



City of Belle Isle
 Universal Engineering Sciences 3532 Maggie Blvd., Orlando, FL 32811
 Tel 407-581-8161 * Fax 407-581-0313 * www.universallenginering.com

PERMIT CARD - PLEASE POST AT JOB SITE

THIS DOCUMENT BECOMES YOUR PERMIT WHEN PROPERLY VALIDATED

Per FBC 105.3.3: An enforcing authority may not issue a building permit for any building construction, erection, alteration, modification, repair or addition unless the permit either includes on its face or there is attached to the permit the following statement: "NOTICE: In addition to the requirements of this permit, there may be additional restrictions applicable to this property that may be found in the public records of this county, and there may be additional permits required from other governmental entities such as water management districts, state agencies, or federal agencies." The issuance of this permit does not grant permission to violate any applicable City, Orange County, State of Florida and/or Federal codes and/or ordinances. Separate permits are required for Signs, Roofing, Electrical, Gas, Plumbing and Mechanical services. This permit becomes VOID if the work authorized is not commenced within 6 months, or is suspended or abandoned for a period of 6 months after commencement. **WORK SHALL BE CONSIDERED SUSPENDED IF AN APPROVED INSPECTION HAS NOT BEEN MADE WITHIN A 6 MONTH PERIOD. PERMISSION IS GRANTED TO DO THE FOLLOWING WORK ACCORDING TO THE CONDITIONS HEREON AND THE APPROVED PLANS AND SPECIFICATIONS, SUBJECT TO COMPLIANCE WITH THE ORDINANCES OF THE CITY OF BELLE ISLE, FLORIDA.**

Scope of Work: ROOF: new, 11sq tile (boat dock)

Comments: None

Project Information

Address: 4100 Isle Vista Avenue, Belle Isle, FL 32812
Parcel ID: 20-23-30-0668-00-310
Property Owner: Surrey Homes LLC
Phone Number: 407-770-1336

Company Name: Collis Roofing, Inc
Contractor Name: Lanier, Jack
License Number: CCC058022
Address: 485 Commerce Way, Longwood, FL 32750
Phone Number: 321-441-2300

Permit Number: 2014-02-018
Date of Application: 02/11/2014
Date Permit Issued: 02/24/2014

WARNING TO OWNER: "YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOU PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT." ON THE JOB INSPECTION(S) MUST BE MADE BEFORE PROCEEDING WITH SUBSEQUENT WORK. THIS CARD MUST BE DISPLAYED OUTSIDE AND BE PROTECTED FROM THE WEATHER WHILE BEING VISIBLE FROM THE STREET UNTIL THE FINAL INSPECTIONS HAVE BEEN APPROVED.

BUILDING FEATURES

IMPACT FEES
 School \$
 Traffic \$

ZONING FEES
 Zoning Fee \$

UNIVERSAL ENG - BUILDING FEES

Cert of Occ \$
 Demo \$
 Building \$
 Fence \$
 Driveway \$
 Shed \$
 Window(s) \$
 Door(s) \$
 PrePower \$
 Electrical \$
 Temp Pole \$
 Plumbing \$
 Mechanical \$
 Gas \$
 Roofing \$67.50
 Boat Dock \$
 Screen Encl \$
 Swimming Pool \$
 Sign \$

SURCHARGE FEES

Surcharge Fee \$2.00
 Surcharge Fee \$2.00

TOTAL FEES \$71.50

Date Paid 2-24-14

CC or Check # Amey 061028

Amount Paid 71.50

The person accepting this permit shall conform to the terms of the application on file and construction shall conform to the requirements of the Florida Building Code (FS 553).

BUILDING INSPECTOR USE ONLY

IF APPLICABLE:

Have Zoning Approval Conditions Been Met? YES NO **Have Stormwater Approval Conditions Been Met?** YES NO **Have Stormwater Approval Conditions Been Met?** YES NO **Silt fencing in place?** YES NO **Turbidity Barrier in place?** YES NO

BUILDING

1st _____ (Footing/Foundation)

Survey specific foundation plan must be onsite before slab pour. **Approved Plan on Site?** _____

2nd _____ (Slab)

3rd _____ (Lintel)(Wall Reinforcing on Masonry Building)

4th _____ (Exterior Framing)(Roof/Wall Sheathing)

5th _____ (Framing). (To be made after Plumbing/ Mechanical/ Electrical Rough-Ins & Windows/Doors Installed)

6th _____ (Insulation to be Made After Roof Installed)

7th _____ (Driveway)

8th _____ (Sidewalk/Driveway)

9th _____ (Other)

10th _____ (Final - After MEP and Other Applicable Finals)

ROOFING

1ST ROOFING Deck Nailing/Dry-in/Flashing _____

2nd ROOFING Covering In-Progress _____

3rd ROOFING Covering Final _____

PLUMBING (Pool-Piping, Solar, Irrigation, Water Treatment Equip, Etc...)

1ST _____ (Underground) 2nd _____ (Sewer)

3rd _____ (Rough-In/Tub Set) 4th _____ (Final)

CHECK APPROPRIATE BOX

GAS ___ Natural ___ LP **MECHANICAL** **ELECTRICAL** **LOW VOLTAGE**

1st _____ (Rough-In) 2nd _____ (Final)

Inspection requests are to be emailed to BDscheduling@UniversalEngineering.com; a confirmation email will be sent back to you upon scheduling. **Next-Day Inspection requests must be made by 1pm.** Please include the following in your request: Permit #, project address, type of inspection, date of the requested inspection, a contact name & a contact phone number. AM or PM may be requested but cannot be guaranteed.



City of Belle Isle
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APPLICATION FOR ROOFING PERMIT

WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. A NOTICE OF COMMENCEMENT MUST BE RECORDED AND POSTED ON THE JOB SITE BEFORE THE FIRST INSPECTION. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT.

DATE OF APPLICATION: 2/11/14 ROOF PERMIT NUMBER 2014-12-018
 PLEASE PRINT. The undersigned hereby applies for a permit to make installations as indicated below:

Project Address 4100 Lake Vista Ave. - Boat Dock Belle Isle, FL 32809 32812

Property Owner Surrey Homes Phone _____

Property Owner's Mailing Address 1133 Louisiana Ave. Suite 106 City Winter Park

State FL Zip Code 32789 Parcel Id Number: 10-23-30-0048-00-310

REQUIRED! To obtain this information, please visit <http://www.ocpafl.org/Searches/ParcelSearch.aspx>

Class of Building: Old New Type of Building: Residential Commercial Other
 Type of Work: New Roof ReRoof

- **REQUIRED!** Florida Product Approval Screen Printout from www.floridabuilding.org showing the Code Version
- **REQUIRED!** Florida Product Approval Installation Instructions from www.floridabuilding.org (not the manufacturer instructions)
- **REQUIRED!** Copies of your General Liability & Worker's Comp Insurance Certificate & State and Local Licenses

Please indicate the nature of work by completing the information below:

Roof Square Footage: 11 Number of Stories: _____ Job Valuation: \$ 4,400.00

Type: Asphalt Shingles Metal Modified Bitumen Other: tile

I hereby certify that the above is true and correct to the best of my knowledge and make Application for Permit as outlined above, and if same is granted I agree to conform to all Florida Building Code Regulations and City Ordinances regulating same and in accordance with plans submitted. The issuance of this permit does not grant permission to violate any applicable Town and/or State of Florida codes and/or ordinances.

LICENSE HOLDER SIGNATURE [Signature] LICENSE # CC058022

LICENSE HOLDER NAME J Douglas Vance COMPANY NAME Collis Roofing Inc.

Street Address 485 Commerce Way

City Longwood State FL Zip Code 32750 Phone Number 3214412300

Email Address ks@collisroofing.com

Zoning Fee	\$	<u>67.50</u>
Permit Fee	\$	<u>4.00</u>
3% Florida Surcharge	\$	<u>71.50</u>
Total Permit Fee	\$	

Building Official: [Signature] Date 2/21/2014

NOTE: The Building Permit Number is required if the Roof Installation is associated with any construction or alteration where a Building Permit has been issued.

Building Permit Number _____

PROJECT NUMBER 0115-1300755.000

TASK NUMBER 13

CITY OF BELLE ISLE
Permit Application Review Sheet

Permit Number	2014-02-018
Property Owner	Surrey Homes
Address	4100 Isle Vista
Nature of Improvement	Roof Permit - Boat Dock
Received Application	2-11-14
Sent for Stormwater Review	N/A
Stormwater Approved	
Sent for Zoning Review	N/A
Zoning Approved	
Applied for Variance	
Variance Approved	
Sent to BO for Review	7/21/2014
Building Official Approved	
Comments	
1.	2-24-14 sq emailed Kathryn its ready
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Typed



City of Belle Isle
 Universal Engineering Sciences 3532 Maggie Blvd., Orlando, FL 32811
 Tel 407-581-8161 * Fax 407-581-0313 * www.universalengineering.com

Product Approval Form

DATE: 2/11/14 PERMIT # _____

PROJECT ADDRESS 1100 ESK VISTA AVE Belle Isle, FL 32809 32812

As required by Florida Statute 563.842 and Florida Administrative Code 9B-72m, please provide the information and approval numbers of the building components listed below if they will be utilized on the building or structure. FL Approved products are listed online at www.floridabuilding.org or can be obtained from the local product supplier. The following information must be turned in with permit application and available onsite for inspections:

1. This Product Approval Cover Sheet
2. Internet screen from FloridaBuilding.org showing PA#, approval and code edition stamped
3. Manufacturer's installation details from FloridaBuilding.org and requirements for each product stamped

Product Type	Manufacturer	Model/Series	FL Product Approval #	Product Type	Manufacturer	Model/Series	FL Product Approval #
EXTERIOR DOORS							
Swinging				Sliding			
Sliding				Soffits			
Sectional/Rollup				Storefront			
Other				Glass Block			
				Other			
WINDOWS							
Single/Db'l Hung				Asphalt Shingles			
Horizontal Slider				Non Struct Metal			
Casement				Roofing Tiles	<u>Egyn</u>	<u>Capistrano</u>	<u>CL492</u>
Fixed				Single Ply Roof			
Mullion				Other			
Skylights							
Other							
STRUCTURAL COMPONENTS							
Wood Connectors				OTHER			
Wood Anchors							
Truss Plates							
Insulation Forms							
Lintels							
Other							

It is the applicant's responsibility to verify that specific products have been installed in accordance with their limitations and with the minimum required design pressures for the structure. Specific compliance will be verified during field inspections.

Applicant Signature *Ray Janner* Date 2/11/14



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
12/26/2012

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER		CONTACT NAME:	
Frank H. Furman, Inc.		PHONE (A/C No. Ext): 800-344-4838	
1314 East Atlantic Blvd.		FAX (A/C No.): (954) 943-9417	
P. O. Box 1927		E-MAIL ADDRESS:	
Pompano Beach FL 33061		INSURER(S) AFFORDING COVERAGE	
INSURED		INSURER A: First Mercury Insurance Co 10657	
Collis Roofing Inc		INSURER B: General Insurance Co of America 24732	
P. O. Box 520668		INSURER C: American Guarantee & Liability 26247	
Longwood FL 32752		INSURER D: FRSA Self Insurer Fund 10023	
		INSURER E:	
		INSURER F:	

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSR LWD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> Contractual Included <input checked="" type="checkbox"/> XCU & Broad Form PD Incl		NJCE000000251202	1/1/2013	1/1/2014	EACH OCCURRENCE \$ 1,000,000 DAMAGES TO RENTED PREMISES (EA CONTRACTUAL) \$ 50,000 MED EXP (Any one person) \$ EXCLUDED PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
B	GEN'L AGGREGATE LIMIT APPLIES PER: POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS		24CC30558910	1/1/2013	1/1/2014	COMBINED SINGLE LIMIT (EA OCCUR) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ Personal Injury Protection \$ 10,000 EACH OCCURRENCE \$ 2,000,000 AGGREGATE \$ 2,000,000
C	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB CLAIMS-MADE		AJTC914077105	1/1/2013	1/1/2014	DED RETENTION \$ WORKERS COMPENSATION AND EMPLOYERS LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below
D			870033379	1/1/2013	1/1/2014	E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER	CANCELLATION
(407) 240-2222	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
City of Belle Isle 1600 Nela Ave. Belle Isle, FL 32809	AUTHORIZED REPRESENTATIVE
	Frank Furman, Jr/JC

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[Application Detail](#)



FL #
Application Type
Code Version
Application Status
Comments
Archived

FL7473-R5
Affirmation
2010
Approved

Product Manufacturer
Address/Phone/Email

EAGLE ROOFING PRODUCTS FLORIDA LLC
 1575 East CR 470
 Sumterville, FL 33858
 (800) 400-3245
 annettes@eagleroofing.com

Authorized Signature

Annette Sindar
 annettes@eagleroofing.com

Technical Representative
Address/Phone/Email

Greg Peterson
 1575 East CR 470
 Sumterville, FL 33585
 (800) 400-3245
 gregp@eagleroofing.com

Quality Assurance Representative
Address/Phone/Email

Category
Subcategory

Roofing
Roofing Tiles

Compliance Method

Evaluation Report from a Florida Registered Architect
 or a Licensed Florida Professional Engineer
 Evaluation Report - Hardcopy Received

Florida Engineer or Architect Name who developed the
Evaluation Report

Robert Nieminen
 PE-59166
 Architectural Testing, Inc.
 12/31/2014
 John W. Knezevich, PE
 Validation Checklist - Hardcopy Received

Certificate of Independence

[EL7473_R5_COI_Trinity_ERD_CI_-_Nieminen.pdf](#)

Referenced Standard and Year (of Standard)

Standard	Year
ASTM C1492	2003
FRSA/TRI 07320	2005
SSTD 11	1997

Equivalence of Product Standards
Certified By

Sections from the Code

I affirm that there are no changes in the new Florida Building Code which affect my product(s) and my product(s) are in compliance with the new Florida Building Code.

Documentation from approved Evaluation or Validation Entity Yes No N/A

[FL7473_R5_COC_sltr032712_Affirmation_FL7473-R4.pdf](#)

Product Approval Method

Method 1 Option D

Date Submitted

03/27/2012

Date Validated

03/27/2012

Date Pending FBC Approval

Date Approved

04/02/2012

Summary of Products

FL #	Model, Number or Name	Description
7473.1	Eagle Roof Tiles	Low (flat), medium and high profile concrete roof tiles
<p>Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: N/A Other: See Section 5 of Evaluation Report for Limits of Use. Tile roofs are analyzed for wind resistance through overturning moment. Refer to FRS/TRI 07320 for overturning moment limitations.</p>		
<p>Installation Instructions FL7473_R5_II_er062311FINAL_EAGLE_FL7473-R3_TILE.pdf Verified By: Robert J. M. Nieminen PE - 59166 Created by Independent Third Party: Yes Evaluation Reports FL7473_R5_AE_er062311FINAL_EAGLE_FL7473-R3_TILE.pdf Created by Independent Third Party: Yes</p>		

[Back](#)

[Next](#)

Contact Us :: 1940 North Monroe Street, Tallahassee FL 32399 Phone: 850-487-1824

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Product Approval Accepts:



FRSA & TRI MODEL TILE GUIDELINES

System Two

Mechanically Fastened Tile Guidelines

Sealed underlayment system using metal flashings without edge returns. Tiles are applied with mechanical fasteners direct to water-proofed deck.

DISCLAIMER NOTICE (PLEASE READ CAREFULLY):

These mechanically fastened tile guidelines are a consensus document developed by a joint Task Force of the Florida Roofing, Sheet Metal and Air Conditioning Contractors Association (FRSA) and the Florida Chapter of the Tile Roofing Institute (TRJ). It is important to recognize that these recommendations are neither warranties, explicit or implicit, nor representative of the only method by which a mechanically fastened tile system can be installed. Rather, they try to summarize for the designer, applicator or developer good roofing practice and some of the industry standards for the installation of the mechanically-set tiles which have been developed over a period of time from actual trade practice and the requirements of various building code agencies. These guidelines may not be applicable in all geographical areas. **It is the responsibility of those individuals who are referring to these guidelines to independently research and determine which is best for their particular project.**

System Two

Mechanically Fastened Tile Guidelines

NOTE: The following table provides the contractor with the choices available for underlayment systems. These systems can only be used on pitches designated in the table below:

Slope of Roof	Direct Deck Only	Choice of Underlayments	Plastic or Compatible Cement at Fasteners Penetrating Underlayments	Reference
4":12" and greater	Direct Deck	1. Single-ply 90# Organic Cap Sheet or Modified Cap Sheet	Required	3.02 A
3":12" and greater	Direct Deck	2. Hot Mop Application - No.30 or No.43 / 90# Organic or Modified Cap Sheet	Required	3.02 B
3":12" and greater	Direct Deck	3. Cold Process Application - No.30 or No.43 / 90# Organic or Modified Sheet	Required	3.02 C
3":12" and greater	Direct Deck	4. Self Adhered Underlayment - Applied Direct to Wood Deck	See note below	3.02 D
3":12" and greater	Direct Deck	5. No.30/Self-Adhered Underlayment	See note below	3.02 E
As tested	Direct Deck	6. Alternative Membranes	See note below	3.02 F
Note: Refer to underlayment manufacturer's recommendations.				

DIVISION 7

These guidelines cover Flat/Low, Medium and High Profile Roof Tile, using a minimum 3" tile headlap, or a designed limited headlap, on minimum 15/32" solid decking nailed in compliance with wind load requirements.

07300 - Shingles and Roofing Tiles

07320 - Roofing Tiles

- Mechanically Fastened Tile Guidelines

PART I - GENERAL

1.01 Related Work Specified Elsewhere

- A. Rough Carpentry - Section 06100
- B. Roof and Deck Insulation - Section 07220
- C. Flashing and Deck Insulation - Section 07600
- D. Roof Accessories - Section 07700

1.02 Quality Assurance

- A. Products
 - 1. Concrete Roof Tile - In compliance with the physical test requirements of the building code.
 - 2. Clay Roof Tile - In compliance with ASTM Standard C 1167.
- B. Tile Attachment - Shall be in compliance with:
 - 1. ICC-SSTD-11
 - Or,
 - 2. TAS 101

1.03 Submittals

- A. Samples - tile type and color as selected.
- B. Manufacturer's literature - including product descriptions and recommended installation procedures.
- C. Tile Compliance Report.

1.04 Product Delivery, Storage and Handling

- A. Distribute stacks of tile uniformly, not in concentrated loads.
- B. When conditions warrant, install temporary battens to facilitate roof loading.
- C. Care shall be taken to protect the underlayment during the tile loading and stacking process.

1.05 Job Conditions

- A. Do not install underlayment or tiles on wet surfaces.
- B. Ensure other trades are aware of precautions required when loading and stacking of tile, and their responsibility for protection of tile after loading and stacking is completed.
- C. Any punctures or tears in the underlayment which occur during the loading and stacking of tile shall be immediately repaired with like materials.

1.06 Warranty

- A. Materials - manufacturer's limited warranty against defects in roof tile for ___ years.
(NOTE: Fill in appropriate number of years)

System #2

PART II - PRODUCTS

2.00 **DISCLAIMER NOTICE:** The FRSA and TRI rely on component industry data to establish minimum physical properties standards for their products. The standards listed in the Products section of this manual reflect that process.

2.01 Roof tile

- A. Tile Manufacturer: _____
- B. Tile: _____
- C. Approximate Weight: _____

2.02 Asphalt Saturated Roofing Underlayments

- A. Organic, type II, commonly called No. 30 or 30#, conforming to ASTM Standard D 226, type II organic saturated.
- B. Asphalt - Saturated and Coated Organic Felt Base Sheet, commonly called No. 43 or 43#, per roll, conforming to ASTM D 2626.
- C. Mineral surface roll roofing felt minimum 74 lbs. per roll commonly called 90#, conforming to ASTM D 249.
- D. Modified bitumen single ply membrane minimum 40 mils.
- E. Self-adhered membrane minimum 40 mils.
- F. Granular surface SBS modified bitumen membrane, minimum 40 mils. at the scavage edge.

2.03 Membranes

- A. Organic - Asphalt impregnated cotton membrane, minimum 4" wide.
- B. Inorganic - Asphalt impregnated fiberglass membrane, minimum 4" wide.

2.04 Fasteners

A. Tile Fasteners

- 1. Nails - corrosion resistant meeting ASTM A 641 Class I and/or corrosion resistance equal (according to ASTM B 117) of sufficient length to penetrate a minimum 3/4" into or through thickness of the deck.
 - a. Ring shank nails shall be 10d ring shank corrosion resistant steel nails (3 inches long, 0.283 inch flat head diameter, 0.121 inch shank diameter, 18-22 rings per inch).
 - 2. Screw Fasteners - corrosion resistant meeting ASTM A 641 Class I and/or corrosion resistance equal (according to ASTM B 117). Screws shall be 2 1/2" in length or penetrate a minimum 3/4" into the deck.
 - a. Minimum #8 course thread.
 - 3. Tile fasteners shall be compatible with batten material.
- #### B. Underlayment Fasteners
- 1. Nails or cap nails shall be of sufficient length to properly penetrate 3/4" into or through thickness of deck.
 - a. Minimum #11 gauge.
 - 2. Tin tags - not less than 1-5/8" nor greater than 2" in diameter and a minimum 32 gauge steel sheet metal.
 - a. Minimum #32 gauge sheet metal.

2.05 Metal Flashing

- A. Flashing shall be minimum 26 ga., G-90 corrosion resistant metal - conforming to ASTM A 525 and ASTM A 90, or other metal or composition profile materials as listed in the building code.
- B. Lead for soil stacks shall be minimum 2.5 # per sq. ft. Lead weight flashing requirements follow the Lead Association recommendations.

System #2

- 2.06 Asphaltic Adhesive
 - A. Asphalt plastic roof cement - conforming to ASTM D 4586, type II, non-asbestos, non-running, heavy body material composed of asphalt and other mineral ingredients.
 - B. Cold process modified bitumen roofing mastic - conforming to ASTM D 3019, type III.
 - C. Asphalt - conforming to ASTM D 312, type III or IV (Note slope requirements in the building code).

- 2.07 Adhesive/Sealants
 - A. Structural bonding adhesive - conforming to ASTM D 3498.

- 2.08 Mortar
 - A. Materials
 - 1. Cement shall conform to ASTM C 91 Type M.
 - 2. Aggregates
 - a. Sand shall meet ASTM C 144, uniformly graded; clean and free from organic materials.
 - b. Lightweight aggregate shall meet ASTM C 332.
 - B. Mixes
 - 1. All mortar used to fasten field tiles shall be factory premixed and bagged and shall have a FBC (Florida Building Code) product approval.
 - 2. All mortar used to fasten hips and ridges shall, in addition to having a FBC product approval, be tested in accordance with ICC-SSTD-11 with data substantiating compliance.
 - 3. Job proportioned mixes (job site mortars) may be used for cosmetic purposes and for "wind block" only.

- 2.09 Eave Closure
 - A. Prefabricated EPDM synthetic rubber conforming to ASTM D 1056.
 - B. Prefabricated metal eave closure.
 - C. Prefabricated concrete or clay eave closure.
 - D. Mortar (color optional) on granular surface underlayment only.

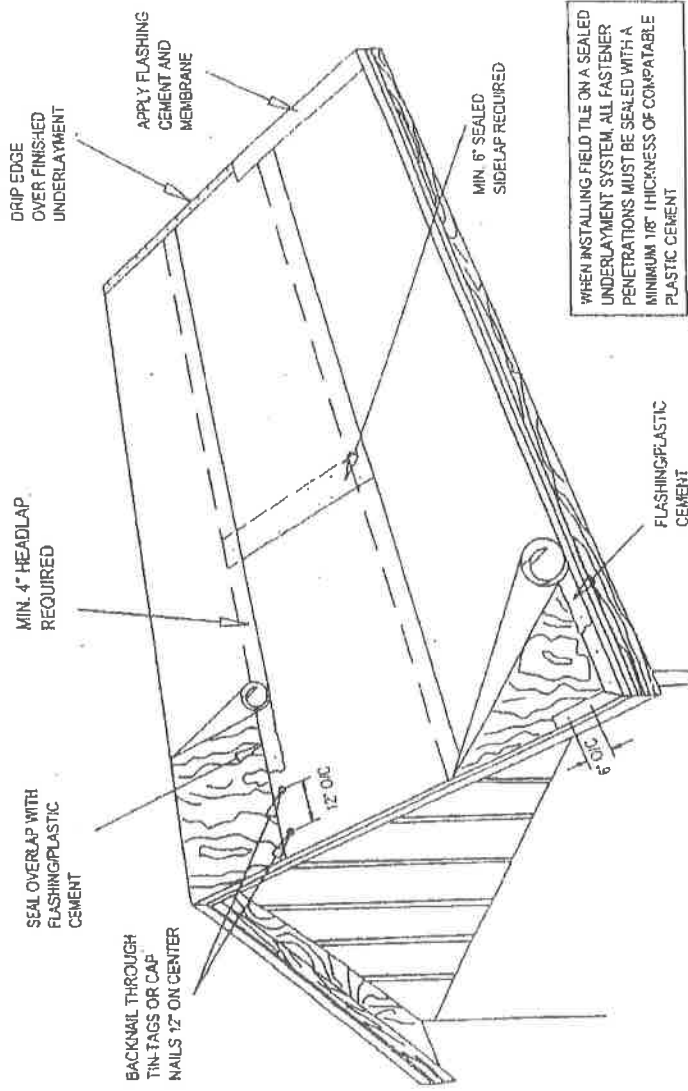
- 2.10 Coating
 - A. Paint - color coordinated paint for painting tile, flashing and/or accessories (optional).
 - B. Sealer - for point-up mortar (optional).
 - C. Tint Seal - color coordinated sealer for staining tile or accessories (optional).

- 2.11 Sheathing - Material shall conform to APA rated sheathing.
NOTE: Refer to building code Wind Load requirements.
 - A. Minimum span rated 32/16; 15/32" thick APA rated sheathing.
 - B. Sheathing - Material shall conform to APA rated sheathing.
 - C. Nailer Boards - Material to be decay resistant or pressure treated in compliance with AWPI C2 or better.
 - 1. Nailer boards should not be bowed or twisted.
 - 2. Nailer boards shall be a nominal 2 inches x (sufficient height to satisfy conditions).

PART III - EXECUTION

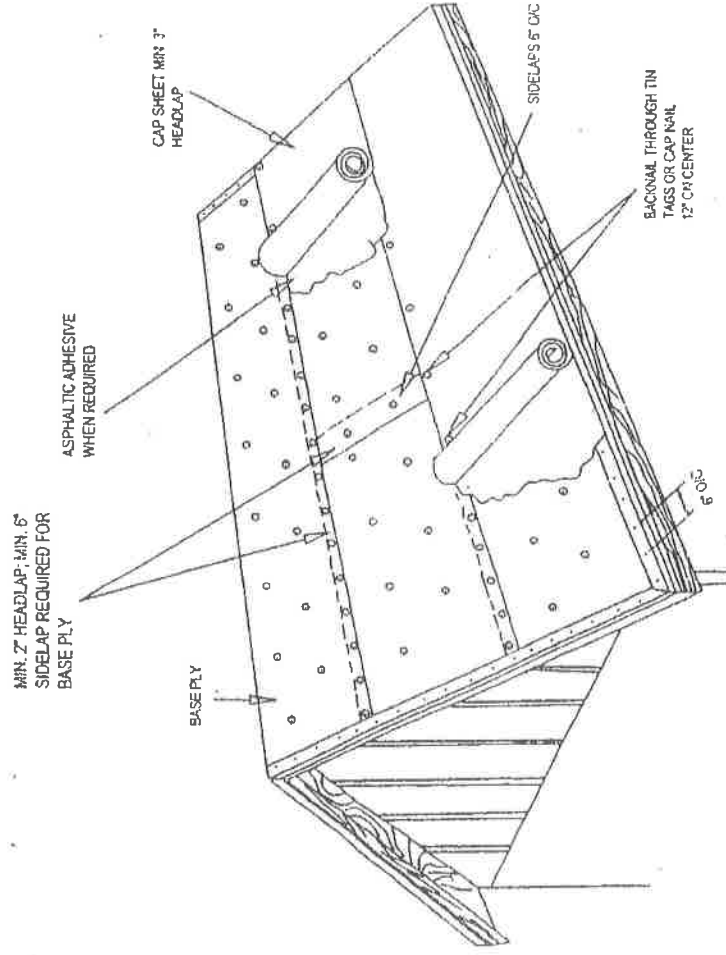
- 3.01 Inspection
- A. Verify that surfaces to receive underlayments and roof tile are uniform, smooth, clean and dry.
 - B. Proper ventilation is recommended on all tile applications. Verify ventilation requirements as set forth in the building code.
- 3.02 Underlayment Application - Choose one of the following:
- NOTE:** On cap sheet, cut fishmouths and seal with flashing cement and membrane where applicable.
- NOTE:** A No.15, No.30 or No.43 can be used as a dry in prior to installing the underlayment with this system (except on 3.02 D).
- A. Single-ply 90# Organic Cap Sheet or Modified Cap Sheet (See Drawing 1)
 - A 90# organic cap sheet or modified cap sheet underlayment application can be installed with tiles applied direct to the cap sheet. Prior to applying the 90# or modified cap sheet, attach a 36" wide strip of same underlayment, (sweat sheet) down the center of the valley. Secure near the edge of the felt 24" on center. Apply a 90# or modified cap sheet perpendicular to the slope of the roof and mechanically attached to the wood deck with nails and tin caps, round cap nails or other fasteners spaced 12" on center near the top edge of felt. Use a minimum 4" head lap and 6" side laps. Overlap hip and ridges a minimum of 6". Seal all laps with compatible plastic cement.

DRAWING 1



- B. Hot Mop Application - No.30 or No.43 / 90# Organic or Modified Cap Sheet (See Drawing 2)
 A two ply roof application commonly called a 'Hot Mop' system. The roof cover is terminated at metal flashings. A No.30 or No.43 base sheet shall be mechanically attached to the wood deck with nails and tin caps, round cap nails or other fasteners spaced in a 12" grid staggered in two rows in the field, and 6" on center at the laps. Extend base sheet a minimum of 4" up vertical surfaces. Base sheet side laps shall be a minimum of 6" and head laps shall be a minimum of 2". Over installed base sheet, apply the cap sheet in an application rate 25 #/sq. ± 15% mopping of asphalt. With this system the cap sheet may come in contact with the base sheet, allowing felt to touch felt. Side laps shall be a minimum of 6"; head laps shall be a minimum of 3" and back nailed 12" on center.
- C. Cold Process Application - No.30 or No.43/90# Organic or Modified Cap Sheet (See Drawing 2)
 A two ply roof application commonly called a 'Cold Process' system. The roof cover is terminated at metal flashings. A No.30 or No.43 base ply sheet shall be mechanically attached to the wood deck with nails and tin caps, round cap nails or other fasteners spaced in a 12" grid staggered in two rows in the field, and 6" on center at the laps. Extend base ply sheet a minimum of 4" up vertical surfaces. Base ply side laps shall be a minimum of 6" and head laps shall be a minimum of 2". Over installed base sheet, apply a cap sheet according to underlayment/adhesive manufacturer recommendations. Cap sheet side laps shall be a minimum of 6"; head laps shall be a minimum of 3" and back nailed 12" on center.
- NOTE:** For Cold Process-Systems, in windy conditions, it may be necessary to spot nail cap sheet laps at a maximum of 3' on center.

DRAWING 2



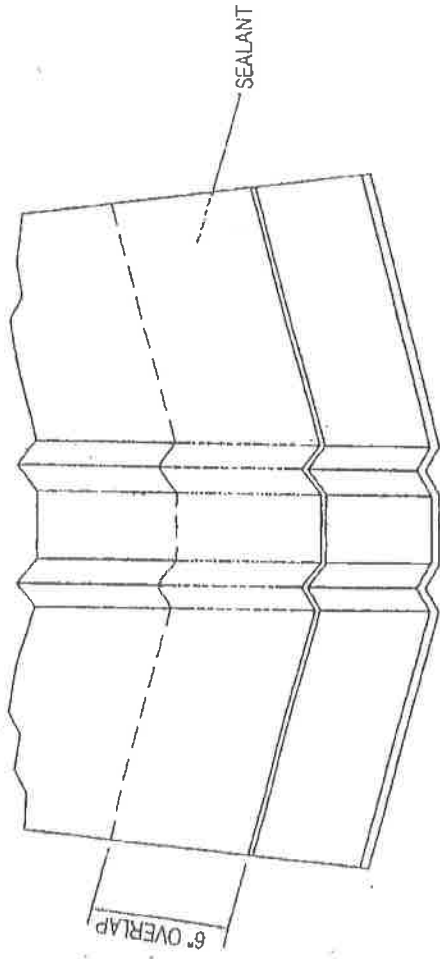
- D. Self-Adhered Underlayment - Applied Direct to Wood Deck.
A single ply underlayment system utilizing self-adhered underlayment. Apply one layer of self-adhered underlayment in compliance with the self-adhered underlayment manufacturers' recommendations.
- E. No.30/Self-Adhered Underlayment
A two ply roof application utilizing a self-adhered underlayment. A No.30 felt shall be mechanically attached to the wood deck with nails and tin caps, round cap nails or other fasteners spaced in a 12" grid staggered in two rows in the field, and 6" on center at the laps. Extend base ply a minimum of 4" up vertical surfaces. Anchor sheet side laps shall be a minimum of 6" and head laps shall be a minimum of 2". Over installed base ply, apply one layer of self-adhered underlayment in compliance with the self-adhered underlayment manufacturers' recommendation.
- F. Alternative Membranes
Any product consisting of one or more water shedding layers applied to a sloped roof prior to the application of a prepared roof covering having been tested in compliance with the building code. The primary purpose of an underlayment is defined as a water shedding layer to function in combination with a prepared roof covering.

3.03 Drip Edge Metal - Choose one of the following:
(For anti-ponding metal, see Section 3.08 C.2.c)

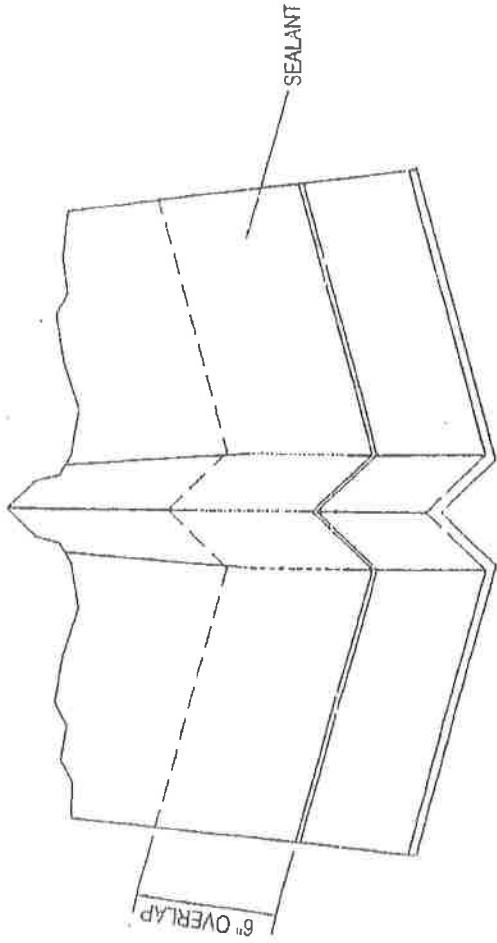
- A. Single ply underlayment systems
 - 1. Drip edge metal shall be installed at the eave, over the sheathing. The metal shall be fastened 6" on center with 12 ga. corrosion resistant roofing nails or fasteners of compatible metals. All joints shall be lapped a minimum of 2". The metal shall be coated with a bed of flashing cement.
 - 2. Apply underlayments as per section 3.02 A for single ply underlayments.
 - 3. Continue from eave up rake/gable in same manner, ensuring watershedding capabilities of all metal laps. On gable, the metal and underlayments sheet shall be joined with a bed of flashing cement, and a 4" strip of asphalt saturated cotton or fiberglass fabric. The fabric shall be fully embedded in the flashing cement.
- or,
- B. 2-ply underlayment systems
 - 1. Edge metal shall be installed over the anchor sheet at all perimeters fastened 6" on center with 12 ga. corrosion resistant roof nails or other fasteners. All joints shall be lapped a minimum of 2". Continue from eave up rake/gable in same manner, ensuring watershedding capabilities of all metal laps. The cap sheet shall be bonded to the metal with asphaltic adhesive.
 - or,
 - 2. Drip edge metal shall be installed at the eave over the finished cap sheet. The metal shall be fastened 6" on center with 12 ga. corrosion resistant roofing nails, or other fasteners. All joints shall be lapped a minimum of 2". The metal and cap sheet shall be joined with a bed of flashing cement and a 4" strip of asphalt saturated cotton or fiberglass fabric. The fabric shall be fully embedded in the flashing cement.

- 3.04 Valleys - Choose one of the following: (See drawings 3, 4 & 5)
- A. Two Ply System - Choose one of the following:
1. Standard Roll Metal - minimum 16" wide, shall be placed over the anchor sheet in the valley and shall be fastened 6" on center with 12 gauge corrosion resistant roofing nails, or other fasteners of compatible metals near the outside edge of the valley metal. All joints shall be lapped a minimum of 6" in a bed of flashing cement. The cap sheet shall be bonded to the metal with asphaltic adhesive (See Drawing 6).
 - or.
 2. Preformed metal without returns - minimum 16" wide, shall be placed over the anchor sheet in the valley and shall fastened 6" on center with 12 gauge corrosion resistant roofing nails, or other fasteners of compatible metals near the outside edge of the valley metal. All joints shall be lapped a minimum of 6" in a bed of flashing cement. The cap sheet shall be bonded to the metal with asphaltic adhesive (See Drawings 7).

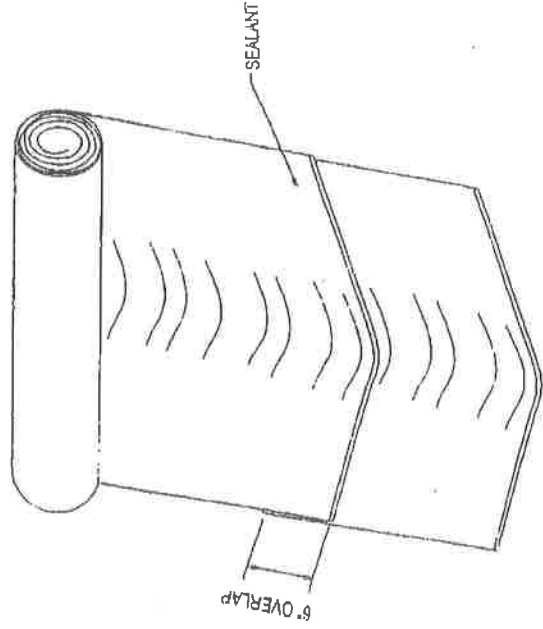
DRAWING 3



DRAWING 4



DRAWING 5



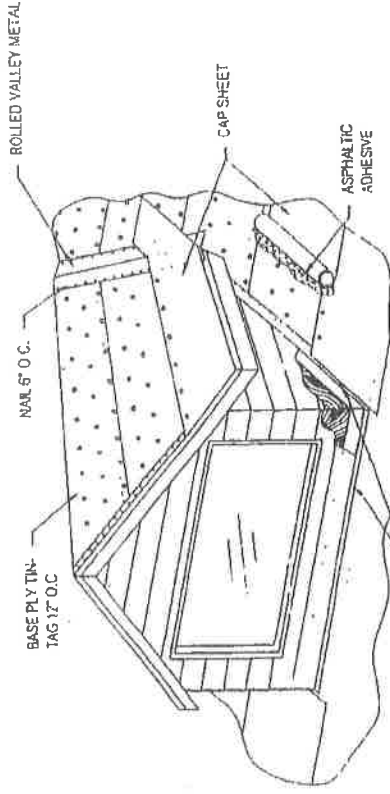
B. Over Cap Sheet - Choose one of the following:

1. **Standard Roll Metal** - minimum 16" wide shall be placed over the cap sheet in the valley and shall be fastened 6" on center with 12 gauge corrosion resistant roofing nails, or other fasteners of compatible metals near the outside edge of the valley metal. All joints shall be lapped a minimum of 6" in a bed of flashing cement. The cap sheet shall be joined with a bed of flashing cement and a 4" strip of asphalt saturated cotton or fiberglass fabric. The fabric shall be fully embedded in the flashing cement.

or.

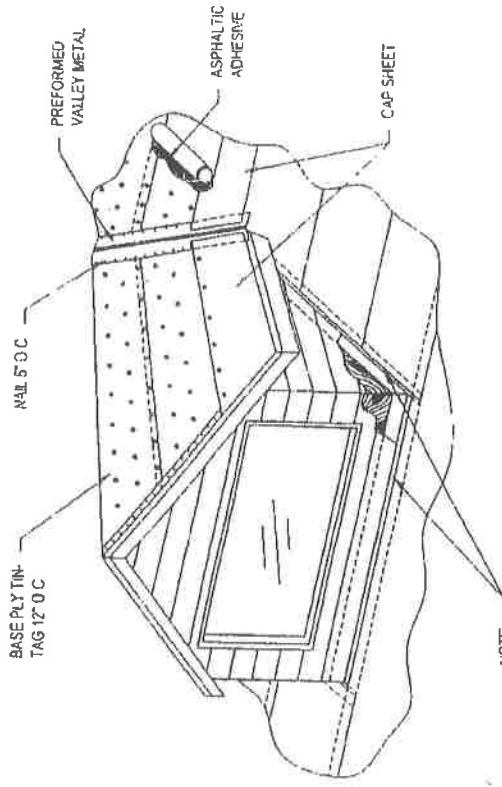
2. **Preformed Metal Without Returns** - minimum 16" wide shall be placed over the anchor sheet in the valley and shall be fastened 6" on center with 12 gauge corrosion resistant roofing nails, or other fasteners of compatible metals near the outside edge of the valley metal. All joints shall be lapped a minimum of 6" in a bed of flashing cement. The cap sheet shall be joined with a bed of flashing cement and a 4" strip of asphalt saturated cotton or fiberglass fabric. The fabric shall be fully embedded in the flashing cement.

DRAWING 6



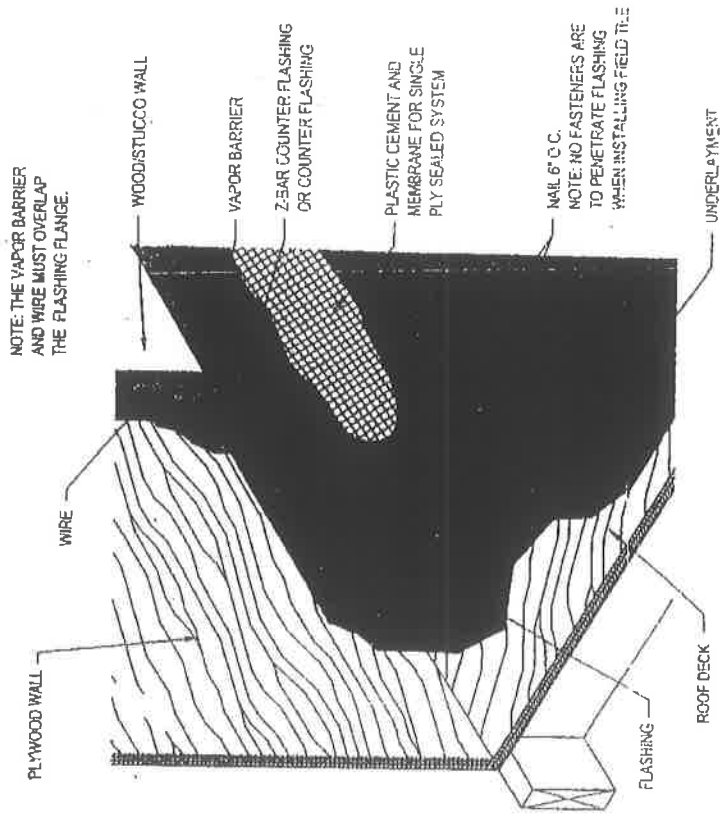
NOTE:
KEEP CAP SHEET APPROXIMATELY
1" FROM ABUTMENTS. FILL AREA
WITH PLASTIC CEMENT OR HOT
ASPHALT.

DRAWING 7

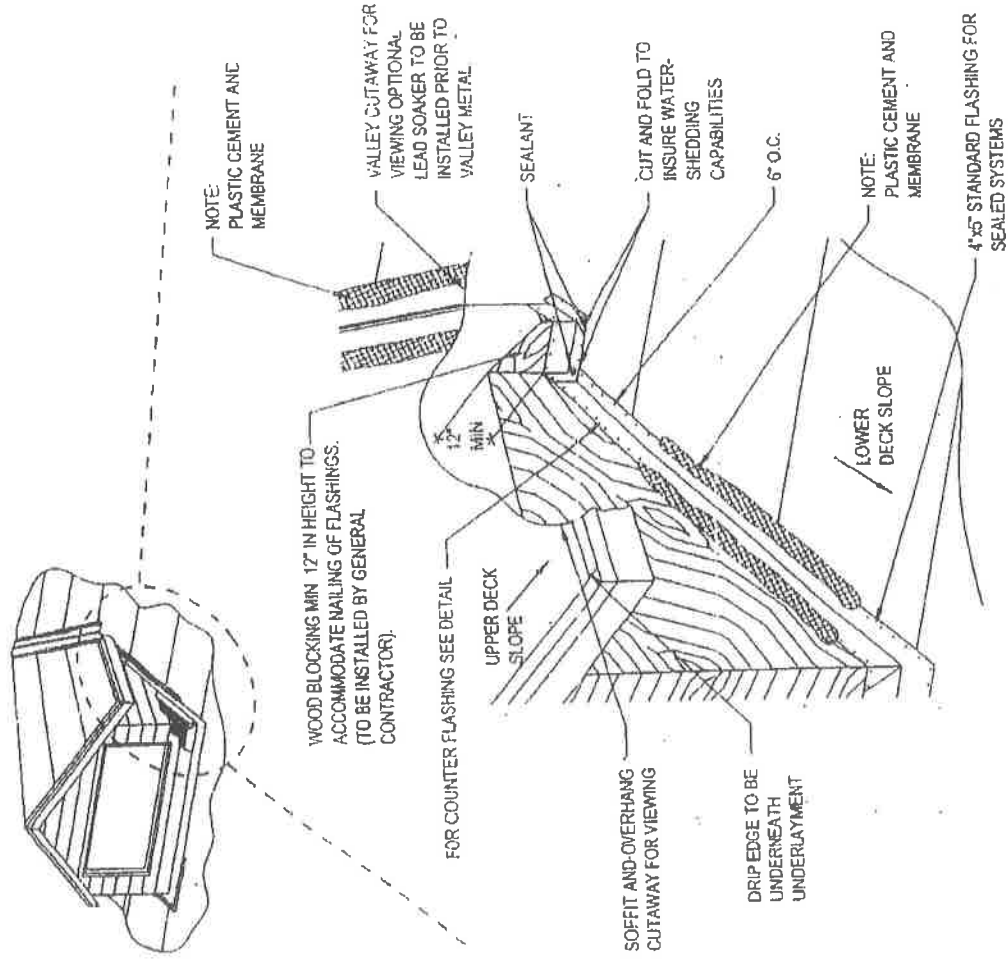


NOTE: KEEP CAP SHEET APPROXIMATELY 1" FROM ABUTMENTS. FILL AREA WITH PLASTIC CEMENT OR HOT ASPHALT.

DRAWING 8



DRAWING 9



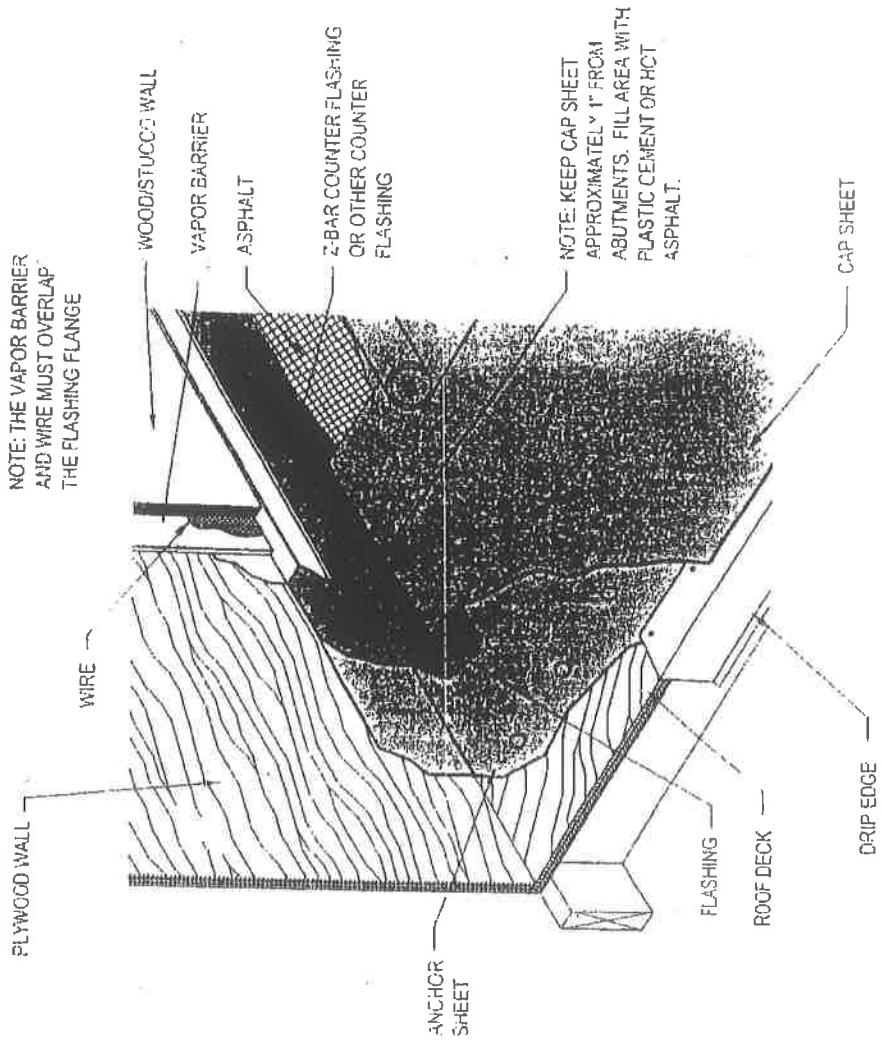
3.05 Flashing and Counter Flashings at Wall Abutments

- A. Single Ply System (See Drawing 8 and 9)
1. Install 4" x 5" "L" flashing flush to base of walls with 4" flange on single ply underlayment and nail near the metals edge. Lap joints 4" and apply flashing cement between laps. Start at lower portion and work up to ensure water tightness. Nail 6" on center near the edge of the metal.
 2. On block walls, seal along top edge of vertical flange, covering all nail penetrations with flashing cement and membrane where required.
 3. When installing optional counter flashing, lap top flange of base flashing a minimum of 2 1/2". Nail metal near the outside edge a minimum of 6" on center or set metal into reglets and seal thoroughly. Lap joints a minimum of 4" and apply flashing cement or sealant between the laps.
 4. On frame walls, install vapor barrier over flashing.
 5. All head/apron flashing shall be installed on top of cap sheet (See Drawing 9). Ensure the deck flange conforms to the pitch of the roof and extend minimum 4" onto deck. Seal along edge with flashing cement and membrane.

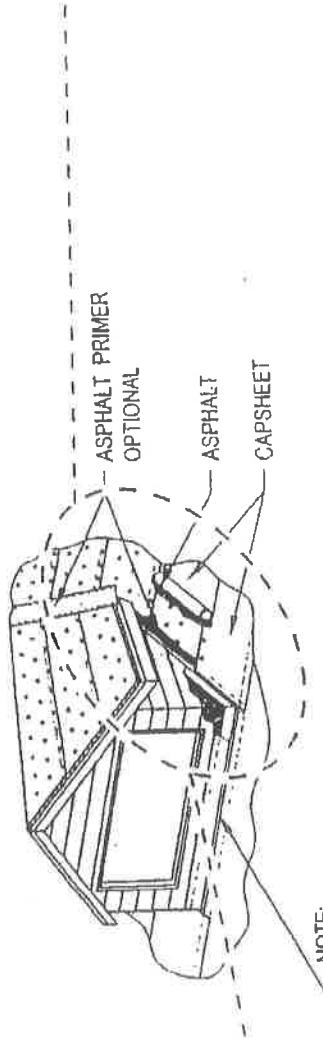
- B. Two Ply System - (Choose 1 or 2) (See Drawings 6 and 7 or 10 and 11).
 - 1. Install 4" x 5" "L" flashing flush to base of walls with 4" flange on the anchor sheet and nail near the metals edge. Lap joints 4" and apply flashing cement between laps. Start at lower portion and work up to ensure water tightness. Fastened 6" on center near the edge of the metal. The cap sheet shall be bonded to the metal with asphaltic adhesive.

or,

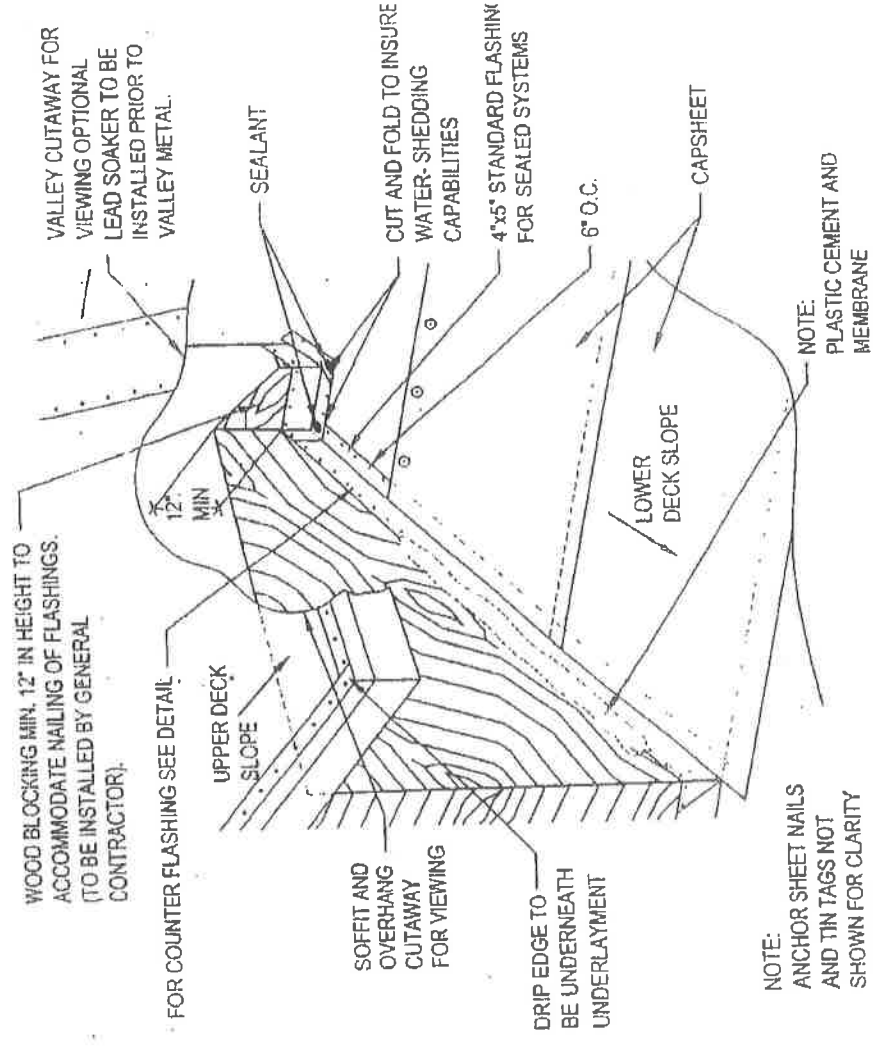
DRAWING 10



DRAWING 11



NOTE:
KEEP CAP SHEET APPROXIMATELY 1" FROM ABUTMENTS.
FILL AREA WITH PLASTIC CEMENT, HOT ASPHALT, OR PLASTIC CEMENT AND MEMBRANE.



NOTE:
ANCHOR SHEET NAILS
AND TIN TAGS NOT
SHOWN FOR CLARITY

2. Install 4" x 5" "L" flashing on the cap sheet and fasten 6" on center with 12 ga. corrosion resistant roof nails, or other fasteners of compatible metals near the outside edge of the metal. All joints shall be lapped a minimum of 4" and apply plastic cement between laps. Cap sheet shall be joined to the "L" flashing with flashing cement and a 4" strip of asphalt saturated cotton or fiberglass fabric. The fabric shall be fully embedded in the flashing cement.
3. Seal along top edge of vertical flange, covering all nail penetrations with flashing cement and membrane where required.
4. When installing optional counter flashing, lap top flange of base flashing minimum 3". Nail metal near the outside edge a minimum of 6" on center or set into reglets (secured properly) and thoroughly caulk. Lap joints minimum 3" and apply flashing cement between laps.

3.06 Standard Curb Mounted Skylights, Chimneys, Etc. (See 3.05)

A. Install in compliance with regular flashing installation procedures.

NOTE: For self curbing or prefabricated skylights, refer to skylight manufacturer's installation instructions.

3.07 Pipes, Turbines, Vents, Etc. (See Drawings 12 & 13)

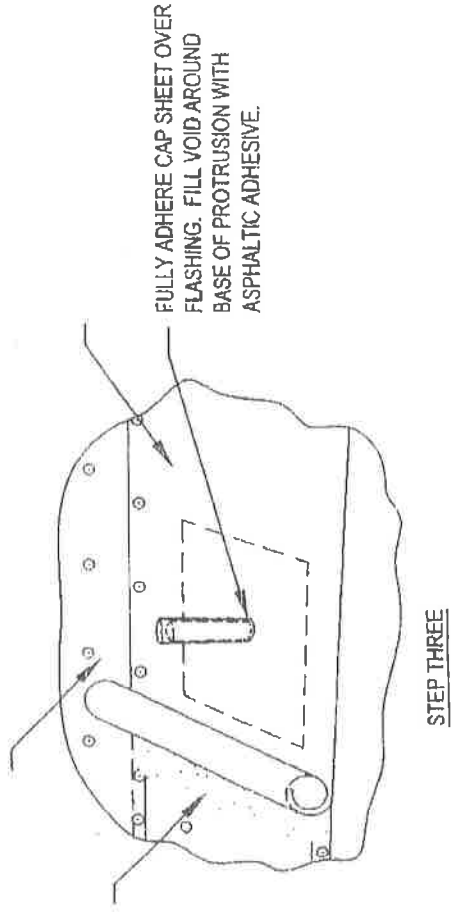
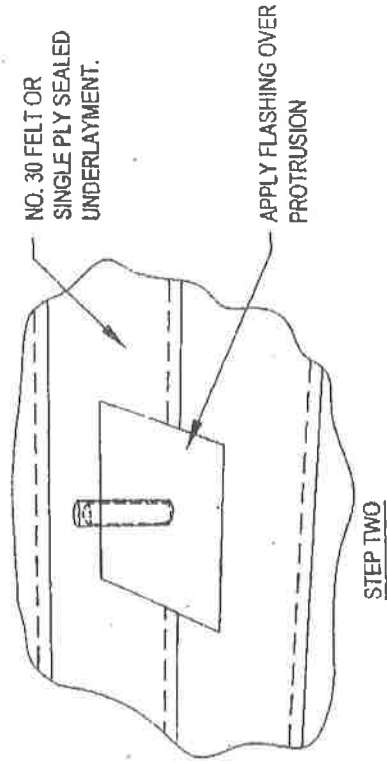
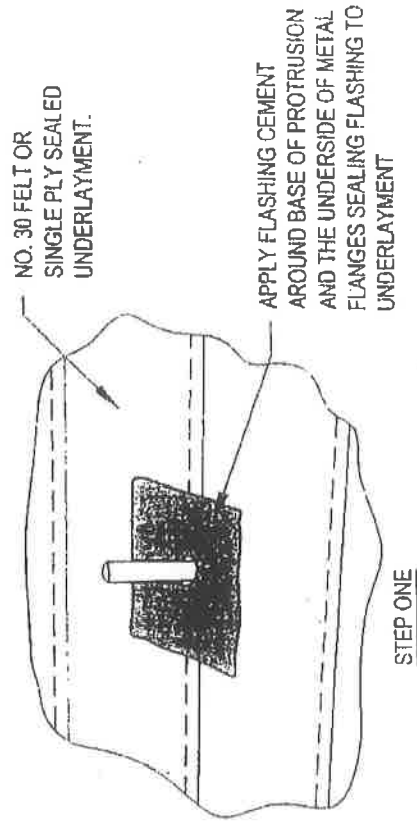
A. Apply flashing cement around base of protrusion and on the bottom side of metal flanges sealing unit base flashing to deck.

B. Nail and secure all sides of base flashing near the edge. Make certain base is flush to deck.

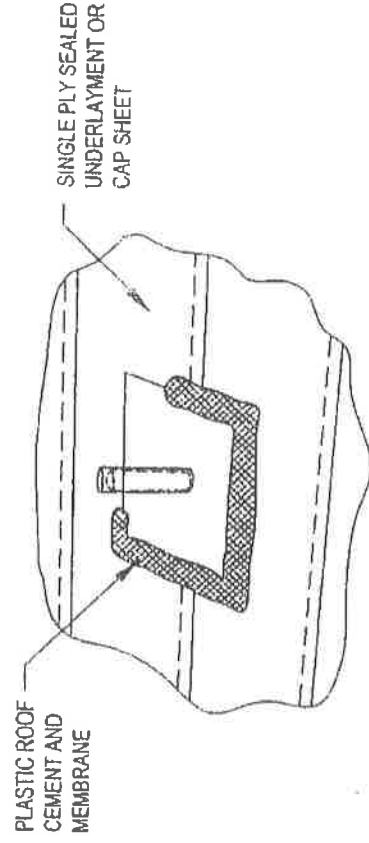
NOTE 1: If pipes, vents and/or turbines are installed after finished cap sheet has been applied follow instructions in 3.07 A & B. Cap sheet and metal flange shall be joined with a bed of flashing cement and a strip of asphalt saturated cotton or fiberglass fabric. The fabric shall be fully embedded in the flashing cement.

NOTE 2: Profile specific ventilators should be installed as per manufacturer's installation instructions.

DRAWING 12



DRAWING 13



APPLY FLASHING CEMENT AROUND BASE OF PROTRUSION AND UNDERSIDE OF METAL FLANGES. SEAL ALONG EDGE OF METAL FLANGES, COVERING ALL NAIL PENETRATIONS WITH PLASTIC ROOF CEMENT AND MEMBRANE.

3.08 Tile Installation

A. Layout - Horizontal

1. Chalk horizontal lines beginning one tile length from eave less desired overhang. Overhang shall be 3/4" to 2", depending on tile type, use of gutter or other functional requirements.
2. Chalk succeeding lines for a minimum 3" headlap unless restricted by product design.
3. Increase headlap when necessary for equal course spacing, or as needed for unusual application conditions.

B. Layout - Vertical - Choose one of the following:

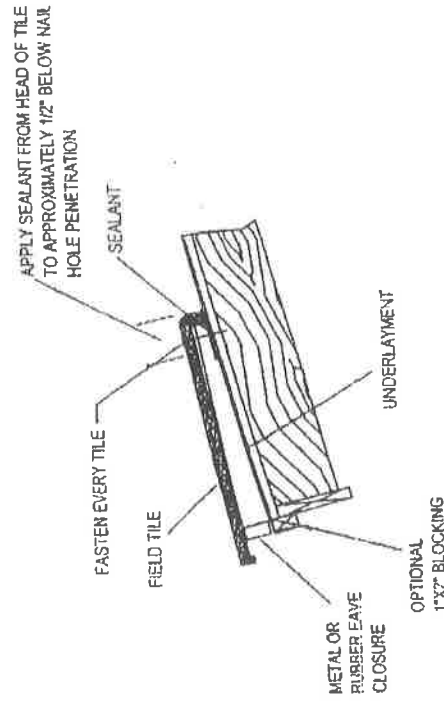
1. Staggered/cross bond tile installation -
 - a. Gable end - Choose one of the following:
 - i. Chalk vertical lines one full tile and one half tile width plus 1" to 2" from starting gable to accommodate rake tile.
 - or,
 - ii. Chalk vertical lines one full tile and one half tile width plus 1/4" from starting gable to accommodate flush finish.
 - iii. Chalk additional lines, if necessary, to maintain alignment.
 - b. Hip roof
 - i. Chalk vertical line 90 degrees from eave line.
 - ii. Chalk second line parallel to first to accommodate staggered/cross bonded tile
 - iii. Chalk additional lines, if necessary, to maintain alignment.
- or,
2. Straight bond tile installation - (Not recommended for flat/low profile tile)
 - a. Gable end
 - i. Chalk vertical line one full tile width plus 1" to 2" from starting gable.
 - ii. Chalk additional lines, if necessary, to maintain alignment.

- b. Hip roof
 - i. Chalk vertical line 90 degrees from eave line.
 - ii. Chalk second line parallel to first to accommodate staggered/cross bonded tile.
 - iii. Chalk additional lines, if necessary, to maintain alignment.

C. Tile Installation

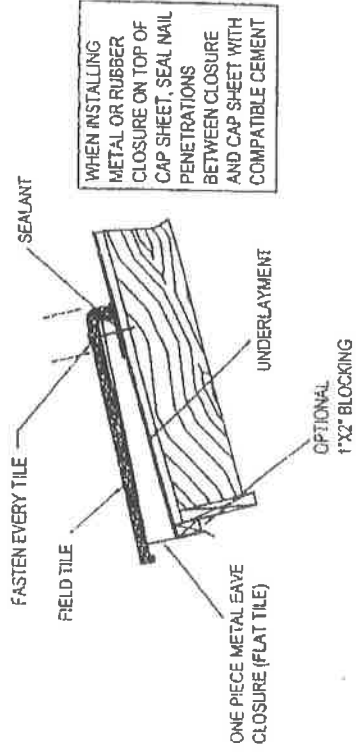
1. Stack tile to facilitate installation and minimize tile movement.
 2. Eave treatment - Choose one of the following:
 - a. Prefabricated Rubber Eave Closure - Install closure strip along eave. Fasten with minimum three fasteners per 36" strip (See Drawing 14).
 - or.
 - b. Metal Eave Closure - Install closure strip along eave. Fasten minimum 18" on center. If metal closure is inclusive of the drip edge fasten 6" on center (See Drawing 15).
 - or.
 - c. Raised Fascia/Wood Starter Strip - (when using a 3/4" fascia, a nominal 1" x 2" wood starter strip must be installed behind fascia).
 - i. Install fascia board approximately 3/4" above roof deck or a nominal 1" x 2" wood starter strip at roof edge (See Drawing 16).
 - Choose one of the following:
 - ii. Install 8" tapered cant strip at eave behind fascia and/or starter strip to support metal flashing when using drip edge.
 - or.
 - iii. Install a minimum 8" wide anti-ponding metal flashing to ensure positive drainage over fascia/starter strip. Tapered cant strip is optional when using anti-ponding metal. Nail top edge of flange onto roof.
 - iv. Apply underlayment as per Section 3.02.
- NOTE:** Limited to slopes 3:12 and over.
- or
 - d. Prefabricated concrete or clay eave closure (apply per manufacturer's instructions)

DRAWING 14



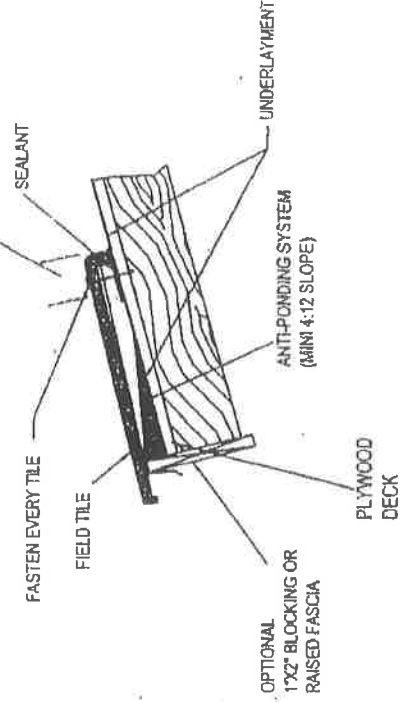
DRAWING 15

APPLY SEALANT FROM HEAD OF TILE TO APPROXIMATELY 1/2" BELOW NAIL HOLE PENETRATION



DRAWING 16

APPLY SEALANT FROM HEAD OF TILE TO APPROXIMATELY 1/2" BELOW NAIL HOLE PENETRATION



- e. Mortar Application - Install mortar to elevate eave edge.
 - i. Apply mortar along the eave edge, applying enough mortar to elevate the eave end of the tile to be on plane with the remaining roof tile.
 - ii. Point and smooth finish flush to eave line.
 - iii. A minimum 3/8" weephole flush with the roof underlayment shall be formed at the spacing of not less than one weephole per tile.

3.09 Flat/Low, Medium and High Profile Tile

- A. Starting at lower left corner (facing down roof) install first course of tile. Make certain all tile overhangs drip edge evenly along entire first course.
- B. Secure tile with fasteners through a minimum 1/8" thick compatible sealant applied to underlayment.

- C. Cut/break tile for proper staggering of tile courses when using staggered/cross bond method of installation.
- D. Set tile in stepped course fashion or in a horizontal and/or vertical fashion when utilizing straight bond method.
- E. Lay succeeding courses of field tile in same manner.
- F. Cut/break field tile to form straight edge at center of hip/ridge.

NOTE: Tile shall be attached to resist the aerodynamic moment determined when using the design pressures for the building and the fixing calculations set forth in the local building code.

3.10 Valleys - Choose one of the following:

NOTE: It is not recommended to install trim tile in the valleys. It may be necessary to remove the lugs from the field tile at walls and valley flashing for proper positioning of cut field tiles.

A. Standard Roll Valley (See Drawing 17)

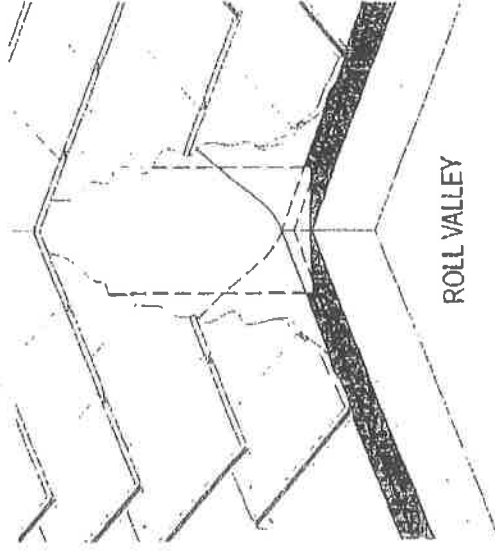
- 1. Closed Valley - Miter tile to meet at center of valley.
- 2. Open Valley - Chalk a line minimum 2" on both sides valley center. Place bed of mortar along outside edge of chalk lines. Miter tile to form straight border and point mortar to finish.

or.

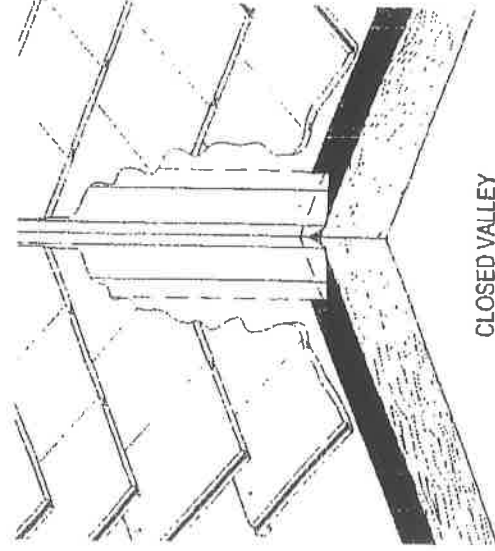
B. Preformed Metal Without Returns

- 1. Closed Valley - Miter tile to form straight border on either side of water diverter. (See Drawing 18)
- 2. Open Valley - Miter tile to form straight border on either side of the two water diverters. (See Drawing 19)

DRAWING 17

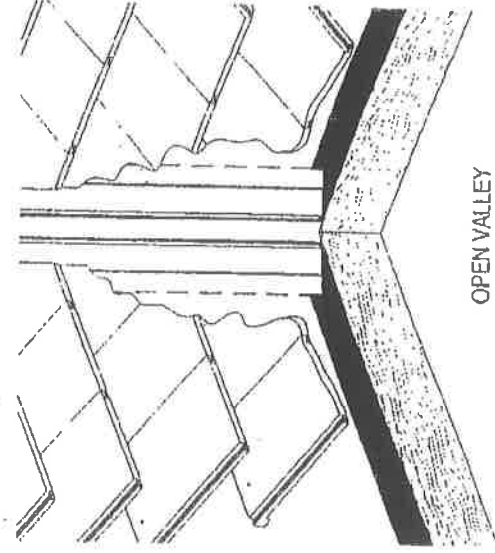


DRAWING 18



CLOSED VALLEY

DRAWING 19



OPEN VALLEY

- 3.11 Hip Starter - Choose one of the following:
 - A. Prefabricated hip starter
 - 1. Miter tile as hip starter to match eave lines.
or,
 - B. Use standard hip tiles as starter.
- 3.12 Hip and Ridge Installation – (See Instructions for Hip and Ridge Attachment)
- 3.13 Hip and Ridge Nailer Boards - (See Instructions for Hip and Ridge Attachment)

- 3.14 Rake/Gable - Choose one of the following:
- A. Rake/Gable Tile
 - 1. Install first rake tile the exposed length of first course of field tile with factory finish of rake tile towards the eave.
 - 2. Fasten rake tile with a minimum two 10D nails and/or of sufficient length to penetrate the framing a minimum of 3/4".
 - 3. Abut each succeeding rake tile to the nose of the field tile above and maintain a constant head lap.
 - or,
 - B. Mortar Finish
 - 1. Place mortar bed along roof edge.
 - 2. Point smooth to a straight edge finish.
- 3.15 Wall Abutments
- A. Cut tile to fit approximately 1/2" to base of walls. Point-up mortar is optional.
- NOTE:** It may be necessary to remove lugs from the field tile and/or install batten extenders at wall flashing for proper positioning of cut field tiles. For tiles installed at headwalls, tile shall be installed with roof tile adhesive.
- 3.16 Plumbing Stacks
- A. Cut tile to fit close to plumbing stack, fill void with mortar and point to finish.
- 3.17 Coatings - (optional)
- A. Sealer may be applied to exposed mortar.
 - B. Color coordinated paint may be applied to all metal flashings.
- 3.18 Tile Replacement
- A. Damaged Tile
 - 1. Break out and replace damaged roof tile. Do not disturb underlayment. Repair underlayment if necessary.
 - 2. Apply adhesive per adhesive manufacturer's recommendations.
 - 3. Immediately set replacement tile in position assuring proper contact.
 - B. Small Valley and Hip Cut
 - 1. Elevate nose end of tile in course above small cut tile. Apply adhesive per adhesive manufacturer's recommendations.
 - 2. Immediately set tile in course above in position which assures proper contact.
- NOTE:** For roof slopes > 7":12" on hip cuts only, mechanical fastening may be required.
- 3.19 Clean-Up
- A. Remove all broken tile, debris and excess tile from roof.
- 3.20 Miscellaneous Recommendations
- A. Instructions shall be given to all parties involved cautioning against traffic of any kind on finished roof. Damage to roof tiles and/or sub-roof may result.

