PLAINTIFF'S EXHIBIT

BIR-107

MANUAL
(Date unk)

Bird
Roofing Division

Built-Up Roofing Manual



BIRD BUILT-UP ROOFING SPECIFICATIONS

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The plans and specifications contained in this manual are considered by roofing companies in the industry to be current state-of-the-art. These plans and specifications are not necessarily developed by Bird. They are a compilation of plans and specifications developed by the industry. Bird does not recommend that a developer or builder or owner or architect adopt or follow these plans or specifications. These plans and specifications are set forth herein merely as a guide. Bird shall not be responsible for any losses, claims or damages allegedly due to complying with or failue to comply with the information contained in this manual.

BIRD FIBERGLASS AND ORGANIC BUILT-UP ROOFING SPECIFICATIONS

INTRODUCTION

Bird Incorporated pioneered the development of roofing for the Northeastern market of the United States. We are the oldest roofing manufacturer in New England and are proud to offer modern Component Roof Systems of conventional Fiberglass and Bird-Lastick™ Modified Bitumen. The conventional Fiberglass system consists of a CRS™ Glass Base Sheet, a CRS™ Glass Ply Sheet and an organic MSR (Mineral Surfaced Roll) Sheet used in various combinations to form durable built-up roofing assemblies. The Bird-Lastick™ Modified Bitumen system is a torch applied APP modified bitumen smooth surface roll roofing constructed with a high performance non-woven polyester support mat. Bird quality and engineering have been used to design products to produce systems that perform in the rigorous climate of this section of the country. This manual contains a series of specifications and general information referring to the use of the Bird CRS™ system.

Bird has prepared this manual as a guide for ...itects, engineers, building owners, and ...ing contractors to assist in the selection and construction of built-up roofing systems. Bird takes advantage of a combination of the inorganic fiberglass based products and the organic cap sheet it produces in the Northeast to develop specifications ideal for application in this climate. Structural design of the roof deck and the proper interrelationship of all building components are the responsibility of the building designer as well as the decision as to when and where a vapor retarder should be used. This manual focuses on the roofing system and details of its construction which affects its primary performance objective to keep the roof watertight.

Before selecting a particular specification all of the design factors should be considered. Following is a list of building design factors that can affect the performance of the roof system:

1. Flashings
2. Expansion joints
3. Deck movement
4. Wind load factors
5. Roof deck slope
6. Live and dead load requirements
7. Rooftop mechanical equipment
8. Thermal requirements

There are three basic types of built-up roofing top finishes used at the present time with either the conventional Fiberglass or the Bird-Lastick™ Modified Bitumen systems. They are GRAVEL SURFACED, MINERAL SURFACED, AND SMOOTH SURFACED which includes emulsions and roof coatings. The following paragraphs review each to help you in the selection of the correct system.

GRAVEL SURFACED

This is the heaviest of the systems, weighing approximately 500 – 600 pounds per square. It is very similar in construction to a smooth surface system except for the final surfacing. In place of the light mopping of asphalt or an application of other roof coatings used on smooth surface, a 60 pound per square flood coat of hot asphalt is applied with Slag or Gravel immediately following. The surfacing with gravel on conventional Fiberglass systems may be omitted for up to 30 days without damage due to the fact that a glass based system was used. Gravel surfaced roofs should be limited to slopes of 3" or less to minimize gravel loss.

MINERAL SURFACED

In the conventional Fiberglass system an organic MSR Sheet is used as the last visible ply in the roof membrane. The advantage of this finish sheet is the fact it is machine made under controlled conditions. The organic felt is saturated with special asphalt and coated with a weathering grade asphalt. The sheet is then embedded with colored, UV opaque, noncombustible granules made using a Bird process. The result is a colored roof that enhances the appearance of the building it protects. See the Bird Product catalog for colors available. Because of its light weight, some systems can be applied using cold process. The Bird MSR Sheet is not to be confused with Bird Neponset™ Cap Sheet which has a 19" selvage edge. Neponset™ Cap may be substituted for the MSR Sheet. Contact Bird regarding use. The weight of these systems is approximately 200 pounds per square.

SMOOTH SURFACED

These systems are the lightest of the three with weights ranging between 150 – 180 pounds per square. Without a top surfacing of gravel these systems are easy to inspect and repair making maintenance simpler. Because of their lighter weight, these systems can be installed on slopes up to 2" on non-nailable decks without using treated wood nailers and on nailable decks without using additional fasteners. In general, these systems costs less than a Gravel system with an equivalent design life. Because of its light weight, some systems of conventional Fiberglass can be applied using cold process. **Cold process application cannot be used to apply Bird-Lastick™ Modified Bitumen systems.**

The following specifications and general application recommendations represent Bird's best judgment based on experience and research to date, but are subject to change and improvement as continued industry experience dictates. Bird maintains memberships in the Asphalt Roofing Manufacturers Association (ARMA), the National Roofing Contractors Association (NRCA), American Society For Testing Materials (ASTM) and other industry groups that have subcommittees involved in work on built-up roofing systems.

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1.0 GENERAL SPECIFICATION REQUIREMENTS

These general requirements shall be considered a part of each Bird CRS™ roofing and flashing specification. For applications not specifically covered by this manual and questions regarding specifications contact Bird Incorporated, Northeast Roofing Division, Norwood, Massachusetts 02062 (617) 551-0656.

1.1 **Storage of Materials:** Roofing materials must be properly stored in a dry location prior to application. Stored materials should be on pallets off the ground or roof deck and covered with waterproof breather type tarps properly tied down. All roll goods must be stored on end to prevent deformation and end damage. Never use wet or damp roofing materials in the construction of a Bird CRS™ system. It shall be the responsibility of the General Contractor to prevent other trades from damaging the roof system during all phases of project construction.

1.2 **Cold Weather Application:** The roof system should not be applied during adverse weather conditions or without precautionary measures at temperatures below 40°F. Special procedures must be used to insure proper performance of the roofing system. Moisture that could cause poor adhesion, skips, or be trapped in the system must be removed from the deck. Asphalt chills quickly on a cold deck. Rather than overheat the asphalt, components should be installed rapidly, close to the mop, and well embedded by good brooming. Overheating the asphalt will modify its physical properties thus shortening the life expectancy of the roof and its ability to perform the waterproofing function. Refer to the EVT data (see page 4) and make sure all hoses and buggies are insulated. To insure trouble free application and satisfactory performance, Bird MSR Sheet should always be unrolled, cut into 12' – 18' lengths, and allowed to flatten and warm up in the sun before application (machine application is not permitted). An alternate method in cold weather is to back mop 12' long sheets and "flop-in". Tension should be placed on ends of Bird MSR Sheet lengths as they are placed to insure sheet lays flat in the asphalt when using "fly-in" or "flop-in" method of application.

1.3 **Drainage:** Bird does not recommend pitches less than 1/4 in. per ft. on Gravel or Smooth surfaced CRS™ systems. Proper drainage of a built-up system is critical to the life expectancy of the membrane. **BIRD WILL NOT WARRANT ANY SECTIONS OF ITS SYSTEMS THAT HOLD PONDED WATER OVER 24 HOURS.** It is the responsibility of the designer and contractor to make certain there are the proper number of drainage outlets located so as to drain the water from the deck promptly and completely. On MSR Sheet/CRS™ systems pitch should not be less than 1/2 in. per ft.. This will minimize trapped water above the lap joints.

1.4 **Expansion Joints:** The roofing membrane can be destroyed by the destructive forces caused by the expansion and contraction of the structural elements in the deck of the building. The number of expansion joints and their location remain the responsibility of the structural design engineer. The expansion joint must provide waterproof integrity to the roof while bridging the gap and accommodating the movement between roof sections. As a guide, Bird recommends expansion joints be provided where the following conditions occur. This list is by no means all-inclusive, it is meant to be a guide only.

1. Wherever roof structures change directions, such as in L-shaped and U-shaped buildings or rectangles with interior courts.
2. Wherever steel framing and decking changes direction.
3. Wherever the deck material changes, as from steel to poured concrete.
4. Wherever additions are made to buildings.
5. Wherever there is a difference in elevations between adjoining decks.
6. Wherever building length exceeds 200 feet.

1.5 **Membrane System Application:** Workmanship in the application of each component within a roofing system is critical to the total system achieving its desired design criteria and life expectancy. Bird CRS™ systems are produced to provide optimum performance under a wide range of design and environmental conditions, and are installed utilizing efficient specifications and application techniques. However, Bird encourages qualified supervision of each part of roof system installation and that the system be installed by experienced, trained roofing applicators. The roofing contractor has the sole responsibility for the quality of the application of the roof system.

2.0 ROOF MEMBRANE LIMITED WARRANTY:

2.1 **Bird CRS™ and MSR Built-Up Roofing:** Bird Incorporated ("Seller") warrants that, at the time of delivery, the material delivered shall conform to seller's specifications therefor and shall be free and clear of liens and encumbrances. Seller does not make and is not to be held liable for any warranty of merchantability or fitness for a particular use or purpose or for any other warranty of any kind whatsoever, express or implied, except as set forth in the preceding sentence. If any material fails to conform to the foregoing warranty, seller shall replace such non-conforming material provided that such material has been handled and installed in accordance with seller's published handling procedures and installation specifications. This warranty does not apply to and seller shall not be liable for labor costs or any other damages resulting from improper or faulty installation of material or resulting from failure of the material itself. No claims of any kind whatsoever, regardless of the theory on which a claim may be made including, without limitation, negligence, contract, breach of warranty, strict liability in tort, misrepresentation or otherwise, with respect to material delivered or for failure to deliver any material, shall be greater in amount than the purchase price of the material in respect of which damages are claimed. In no event shall seller be liable for incidental, consequential, special, indirect or punitive damages. Failure of buyer to give written notice of claim withing sixty (60) days after delivery of material shall constitute a waiver by buyer of all claims with respect to such material.

2.2 **Bird-Lastick™ Modified Bitumen:** Bird Incorporated, by the issuance of this Limited Warranty, guarantees for a perio of 10 years after installation that the Bird material is free from manufacturing defects that cause leaks subject to the following conditions:

2.2.1 **Coverage:** In the event a leak is caused by a manufacturing defect within the warranty period, Bird will contribute a pro-rated portion of the repair or replacement costs based on a maximum contribution of $80.00 per square. A square is equal to an area of 100 square feet.

A pro-rated contribution will be determined by multiplying a maximum amount of $80.00 per square times the number of squares of product to be repaired or replaced times the number of years, including partial years, remaining in the Warranty Period at the time of repair or replacement; however, such contribution will not exceed, in total, a maximum amount equal to the original installed cost of the materials covered.

Bird will not pay for:

A. Any costs for the tear off or removal of roofing materials, or
B. Any expenditure that may be incurred in replacing or repairing materials prior to written acknowledgement of Bird's responsibility.

2.2.2 **Exclusions:**

A. This warranty does not cover any failure of Bird roofing material as a result of:
   1. Faulty installation;
   2. Hurricane, tornado, gale, earthquake, hail, lightning, flood, or other violent or unusual phenomena of the elements;
   3. Fire and other casualties;
   4. Settlement, distortion, failure, or cracking of the roof, deck, walls, or foundation of the building;
   5. Defect in or failure of flashing, metal work or material used as a roof base under this product;
   6. Damage to Bird material due to any cause other than manufacturing defects;
   7. Misuse of or negligent or improper storage of the Bird material;
   8. Equipment installation, structural changes, or any other alterations in the roof after application of the Bird material or other materials;
   9. Defects originating in portions of the building unrelated to workmanship and materials supplied as part of the roofing contract;
   10. Improper ventilation;
   11. Traffic on or over the roof or impact of foreign objects;
   12. Labor for replacement of material manufactured defectively since $80.00 per square liability includes labor costs as well as material costs.

B. Additional items that are not covered:
   1. The expense of removing and replacing any traffic surfaces or other appurtenances built over the roof;
   2. Damages of any kind including but not limited to consequential damages, incidental damages, direct damages, property damage or personal injury damage of third parties;
   3. The repair, installation or replacement costs of products in the roof assembly which are furnished by other than Bird Incorporated;
   4. Any repairs or modifications that are to fall within the coverage of this warranty without a prior written authorization.

C. Labor and workmanship are to be warranteed by the contractor and are excluded from this warranty.

2.2.3 **Limitations:** This warranty is given in lieu of all other warranties. This limited warranty is issued and accepted in lieu of all other express and implied warranties, including the warranty of merchantability and fitness for a particular purpose. Bird shall not be liable hereunder unless it receives at Norwood Roofing Division, Pleasant Street, Norwood, MA 02062, within thirty days after discovery of the alleged defect notice of the defect, proof of purchase and the installation date.

Some States do not allow limitation on how long implied warranties last or allow the limitation or exclusion of consequential damages, so the foregoing exclusion and limitations may not apply to you.

No representative, employee or agent of Bird or any other person has any authority to alter or add to for Bird any of the terms hereof. This warranty shall accrue to and be for the benefit of the original owner named herein. It shall not accrue to the benefit of or be assignable to, any tenant of the building named herein or any purchaser, successor or assignee of the original owner.

2.2.4 **Notice of Claim:** Bird Asphalt Roofing Products are warranted to the purchaser by Bird Incorporated, Norwood Roofing Division, Pleasant St., Norwood, MA, 02062, against defective material and failure to perform as intended provided the material is applied in accordance with published instructions. This warranty does not cover problems caused by improper application or use for purpose other than for which it is recommended. Notice of claim, together with a sample of the product claimed to be defective, must be received by the Company at the address above, together with satisfactory proof of purchase. Within a reasonable time after receiving such notice and after determining the product is in fact defective, the Company will, at its option, either repair or replace the product or will refund a portion of the purchase, but in neither event shall the Company's maximum liability exceed an amount equal to the pro-rated purchase price, based on the year of service compared to the limited warranty term as specified for the particular installation. THIS LIMITED WARRANTY IS ISSUED AND ACCEPTED IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY, AND EXPRESSLY EXCLUDES LIABILITY FOR CONSEQUENTIAL DAMAGES, but shall not be deemed to invalidate or restrict any right or remedy of the purchaser under State Law or any other Federal Law. Some states do not allow the exclusion or limitation or incidental or consequential damages or limitations on how long an implied warranty lasts, so the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Bird Incorporated has not established an informal dispute mechanism.

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3.0 ROOF DECKS – NAILABLE (N), NON-NAILABLE (X)

All decks shall be smooth, dry, clean, and clear of sharp projections and depressions. Placement of conduit, piping, and bolts above the deck and under the roofing membrane is not acceptable. All openings and projections through the deck shall be completed before the application of the Bird CRS™ system. To be considered a satisfactory base for a Bird CRS™ system, the roof deck must not deflect more than .4% of the span, when subjected to a load of 300 lbs. concentrated on a square foot area at mid-span.

3.1 **Wood Decks (N):** These shall be constructed of seasoned or water base treated lumber. Creosote treated lumber is not acceptable for use with asphalt systems. Tongue and grooved boards are preferred over square edge because of better wind uplift resistance in open construction. All boards shall be nominal 1" thick, bear on rafters at each end, and be securely nailed. Cracks wider than 1/4" and loose knots larger than 3/4" must be covered with metal securely nailed. A dry sheathing paper must be applied over these decks to prevent asphalt drippage and sticking of the base ply to the free resins in this type of deck.

Plywood sheathing shall be a minimum thickness of 1/2" and use an exterior type glue. Plywood must conform to type, grade, and application standards of the American Plywood Association which requires use of continuous solid end blocking (max. 24" span) when minimum thickness is used. No divorcing layer of sheathing paper is required and the base ply shall be installed by mechanical attachment only.

3.2 **Poured Gypsum Decks (N):** Minimum thickness is 2" to accommodate fasteners as recommended by the Gypsum Roof Deck Association. The gypsum must be over a venting type deck to avoid trapping moisture. Finished deck shall be smooth, dry, and unfrozen. Bird will not be responsible for roof leaks resulting from cracking or movement of the gypsum deck after roofing has been applied regardless of the cause of deck cracking. Do not attach Bird CRS™ Base sheet by adhesion to this nailable deck. Use recommended corrosion resistant fasteners.

3.3 **Lightweight Insulating Concrete (N):** This type of nailable deck contains a high percentage of casting moisture. Adequate precautions must be taken to avoid trapping this moisture. This can be accomplished by using venting deck clips on the edges of the steel deck panels or the use of a preformed self-venting deck. In addition 4" diameter, 4" flanged and hooded pressure release vents should be spaced a maximum of 30 ft. on center over 4" diameter holes cut through the roofing membrane into the insulating fill. The following precautions must be observed:

1. Decks of a density less than 22 lbs. per cubic foot, 1:6 mix ratio, or compressive strength less than 125 lbs. per square inch are not acceptable for a Bird CRS™ system.
2. Deck must have a minimum top surface fill of 2".
3. Deck must provide a minimum 40 lbs. withdrawal resistance for Approved Mechanical Fasteners at time of Bird CRS™ system installation.
4. Deck must not be subjected to temperatures below 40°F during either application or curing. Decks that have been frozen are not acceptable for installation of a Bird CRS™ system.
5. The slope of the deck may not exceed 1" per foot.
6. An adequate precipitation free drying period must be observed prior to installation of the Bird CRS™ system.
7. The deck manufacturer and applicator shall provide all parties concerned with a LETTER OF CERTIFICATION stating the deck is ready to receive the Bird CRS™ system and complies with the above minimum requirements.
8. After installation of the roofing system, the General Contractor shall provide ventilation to prevent interior moisture from infiltrating the deck system (reverse ventilation) during construction and until owner occupancy.

Bird will not be responsible for damage to the CRS™ system which occurs due to moisture retention in the deck or that results from cracking and movement of the lightweight insulating concrete deck after roofing has been applied regardless of the cause of the deck cracking.

3.4 **Structural Wood Fiber (N):** Before the application of the roof system, the deck shall be in proper condition for roofing. Where heights of deck joints vary, these shall be leveled by Deck Erector with screened coat material as recommended by the Deck Manufacturer. The Deck Erector shall furnish written certification that the deck meets job specifications and Deck Manufacturers' requirements. All joints whether tongue and groove or grouted shall be stripped as follows: Apply a bead of Plastic Cement over the joint, then cover joint with a 6" wide strip of CRS™ Base sheet adhered to the Plastic Cement. Install CRS™ Base sheets in lengths not to exceed 8 ft. with 2" side laps and 4" end laps with end laps not less than 3 ft. apart diagonally staggered. Attach to the deck at side laps 9" o.c. and 18" o.c. staggered in two rows 12" in from each edge with approved fasteners. A layer of roof insulation (min. 3/4" thick) must be applied to the CRS™ Base sheet. Solid mop the insulation to the CRS™ Base using Type III asphalt at the rate of 25 lbs per 100 sq. ft. Install Bird CRS™ system specification roof. Bird will not be responsible for the failure of the roof system caused in any way by the Structural Wood Fiber deck.

3.5 **Poured Concrete (X):** Deck surface requires priming with asphalt primer. Surface must be relatively smooth, dry, dust-free, and free from the effects of freezing. Treated wood nailers should be used at perimeters and where deck projections occur.

3.6 **Pre-Cast Concrete (X):** Units must be securely fastened to the subframe to prevent movement or sagging with joints between slabs grouted. Unevenness between slabs shall be leveled with a suitable fill (properly vented and feathered) to receive the roofing system. Deck surface requires priming with asphalt primer.

3.7 **Long Span Pre-Cast T or TT Sections (X):** Camber or set shall not permit ponding of water. Offsets between units shall not exceed 1/8". Uneven surfaces are not acceptable and shall be corrected. Bird CRS™ systems shall not be applied directly to these units. A leveling course of roof insulation (min. 3/4" thick) is required before installation of the roof membrane.

3.8 **Metal Decks (X):** Shall be 22 gauge minimum and comply with the span requirements set forth by the deck manufacturer and all other standards in current Factory Mutual Guide and Loss Prevention Data Sheets. The deck must be covered with rigid insulation of a thickness suitable to span the rib opening and as recommended by the insulation manufacturer. The first layer of insulation must be mechanically fastened to the metal deck using Factory Mutual listed fasteners recommended by the insulation manufacturer. For further information on this subject refer to page 507 of the 1986 FM Approval Guide and FM Data Sheets 1-28 (May '83), 1-47 (Jan. '83), and 1-49 (Jun. '85).

3.9 **Unacceptable Decks and Surfaces:** Foam type roof insulation, spray foamed-in-place roof insulation, and expanded or extruded polystyrene boards are not acceptable as bases for Bird CRS™ systems.

4.0 MATERIALS

Asphalt: Bird endorses the asphalt identification system as developed by the Roofing Systems Technical Committee, a joint committee of ARMA and NRCA. The following information should be printed on labels or bills of lading covering bulk asphalt and be used in handling the hot asphalt:

1. The Softening Point (SP) Range — Temperature range of the asphalt as determined in accordance with ASTM D-312.
2. The Minimum Flash Point (FP) — Flash Point of the asphalt as determined by ASTM D-92.
3. The Equiviscous Temperature (EVT) Range — The temperature at which a viscosity of 125 centistokes is attained plus or minus 25°F.
4. The Minimum Finished Blowing Temperature (BT) — The minimum temperature at which the blowing of the asphalt has been completed.
5. Bird requires that all asphalt be applied within 25°F of the EVT and shall not be heated to the minimum FP, or held more than 4 hours at the minimum BT.
6. The type of asphalt used for inner ply and surface mopping varies with the roof incline. As the slope increases, the softening point (SP) of the asphalt used must increase. This increase is designated by asphalt types (II, III, & IV). Refer to the individual roofing specifications for Asphalt Type to use.
7. Asphalt is to be used at the rate of 23 – 25 pounds per ply per square. When used over Perlite type insulations which absorb asphalt, increase the application rate to 33 pounds.

4.2 **Gravel or Slag Surfacing:** Shall be commercial grade, washed, opaque to UV, 1/4" to 5/8" grading, moisture content not to exceed 2%, and conform to ASTM D1863. Approximately 400 lbs. of gravel or 300 lbs. of slag shall be applied in approximately 60 lbs. of asphalt per 100 sq. ft. of roof area. No more asphalt shall be spread at one time than can be immediately covered with gravel or slag. Punctures due to gravel or slag are not the responsibility of Bird Inc.

4.3 **Asphalt Primer, cold cement, and coatings:** Shall conform to the following specifications. For coverages see individual specifications.

1. Asphalt Primer conforming to ASTM D41 or Federal Specification SS-A-701.
2. Asphalt Flashing and Plastic Cement conforming to ASTM D-2822, Type I or Federal Specification SS-C-153, Type I.
3. Roof Coating, Fibrated Asphalt Cutback conforming to ASTM D-2823, Type I or Federal Specification SS-A-694D.
4. Roof Coating, Asphalt Fibrated Emulsion conforming to ASTM D-1227, Type I or Federal Specification SS-R-1781.
5. Roof Coating, Aluminum Fibrated Asphalt Cutback conforming to ASTM D-2824, Type II or Federal Specification TT-P-320C, Type II Class C.
6. Cold Cement, Conforming to ASTM D-3019, Type I.

Cutbacks contain solvents. Do not heat or expose to open flame. Use only in well ventilated areas. **Bird does not recommend the use of cutback type cements and coatings when they will be in direct contact with the Bird-Lastick™ Modified Bitumen system.**

Emulsions contain water and must be protected against freezing. Emulsions shall not be subject to ambient or wind chill temperatures below 40°F either during application or drying.

When using Aluminum Fibrated Asphalt Cutback with any Bird CRS™ system apply a first coat of Asphalt Emulsion and allow to dry thoroughly for at least 72 hours. Application of Aluminum Coating directly to fresh asphalt mopping is not recommended. Allow 2 months weathering if direct application is required.

4.4 **Insulation:** Roof Insulation is not part of the roof membrane. In addition to providing energy conservation, the function of the insulation is to provide a smooth, dry, clean, and firmly attached substrate to receive the Bird CRS™. All roof insulation should be able to withstand general foot traffic during installation of the roof membrane. No more insulation should be laid at one time than can be immediately protected by the CRS™ system selected. Insulation shall be fastened to the deck per manufacturers recommendation. Where more than one layer of insulation is used, second layer shall be mopped in using 20 – 25 lbs. per sq. of Type III asphalt. Approved mechanical fasteners can be used in lieu of asphalt. Offset joints a minimum of 6 inches. Cutoffs should be used only to close up a job at the end of each work day. The cutoffs must be removed when work is resumed. Acceptable roof insulations are 1" Wood Fiber Board, 1" Perlite Board, and 1" Cellular Glass Board. Refer to specifications for attachment of Bird CRS™ Systems.

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BIRD 010287

4.5 **Wood Nailers and Nailing:** A minimum 4" wide water base pressure treated wood nailer shall be installed at all eaves, gable ends, and openings in the roof deck for securing of roofing plys, metal edging, gravel stops, and roof fixtures. When insulation or tapered edge strip is used, the wood nailer shall be the same thickness. All nailing of roofing plys must be through tin caps unless the fastener has an integral flat cap no less than 1" across.

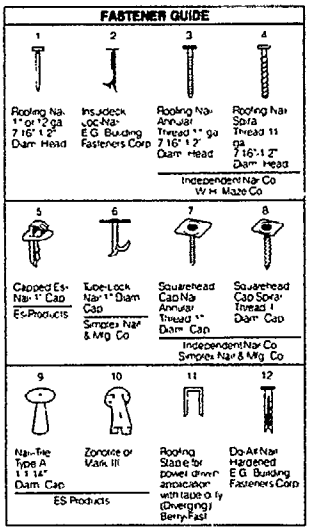
The following table is a guide for fasteners recommended by Bird for securing roofing sheets to nailable decks. Bird assumes no liability for the performance of the fasteners or the deck material.

4.6 **Vapor Retarders:** The decision to use a vapor retarder system under roof insulation is the responsibility of the design engineer, architect, or building owner. Bird will not accept any responsibility for damage to or failure of the roofing system caused by the use or absence of a vapor retarder. As a guide vapor retarders are generally used where average January outside temperatures are 40°F or below and winter season expected interior humidity is 45% or greater. The temperature at the vapor retarder must be warmer than the dew point temperature to prevent condensation from occurring. Construction with insulated ceilings below the deck require special attention to design and dew point calculations. When a vapor retarder is incorporated into a roof system, one-way pressure release vents should be installed at the rate of one vent per 1000 square feet of roof area to enhance venting of moisture vapor which may become entrapped subsequent to the construction of the roofing system. Insulation shall be removed from the area directly under vent opening and re-filled with loose insulation prior to vent placement. The designer should consult with Factory Mutual and Underwriters Laboratories for wind uplift and fire resistance ratings.

NOTE: Lightweight insulating concrete or gypsum fills, wood decks, and pressurizec plenums shall require the installation of vapor retarder.

4.7 **Reroofing:** Reroofing directly over existing roof membranes is generally not recommended because the latent defects in the old roofing systems are transferred to any new roof covering. Bird recommends a complete tear-off of the old roof and repairs to the roof deck before installation of a Bird CRS™ System.

SUBSTRATE TYPE	FASTENER RECOMMENDATION
Wood	
Plywood	1 3 4 7 8 11
Plank	1 3 4 7 8 11
Gypsum	
Poured	9 12
Precast Plank	4 8 12
Lightweight Insulating Concrete	
Perlite	10 11
Vermiculite	10 11
Cellular Concrete	10 11
Precast Lightweight Plank	2 5 6
Structural Wood Fiber	
Plank	6



5.0 ROOFING MATERIALS: Following is a compilation of the Bird Products referred to in this manual.

Product	Sq. per Roll	Approx. Wt. per Roll/Pkg.	Guide Specification ASTM	UL
MSR Mineral Surfaced Organic Sheet	One	80	D312 Type IV D3158-81	–
CRS™ Glass Base Sheet	Three	75	–	Type G-2
CRS™ Glass Ply Sheet	Five	50	D-2178-84 Type IV	Type G-1
Bird-Lastick™ Modified Bitumen Smooth Roll	One	90	–	–
Neponset™ Cold Cement	–	45	D-3019 Type I	–
Reflecto-Coat™ Aluminum Surfacing	–	48	D-2824 Type II	–
Roof Coating (Fibrated)	–	46	D-2823 Type I	–
Asphalt Plastic Cement	–	55	D-2822 Type I	–
Asphalt Primer	–	38	D-41	
Asphalt Fibrated Emulsion	–	45	D-1227 Type I	–

BIRD 010288

6.0 Roof Specification Chart

BIRD CRS™ FIBERGLASS BUR

Roof Slope	Spec. No.	Type of Deck	Surface Material	Construction	Approx. Weight	UL Rating	Page No.
1/4" – 3"	101	Nailable	Slag or Gravel	1 layer CRS™ Base 3 layers CRS™ Ply	498 – 598	**	10
1/4" – 3"	102	Non-Nailable	Slag or Gravel	1 layer CRS™ Base 3 layers CRS™ Ply	513 – 613	**	11
1/2" – 6"	103	Nailable	Mineral Cap Sheet*	1 layer CRS™ Base 2 layers CRS™ Ply 1 layer MSR Sheet	202	**	12
1/2" – 6"	104	Non-Nailable	Mineral Cap Sheet*	1 layer CRS™ Base 2 layer CRS™ Ply 1 layer MSR Sheet	202	**	13
1/4" – 3"	105	Nailable	Smooth	1 layer CRS™ Base 3 layers CRS™ Ply	152	**	14
1/4" – 3"	106	Non-Nailable	Smooth	1 layer CRS™ Base 3 layers CRS™ Ply	167	**	15
1/4" – 3"	107	Insulation	Slag or Gravel	1 layer CRS™ Base 3 layers CRS™ Ply	523 – 623	**	16
1/2" – 6"	108	Insulation	Mineral Cap Sheet*	1 layer CRS™ Base 2 layers CRS™ Ply 1 layer MSR Sheet	227	**	17
– 3"	109	Insulation	Smooth	1 layer CRS™ Base 3 layers CRS™ Ply	177	**	18

* Bird Organic MSR is an 80 Mineral Surfaced Roll with 2" or 4" selvage edge. 19" selvage products may be substituted. Contact Bird for availability

** Contact Bird for UL Ratings.

BIRD-LASTICK™ APP MODIFIED BITUMEN

Roof Slope	Spec. No.	Type of Deck	Surface Material	Construction	Approx. Weight	UL Rating	Page No.
1/4" – 6"	201	Nailable	Smooth	1 layer CRS™ Base 1 layer Bird-Lastick	115	*	19
1/4" – 6"	202	Non-Nailable	Smooth	1 layer CRS™ Base 1 layer Bird-Lastick	135	*	20
1/4" – 6"	203	Insulated	Smooth	1 layer CRS™ Base 1 layer Bird-Lastick	140	*	20

* Contact Bird for UL Ratings.

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7.0 FIBERGLASS MEMBRANE APPLICATION:

All plies of Bird CRS™ Fiberglass systems shall commence at the low points. Application is unacceptable if at any point water will flow against the laps. Excessive interply moppings may result in slippage and should be avoided. All plies shall be rolled and broomed in place immediately behind the hot mopping. Surfacing of finished plies may be delayed up to 30 days. However, all roof drain areas should be glaze coated immediately upon installation. Before applying the finished surfacing, the roofing must be dry and free of all debris. Bird CRS™ membranes applied on slopes exceeding 1" per foot shall be nailed as follows to prevent slippage:

1. Nailable substrates: Base ply shall be nailed as specified in the selected specification. Install subsequent plies shingle fashion, two plies with 19" side laps and 17" exposure or three plies with 24 2/3" side laps and 11 1/3" exposure. Nail each ply 2" in from top edge, 12" o.c.
2. Non-nailable, Non-insulated: On slopes 1" - 3" per foot, 2" wide treated wood nailers shall be spaced 10 ft. apart, face to face throughout the field of deck parallel to the ridge line of the slope, on slopes over 3" use 4 ft. spacing. Roof membrane shall be installed parallel to the slope (perpendicular to nailers). Base ply shall be nailed as specified in the selected specification. Nail base ply and each subsequent ply to wood nailers, 12" in from each edge. Blind nail cap sheet under side and end laps to prevent slippage.
3. Insulated substrates: On slopes over 1", a 2" wide treated wood nailer the same thickness as the insulation shall be mechanically fastened to the deck perpendicular to the slope and spaced to accommodate the insulation (not to exceed 8 ft. face to face). Roof membrane shall be applied parallel to the slope. Base ply shall be attached per specification. Nail base ply and each subsequent ply to the wood nailer, 2" in from edge, 12" o.c.

8.0 BIRD-LASTICK™ APP MODIFIED BITUMEN MEMBRANE APPLICATION:

The first ply of all systems is a CRS™ Glass Base Sheet applied with 2" side and 4" end laps nailed, spot, or solid mopped depending on the substrate used per the specification. The finished Bird-Lastick™ Modified Bitumen ply is torch applied per the specification. End laps shall be diagonally staggered and not less than 3 feet apart. All side and end laps shall be staggered and offset from preceding base ply lap joints. Application of the roofing membrane including base ply shall begin at the low point of the roof, laid perpendicular to slope on roofs with slope below 2" in 12" and parallel to slope on roofs with slope 2" in 12" or greater.

8.1 **Slopes Exceeding 2" In 12":** Bird-Lastick™ systems applied on slopes exceeding 2" in 12" shall be nailed as follows to prevent slippage:

1. Nailable Substrates: Roof membrane shall be applied parallel to slope. Base ply shall be mechanically fastened as specified in the selected specification. Install Bird-Lastick™ Modified Bitumen roofing as specified, blind nailing end laps 3" in from top edge, 6" o.c. through tin-discs.
2. Non-nailable, Non-insulated: General Contractor shall furnish and install 4" wide treated wood nailers set flush to surface of deck at all eaves, ridges, rakes, and base of curbs. Wood nailers shall be faced 8 ft. apart, face to face throughout field of deck. Roof membrane shall be applied parallel to the slope. Base ply shall be attached as specified in selected system specification. Nail base ply through tin-discs to wood nailers, 2" in from each edge, 8" o.c. Install Bird-Lastick™ Modified Bitumen roofing as specified, blind nailing end laps 3" in from top edge, 6" o.c. through tin-discs to wood nailers.
3. Insulated Substrates: On slopes over 2", the General Contractor shall furnish and install 4" wide treated wood nailers the same thickness as the insulation. Nailers shall be mechanically fastened to the deck perpendicular to the slope and spaced to accomodate the insulation (not to exceed 8 feet face to face). Roof membrane shall be applied parallel to the slope. Nail base ply through tin-discs to wood nailers, 2" in from each edge, 8" o.c. Install Bird-Lastick™ Modified Bitumen as specified, blind nailing end laps 3" in from top edge, 6" o.c. through tin-discs to wood nailers.

8.2 **Torch Application:** Bird-Lastick™ rolls are designed for torch application only. Field application should proceed as follows:

1. Unroll the first roll completely and establish a proper alignment.
2. Tightly re-roll one end of the roll approximately half-way without altering alignment.
3. Torch apply the re-wound portion of the roll, applying the torch evenly back and forth across the full width of the roll while unrolling the roll uniformly with an even downward pressure. Torch flame should be applied against the roll at a point approximately half-way between the top of the roll and the substrate surface until the modified bitumen back coating reaches its design application temperature (350-400°F). At this temperature the burn-off sheet will have melted with the back coating becoming glossy and starting to flow. If excessive smoke can be seen escaping from the heated surface, roll has been exposed to too much heat.
4. Proper torching and roll application will result in approximately 1/2" of modified bitumen being forced out both in front of the roll and at roll edges. All laps shall be walked in during roll application while the modified bitumen is still melted to facilitate full bonding.
5. Rewind the balance of the roll to the point where it is fully bonded to the underlying surface and torch down as described above.
6. Succeeding rolls and courses shall be installed by unrolling each roll half-way, aligning the rolls to provide 3" side laps and 6" end laps, re-winding the unrolled portion of the roll and torching as described above. End laps shall be staggered per Section 8.0 or perpendicular per Section 8.2-7.
7. Perpendicular end laps allow rolls to be run out even with a 24" gap between roll ends. After succeeding courses have been applied, the gap is covered by running a roll perpendicular to the courses thereby overlapping the roll ends 6".

8. Use of a mechanical torching wagon in membrane application requires careful monitoring of flame positioning to insure uniform flame application across the entire width of the roll as well as roll alignment. Rolls shall rest fully upon the roof deck to provide adequate pressure for bonding. Laps shall be walked in during roll application. The use of torching wagons during windy conditions is not recommended.
9. Side and end laps should be checked both during application and at the end of each day. Areas which do not exhibit modified bitumen flow at laps require careful examination to determine whether they are fully bonded. Small areas of improperly sealed laps shall be corrected by gently lifting the unsealed area with a trowel, reheating with a small torch and applying an even pressure. **DO NOT ATTEMPT TO REPAIR LAPS BY TORCHING THE TOP SURFACE OF THE MEMBRANE.**

8.3 **Coatings and Surfacings:** Additional protective and/or reflective coatings and surfacings are not required. All Bird-Lastick™ Modified Bitumen roll roofing products provide superior in place performance without any additional treatments. However, when design requirements call for additonal surfacing to satisfy particular aesthetic or fire-resistant properties, Bird recommends the following general quide lines:

1. Asphalt Emulsions, Acrylic Coatings: Surfaces to receive emulsions or coatings shall be clean, dry, and free of debris. Bird recommends emulsion application a minimum of 30 days after installation of roofing membrane. Apply to entire membrane and vertical surfaces at the rate of 2-3 gallons per 100 square feet. When necessary, emulsions may be diluted with no more than 10% cool, clean water. Acrylic coatings should be applied over an asphalt emulsion coating. Consult specific Acrylic coating manufacturer for application and product specifications.
2. Aluminum Coatings: Bird does not recommend the use of cutback type coatings applied directly to Bird-Lastick™ Modified Bitumen roll roofing. Asphalt Fibrated Emulsion must be applied at the rate of 2-3 gallons per square before application of the cutback Aluminum Coating.

8.4 **Torching Safety:** Safe torching applications require constant safety supervision on the part of the roofing contractor. The roofing contractor is solely responsible for insuring safe application utilizing properly constructed and maintained torching equipment with qualified personnel. Particular care must be exercised when working around combustible materials. Bird recommends torch application to non-combustible materials and substrates. Do not apply open flame to wood, plywood, fiber cants, combustible insulations or other combustible substrates and materials. At least one fire extinguisher (Type ACB or Halon) be provided for each work area. The roofing contractor should establish a complete safety program and certify that all personnel are fully trained and qualified for safe torching application. Consult your local LP dealer, National LP-Gas Association and National Fire Protection Association Pamphlet 58 for further safety recommendations and information.

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9.0 BIRD CRS™ AND MSR SPECIFICATIONS

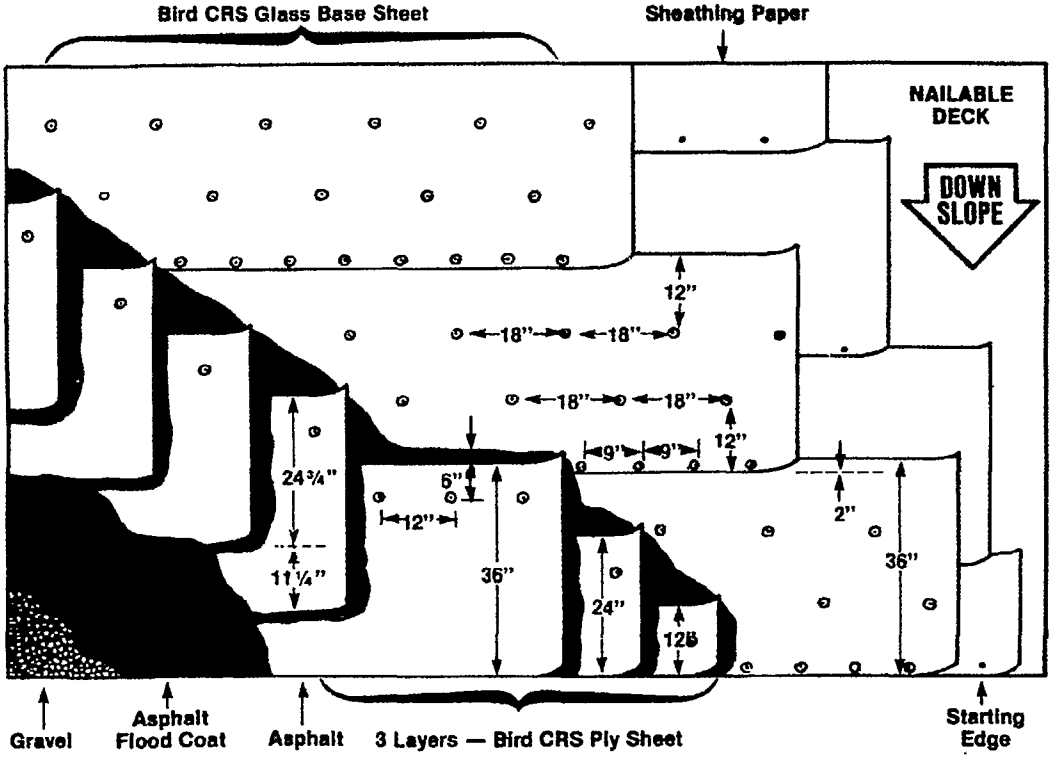
9.1 SPEC NO. 101 NAILABLE – GRAVEL SURFACED

SLOPE: 1/4" to Maximum 3"

APPROX. MATERIALS per 100 square feet of roof area:

Sheathing Paper, wood board decks only	1 layer,	5 lbs.
Bird CRS™ Glass Base sheet	1 layer,	25 lbs.
Bird CRS™ Glass Ply sheet	3 layers,	30 lbs.
Interply Asphalt	25 lbs./ply,	75 lbs.
Poured Flood Coat Asphalt		60 lbs.
Gravel		400 lbs.

1. DECK: Should conform to Bird General Specification Requirements. Refer to Sections 3.0 – 3.5.
2. ASPHALT: Refer to Bird General Specification Requirements Section 4.1. Low Slope (1/4 to 1/2 inch) use ASTM D-312 Type II Flat Asphalt. Steep Slope (1/2 to 3 inches) use ASTM D-312 Type III Steep Asphalt.
3. SURFACING: Refer to Bird General Specification Requirements Section 4.2.
4. APPLICATION: The substitution of adhesive for nails in attaching this roofing membrane to a nailable deck is not recommended. Refer to Bird General Specification Requirements Sections 1.0 – 1.5 and 4.5. Over wood board decks lay dry sheathing paper lapped 2" (end & side) nailed just sufficiently to hold in place. Starting at the low point of the roof, install one ply of Bird CRS™ Base Sheet side lapped 2" and end lapped 4". Nail sheets along lap at intervals of not less than 9 inches and stagger-nail down center of sheet on 18 inch centers. Use nails or fasteners appropriate to the type of deck. Over the base ply, install 3 plies of Bird CRS™ Ply Sheet solid mopped in specification asphalt. At the low edge, apply one 12" width, then over that a 24" width, and follow over that with a full 36" width. Succeeding 36" width plies follow shingle fashion lapping each ply 24 3/4" so that a least 3 plies of Bird CRS™ Ply Sheet cover the base ply at any point. On slopes over 1" per foot, refer to Bird General Specification Requirement Section 7.0 for required additional nailing of ply sheets. Approximately 25 lbs. of specification asphalt should be used to embed each ply. Apply surfacing per Section 4.2. in General Requirements.
5. FLASHINGS: See section on BUR Flashings.



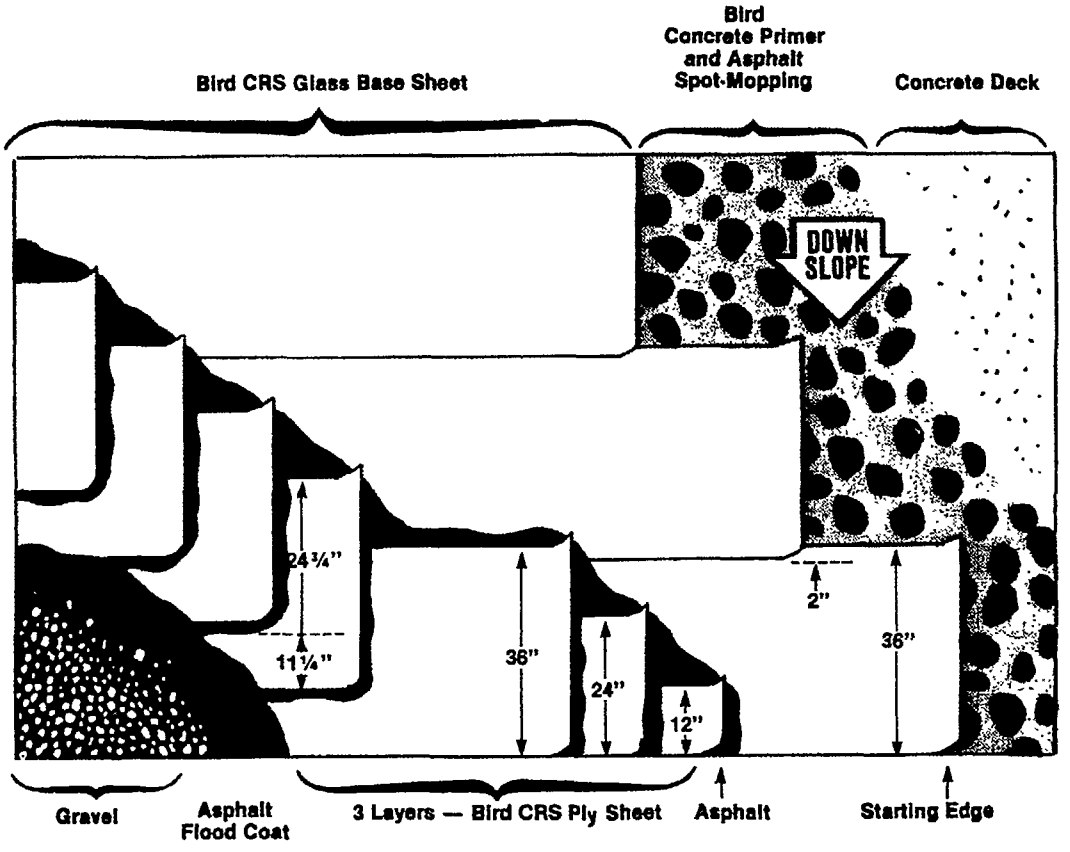
9.2 SPEC NO. 102 NON-NAILABLE – GRAVEL SURFACED

SLOPE: 1/4" to Maximum 3"

APPROX. MATERIALS per 100 square feet of roof area:

Bird Asphalt Primer, 1 gal. per square		8 lbs.
Type III Asphalt Spot Mopping		10 lbs.
Bird CRS™ Glass Base sheet	1 layer,	25 lbs.
Bird CRS™ Glass Ply sheet	3 layers,	30 lbs.
Interply Asphalt	25 lbs./ply,	75 lbs.
Poured Flood Coat Asphalt		60 lbs.
Gravel		400 lbs.

1. DECK: Should conform to Bird General Specification Requirements. Refer to Sections 3.5 – 3.9.
2. ASPHALT: Refer to Bird General Specification Requirements Section 4.1. Low Slope (1/4 to 1/2 inch) use ASTM D-312 Type II Flat Asphalt. Steep Slope (1/2 to 3 inches) use ASTM D-312 Type III Steep Asphalt.
3. SURFACING: Refer to Bird General Specification Requirements Section 4.2.
4. APPLICATION: Refer to Bird General Specification Requirements Sections 1.0 – 1.5 and 4.5. Prime deck using 1 gal/100 sq. ft. and allow to dry. Starting at the low point of the roof, spot mop one ply of Bird CRS™ Base Sheet side lapped 2" and end lapped 4" to the primed deck using 10 lbs. of Type III asphalt per square. Over the base ply, install 3 plies of Bird CRS™ Ply Sheet solid mopped in specification asphalt. At the low edge, apply one 12" width, then over that a 24" width, and follow over that with a full 36" width. Succeeding 36" width plies follow shingle fashion lapping each ply 24 3/4" so that at least 3 plies of Bird CRS™ Ply Sheet cover the base ply at any point. On slopes over 1" per foot, refer to Bird General Specification Requirement Section 7.0 for required additional nailing of base and ply sheets. Approximately 25 lbs. of specification asphalt should be used to embed each ply. Apply surfacing per Section 4.2. in General Requirements.
5. FLASHINGS: See section on BUR Flashings.



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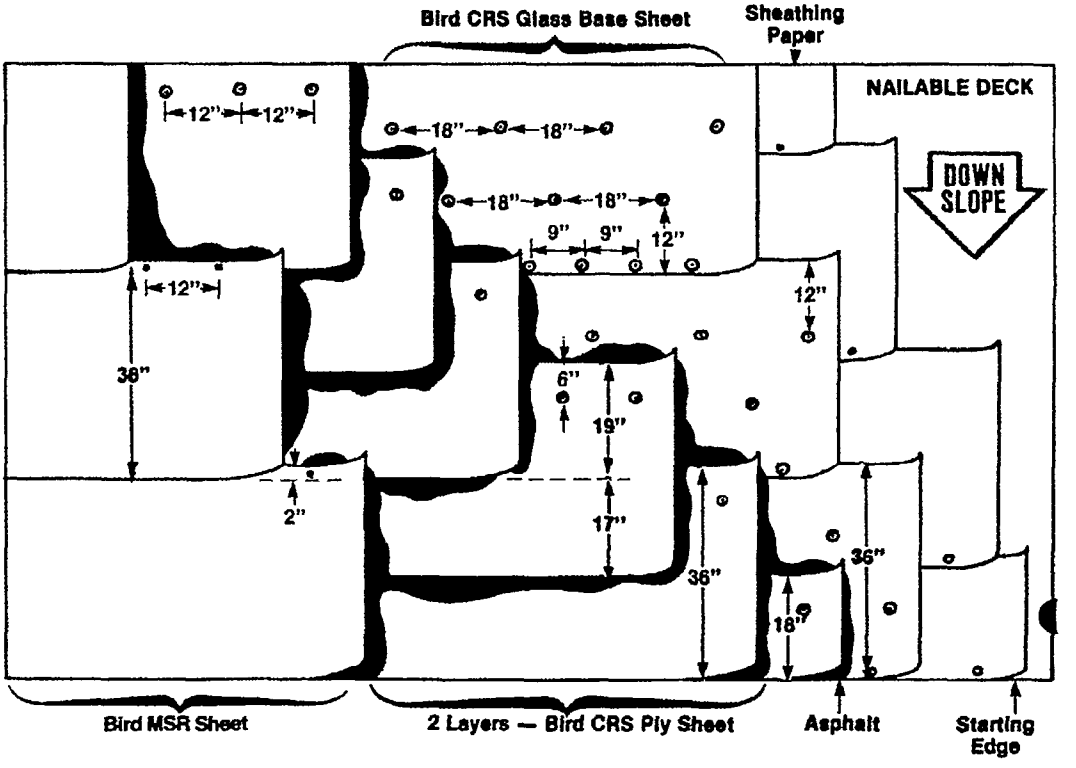
9.3 SPEC NO. 103 NAILABLE – MSR SHEET

SLOPE: 1/2" to 6"

APPROX. MATERIALS per 100 square feet of roof area:

Sheathing Paper, wood board decks only	1 layer,	5 lbs.
Bird CRS™ Glass Base sheet	1 layer,	25 lbs.
Bird CRS™ Glass Ply sheet	2 layers,	20 lbs.
Bird MSR Sheet	1 layer,	80 lbs.
Interply Asphalt	25 lbs./ply,	75 lbs.

1. DECK: Should conform to Bird General Specification Requirements. Refer to Sections 3.0 – 3.4.
2. ASPHALT: Refer to Bird General Specification Requirements Section 4.1. Steep Slope (1/2 to 3 inches) use ASTM D-312 Type III Steep Asphalt.
3. APPLICATION: The substitution of adhesive for nails in attaching this roofing membrane to a nailable deck is not recommended. Refer to Bird General Specification Requirements Sections 1.0 – 1.5 and 4.5. Over wood board decks lay dry sheathing paper lapped 2" (end & side) nailed just sufficiently to hold in place. Starting at the low point of the roof, install one ply of Bird CRS™ Base Sheet side lapped 2" and end lapped 4". Nail sheets along lap at intervals of not less than 9 inches and stagger-nail down center of sheet on 18 inch centers. Use nails or fasteners appropriate to the type of deck. Over the base ply, install 2 plies of Bird CRS™ Ply Sheet solid mopped in specification asphalt. At the low edge, apply one 18" width and follow over that with a full 36" width. Succeeding 36" width plies follow shingle fashion lapping each ply 19" so that at least 2 plies of Bird CRS™ Ply Sheet cover the base ply at any point. On slopes over 1" per foot, refer to Bird General Specification Requirement Section 7.0 for required additional nailing of ply sheets. Approximately 25 lbs. of specification asphalt should be used to embed each ply. Cut Bird MSR Sheet in lengths not to exceed 18 feet and stack on deck to flatten out prior to application. Starting at low point of roof, solid mop under-lying plies with specification asphalt and back mop cap sheet. Flop neatly in place with 2" side lap and 6" end laps. Blind nail side and end laps every 12" as required to prevent slippage.
4. FLASHINGS: See section on BUR Flashings.



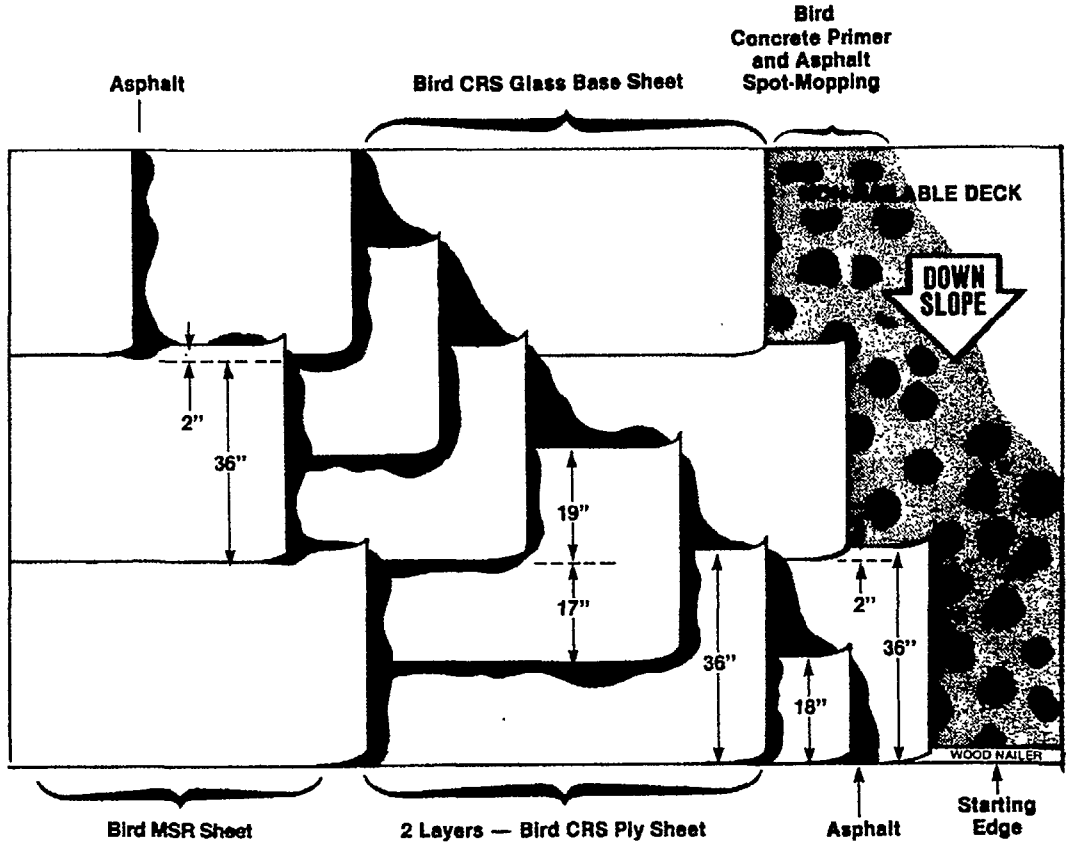
9.4 SPEC NO. 104 NON-NAILABLE MSR SHEET

SLOPE: 1/2" to 6"

APPROX. MATERIALS per 100 square feet of roof area:

Bird Asphalt Primer, 1 gallon per square		8 lbs.
Bird CRS™ Glass Base sheet	1 layer,	25 lbs.
Bird CRS™ Glass Ply sheet	2 layers,	20 lbs.
Bird MSR Sheet	1 layer,	80 lbs.
Interply Asphalt	25 lbs./ply,	75 lbs.

1. DECK: For poured concrete only. Deck should conform to Bird General Specification Requirements. Refer to Sections 3.5.
2. ASPHALT: Refer to Bird General Specification Requirements Section 4.1. Steep Slope (1/2 to 3 inches) use ASTM D-312 Type III Steep Asphalt.
3. APPLICATION: Refer to Bird General Specification requirements Sections 1.0 – 1.5 and 4.5. Prime deck using 1 gal. of Asphalt Primer per square. Starting at the low point of the roof, spot mop one ply of Bird CRS™ Base Sheet side lapped 2" and end lapped 4" to the primed deck using 10 lbs. of Type III asphalt per square. Over the base ply, install 2 plies of Bird CRS™ Ply Sheet solid mopped in specification asphalt. At the low edge, apply one 18" width and follow over that with a full 36" width. Succeeding 36" width plies follow shingle fashion lapping each ply 19" so that at least 2 plies of Bird CRS™ Ply Sheet cover the base ply at any point. On slopes over 1" per foot, refer to Bird General Specification Requirement Section 7.0 for required additional nailing of ply sheets. Approximately 25 lbs. of specification asphalt should be used to embed each ply. Cut Bird MSR Sheet in lengths not to exceed 18 feet and stack on deck to flatten out prior to application. Starting at low point of roof, solid mop under-lying plies with specification asphalt and back mop cap sheet. Flop neatly in place with 2" side lap and 6" end laps. Blind nail side and end laps every 12" as required to prevent slippage. When slope exceeds 4" per foot, base and cap sheets may be laid parallel to the slope, facing all laps away from prevailing wind.
4. FLASHINGS: See section on BUR Flashings.



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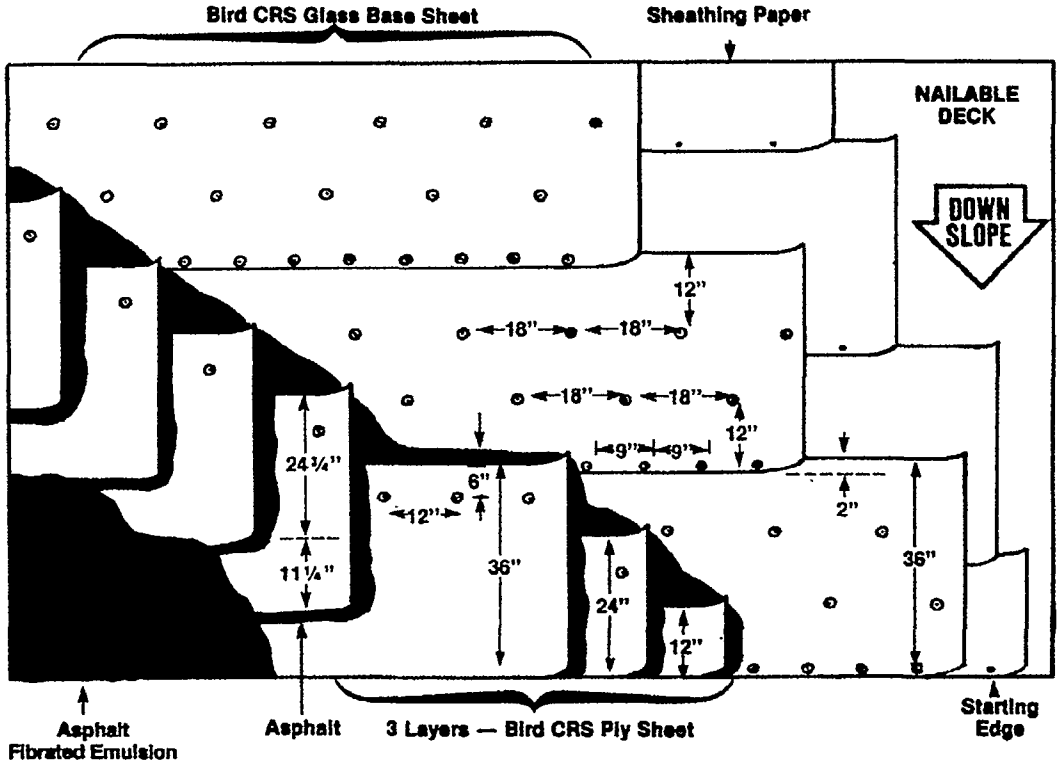
9.5 SPEC NO. 105 NAILABLE – SMOOTH SURFACED

SLOPE: 1/4" to 3"

APPROX. MATERIALS per 100 square feet of roof area:

Sheathing Paper, wood board decks only	1 layer,	5 lbs.
Bird CRS™ Glass Base sheet	1 layer,	25 lbs.
Bird CRS™ Glass Ply sheet	3 layers,	30 lbs.
Interply Asphalt	25 lbs./ply,	75 lbs.
Surface Coat: (select)		
(1) Bird Reflecto-Coat™ Aluminum	1 1/2 – 2 gallons	
(2) Asphalt Fibrated Emulsion	2 – 3 gallons	
(3) Bird Fibrated Roof Coating	1 1/2 – 2 gallons	
(4) Hot Specification Asphalt	25 lbs.	

1. DECK: Should conform to Bird General Specification Requirements. Refer to Sections 3.0 – 3.4.
2. ASPHALT: Refer to Bird General Specification Requirements Section 4.1. Low Slope (1/4 to 1/2 inch) use ASTM D-312 Type II Flat Asphalt. Steep Slope (1/2 to 3 inches) use ASTM D-312 Type III Steep Asphalt. This spec may be applied cold process by substituting Neponset™ Cold Cement for the interply asphalt. Use 3 gallons, 27 lbs per 100 square feet between plies.
3. SURFACING: Refer to Bird General Specification Requirements Section 4.3.
4. APPLICATION: The substitution of adhesive for nails in attaching this roofing membrane to a nailable deck is not recommended. Refer to Bird General Specification requirements Sections 1.0 – 1.5 and 4.5. Over wood board decks lay dry sheathing paper lapped 2" (end & side) nailed just sufficiently to hold in place. Starting at the low point of the roof, install one ply of Bird CRS™ Base Sheet side lapped 2" and end lapped 4". Nail sheets along lap at intervals of not less that 9 inches and stagger-nail down center of sheet on 18 inch centers. Use nails or fasteners appropriate to the type of deck. Over the base ply, install 3 plies of Bird CRS™ Ply Sheet solid mopped in specification asphalt. At the low edge, apply one 12" width, then over that a 24" width, and follow over that with a full 36" width. Succeeding 36" width plies follow shingle fashion lapping each ply 24 3/4" so that at least 3 plies of Bird CRS™ Ply Sheet cover the base ply at any point. On slopes over 1" per foot, refer to Bird General Specification Requirement Section 7.0 for required additional nailing of ply sheets. Approximately 25 lbs. of specification asphalt should be used to embed each ply. Finish entire surface with a uniform coating of the selected surfacing.
5. FLASHINGS: See section on BUR Flashings.



Bird-tructions

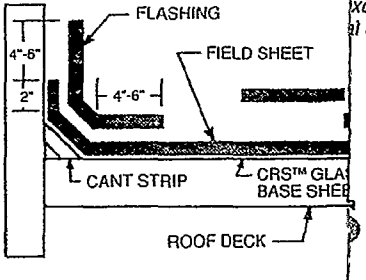
DANGER

Do not store or use propane tanks in direct sunlight he roof, as extended periods of time or in temperatures above 120 chanically (49° C). Propane is extremely flammable and tanks g piece of pressurized. Use only in well ventilated areas. Use with c ned metal to avoid fires. Do not store tanks in living areas. Do thin a 1/2" puncture or burn tanks. Discard empty, disposable tank of 6". Both safe areas. At the end of the day, remove tanks from r watertight and store properly.

BASIC SAFETY MEASURES

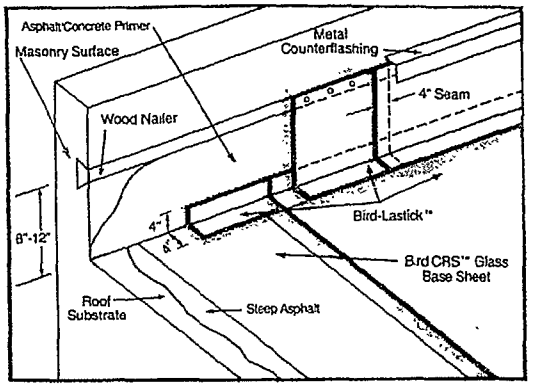
1. Always have fire extinguishers readily available n imed. The the application area. ipe and is
2. Make sure the torching equipment is in good work is to be a order, including the proper setting for the regulator field) and mum of 8"
3. All torches must have a support stand that allows nstall over flame to be directed away from the roof when the to o assure a is not being used. Also make sure the flame is coming into contact with adjacent materials such walls or mechanical equipment not being used.
4. Watch the gas hoses. Don't wheel equipment c them, kink them, or allow the flame from torches to co in contact with them.
5. Don't play with the torches. The heat from a torch areas not instantly ignite clothes and skin. nded area,
6. Wear proper clothing. Loose pant legs or shirt slee readily ignite as will tennis shoes. l 4" lap to
7. If there is any smoke seen after completing the m ound from brane installation, find out what and where it is. Material can smoulder for hours before igniting.
8. Do not allow flame to come in contact with combust am. materials such as wood, paper, old insulation, and d out roofing. Make sure a mopped on, or Bird CR ace across Glass Base Sheet is installed first. Prime old roofing t. required but let the primer thoroughly dry before ins nd and not ing the membrane.
9. Use good hoisting techniques when hoisting gas ta to the roof. Don't put a rope or cable around the v area of the cylinder. The gas is under extreme press *based on* and if that valve breaks off, the cylinder will act as a There have been instances of cylinders becoming borne and going through walls when that happens *not within*
10. At all times, follow the safety guidelines as publishe *ht to modify* the Asphalt Roofing Manufacturers Association (ARM

Safe usage of the products will provide an exce *ils obtain a* system. Common sense about what burns and what *y available.* not burn will save each and every one of us from m *ce to issue* problems in the future. *ning to the* *stributor, or* *any docu-* *y liability in* *xcept when* *l Services.*



SMOC

PARAPET FLASHING OF CONCRETE WITH METAL COUNTERFLASHING



INSTALLATION:

1. All masonry surfaces to be flashed must be primed with Asphalt Primer and allowed to dry thoroughly.
2. If cant strips are to be employed, they must be of appropriate solid wood or fiberboard covered with CRS™ Glass Base Sheet which should extend 2" above the top of the cant. Tapered non-combustible insulation and poured in place cementitious cants may also be used.
3. Under no circumstances shall torching of membrane be permitted when coming in direct contact with cants made of flammable materials.
4. Run the CRS™ Glass Base Sheet to the wall if no cant is present or 2" past the top of the cant if present.
5. Reinforce the intersection of the roof and wall/parapet with a fully torched width of Bird-Lastick™ Membrane extending the reinforcement 4" up the wall (4" past the top of the cant if present) and 4" onto the surface of the roof.
6. Fully torch the Bird-Lastick™ Membranes from the field of the roof to the reinforcement Membrane at the base of the wall running field Membrane to the top of the reinforcement Membrane or to the top of the cant if present.
7. Starting from beneath the metal counterflashing, fully torch Membrane down to the wall, over the cant and at least 2" onto the roof. Mechanically attach the Membrane to the wall or parapet using fasteners having integral head at least 1" in diameter, installed on at most 8" centers. The edges of the flashing Membrane must be heated and pressed to provide a flow of material from the edges of the Membrane. Flashing should extend a minimum of 8" up the wall or parapet where practical.

Bird Roofing Division
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Norwood, MA 02062
(617) 551-0656
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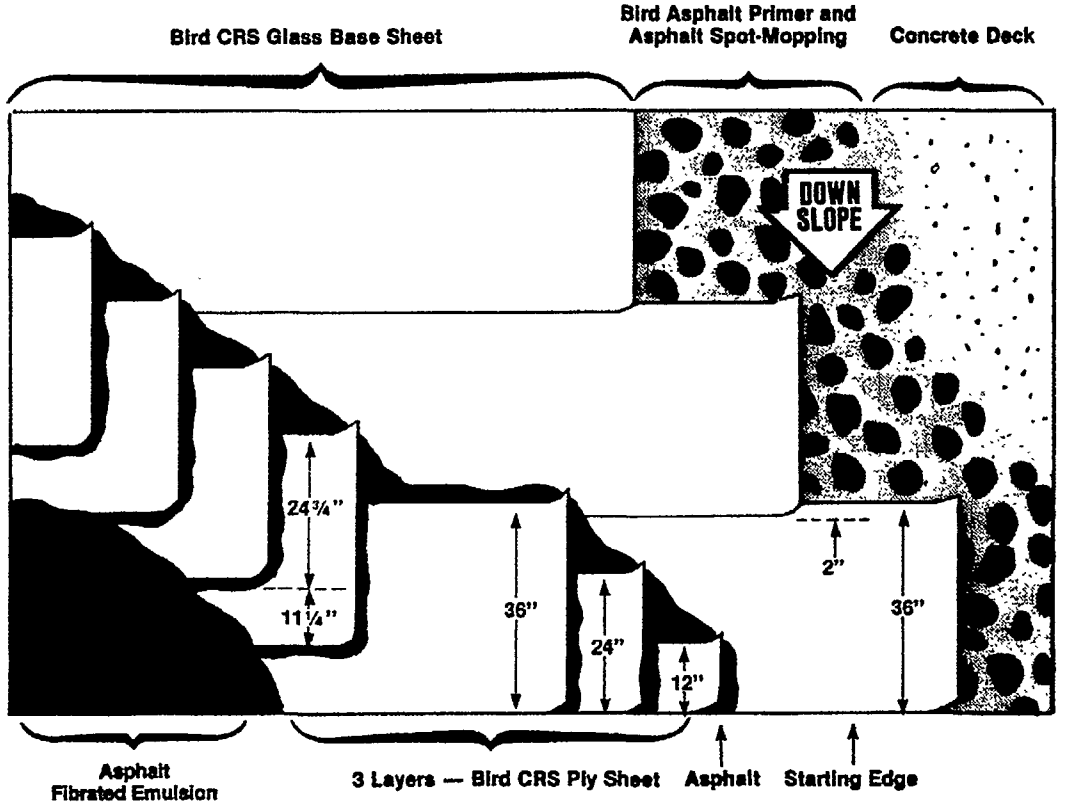
9.6 SPEC NO. 106 NON-NAILABLE – SMOOTH SURFACED

SLOPE: 1/4" to 3"

APPROX. MATERIALS per 100 square feet of roof area:

Bird Asphalt Primer, 1 gallon per square		8 lbs.
Type III Asphalt Spot Mopping		10 lbs.
Bird CRS™ Glass Base sheet	1 layer,	25 lbs.
Bird CRS™ Glass Ply sheet	3 layers,	30 lbs.
Interply Asphalt	25 lbs./ply,	75 lbs.
Surface Coat: (select)		
(1) Bird Reflecto-Coat™ Aluminum	1 1/2 – 2 gallons	
(2) Asphalt Fibrated Emulsion	2 – 3 gallons	
(3) Bird Fibrated Roof Coating	1 1/2 – 2 gallons	
(4) Hot Specification Asphalt	25 lbs.	

1. DECK: For use over poured concrete and precast concrete only. Should conform to Bird General Specification Requirements. Refer to Sections 3.5 – 3.6.
2. ASPHALT: Refer to Bird General Specification Requirements Section 4.1. Low Slope (1/4 to 1/2 inch) use ASTM D-312 Type II Flat Asphalt. Steep Slope (1/2 to 3 inches) use ASTM D-312 Type III Steep Asphalt. This spec may be applied cold process by substituting Neponset™ Cold Cement for the interply asphalt. Use 3 gallons, 27 lbs. per 100 square feet between plies.
3. SURFACING: Refer to Bird General Specification Requirements Section 4.3.
4. APPLICATION: Refer to Bird General Specification Requirements Sections 1.0 – 1.5 and 4.5. Starting at the low point of the roof, spot mop one ply of Bird CRS™ Base Sheet side lapped 2" and end lapped 4" to the primed deck using 10 lbs. per square of Type III asphalt. Over the base ply, install 3 plies of Bird CRS™ Ply Sheet solid mopped in specification asphalt. At the low edge, apply one 12" width, then over that a 24" width, and follow over that with a full 36" width. Succeeding 36" width plies follow shingle fashion lapping each ply 24 3/4" so that at least 3 plies of Bird CRS™ Ply Sheet cover the base ply at any point. On slopes over 1" per foot, refer to Bird General Specification Requirements Section 7.0 for required additional nailing of ply sheets. Approximately 25 lbs. of specification asphalt should be used to embed each ply. Finish entire surface with a uniform coating of the selected surfacing.
5. FLASHINGS: See section on BUR Flashings.



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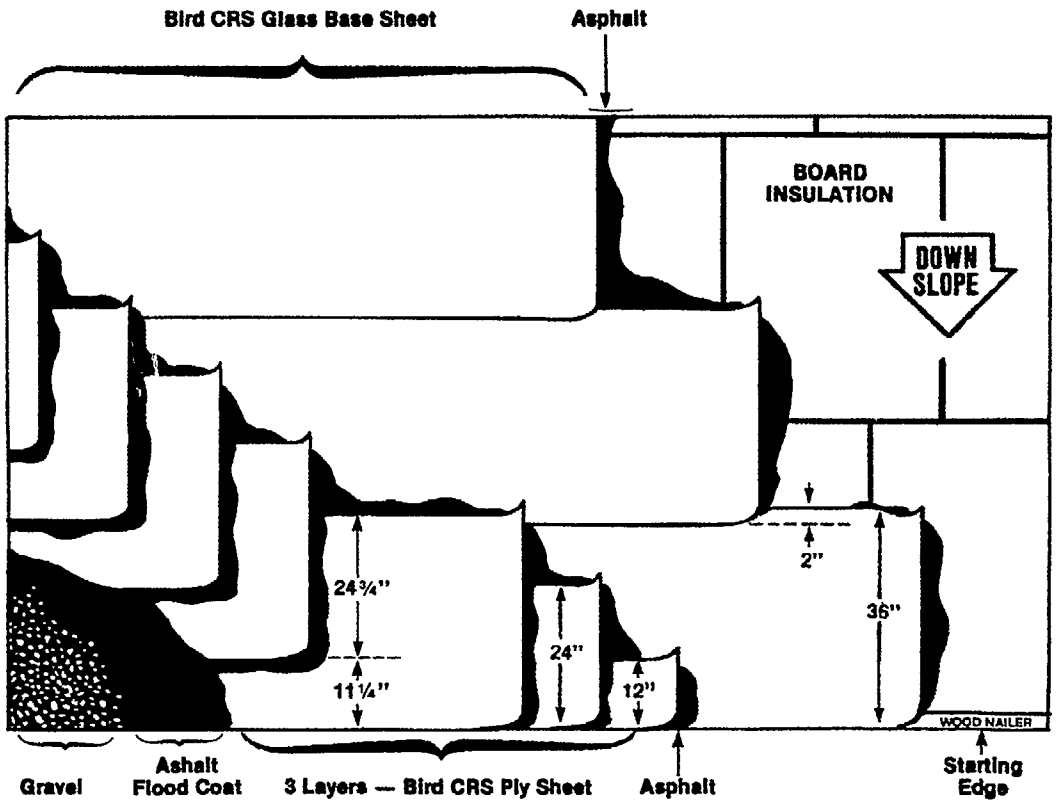
9.7 SPEC NO. 107 INSULATED DECK – GRAVEL SURFACED

SLOPE: 1/4" to maximum 3"

APPROX. MATERIALS per 100 square feet of roof area:

Type III Asphalt Full Mopping		25 lbs.
Bird CRS™ Glass Base sheet	1 layer,	25 lbs.
Bird CRS™ Glass Ply sheet	3 layers,	30 lbs.
Interply Asphalt	25 lbs./ply,	75 lbs.
Poured Flood Coat Asphalt		60 lbs.
Gravel		400 lbs.

1. DECK: Should conform to Bird General Specification Requirements. Refer to Sections 3.0 – 3.9.
2. INSULATION: The insulation shall be installed according to manufacturer's specification in the thickness required. Refer to Bird General Specification Requirements Section 4.4.
3. ASPHALT: Refer to Bird General Specification Requirements Section 4.1. Low Slope (1/4 to 1/2 inch) use ASTM D-312 Type II Flat Asphalt. Steep Slope (1/2 to 3 inches) use ASTM D-312 Type III Steep Asphalt.
4. SURFACING: Refer to Bird General Specification Requirements Section 4.2.
5. APPLICATION: Refer to Bird General Specification Requirements Sections 1.0 – 1.5 and 4.5. Starting at the low point of the roof, solid mop using Type III Asphalt one ply of Bird CRS™ Base Sheet side lapped 2" and end lapped 4" to the insulation using 25 lbs. of asphalt per square. Over the base ply, install 3 plies of Bird CRS™ Ply Sheet solid mopped in specification asphalt. At the low edge, apply one 12" width, then over that a 24" width, and follow over that with a full 36" width. Succeeding 36" width plies follow shingle fashion lapping each ply 24 3/4" so that at least 3 plies of Bird CRS™ Ply Sheet cover the base ply at any point. On slopes over 1" per foot, refer to Bird General Specification Requirements Section 4.5 for required additional nailing of ply sheets. Approximately 25 lbs. of specification asphalt should be used to embed each ply. Apply surfacing per Section 4.2. in General Requirements.
6. FLASHINGS: See section on BUR Flashings.



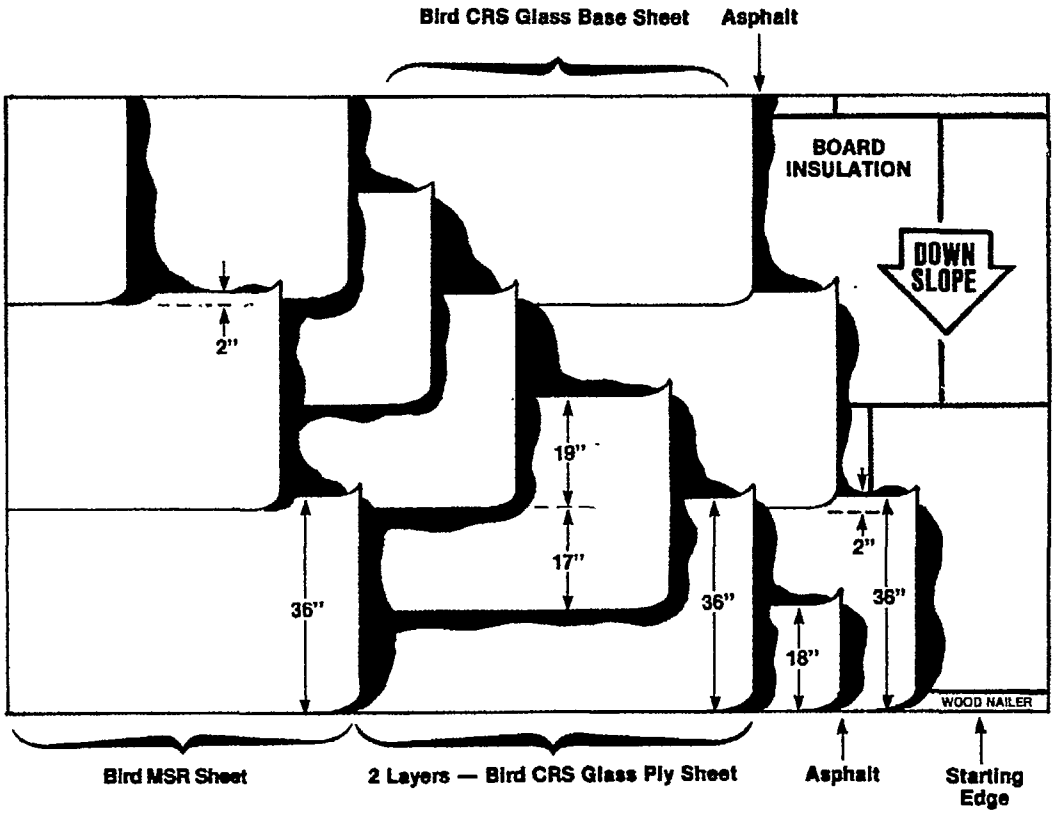
9.8 SPEC NO. 108 INSULATED DECK – MSR SHEET

SLOPE: 1/2" to 6"

APPROX. MATERIALS per 100 square feet of roof area:

Type III Asphalt Full Mopping		25 lbs.
Bird CRS™ Glass Base sheet	1 layer,	25 lbs.
Bird CRS™ Glass Ply sheet	2 layers,	20 lbs.
Bird MSR Sheet	1 layer,	80 lbs.
Interply Asphalt	25 lbs./ply,	75 lbs.

1. DECK: Deck should conform to Bird General Specification Requirements. Refer to Sections 3.0 to 3.9.
2. INSULATION: The insulation shall be installed according to manufacturer's specification in the thickness required. Refer to Bird General Specification Requirements Section 4.4.
3. ASPHALT: Refer to Bird General Specification Requirements Section 4.1. Steep Slope (1/2 to 3 inches) use ASTM D-312 Type III Steep Asphalt.
4. APPLICATION: Refer to Bird General Specification Requirements Sections 1.0 – 1.5 and 4.5. Starting at the low point of the roof, solid mop using Type III Asphalt one ply of Bird CRS™ Base Sheet side lapped 2" and end lapped 4" to the insulation using 25 lbs. of asphalt per square. Over the base ply, install 2 plies of Bird CRS™ Ply Sheet solid mopped in specification asphalt. At the low edge, apply one 18" width and follow over that with a full 36" width. Succeeding 36" width plies follow shingle fashion lapping each ply 19" so that at least 2 plies of Bird CRS™ Ply Sheet cover the base ply at any point. On slopes over 1" per foot, refer to Bird General Specification Requirements Section 7.0 for required additional nailing of ply sheets. Approximately 25 lbs. of specification asphalt should be used to embed each ply. Cut Bird MSR Sheet in lengths not to exceed 18 feet and stack on deck to flatten out prior to application. Starting at low point of roof, solid mop under-lying plies with specification asphalt and back mop cap sheet. Flop neatly in place with 2" side lap and 6" end laps. Blind nail side and end laps every 12" as required to prevent slippage. When slope exceeds 4" per foot, base and cap sheets may be laid parallel to the slope, facing all laps away from prevailing wind.
5. FLASHINGS: See section on BUR Flashings.



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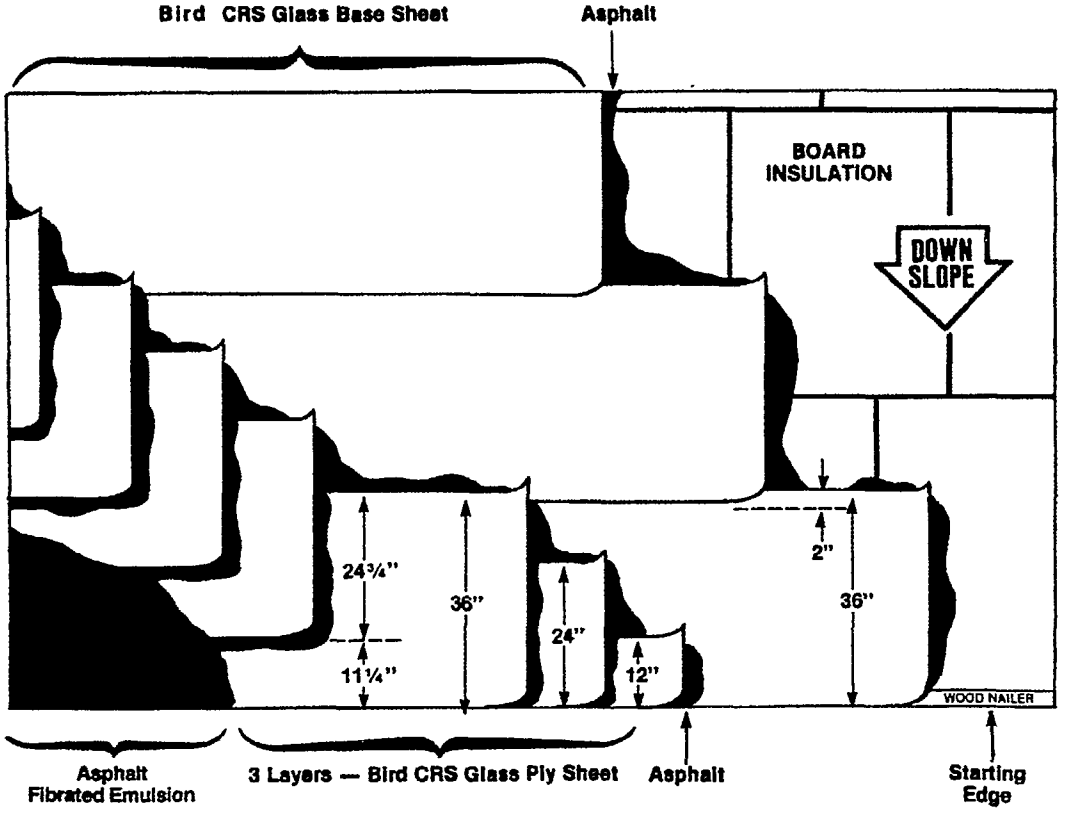
9.9 SPEC NO. 109 INSULATED DECK – SMOOTH SURFACE

SLOPE: 1/4" to 3"

APPROX. MATERIALS per 100 square feet of roof area:

Type III Asphalt Full Mopping		25 lbs.
Bird CRS™ Glass Base sheet	1 layer,	25 lbs.
Bird CRS™ Glass Ply sheet	3 layers,	30 lbs.
Interply Asphalt	25 lbs./ply,	75 lbs.
Surface Coat: (select)		
(1) Bird Reflecto-Coat™ Aluminum		1 1/2 – 2 gallons
(2) Asphalt Fibrated Emulsion		2 – 3 gallons
(3) Bird Fibrated Roof Coating		1 1/2 – 2 gallons
(4) Hot Specification Asphalt		25 lbs.

1. DECK: Should conform to Bird General Specification Requirements. Refer to Sections 3.0 – 3.9.
2. INSULATION: The insulation shall be installed according to manufacturer's specification in the thickness required. Refer to Bird General Specification Requirements Section 4.4.
3. ASPHALT: Refer to Bird General Specification Requirements Section 4.1. Low Slope (1/4 to 1/2 inch) use ASTM D-312 Type II Flat Asphalt. Steep Slope (1/2 to 3 inches) use ASTM D-312 Type III Steep Asphalt. This spec may be applied cold process by substituting Neponset™ Cold Cement for the interply asphalt. Use 3 gallons, 27 lbs. per 100 square feet between plies.
4. SURFACING: Refer to Bird General Specification Requirements Section 4.3.
5. APPLICATION: Refer to Bird General Specification Requirements Sections 1.0 – 1.5 and 4.5. Starting at the low point of the roof, solid mop using one ply of Bird CRS™ Base Sheet side lapped 2" and end lapped 4" to the insulation 25 lbs. per square of Type III asphalt. Over the base ply, install 3 plies of Bird CRS™ Ply Sheet solid mopped in specification asphalt. At the low edge, apply one 12" width, then over that a 24" width, and follow over that with a full 36" width. Succeeding 36" width plies follow shingle fashion lapping each ply 24 3/4" so that at least 3 plies of Bird CRS™ Ply Sheet cover the base ply at any point. On slopes over 1" per foot, refer to Bird General Specification Requirements Section 7.0 for required additional nailing of ply sheets. Approximately 25 lbs. of specification asphalt should be used to embed each ply. Finish entire surface with a uniform coating of the selected surfacing.
6. FLASHINGS: See section on BUR Flashings.



10.0 BIRD-LASTICK™ APP MODIFIED BITUMEN SPECIFICATIONS

10.1 SPEC NO. 201 NAILABLE – SMOOTH

SLOPE: 1/4" to 6"

APPROX. MATERIALS per 100 square feet of roof area:

Bird CRS™ Glass Base sheet . . . . . 1 layer, 25 lbs.
Bird-Lastick™ APP Modified Bitumen sheet . 1 layer, 90 lbs.
Surface Coat:
(1) Asphalt Fibrated Emulsion . . . . . 2 – 3 gallons

1. DECK: Should conform to Bird General Specification Requirements. Refer to Sections 3.0 – 3.9.
2. SURFACING: Optional. Refer to Bird General Specification Requirements Section 8.3.
3. BASE SHEET APPLICATION: Refer to Bird General Specification Requirements Sections 1.0 – 1.5, 4.5 and 8.0. Starting at the low point of the roof, nail one ply of Bird CRS™ Base Sheet side lapped 2" and end lapped 4" to the deck. Nail 9" o.c. at side laps and 18" o.c. staggered in two rows 12" in from each edge with Approved Fasteners. See Bird General Specification Requirements Section 4.5. Install base ply to provide and maintain a 6" minimum offset between side and end laps of the base ply and the Bird-Lastick™ field applied membrane.
4. TORCH APPLICATION: Starting at the low point of the roof, torch apply one layer of Bird-Lastick™ lapping 3" on sides and 6" on ends maintaining a 6" minimum offset between side and end laps of the base ply. See Bird General Specification Requirements Sections 8.2 and 8.4 for more details. All end laps shall be 3' apart and diagonally staggered per Bird General Specification Requirements Sections 8.0 or 8.2-7. On slopes over 2" per foot, refer to Bird General Specification Requirements Section 8.1 for required additional nailing. Surface coating is optional. Finish entire surface with a uniform coating of the selected surfacing.
5. FLASHINGS: See Bird Built-Up Roofing Manual Section 12.0 for details on BUR Flashings.

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10.2 SPEC NO. 202 NON-NAILABLE – SMOOTH

SLOPE: 1/4" to 6"

APPROX. MATERIALS per 100 square feet of roof area:

Bird Asphalt Primer, 1 gal. per square . .		8 lbs.
Asphalt Spot Mopping		15 lbs.
Bird CRS™ Glass Base sheet	1 layer,	25 lbs.
Bird-Lastick™ APP Modified Bitumen sheet .	1 layer,	90 lbs.
Surface Coat:		
(1) Asphalt Fibrated Emulsion	2 – 3 gallons	

1. DECK: Should conform to Bird General Specification Requirements. Refer to Sections 3.0 – 3.9.
2. ASPHALT: Refer to Bird General Specification Requirements Section 4.1. Low Slope (1/4 to 3 inches) use ASTM D-312 Type III Steep Asphalt. Steep Slope (3 to 6 inches) use ASTM D-312 Type IV Steep Asphalt.
3. SURFACING: Optional. Refer to Bird General Specification Requirements Section 8.3.
4. BASE SHEET APPLICATION: Refer to Bird General Specification Requirements Sections 1.0 – 1.5, 4.5 and 8.0. Starting at the low point of the roof, solid mop using one ply of Bird CRS™ Base Sheet side lapped 2" and end lapped 4" to the insulation using 25 lbs. per square of specification asphalt. Install base ply to provide and maintain a 6" minimum offset between side and end laps of the base ply and the Bird-Lastick™ field applied membrane.
5. TORCH APPLICATION: Starting at the low point of the roof, torch apply one layer of Bird-Lastick™ lapping 3" on sides and 6" on ends maintaining a 6" minimum offset between side and end laps of the base ply. See Bird General Specification Requirements Sections 8.2 and 8.4 for more details. All end laps shall be 3' apart and diagonally staggered per Bird General Specification Requirements Sections 8.0 or 8.2-7. On slopes over 2" per foot, refer to Bird General Specification Requirement Section 8.1 for required additional nailing. Surface coating is optional. Finish entire surface with a uniform coating of the selected surfacing.
6. FLASHINGS: See Bird Built-Up Roofing Manual Section 12.0 for details on BUR Flashings.

10.3 SPEC NO. 203 INSULATED DECK – SMOOTH

SLOPE: 1/4" to 6"

APPROX. MATERIALS per 100 square feet of roof area:

Asphalt Full Mopping		25 lbs.
Bird CRS™ Glass Base sheet	1 layer,	25 lbs.
Bird-Lastick™ APP Modified Bitumen sheet .	1 layer,	90 lbs.
Surface Coat:		
(1) Asphalt Fibrated Emulsion	2 – 3 gallons	

1. DECK: Should conform to Bird General Specification Requirements. Refer to Sections 3.0 – 3.9.
2. INSULATION: The insulation shall be installed according to manufacturer's specification in the thickness required. Refer to Bird General Specification Requirements Section 4.4.
3. ASPHALT: Refer to Bird General Specification Requirements Section 4.1. Low Slope (1/4 to 3 inches) use ASTM D-312 Type III Steep Asphalt. Steep Slope (3 to 6 inches) use ASTM D-312 Type IV Steep Asphalt.
4. SURFACING: Optional. Refer to Bird General Specification Requirements Section 8.3.
5. BASE SHEET APPLICATION: Refer to Bird General Specification Requirements Sections 1.0 – 1.5, 4.5 and 8.0. Starting at the low point of the roof, solid mop using one ply of Bird CRS™ Base Sheet side lapped 2" and end lapped 4" to the insulation using 25 lbs. per square of specification asphalt. Install base ply to provide and maintain a 6" minimum offset between side and end laps of the base ply and the Bird-Lastick™ field applied membrane.
6. TORCH APPLICATION: Starting at the low point of the roof, torch apply one layer of Bird-Lastick™ lapping 3" on sides and 6" on ends maintaining a 6" minimum offset between side and end laps of the base ply. See Bird General Specification Requirements Sections 8.2 and 8.4 for more details. All end laps shall be 3' apart and diagonally staggered per Bird General Specification Requirements Sections 8.0 or 8.2-7. On slopes over 2" per foot, refer to Bird General Specification Requirements Section 8.1 for required additional nailing. Surface coating is optional. Finish entire surface with a uniform coating of the selected surfacing.
7. FLASHINGS: See Bird Built-Up Roofing Manual Section 12.0 for details on BUR Flashings.

11.0 FLASHING CONSTRUCTION DETAILS

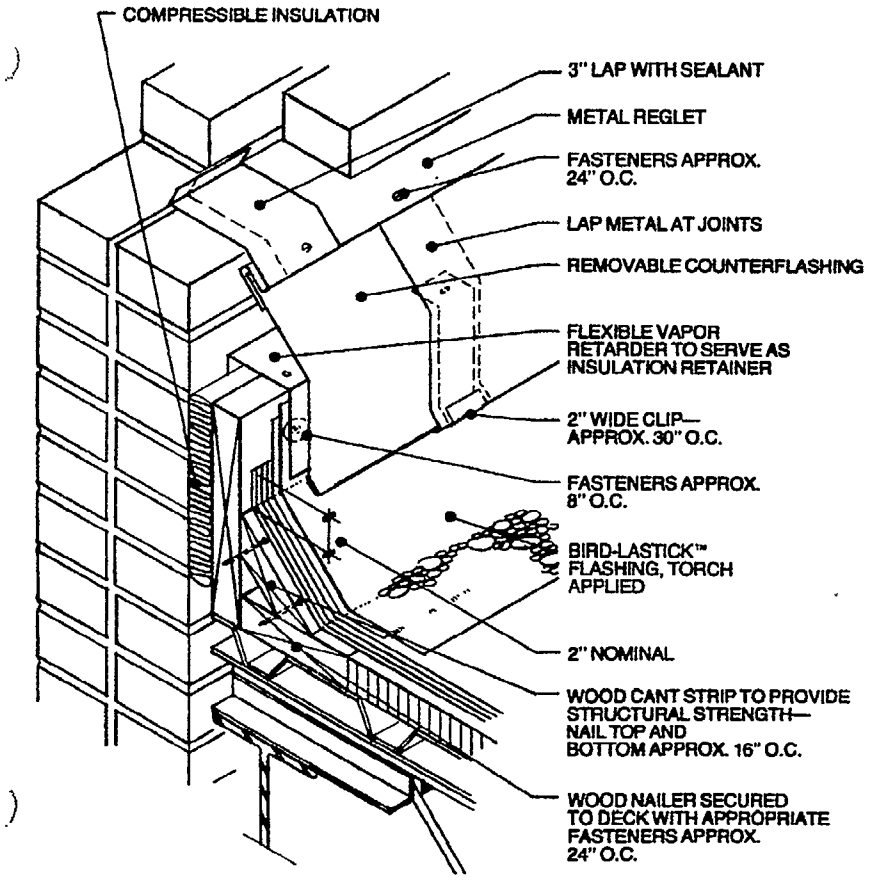
The flashing details are generally subject to the worst possible conditions on the roof. Many built-up roofing systems fail because not enough consideration is given to this part of the roof construction during the planning stages. Bird has endeavored to provide the best proven details based on the company's experience and the experience of many roofing designers and contractors. The majority of these details were developed and are accepted by the National Roofing Contractors Association.

Bird-Lastick™ Flashing is a smooth surfaced Modified Bitumen sheet. It is well suited for use as a Base Flashing sheet because of its elasticity and toughness. Bird-Lastick™ Flashing has puncture resistance and flexibility and can be used where some building movement is expected, but not to exceed 1/4 of an inch in either direction. The flashing systems shown should be a component of or attached to the roof deck or roof deck structural system. This flashing should be torch applied after the built-up roofing has been laid. The built-up roofing plies should extend 2 inches above the cants and adhere to the wall curb, or vertical nailer. All flashing material must extend a minimum of 6 inches onto the roof surface and a minimum of 8 inches up the wall which is being flashed. To insure the best application the following precautions should be noted:

1. Bird-Lastick™ Flashing must be torch applied. Base flashing sheets should not be stretched when applied.
2. Bird-Lastick™ Flashing should be mechanically fastened to prevent slippage. Nail top edge approximately 8" o.c.
3. Solvent based cements must not be used with Bird-Lastick™ sheets.
4. For torch application refer to Bird General Specification Requirements Sections 8.2 and 8.4.

Using a sharp razor knife, cleanly cut the Bird-Lastick™ membrane lengthwise into two (2) equal widths of appropriate length.

11.1 BASE FLASHING FOR NON-WALL-SUPPORTED DECK, BF-1



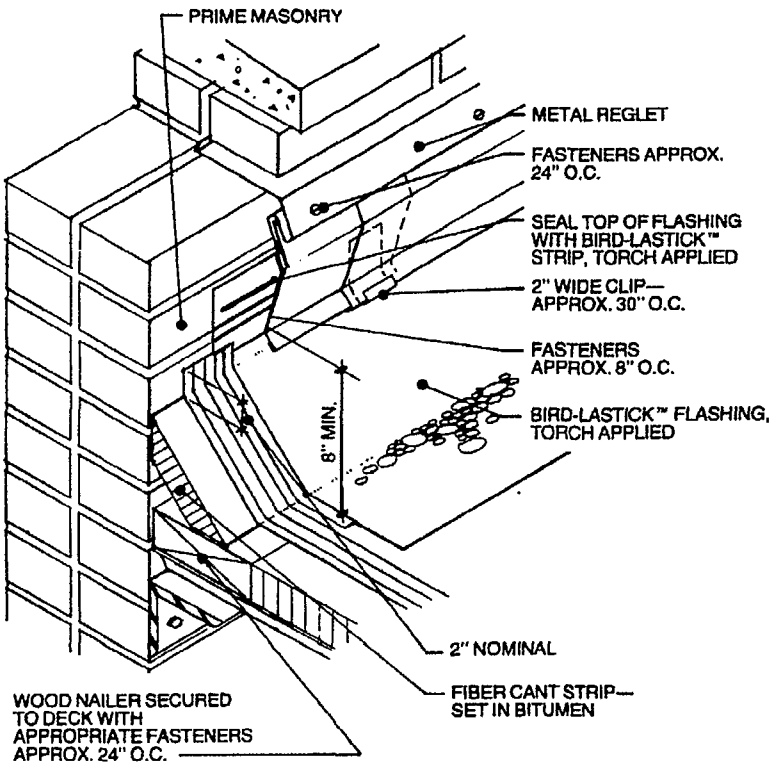
NOTES:

THIS DETAIL ALLOWS WALL AND DECK TO MOVE INDEPENDENTLY.

THIS DETAIL SHOULD BE USED WHERE THERE IS ANY POSSIBILITY THAT DIFFERENTIAL MOVEMENT WILL OCCUR BETWEEN THE DECK AND A VERTICAL SURFACE, SUCH AS AT A PENTHOUSE WALL. THE VERTICAL WOOD MEMBER SHOULD BE FASTENED TO THE DECK ONLY. THIS IS ONE SATISFACTORY METHOD OF JOINING THE TWO PIECE FLASHING SYSTEM. OTHER METHODS MAY BE USED.

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11.2 BASE FLASHING FOR WALL- SUPPORTED DECK, BF-2



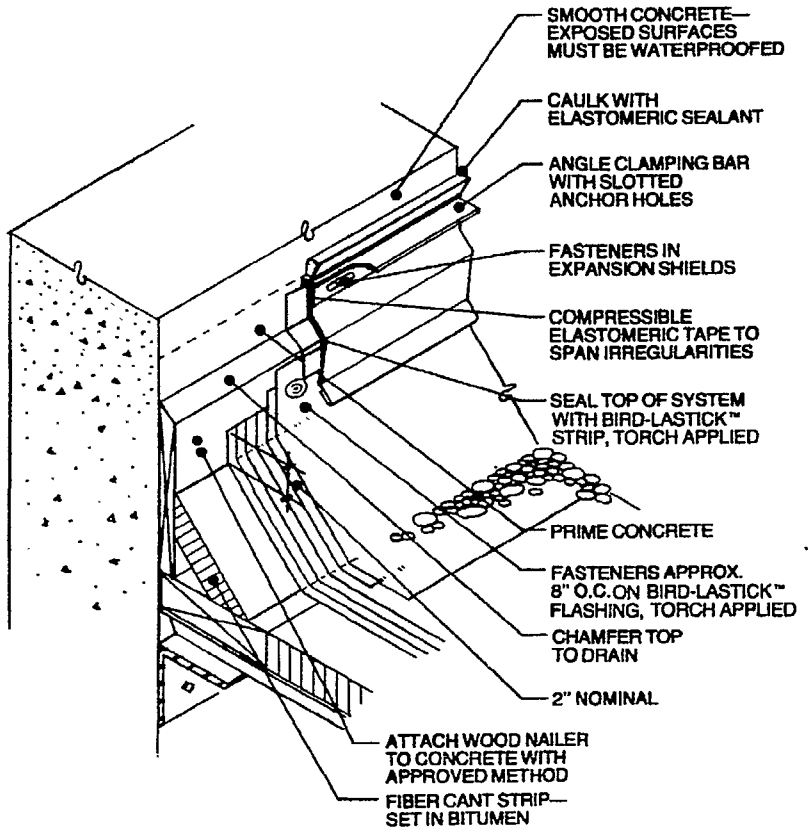
NOTES:

THIS DETAIL SHOULD BE USED ONLY WHERE THE DECK IS SUPPORTED BY THE WALL.

THIS DETAIL IS SIMILAR TO DETAIL E. THE JOINTS IN THE TWO PIECES OF FLASHING SHOULD NOT BE SOLDERED. BREAKS IN SOLDERED JOINTS COULD CHANNEL WATER BEHIND THE FLASHING. CLIPS AT THE BOTTOM OF THE FLASHING ARE NOT NECESSARY ON FLASHINGS OF 6" OR LESS.

SEE DETAIL E FOR THE PREFERRED CONSTRUCTION.

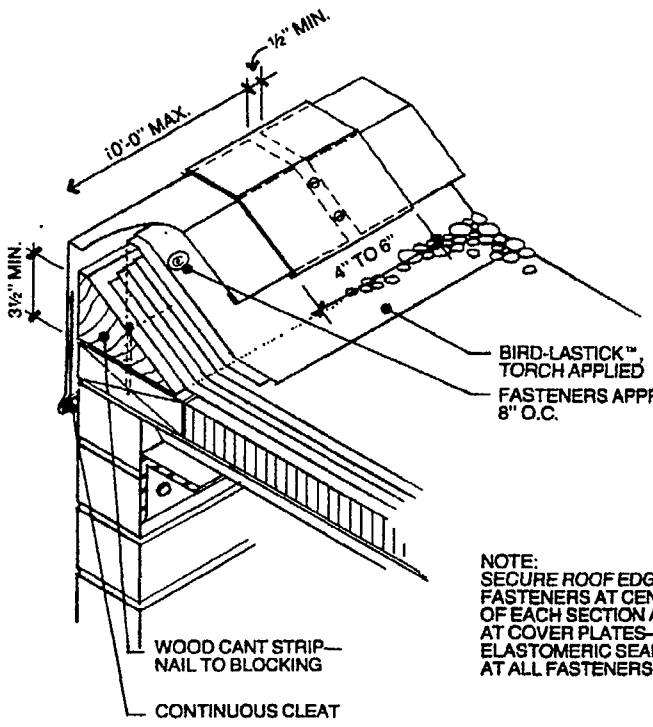
11.3 COUNTER FLASHING FOR CONCRETE WALL OR PARAPETS, BF-3



NOTES:

WHERE DECK IS SUPPORTED BY AND FASTENED TO THE CONCRETE WALL, VERTICAL WOOD NAILER SHOULD BE SECURED TO THE WALL WITH SUITABLE FASTENERS.

11.4 LIGHT-METAL ROOF EDGE, BF-4



NOTES:

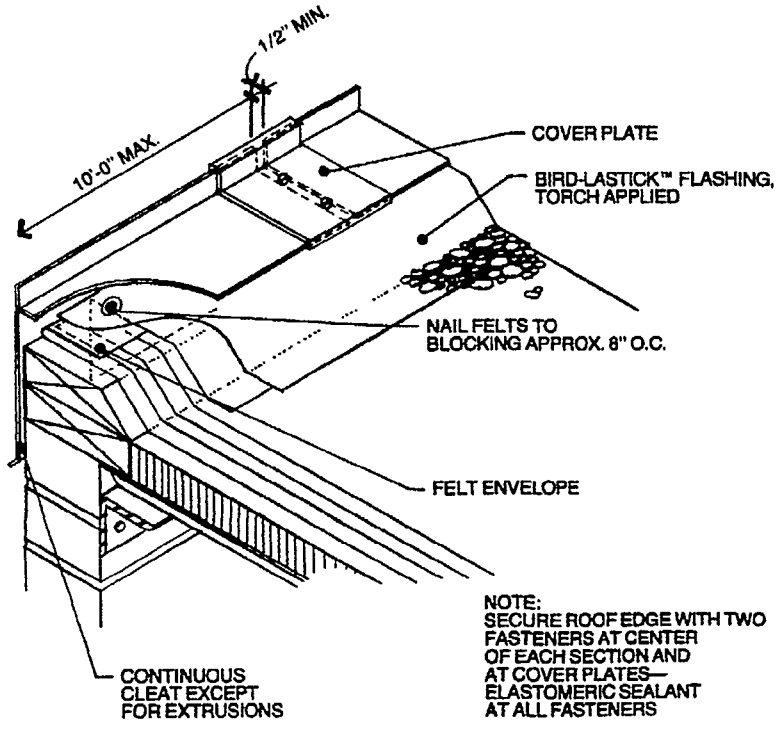
THIS DETAIL SHOULD BE USED ONLY WHERE THE DECK IS SUPPORTED BY THE OUTSIDE WALL.

THIS DETAIL IS SIMILAR TO DETAILS A AND D. THE CANT STRIP, PLACED AS SHOWN, WILL RESULT IN A HIGHER FASCIA LINE. THE NO. 15 FELT SHOWN BEHIND THE FASCIA PROVIDES PROTECTION FOR THE FLASHING EDGE AND SEALS THE SYSTEM UNTIL THE METAL WORK IS INSTALLED.

ATTACH NAILER TO MASONRY WALL REFER TO FACTORY MUTUAL DATA SHEET 1-49.

WOOD BLOCKING MAY BE SLOTTED FOR VENTING WHERE REQUIRED.

11.5 HEAVY-METAL ROOF EDGE, BF-5



NOTES:

THIS DETAIL SHOULD BE USED ONLY WHERE THE DECK IS SUPPORTED BY THE OUTSIDE WALL.

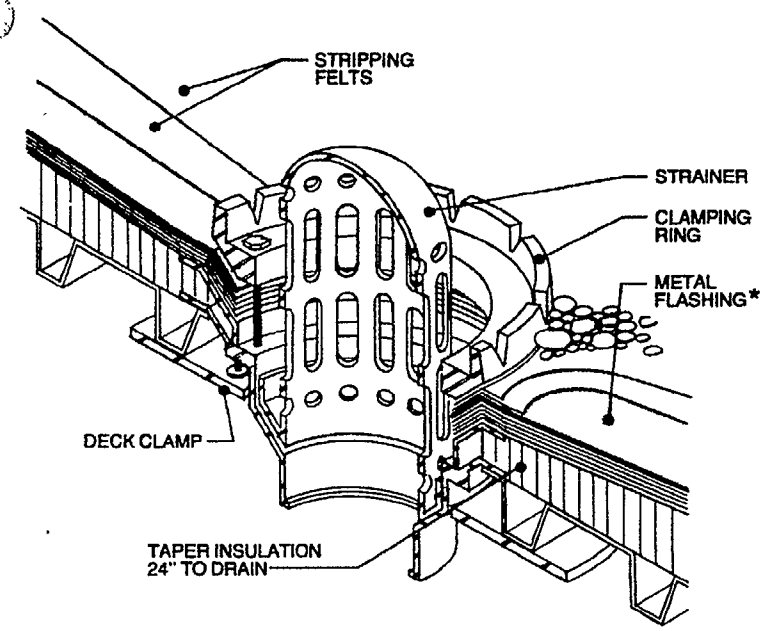
METALS OF 22-GAUGE STEEL, 0.050" ALUMINUM, 24-GAUGE STAINLESS STEEL OR HEAVIER ARE APPROPIATE FOR THIS DETAIL. METALS OF THIS WEIGHT ARE VERY RIGID WHEN FORMED, AND FASTENING AT THE CENTER-LINE AND JOINT COVER WILL ALLOW EXPANSION AND CONTRACTTION WITHOUT DAMAGING THE BASE FLASHING MATERIAL.

ATTACH NAILER TO MASONRY WALL. REFER TO FACTORY MUTUAL DATA SHEET 1-49.

WOOD-BLOCKING MAY BE SLOTTED FOR VENTING WHERE REQUIRED.

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11.6 ROOF DRAIN, BF-6



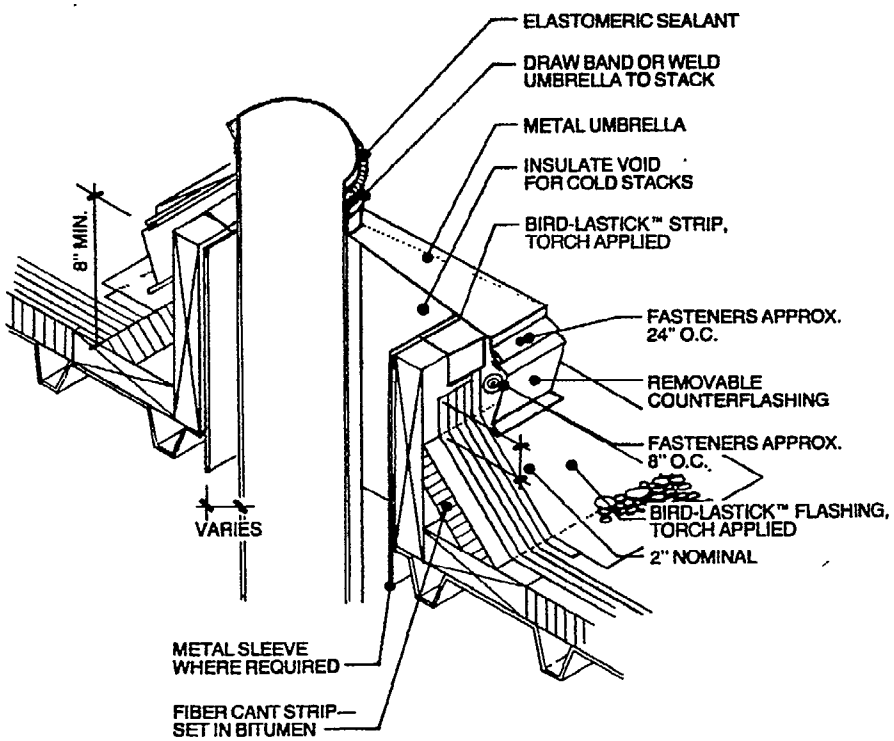
NOTES:

*MIN. 30" SQUARE 2½-LB. TO 4-LB. LEAD OR 16-OZ, SOFT COPPER FLASHING SET ON FINISHED ROOFING FELTS IN MASTIC. PRIME TOP SURFACE BEFORE STRIPPING.

MEMBRANE PLIES, METAL FLASHING, AND FLASH-IN PLIES EXTEND UNDER CLAMPING RING.

STRIPPING FELTS EXTEND 4" AND 6" BEYOND EDGE OF FLASHING SHEET, BUT NOT BEYOND EDGE OF SUMP.

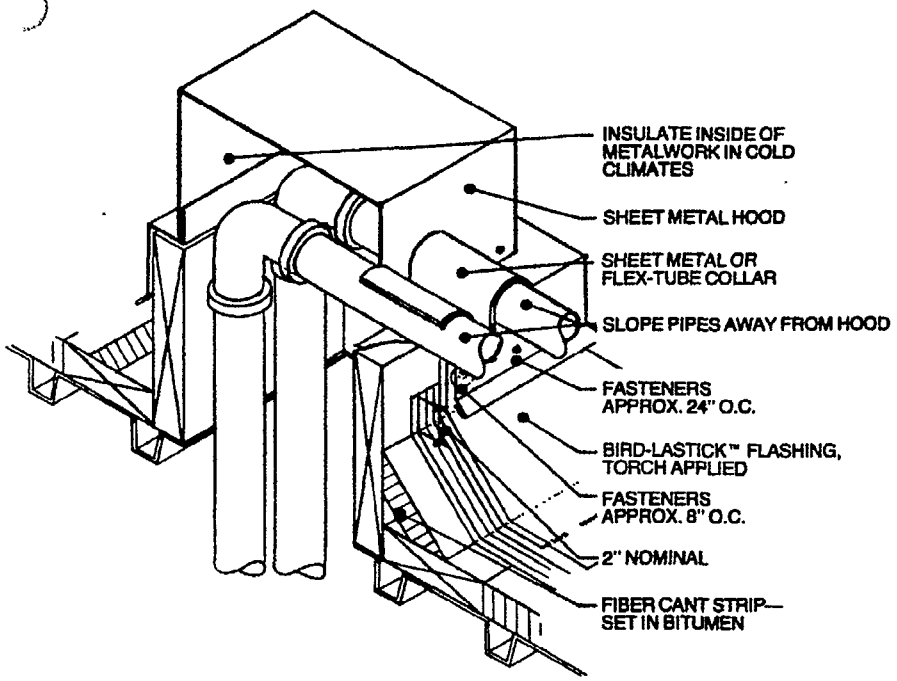
11.7 STACK FLASHING, BF-7



NOTES:

THIS DETAIL ALLOWS THE OPENING TO BE COMPLETED BEFORE THE STACK IS PLACED THE METAL SLEEVE AND THE CLEARANCE NECESSARY WILL DEPEND ON THE TEMPERATURE OF THE MATERIAL HANDLED BY THE STACK.

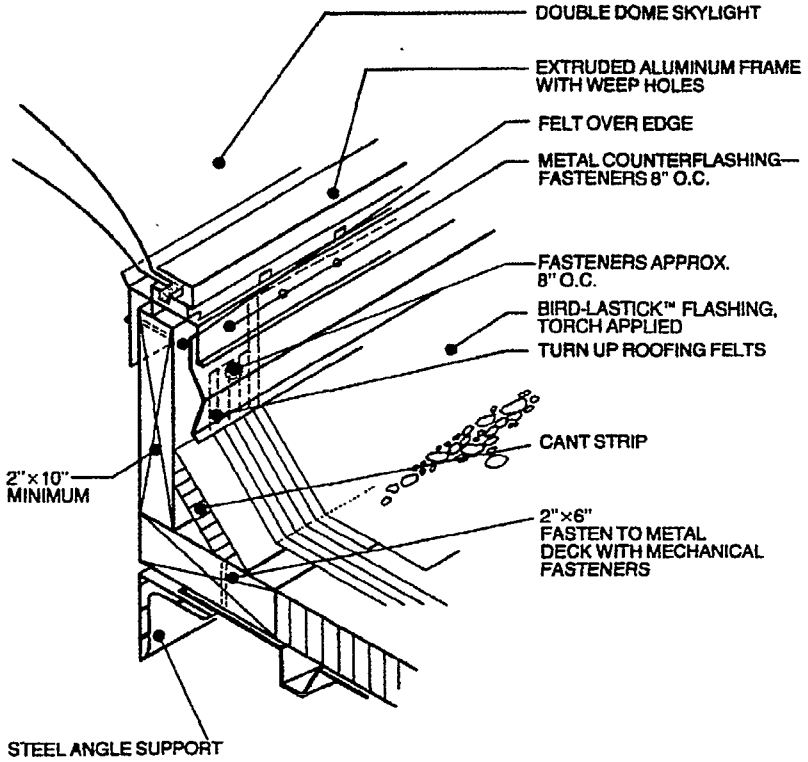
11.8 PIPING THROUGH ROOF DECK, BF-8



NOTES:

THIS DETAIL ILLUSTRATES ANOTHER METHOD OF ELIMINATING PITCH POCKETS AND A SATISFACTORY METHOD OF GROUPING PIPING THAT MUST COME UP ABOVE THE ROOF SURFACE.

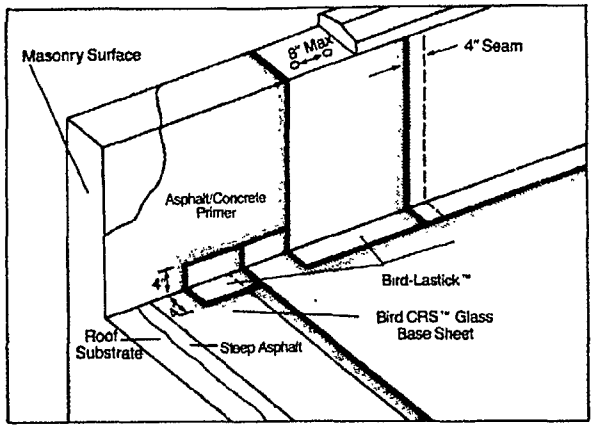
11.9 SKYLIGHT, HATCH, AND SMOKE VENT, BF-9



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Roofing Division

12.0 BIRD-LASTICK™ FLASHING AND CONSTRUCTION DETAILS

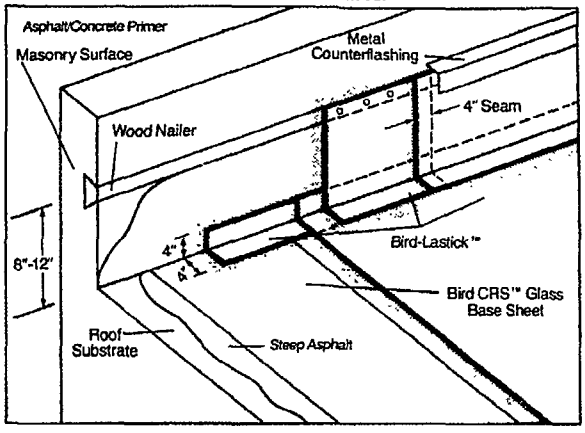
12.1 PARAPET FLASHING ON CONCRETE



Installation:

1. All masonry surfaces to be flashed must be primed with Asphalt Primer and allowed to dry thoroughly.
2. If cant strips are to be employed, they must be of appropriate solid wood or fiberboard covered with CRS™ Glass Base Sheet which should extend 2" above the top of the cant. Tapered non-combustible insulations and poured in place cementitious cants may also be used.
3. Run the CRS™ Glass Base Sheet to the wall if no cant is present or 2" past the top of the cant if present.
4. Reinforce the intersection of the roof and wall/parapet with a fully torched width of Bird-Lastick™ Membrane extending the reinforcement 4" up the wall (4" past the top of the cant if present) and 4" onto the surface of the roof.
5. Fully torch the Bird-Lastick™ Membranes from the field of the roof to the reinforcement Membrane at the base of the wall running field Membrane to the top of the reinforcement Membrane or to the top of the cant if present.
6. Starting at the top of the wall or parapet, for convenience, fully torch the Membrane to the primed masonry surface past the cant and at least 2" onto the roof. Mechanically attach the Membrane at the top of the wall with fasteners having integral head at least 1" in diameter, installed on at most 8" centers. The edges of the flashing Membrane must be heated and pressed to provide a flow of material from the edges of the Membrane. Flashing should extend a minimum of 8" up the wall or parapet where practical.

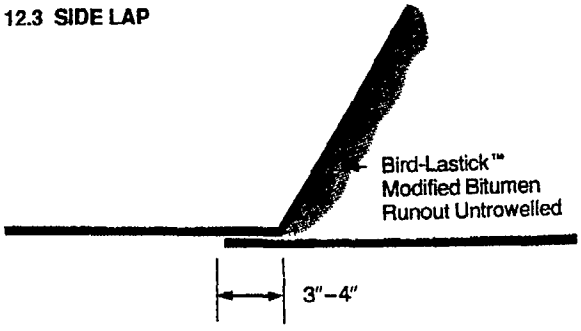
12.2 PARAPET FLASHING OF CONCRETE WITH METAL COUNTERFLASHING



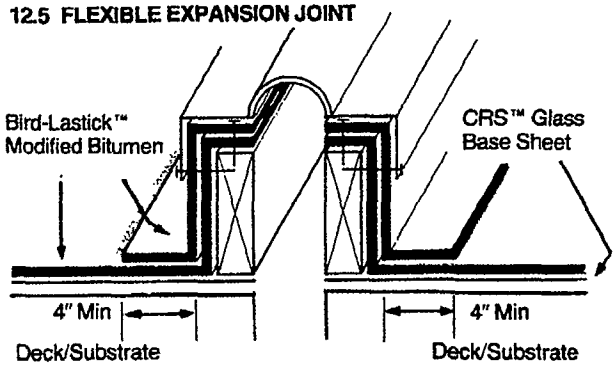
Installation:

1. All masonry surfaces to be flashed must be primed with Asphalt Primer and allowed to dry thoroughly.
2. If cant strips are to be employed, they must be of appropriate solid wood or fiberboard covered with CRS™ Glass Base Sheet which should extend 2" above the top of the cant. Tapered non-combustible insulations and poured in place cementitious cants may also be used.
3. Run the CRS™ Glass Base Sheet to the wall if no cant is present or 2" past the top of the cant if present.
4. Reinforce the intersection of the roof and wall/parapet with a fully torched width of Bird-Lastick™ Membrane extending the reinforcement 4" up the wall (4" past the top of the cant if present) and 4" onto the surface of the roof.
5. Fully torch the Bird-Lastick™ Membranes from the field of the roof to the reinforcement Membrane at the base of the wall running field Membrane to the top of the reinforcement Membrane or to the top of the cant if present.
6. Starting from beneath the metal counterflashing, fully torch Membrane down to the wall, over the cant and at least 2" onto the roof. Mechanically attach the Membrane to the wall or parapet using fasteners having integral head at least 1" in diameter, installed on at most 8" centers. The edges of the flashing Membrane must be heated and pressed to provide a flow of material from the edges of the Membrane. Flashing should extend a minimum of 8" up the wall or parapet where practical.

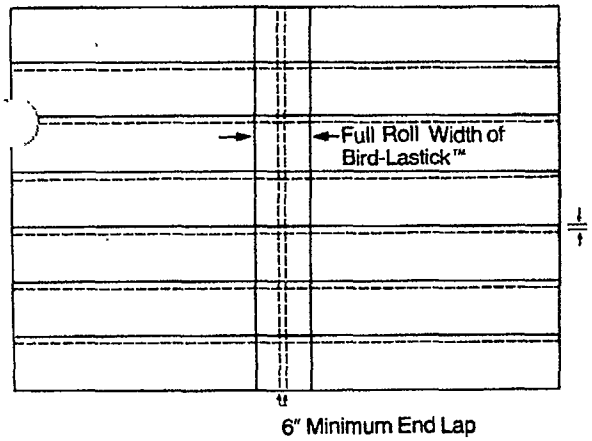
12.3 SIDE LAP



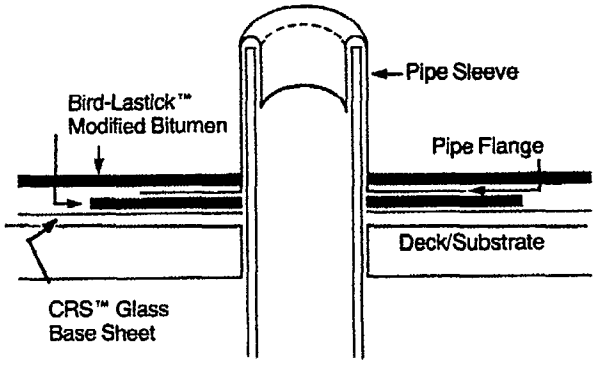
12.5 FLEXIBLE EXPANSION JOINT



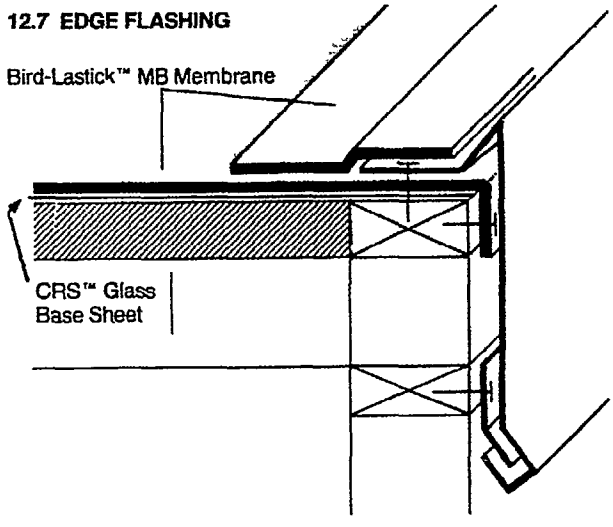
12.4 SUGGESTED MEMBRANE LAYOUT IF NOT STAGGERED



12.6 PIPE SEAL



12.7 EDGE FLASHING



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RF-59/028710