CITY OF SACRAMENTO

1231 I Street, Sacramento, CA 95814

Permit No: 0103337
Insp Area: 2

Site Address: 6760 HOGAN DR SAC
Parcel No: 035-0213-008

Sub-Type: RES
Housing (Y/N): N

CONTRACTOR
MILESTONE EXTERIORS
9575 APPALACHIAN DR
SACRAMENTO CA 95827

OWNER
CARREON GLORIA/VICTOR
6760 HOGAN DR
SACRAMENTO CA 95822

ARCHITECT

Nature of Work: REROOF T/O 20 SQ INSTALL STONE COATED STEEL TILE

CONSTRUCTION LENDING AGENCY : I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C).

Lender's Name_____ Lender'sAddress_____

LICENSED CONTRACTORS DECLARATION: I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect.

X License Class B-1 License Number 627111 Date 3/19/01 Contractor Signature [signature]

OWNER-BUILDER DECLARATION: I hereby affirm under penalty of perjury that I am exempt from the contractors License Law for the following reason (Sec. 7031.5, Business and Professions Code: any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9 (commencing with Section 7000) of Division 8 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500.00):

____ I, as a owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professional Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his/her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he/she did not build or improve for the purpose of sale.)

____ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law).

____ I am exempt under Sec. _____ B & P.C. for this reason:_____

Date_____ Owner Signature_____

IN ISSUING THIS BUILDING PERMIT, the applicant represents, and the city relies on the representation of the applicant, that the applicant verified all measurements and locations shown on the application or accompanying drawings and that the improvement to be constructed does not violate any law or private agreement relating to permissible or prohibited locations for such improvements. This building permit does not authorize any illegal location of any improvement or the violation of any private agreement relating to location of improvements.

I certify that I have read this application and state that all information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction and herby authorize representative(s) of this city to enter upon the above-mentioned property for inspection purposes.

X Date 3/19/01 X Applicant/Agent Signature [signature]

WORKER'S COMPENSATION DECLARATION: I hereby affirm under penalty of perjury one of the following declarations:

____ I have and will maintain a certificate of consent to self-insure for workers' compensation as provided for by Section 3700 of the Labor Code, for the performance of work for which the permit is issued.

X ME I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier STATE FUND Policy Number 1586416-00 Exp Date 05/01/2001

____ (This section need not be completed if the permit is for $100 or less) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

X Date 3/19/01 X Applicant Signature [signature]

WARNING: FAILURE TO SECURE WORKER'S COMPENSATION COVERAGE IS UNLAWFUL AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000) IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST AND ATTORNEY'S FEE.

THIS PERMIT SHALL EXPIRE BY LIMITATION IF WORK IS NOT COMMENCED WITHIN 180 DAYS.

National Evaluation Service, Inc.

Participating Members:

BOCA Evaluation Services, Inc. | **ICBO Evaluation Service, Inc.** | **SBCCI Public Safety Testing and Evaluation Services, Inc.**

4051 West Flossmoor Road
Country Club Hills, Illinois 60478-5795
(708) 799-2305

5360 Workman Mill Road
Whittier, California 90601-2299
(562) 699-0543

900 Montclair Road, Suite A
Birmingham, Alabama 35213-1206
(205) 591-1853

NATIONAL EVALUATION REPORT

NER-423
Reissued July 1, 1998

STEEL ROOFING PANELS

GERARD ROOFING TECHNOLOGIES
955 COLUMBIA STREET
BREA, CALIFORNIA 92821-2923

Listings:

ALLMET ROOFING TECHNOLOGIES
955 COLUMBIA STREET
BREA, CALIFORNIA 92821-2923

CUSTOM-BILT METALS, INC.
9845 JOE VARGAS WAY
EL MONTE, CALIFORNIA 91733

1.0 SUBJECT

Steel Roofing Panels:

1.1 Gerard* Stone-Coated Tile and Shake Panels.

1.2 Gerard Storm Tile* Steel Tile Panels

1.3 ALLMET* Stone-Coated Tile and Shake Panels

1.4 ALLMET Painted Steel Tile Panels

1.5 Armor Stone-Coated Tile and Shake Panels.

1.6 Armor Painted Steel Tile Panels

2.0 PROPERTIES FOR WHICH EVALUATION IS SOUGHT

2.1 Roof covering Classification

2.2 Wind Resistance

2.3 Weather Resistance

3.0 DESCRIPTION

3.1 GENERAL

The steel roofing panels described in this report are used as a component of roof coverings over new and existing roofs.

The roofing panels are formed from mild steel complying with ASTM A 653 Structural Quality Grade 33, minimum, and have a zinc-galvanized G90 coating complying with ASTM A 924 or a Galvalume** AZ50 coating complying with ASTM A 792. The steel has a baked-on primer on both sides with a semigloss wash coat on the reverse side only. The base metal thickness is 0.0150 inch (0.38 mm). The entire upper surface and flange edges of all the roofing panels, except Gerard Storm Tile Steel Tile, ALLMET Painted Steel Tile and Armor Painted Steel Tile Panels, are coated with crushed stone chips which are bonded to the panels with acrylic resin after the panels are formed. A clear acrylic overglaze completes the process. Gerard Storm Tile, ALLMET and Armor painted steel tile panels are made with the same material, but are not coated with stone chips.

Tile panels are $45^3/_4$ inches (1162 mm) wide, side-to-side, and $15^1/_2$ inches (394 mm) deep, front-to-back.

Shake Panels are $44^3/_4$ inches (1137 mm) wide, side-to-side, and $15^1/_2$ inches (394 mm) deep, front-to-back.

For a cross reference between the product designation and the company name, see Table 1.

3.2 TILE PANELS

The tile panels consist of seven equal modules, each module being $6^1/_4$ inches (159 mm) wide. A vertical weather-lap interlock and nailing face is created by a downturned front flange, approximately 1 inch (25 mm) in depth, and an upturned back flange, approximately 1 inch (25 mm) in height, with an additional horizontal lip parallel to the tile surface, provided for extra support. The butt edge of one tile laps over the top flange section of the tile beneath it. Sidelaps at both ends of the tile, 2 inches (51 mm) in width, permit the tile to interlock with adjacent tiles. The installed tile panel weight is approximately 140 pounds (63 kg) per 100 square feet (9.3 m^2).

3.3 SHAKE PANELS

The shake panels have four recessed and five raised shake impressions. Each shake module is of a different width and grain pattern. The vertical weather-lap interlock, sidelap, and nailing face system for the shake panels are the same as those described for the tile panel. The installed shake panel weight is approximately 140 pounds (63 kg) per 100 square feet (9.3 m^2).

*Gerard and Gerard Storm Tile are registered trademarks of Gerard Roofing Technologies.
**Galvalume is a registered trademark of BIEC International Inc.

3.4 ROOFING CLASSIFICATION

The roofing classifications of the roof covering assemblies are denoted with the descriptions of the assemblies in Section 4.2.

4.0 INSTALLATION

4.1 GENERAL

The panels shall be installed on wood or steel battens spaced approximately 14 1/2 inches (368 mm) on center over open rafters, spaced sheathing, solid sheathing or existing roof covering in accordance with the following:

4.1.1 Roof Slope and Underlayment

The panels shall be installed on roof slopes of 2 1/2:12 (20.8 percent slope) or greater with an underlayment of two layers of Type 15, or one layer of Type 30, organic fiber felt. In jurisdictions adopting the Uniform Building Code, underlayment shall comply with the ICBO Evaluation Service, Inc., Acceptance Criteria for Concrete Tile Underlayment on Spaced Sheathing (AC08), dated January 1989, for installations without solid sheathing. Where the roof slope is less than 2 1/2:12 (20.8 percent slope), the roofing panels are a decorative roof covering only, and shall be installed over an approved roof covering system installed in accordance with the applicable code.

4.1.2 Battens

The battens shall be either nominal 2-inch-by-2-inch (51 mm by 51 mm) wood material ripped from Douglas fir-larch lumber of standard grade or better, or minimum 1 1/2-inch-high (38 mm) battens formed from minimum No. 22 gage [0.025 inch (0.64 mm)] galvanized steel with a hat, C, U or J cross section. Where battens are required to act as spaced sheathing or purlins, steel and lumber battens shall be designed to resist the design loads. Unless specified otherwise in this report, lumber battens shall be attached at each intersection of batten and supporting framing spaced at 24 inches (610 mm) on center with one 16d common nail. The fasteners shall have a minimum combined penetration, into the roof sheathing and framing member, of 1 inch (25 mm). Steel battens shall be attached with a minimum of one No. 10, corrosion-resistant sheet metal screw, penetrating a minimum of 3/4 inch (19.1 mm) into each framing member and spaced a maximum of 24 inches (610 mm) on center.

4.1.3 Counterbattens

Where roofing is placed over spaced sheathing or an existing roof covering, nominal 1-inch-by-4-inch (25 mm by 102 mm) wood counterbattens, spaced a maximum of 24 inches (610 mm) on center, shall be laid directly above and parallel to the framing members, and attached at 12 inches (305 mm) on center. The fasteners used to attach counterbattens installed over spaced or solid sheathing shall be 8d common nails. Counterbattens installed over an existing roof covering shall be attached with 16d common nails. Fasteners shall have a minimum combined penetration, into the sheathing and framing members, of 1 inch (25 mm). The battens shall be attached to the counterbattens with one 16d common nail.

4.1.4 Panels

Tile panels are installed in a running bond pattern staggered 6 1/4 inches (159 mm), or multiples thereof, or in a straight bond pattern. Shake panels interlock by staggering each course one-half of a panel. This stagger provides the random patterned appearance of natural wood shake. The shake panels shall not be laid straight or randomly staggered. Tile and shake panels shall be fastened to wood battens with five 6d, galvanized common nails. The panels shall be attached to steel battens with five, No. 8 by 1 1/2-inch-long (38 mm), galvanized steel, sheet metal screws with a dome cap covering a neoprene washer. For tile, fasteners shall be positioned at the deepest "V" nearest the batten, and for shake panels, fasteners shall be positioned at the raised shake impression and simulated-wood-grain ribs. The fasteners shall be directed up the roof slope. Ridges and hips shall have a minimum 2-inch (51 mm) nominal thickness and project approximately 4 inches (102 mm), minimum, above the rafters or existing roof surface. The panels shall be fastened to the side of ridges and hips after mitering, cutting and bending, and shall then be capped with the appropriate trim and finished as the regular panels. Gable ends shall be capped with gable cap pieces; rake or barge molds; or individual trim caps. Openings in the roof shall be flashed with the flashing formed into place to match the general shape of the panels.

4.1.5 Flashing

The panels adjacent to the ridge are cut and bent to fit in the field. Valleys for new construction shall be framed to receive minimum No. 28 gage, galvanized steel or Gavalume coated steel flashing, extending 8 inches (203 mm) in each direction from the center line, with a 3/4-inch-high (19.1 mm) splash diverter formed at the flow line. A 6-inch-wide (152 mm) Gerard valley flashing shall be used for reroof valleys, and is permitted for new construction. The 6-inch-wide (152 mm) Gerard valley flashing shall be minimum No. 28 gage, galvanized steel or Gavalume coated steel flashing, extending 3 inches in each direction from the center line, with a 3/4-inch-high (19.1 mm) splash diverter formed at the flow line, and 1-inch (25 mm) vertical side walls with 1/2-inch (12.7 mm) return tabs used for securing the flashing. Valley flashing end laps shall be 4 inches (102 mm), minimum. Reroof valleys shall be framed using nominal 1-inch-by-4-inch (25 mm by 102 mm) counterbattens, spaced 6 inches (152 mm) apart, along both sides of the existing valley. The panels shall be cut and bent down into the valley pan, forming either an open or closed valley. All full-size panels shall be nailed in place on the roof, prior to cutting panels for placement at hips, ridges, rakes or valleys.

While nailing the panels, care shall be taken to avoid striding the surface. Roof openings for vents or other protrusions shall be weatherproofed as previously described, and framed with additional blocking and framing as necessary.

The manufacturer's published installation recommendations, Reference Number 08-97, shall be followed, and a copy shall be available upon request.

4.2 ROOFING CLASSIFICATIONS

4.2.1 Noncombustible Roof Coverings, New Construction

In areas using the Uniform Building Code, roof coverings with panels installed in accordance with Section 4.1 of this report in new construction, or over existing construction with the existing roof covering removed, are noncombustible roof coverings.

4.2.2 Class A Roof Coverings

4.2.2.1 Reroofing over Fiberglass Shingles on Combustible Decks: Roof coverings with panels installed with wood battens and counterbattens over existing roof coverings of Class A fiberglass shingles in accordance with Section 4.1 of this report are Class A roof coverings.

4.2.2.2 Reroofing on Combustible Decks, over Asphalt, Organic or Wood Shingles; or over Wood Shakes: Roof coverings with panels installed with wood battens and

counterbattens over existing roof coverings of Class B or C asphalt or organic fiber shingles, or nonrated wood shingles or shakes, are Class A roof coverings when installed in accordance with Section 4.1 of this report, with the addition of minimum $^1/_2$-inch-thick (12.7 mm), water-resistant core gypsum sheathing board complying with ASTM C 79-82a installed with joints butted tightly over the counterbattens. The gypsum board shall be attached to the counterbattens with minimum 4d wallboard nails or an equivalent fastener, spaced 12 inches (305 mm) on center, maximum. For installations over existing wood shingles or wood shakes in areas using the Uniform Building Code, the space between the existing roof and the gypsum sheathing, and the space between the gypsum sheathing and the new roof covering, shall be fire-stopped with mineral fiber, glass fiber or gypsum sheathing, with spacing to result in a maximum contained area of 100 square feet (9.3 m^2).

4.2.3 Class B Roof Coverings

4.2.3.1 New Roof Construction with Solid Sheathing: Roof coverings with panels installed in accordance with Section 4.1 of this report, with one layer of Type 30 reinforced fiber felt underlayment over $^1/_2$-inch-minimum (12.7 mm) exterior grade plywood, are Class B roof coverings.

4.2.3.2 Reroofing over Existing Cedar Shakes or Shingles, or over Organic or Fiberglass Shingles, with Solid or Spaced Sheathing Substrate: Roof coverings with panels installed in accordance with Sections 4.1 and 4.3 of this report, with one layer of Owens-Corning Type G2 72-pound fiberglass cap sheet, surfaced with mineral granules complying with ASTM D 3909, fastened in place over the existing roofing material with 2 inch laps, are Class B roof coverings. The counterbattens and battens shall be installed over the cap sheet.

4.2.3.3 Reroofing over Existing Cedar Shakes or Shingles with Solid or Spaced Sheathing: Roof coverings with panels installed in accordance with Sections 4.1 and 4.3 of this report, with one layer of Manville or other approved $1^1/_2$-inch-thick foil-faced fiberglass batt insulation installed, with the foil facing up, over the existing roof covering using 2-inch (51 mm) minimum head and sidelaps, are Class B roof coverings. The counterbattens and battens shall be installed over the insulation.

4.2.4 Class C Roof Covering: Reroofing over Existing Cedar Shakes or Shingles, or over Organic or Fiberglass Shingles, with Solid or Spaced Sheathing Substrate

Roof coverings with panels installed with wood battens and counterbattens over existing cedar shakes or shingles, or over organic or fiberglass shingles, with solid or spaced sheathing in accordance with Sections 4.1 and 4.3 of this report are Class C roof coverings.

4.3 REROOFING OVER WOOD SHINGLES AND SHAKES

In areas using the Uniform Building Code, the entire existing surface of wood shingles and shakes shall be covered with mineral or fiberglass batt insulation, installed prior to installation of the counterbattens. Additionally, in areas using the Uniform Building Code, the space between the mineral or fiberglass batt insulation and the metal roof panels shall be fire-stopped with mineral fiber, glass fiber or gypsum sheathing, with spacing to result in a maximum contained area of 100 square feet (9.3 m^2). For roofing classifications, see Section 4.2 of this report.

4.4 WIND-RESISTANT ASSEMBLIES

Recognition in jurisdictions utilizing the Uniform Building Code is limited to Exposure B areas where the basic wind speed does not exceed 80 miles per hour (129 km/h), the building height is less than 40 feet (12 192 mm), and installation is in accordance with Section 4.1 of this report. In jurisdictions utilizing the BOCA National Building Code or the Standard Building Code, the maximum allowable wind uplift pressure is as shown in Table 2 of this report. The balance of the installation shall be as described in Section 4.1 of this report.

4.5 STRUCTURAL DIAPHRAGM

Structural roof diaphragms using the roofing panels described in this report shall be constructed as follows: Nominal 1-inch-by-6-inch Standard grade or better Douglas fir sheathing, or sheathing of other species having a specific gravity of 0.50 or greater, spaced a maximum of $9^1/_2$ inches (241 mm) on center, is nailed to framing in accordance with the code. The maximum framing spacing is 24 inches (610 mm) on center. Wood battens, counterbattens and the roofing panels are installed over the spaced sheathing in accordance with Section 4.1 of this report. Fasteners attaching counterbattens to the roof shall penetrate into framing and be within 6 inches (152 mm) of counterbatten ends.

The resulting diaphragm has an allowable shear of 180 pounds per linear foot (2628 N/m), and is equivalent to $^{15}/_{32}$-inch-thick (11.9 mm) CDX plywood using 8d common nails over 2-inch (51 mm) wood-framing members in an unblocked diaphragm, with nails every 6 inches (152 mm) on the plywood edges and every 10 inches (254 mm) in the center of the plywood. The maximum aspect ratio is 4:1. Diaphragm deflections shall be estimated by using the following equation, using the values for $^{15}/_{32}$-inch-thick (11.9 mm) CDX plywood:

$$\Delta = \frac{5vL^3}{8EAb} + \frac{vL}{59,600} + 0.003384L + \frac{\Sigma(\Delta_c X)}{2b}$$

For SI: $$\Delta = \frac{381vL^3}{2EAb} + \frac{vL}{2,347} + 0.086L + \frac{25.4\Sigma(\Delta_c X)}{2b}$$

where:

A = Area of chord cross section, square inches (mm^2).

b = Diaphragm width, feet (mm).

E = Elastic modulus of chords, pounds per square inch (kPa).

L = Diaphragm length, feet (mm).

v = Maximum shear due to design loads in the direction under consideration, pounds per lineal foot (N/m).

Δ = The calculated deflection, inches (mm).

$\Sigma(\Delta_c X)$ = Sum of individual chord-splice slip values on both sides of the diaphragm, each multiplied by its distance to the nearest support.

Calculations for diaphragm deflection shall account for the usual bending and shear components as well as any other factors, such as nail deformation, which will contribute to the deflection.

5.0 IDENTIFICATION

A label with the name and address of the company and product name as noted in Table 1 of this report, and with the National Evaluation Service report number, shall be affixed to each pallet or bundle for field identification.

6.0 EVIDENCE SUBMITTED

6.1 Manufacturer's descriptive literature and installation recommendations. Reference 08-97.

6.2 Test report on Class A fire resistance in accordance with ASTM E 108 (UL 790), prepared by Underwriters Laboratories Inc., File R12596/87NK4698, dated June 24, 1987, signed by James M. O'Shea and R. I. Donahue (Illinois, U.S.A.).

6.3 Fire Resistance Classification Tests in accordance with ASTM E 108 (UL 790), performed by United States Testing Company, Inc., signed by Michael S. Elliott and Patrick V. McCullen:

Classification	Report No.	Date
B	LA 21024	June 30, 1982
B (Over Existing Roofs)	LA 21992 (Addendum to LA 21557)	November 30, 1982
C	LA 40231	March 27, 1984

6.4 Test report on static pressure uplift, prepared by Construction Research Laboratory, Inc., CRL Test 4170, dated September 26, 1984, signed by A. A. Sakhnovsky (Florida, U.S.A.).

6.5 Engineering calculations for wind design, prepared by Johnson Engineering, dated October 8, 1987, signed and sealed by Gary D. Johnson, P.E. (California, U.S.A.).

6.6 BRANZ MTR 836 5,000 Hour Accelerated Weathering Test. Copy of BRANZ Test MTR 836 certified and signed by J. R. Duncan, head of Building Science Group (Wellington, New Zealand).

6.7 BRANZ Appraisal 128 1985.

6.8 Test report, Assessment of Resistance of Roof Coverings to Impact of Hailstones, prepared by Commonwealth Scientific and Industrial Research Organization, Report CSIRO, DBR, August 1978, signed by K. J. Martin, officer conducting test and F. A. Blakey, chief of division (Australia).

6.9 Test report, Simulated Wind and Snow Load Tests, prepared by Department of Scientific and Industrial Research, Auckland Industrial Development Division (A.I.D.D.), Reference 81/971 dated June 6, 1979, signed by J. Phillips (New Zealand).

6.10 Test report on Cyclic Loading, prepared by Cyclone Testing Station, Report TS 126, dated 23rd July, 1980, signed by Professor K. P. Stark (Australia).

6.11 Test report on ultraviolet light testing, prepared by Wakefield Laboratories, Limited, Report 9870, dated 18.8.83 (New Zealand).

6.12 Test Report on Test Record 1, Class B fire resistance of reroofing over Class C organic felt shingles, and Class A fire resistance of reroofing over Class A fiberglass shingles. Test Report on Test Record 2, penetration test of 200-pound load with 3-inch-diameter steel plate. Test Report on Test Record 3, weatherometer test, 2,000-hour carbon arc, performed by Underwriters Laboratories Inc., File R12596, Project 88NK17073, dated February 24, 1989, signed by Kenneth D. Rhodes, engineering group leader, Fire Protection Department, and Wayne A. Kleinfelder, associate managing engineer, Fire Protection Department.

6.13 Underwriters Laboratories Inc. written reply/opinion on modifications to existing Gerard tile and introduction of Gerard shake. Letter dated February 7, 1989, signed by Kenneth D. Rhodes, engineering group leader, Fire Protection Department, and William G. Marshall, senior engineering assistant, Fire Protection Department.

6.14 Test report on wind-driven rain using 2:12 slope, prepared by Underwriters Laboratories Inc., File R12596, Project 90NK5766, dated May 8, 1990, signed by Roger Anderson and Kenneth Rhodes.

6.15 Test report on wind-uplift resistance, prepared by Underwriters Laboratories Inc., Files R14086-2 and R14086-3, Project 90NK5767, issued May 31, 1990, revised September 19, 1990, signed by Greg Rezek and Kenneth Rhodes.

6.16 Engineering calculations for wind and diaphragm design, prepared by Research and Code Development, dated June 1992 (revised September 3, 1992), and additional calculations dated November 16, 1993, signed and sealed by T. H. Carter, P.E. (California, U.S.A.).

6.17 Test report on racking shear, prepared by United States Testing Company, Inc., Test Report 186038-1, dated May 13, 1992, signed by Michael Beaton, P.E., and David Pereg (California, U.S.A.).

6.18 Test report on wind driven rain and static pressure uplift performance tests, prepared by Construction Research Laboratory, Inc., Test 5603, dated May 19, 1992, signed by Richard Sambella (Florida, U.S.A.).

6.19 Test report on Class A spread of flame test in accordance with ASTM E 108, by Underwriters Laboratories Inc., File R12596, Project 92NK11696, dated June 22, 1992, signed by William G. Marshall, senior engineering assistant, Engineering Services, Dept. 411, and Douglas C. Miller, engineering team leader, Engineering Services, Dept. 411.

6.20 Test reports on racking tests in accordance with ASTM E 72, by United States Testing Company, Inc., Test Report 176653, dated March 28, 1990, revised April 3, 1990, and Test Report 176876, dated October 9, 1990, signed by Michael Beaton, test engineer, and Stephen A. Castle, manager, Engineering Department.

6.21 Report of static, transverse uplift load tests, prepared by RADCO, Test Report RAD-165, Project C-5086, issued June 1993.

6.22 Underwriters Laboratories Inc. Test Report File R12596, Project 93NK11425, dated February 3, 1994, signed by William G. Marshall, engineering associate, and Douglas C. Miller, engineer team leader, on fire tests conducted in accordance with ASTM E 108 on panels with an alternate base coat and panels installed over wood shingles and shakes.

6.23 Underwriters Laboratories Inc. Test Report File R12596, Project 96NK26630, issued November 27, 1996, revised April 15, 1997, signed by Roger Anderson, senior engineer associate, and James Hatcher, staff engineer, on 2,000-hour carbon-arc accelerated weathering tests on panels with an alternate base coat.

7.0 CONDITIONS OF USE

The National Evaluation Service Committee finds that steel roofing panels described in this report comply with requirements in the BOCA National Building Code/1996; the 1997 Standard Building Code; and the 1997 Uniform Building Code, subject to the following conditions:

7.1 The panels shall be manufactured, identified, and installed in accordance with this report and the manufacturer's installation recommendations, Reference Number 08-97.

7.2 Prior to reroofing with the panels, the existing roof shall be inspected and approved by the building official, where required by the applicable code.

7.3 This report is subject to periodic re-examination. For information on the current status, consult the evaluation report listing or contact one of the participating members of the NES.

TABLE 1 — COMPANY AND PRODUCT NAME CROSS REFERENCES

COMPANY NAME	DESIGNATION OF PRODUCTS
Gerard Roofing Technologies	1. Gerard Stone-Coated Tile 2. Gerard Stone-Coated Shake 3. Gerard Storm Tile
ALLMET Roofing Technologies	1. ALLMET Stone-Coated Tile 2. ALLMET Stone-Coated Shake 3. ALLMET Painted Steel Tile
Custom-Bilt Metals, Inc.	1. Armor Stone-Coated Tile 2. Armor Stone-Coated Shake 3. Armor Painted Steel Tile

TABLE 2 - REROOFING OVER EXISTING ROOFS, FASTENER REQUIREMENTS FOR GERARD STONE-COATED STEEL ROOF PANELS AND BATTENS

WIND SPEED (mph)	ROOF HEIGHT ABOVE GRADE 1	SITE EXPOSURE RATING 1	ROOF AREA	DESIGN WIND UPLIFT PRESSURE (psf)	COUNTER-BATTEN TO RAFTER OVER EXISTING WOOD SHAKES 2				BATTEN TO COUNTER-BATTEN 3		PANEL TO BATTEN MINIMUM # OF FASTENERS
					7" SPACED SHEATHING		10" SPACED SHEATHING		16" O/C	24" O/C	
					16" O/C	24" O/C	16" O/C	24" O/C			
90	40 ft.	C	Field	35.5	1-16d @ 14" o/c	1-16d @ 7" o/c	1-16d @ 10" o/c	1-16d @ 10" o/c	2-16d	1-#8X3" Screw	In each panel
			Edge	84.5	1-16d @ 7" o/c	2-16d @ 7" o/c	2-16d @ 10" o/c	1-#8X3" Screw @ 10" o/c	1-16d & 1 # 8X3" Screw	2-#8X3" Screw	In each panel
110	40 ft.	C	Field	52.8	1-16d @ 7" o/c	2-16d @ 10" o/c	1-16d @ 10" o/c	2-16d @ 10" o/c	1-#8X3" Screw	1-16d & 1-#8X3" Screw	In each panel
			Edge	125.9	2-16d @ 7" o/c	1-#8X3" Screw @ 7" o/c	2-16d @ 10" o/c	1-16d & 1 #8X3" Screw @ 10" o/c	2-#8X3" Screw	1-16d & 2-#8X3" Screw	In each panel
130	40 ft.	C	Field	73.8	1-16d @ 7" o/c	2-16d @ 7" o/c	2-16d @ 10" o/c	2-16d @ 10" o/c	1-#8X3" Screw	2-#8X3" Screw	In each panel
			Edge	175.9	2-16d @ 7" o/c	1-16d & 1 #8X3" Screw @ 7" o/c	1-#8X3" Screw @ 10" o/c	1-#8X3" Screw @ 10" o/c	2-#8X3" Screw	3-#8X3" Screw	7- 8d in each panel

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mph = 1.61 km/h, 1 psf = 0.047 kPa.

1 - Limited to roofs less than 40 feet in height & exposure 'C' areas. Exposure 'C' has a terrain which is flat and generally open, extending one-half mile or more from the site in any quadrant.

2 - This fastener shall penetrate a minimum of 1" into or through the roof sheathing or framing member.

3 - Panel batten & counter-batten intersection requires this many fasteners and panel batten spacing is always 14 ½" o/c.

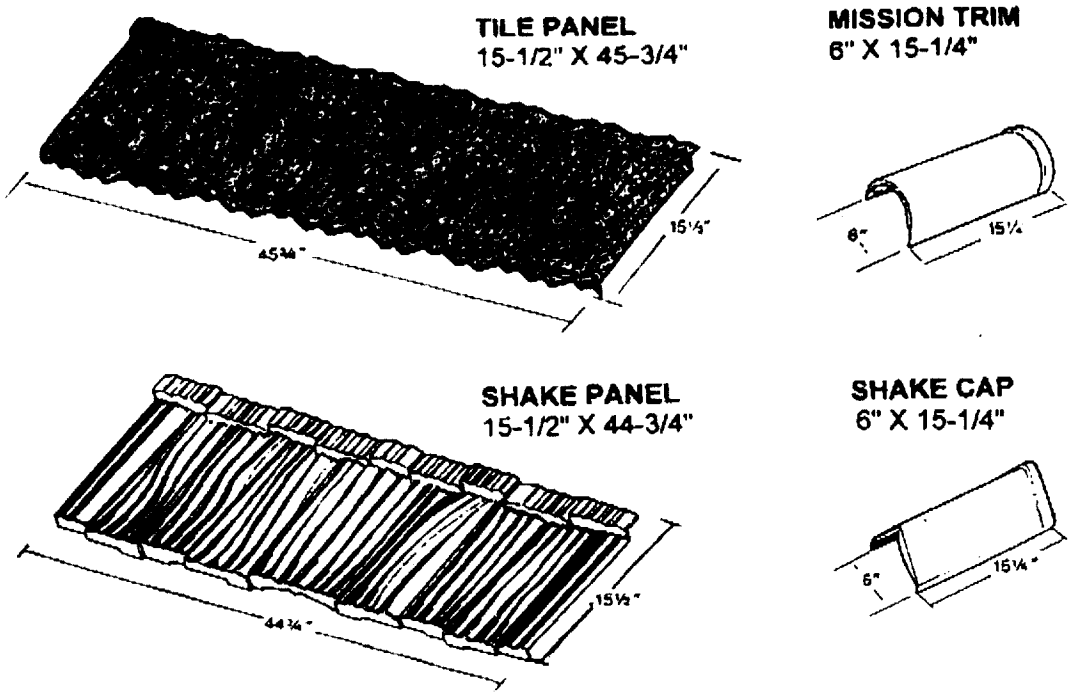
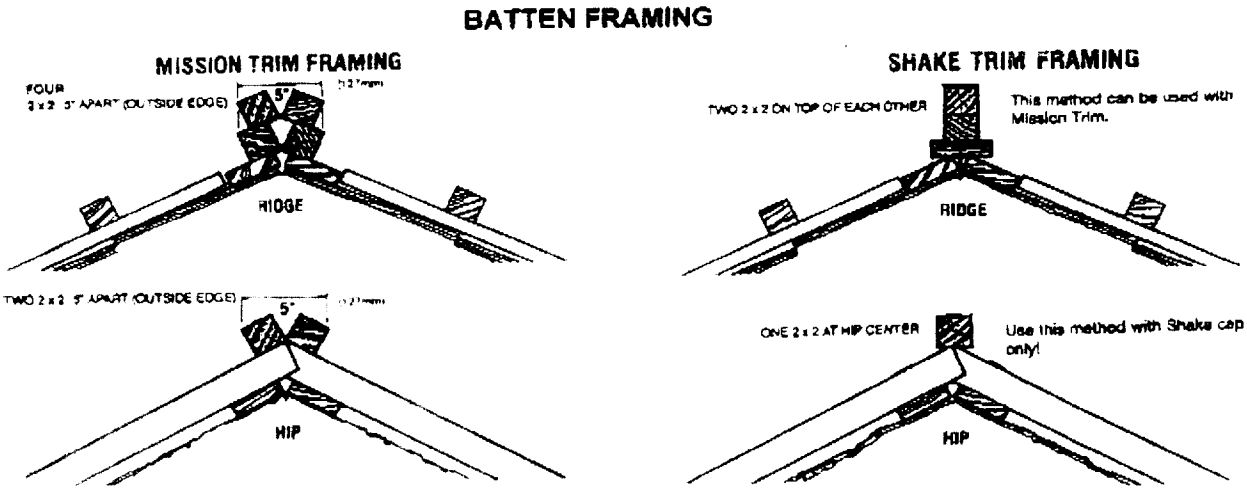
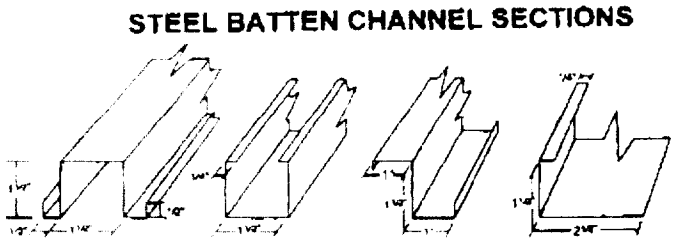


FIGURE 1—PRODUCT ILLUSTRATION

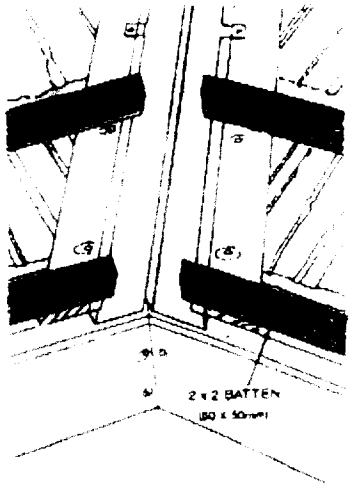




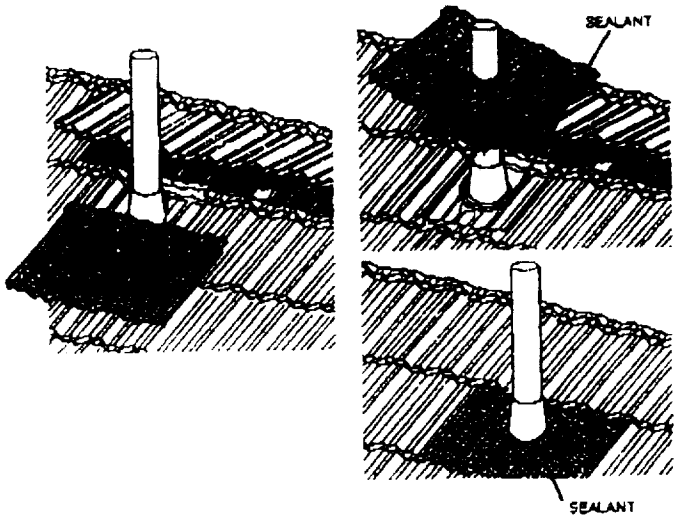
For SI: 1 inch = 25.4 mm

FIGURE 2—BATTENS

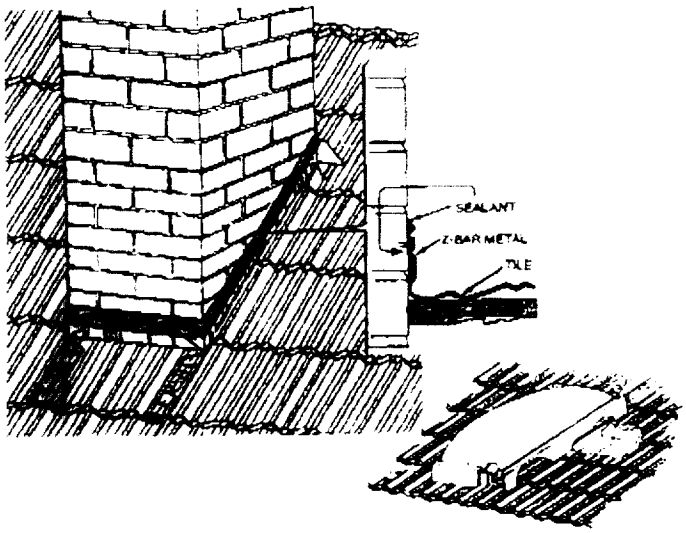
VALLEY (Re-Roof)



VENT PIPE FLASHING



CHIMNEY / SKYLIGHT FLASHING



TRIM INSTALLATION

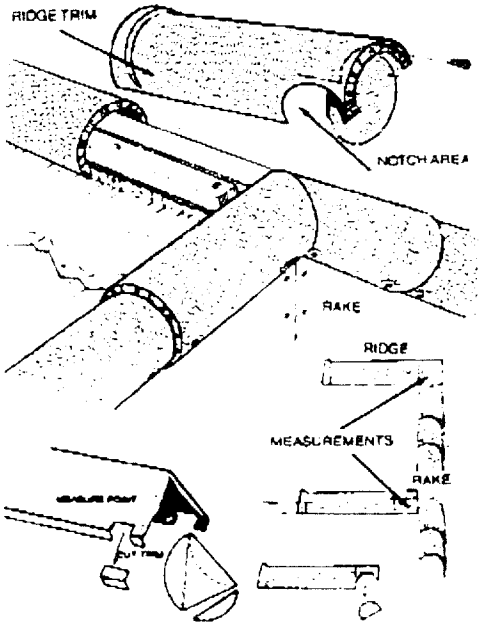


FIGURE 3—TYPICAL INSTALLATION DETAILS