



"The name trusted in roofing since 1906"

MULE-HIDE

EPDM Membrane

Multi-Unit

Modular Structure

Roofing System

**Setup & Dismantling
Handbook**

- SCHOOLS ♦ OFFICES ♦ CLASSROOMS
- ♦ COMMUNICATIONS BUILDINGS
- ♦ CORRECTIONAL FACILITIES
- ♦ HEALTH CARE FACILITIES
- ♦ BANKS ♦ DAY CARE CENTERS

Mule-Hide EPDM Membrane Modular Structure Roofing Systems

This manual should be followed when assembling a modular structure with a single-ply membrane roofing system featuring Mule-Hide EPDM Membrane and Mule-Hide Accessories. The instructions and guidelines herein were specifically developed for Mule-Hide EPDM products. The instructions stated herein, must be followed to successfully install or dismantle a Mule-Hide EPDM membrane roofing system for a multi-unit modular structure.

CONTENTS:

<u>Setup Instructions & Guidelines</u>	<u>Page No.</u>
A. Mule-Hide Self-Bridging Mate-Line™ Assembly	2
B. Mule-Hide Mate-Line Assembly (Mate-Line Tape)	4
C. Splicing Seams with In-Seam Tape	6
D. Splicing Seams with Splice Adhesive	8
E. Vents (metal)	10
F. EPDM Pipe Boots w/Tape	11
G. EPDM Pipe Boots	12
H. Field Fabrication of Pipe Flashings	12
I. Repair Procedures Using Splice Adhesive	14
J. Temporary Night Seals (Recover Applications or New Sets)	15
<u>Dismantling Instructions & Guidelines</u>	<u>Page No.</u>
A. Dismantling Mate-Lines Assembly versus Non-Assembly	16
B. Temporary Perimeter Securement	18
<u>Typical Details for Additional Reference</u>	<u>Page No.</u>
Details Index	19
Published Details Supplement	21-49

The following instructions are condensed. For additional information, consult the Mule-Hide Modular Specification Manual or contact Mule-Hide Customer Support at (800) 786-1492.

Setup Instructions and Guidelines

Warning: Splice Adhesive, Membrane Cleaner, Tape Primer, and solvents recommended in this guide are "red label" products. Lap Sealant and Water Cut-Off are also solvent-based products. Be sure to read all labels on the containers and appropriate MSDS and PDS for each product prior to use.

For the purpose of this guide, a mate-line is the junction of two modular units. This is the joint formed when two units are secured to each other. The walls that are butted together are referred to, in this guide, as marriage walls.

A. Mule-Hide Self-Bridging Mate-Line™ Assembly

Note: Mule-Hide Modular Standard System Warranties are only available if Mule-Hide Self-Bridging Mate-Line™ is used as bridging material.

Joining of Multiple Modular Units using Self-Bridging Mate-Line™:

1. This Mule-Hide Mate-Line assembly consists of Self-Bridging Mate-Line™ and Tape Primer. These components are used to seal the EPDM roof system at the junctions of multiple modular units.

Note: Do not remove the EPDM membrane from marriage walls of multiple units.

2. Optional - Install backer rod (rope style foam insulation) or insulation in the gap between the units to fill the void (See details at end of this handbook).
3. If dirt is present, clean the roof area to be covered with Self-Bridging Mate-Line™ with a solvent (toluene or xylene) and a Scotch-Brite® pad (scrub pad). Excessive dirt may require cleaning with soap and water prior to cleaning with solvent. Follow this with a clean cotton cloth saturated with solvent. Turn the cloth frequently and dispose when dirty. **Do not use gasoline to clean the EPDM surface!**
4. Let the solvent completely evaporate.

5. Once the solvent has evaporated, using a Scotch-Brite® pad, apply Tape Primer to the roof area along each unit where the Self-Bridging Mate-Line™ will be installed. Extend the coverage enough so that primer is visible once the tape is installed. **Seam Cleaner cannot be used as a substitute when using Tape!**
6. Starting at the building edge, using a pen or marker, on the EPDM membrane, mark an alignment line (parallel to the mate-line) for the Mate-Line Tape. This alignment line should center the tape over the mate-line joint. It is only necessary to mark a line 5' to 10' from the edge of the structure. Mark positioning points every couple of feet the remaining distance. The release paper on the roll and a good eye will help keep it centered. Do not use a chalk line as the chalk dust may affect the bond.
7. Starting at the building edge, roll out approximately 5' of the Self-Bridging Mate-Line™. Position the 5-foot section with the edge of the structure and along the alignment line. Lifting the 5-foot section, peel back the release paper. Set the Self-Bridging Mate-Line™ back in place along the alignment line. Roll the 5-foot section with a 2" steel or nylon roller. Roll the large roll back onto the 5-foot section. Insert a 2" x 24" piece of plastic through the cardboard roll in the core. With your weight on the release paper, start rolling (with a steady motion) the Self-Bridging Mate-Line™ over the mate-line. The release paper should come free as the Self-Bridging Mate-Line™ is rolled down the length of the mate-line. If the release paper becomes too long to manage, simply cut it off.
8. Using a 2" wide steel or nylon roller, pressure roll the Self-Bridging Mate-Line™ across its width and then roll it a second time in a lengthwise direction.
9. Use Mule-Hide Lap Sealant (Caulk) at all end laps (where the end of one Self-Bridging Mate-Line™ overlaps the next strip) and "T"-laps (where one strip of Self-Bridging Mate-Line™ intersects and crosses over another strip of Self-Bridging Mate-Line™). Do not trowel the Lap Sealant. The Lap Sealant should be applied at a rate of about 20 linear feet per tube. Lap

Sealant shall be applied along the cut edge (end) of the strip and along the sides of the strips, 3" in each direction from the point of overlap or intersection of two strips.

B. Mule-Hide Mate-Line Assembly (Mate-Line Tape)

Joining of Multiple Modular Units Using Mate-Line Tape:

1. This Mule-Hide Mate-Line Assembly consists of Mate-Line Tape, Tape Primer, and Bridging Material. These components are used to seal the EPDM roof system at the junctions of multiple modular units.

Note: Do not remove the EPDM membrane from marriage walls of multiple units. However, if the membrane is removed from the marriage walls and used to cover over the bridging material, the membrane must be adhered to bridging material and the roof membrane with the Splice Adhesive. The EPDM membrane may need to be stripped with Mate-Line Tape to seal holes caused by the temporary attachment.

2. Optional - Install backer rod (rope style foam insulation) or insulation in the gap between the units to fill the void (See details at end of this guide).
3. If dirt is present, clean the roof area to be covered with the Mule-Hide Mate-Line Tape with a solvent (toluene or xylene) and a Scotch-Brite® pad (scrub pad). Excessive dirt may require cleaning with soap and water prior to cleaning with solvent. Follow this with a clean cotton cloth saturated with solvent. Turn the cloth frequently and dispose when dirty. **Do not use gasoline to clean the EPDM surface!**
4. Let the solvent completely evaporate.
5. Once the solvent has evaporated, using a Scotch-Brite® pad, apply Mule-Hide Tape Primer to the roof area along each unit where the Mate-Line Tape will be installed. Extend the coverage enough so that primer is visible once the tape is installed. **Seam Cleaner cannot be used as a substitute when using Mate-Line Tape!**

6. Bridging material:

a. Bridging material such as 1/4" thick plywood with beveled edges, Thermal Ply, and others, if used, should be installed prior to applying Tape Primer. If bridging material is to be attached to the roof surface, use a back-out resistant fastener. Standard System Warranties are not available if using bridging material other than Mule-Hide's Self-Bridging Mate-Line™.

b. **Mate-Line Tape must make contact to the primed EPDM roof surface a minimum of 3" on each side of the bridging material.**

7. Starting at the building edge, using a pen or marker, on the EPDM membrane, mark an alignment line (parallel to the mate-line) for the Mate-Line Tape. This alignment line should center the tape over the mate-line joint. It is only necessary to mark a line 5' to 10' from the edge of the structure. Mark positioning points every couple of feet the remaining distance. The release paper on the roll and a good eye will help keep it centered. Do not use a chalk line as the chalk dust may affect the bond.

8. Starting at the building edge, roll out approximately 5' of the Mate-Line Tape. Position the 5-foot section with the edge of the structure and along the alignment line. Lifting the 5-foot section, peel back the release paper. Set the Mate-Line Tape back in place along the alignment line. Roll the 5-foot section with a 2" steel or nylon roller. Roll the large roll back onto the 5-foot section. Insert a 2" x 24" piece of plastic pipe through the cardboard core in the roll. With your weight on the release paper, start rolling (with a steady motion) the Mate-Line Tape over the mate-line. The release paper should come free as the Mate-Line Tape is rolled down the length of the mate-line. If the release paper becomes too long to manage, simply cut it off.

9. Using a 2" wide steel or nylon roller, pressure roll the Mate-Line Tape across its width and then roll it a second time in a lengthwise direction.

10. Use Mule-Hide Lap Sealant (Caulk) at all end laps (where the end of one Mate-Line Tape strip overlaps the next strip) and "T"-laps (where one strip of Mate-Line Tape intersects and crosses over another strip of Mate-Line Tape). Do not trowel the Lap Sealant. The Lap Sealant should be applied at a rate of about 20 lineal feet per tube. Lap Sealant shall be applied along the cut edge (end) of the strip and along the sides of the strips, 3" in each direction from the point of overlap or intersection of two strips.

C. Splicing Seams with In-Seam Tape

This procedure should be followed when making a seam or when joining one roof membrane to another.

1. Make sure the top sheet is lapped over the bottom sheet in shingle fashion so water will flow over the seam edge and not against it.
2. All surfaces to be spliced shall be clean and dry. Overlap the adjacent membrane a minimum of 3" and fold back approximately 12" to allow for cleaning. Remove excess talc by wiping the seam area with clean damp rags. Dispose of all rags as they become dirty.
3. Prepare each surface of the seam by scrubbing the clean areas with Tape Primer using Scotch-Brite® pads. Preliminary cleaning may be accomplished by using the Scotch-Brite® pads and toluene or xylene. Additional cleaning may be required along the factory seams that intersect the seam area to remove excess accumulations of talc. Scotch-Brite® pads shall be replaced with clean ones as they become dirty. The Tape Primer should be thoroughly stirred prior to use. The primed membrane should have a uniform black color when dry. There should be no streaks present
4. Roll the top sheet back over the bottom sheet and mark the bottom sheet to allow for proper alignment of the In-Seam Tape. Place marks about 1/2" away from the edge of the sheet and about 2 to 3 feet apart. Do not use a chalk line or any type of marker that will prevent the tape from adhering to the EPDM membrane.

5. Fold the top sheet back. Approximately 1/8" to 3/8" of the In-Seam Tape should be exposed along the completed seam. Unroll 2 to 3 feet of the In-Seam Tape leaving the release liner in place. Align the In-Seam Tape so that the edge of the release liner is touching the guideline (marks). Do not install the tape over the line (marks). Leaving the release liner in place, install the In-Seam Tape along the marks on the bottom sheet. Roll the tape with a 2" steel or nylon roller along the entire length of the seam. The roller must run perpendicular to the tape with overlapping strokes. If more than one piece (roll) of tape is required to complete a seam, the second piece of tape must overlap the first a minimum of 1 inch.
6. Where the In-Seam Tape intersects at the corner of a sheet, the tapes must overlap a minimum of 1 inch.
7. Fold the top sheet back onto the tape so the sheet is laying over the release paper. Peel the release paper off the tape at a 45-degree angle and parallel with the roof allowing the top sheet to fall freely onto the exposed tape. Press the seam together using hand pressure and wiping toward the splice edge. Immediately roll the seam with a 2" steel or nylon roller, using positive pressure, toward the edge of the seam.
8. Wait a minimum of 2 hours prior to application of the Lap Sealant. Lap Sealant is only required at the intersections with factory seams, where two pieces of tape overlap within the seam, and on patches installed over "T-joints". A bead of Lap Sealant should be applied along the overlap for 6" in each direction from the center point of the overlap.

Note: "T-joints" are those points where two field seams intersect or where two pieces of cured material (EPDM membrane) are seamed over a third piece (typically at the base of a vertical flashing where pieces overlap, at the base of a vertical flashing seam). "T-joints" are also referred to as "T-laps". This can also be referred to as the edge point where three pieces of material overlap.

9. Regardless of the method used to splice the seams, all seams must be thoroughly inspected for fishmouths,

bubbles, blisters, and wrinkles and repaired as necessary.

10. If fishmouths or wrinkles occur through the seam, they must be cut out and patched with cured membrane (Mate-Line Tape may be used).
11. Patches cut from cured EPDM membrane or Mate-Line Tape (do not use Uncured Flashing or Uncured Flashing Tape) should be at least 3" larger in all directions than the area that has been cut out. Round the corners of the patch.
12. Center the patch over the area to be repaired. Follow the splicing procedure for the appropriate material used.

D. Splicing Seams with Splice Adhesive

Splicing seams with Mule-Hide Splice Adhesive:

1. Make sure that the top sheet is lapped over the bottom sheet in shingle fashion so water will flow over the seam edge and not against it.
2. All surfaces to be spliced shall be clean and dry. Overlap the adjacent membrane a minimum of 3" and fold back the top sheet approximately 12" to allow for cleaning. Remove excess talc by wiping the seam area with clean damp rags. Dispose of all rags as they become dirty.
3. Prepare each surface of the seam by scrubbing the cleaned areas with Seam Cleaner using clean cotton rags or Scotch-Brite® pads. Preliminary cleaning may be accomplished by wiping the seam area with clean rags saturated with toluene or xylene. Additional cleaning may be required along the factory seams that intersect the seam area to remove excess accumulations of talc. Rags must be replaced with clean ones as they become dirty. The cleaned membrane should have a uniform black color when dry. There should be no streaks present.
4. Black Seam Cleaner must be used with the black EPDM membranes.
5. Clear Seam Cleaner must be used with the White-on-Black EPDM membranes.

6. Tape Primer may be used as a substitute for either the Black or Clear Seam Cleaner.
7. Seam Cleaners, Tape Primer, and Splice Adhesives must be thoroughly stirred prior to application. Be sure to scrape the sides and bottom of the cans while stirring.
8. Apply the Splice Adhesive to the cleaned and prepared surfaces of both sheets. Mule-Hide recommends the use of a solvent resistant, 3"-4" wide, short bristle paintbrush or a solvent resistant 3" wide, 1/2" medium nap, paint roller.
9. Apply the adhesive in a uniformly thick even coat. When using a paintbrush do not use a circular motion. Use long, straight strokes applying sufficient adhesive that will achieve a smooth surface without leaving brush marks. When using a roller do not over-roll the adhesive, as this will cause an uneven application.
10. **Do not allow the adhesive to puddle or leave globs** as these areas will not dry properly and may cause excessive swelling of the membrane which will result in fishmouths in the finished seam.
11. Adhesive must be applied to both surfaces of the seam at the same time to allow for uniform drying of the adhesive. The adhesive must fully cover the surface of the splice areas a minimum of 3" wide.
12. Allow the adhesive to dry until tacky to the touch of a dry finger without stringing or sticking to the finger (should not move when pushed forward or the finger is twisted).Note: Drying time (also referred to as Flash-Off time) will vary from day to day depending on the ambient weather conditions. In colder weather, condensation may form on the surface of the adhesive, which is caused by solvent flashing off. If this occurs, the application of the Splice Adhesive should be discontinued. The surface must be allowed to dry and a thin coat of adhesive must be applied over the existing adhesive.
13. Roll the top sheet onto the bottom sheet being careful not to stretch or wrinkle the membrane. Apply hand

pressure brushing from the inside of the sheet outward to the edge removing air and fishmouths.

14. Using a 2" wide steel roller, apply positive pressure rolling from the inside of the seam working out over the edge of the sheet perpendicular to the direction of the seam. The entire seam must be rolled in this manner. A J.R. Seamer Power Roller may be used in place of the 2" steel roller.
15. All "T-joint" laps in the field membrane shall be reinforced with a 6" piece of Uncured Flashing (Uncured Flashing Tape may also be used) centered over the intersection of the edges of the seams. Follow the seaming procedure for the material used for the patch. All "T-joint" patches should be caulked with Lap Sealant.
16. Field seams and flashing should set for several hours prior to the application of Lap Sealant. At the latest, Lap Sealant should be applied to all seam edges at the end of the workday and before any moisture has a chance to form on the membrane.
17. Just prior to applying the Lap Sealant, the seam and flashing edges should be cleaned with a clean rag or cloth using Seam Cleaner to remove any dirt or talc that may remain along the seam edge. Be sure that all edges of the splice have been covered with a continuous bead of Lap Sealant. **It is not necessary to trowel (screed) the sealant.** The Lap Sealant will self-level. Lap Sealant should be applied at a maximum rate of 20 linear feet per tube.

E. Vents (metal)

1. All metal vents, stacks, and flanges must be cleaned with Tape Primer prior to installation, both top and bottom surfaces. Round off corners of metal flanges prior to securing to the roof surface.
2. Apply a bead of Water Cut-Off or strip of butyl seal tape to the underside of the flange of the metal vent. The tape/Water Cut-Off should be positioned about 1" in from the edge of the flange. Position the vent on the roof where needed. Using Mule-Hide fasteners, secure the flange to the roof deck, spacing the fasteners

approximately 4" apart. The fasteners should also set about 1" in from the edge of the flange, penetrating through the tape/Water Cut-Off.

3. Clean the metal and the surrounding EPDM surface with Tape Primer using a 3M Scotch-Brite® pad. Cut strips of 6" wide Mate-Line Tape to flash each side of the vent. Make sure there is a uniform coat of Tape Primer on the metal flange. Once the primer has dried to the touch, starting at the low side of the roof, strip in each side of the vent centering the Mate-Line Tape equally on the metal and roof surface. A 6" wide strip should have 3" on the metal and 3" on the roof surface. When overlapping the Mate-Line Tape, a coat of Tape Primer must be applied to the top of the Mate-Line Tape (the piece just installed) prior to overlapping the next piece. Only apply the Tape Primer to the portion of the Mate-Line Tape that will be covered by the next piece. Continue this process until all four sides are complete.
4. Thoroughly roll the strips of tape to ensure a proper bond. Finish the detail by caulking all edges of the strips of tape with Lap Sealant. Refer to detail MHE-309 for strip layout.

F. EPDM Pipe Boots with Tape

1. Pipe Boots must be cut to fit tightly around pipes. Pre-fit the boot in place over the pipe. Use an ink pen to outline the base of the boot flange on the roof membrane. Remove the boot and prime the roof surface around the pipe with Tape Primer using a Scotch-Brite® pad. The primed area should extend 1/4 inch beyond the ink marks.
2. Remove the release paper from the bottom of the boot flange and slide the pipe boot over the pipe and press in place. To finish mating the surfaces, use a 2" steel or nylon roller, and thoroughly roll the boot flange to ensure adhesion. To complete, apply a bead of Lap Sealant around the perimeter of the boot flange.
3. Turn down the top of the pipe boot about 1 inch and apply a bead of Water Cut-Off around the pipe at the top of the fold. Turn the boot back in place. The top of the boot

should cover the Water Cut-Off. The Water Cut-Off acts as a gasket between the top of the boot and the pipe. **Install a metal clamping ring at the top of the boot.** To finish, apply a heavy bead of Lap Sealant where boot meets the pipe. See detail.

G. EPDM Pipe Boots

1. Pipe Boots must be cut to fit tightly around pipes. Pre-fit the boot in place over the pipe. Use an ink pen to outline the base of the boot flange on the roof membrane. Remove the boot and clean (prime) the roof surface around the pipe and the bottom of the boot flange with Seam Cleaner (or Tape Primer) using a Scotch-Brite® pad. The cleaned/primed area around the pipe should extend at least 1/4" beyond the ink marks. Once the Seam Cleaner (or Tape primer) has dried, apply splice adhesive to primed areas and bottom of boot flange.
2. When adhesive is dry, slide the pipe boot over the pipe and press in place. To finish mating the surfaces, use a 2" steel or nylon roller, and thoroughly roll the boot flange to ensure adhesion. To complete, apply a bead of Lap Sealant around the perimeter of the boot flange.
3. Turn down the top of the boot about 1 inch and apply a bead of Water Cut-Off around the pipe at the top of the fold. Turn the boot back in place. The top of the boot should cover the Water Cut-Off. The Water Cut-Off acts as a gasket between the top of the boot and the pipe. **Install a metal clamping ring at the top of the boot.** To finish, apply a heavy bead of Lap Sealant where boot meets the pipe. See detail

H. Field Fabrication of Pipe Flashings

Using EPDM membrane (cured field sheet) cut a circular or rectangular piece of membrane for each pipe protrusion. The piece of membrane should be 12" larger than the diameter of each protrusion. For example, a 4" vent would require a 16" circular or square piece of EPDM membrane. All corners of rectangular or square pieces should be rounded. Use scissors for this cutting procedure as detailed below.

1. Cut a smooth, round, center hole in each piece that is 1-1/4" smaller in diameter than the protrusion. This will allow for a 1/2" to 3/4" flare-up of membrane around the base of the protrusion.
2. Fit each piece over its respective protrusion by stretching the center hole enough to allow the membrane to slide down to roof level. Check to make sure that the membrane extends at least 4" beyond all cuts in the main roof membrane.
3. Using a ballpoint pen, mark the roof membrane around the perimeter of each piece. Make alignment marks on the top of each piece and on the roof so the pieces will align. Remove the pieces from the protrusion and lay them out on a piece of cardboard or plywood.
4. Clean the bottom side of each piece that will be adhered and clean the respective areas on the roof surface around each protrusion. Clean all surfaces to be bonded with Seam Cleaner (or Tape Primer) using a Scotch-Brite® pad. Allow to dry before applying Splice Adhesive.
5. Stir the Splice Adhesive before using. Apply a thick, even coat with a 3" brush to each piece and its respective area around each protrusion. Leave no voids when applying adhesive. Do NOT apply adhesive to vertical sides of protrusions nor around the center part of your flashing (the part that flares up around the protrusion). Extend adhesive 1/4" beyond your pen lines around the protrusion. Apply the adhesive as you would apply a coat of paint, in an even layer.
6. Let the adhesive dry to the touch before installing membrane around the protrusions.
7. Lay a piece of polyethylene on the roof surface around each protrusion to cover the adhesive to prevent premature sticking of the pieces until they are positioned.
8. After pressing each piece down around the protrusion, remove the polyethylene and mate the surfaces together. Rub the area down with hand pressure

followed with a 2" steel or nylon roller to ensure positive contact.

9. There should be 1/2" to 3/4" of membrane flared-up around each protrusion. Using Uncured Flashing, cut a piece 6" to 8" wide and long enough to go around the vertical portion of the protrusion with enough excess to overlap by 2". These are the flashings, and will be installed over the flare of the base pieces just installed. Clean the top surface of the base piece around the protrusion about 2" to 3" out from the protrusion with Seam Cleaner (or Tape Primer), let dry and apply a coat of Splice Adhesive over the cleaned surface (back side) of the piece of flashing. Additional adhesive must be applied to the vertical flashing to allow the 2" excess to bond at the overlap. Allow adhesive to dry before finishing the wrap. When adhesive is dry to the touch install the flashing wrapping around the base of the protrusion covering the flare of the first piece, and extending out onto the base a minimum of 1" and 6" to 8" up the sides of the pipe. First rub flashing with hand pressure. Using a 2" steel or nylon roller, thoroughly roll the entire flashing to ensure proper contact.
10. Apply Lap Sealant to the outside edge, bottom, and top of the flashing and any other flashing edges with a 3/8" bead of Lap Sealant. Do not trowel the Lap Sealant.
11. Replace all rain caps and pipe extensions, if any.

I. Repair Procedures using Splice Adhesive

1. Cut a piece of Mule-Hide EPDM membrane a minimum of 3" larger (in all directions) than the damaged area. When cutting pieces of EPDM for flashings or repair patches, remember to always round off the corners of each piece.
2. Clean the bottom side of the patch and the surface around the damaged area where the patch will be placed with Seam Cleaner using a Scotch-Brite® pad. Tape Primer may also be used. Allow to dry to the touch. Excessive dirt may require pre-cleaning with solvent or soap and water (using a scrub brush) prior to using solvent.

3. Center the patch over the damaged area. Using a pen or marking pen, draw a line around the patch and make alignment marks on the patch and roof surface for proper positioning.
4. With a small brush or roller, apply Splice Adhesive to the bottom side of the patch and the roof surface extending adhesive about 1/4" beyond pen line.
5. When both surfaces are dry to the touch, position the patch and press in place. Roll with a 2" wide steel or nylon roller to ensure total adhesion.
6. Apply a 3/8" bead of Lap Sealant around the perimeter of the patch. Make sure the Lap Sealant adheres to both the patch and the roof surface. Do not trowel the sealant.

J. Temporary Night Seals (Recover Applications or New Sets)

1. Install temporary cutoffs around incomplete edges of roofing assembly at the end of each day's work and when work must be postponed due to inclement weather. All work should be watertight at the end of each day.
2. All loose membrane edges should be sealed with Water Cut-Off or Pourable Sealer to prevent water migration under the finished roof sections.
3. For temporary tie-ins to existing BUR roof systems, remove all gravel, dirt and debris from the tie-in area and make sure all surfaces are clean and dry. Using either the Water Cut-Off or the Pourable Sealer, apply a heavy continuous bead along the length of the tie-in.
4. Press the membrane into the sealant making sure there is a complete and continuous seal. Apply weight to the edge of the membrane to prevent possible movement by the wind.

Dismantling Instructions and Guidelines

A. Dismantling Mate-Lines - Assembly versus Non-Assembly

1. Before dismantling modular units, investigate the roof system first. Is the system fully adhered or is it mechanically attached? Was the roofing material installed on each individual modular unit prior to setup or was the roof installed with large sheets after the units were joined together? Was a mate-line assembly used to join and seal the units together? The answers to these questions will determine the proper method to follow when separating modular units while maintaining the integrity of the roofing system for each unit.
2. A multi-unit modular structure, which had each individual modular unit roofed prior to final assembly, has a membrane sheet dedicated for each particular unit. When roofed individually there may be sufficient membrane to secure the roof for transportation. On a multi-unit modular structure that was roofed after the units were joined together, wide sheets may have been used that will not have excess material to secure each unit.
3. It is best to investigate the mate-line assembly prior to beginning the process of dismantling the units. To determine if there is material available, dismantle the end wall and edge detail at the mate-line on the end of the building to resolve how the mate-line assembly was completed. The following are examples of possible conditions and solutions:
 - a. The roof membranes were overlapped onto each other at the mate-lines approximately 4" to 6" and sealed with Splice Adhesive. **The seam may be peeled apart at a 90-degree angle.** The loose material may be draped over the side and secured to the sidewall with termination bars or wood strips. Using this method will ensure the integrity of the roof system and allow ample material for securement.
 - b. The mate-line assembly consists of the mate-line being overlaid with plywood bridging and a strip of

EPDM membrane adhered to the plywood and seamed to each roof membrane. The original membrane is still attached to all sides of the unit. **The EPDM membrane used to cover the plywood can be peeled back at a 90-degree angle and removed.** The plywood may also be removed. Holes in the membrane left from removing the fasteners used to attach the plywood to each unit will require patches.

- c. Mule-Hide Mate-Line Assembly was used which consists of 12" wide Mate-Line™ Tape applied over 4" wide Bridging Material or 1/4" thick Iuan plywood or thermal ply. To remove, cut the Mate-Line Tape down the center the length of the mate-line. Peel back the cover tape to determine if the bridging material was installed loose or fastened. If the bridging material was loose, simply pull out the bridging material. If the bridging material was fastened, peel back the cover tape, expose and remove the fasteners, then remove the bridging material. Once the bridging material is removed, use a utility knife to trim off the excess Mate-Line Tape being careful not to cut into the roof membrane. Normally, when completing a Mule-Hide Mate-Line Assembly with Mate-Line Tape, the roof membrane is anchored on all four sides with either termination bar or wood strips. Simply cutting through the Mate-Line Tape and removing the bridging (or cutting through it) will separate the units, leaving the roof membrane intact and watertight. If the bridging material was secured with fasteners, the holes must be patched before the unit is moved.
- d. The mate-line assembly used consists of one roof membrane overlapped onto the other with a bridging board (1" x 6" with 45 degree bevels on each side) attached to the roof deck. In this situation, the installing contractor had peeled back the roof, installed the bridging board, then overlaid the board with roof membrane and seamed the two membranes together. To dismantle, simply reverse the procedure. **Peel apart the seam until the edge of the bottom sheet is exposed.** Peel the bottom

sheet from the bridging board. Remove the bridging board and pull the membrane down over the edge of the side of the unit. Secure the membrane to the side of the wall with termination bar or wood strips.

- e. No mate-line assembly was used. The modular complex was roofed after the units were joined together. Large sheets of membrane were used resulting in field seams that do not line up with the unit joints. Was insulation installed or was the roof system installed directly over the deck or an existing metal roof? Were the mate-lines covered with 10" wide metal strips and screwed together? Whether the roof is fully adhered or mechanically attached is important when determining the preparation necessary to transport the units. If the roof is fully adhered to the deck, existing roof or to insulation that has been fastened to the deck at a rate of 16 fasteners per 4' x 8' board, preparing the unit for transportation should be minimal. If the roof membrane is mechanically attached, additional securement may be required. Mechanically attached roofs will balloon during transportation and must be fully secured. With either system, the roof must be properly secured and sealed around the perimeter prior to shipment.

- F. Self-Bridging Mate-Line™ was used. Using a utility knife, cut through the Self-Bridging Mate-Line™. This will separate the units and leave the roof membrane intact and water-tight.

B. Temporary Perimeter Securement

1. Membrane must be attached either to the side of the structure or to the top of the roof at the perimeter edge. Using 1" x 2" strips of wood screwed 6" to 8" on center should be sufficient.
2. When installing temporary sidewall material such as visqueen, use 1" x 2" boards at the perimeter edge or at the top of the sidewall to secure the visqueen. Use EPDM Lap Sealant to seal the visqueen to the roof surface (but use sparingly).

Scotch-Brite® is a registered trademark of 3M Corporation.

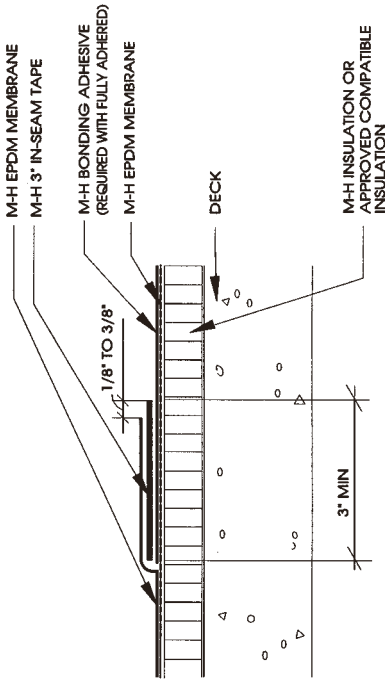
DETAILS:

The following published details are typical details that may be encountered when assembling the units in the field. Details listed should be followed if a Mule-Hide Modular System Warranty is requested. For any conditions not addressed in this booklet, please refer to the published details in the Mule-Hide EPDM Specification Manual. Contact Mule-Hide Customer Support for assistance or to obtain additional details.

INDEX:

<u>Typical Details Additional Reference</u>	<u>Page No.</u>
MHE-111 - Membrane Splice w/3" In-Seam Tape All Systems	21
MHE-125 - Parapet/Curb Flashing w/RMS-Horz. All Systems	22
MHE-130 - Roof Drain - All Systems	23
MHE-133 - Drain Insert - All Systems	24
MHE-134 - Through Wall Scupper w/Metal Insert All Systems	25
MHE-140 - Premolded Pipe Boot Ballasted & Fully Adhered Systems	26
MHE-141 - Field Fabricated Pipe Flashing All Systems	27
MHE-142 - Field Fabricated Hot Pipe - All Systems	28
MHE-143 - Field Fabricated Pitch Pan - All Systems	29
MHE-170 - Vertical Termination w/A-PBar - All Systems	30
MHE-183 - EPDM Outside Corner - All Systems	31
MHE-184 - 2 Piece Inside Corner EPDM Wall Flashing All Systems	32
MHE-185 - Folded Membrane-Inside Corner w/1 piece Uncured Flashing - All Systems	33
MHE-300 - Corner Fold Detail - Modular Systems	34

MHE-301 - Mate-Line™ w/EPDM Strip Modular Systems	35
MHE-302 - Mate-Line™ w/Cover Tape Modular Systems	36
MHE-303 - Self-Bridging Mate-Line™ w/Cover Tape Modular Systems	37
MHE-303B - Self-Bridging Mate-Line™ w/Cover Tape Modular Systems	38
MHE-305 - Bar Termination w/Cover Modular Systems	39
MHE-306 - Channel Termination - Modular Systems	40
MHE-307 - Raised Mate-Line™ - Modular Systems	41
MHE-308 - Metal Coping Termination Modular Systems	42
MHE-309 - Vent Flashing - Modular Systems	43
MHE-310 - Sleeper - Modular Systems	44
MHE-311- Drip Apron/Gutter Termination Modular Systems	45
MHE-312A - Wood Curb Flashing - Modular Systems	46
MHE-312B - Wood Curb Flashing - Modular Systems	47
MHE-313A - Welded Curb Flashing Modular Systems	48
MHE-313B - Welded Curb Flashing Modular Systems	49



NOTE: MULE HIDE TAPE PRIMER MUST BE USED PRIOR TO APPLICATION OF IN-SEAM TAPE. FOLLOW PROCEDURE IN MANUAL.

DETAIL NO.:
MHE-111

MEMBRANE SPICE
W/ 3" IN-SEAM TAPE

SYSTEMS:
ALL

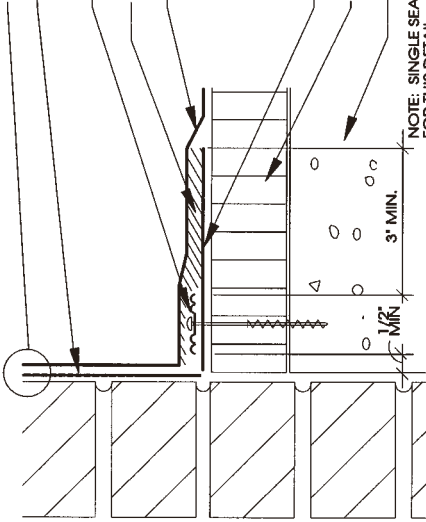
MULE-HIDE
PRODUCTS CO., INC.

2000



ANY M-H STANDARD TERMINATION
 M-H BONDING ADHESIVE
 M-H 2" BARBED SEAM PLATES
 (FASTENERS 12" O.C. MAX)
 M-H SPURCE ADHESIVE
 (MUST USE M-H SEAM CLEANER)
 M-H EPDM MEMBRANE

M-H RMS STRIP
 M-H INSULATION OR APPROVED
 COMPATIBLE INSULATION
 DECK



NOTE: SINGLE SEAL ADHESIVE IS NOT APPROVED
 FOR THIS DETAIL

DETAIL NO.:
MHE-125

PARAPET/CURB FLASHING
 W/ RMS - HORIZONTAL

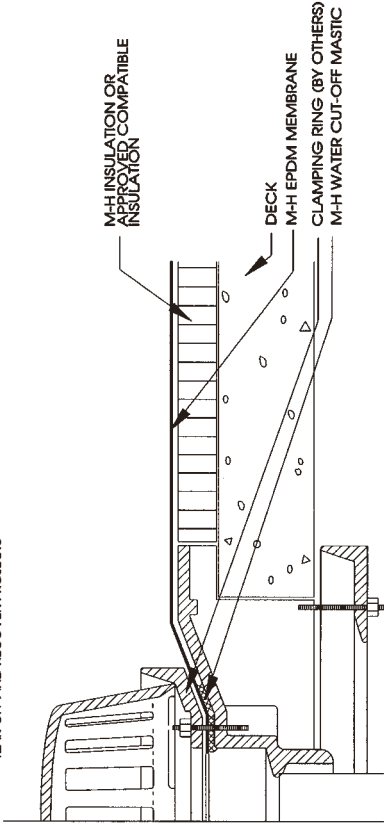
SYSTEMS:
 ALL

**MULE-HIDE
 PRODUCTS CO., INC.**

2000



NOTE: ALL LEAD AND OTHER FLASHING MATERIAL MUST BE REMOVED ON
TEAR-OFF AND RECOVER PROJECTS



DETAIL NO.:

MHE-130

ROOF DRAIN

SYSTEMS:

ALL

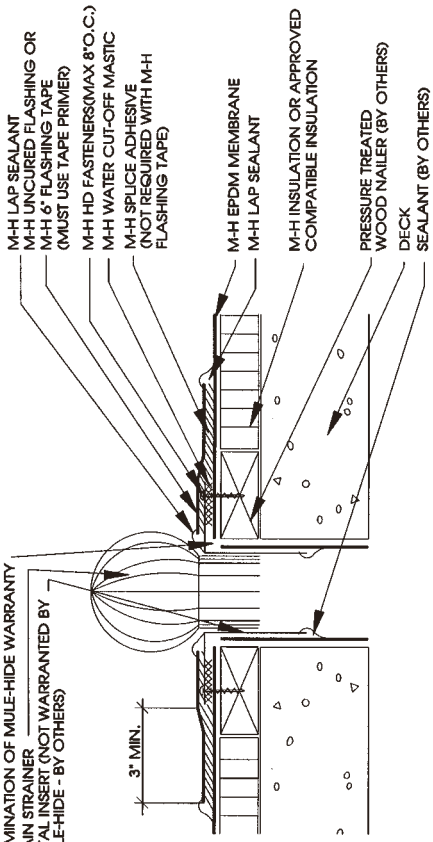
**MULE-HIDE
PRODUCTS CO., INC.**

2000



TERMINATION OF MULE-HIDE WARRANTY
 DRAIN STRAINER
 METAL INSERT (NOT WARRANTED BY
 MULE-HIDE - BY OTHERS)

3" MIN.

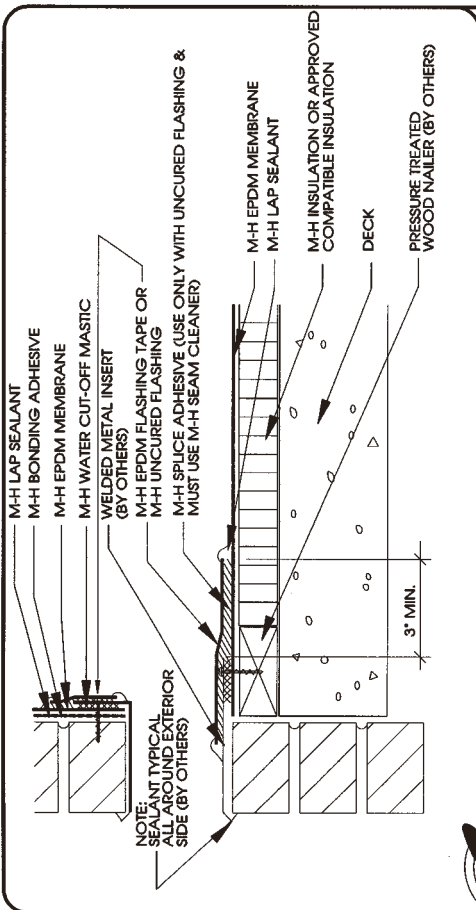


DRAIN INSERT
 SYSTEMS:
 ALL

DETAIL NO.:
MHE-133

MULE-HIDE
PRODUCTS CO., INC.
 2000



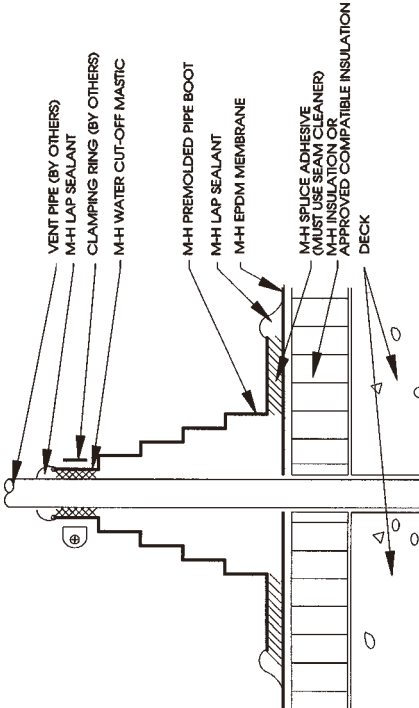


DETAIL NO.:
MHE-134

THROUGH WALL SCUPPER
 WITH METAL INSERT
 SYSTEMS:
 ALL

MULE-HIDE
PRODUCTS CO., INC.
 2000





DETAIL NO.:
MHE-140
"B"

PREMOLDED PIPE
 BOOT

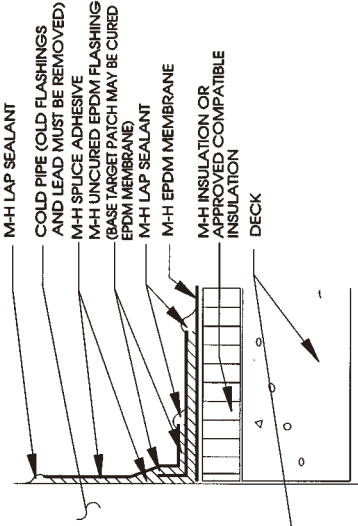
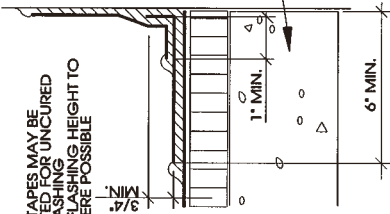
SYSTEMS:
 BALLASTED & FULLY ADHERED

MULE-HIDE
PRODUCTS CO., INC.
 2000



NOTE:

1. FLASHING TAPES MAY BE SUBSTITUTED FOR UNCURED EPDM FLASHING
2. MINIMUM FLASHING HEIGHT TO BE 8" WHERE POSSIBLE



**MULE-HIDE
PRODUCTS CO., INC.**

2000

FIELD FABRICATED
PIPE FLASHING

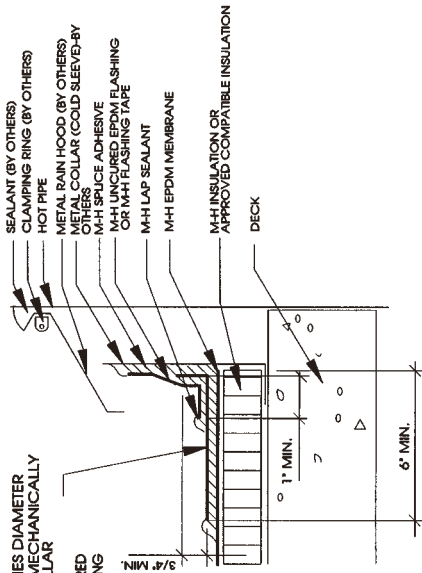
SYSTEMS:
ALL

DETAIL NO.:

MHE-141

NOTE:
 FOR ALL PIPES OVER 6 INCHES DIAMETER
 FIELD MEMBRANE MUST BE MECHANICALLY
 ATTACHED AT BASE OF COLLAR

BASE TARGET PATCH MAY BE CURED
 MEMBRANE OR UNCURED FLASHING



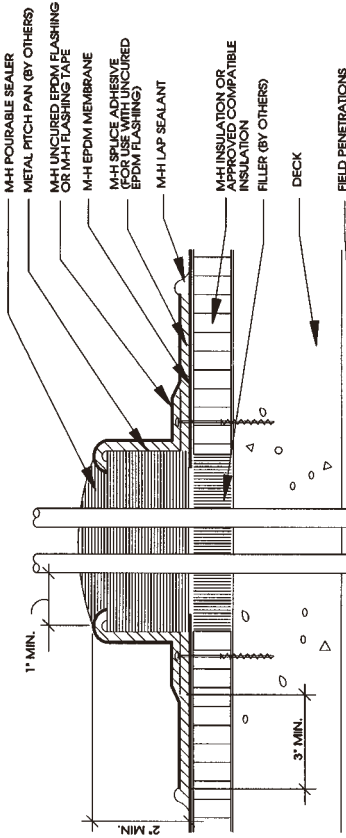
**MULE-HIDE
 PRODUCTS CO., INC.**

2000

FIELD FABRICATED
 HOT PIPE
 SYSTEMS:
 ALL

DETAIL NO.:

MHE-142



NOTE: WOOD NAILER MAY BE REQUIRED UNDER PITCH PAN FLANGE WHEN PITCH PANS ARE GREATER THAN 12" X 12"



**MULE-HIDE
PRODUCTS CO., INC.**

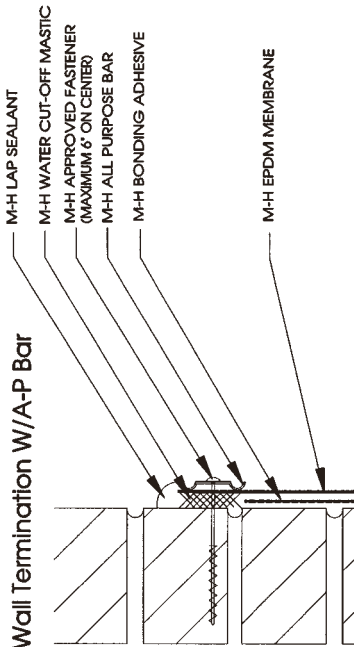
2000

FIELD FABRICATED
PITCH PAN
SYSTEMS:
ALL

DETAIL NO.:

MHE-143

Wall Termination W/A-P Bar



M-H LAP SEALANT

M-H WATER CUT-OFF MASTIC

M-H APPROVED FASTENER
(MAXIMUM 6" ON CENTER)

M-H ALL PURPOSE BAR

M-H BONDING ADHESIVE

M-H EPDM MEMBRANE



**MULE-HIDE
PRODUCTS CO., INC.**

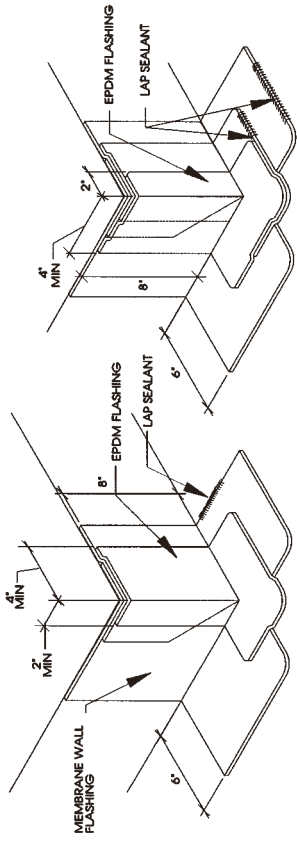
2000

VERTICAL TERMINATION
WITH A-P BAR

SYSTEMS:
ALL

DETAIL NO.:

MHE-170



STEP NO. 1

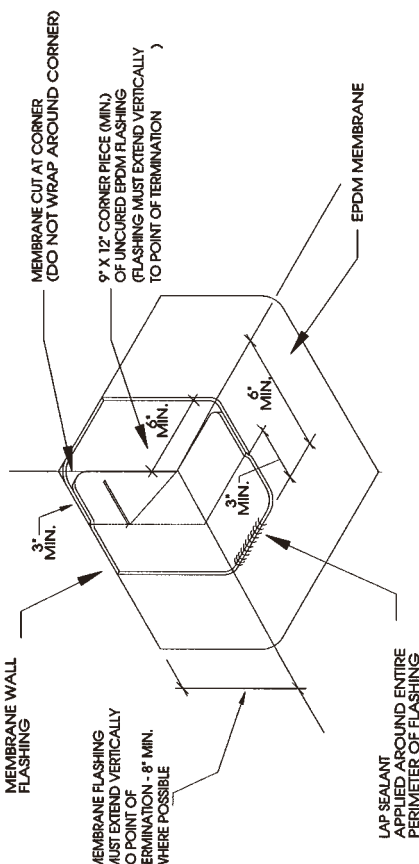
STEP NO. 2



**MULE-HIDE
PRODUCTS CO., INC.**
2000

EPDM
OUTSIDE CORNER
SYSTEMS:
ALL

DETAIL NO.:
MHE-183



**MULE-HIDE
PRODUCTS CO., INC.**

2000

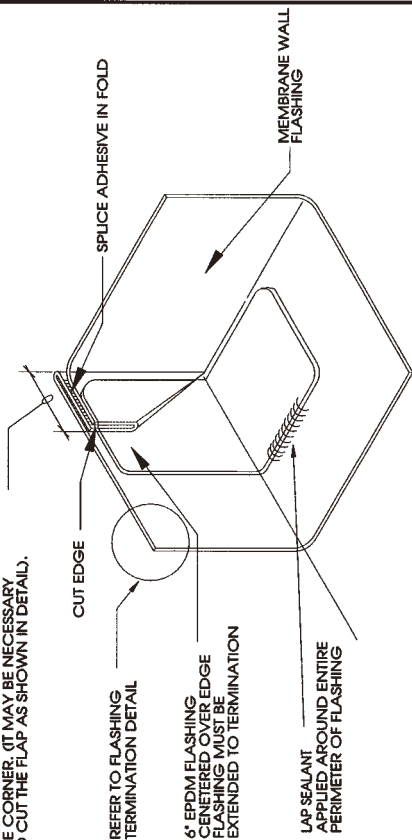
**2 PIECE INSIDE CORNER
EPDM WALL FLASHING**

SYSTEMS:
ALL

DETAIL NO.:

MHE-184

FOLD SHALL NOT EXCEED 3" FROM THE CORNER. (IT MAY BE NECESSARY TO CUT THE FLAP AS SHOWN IN DETAIL).

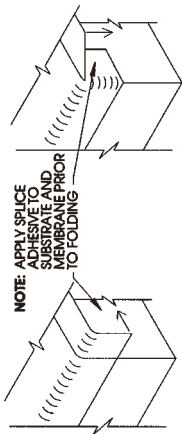


**MULE-HIDE
PRODUCTS CO., INC.**
2000

FOLDED MEMBRANE-INSIDE CORNER
WITH 1 PIECE UNCURED FLASHING

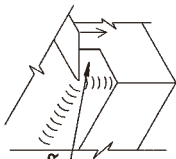
SYSTEMS:
ALL

DETAIL NO.::
MHE-185

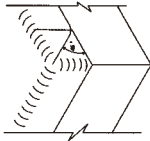


STEP 1

NOTE: APPLY SPlice
ADHESIVE TO
SUBSTRATE AND
MEMBRANE PRIOR
TO FOLDING

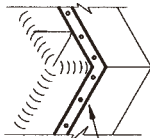


STEP 2



STEP 3

TERMINATION BAR
FASTENED 6" O.C.
(TOP OF BAR TO
BE CAULKED WITH
LAP SEALANT)



STEP 4

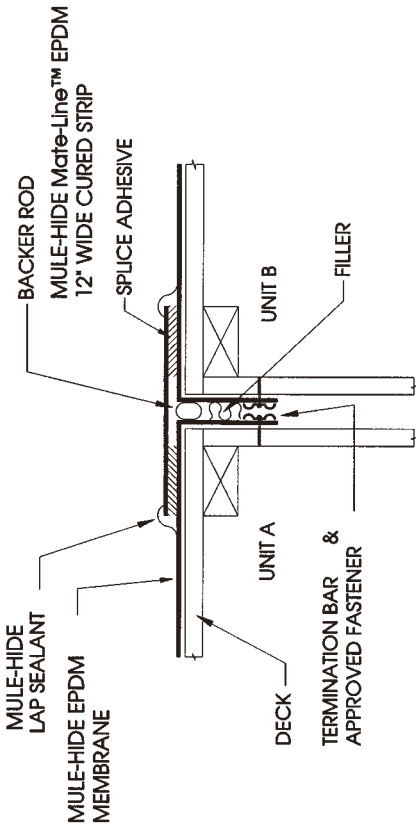


**MULE-HIDE
PRODUCTS CO., INC.**
2000

**CORNER FOLD DETAIL
MODULAR SYSTEMS**

DETAIL NO.:

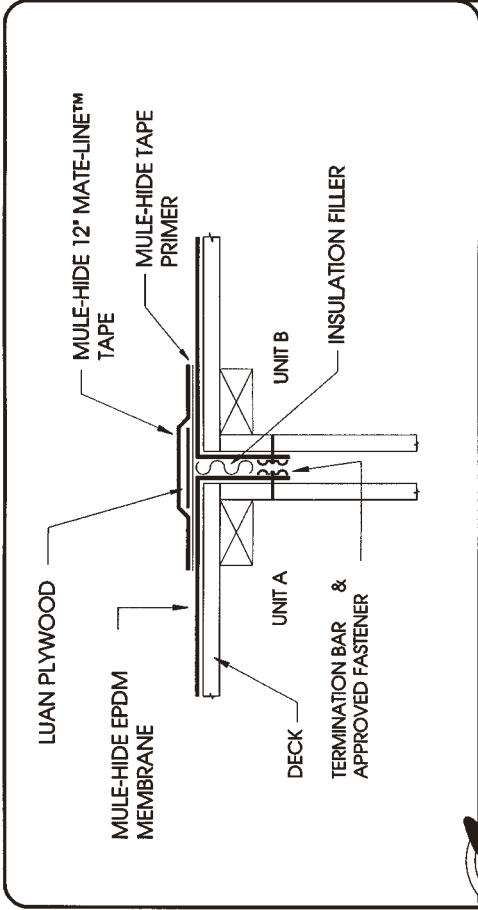
MHE-300



**MULE-HIDE
 PRODUCTS CO., INC.**
 2000

**MATE-LINE W/ EPDM STRIP
 MODULAR SYSTEMS**

DETAIL NO.:
MHE-301



**MULE-HIDE
PRODUCTS CO., INC.**

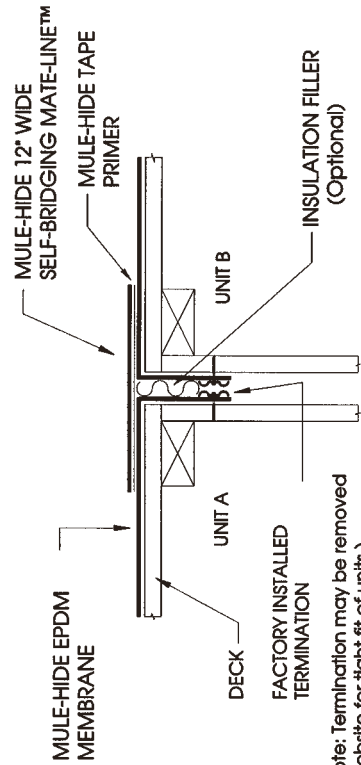
2000

MATE-LINE W/COVER TAPE

MODULAR SYSTEMS

DETAIL NO.:

MHE-302



(Note: Termination may be removed at jobsite for tight fit of units.)

Note: Lap Sealant is required at butt-joints and overlaps



MULE-HIDE PRODUCTS CO., INC.

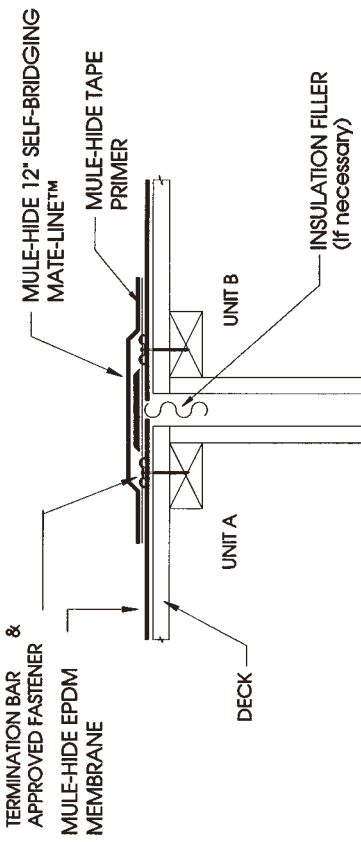
2001

SELF-BRIDGING MATE-LINE™

MODULAR SYSTEMS

DETAIL NO.:

MHE-303
(REVISED)



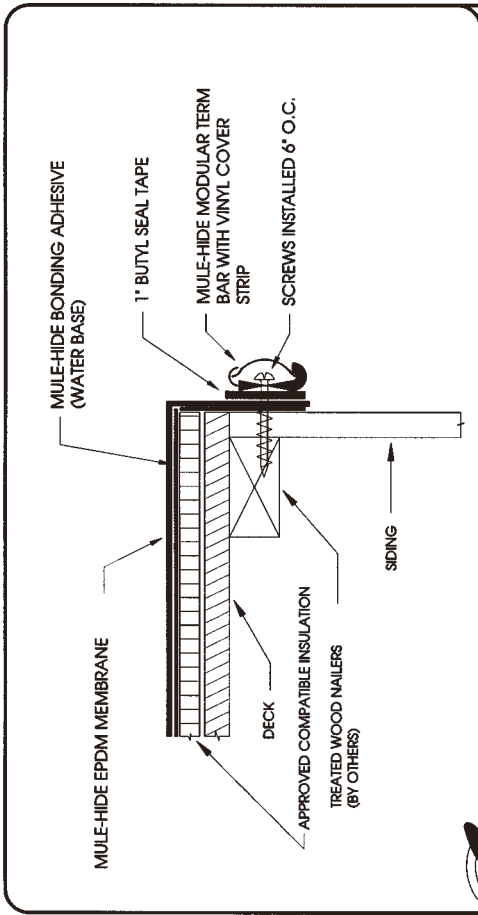
Note: Distance from edge of roof to termination bar shall not exceed 2 inches.



**MULE-HIDE
 PRODUCTS CO., INC.**
 2000

**SELF-BRIDGING MATE-LINE™
 MODULAR SYSTEMS**

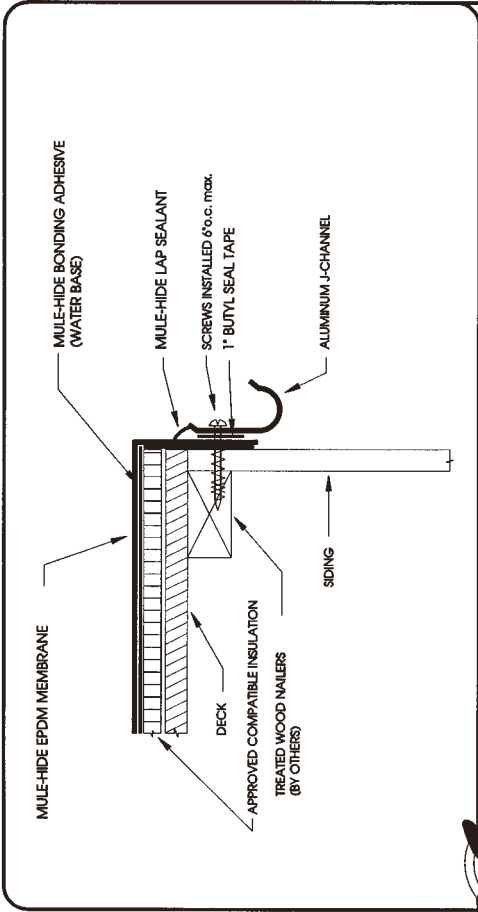
DETAIL NO.:
MHE-303B



**MULE-HIDE
PRODUCTS CO., INC.**
2000

**BAR TERMINATION W/COVER
MODULAR SYSTEMS**

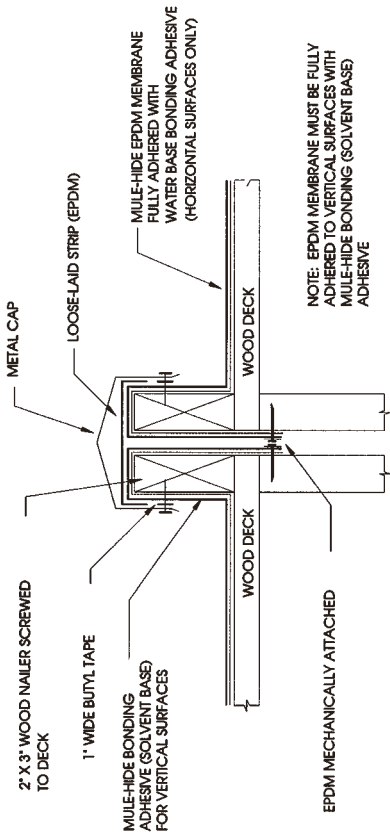
DETAIL NO.:
MHE-305



**MULE-HIDE
PRODUCTS CO., INC.**
2000

**J-CHANNEL TERMINATION
MODULAR SYSTEMS**

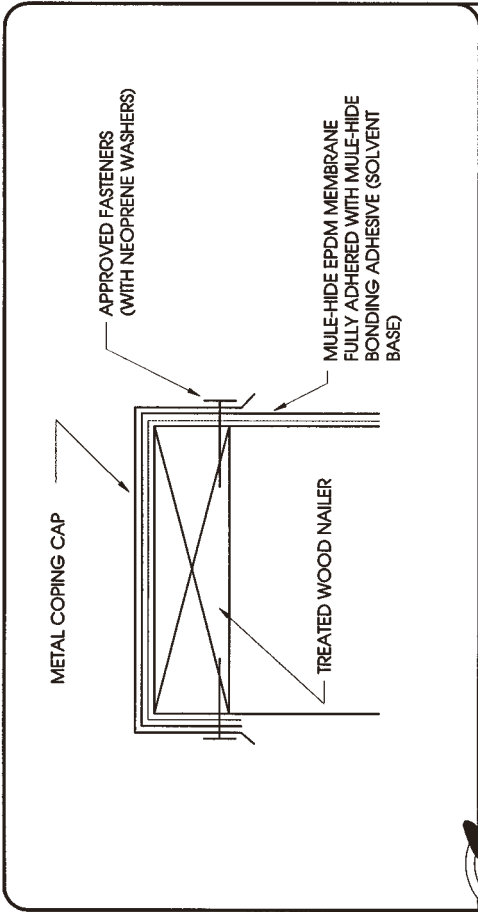
DETAIL NO.:
MHE-306



**MULE-HIDE
PRODUCTS CO., INC.**
2000

**RAISED MATE-LINE
MODULAR SYSTEMS**

DETAIL NO.:
MHE-307



DETAIL NO.:

MHE-308

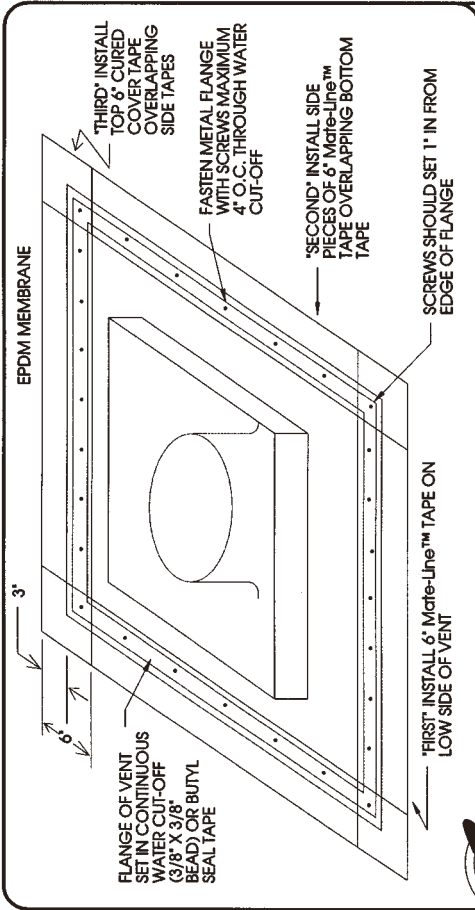
METAL COPING TERMINATION

MODULAR SYSTEMS

**MULE-HIDE
PRODUCTS CO., INC.**

2000





**MULE-HIDE
PRODUCTS CO., INC.**

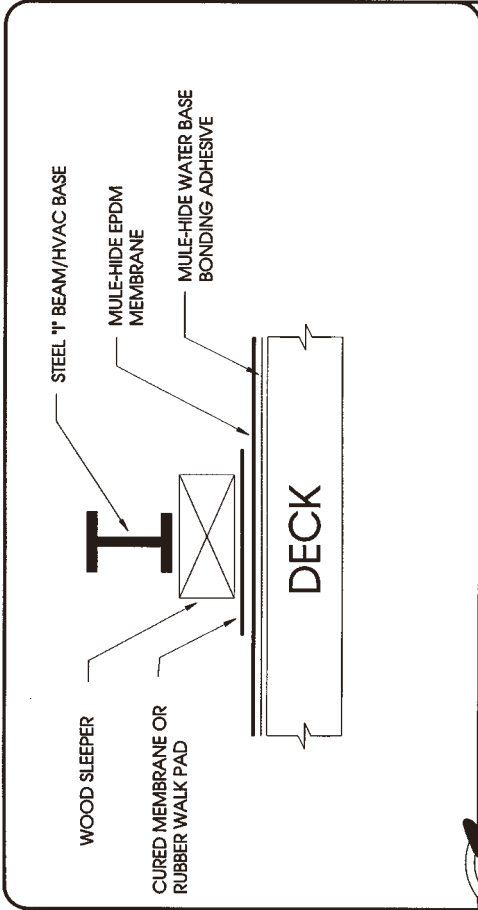
2000

VENT FLASHING

MODULAR SYSTEMS

DETAIL NO.:

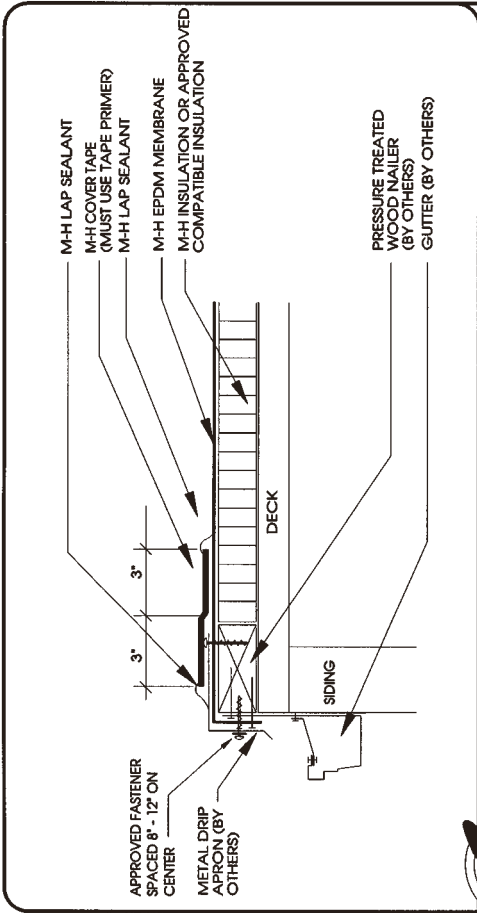
MHE-309



MULE-HIDE PRODUCTS CO., INC.
2000

SLEEPER
MODULAR SYSTEMS

DETAIL NO.:
MHE-310



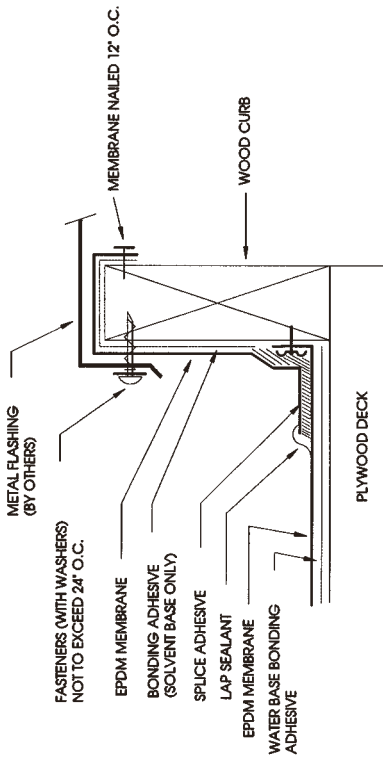
DRIP APRON/GUTTER
TERMINATION

MODULAR SYSTEMS

DETAIL NO.:
MHE-311



**MULE-HIDE
PRODUCTS CO., INC.**
2000

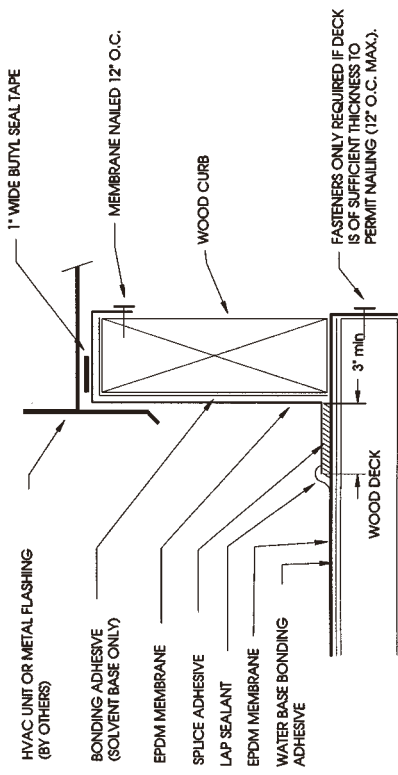


DETAIL NO.:
MHE-312A

**WOOD CURB FLASHING
MODULAR SYSTEMS**

**MULE-HIDE
PRODUCTS CO., INC.**
2000





DETAIL NO.:
MHE-312B

**WOOD CURB FLASHING
MODULAR SYSTEMS**

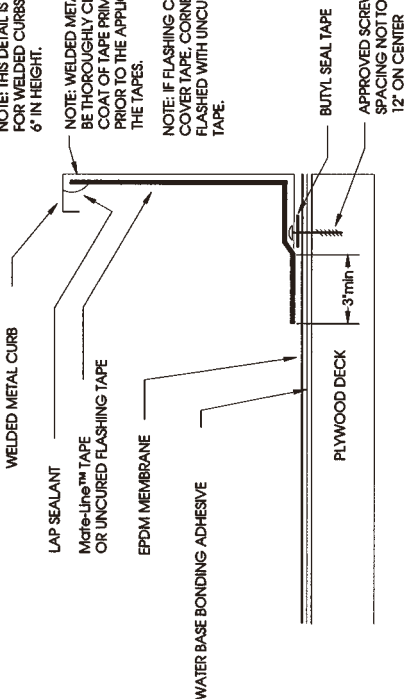
**MULE-HIDE
PRODUCTS CO., INC.**
2000



NOTE: THIS DETAIL IS ACCEPTABLE FOR WELDED CURBS NOT EXCEEDING 6" IN HEIGHT.

NOTE: WELDED METAL CURB MUST BE THOROUGHLY CLEANED AND A COAT OF TAPE PRIMER APPLIED PRIOR TO THE APPLICATION OF THE TAPES.

NOTE: IF FLASHING CURB WITH CURED COVER TAPE, CORNERS MUST BE FLASHED WITH UNCURED FLASHING TAPE.



DETAIL NO.:

MHE-313A

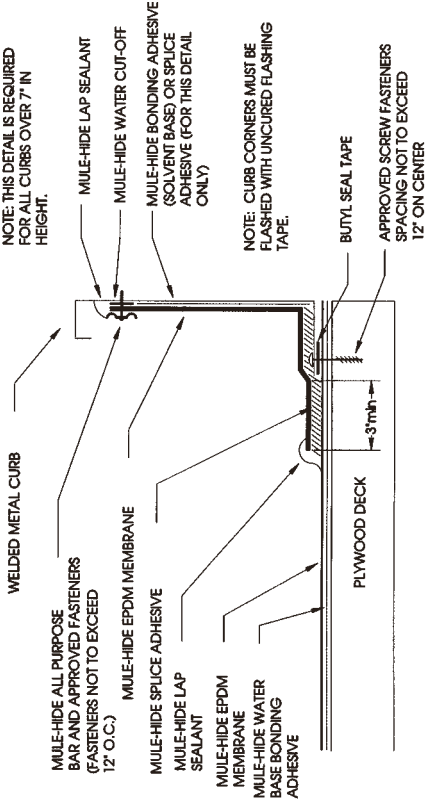
WELDED CURB FLASHING

MODULAR SYSTEMS

**MULE-HIDE
PRODUCTS CO., INC.**

2000





DETAIL NO.:

MHE-313B

WELDED CURB FLASHING

MODULAR SYSTEMS

MULE-HIDE PRODUCTS CO., INC.

2000



TECHNICAL ASSISTANCE

Call Mule-Hide Customer Support at **800-786-1492** in the following situations:

- ◆ The integrity of the EPDM Roofing System is dependent on the care taken during setup and dismantling. For special information investigate the roof system first then call Mule-Hide Customer Support.
- ◆ Mule-Hide Customer Support also provides technical assistance for Heat Weld Roofing System Setup and Dismantling.



"The name trusted in roofing since 1906"

MULE-HIDE

P.O. Box 1057
Beloit, WI 53512-1057
Phone: (608) 365-3111
Fax: (608) 365-7852
Customer Support: 800-786-1492

The information in this handbook is based upon data and knowledge considered to be true and accurate and is provided for the contractor's consideration, investigation and verification. However, Mule-Hide Products Co., Inc., does not warrant any results to be obtained. Statements concerning possible use of Mule-Hide products are made without knowledge of your particular roof and such an application may not be fit for your particular purpose. MULE-HIDE DISCLAIMS ALL WARRANTIES, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, except written warranties attached to Mule-Hide products and written warranties signed by an officer of Mule-Hide.