD ROOF UNDERLAYMENT OVER TRUSS HINGE AND INSTALL THE SHIP-LOOSE PORTION OF THE ROOF SHINGLES.
6. NO PENETRATION (FLUES OR VENT PIPES) IN HINGED AREA OF ROOF OTHER THAN STATIC ROOF VENTS.
7. FOLLOW NORMAL SETUP PROCEDURES FOR ALL OTHER REQUIREMENTS.
8. MAX. ROOF PITCH IS 7/12 FOR WIND ZONES 1 AND 6/12 FOR WIND ZONE 2 AND 3.
9. ON SITE DECKING AT ALT. DOUBLE HINGE LOCATION: MIN. 18" WIDE 7/16" OSB DECKING (APA RATED 24/16) FASTENED W/ 10d NAILS OR .128" x 3" NAILS @ 4" O.C. FIELD & EDGES. FOR DECKING WIDTHS BETWEEN 18" AND 24", USE (2) H-CLIPS EACH BAY. SHINGLE UNDERLAYMENT IS INSTALLED ON DECKING AND CEMENTED DOWN @ 6" AT DECKING EDGES.

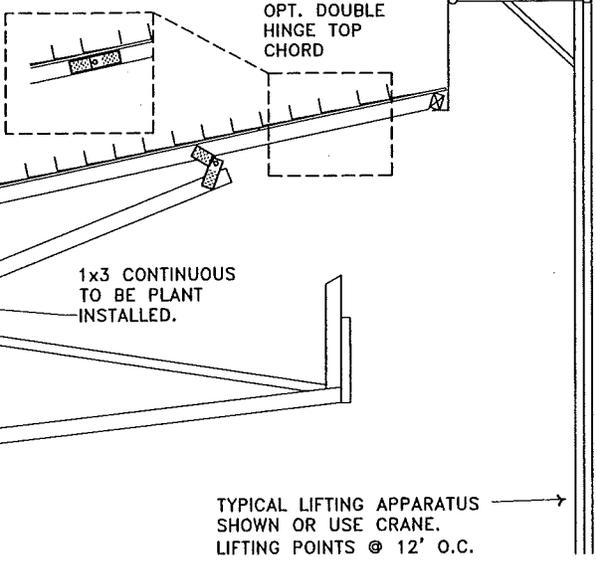


HINGED TRUSS DETAILS
(7/12 Max.)

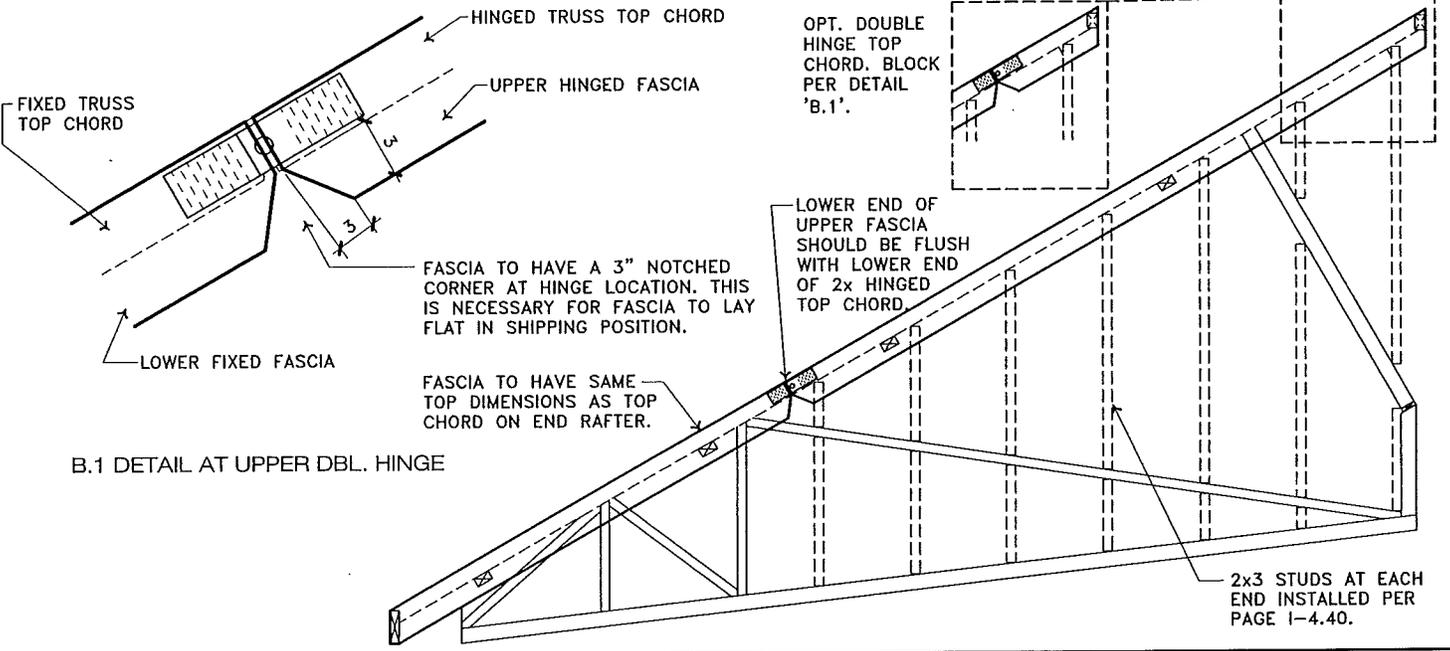
DRAWN BY: RAJ DATE: 1/5/99 REV: 11/11/02 WIND ZONE: ALL	I - 4.40
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FOR RIDGE BOX AND INTERCONNECTION DETAILS, SEE PAGE I-4.29.



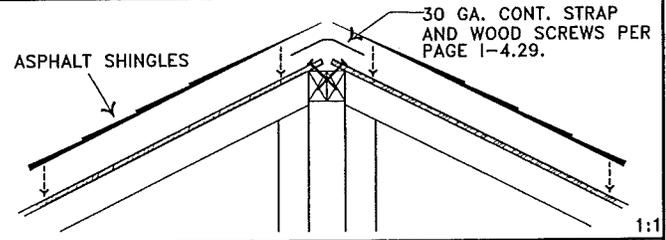
LIFTING OF HINGED TRUSS



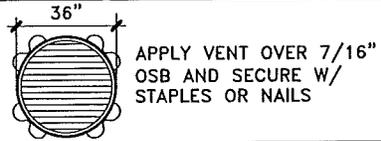
HINGED TRUSS IN RAISED SETUP POSITION

NOTES:

1. REMOVE ALL SHIPPING MATERIALS FROM ROOF AND MARRIAGE WALL.
2. ENTIRE ROOF MUST BE RAISED SIMULTANEOUSLY TO PREVENT DISTORTION IN THE ROOF SYSTEM AND TO ALLOW FOR PROPER KING POST INSTALLATION. LIFTING POINTS TO BE A MAXIMUM OF 12 FT. O.C. ALONG THE LENGTH OF THE UNIT.
3. FASTEN WEB BRACE TO KING POST PER DETAIL "B" ON PAGE I-4.40.
4. INSTALL ALL REQUIRED ROOF VENTS AND ACCESSORIES PER EACH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
5. UNFOLD ROOF UNDERLAYMENT OVER TRUSS HINGE AND INSTALL THE SHIP-LOOSE PORTION OF THE ROOF SHINGLES.
6. FOLLOW NORMAL SETUP PROCEDURES FOR ALL OTHER REQUIREMENTS.
7. MAX. ROOF PITCH IS 7/12 FOR WIND ZONE 1 AND 6/12 FOR WIND ZONES 2 AND 3.



RAIL AND ROOF CONNECTION AT MATE WALL



ROUND END VENT (OPTIONAL)

HINGED TRUSS DETAILS (7/12 Max.)

DRAWN BY: RAJ
 DATE: 1/5/99
 REV: 3/14/02
 WIND ZONE: ALL

I - 4.41

7800 McCloud Road, Greensboro, NC 27403

Chapter 5 - Optional Features

Construction of Site Built Structures (Garages, Carports, Decks, Awnings etc.)

Site built structures and accessories shall be designed to support 100% of their own live and dead loads. Structures shall have fire separation as required by local codes. Structures shall be built and inspected in accordance with local codes.

Attached Garages

After market garages shall be installed per the manufacturer's instructions and to all applicable local codes and regulations. They must be supported independently of the factory built portion of the home. Electrical circuits in garage shall be provided with ground fault interruption per Chapter 5 of this manual.

NOTE!

Accessories and site built structures shall include but are not limited to garages, carports, awnings, decks, porches, stairs and steps. They shall be designed per, and inspected to local codes in effect at the time of construction. The attachment of accessories to your home may void your warranty and should be done only by properly trained personnel.

Skirting and Venting

If the home is to be perimeter skirted, ventilation of the crawlspace area under the home is also required. Ventilation openings must be provided in the enclosure on all sides with at least one ventilation opening provided at each corner enclosure. Use the following formula to calculate the minimum ventilation requirement for net free area:

$$\text{Net Free Area (sq. ft.)} = \frac{\text{length} \times \text{width}}{300}$$

Insect screens on the ventilation openings can restrict free air area as much as 30-50%. Use an adequate number of ventilation openings to compensate for screening. Use vents that have provisions for keeping rain from entering the enclosed underside of the home. Louvered vents or vents with a hood or a shroud will perform this function.

Provide a minimum opening of 18" high x 24" wide for access to the crawl space (unless local codes require otherwise). If the cover for this opening is louvered or screened, it may count toward meeting ventilation requirements.

Basements

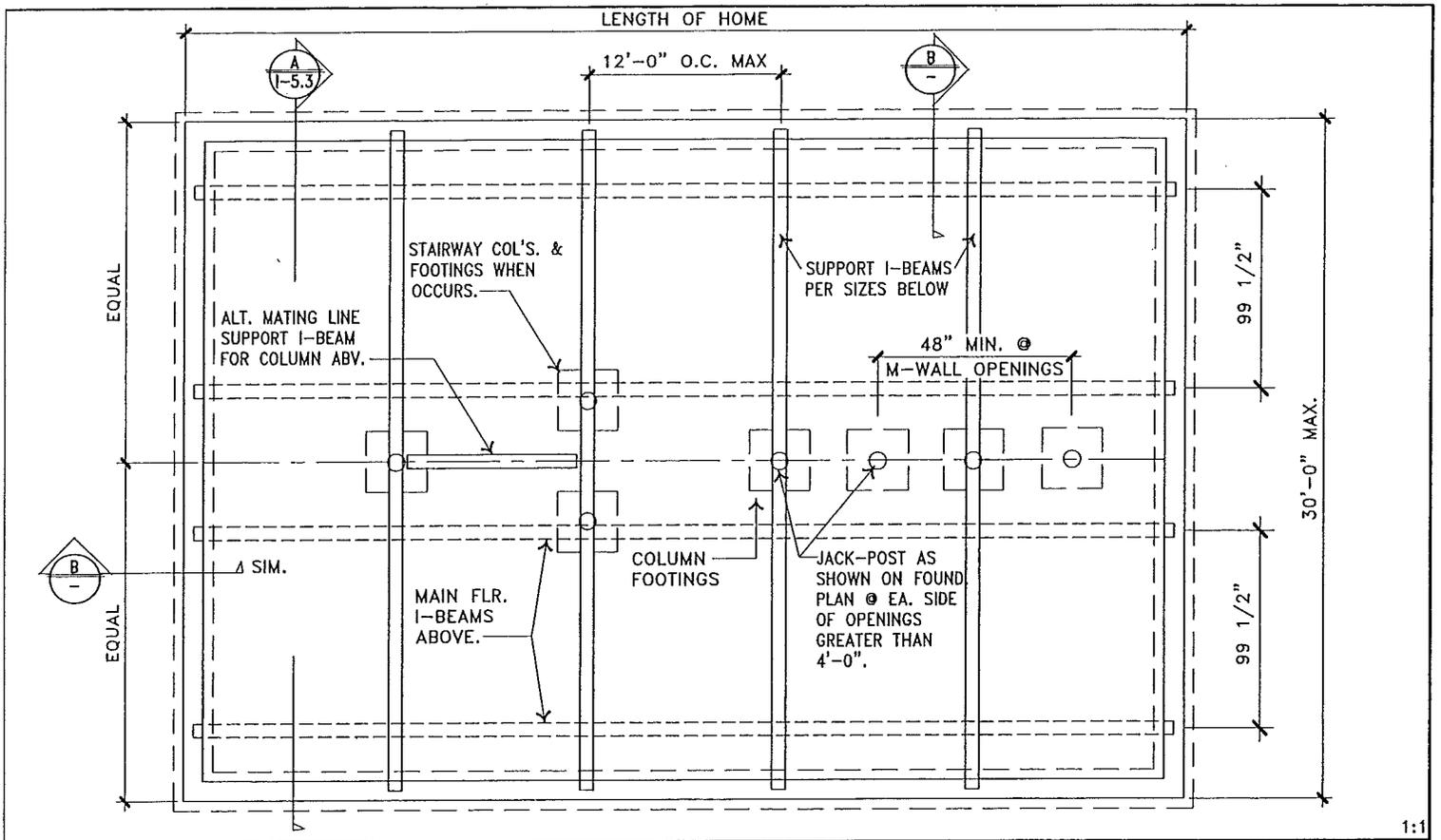
It is the responsibility of the retailer and/or owner to provide a basement design that has been engineered and sealed by a professional engineer or architect. Basement designs shall adhere to local building codes in effect at time of construction and shall be approved by the authorities having jurisdiction. Damp-proofing and foundation drains shall be in accordance with local codes.

Use the basement design details on pages I-5.2 and I-5.3 of this manual for reference only. The basement design and foundation must provide proper support for the home according to the pier loading and spacing requirements specified on pages I-3.6 and I-3.7 of this manual. Marriage wall columns on either side of openings greater than 48" must be supported according to page I-3.8. This home's electrical, mechanical and plumbing systems shall not be altered in any way, nor shall the floor framing and chassis system be altered in any way.

Stair construction at basements must comply with the model and local codes for widths, clearances, headroom, landings, fire protection, fire separation, smoke detectors, egress requirements etc. Stairs shall be independently supported and shall not rely on the manufactured home in any way for support. Guardrails and handrails at the basement access location shall be installed on site and shall be in accordance with all applicable codes. Exterior type door and hardware must be installed per manufacturer's installation instructions shipped with home.

Retaining Wall Designs

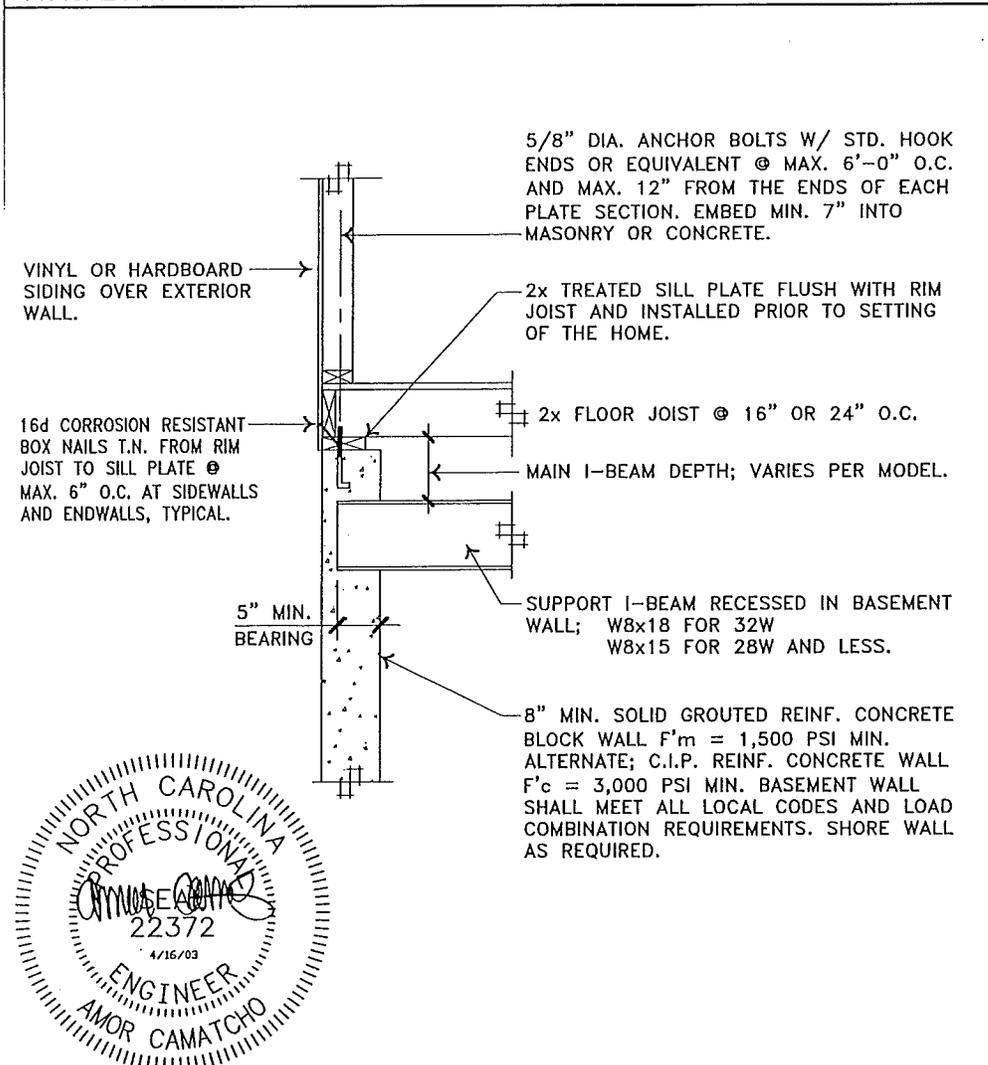
Where lateral earth and soil pressure conditions are introduced from backfill installations, the retaining wall design shall be in accordance with local jurisdiction and when required be designed by a professional engineer or architect. Due to the numerous variations and local conditions involved in backfill/retaining wall design, the home manufacturer will not assume responsibility for design, construction, or approval thereof.



TYPICAL BASEMENT PLAN LAYOUT

1:1

A



SILL PLATE AND BASEMENT WALL DETAIL

NOTES:

1. DUE TO VARIANCES IN LOCAL CODES, SOIL CONDITIONS AND FROST LEVELS, ALL BASEMENT WALLS AND FOOTINGS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER OR ARCHITECT AND APPROVED BY THE LOCAL BUILDING CODE OFFICIALS.
2. WALL DAMPROOFING AND FOUNDATION DRAINS SHALL BE INSTALLED PER THE LOCAL BUILDING CODE REQUIREMENTS.
3. THE FOLLOWING CONDITIONS APPLY TO PAGES I-5.2 AND I-5.3 UNLESS OTHERWISE NOTED:
 - 140" MIN./180" MAX. BOX WIDTH WITH 12" MAX. ROOF OVERHANG
 - 99 1/2" MAIN I-BEAM SPACING
 - 7'-6" MAX. SIDEWALL HEIGHT
 - 6/12 MAX. ROOF PITCH
 - 30 PSF MAX. ROOF LIVE LOAD
 - WIND ZONE 1 REQUIREMENTS
4. REFER TO MODEL SPECIFIC BASEMENT FOUNDATION DIAGRAM FROM MANUFACTURER FOR LOCATION OF SUPPORT BEAMS AND COLUMNS AT MARRIAGE WALL OPENINGS AND STAIRWAYS.
5. FOR SUPPORT BEAM LOADS, SEE PAGES I-3.6 AND I-3.7 FOR SIMILAR PIER LOADS.

TYPICAL BASEMENT DETAILS

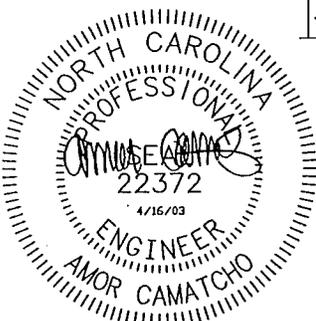
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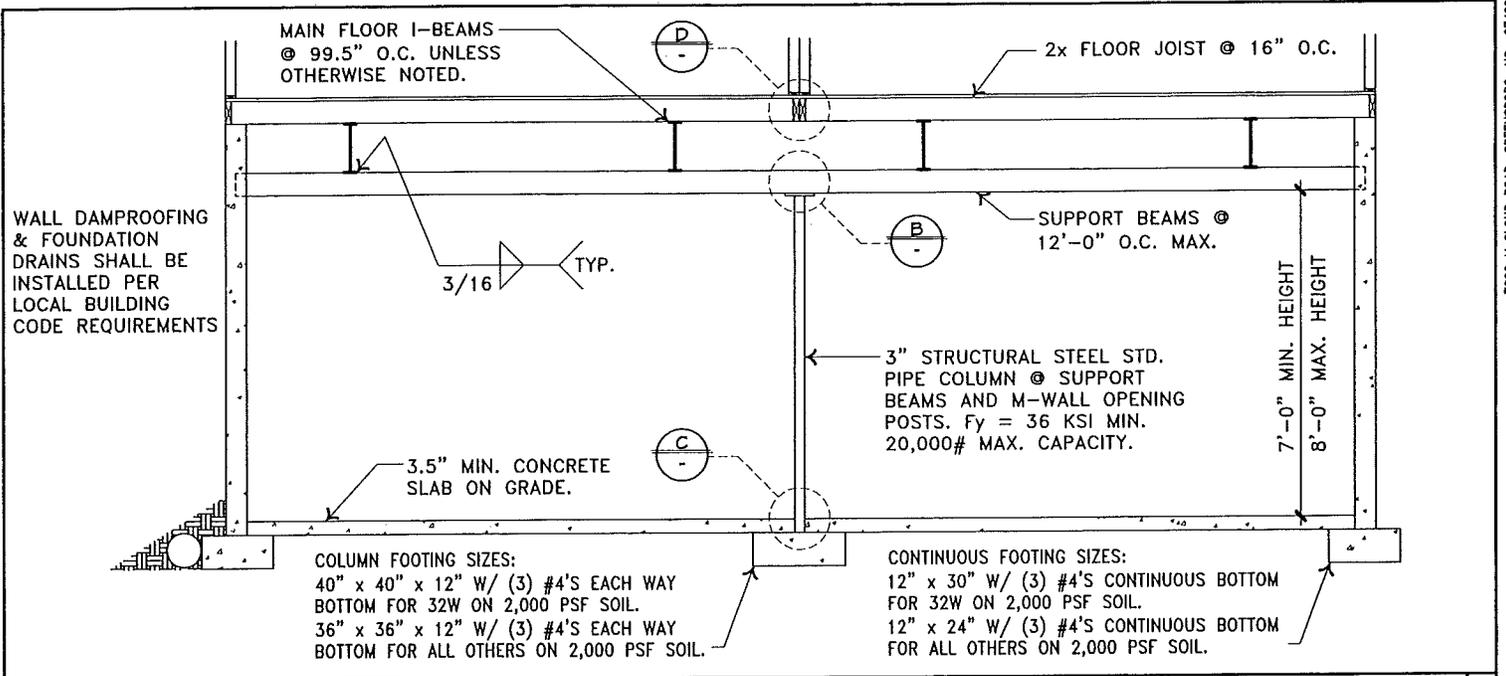
DATE: 11/30/98

REV: 4/16/03

I-5.2

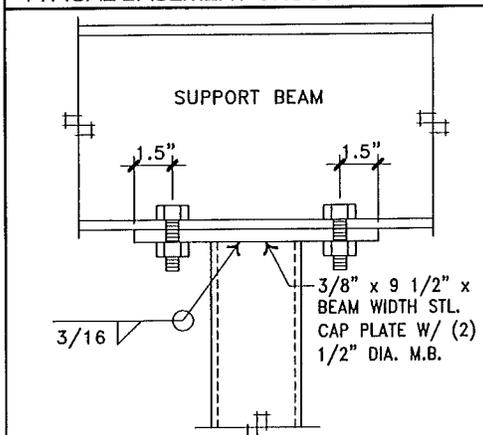
B



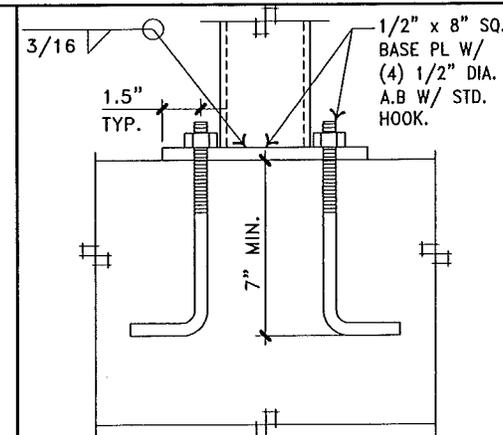


TYPICAL BASEMENT CROSS SECTION

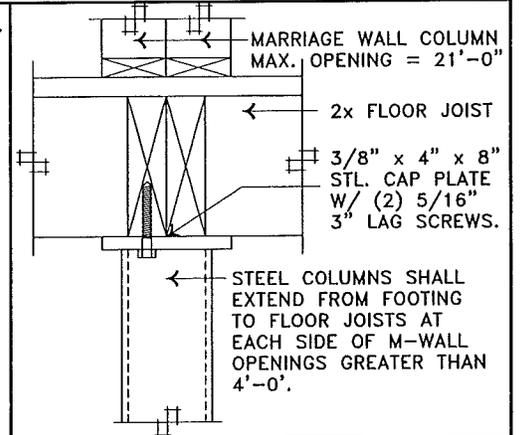
A



CAP PLATE DETAIL



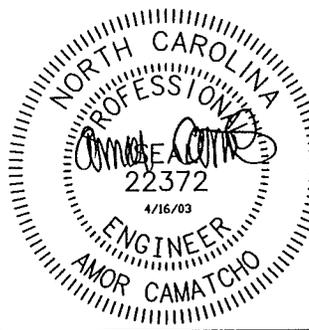
BASE PLATE DETAIL



POSTS AT MARRIAGE WALL COLUMNS

NOTES:

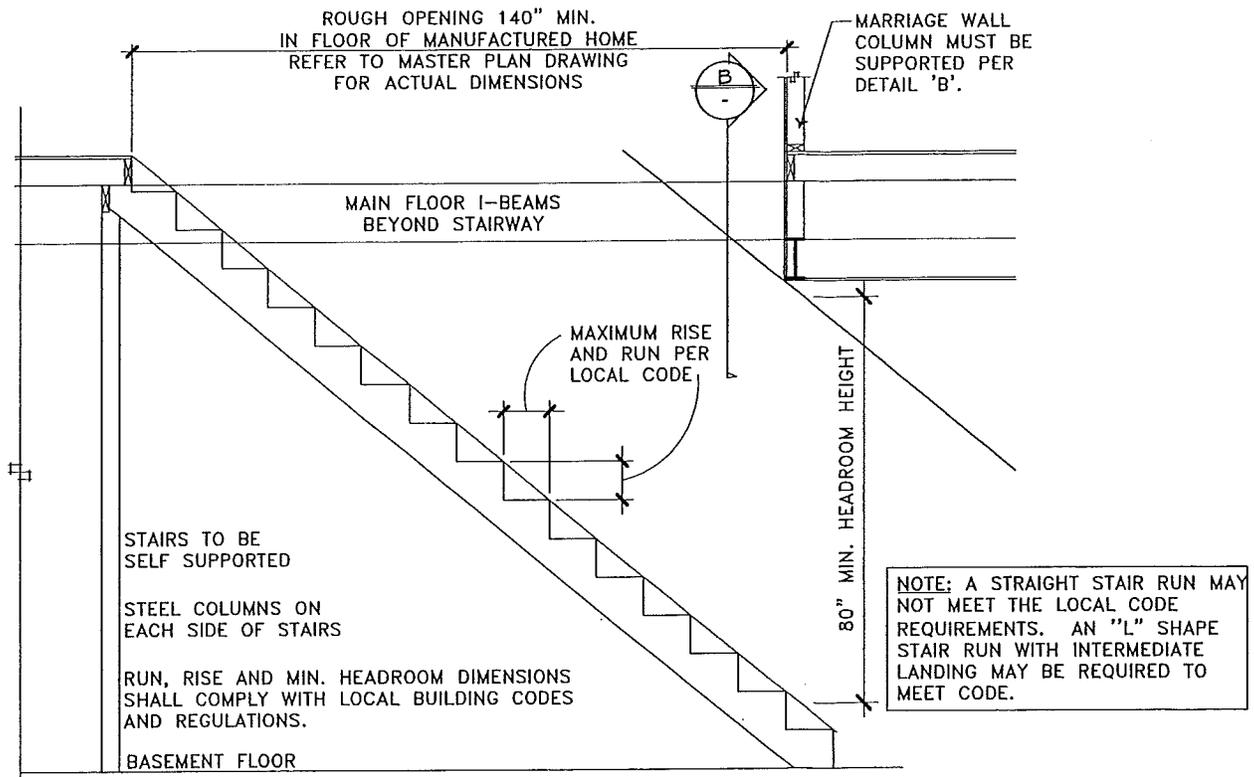
1. ALL DETAILS NOT NOTED SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER OR ARCHITECT AND APPROVED BY THE LOCAL BUILDING CODE OFFICIALS.
2. SUPPORT ALL WATING WALL COLUMNS TO SUPPORT BEAM BELOW WITH 3" DIA. STEEL COLUMN OR (2) 4x4 SPF #2 POST, OR USE FULL HEIGHT BASEMENT COLUMN.
3. FOR GENERAL BASEMENT NOTES, SEE PAGE I-5.2.



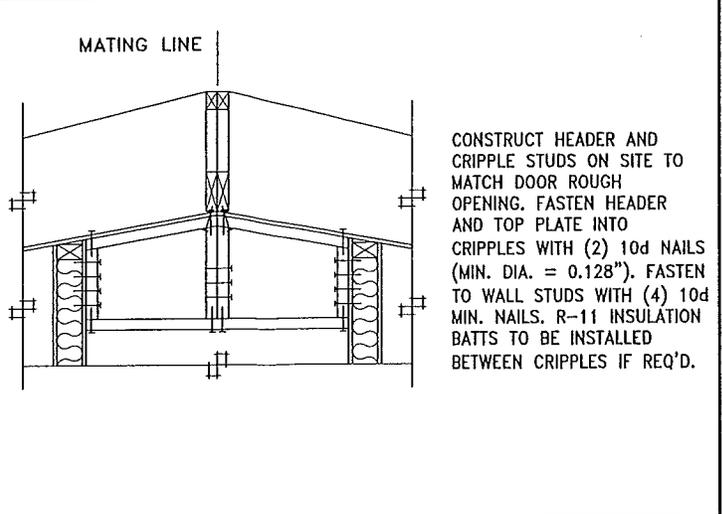
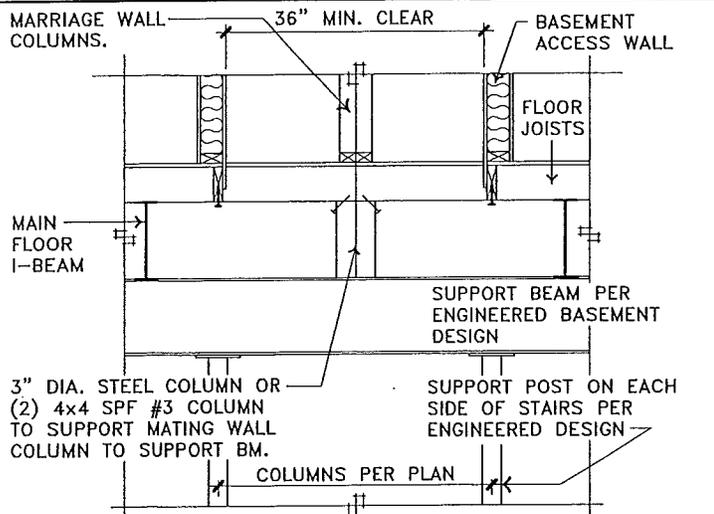
TYPICAL BASEMENT DETAILS

DRAWN BY: JBM
DATE: 11/30/98
REV: 4/16/03

I - 5.3

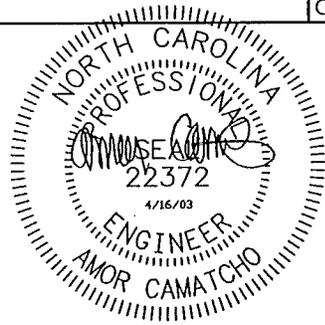


BASEMENT ACCESS A



MARRIAGE WALL COLUMN SUPPORT B **HEADER DETAIL** C

- NOTES:**
1. THE BASEMENT AND FOUNDATION SHALL BE DESIGNED BY ANOTHER PROFESSIONAL ENGINEER OR ARCHITECT AND APPROVED BY LOCAL BUILDING CODE OFFICIALS. ALL REGULATIONS REGARDING FIRE SEPARATION, EGRESS, SMOKE DETECTORS, STAIR CONSTRUCTION, CLEARANCES, GUARDRAILS, HANDRAILS, ETC. SHALL BE STRICTLY COMPLIED WITH.
 2. THE STAIRCASE AND MIN. HEADROOM HEIGHT DIMENSIONS SHALL COMPLY WITH ALL LOCAL CODES AND REGULATIONS.
 3. THE HOME'S ELECTRICAL, MECHANICAL, AND PLUMBING SYSTEMS SHALL NOT BE ALTERED ON-SITE IN ANY MANNER. THE HOMES CHASSIS AND FLOOR FRAMING SHALL NOT BE CUT OR OTHERWISE ALTERED.
 4. STAIR CONSTRUCTION AT BASEMENT ACCESS MUST BE INDEPENDENTLY SUPPORTED AND SHALL NOT RELY ON THE FLOOR FRAMING OF THE MANUFACTURED HOME FOR SUPPORT.
 5. BASEMENT CONSTRUCTION MUST BE DESIGNED BY OTHERS AND MUST BE INSPECTED/APPROVED BY LOCAL JURISDICTION.
 6. AN INTERIOR TYPE DOOR AND HARDWARE MUST BE INSTALLED PER INSTALLATION INSTRUCTIONS. WHICH WILL BE SHIPPED WITH HOME.
 7. ALL MARRIAGE WALL COLUMNS ON EITHER SIDE OF OPENINGS GREATER THAN 4 FEET MUST BE SUPPORTED. DESIGN BASEMENT COLUMNS TO WITHSTAND THE LOADS LISTED ON PAGE I-3.8 OF THIS MANUAL.



**NOTCHED FLOOR BASEMENT
OPENING DETAILS
Stairwell Splits Mating Line**

DRAWN BY: JBM
DATE: 11/30/98
REV: 4/16/03

I - 5.4

Chapter 6 - Mechanical

Clothes Dryer Vent

Your clothes dryer must exhaust to the exterior of the home (or to the outside of any perimeter skirting installed around it) through a moisture-lint exhaust system, as shown on page 6.6. Vent openings are located in either the wall or the floor. After the duct is installed, seal the openings, both inside and outside. Follow the dryer manufacturer's instructions for installing the exhaust system.

IMPORTANT

Do not let the exhaust system end under the home where excess moisture or flammable material can accumulate.

If your home did not come equipped with a gas dryer, remember that installing one requires substantial alteration to the home. You must provide gas supply piping and adequate venting as specified by the gas dryer manufacturer. Only a trained and experienced technician should install a gas dryer. Cutting major structural elements (such as rafters and joists) to allow for gas dryer installation is not permissible. The home manufacturer is not responsible for any weakening of the home's structural integrity resulting from dryer installation.

Comfort Cooling Systems

Only qualified personnel may install any comfort cooling system not provided with the home. Follow the manufacturer's installation instructions and conform to all local codes.

Air Conditioners

The air distribution system in this home has been designed for a central air conditioning system. Equipment installed on site must not exceed the rating shown on the home's compliance certificate.

The home's electrical distribution panel may contain optional factory installed circuits for air conditioning. The maximum full load ampere draw for the desired air conditioning unit must not exceed the circuit rating shown.

On the other hand, electrical circuits within the home may not have been sized for the additional load of non-factory installed air conditioning, and a separate outside electrical supply may have to be provided.

Any field-installed wiring beyond the junction box must include a fused disconnect located within sight of the condensing unit. The maximum fuse size is marked on the condenser data plate. Local codes will determine the acceptability of the air conditioning equipment, rating, location of disconnect means, fuse type branch circuit protection, and connections to the equipment. 'A' coil air conditioning units must be compatible and listed for use with the furnace in the home. Follow the air conditioner manufacturer's instructions.

If a remote (self-contained, package) air conditioner (cooling coil and blower located outside the home) is to be connected to the heating supply duct, install an automatic damper between the

furnace and the home's air duct system, and install another automatic damper between the remote unit and the home's air duct system. Secure the duct leading from the remote unit to the home and do not allow it to touch the ground. Insulate ducts with material having an 'R' value of no less than R-4, and a perm rating of no more than 1. Connect the duct carrying air to the home to the main duct at a point where there are approximately as many registers forward of the connection as there are to the rear. Locate the return air duct in the center of the home.

Do not cut or damage floor joists. Replace insulation removed during the installation, and seal the bottom board around the duct connections.

Do not allow the condensate drain line to terminate under the home. Direct all condensation runoff away from the home by connecting a hose to the equipment runoff outlet or by other means specified by the equipment manufacturer.

Window Air Conditioner Installation

Do not plug a window air conditioner unit into one of your homes lighting or appliance circuit receptacles. The majority of window air conditioners require that separate circuits be installed for the connection of the unit. See air conditioner manufacturer's installation instructions for electrical requirements for your specific model. The circuits installed in the home are for standard lighting and small appliance fixtures only.

CAUTION !

Use of these receptacles for other purposes may cause an overload and the possibility of a potential fire hazard arises.

The only exception to the above is if there is a separate circuit installed and labeled in the main panel box as being for the use of an air conditioner unit. All wiring, which is to be installed for an air conditioner unit, must be performed by an authorized electrician and in conformance with all applicable codes.

Heat Pumps

Install heat pumps according to the manufacturer's instructions.

Range, Cook Top and Oven Venting

If your home is equipped with a combination range (cook top)/grill or oven that requires its own exhaust so that it does not exit under the home. Connect flexible metallic duct between the elbow protruding from the floor and the termination fitting, and support it per the manufacturer's installation instructions.

Furnace Deration

If your home is located above 2,000 feet above sea level or as indicated in the manufacturer's instructions, your gas furnace must be derated 4% each 1,000 feet above sea level for the altitude. This must be done by a qualified service person. A licensed technician may be required. Check with your local authorities.

CAUTION!

Failure to derate the furnace can cause the furnace to overheat, operate poorly and cause excessive sooting. Dangerous levels of carbon monoxide could accumulate in the home.

Ceiling Fans

To reduce the risk of injury, install ceiling fans with the trailing edges of the blades at least 6'-4" above the finished floor. Follow manufacturer's installation instructions (See page I-6.7).

Hearth Extension for Fireplace at the Marriage Line

Follow the fireplace manufacturer's instructions for the site installed hearth extension when the fireplace is flush with the marriage line (Marco model # A36ST).

IMPORTANT

Fireplace manufacturer's instructions must be followed and will be shipped with the home.

1. After floor sections are properly attached at the marriage line, install the metal safety strips provided by the fireplace manufacturer (shipped loose with home).
2. Hearth shall extend no less than 16" from face of fireplace and shall be at least 46" in width and extend at least 8" beyond each side of the fireplace opening.
3. Use Marco hearth extension HE-36 or an equivalent layer of non-combustible inorganic material with a thermal conductivity (K) of .84 or less per inch of material thickness. Refer to page 12 of attached fireplace manufacturer's installation instructions.
4. Fasten hearth extension securely to floor decking to prevent shifting and seal the gap between the fireplace frame and the hearth extension with a non-combustible material.

Fireplace and Wood Stove Chimneys and Air Inlets

Fireplace and wood stoves require on site installation of additional sections of approved listed chimney pipe, a spark arrestor and a rain cap assembly.

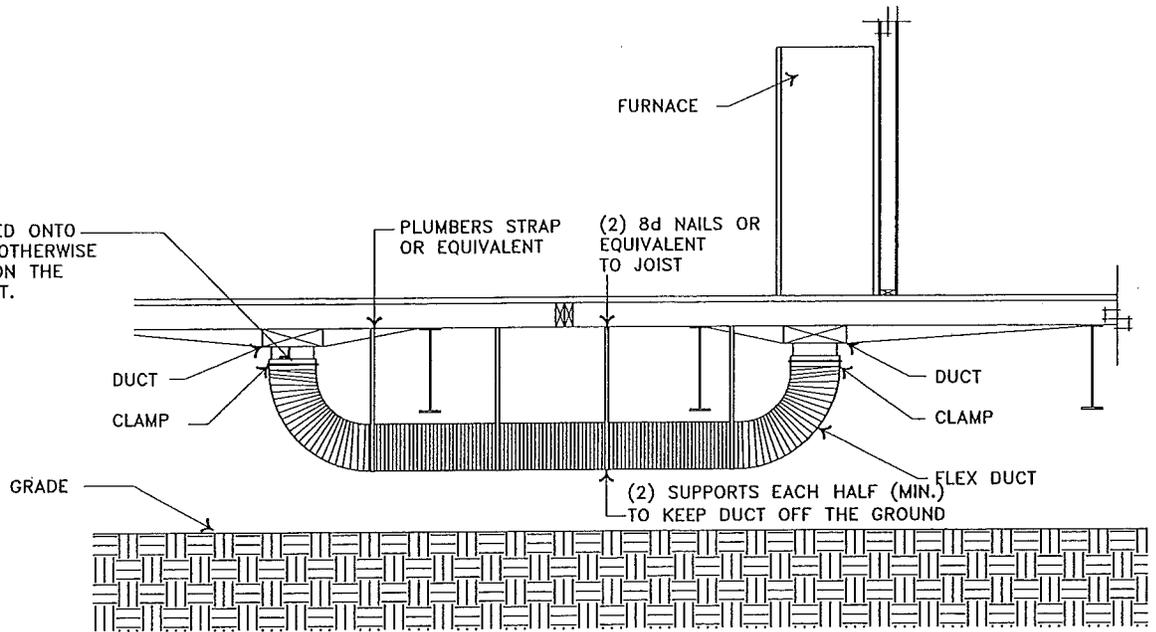
Minimum extension - To assure sufficient draft for proper operation, extend the finished chimney at least 3 ft above the highest point where it penetrates the roof and at least 2 ft higher than any surface within 10 ft of the chimney. The installer may have to provide an additional section of chimney pipe if required by local codes.

Required components - The required components of a correctly installed chimney are as shown on manufacturer's installation instructions.

Assembly and sealing sequence - Assemble and seal your fireplace or wood stove chimney per fireplace manufacturer's installation instructions.

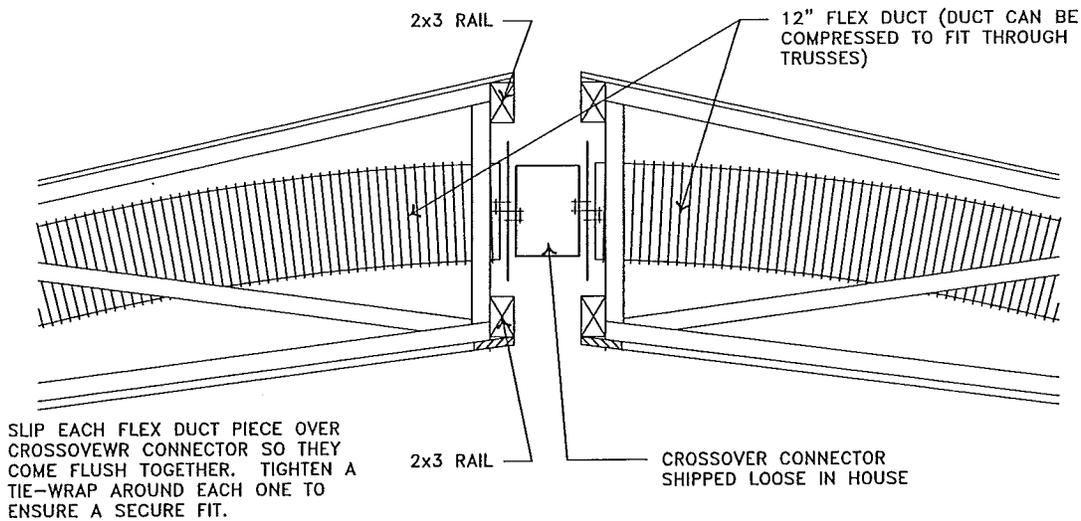
Combustion air duct inlets - Combustion air intake ducts end just below the bottom covering of the floor. You must extend them to the outside when your home has a basement. These added ducts are supplied or may be purchased at your local hardware store or home center. The fireplace manufacturer's instructions for installing combustion air ducts are in the fireplace/stove or with the chimney parts. Do not allow the combustion air inlet to drop material from the hearth beneath the home. Locate its inlet damper above expected snow level (See page I-6.6).

IMPORTANT:
THE FLEX DUCT MUST BE CLAMPED ONTO THE TOP OF THE DUCT COLLAR. OTHERWISE CONDENSATION COULD DEVELOP ON THE COLLAR AND SEEP INTO THE DUCT.



CROSSOVER DUCT INSTALLATION - BELOW FLOOR

A



SLIP EACH FLEX DUCT PIECE OVER CROSSOVER CONNECTOR SO THEY COME FLUSH TOGETHER. TIGHTEN A TIE-WRAP AROUND EACH ONE TO ENSURE A SECURE FIT.

CROSSOVER DUCT DETAIL - UPFLOW FURNACE

B

NOTES:

1. IF A REMOTE AIR CONDITIONER IS INSTALLED, DAMPERS MUST BE PROVIDED PER SECTION 3280.708(e) (7) OF THE FEDERAL STANDARDS FOR MANUFACTURED HOUSING.
2. DUCT MUST BE DIRECTLY UNDER/OVER FURNACE.
3. DUCT MUST BE SUPPORTED SO IT DOES NOT TOUCH THE GROUND.

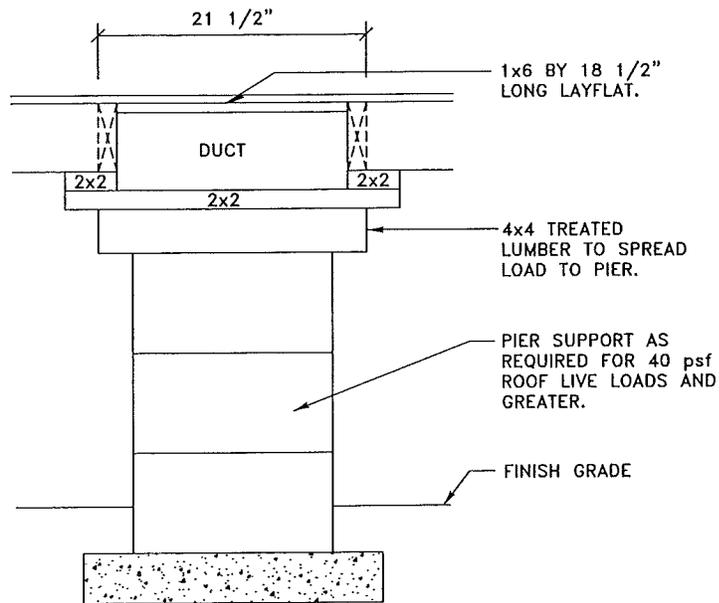
**CROSSOVER DUCT
INSTALLATION**

DRAWN BY: JBM

DATE: 11/30/98

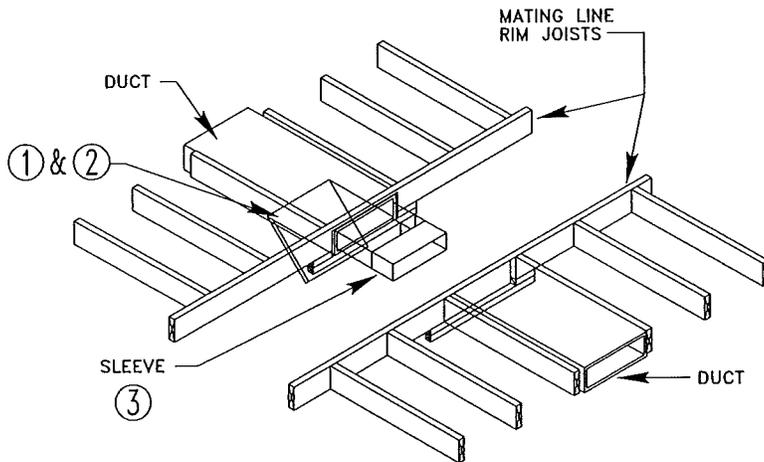
REV: 8/21/01

1 - 6.3

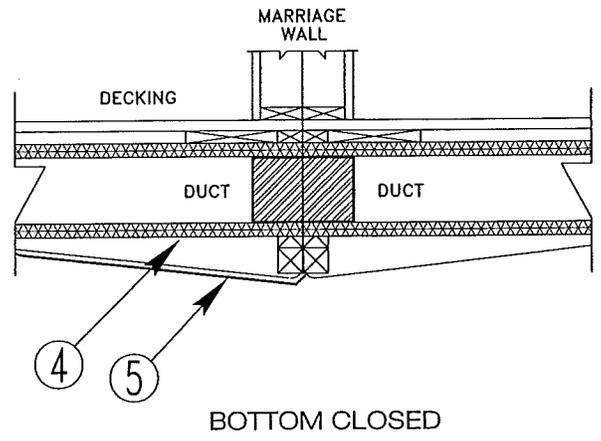
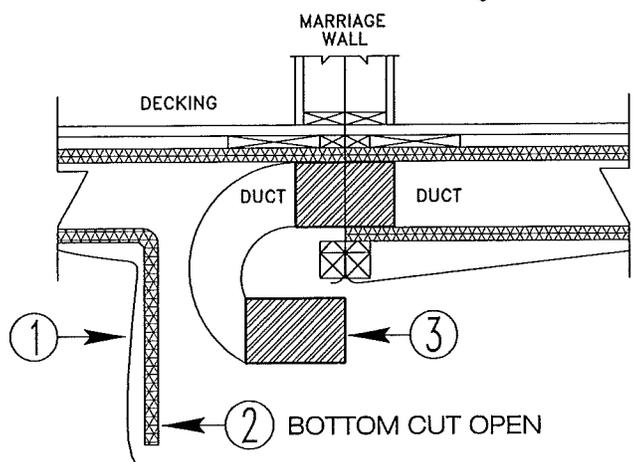


TYPICAL IN-FLOOR DUCT CROSS OVER (PIER DETAIL)

A



- NOTES:
1. CUT BOTTOM PAPER ALONG CENTER OF JOISTS ON BOTH SIDES OF HEAT DUCT AND RIM JOIST ALLOWING ACCESS TO HEAT DUCT.
 2. CUT ALONG (2) TWO BOTTOM EDGES OF HEAT DUCT AND PULL DOWN AS SHOWN.
 3. INSERT 6" WIDE SLEEVE TO JOIN BOTH SIDES OF HEAT DUCT. CENTER SLEEVE ON MATING JOINT.
 4. PUT BOTTOM OF HEAT DUCT BACK INTO PLACE AND SEAL BOTTOM AND SIDE EDGES TOGETHER WITH HEAT DUCT TAPE.
 5. PUT BOTTOM PAPER BACK IN PLACE TO COVER HEAT DUCT AND SEAL TIGHTLY WITH TAPE.

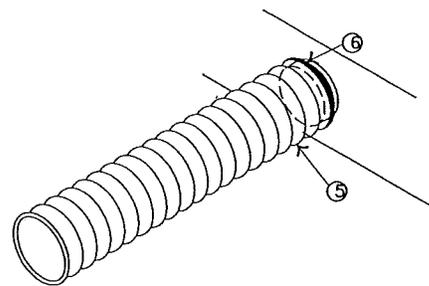
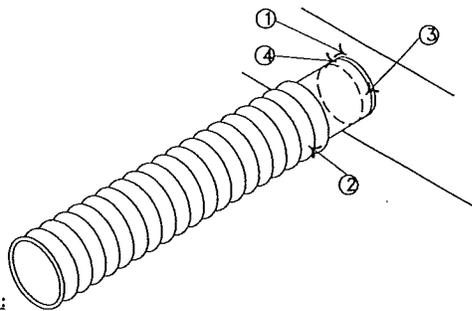


TYPICAL IN-FLOOR DUCT CROSS OVER (METAL SLEEVE INSTALLATION)

B

- NOTES:
1. IF A REMOTE AIR CONDITIONER IS INSTALLED, DAMPERS MUST BE PROVIDED PER SECTION 3280.708(e) (7) OF THE FEDERAL STANDARDS FOR MANUFACTURED HOUSING.
 2. DUCT MUST BE DIRECTLY UNDER FURNACE.
 3. THIS FIELD INSTALLED SLEEVE IS REQUIRED FOR ESB FRAMES. THE SLEEVE IS NOT REQUIRED WHEN THE NOMACO 1.4 SOFTSEAL FOAM GASKET IS APPLIED TO ALL (4) SIDES OF DUCT OPENING ON THE RIM JOIST.

IN-FLOOR CROSS-OVER LOOP DUCT SYSTEM	
DRAWN BY: RAJ	
DATE: 9/17/99	
REV: 2/3/03	1 - 6.3.1

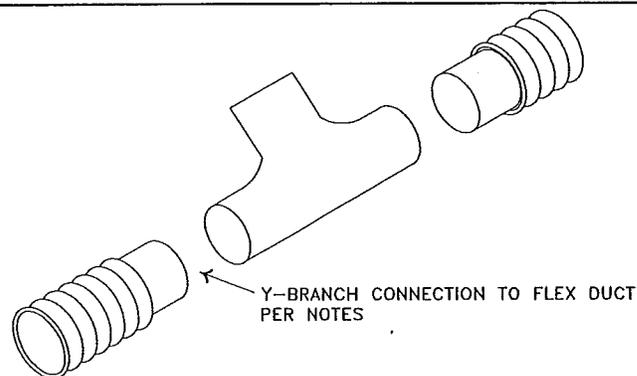
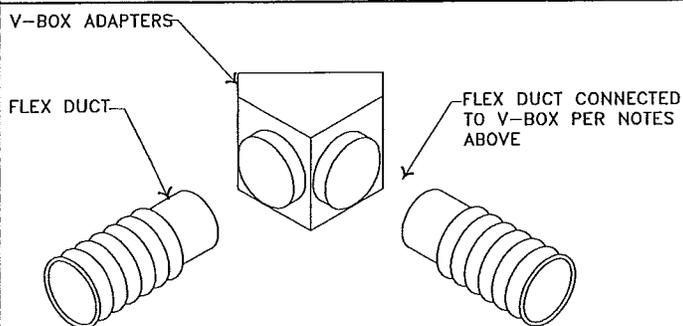


PROCEDURE:

- 1) LOCATE DUCT COLLARS THAT EXTEND BELOW THE BOTTOM BOARD MATERIAL ON EACH SECTION. REMOVE SHIPPING CLOSE-UP MATERIAL FROM COLLARS.
- 2) PULL VINYL COVERING BACK FROM DUCT AND SLIDE EXPOSED END OVER DUCT COLLAR AND UP AGAINST BOTTOM BOARD MATERIAL.
- 3) FASTEN DUCT TO COLLAR WITH 3 SHEET METAL SCREWS APPROXIMATELY EQUALLY SPACED AROUND THE COLLAR.
- 4) ADD METAL OR PLASTIC TIE STRAP AROUND DUCT AND SECURE TIGHTLY. IF METAL STRAP IS USED SECURE WITH SHEET METAL SCREW.
- 5) AFTER DUCT IS FASTENED TO COLLAR PULL VINYL COVERING UP OVER CONNECTIONS AND FLUSH UP TO THE BOTTOM BOARD MATERIAL.
- 6) WRAP THE TOP OF THE VINYL COVER AROUND THE COLLAR AT LEAST TWO TIMES WITH DUCT TAPE.
- 7) REPEAT STEPS 1 THRU 6 AT COLLAR ON OTHER SECTION OR SECTIONS OF THE HOME. SOME HOMES MAY REQUIRE THE CONNECTION OF A METAL V-BOX ADAPTER OR VINYL FLEX Y-BRANCH AT THE COLLAR UNDER THE FURNACE.

HEAT DUCT CROSSOVER CONNECTION

A



V-BOX ADAPTER

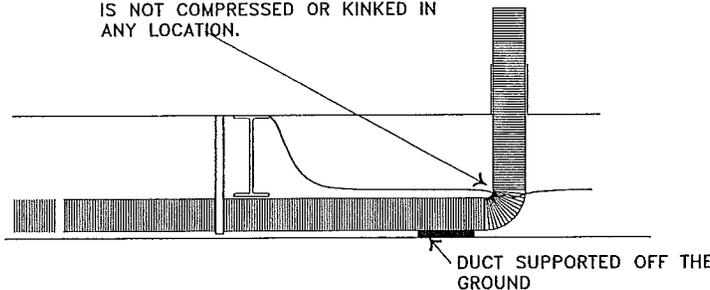
B VINYL FLEX Y-BRANCH

C

CAUTION

DO NOT PERMIT DUCT TO REST ON THE GROUND. SUPPORT OFF THE GROUND WITH STRAP OR WITH TREATED WOOD, CONCRETE BLOCK MATERIAL OR OTHER ALTERNATE MATERIALS.

ARRANGE DUCT UNDER FLOOR SO IT IS NOT COMPRESSED OR KINKED IN ANY LOCATION.



V-BOX ADAPTER

D

NOTE:

1. CROSSOVER DUCTS TO BE INSULATED WITH A MATERIAL HAVING A MINIMUM R-4 VALUE.
2. ALL METAL COLLARS MUST BE COMPLETELY WRAPPED WITH INSULATION TO PREVENT CONDENSATION.

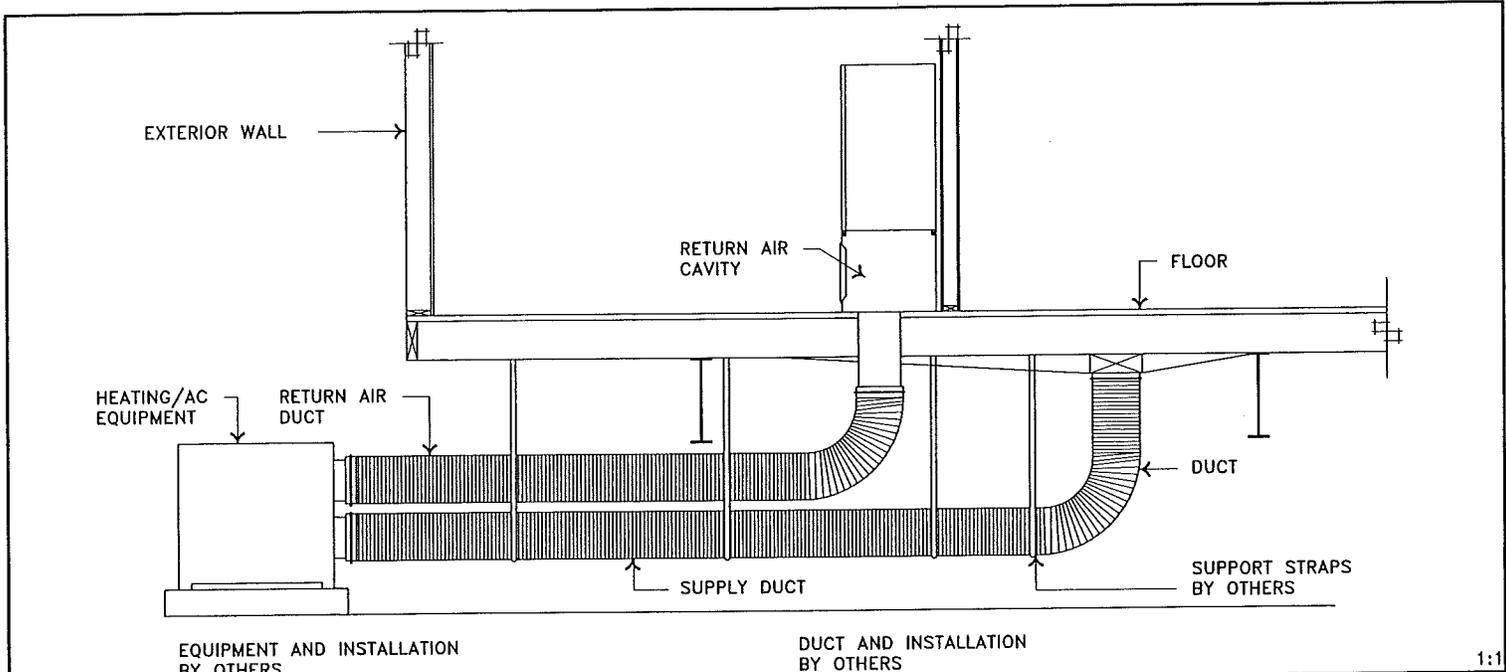
V-BOX and DUCT INSTALLATION

DRAWN BY: JBM

DATE: 12/2/98

REV: 10/26/01

I - 6.4



EQUIPMENT AND INSTALLATION
BY OTHERS

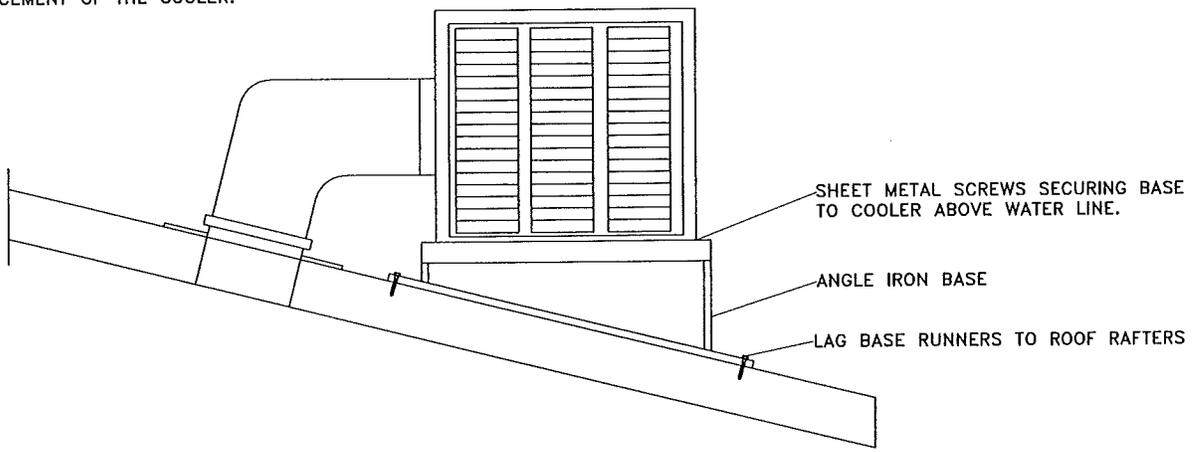
DUCT AND INSTALLATION
BY OTHERS

1:1

INSTALLATION OF HEATING/ AIR CONDITIONING (BY OTHERS)

A

EVERY EVAPORATIVE COOLER SUPPORTED BY THE BUILDING STRUCTURE SHALL BE INSTALLED ON A SUBSTANTIAL LEVEL BASE AND SHALL BE SECURED DIRECTLY OR INDIRECTLY TO THE BUILDING STRUCTURE BY SUITABLE MEANS TO PREVENT DISPLACEMENT OF THE COOLER.



SHEET METAL SCREWS SECURING BASE TO COOLER ABOVE WATER LINE.

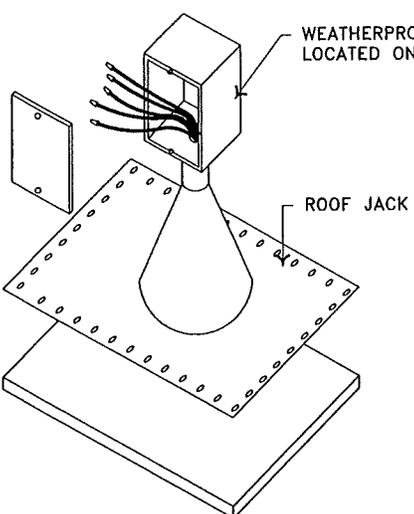
ANGLE IRON BASE

LAG BASE RUNNERS TO ROOF RAFTERS

1:1

TYPICAL ROOF MOUNTED EVAPORATIVE COOLER

B



WEATHERPROOF JUNCTION BOX LOCATED ON ROOF OF HOME

ROOF JACK

NOTES:

CAUTION:

- 1.) COOLERS RATED AT 16 AMPS TO BE INSTALLED ON A 20 AMP CIRCUIT.
- 2.) COOLERS RATED AT 12 AMPS TO BE INSTALLED ON A 15 AMP CIRCUIT.
- 3.) ONE JUNCTION BOX REQUIRED FOR EACH COOLER.

COLOR CODE:

WHITE.....	NEUTRAL
YELLOW.....	PUMP
BLACK.....	LOW FAN
RED.....	HIGH FAN
GREEN.....	GROUND

SITE INSTALLED GROUND MOUNTED EVAPORATIVE (SWAMP COOLERS)

GROUND MOUNTED SWAMP COOLERS MAY BE INSTALLED ON SITE PROVIDED THAT THE FOLLOWING CRITERIA IS ADHERED TO:

- THE FLOOR FRAMING AND CHASSIS MUST NOT BE CUT, DAMAGED OR ALTERED.
- THE MAIN DUCT SYSTEM SUPPLIED WITH THE HOME MUST NOT BE ALTERED OR TIED INTO WITH THE SWAMP COOLER DUCTS.
- THE SWAMP COOLER DUCTS MUST BE AIRTIGHT AS WELL AS BELOW THE BOTTOM BOARD WITH THE EXCEPTION OF VERTICAL RISERS INTO REGISTERS. THE BOTTOM BOARD MUST BE REPAIRED PER PAGE 4.10 OF THIS INSTALLATION MANUAL WHERE VERTICAL RISERS PENETRATE THE BOTTOM BOARD.
- THE SWAMP COOLER MUST BE INSTALLED PER MANUFACTURERS INSTRUCTIONS AND IS SUBJECT TO LOCAL JURISDICTION REGULATIONS.

HEATING/AIR CONDITION. EVAPORATIVE COOLER INSTALLATION

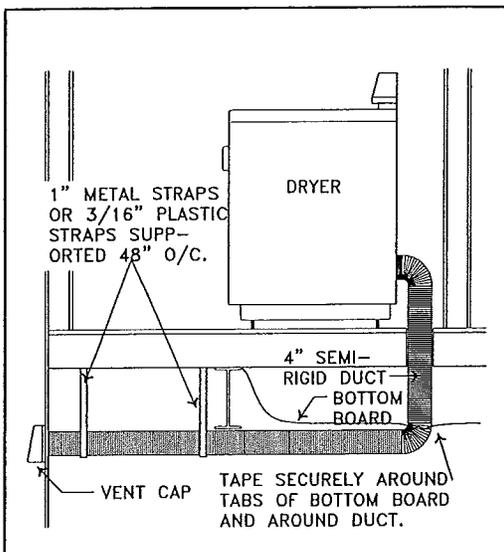
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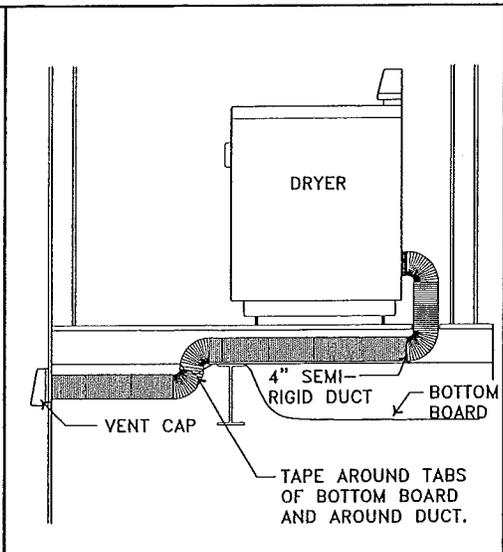
REV: 7/21/99

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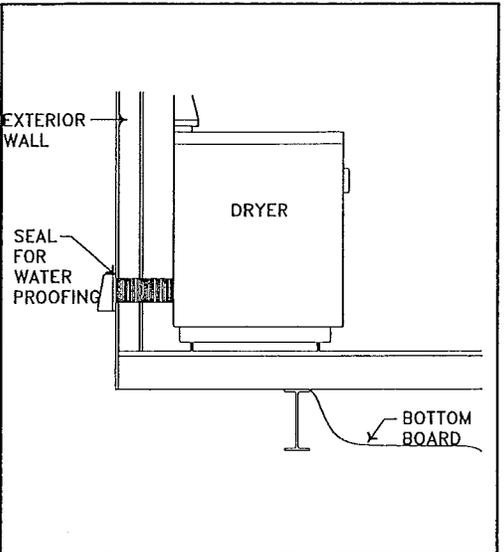
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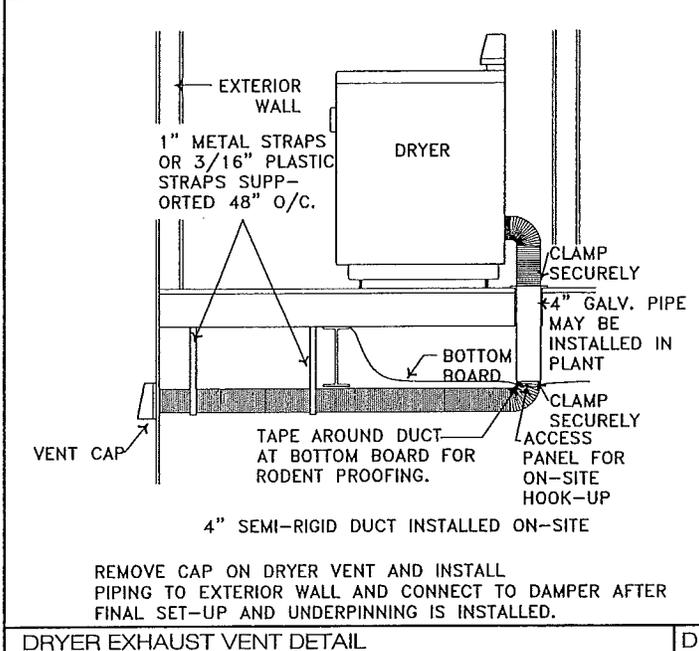
DRYER EXHAUST VENT DETAIL



DRYER EXHAUST VENT DETAIL

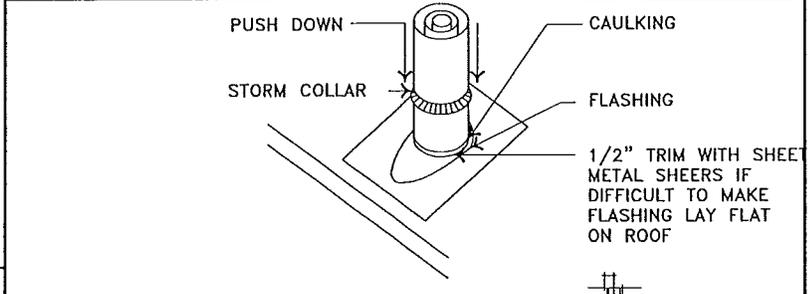


DRYER EXHAUST VENT DETAIL

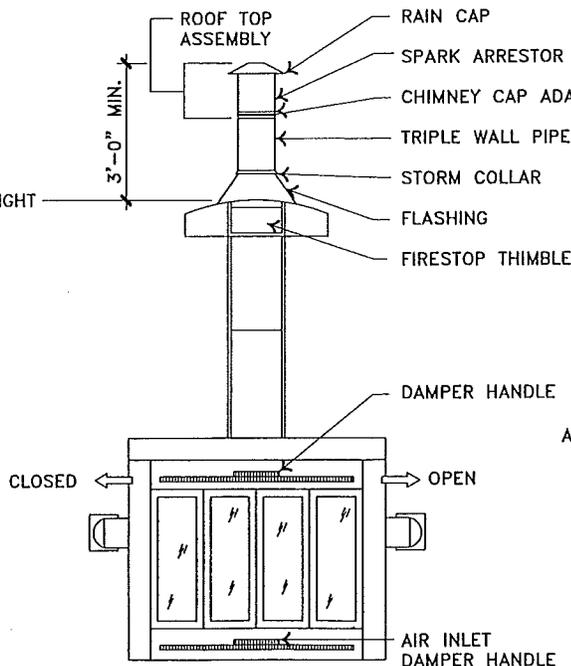


DRYER EXHAUST VENT DETAIL

- NOTES FOR DRYER DUCT INSTALLATION:**
1. WHEN VENT IS INSTALLED THROUGH THE FLOOR, AN APPROX. 3 1/2" 'X' CUT IS MADE IN BOTTOM BOARD TO ALLOW PASSAGE OF THE DUCT. TABS OF THE 'X' CUT ARE TAPED SECURELY ABOVE TO ASSURE A VERMIN-PROOF SEAL.
 2. IF DUCT EXITS BOTTOM BOARD IN OUTRIGGER AREA, A PAINTED PLYWOOD COLLAR MAY BE STAPLED TO FLOOR JOISTS AND FITTED TIGHTLY AROUND DUCT IN LIEU OF TAPING PROCEDURE DETAILED IN NOTE 1.
 3. WHEN DRYER IS INSTALLED BE SURE TO REMOVE ANY CAPS ON THE DUCT FOR OPERATION. IF DRYER IS NOT INSTALLED, BE SURE ALL DUCT OPENINGS ARE CAPPED WITH BOTTOM BOARD TAPE TO PROTECT AGAINST RODENTS.
 4. DRYER DUCT MATERIAL PER DRYER MANUFACTURERS RECOMMENDATIONS.
 5. HOMEOWNER MUST REMOVE CAPS AND CONNECT THE DUCT TO THE DRYER WITH TIE WRAPS OR SCREW TIGHTENED CONNECTOR.



INSTALL FIREPLACE FLUE PER MANUFACTURERS INSTRUCTIONS

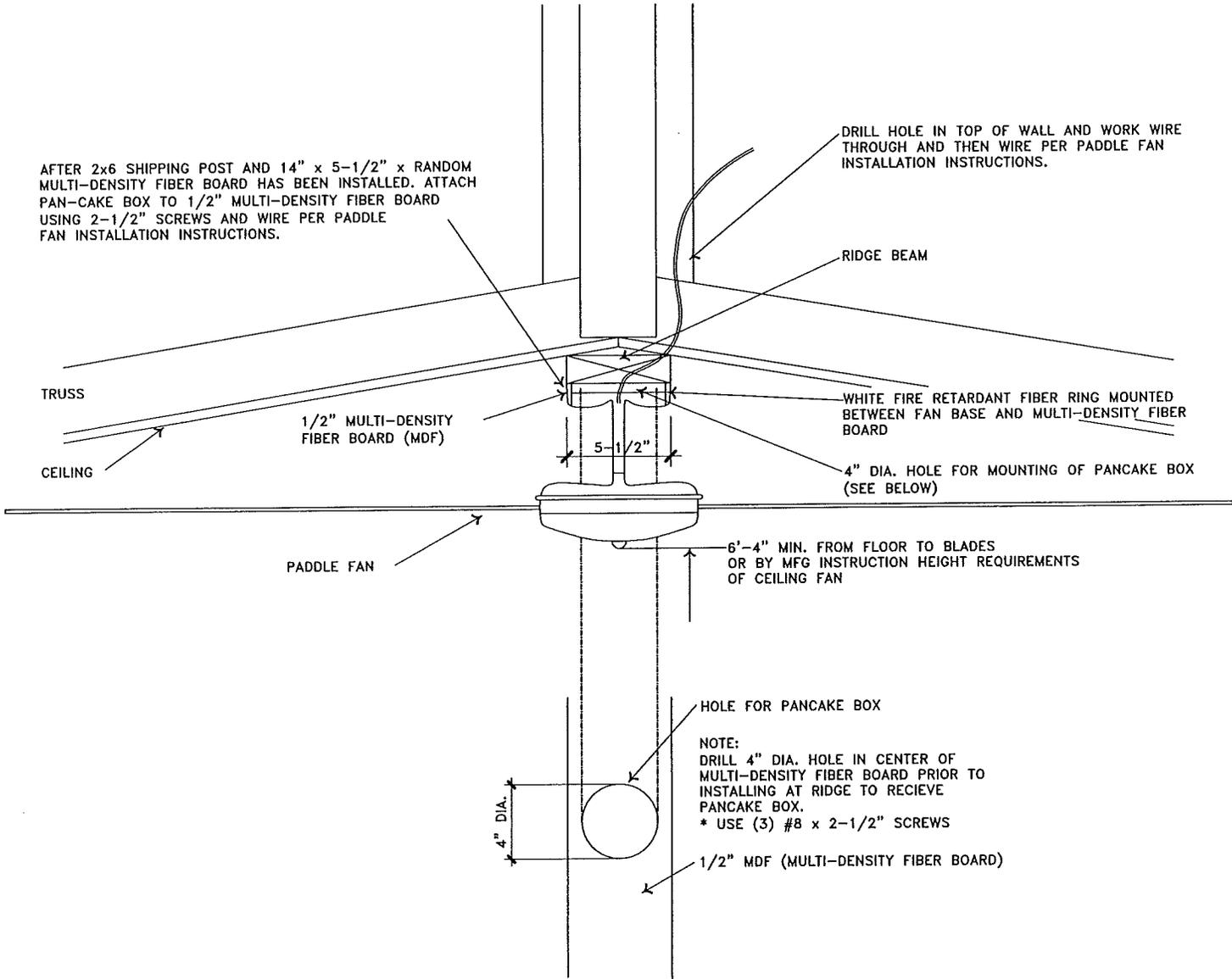


FIREPLACE FLUE INSTALLATION

DRYER VENT DETAILS & FIREPLACE FLUE INSTALLATION

DRAWN BY: JBM
 DATE: 11/30/98
 REV: 8/21/01

1-6.6



AFTER 2x6 SHIPPING POST AND 14" x 5-1/2" x RANDOM MULTI-DENSITY FIBER BOARD HAS BEEN INSTALLED. ATTACH PAN-CAKE BOX TO 1/2" MULTI-DENSITY FIBER BOARD USING 2-1/2" SCREWS AND WIRE PER PADDLE FAN INSTALLATION INSTRUCTIONS.

DRILL HOLE IN TOP OF WALL AND WORK WIRE THROUGH AND THEN WIRE PER PADDLE FAN INSTALLATION INSTRUCTIONS.

TRUSS
CEILING

1/2" MULTI-DENSITY FIBER BOARD (MDF)

RIDGE BEAM

WHITE FIRE RETARDANT FIBER RING MOUNTED BETWEEN FAN BASE AND MULTI-DENSITY FIBER BOARD

4" DIA. HOLE FOR MOUNTING OF PANCAKE BOX (SEE BELOW)

PADDLE FAN

6'-4" MIN. FROM FLOOR TO BLADES OR BY MFG INSTRUCTION HEIGHT REQUIREMENTS OF CEILING FAN

HOLE FOR PANCAKE BOX

NOTE:
DRILL 4" DIA. HOLE IN CENTER OF MULTI-DENSITY FIBER BOARD PRIOR TO INSTALLING AT RIDGE TO RECIEVE PANCAKE BOX.
* USE (3) #8 x 2-1/2" SCREWS

4" DIA.

1/2" MDF (MULTI-DENSITY FIBER BOARD)

NOTE:

1. BOX MUST BE LISTED FOR PADDLE FANS

CEILING FAN
INSTALLATION
DETAILS

DRAWN BY: RAJ

DATE: 9/20/99

REV: 9/24/99

1 - 6.7

Chapter 7 - Utility Connections

General

Before connecting any utility systems, local, county, and state authorities must be consulted. Many localities have special requirements pertaining to the installation and special testing of utility systems. Drawings illustrating utility connections are examples only. Local officials must be contacted to determine specific requirements.

Qualified personnel at the manufacturing facility tested all utility systems in your home. However, it is possible that during transit damage may have occurred which would dictate, after service connections are made, that field tests be conducted. Emphasis should be placed on ensuring that only qualified personnel familiar with local code requirements make all utility connections and conduct all required tests.

Electrical System

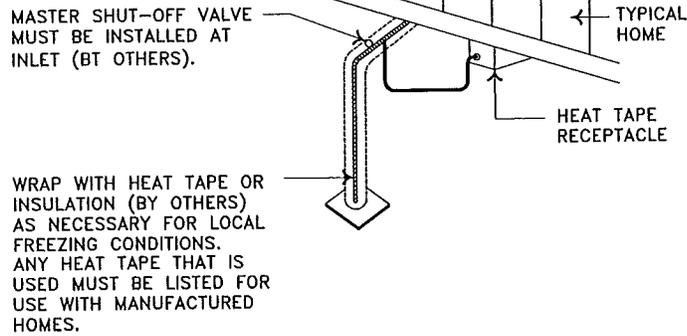
Your home is designed to be connected to an electrical supply source rated at 120/240 volt, 3 pole, 4 wire with a ground system. In making the feeder connections to this power source it is extremely important that the wire of the correct size be used. If the wire is incorrectly sized, the ampacity of the wire may be exceeded and you may experience a voltage drop at your home. Ampacity is the safe carrying capacity of the wire expressed in amperes. The greater the amperes flowing in a wire, the greater the heat. (Doubling the amperes without changing the wire size increases the amount of heat four times).

Additionally, if the amperage is allowed to become too great, the wire can become so hot that it will damage the insulation of your home or even cause a fire. A voltage drop in your home can cause a drop in efficiency of all lights and appliances. Motors may burn out and you may pay for electricity that you do not use. To avoid these possibilities refer to table below.

Feeder Connections and Grounding Conductor Sizes

Feeder Size (Amps)	Maximum Neutral Feeder Load (Amps)	Minimum Required Junction Box Size (Inches)	Feeder Sizes Based On Use of 75 Degree "C" Insulated Copper Conductors		
			Black – "Power" Red – "Power" White – "Neutral"	Green or Bare Ground	Conduit Size (Inside Dia.)
50	50	NA	#8 THW (Cu)	#8 (Cu)	1"
100	100	10 x 10 x 4	#4 THW (Cu)	#8 (Cu)	1-1/4"
150	115	10 x 12 x 4	#1 THW (Cu)	#6 (Cu)	1-1/2"
200	130	10 x 16 x 4	#2/0 THW (Cu)	#4 (Cu)	2"

Conductor sizes are in accordance with the National Electric Code, Table 310-16, and do not take voltage drop into account. Allowable amp capacities are base on ambient temperature of 30 degrees C or 86 degrees F.

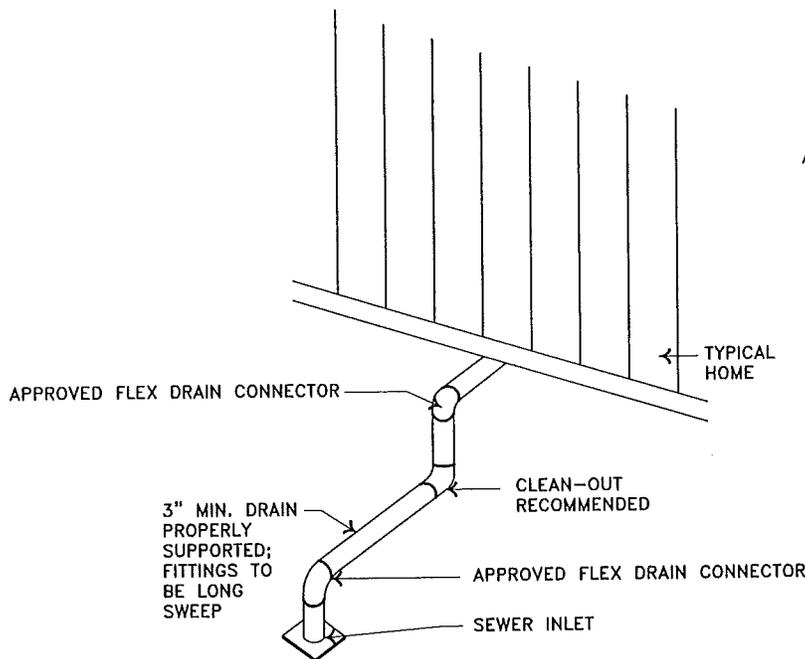


NOTE

THE MAXIMUM ALLOWABLE WATER INLET PRESSURE IS 80 PSI. IF THE WATER SUPPLY IN THE HOME'S LOCATION EXCEEDS 80 PSI, A PRESSURE REDUCING VALVE MUST BE INSTALLED.

TYPICAL WATER SUPPLY CONNECTION

A



TYPICAL CONNECTION OF MAIN DRAIN TO SEWER

B

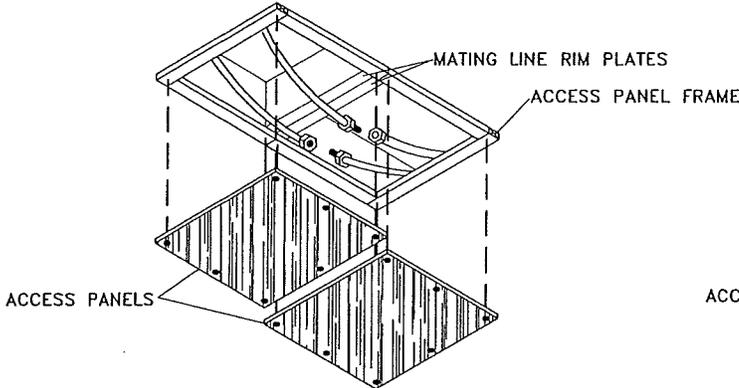
NOTES:

1. HORIZONTAL SECTIONS OF DRAIN LINES TO BE SLOPED AT A MINIMUM OF 1/4" PER FOOT AND/OR TO COMPLY WITH LOCAL ENFORCING AGENCY/CODES ETC.

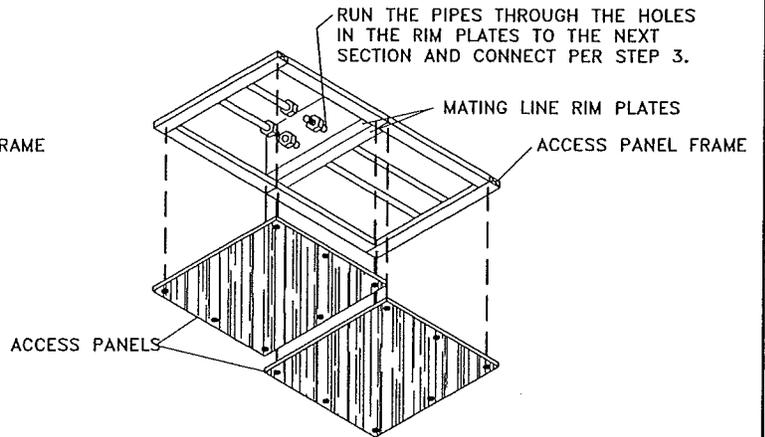
WATER and DRAIN LINE CONNECTIONS	
DRAWN BY: JBM	
DATE: 12/2/98	
REV: 7/31/00	1 - 7.1

PROCEDURE:

- 1) REMOVE ACCESS PANEL FROM EACH SECTION
- 2) CONNECT THE HOT AND COLD WATER PIPES USING THE CONNECTORS INSTALLED ON THE ENDS OF THE PIPE. THE CONNECTOR FITTINGS ARE DESIGNED TO BE USED WITHOUT ANY LUBRICANTS OR SEALANTS.
- 3) REPOSITION THE INSULATION AROUND THE PIPES AND REPLACE THE ACCESS PANELS.



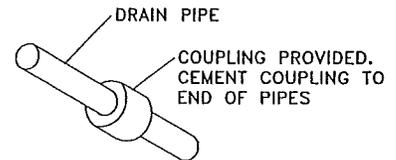
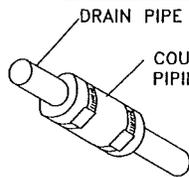
CONNECTION UNDER MATING LINE RIM PLATES (NOT ALLOWED IN FREEZING CLIMATES)



CONNECTION THROUGH MATING LINE RIM PLATES

HOT AND COLD PLUMBING CROSSOVER CONNECTIONS

A



DRAINPIPE CROSSOVER CONNECTION OPTIONS

B

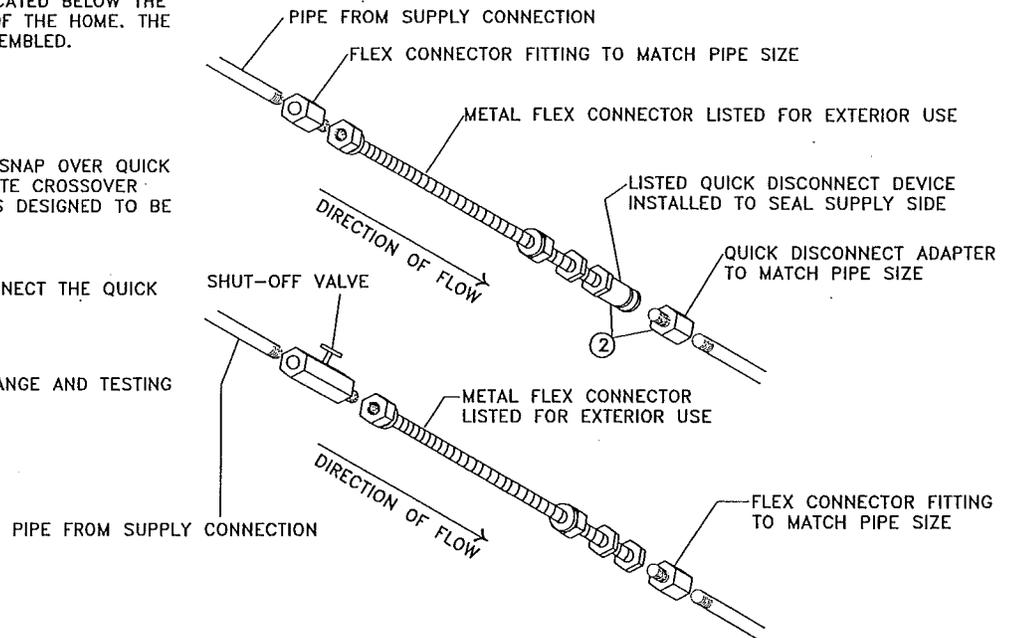
IF THE HOME HAS A GAS CROSSOVER IT IS LOCATED BELOW THE FLOOR STRUCTURE ON THE MATING LINE SIDE OF THE HOME. THE QUICK DISCONNECT DEVICE HAS BEEN PRE-ASSEMBLED.

PROCEDURE:

- 1) REMOVE ANY DUST CAPS IN PLACE.
- 2) PULL BACK ON QUICK DISCONNECT DEVICE, SNAP OVER QUICK DISCONNECT ADAPTER AND RELEASE TO COMPLETE CROSSOVER CONNECTION. THE QUICK DISCONNECT FITTING IS DESIGNED TO BE USED WITHOUT ANY LUBRICANTS OR SEALANTS.

NOTE
DO NOT USE TOOLS TO CONNECT OR DISCONNECT THE QUICK DISCONNECT DEVICE

REFER TO CHAPTER 8 FOR GAS PRESSURE RANGE AND TESTING PROCEDURES



GAS CROSSOVER CONNECTION

C

CROSSOVER PLUMBING CONNECTIONS

DRAWN BY: JBM

DATE: 12/2/98

REV: 7/31/00

1 - 7.2

PORTIONS OF THE DRAIN WASTE SYSTEM WHICH ARE BELOW THE FLOOR MAY NOT HAVE BEEN INSTALLED AT THE MANUFACTURING FACILITY, ALL MATERIALS REQUIRED TO COMPLETE THE SYSTEM HAVE BEEN FURNISHED BY THE MANUFACTURING FACILITY AND ARE SHIPPED AS LOOSE ITEMS IN THE HOME.

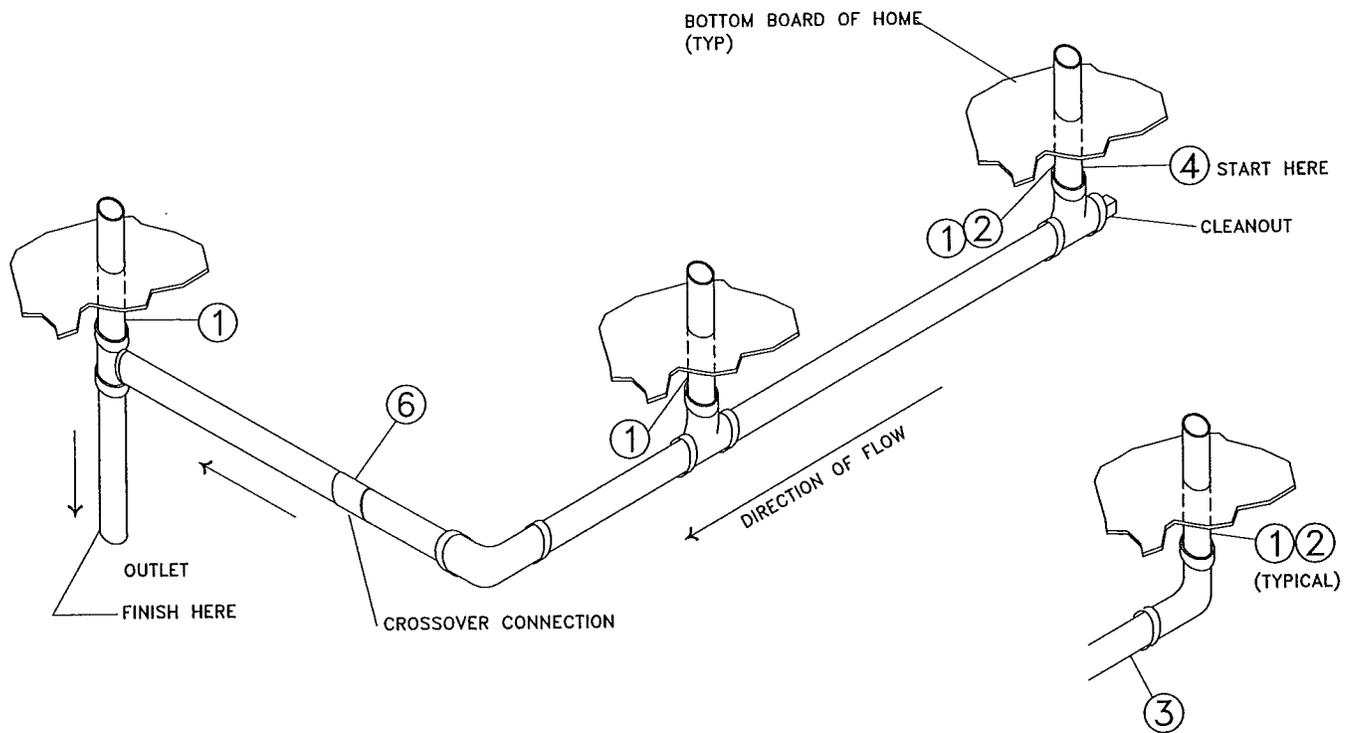
THE FOLLOWING INSTRUCTIONS ARE PROVIDED FOR USE IN COMPLETING THE INSTALLATION OF THE DRAIN WASTE SYSTEM IN THE CORRECT MANNER. PLEASE REVIEW THE INFORMATION BELOW BEFORE STARTING WORK TO FAMILIARIZE YOURSELF WITH PROPER SEQUENCE OF INSTALLATION.

BEFORE YOU BEGIN:

- 1) LOCATE THE DRAIN WASTE PLUMBING SCHEMATIC THAT IS SHIPPED WITH THE HOME. REVIEW THE LAYOUT.
- 2) CHECK ALL LOOSE PLUMBING PARTS SUPPLIED BY LAYING THEM OUT ON THE GROUND UNDER THE HOME IN THEIR CORRECT RELATIONSHIP ACCORDING TO THE DRAIN WASTE SCHEMATIC. ALL PIPING AND FITTINGS SHOULD BE USED WHERE INDICATED TO ENSURE THE CORRECT FLOW OF WASTE IN THE ASSEMBLED DRAIN SYSTEM.

PROCEDURE:

- 1) REMOVE SHIPPING COVERS FROM ALL EXPOSED PIPING OR FITTINGS THAT EXTEND BELOW THE BOTTOM BOARD.
- 2) INSPECT PIPING AND FITTINGS MAKING SURE THEY ARE CLEAN AND FREE OF BURRS.
- 3) ALL PIPE AND FITTING CONNECTIONS SHALL BE PER THE CEMENT MANUFACTURERS INSTRUCTIONS WHICH IS PROVIDED.
- 4) START THE DRAIN ASSEMBLY AT THE MOST REMOTE EXPOSED PIPING DROP-OUT FROM THE OUTLET AND WORK TOWARDS THE OUTLET LOCATION.
- 5) IT IS RECOMMENDED THAT TEMPORARY BLOCKING OR SUPPORT BE USED FOR THE ASSEMBLED DRAIN PIPING AS YOU PROCEED TO ACHIEVE A SLOPE TOWARDS THE OUTLET OF AT LEAST 1/4" PER FOOT.
- 6) IF A CROSSOVER CONNECTION IS REQUIRED USE ONE OF THE METHODS EXPLAINED PREVIOUSLY IN THIS CHAPTER.
- 7) WHEN ALL CONNECTIONS HAVE BEEN COMPLETED RELOCATE THE TEMPORARY SLOPE BLOCKING TO NO MORE THAN 4 FEET APART FOR PERMANENT DRAIN PIPING SUPPORT.

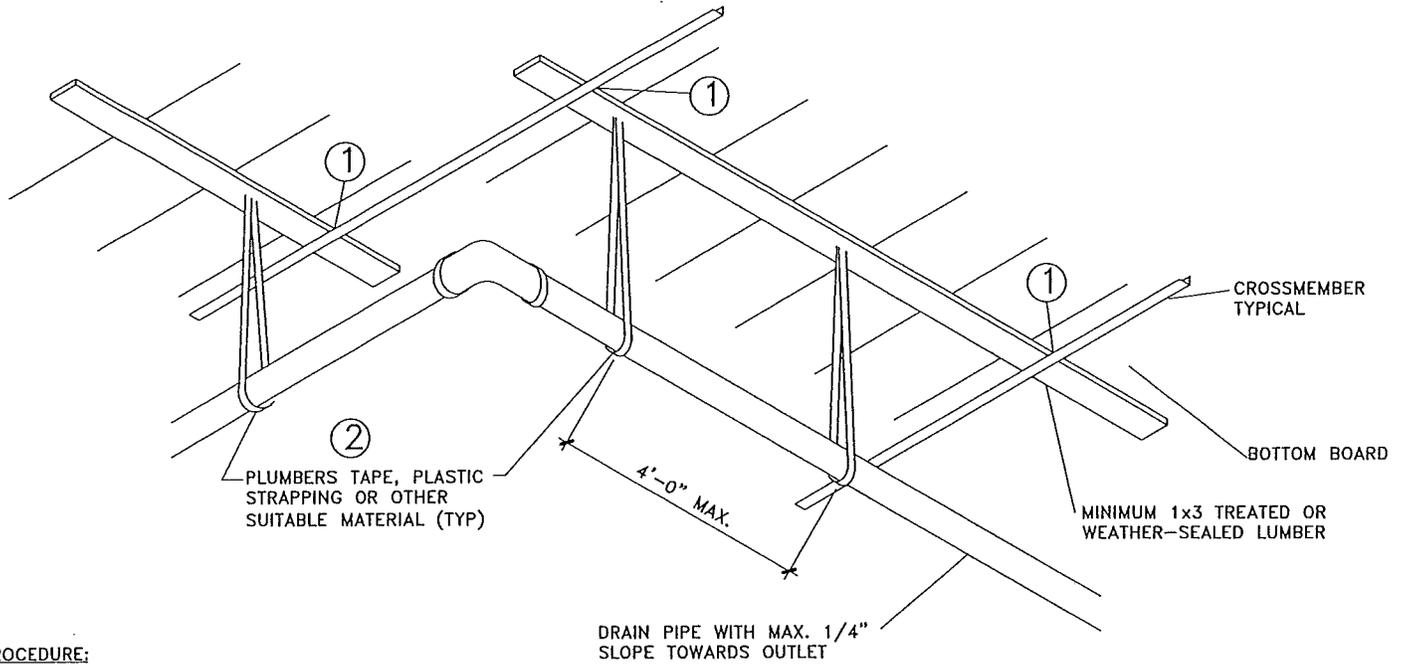


INSTALLATION INSTRUCTIONS FOR SITE INSTALLED DRAIN WASTE SYSTEMS

1. ALL LUAN PANELS OR ZIPPER PATCHES UNDER THE HOME ARE IDENTIFYING PLUMBING ACCESS TO CLEANOUTS, P-TRAPS ETC.
2. THE LUAN PANELS HAVE BEEN PAINTED OR SEALED TO RESIST MOISTURE AND FASTENED TO FRAMING WITH 4 SCREWS.

DRAIN WASTE (DWV) PIPE INSTALLATION	
DRAWN BY: JBM	
DATE: 12/2/98	
REV: 10/31/01	1 - 7.3

DRAIN PIPING SUPPORTS INSIDE OF MAIN BEAM



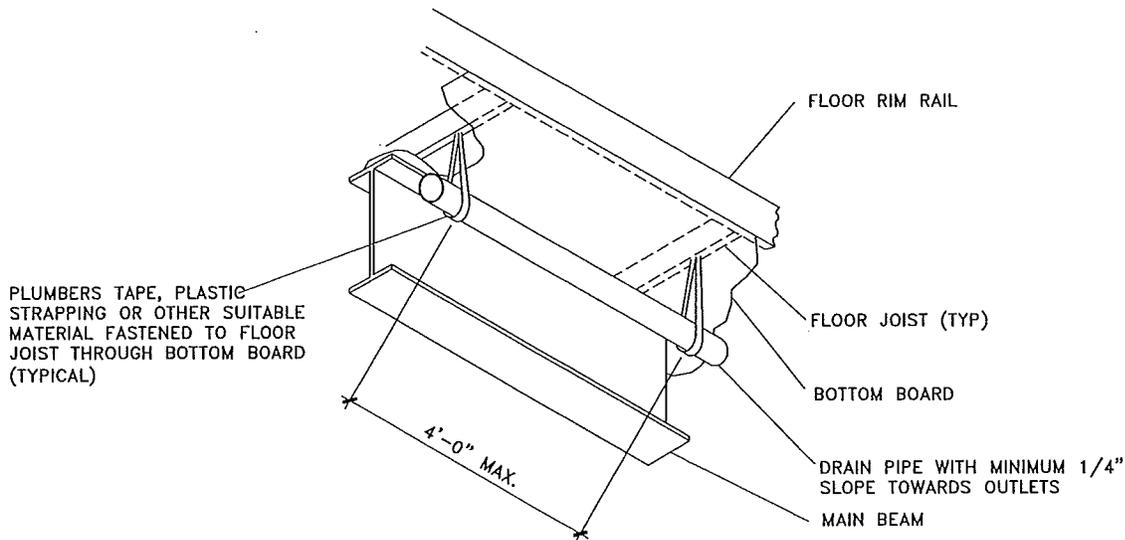
PROCEDURE:

- 1) ADD MINIMUM 1x3 LUMBER BETWEEN FRAME CROSSMEMBERS DIRECTLY ABOVE DRAIN PIPING BY PUSHING UP ON THE BOTTOM BOARD AND RESTING THE LUMBER ON TOP OR INSIDE OF THE CROSSMEMBER LEG AS SHOWN.
- 2) WRAP SUPPORT STRAPPING AROUND PIPING AND 1x FRAMING MATERIAL. FASTEN STRAPPING TO WIDE FACE OF 1x MATERIAL WITH SCREWS.
- 3) OTHER METHODS TO PROVIDE SUPPORT MAY BE USED TO MAINTAIN MIN. PIPE SLOPE REQUIREMENTS.
- 4) LUMBER MATERIAL TO BE PROTECTED FROM MOISTURE.

CAUTION

ELECTRICAL WIRING MAY BE SECURED TO WIDE FACE OF FLOOR JOISTS THAT ARE OUTSIDE OF THE MAIN BEAM. MAKE SURE SCREWS FASTENING STRAPPING PENETRATE BOTTOM EDGE OF JOISTS TO ELIMINATE POSSIBLE ELECTRICAL SHORTS.

DRAIN PIPING SUPPORTS OUTSIDE OF MAIN BEAM



DRAIN PIPING SUPPORTS

A

DRAIN PIPE SUPPORTS

DRAWN BY: JBM

DATE: 12/2/98

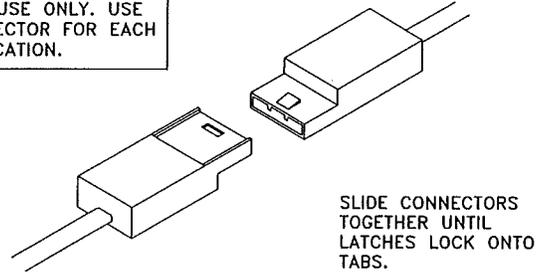
REV: 7/31/00

1 - 7.4

NOTES:

1. REMOVE THE ACCESS COVERS FROM BOTH SECTIONS OF THE HOME.
2. THE CABLES LOCATED IN EACH ACCESS BAY HAVE QUICK CONNECTORS ATTACHED TO EACH END. LARGER WIRES WITHOUT END CONNECTORS ARE TO BE CONNECTED IN THE JUNCTION BOX LOCATED IN ONE OF THE TWO ACCESS BAYS. MATING CABLES ARE MARKED TO SHOW PROPER WIRE CONNECTIONS.
3. IF ELECTRIC SERVICE HAS BEEN RUN TO THE HOME, CHECK TO SEE THAT THE MAIN BREAKER IN THE DISTRIBUTION PANEL IS TURNED OFF.
4. REMOVE THE COVER FROM THE JUNCTION BOX, IF PROVIDED.
5. ROUTE THE COILED UP CABLES FROM ONE UNIT THROUGH THE HOLES PREDRILLED IN THE FLOORS.
6. CONNECT THE QUICK CONNECTORS OF MATCHING MARKED CABLES TOGETHER.
7. INSTALL ROMEX CONNECTORS WHERE THE CABLES ENTER A JUNCTION BOX, IF PROVIDED.
8. CONNECT THE CODED WIRES WITH THE CONNECTORS PROVIDED IN THE JUNCTION BOX.
9. REPLACE JUNCTION BOX COVER.
10. SECURE CABLES WITHIN 8" OF THE JUNCTION BOX OR QUICK CONNECTORS.
11. REPLACE ANY INSULATION THAT WAS REMOVED TO MAKE THE CONNECTIONS.
12. REPLACE ACCESS COVERS ON BOTH SECTIONS OF THE HOME.

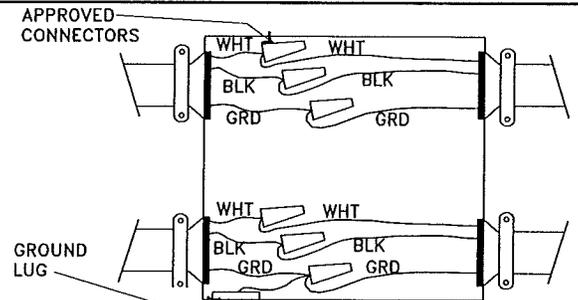
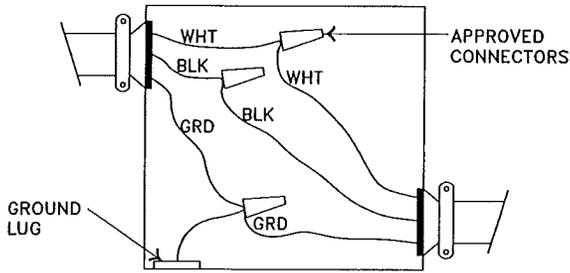
CONNECTOR TO BE ONE-TIME USE ONLY. USE NEW CONNECTOR FOR EACH NEW APPLICATION.



SLIDE CONNECTORS TOGETHER UNTIL LATCHES LOCK ONTO TABS.

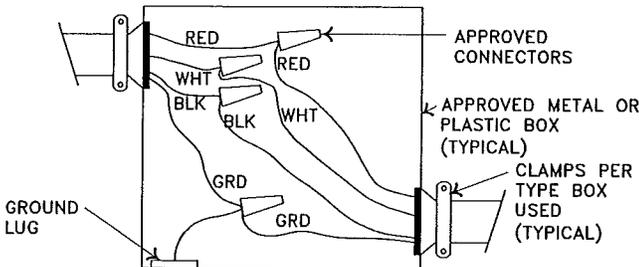
ELECTRICAL CROSSOVER CONNECTION NOTES

TYPICAL 120 VOLT CONNECTION



SINGLE 15 OR 20 AMP CIRCUIT 14-2 OR 12-2 W/ GROUND

DOUBLE 15 OR 20 AMP CIRCUITS 14-2 OR 12-2 W/ GROUND



WIRE CODE:
 BLK = BLACK
 WHT = WHITE
 RED = RED
 GRD = GROUND

CAUTION

VERIFY THAT ALL CROSSOVER CIRCUITS PROTECTED BY A GFCI DEVICE (GROUND FAULT INTERRUPTER) ARE CONNECTED TO THE PROPER CIRCUIT CONTINUATION BY IDENTIFYING THE CORRECTLY MARKED CIRCUIT WIRES.

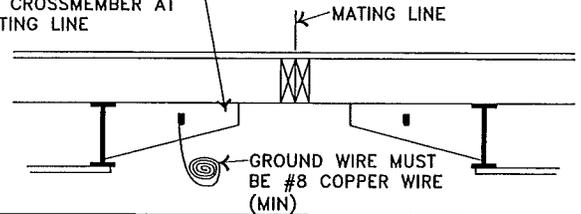
240 VOLT APPLIANCE CIRCUIT

WIRE CODE

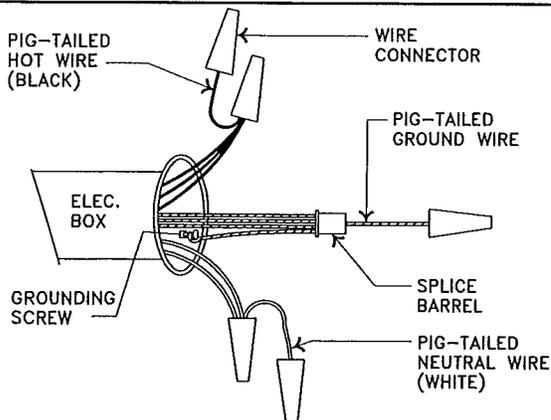
PROCEDURE:

- 1) UNCOIL AND TAKE LOOSE END OF GROUND WIRE AND SECURE TO SOLDERLESS LUG ON ADJOINING SECTION OR SECTIONS.
- 2) MAKE SURE SCREW IN SOLDERLESS LUG IS TIGHT AGAINST GROUND WIRE.
- 3) LOCATE AGAINST STRUCTURE FOR PROTECTION.
- 4) REPEAT PROCEDURE FOR TRIPLE SECTION HOMES.

REAR MOST OUTRIGGER OR CROSSMEMBER AT MATING LINE



CONTINUOUS ELECTRICAL GROUND CONNECTION



NOTES:

1. CONNECT WIRES, BLACK TO BLACK, WHITE TO WHITE AND GROUND TO GROUND USING WIRE NUTS.
- PUSH WIRES INTO BOX AND SECURE FIXTURE IN POSITION. INSTALL THE BULB.
2. APPLY CAULKING AROUND BASE OF LIGHT FIXTURE TO INSURE A WATER-TIGHT SEAL TO THE WALL.

ELECTRICAL & GROUND CONNECTIONS

DRAWN BY: JBM

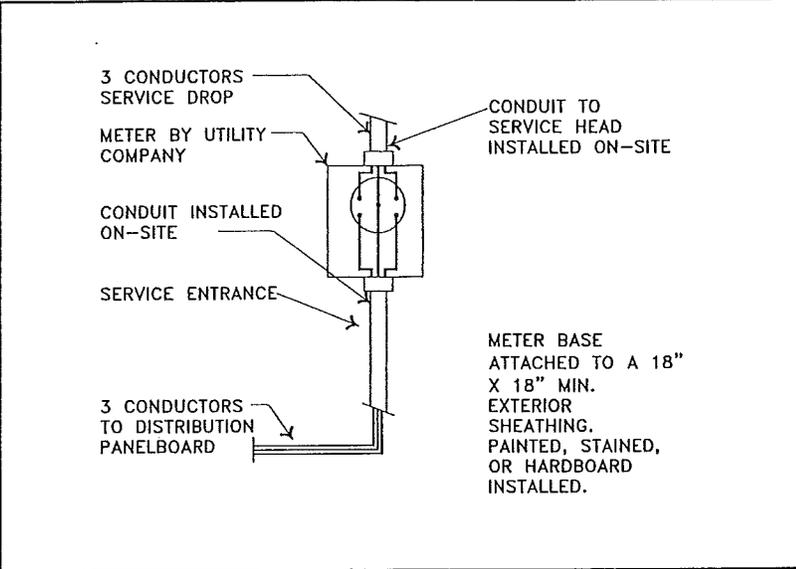
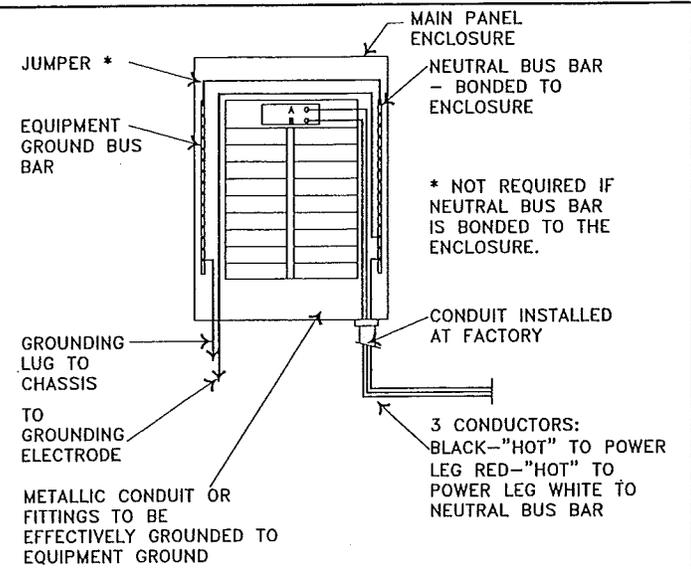
DATE: 12/2/98

REV: 4/16/03

IT IS VITAL FOR THE PROTECTION OF THE OCCUPANTS THAT YOUR HOME BE PROPERLY GROUNDED. GROUNTING TO A ROD, A METAL WATER PIPE, OR THROUGH THE HOMES HITCH WILL NOT PROVIDE THIS IMPORTANT PROTECTION IN MOST CASES.

THE ONLY SAFE AND APPROVED METHOD OF GROUNTING YOUR HOME IS THROUGH AN ELECTRICAL-ISOLATED GROUNDING BAR IN THE HOMES POWER SUPPLY PANEL WHICH GROUNDS ALL NON-CURRENT CARRYING METAL PARTS TO THE ELECTRICAL SYSTEM IN YOUR HOME AT A SINGLE POINT.

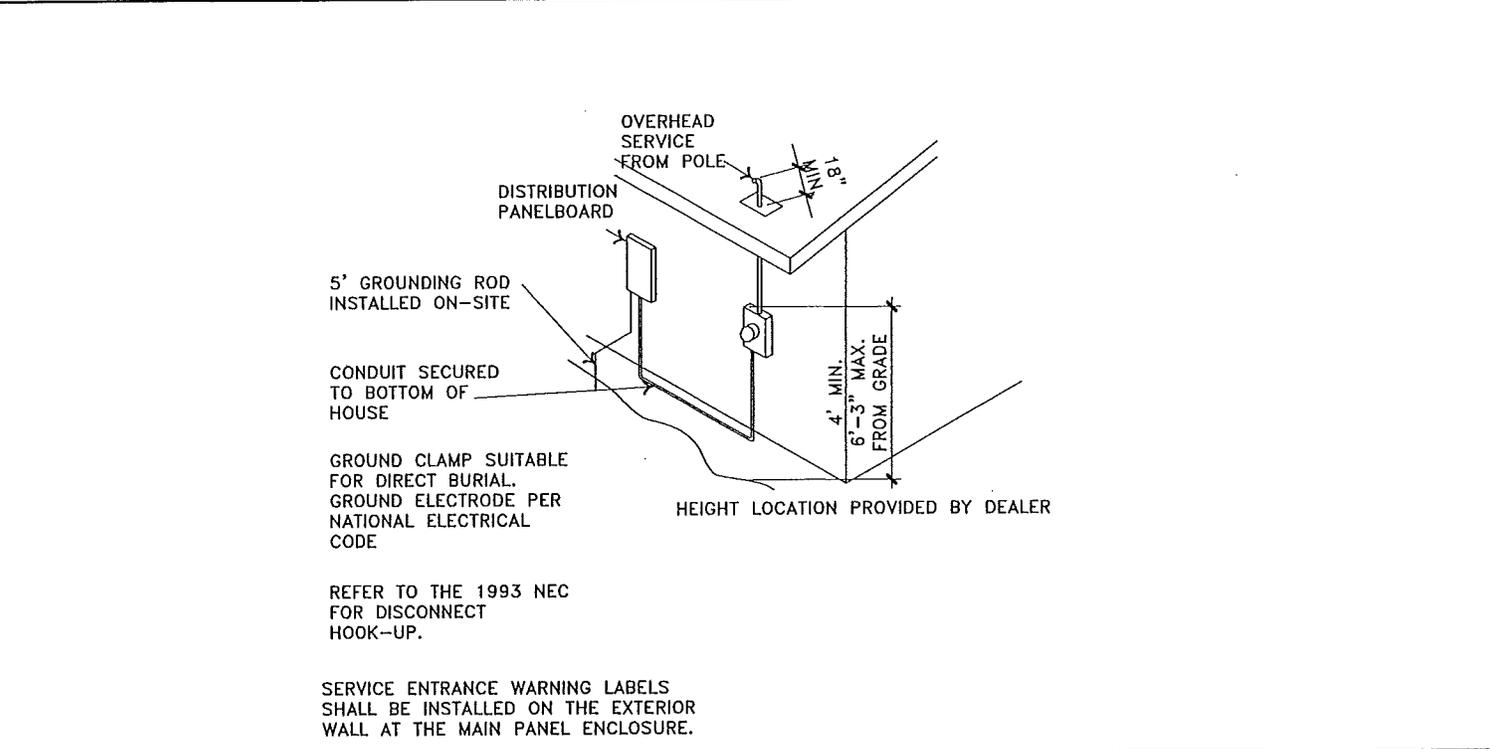
WARNING: IT IS IMPORTANT THAT THE HOT WATER HEATER BE FILLED WITH WATER PRIOR TO CONNECTING THE ELECTRICAL SERVICE.



CONNECTION TO DISTRIBUTION PANELBOARDS

A OVERHEAD SERVICE ENTRY

B



METER BASE INSTALLATION AND CONNECTION TO SERVICE PANEL

C

POWER CONNECTION & METER BASE INSTALLATION

DRAWN BY: JBM

DATE: 12/2/98

REV: 11/13/00

1-7.6

Chapter 8 - Utility Service Test Procedures

Systems Test

All utility systems are given a quality assurance test at the manufacturing facility. As an option to ensure that no damage occurred in transit and that the final connections are proper, on site tests of the utility service connections can be made after the installation of the home.

CAUTION
ALL UTILITY CONNECTIONS MUST BE MADE BY QUALIFIED SERVICE PERSONNEL WHO ARE FAMILIAR WITH LOCAL REGULATIONS.

Gas System Test Procedures

The gas piping supply system is designed for a pressure not exceeding 14-inch water column (1/2 psi) and not less than 7-inch water column (1/4 psi).

WARNING
GAS APPLIANCES IN THIS HOME ARE EQUIPPED FOR NATURAL GAS. IF THE GAS SUPPLY IS LIQUIFIED PETROLEUM GAS (LPG), IT IS NECESSARY THAT THE APPLIANCE BE CONVERTED TO LPG IN ACCORDANCE WITH INSTRUCTIONS PROVIDED BY THE MANUFACTURER OF EACH APPLIANCE.

APPLIANCE ORIFICES:
SPECIAL ORIFICES AND REGULATORS ARE REQUIRED FOR EACH TYPE OF GAS AT ALTITUDES ABOVE 2,000 FEET. SEE THE MANUFACTURERS INSTALLATION INSTRUCTIONS FOR ANY MODIFICATIONS PER THE GAS TYPE USED BY THE APPLIANCE.

DO NOT LIGHT APPLIANCE PILOT LIGHT(S) UNTIL EACH APPLIANCE HAS BEEN CHECKED MAKING SURE ROOF JACK (VENT) IF APPLICABLE HAS BEEN INSTALLED, AND ALL GAS UTILITY CONNECTIONS HAVE BEEN MADE AND TESTED.

1. To check the gas system for leaks, first close all appliance controls and all appliance pilot light valves (see appliance instructions included in the home or posted on the appliance).
2. Open the gas shutoff valve on the supply line to each appliance.
3. Attach an ounce gauge on the main gas inlet to the home.
4. Carefully pressurize the system to not more than 8 ounces of pressure.

CAUTION
DO NOT PRESSURIZE THE GAS LINE IN EXCESS OF 8 OUNCES MAXIMUM TO AVOID POSSIBLE DAMAGE TO GAS VALVES AND REGULATORS.

5. Apply an ammonia-free soapy water or bubble solution to the joints at both ends of the appliance connector. If bubbles are formed, tighten connector until bubbles cease to form.

CAUTION
DO NOT BUBBLE CHECK COPPER OR BRASS FITTINGS WITH SOLUTIONS CONTAINING AMMONIA.

After completion of test, connect home gas inlet to gas supply line using a listed gas connector of the capacity indicated on the label by the gas inlet. Check the inlet connection for leaks per step 5 above.

Water Supply System Test Procedures

The water system is made after any water crossovers are connected by attaching an air pump, valve and gauge to the home water inlet and pressurizing the water lines to 100 pounds per square inch (psi). Verify that the pressure remains for a period of 15 minutes without loss.

To prevent the possibility of fresh water contamination, all exterior faucets shall have an anti-siphon valve installed by the installer or owner.

WARNING
IT IS NOT SAFE TO FILL THE WATER HEATER TANK WITH HIGH PRESSURE AIR ONLY. DISCONNECT WATER HEATER FROM WATER SYSTEM BY CONNECTING THE HOT AND COLD WATER LINES TOGETHER OR FILL WATER HEATER TANK WITH WATER BEFORE PRESSURIZING THE WATER LINES WITH AIR. THIS PROCEDURE WILL PROTECT THOSE INVOLVED IN THE TEST FROM POSSIBLE INJURY.

Electrical System Test Procedures

1. Perform the following test after installation and electrical connections to the home are complete. The grounding continuity test is to be performed before turning on electrical power to the home and the polarity and operation tests are to be performed after the electrical power is turned on.
2. Perform the following procedure checks for grounding continuity, polarity, and operation of the electrical system.
 - A. Before turning "ON" the main circuit breaker, proceed as follows:
 - (1) Connect one clip of a flashlight continuity tester to a convenient ground and touch the other clip to each light fixture canopy.
 - (2) Using the continuity tester, check every direct-connected appliance or fan. The tester must be hooked to a convenient ground and to the metal frame of the appliance.
 - (3) Using the continuity tester, check the continuity between the chassis frame and:
 - ① Metal gas piping.
 - ② Metal water piping.
 - ③ Metal raceway below main electrical panel box.
 - ④ Between one riser of heat duct and convenient ground.
 - (4) Any loss of grounding continuity found in (1), (2), or (3) above will require investigation and correction.

NOTE
CONTINUITY TO GROUND IS NOT REQUIRED ON METAL INLET OF PLASTIC PIPED WATER SYSTEM. WHEN PLUMBING FIXTURES SUCH AS METALLIC SINKS, TUBS, FAUCETS AND SHOWER RISERS ARE CONNECTED ONLY TO PLASTIC WATER PIPING AND PLASTIC DRAIN PIPING, CONTINUITY TO GROUND IS NOT REQUIRED.

B. Turn "ON" the main circuit breaker and each individual circuit breaker.

CAUTION

A LABEL HAS BEEN PLACED ON OR OVER THE ELECTRICAL WATER HEATER BREAKER IN THE MAIN PANEL BOX. MAKE SURE THE WATER HEATER TANK IS FILLED WITH WATER BEFORE TURNING THE BREAKER TO THE "ON" POSITION. FAILURE TO DO SO WILL CAUSE THE WATER HEATING ELEMENT TO OVERHEAT AND FAIL. THIS SYSTEM IS NOT COVERED BY THE HOME WARRANTY.

Proceed as follows:

- (1) Plug an AC receptacle wiring tester into each receptacle in the home to check for reverse polarity, open grounds and shorts.
- (2) Any reverse polarity, open grounds or shorts found will require investigation and repair.
- (3) Install light bulbs and fluorescent tubes if not already installed. Make sure each light fixture is operable by turning the appropriate switch to the "ON" position.
- (4) Shut off all light switches in the home and perform test on the smoke detector(s) in accordance with the manufacturer instruction.
- (5) Repair or replace any defective items.

Drain System Test Procedures

The completed drain waste system should be subjected to a flood level test as follows:

1. The home shall be in a level position, all fixtures shall be connected, and the plug or cap installed at the outlet. The entire system shall be filled with water to the rim of the water closet (toilet). (Tub and shower drains shall be plugged).
2. After all trapped air has been released, the test shall be maintained for no less than 15 minutes without evidence of leaks. If any leaks are found, repair them and re-test. If no leaks are noted after 15 minutes, unplug the system at the outlet and drain the water from the system.
3. The waste piping above the level of the water closet (toilet) shall then be tested and show no indication of leakage when the high fixtures are filled with water and emptied to obtain the maximum possible flow in the drain piping.

Oil Piping Hookup & Testing

Homes that are equipped with oil burning furnaces must have the oil supply piping installed on site. The home manufacturer does not supply piping.

The furnace manufacturer's instructions must be consulted for proper pipe sizing and installation procedures.

In addition, unless the home is installed in a park with a centralized oil distribution system, an oil storage tank of suitable capacity must be installed outside the home in a location accessible for service, and safe from fire and other hazards.

Oil tanks that feed vaporizing type oil furnaces must be installed so that oil flows by gravity. To achieve efficient gravity flow, the tank must be installed so that the bottom of the tank is at least 18 inches above the level of the furnace oil control level.

For gun type oil furnaces, the location of the oil storage tank is left to the discretion of the homeowner. Since the furnace includes a fuel pump, the tank may be installed above or below ground. For tanks installed below ground, the filler neck should extend 1 foot above grade and a 1 ¼ inch diameter minimum vent pipe extending at least 2 feet above grade must be provided.

Regardless of the type of oil furnace served, or the tank location, the tank should be installed to provide a gradual slope toward the fill end or drain plug, if so equipped, to facilitate pumping or draining of water and sludge.

NOTE
ALL STORAGE TANK AND OIL PIPING INSTALLATIONS MUST MEET ALL
APPLICABLE LOCAL REGULATIONS AND SHOULD BE MADE ONLY BY
EXPERIENCED, QUALIFIED PERSONNEL.

Before setting the system in operation, the tank installation and supply piping must be checked for leakage. The tank must be filled to capacity with the fuel to be burned and all joints in the system checked visually for leakage.

Chapter 9 - Final Inspection Checklist

After the home has been set-up and completed, check the following items to assure areas or items have not been overlooked.

Task	Completed
1. Footings and piers Check that footings pads are of the correct size piers are located at proper spacing. Check that blocks and wedges are tight.	
2. Anchors and Straps Check anchor spacing and make sure all tie downs are tensioned.	
3. Bottomboard Inspect for any torn area's, especially around bottom board penetrations. Patch torn areas with proper tape.	
4. Crossover connections Make sure the electrical, water plumbing, drain plumbing, gas-piping connections are complete. Check connection of duct crossover to duct collars.	
5. Exterior siding and trim Check that there are no gaps, voids or missing fasteners. Make sure seams are sealed. Paint all edges of trim.	
6. Windows and doors Make sure all windows and exterior doors operate correctly.	
7. Shingle roof Inspect shingles to insure they are correctly fastened to roof sheathing. Make sure no shingles are loose or damaged. Seal all holes in shingles after removing wind deflector and or plastic cover.	
8. Appliance roof flues and fireplace chimneys Check to see that all roof flue penetrations flashing are properly installed and sealed.	
9. Water and drain systems If water to home is available check all faucets for operation and check each fixture P-traps for any leaks. Check to make sure all waste plumbing has been installed per plumbing print that is shipped with the home.	
10. Interior details Inspect all interior finish details, such as molding, paneling and carpet. Check all drawers for proper operation. Check all interior windows for proper operation.	
11. Entry Access Temporary access installed at entry door.	
12. Clean up Make sure the interior and exterior of the home has been cleaned from installation of materials and debris.	

Chapter 10 – Relocation of the Home

If it is necessary to move your home, **HAVE IT MOVED BY A PROFESSIONAL MANUFACTURED HOME MOVER, MAKE SURE HE USES ENOUGH TEMPORARY WOOD BLOCKING AND BRACING**, and check the following items:

Roof, Wind, and Thermal Zone Requirements

Check the roof and wind load and the temperature requirements at the new location. Never move your home into a higher wind zone location or roof load zone or thermal zone than what the home is designed for. Check the design requirements shown on your home's compliance certificate (data plate).

Tires and Axles

Replace any removed tires or axles as required by the manufacturer. Be sure that tires are inflated correctly, have at least 1/16" tread, and do not have any cracks or splits. Check and repair bearings and brakes as necessary.

Appliances

Secure appliances to prevent movement during transportation.

Dust Caps

Place dust caps on the ends of all pipe connections.

Blocking During Storage

Any home placed in storage, including those on sales lots, must be immediately blocked under each I-beam for anticipated roof and floor loads to prevent excessive deflection and possible structural damage. Follow the blocking procedure specified in this manual or consult a registered professional engineer.

Transit of Furniture and Belongings

Substantial damage may result if furniture, personal belongings, setup materials or other items are stored in the home during transit. **TRANSIT DAMAGE IS NOT COVERED UNDER YOUR WARRANTY.**

Multi-Section Homes

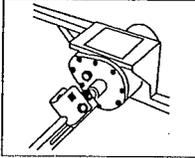
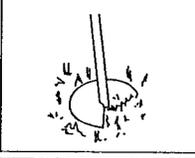
Re-install temporary structural supports and bracing materials before moving the home. Cover open sides of sections with weatherproof materials such as 6-mil plastic sheeting. After the sections have been separated, secure 2" x 6" shipping braces at the front end and in the axle area. Place ridge beam supports in open areas at a maximum of four feet on center.

ANCHOR INSTALLATION

CAUTION: The installation of anchors with a drive machine is a two person operation.

MACHINE INSTALLATION

In this method, the anchor is turned to full depth into the ground by an anchor drive machine.

1.  Attach anchor to machine.
2.  Placed anchor in proper position in line with strap and machine.
3.  Anchor should be installed at a slight angle as shown to assure head being positioned behind future skirting.

There are two basic methods of installing anchors, each equally effective in properly securing manufactured homes to the ground.

Warning: Before ground anchor installation, determine that the anchor locations around home will not be close to any underground electrical cables, water lines or sewer piping. Failure to determine the location of electrical cables may result in serious personal injury.

MANUAL INSTALLATION

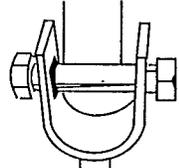
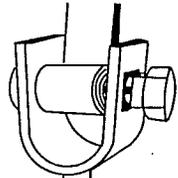
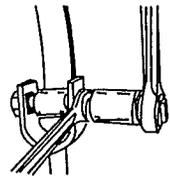
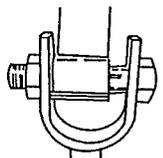
A hole is dug to a depth of approximately $\frac{1}{2}$ the length of the anchor, in the proper position as explained under machine installation.



After the hole is dug to $\frac{1}{2}$ the length of the anchor, then the anchor is turned into the ground by hand, using a rod or length of pipe for leverage or by machine.

After anchor is installed full depth, earth is repacked, six inches at a time.

PROPER TENSIONING OF STRAP TO ANCHOR HEAD

1.  Insert bolt into head; attach nut loosely. Insert strap in slot of $\frac{5}{8}$ " bolt until strap is flush with far side of bolt.
2.  Bend strap 90° and take at least three complete turns on bolt until strap is taut.
3.  Bolt is turned with $\frac{15}{16}$ " socket wrench, or adjustable wrench, on hex head. With square hole in anchor head, hold bolt under tension while repositioning wrench: Place open-end wrench on $\frac{5}{8}$ " square shoulders of bolt. Align square shoulders of bolt with square hole in anchor head.
4.  Holding hex head of bolt in position, tighten nut to draw square shoulders into square hole. Shoulders are now in locking position; continue to tighten nut. Tensioning device is now in locked, secure position.

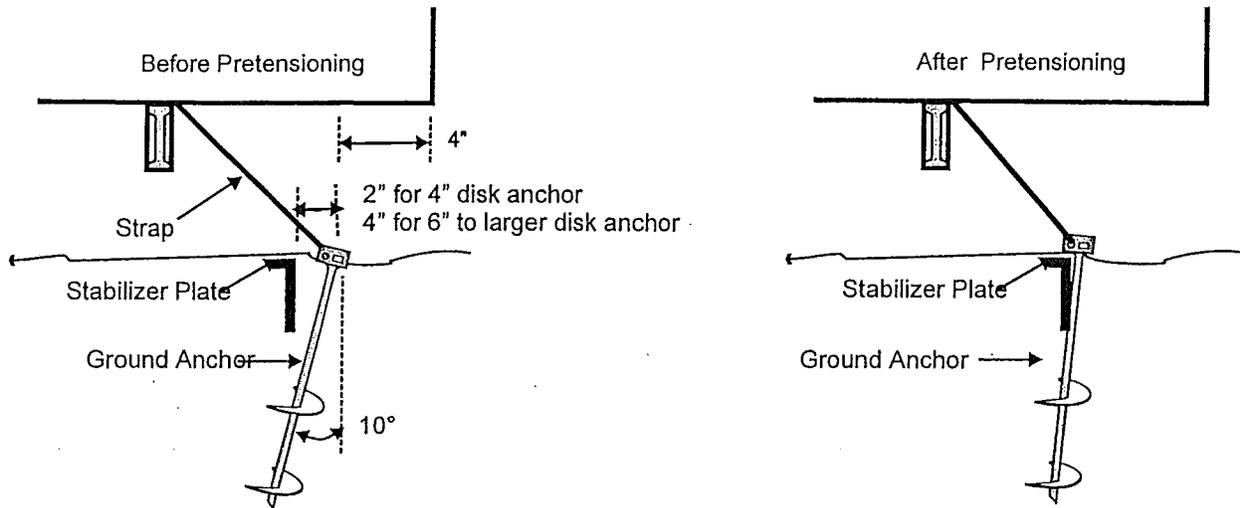
Note: The tensioning bolt can be inserted in the head from either side.

Notice: In areas of severe cold weather, where possible damage could occur from frost heave, the homeowner should be prepared to adjust tension on the straps to take up slack.

MINUTE MAN ANCHORS, INC.

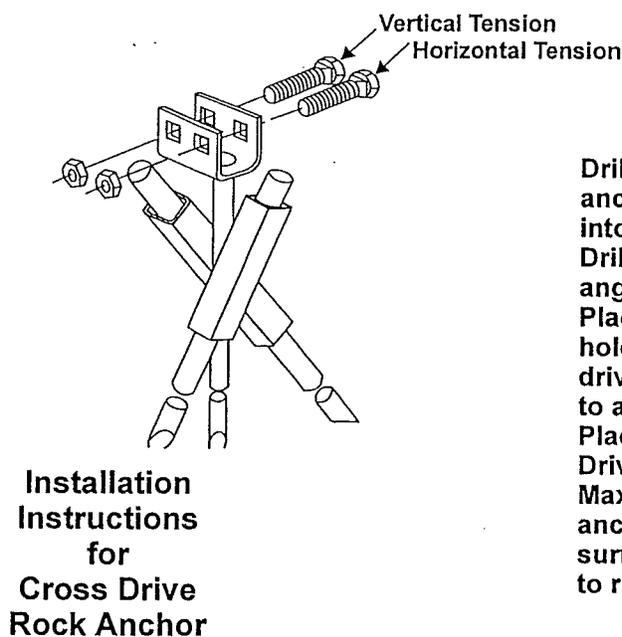
INSTRUCTION FOR USING MINUTE MAN STABILIZING DEVICE

Minute Man stabilizing devices are designed for use with Minute Man anchors and intended to laterally restrict movement of the anchor through the soil.



1. Place the anchors approximately four inches to the inside of the exterior wall line of the home or a sufficient distance to avoid interference with the skirting (see above)
2. Hold the anchor at an angle of approximately 10 degrees off of vertical so that the head of the anchor is just outside the sidewall (see above)
3. Install the anchor to a depth of approximately one-third (1/3) the anchor length.

4. Place a stabilizer plate to the inside of the anchor shaft (side of shaft toward center of house) and the distance indicated from the shaft.
5. Drive the stabilizer plate into the ground until the top of the plate is 1" below the surface of the ground.
6. Install the anchor to its full depth.
7. Pretension the anchor by pulling it up to the stabilizer plate. Pull the anchor approximately 1/2 inch more while it is in contact with the plate using the strap and take-up bolt to move the anchor head.



INSTALLATION INSTRUCTIONS

Drill 5/8" diameter hole 5 1/2" deep, in center of anchor location, for pilot stud. Insert pilot stud into hole.

Drill two - 3/4" diameter holes in rock at 45 degree angles, using anchor head as a locating guide.

Place rod through top of (1) square tube and into hole. Drive rod to desired depth. (Rod must be driven into rock at least 80% of its length in order to achieve minimum allowable pullout resistance.)

Place second rod through top of remaining tube. Drive rod to desired depth to lock.

Maximum pullout resistance is developed when anchor head is low as possible and ground surface is solid rock. Distance from square tubing to rock surface should not exceed 1".

IN LINE INSTALLED AND CONNECTED GROUND ANCHOR AND FRAME CONNECTION

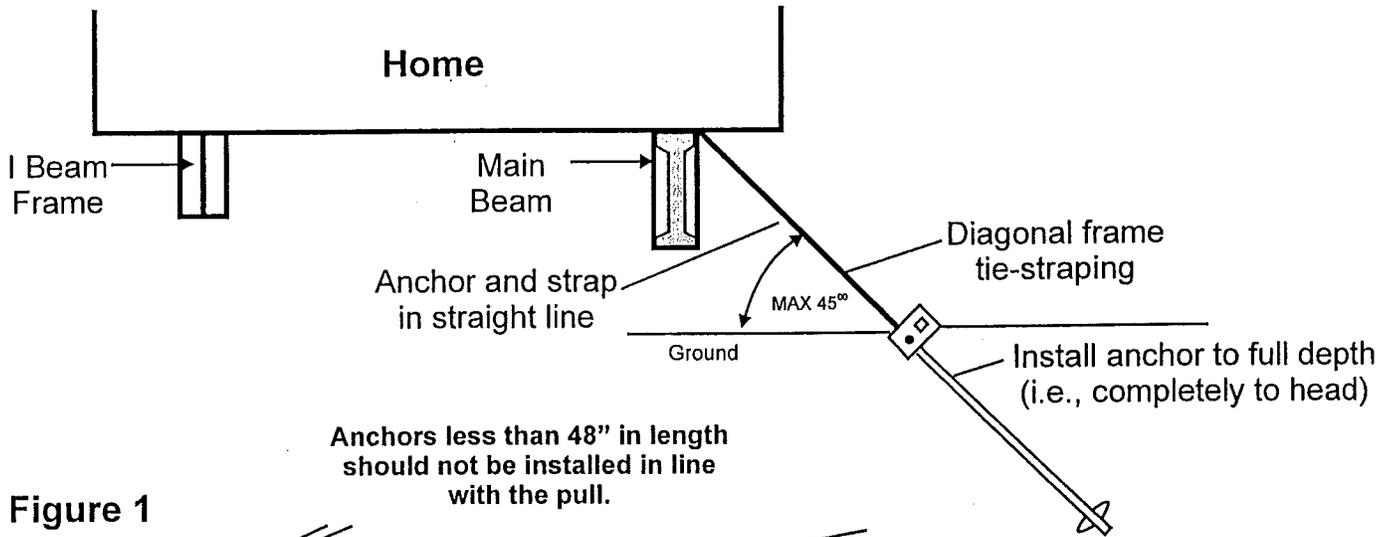


Figure 1

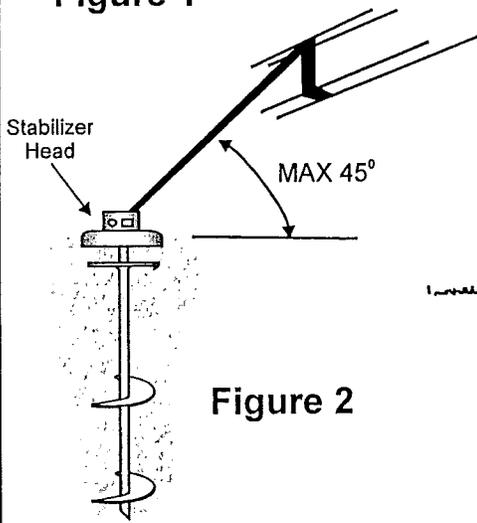


Figure 2

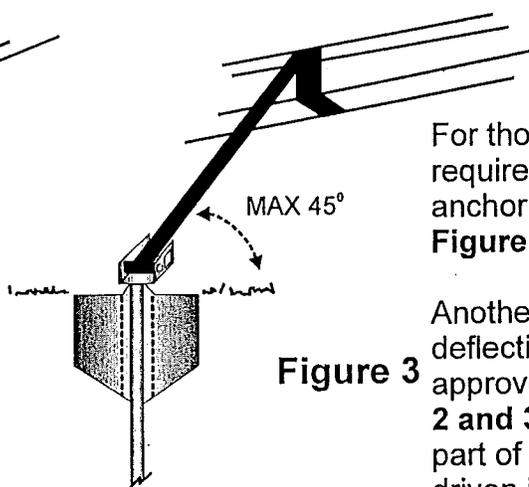
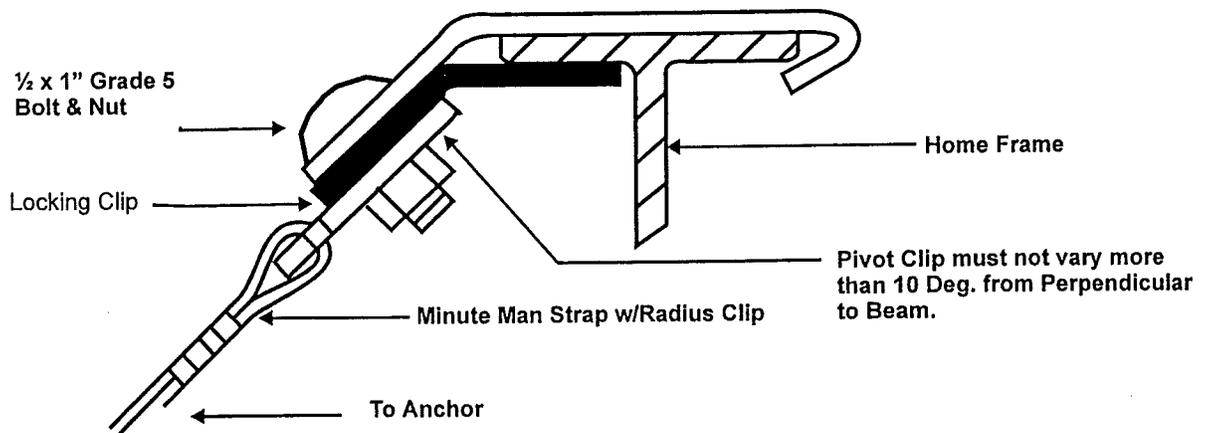


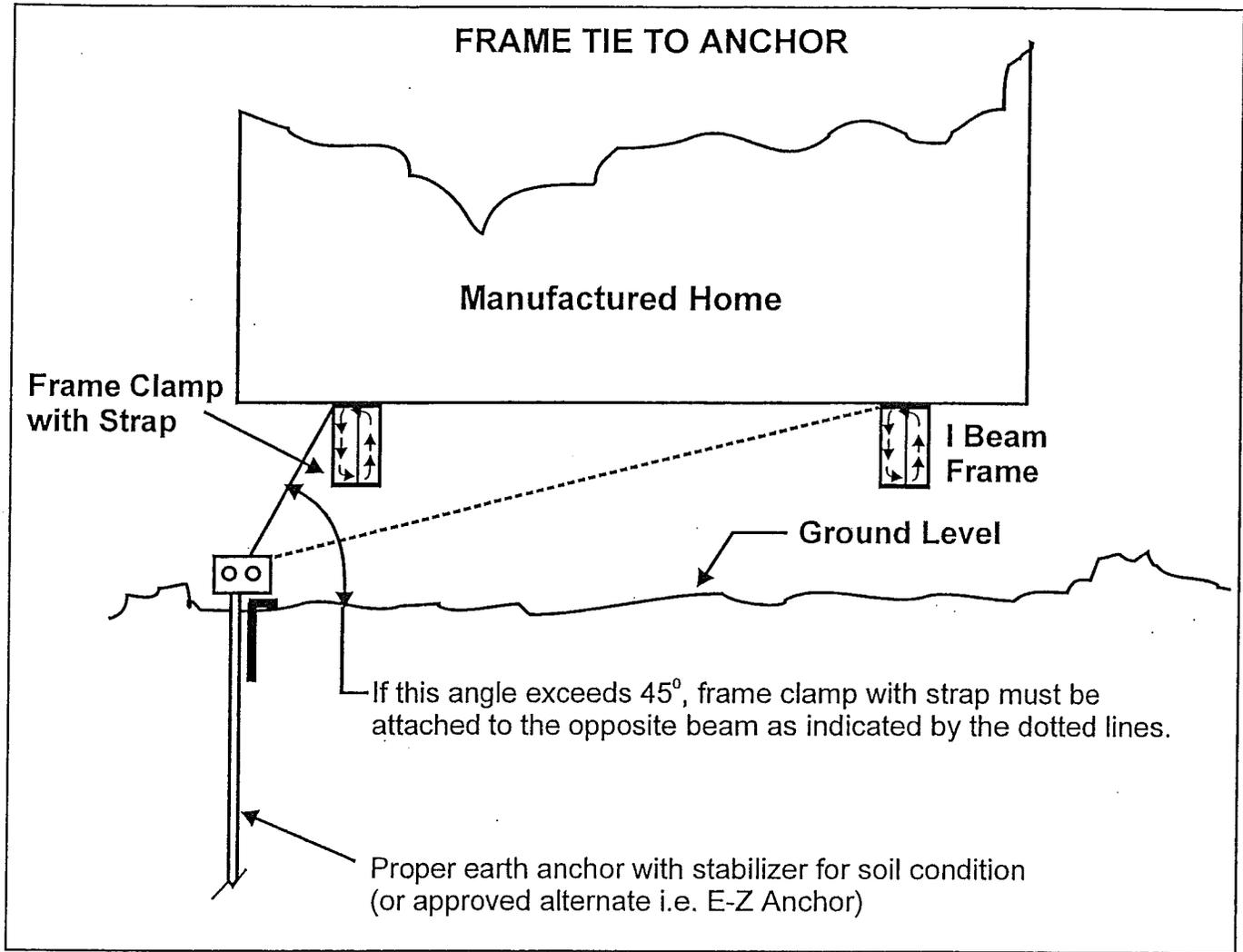
Figure 3

For those homes which are designed to require only diagonal frame ties, the anchor can be installed in line with the ties. **Figure 1.**

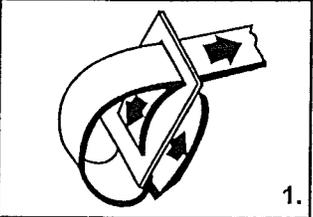
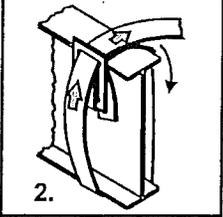
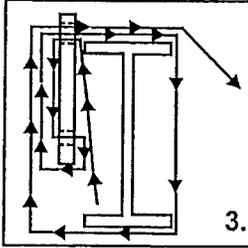
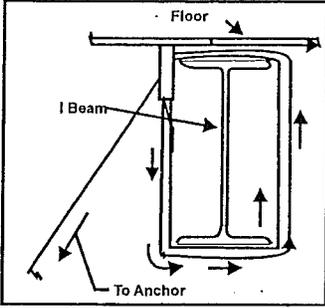
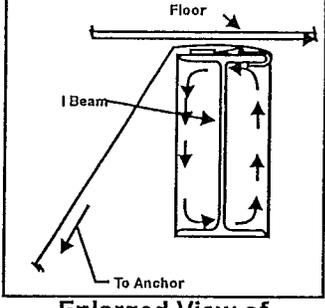
Another accepted way to limit lateral deflection is by use of a tested and approved Metal Stabilizing Device. **Figure 2 and 3.** In **Figure 2**, the Stabilizer is a part of the anchor. In **Figure 3**, the plate is driven in front of the anchor's direction of pull and will act to minimize the anchor rod deflection. See Top of Page 2.

LOCKING FRAME CLAMP II MMA-33 ASSEMBLED UNIT





FRAME TIE INSTALLATION INSTRUCTIONS

Frame Tie With Buckle	Single Slot Buckle With Strap	Frame Tie With Hook
 <p style="text-align: right;">1.</p>  <p style="text-align: right;">2.</p>  <p style="text-align: right;">3.</p>	 <p style="text-align: center;">Enlarged View of Frame Beam</p>	 <p style="text-align: center;">Enlarged View of Frame Beam</p>
<p>Thread sufficient length of frame tie strap through buckle as shown.</p> <p>Next, thread long end of strap between frame and floor of home. Bring strap around frame and back through buckle as shown in diagram and fasten to anchor head.</p> <p>Diagram showing strap in position around frame and through buckle. It is important to remove all slack from system.</p> <p>Note: Use of a single buckle is an appropriate alternate.</p>	<p>Place buckle at top of anchor side of beam, pass strap around beam and through buckle. Pass strap back around beam and through buckle to anchor. Strap will wrap beam twice. Remove all slack from system.</p>	<p>Attach Frame Clamp (Hook) inside top flange of home frame. Bring strap around frame. Place strap between frame and home as shown in sketch. Pull strap tight and attach to anchor tension head.</p>

E-Z ANCHOR INSTALLATION METHOD

Note: With machine installation, a Minute-Man adapter designed to fit both the anchor head and drive machine shaft is available. Installers do not need additional or special equipment for E-Z Anchor Installation.

E-Z Anchors are a patented item.

1. MACHINE INSTALLATION

The drive machine is started and the anchor is turned into the ground to a point where the top (stabilizer head plate) is flush with or slightly below ground level. This assures that the E-Z Anchor Stabilizer will be at its required installation position. **See Figure A.**

To achieve full potential, install the E-Z Anchor vertically. A 10° deviation from vertical is acceptable. **See Figure A.**

Note: A slightly greater angle may be used to start anchor to avoid contact with the home and straightened as anchor is ground set. The splitbolt is inserted, strap is fastened, and tightening adjustment made.

E-Z Anchor carries U.S. Patents and manufacture is exclusive to Minute-Man Anchors, Inc.

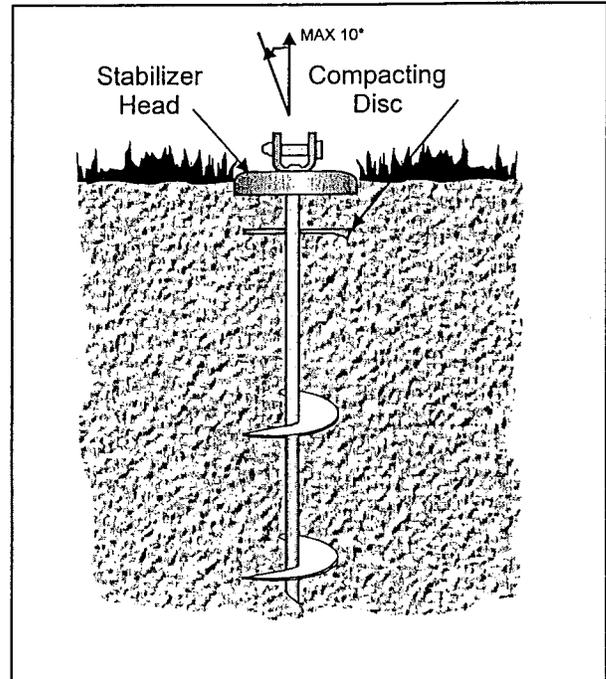


Figure A

2. STANDARDS FOR INSTALLATION

- E-Z Anchors and all components are to be installed per manufacturer's instructions.
- E-Z Anchors are approved for designated Soil Class III.
- E-Z Anchor working load capacity is 3,150 pounds for a single tie or the load of (2) ties combined.. **See Figure B.**
- Consult manufactured home set up instructions for number of frame tie downs, over the roof tie downs and tie down spacing.
- Proper site preparation requires removal of grass and sod prior to installation.

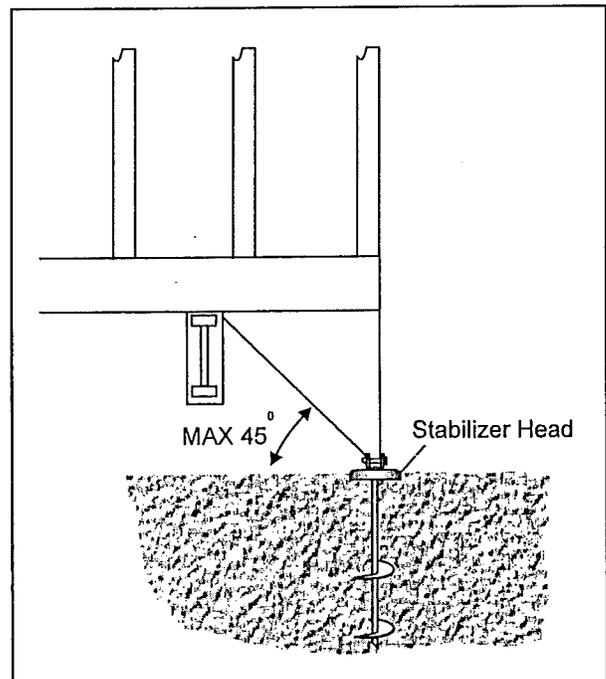


Figure B

For additional information, copies of engineering test(s) and report, Contact Minute-Man Anchors, Inc. (Revised: November 1998)

SOIL CLASSIFICATION CHART

Soil Class	Soil Description	Blow Count (ASTM D1586)	Test Probe Value	Recommended Minute Man Anchor
1	Sound hard rock	NA	NA	Cross Drive or Rock Anchor
2(a)	Very dense &/or cemented sands, coarse gravel and cobbles, caliche, preloaded silts, and clays.	40-up	551 lb. in. Up	4430DH 650DH 4430 EZDH 636 EZDH 24 BA
2(b)	Coral	40-up	551 lb. in. up	4430 DH 650DH 24 BA
3	Medium dense coarse sands, sandy gravels, very stiff silts, and clays.	24-39	351 to 550 lb in.	4430 DH 4430 EZDH 636 EZDH 650DH 4636 EZDH
4(a)	Loose to medium dense sands, firm to stiff clays and silts alluvial fill.	18-23,3	276 to 350 lb. in.	650DH 6650 EZVDH(FL).
4(b)	VERY loose to medium dense sands, firm to stiff clays and silts, alluvial fill.	12-17	175 to 275 lbs. in	760DH 860DH 8860 EZVDH (FL) 1060DH 4636 NU Concept

Remember: Each state, county or municipality may require a specific anchor from the groups shown for each soil classification. Check local regulations first.

Note: Many anchors are designed for particular soil condition(s) and are unacceptable for use in other type soils. We have listed the soils for which each anchor is designed and approved. Soil classifications are taken from the "standard for the installation on mobile homes". Each anchor model listed has been tested by an independent professional engineer to meet ANSI A225.1 and ASTM D3953.91 codes.



ROD M. HUDGINS, JR. P.E.

P.O. BOX 5070

ASHEVILLE, N.C. 28813-5070

Phone (828) 274-9244 Fax (828) 274-9525

FEBRUARY 14, 2001

MINUTE MAN ANCHORS, INC.
305 WEST KING STREET
EAST FLAT ROCK, N.C. 28726

DEAR SIR:

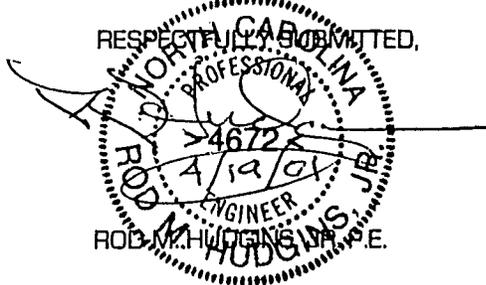
I HAVE ANALYZED DESIGN DRAWING, PHYSICAL TESTING REPORTS AND INSTALLATION INSTRUCTIONS FOR THE MINUTE MAN PRODUCTS LISTED AS FOLLOWS:

650 DH 5/8	4430 DH 5/8	36 XDH	THDH
650 DH 11/16	4430 DH 11/16	48 XDH	THDHLS
650 DH 3/4	4430 DH 3/4	36 DH	
760 DH3/4		24 BA	FCI W/S
636 DH 5/8	4442 DH 5/8	210 DH	FCII W/S
636 DH 3/4		210 PDH	BUC W/S
	4450 DH 11/16	210 JDH	SBN
4636 DH 3/4	4450 DH 3/4	100 DH	MMASD2
4636 NCI 7/8			MMASDA2
4430 EZDH		CT/WS CORNER TIE	
636 EZDH 3/4			
650 EZDH 3/4		MMA 31 LONGITUDINAL FRAME TIE	
660 EZDH 3/4		MMA 33 LOCKING FRAME CLAMP 11	
6650 EZVDH 3/4 W/ VERT. STABILIZER		MMSPP LONG STAB SYSTEM	
8860 EZVDH 3/4 W/VERT. STABILIZER		E-Z ASTS SUPPORT TUBS SYSTEM	

MY ANALYSIS OF THE PHYSICAL TEST REPORTS DEFINE THE BREAKING STRENGTH OF EACH OF THESE ANCHORS AND THEIR COMPONENTS TO BE IN EXCESS OF 5,000 POUNDS. THE STRAPPING MEETS FEDERAL SPECIFICATION QQ-S-781H FOR TYPE I, CLASS B, GRADE I STRAPPING. THE STRAPPING ALSO MEETS WITH ANSI 225.1 STANDARDS AND ASTM D3953-91 STANDARDS. THE STRAPPING IS 1 1/4 X .035 MINIMUM, HOT DIP GALVANIZED STEEL.

ON FILE ARE TESTING REPORTS OF THE DIRECT WITHDRAWAL STRENGTH OF THESE ANCHORS. THESE TEST EVALUATE THE ANCHORAGE STRENGTH OF MINUTE MEN ANCHORS INSTALLED RESISTING AN AXIAL AND 45 DEGREE ANGLE APPLIED WITHDRAWAL LOAD. FOR THE ANCHORS LISTED ON PAGES 10 AND 11, THE AVERAGE HOLDING POWER MEETS AND/ OR EXCEEDS THE REQUIRED MINIMUM OF 4,725 POUNDS, WHEN INSTALLED IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS IN THE SOIL TYPES AND CLASS SHOWN.

RESPECTFULLY SUBMITTED,





ROD M. HUDGINS, JR. P.E.

P.O. BOX 5070

ASHEVILLE, N.C. 28813-5070

Phone (828) 274-9244 Fax (828) 274-9525

ROD M. HUDGINS, JR. P.E. - PRINCIPAL

DENNIS R. PONDER - ASSOCIATE

January 21, 1999

Job # 98350

Dear Sir:

The Minute Man Product and Installation Manual contains details in the anchoring instructions which show that a home's tie-down straps must be at an angle between 40 and 50 degrees from vertical. This angle requirements is listed so that Minute Man can recommend the maximum anchor spacing for a typical home.

If a home manufacturer provides anchoring and strapping details that are designed and approved by a registered engineer for the appropriate wind loads, the angle of tie-down straps may be less than or greater than the 40 to 50 degree angle as specified in the Minute Man instructions. This will not affect the maximum capacity of the anchors and / or stabilizer plates.

Respectfully Submitted,

ROD M. HUDGINS, JR., P.E.

PROTECTION OF WINDOWS AND SLIDING GLASS DOORS

THIS HOME HAS NOT BEEN EQUIPPED WITH STORM SHUTTERS OR OTHER PROTECTIVE COVERINGS FOR WINDOWS AND EXTERIOR DOOR OPENINGS. FOR HOMES DESIGNED TO BE LOCATED IN WIND ZONES 2 & 3, THE HOME CAN BE EQUIPPED WITH THESE DEVICES IN ACCORDANCE WITH THE METHODS RECOMMENDED BELOW.

WIND ZONE II ONLY

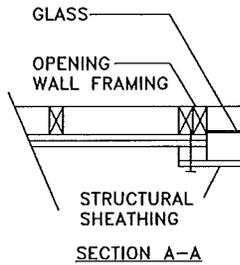
FOR WIND STORM PROTECTION, ALL EXTERIOR WINDOWS AND SLIDING GLASS DOORS CAN BE PROTECTED FOR A STORM AS SHOWN IN THESE DETAILS.

PROTECTED AREAS ARE TO BE COVERED WITH STRUCTURAL SHEATHING. THE THICKNESS AND SPAN RATINGS ARE SHOWN IN THE TABLE. THE STRUCTURAL SHEATHING SHALL BE LABELED "APA SHEATHING RATED EXTERIOR" OR EQUIVALENT. THE SHEATHING SHALL BE PLACED OVER THE OPENING WITH THE FACE GRAIN RUNNING HORIZONTAL (i.e. THE LONG SIDE OF THE PANEL SHALL BE LEVEL WITH THE GROUND).

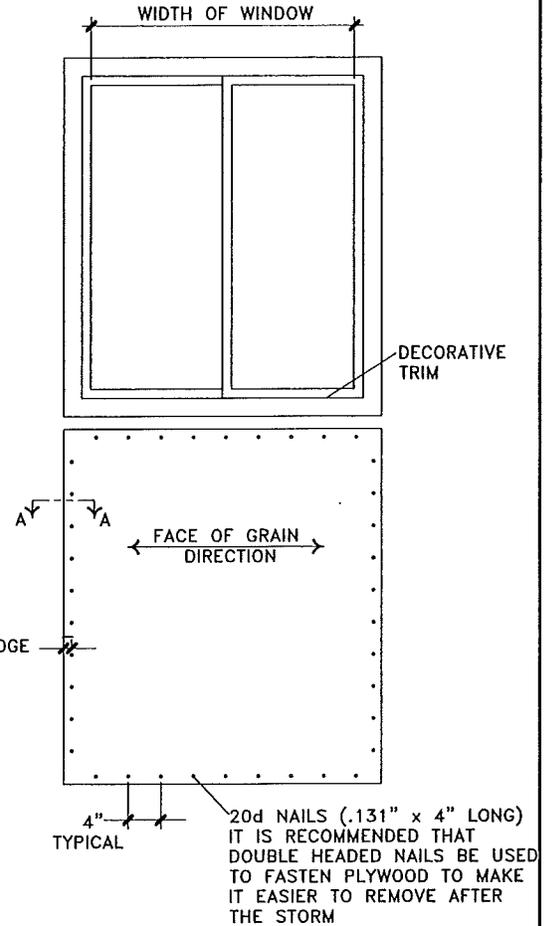
WHERE ANY PORTION OF ANY WINDOW OR SLIDING GLASS DOOR IS WITHIN 3 FEET FROM A CORNER OF THE HOME, THE OPENING SHOULD BE COVERED WITH TWO LAYERS OF SHEATHING, EACH OF WHICH MEETS REQUIREMENTS FROM THE TABLE. THE FIRST LAYER IS FASTENED AS SHOWN, AND THE SECOND LAYER SHALL BE FASTENED USING A MINIMUM 40d NAILS (.131" x 5" LONG) AT 3" ON CENTER SPACING.

AFTER THE STORM, REMOVE AND STORE THE SHEATHING FOR POSSIBLE REUSE. CAULK ANY EXPOSED NAIL HOLES IN THE HOME SIDING TO PREVENT MOISTURE AND WATER PENETRATING INTO THE EXTERIOR WALL.

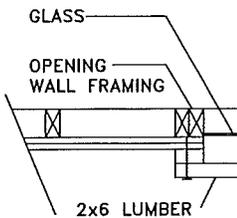
STRUCTURAL SHEATHING TO PROTECT WINDOWS IN WIND ZONE 2 AND 3		
WIDTH OF WINDOW	SHEATHING REQUIREMENTS	
	THICKNESS	SPAN RATING
UP TO 36"	15/32" MIN.	32/16
37" TO 46"	23/32" MIN.	48/24
47" TO 72"	1 1/8" MIN.	48" O.C.



1" MIN. FROM EDGE OF SHEATHING



WIND ZONE II AND WIND ZONE III

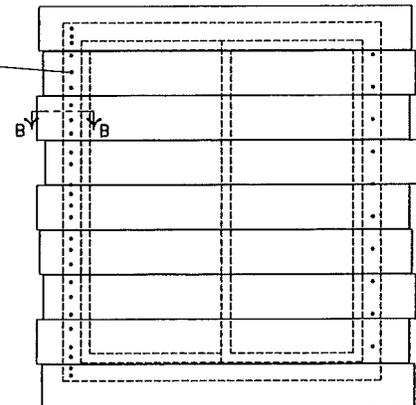


SECTION B-B

(1) #8 x 4" LONG WOOD SCREW INTO THE END OF EACH 2 x 6 OR 3 - 20d NAILS (.131" x 4" LONG) INTO THE END OF EACH 2 x 6.

IT IS RECOMMENDED THAT DOUBLE HEADED NAILS BE USED TO FASTEN LUMBER TO MAKE IT EASIER TO REMOVE AFTER THE STORM.

AFTER THE STORM REMOVE AND STORE THE LUMBER FOR POSSIBLE REUSE. CAULK ANY EXPOSED NAIL HOLES IN THE HOMES SIDING TO PREVENT MOISTURE AND WATER PENETRATING INTO THE EXTERIOR WALL.



HURRICANE SHUTTERS

DRAWN BY: -

DATE: -

REV: -

I-12.0

Chapter 13 - Blue Nail Drywall Option On Site Drywall Finish (Multi-Section Only)

I. IN-PLANT FACTORY REQUIREMENTS & INSTRUCTIONS

- Install unfinished 1/2" gypsum wallboard in all rooms that require the "Blue Nail" finish option as indicated on the purchase work order. All wallboard shall be installed & fastened in accordance with the approved Dapia manual requirements. Ceiling gypsum, where installed, must have all seams taped, with entire surface sealed with vapor barrier in thermal zones 2 & 3 (1 perm or less rating).
- Install all drapery and mini-blind hardware according to manufacturer's instructions.
- Ship loose all drapery packages and mini-blinds.
- Ship loose carpet, pad and tack strip. (Alternate: factory install carpet, with plastic protection).
- Install all passage doors.
- Door casing in all blue nail areas shall be shipped loose.
- Ship loose any & all feature wall mirrors and hardware.
- Ship loose ceiling molding & base board.
- Aluminum framed windows shall be plywood stripped with paneling storms in the factory.
- Vinyl framed windows shall be stripped with raw gypsum in blue nail areas to be finished in the field.
- All wardrobes and closets shall be finished in-plant per standard specifications.
- Any and all wainscot in blue-nail areas shall be shipped loose for field installation.
- All electrical fixtures (receptacles, switches, thermostats, smoke detectors, etc.) shall be factory installed.
- All required testing (electrical, plumbing, gas, etc.) shall be performed in the factory.
- Each home section will be labeled upon successful completion of all indicated factory requirements.

II. ON SITE - FIELD INSTALLATION REQUIREMENTS & INSTRUCTIONS

- Finish gypsum wallboard in all blue-nail areas: Mud & tape all seams and corners. Fill all fastener depressions. Finish mudding with knock down texture or smooth finish. Apply paint to all drywall in blue-nail areas. NOTE: ALL THE FINISH MATERIALS (MUD, TAPE, CORNER BEAD, PAINT) SHALL BE PROVIDED BY DRYWALL CONTRACTOR, AND ARE NOT INCLUDED AS SHIP LOOSE ITEMS FROM THE MANUFACTURING FACILITY.
- Vinyl window frames/openings are factory stripped with gypsum and shall be finished on site.
- Install all ship loose drapes & mini-blinds
- Install ship loose carpet & pad throughout home
- Install ship loose ceiling molding & base board
- Install ship loose door casings in all blue-nail areas
- Install any & all wainscot shipped loose for blue-nail areas
- Install any & all shipped loose feature wall mirrors.
- Complete all interior trim and perform all standard multi-sectional close-up procedures as specified in the installation manual shipped with the home.
- Perform all testing (plumbing, electrical, etc.) as required and indicated in the installation manual shipped with the home.
- Retailer shall assure that all instructions as outlined herein are complied with.
- Door stops installed, closet shelves and hardware shipped loose.

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