ST. CHARLES SINCE 1834	**HISTORIC PRESERVATION COMMISSION** **AGENDA ITEM EXECUTIVE SUMMARY**			
	Agenda Item Title/Address:	COA: 210 Cedar St.		
	Proposal:	Roof panels		
	Petitioner:	Isacco Vitali		
	Please check appropriate box (x)			
	PUBLIC HEARING		**MEETING 11/5/14**	**X**

AGENDA ITEM CATEGORY:			
X	Certificate of Appropriateness (COA)		Façade Improvement Plan
	Preliminary Review		Landmark/District Designation
	Discussion Item		Commission Business

ATTACHMENTS:

Photo of the building & canopy

Drawing of proposal

Information about proposed material

EXECUTIVE SUMMARY:

Proposed is the installation of metal composite roof panels over the existing roof canopy.

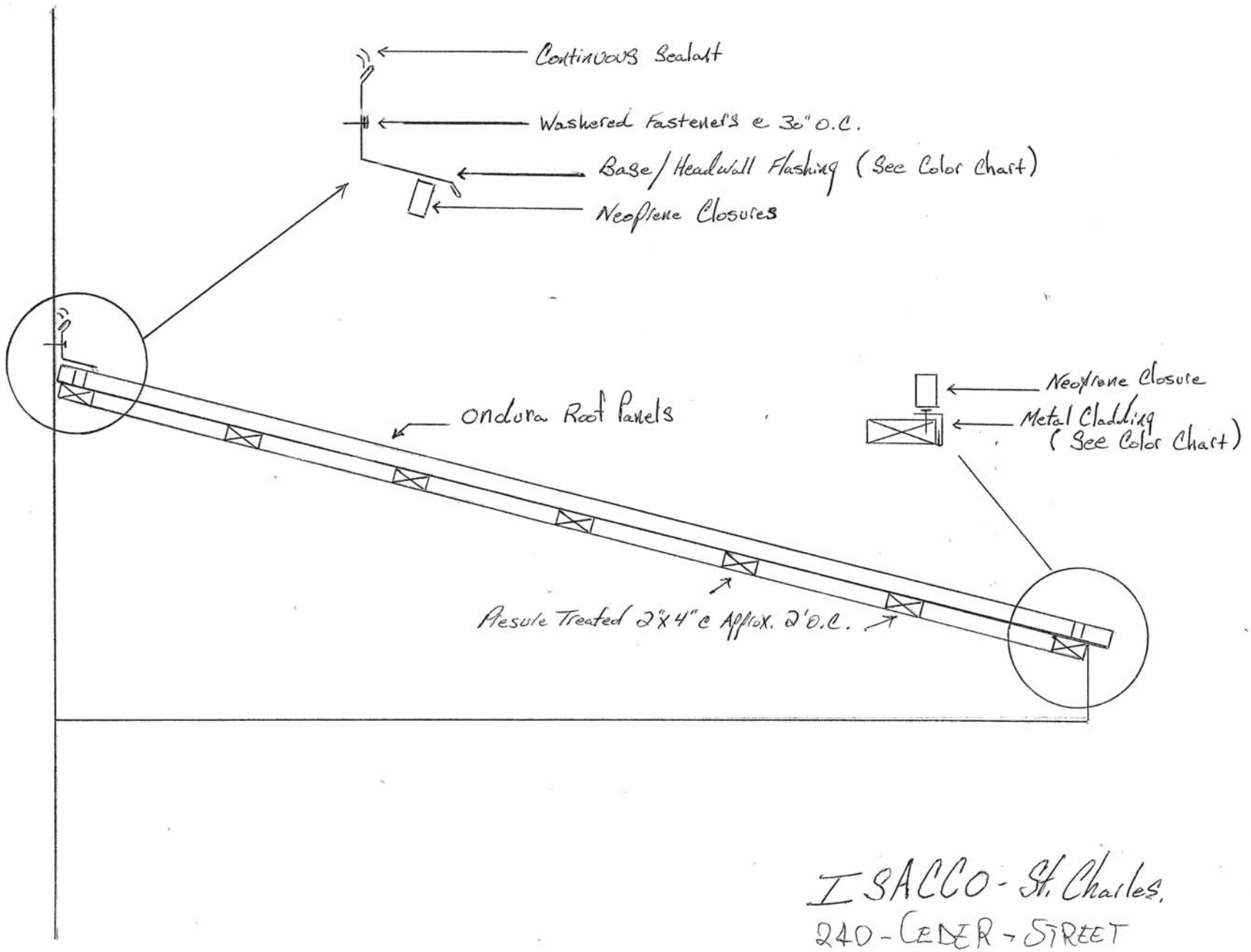
Information about the proposed material is attached.

RECOMMENDATION / SUGGESTED ACTION:

Provide feedback and recommendations on approval of the COA.


ISACCO
OPEN


EXIT



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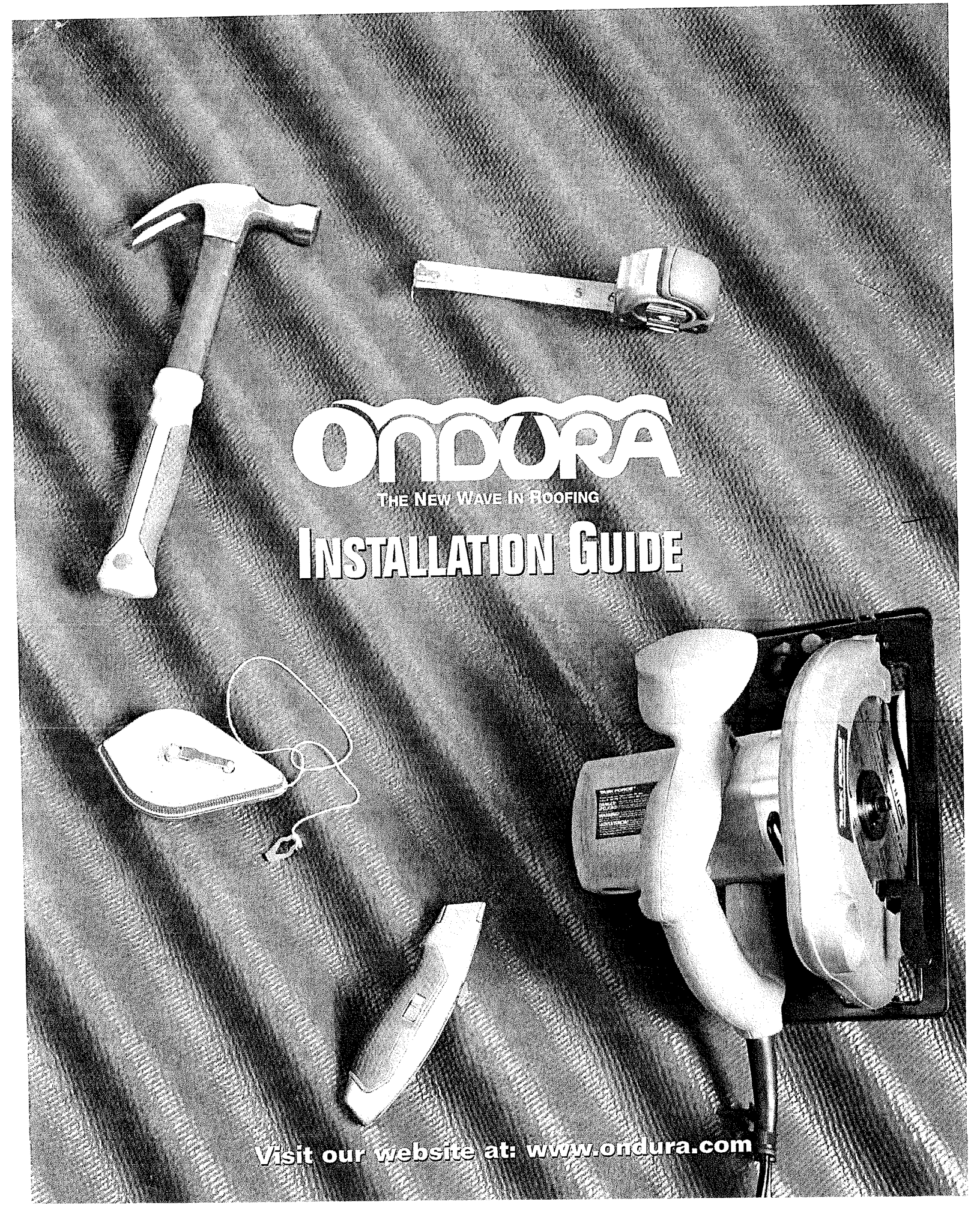

ONDURA
THE NEW WAVE IN ROOFING
INSTALLATION GUIDE
Visit our website at: www.ondura.com

Even though Ondura is easy to install, before beginning, you should thoroughly read these instructions to understand how they apply to your roofing or siding job.

We recommend you have an architect or structural engineer check your roofing plan for soundness and especially for proper ventilation.

Ondura, like all roofing materials, should be carefully installed. Mistakes in installation can cause roof problems later on. So take your time and closely follow these installation guidelines. As you can imagine, they cannot cover all possible situations.

Please use extreme caution on the roof to insure your personal safety at all times. Be sure that ladders and other such devices are safely positioned and properly secured. OSHA recommends the use of a safety harness when applying roofing. Protective eyewear is recommended when applying fasteners or using power tools. When walking on Ondura, wear soft-soled shoes and place your feet perpendicular to the corrugations. All roofing is slippery when wet, dusty, frosty or oily...avoid working or walking on the roof if any of these conditions exist. Working on the roof if windy conditions exist can be dangerous and should be avoided. And, like any asphalt product, refrain from walking on in high heat.

GETTING STARTED

Slope & Purlin Spacing

Slope describes the steepness/incline of the roof. A higher slope value indicates a steeper roof. A 3" in 12" slope desribes a roof where the slope rises 3 inches for every 12 inches from the eave to the peak. We recommend a 3" in 12" slope, or steeper, for satisfactory installation of both Ondura sheets and tiles. For sheets, these instructions treat a 3" in 12" slope (or greater) with purlins (supports) spaced 24" on center (o.c.); for residential applications, a similar slope over solid decking is required.

For sheets, this 24" purlin spacing should be reduced under certain circumstances. For example, in areas of heavy snow loads or potential snow drifting on a roof section, purlin spacing should be reduced to 18" or 12" on center. (When in doubt, we recommend that you consider the more narrow spacing. Ondura can provide you with specific load test data to assist in your planning.) Do not use 16" on center spacing.

On curved roofs, the purlin spacing must be reduced to 18" or 12" in the low slope areas near the top.

Another instance when purlins should be spaced closer is with slopes less than 3" in 12". Space no more than 18" on center at 2" in 12" to 3" in 12" slopes. Also, two-corrugation side-laps may be necessary.

Wherever extreme weather conditions are possible or buildings have an interior ceiling, solid decking with felt or ice water shield are required.

We do not recommend installation on roofs with eave-to-peak distances greater than 80' unless the roof slope is 3" in 12" or more. We do not recommend installation on any roof with less than a 2" in 12" slope. Purlin spacing greater than 24" can cause serious problems and is not recommended.

Plan For Adequate Ventilation.

Poor ventilation can cause severe heat build up in the summer or condensation in the winter that may cause deterioration of roof framing and covering materials.

Positive ventilation, along with additional insulation, can prevent condensation. Figure 24 suggests ways to assist proper ventilation by taking advantage of the corrugated design of Ondura sheets and tiles and by using Ridgeline® Ridge Vents.

We strongly suggest, however, that you check your ventilation plan with a qualified engineer or architect before beginning installation.

Suggestions For Ventilation

Ondura's corrugated design and vented closure strips allows for some air flow. For optimal ventilation, use Ridgeline Ridge Vents with Ondura solid closure strips. Use Ondura vented closure strips at the eave.

Quick Estimating Guide For Sheets.

Roofing Materials
Sheet Dimensions = 48"W x 79"L

- Sheets to cover a square, 4.5 (3.8 sheets equal 100 square feet of material). Allow extra material for multiple hips and valleys.
- Nails needed per sheet: 24 average and 38 per ridge cap. Use only genuine Ondura nails.
- Ridge caps are 6' 7" long. Allowing for end-laps of 7", the actual ridge coverage is 6 linear feet per cap.

Accessories

- Closure strips needed: Total the length of the eaves in inches plus twice the length of the hips, ridges and valleys. Divide the total inches by the closure strip length of 44 inches to get the number of closures needed.
- Skylights: 48" x 79" 7 oz. heavy-duty translucent-white fiberglass.
- Ondura molded pipeflashing accessory for hot or cold pipes. See page 8 for additional information.

Note: For more information, check with your Ondura dealer.

Quick Estimating Guide For Tiles.

Roofing Materials:
Tile Dimensions = 48"W x 19 3/4"L

- Tiles to cover a square: 24
- Average number of Ondura nails needed per tile: 12 average.
- Average number of 3" Ondura nails needed per tile: Tiles installed along eave and ridge rows: 12 per tile. Other tiles: 3 per tile.
- Ridge caps are 6' 7" long. Allowing for end-laps of 7", the actual ridge coverage is 6 linear feet per cap. Ridges can be cut into fourths to achieve a tile effect, this reduces the coverage to 56 linear inches.

Accessories:

- Closure strips needed: Total the length in inches of the eaves plus twice the length of the hips, ridges and valleys. Divide the total inches by the closure strip length of 44 inches to get the number of closures needed. Then multiply eave and ridge measurements by 2; hips and valleys by 4.
- Ondura molded pipeflashing accessory for hot or cold pipes. See page 8 for additional information.

Note: For more information, check with your Ondura dealer.

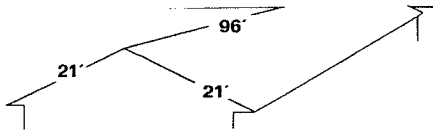
Tools & Materials.

All you need to install Ondura are the following tools:

- Claw Hammer
- Steel Tape
- Chalk line
- String
- Nail Apron
- Utility Knife
- Electric circular saw with carbide-tipped blade

CAUTION: Avoid installation when the material temperature is below 35°

Fig. 1
Estimating Ondura Sheets

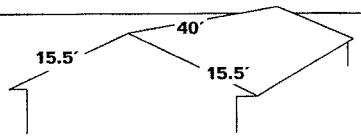


96 ft. length X 12" / 44 inches width/sheet = 26.18 sheets. Round up to 26.25 sheets per row.

21 ft. slope length / 6 ft. per sheet row = 3.5 rows.

26.25 sheets/row X 3.5 rows/slope X 2 slopes = 183.7 sheets; or **184 sheets required.**

Fig. 2
Estimating Ondura Tiles

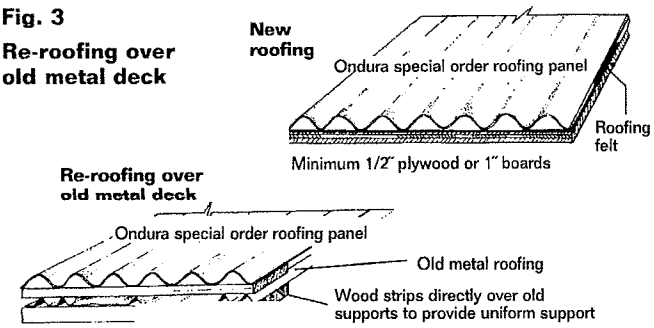


40 ft. ridge length X 12" / 44 inches width/sheet = 10.9 tiles. Round up to 11. 11 tiles per row.

15.5 ft. slope length / 14 in. per tile row = 12.95 rows. Round up to 13 rows.

11 tiles per row, 13 rows X 2 slopes = **286 tiles needed for job.**

Fig. 3
Re-roofing over old metal deck



Installing Ondura Sheets On A New Structure.

On new buildings, Ondura sheets install either over purlins (See Fig. 9) or over solid decking covered by roofing felt or ice water shield (See Fig. 3). Over decking, simply follow these same instructions making sure decking is secure before nailing down sheets. We strongly recommend installing Ondura over solid decking for all residential applications and buildings with interior ceilings.

Re-Roofing With Ondura Sheets.

Ondura works well as a new roof over an old asphalt shingle roof. Over roofs with a generally uniform surface, just install sheets using nails long enough to penetrate 1" into supports of decking beneath. Over corrugated metal (See Fig. 3) or other irregular roofs, first install nailer strips using lumber spaced appropriately for the slope of the roof 24" o.c., then lay Ondura sheets per instructions. Be sure that nailing strips are properly securely to roof rafters.

Applying Sheets Or Tiles To Solid Decking Or Purlins.

Solid decking underlayment must be a minimum of 1/2" o.s.b. or plywood. Purlins must be at least 1" boards.

Storage At The Job Site. While stored at the job site, Ondura sheets or tiles should remain wrapped in their plastic shipping covers. Left outside and uncovered, damage can result from rainwater trapped between sheets or tiles. Unwrap stacks as needed during installation. Don't allow stacked sheets or tiles to get wet while stored.

Cutting Ondura Sheets And Tiles

Use a utility knife with a sharp blade to cut in the valleys (See Fig. 4) parallel to the corrugations using another sheet as a straght edge. For cuts across the corrugation use a circular saw with a carbide-tipped blade inserted in reverse. For a smooth cutting surface, place a 1" x 4" board along the cut line and slide your saw along the board. Wear eye protection when cutting.

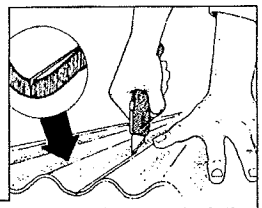


Fig. 4 Score in valley with utility knife, then flex sheet back and forth for a clean-edge break.

Drive Nails Correctly.

CAUTION: Use only genuine Ondura nails for installing sheets and tiles (tiles at eave and ridge only) (See Fig. 6). Other types of nails may not provide sufficient hold-down strength.

Drive Ondura nails only through the top of corrugations. And drive perpendicular into purlins...not at an angle, so the rubber washer is snugly in contact with the sheet (See Fig. 5). Don't overdrive or under-drive nails. Slight hand pressure on a nailed down corrugation should not separate sheet from washer contact.

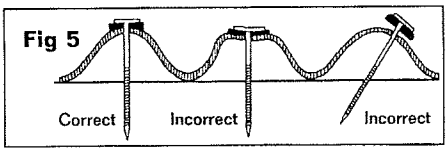
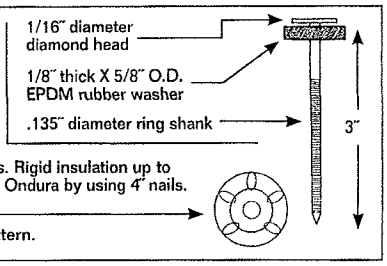


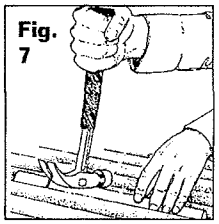
Fig. 6

Ondura nails are available in a galvanized finish; or in a variety of painted finishes to match sheet colors. In highly corrosive environments, such as saltwater areas or in the vicinity of fertilizer storage, we recommend using stainless steel nails. Rigid insulation up to 1 1/2 inches thick can be put beneath Ondura by using 4" nails.



Pulling Nails From Sheets.

To pull a nail from a sheet, use a claw hammer and a 1 1/2" wood dowel or pipe. (This technique minimizes the chance of damaging the sheet.) Put the dowel or pipe in the valley next to the crown with the nail to be pulled. Then use the dowel or pipe as a leverage point for pulling the nail. (See Fig. 7).



Repairing Holes.

Repair nail-size holes by either filling with rubberized elastomeric flashing cement/caulking; or coating the shank of a screw with rubberized elastomeric flashing cement/caulking and screwing it into the hole.

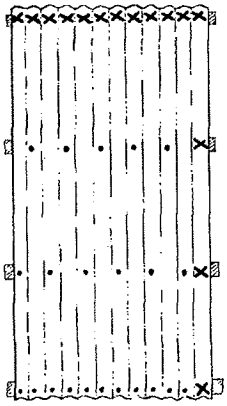
For larger holes, carefully pull nails from damaged corrugations, then cut a full-length sheet so that its wide enough to cover the hole, plus 2 corrugations on each side of the hole. Carefully remove the nails from the upper end of the sheet. Lap two corrugations on each side of the hole, and slip the sheet under the lap of the row above. Nail into place.

SHEETS

Installing The First Sheet On A Square Roof.

1. From the corner where the eave and rake meet, measure along the eave 48 inches and mark.
2. From the corner of the rake and the ridge, measure along the ridge 48 inches and mark.
3. Snap a chalk line between these marks for sheet alignment.
4. To establish a drip-edge overhang of all eave sheets, drive nails into the corner rafters at either end of the eave, and stretch a line between them 1 3/4″ out along the length of the eave. Visually align each sheet of the eave row with this string for a uniform drip-edge.
5. Starting at the eave/rake corner, fasten the rake corrugation of the first sheet of Ondura at each purlin up the rake (see Fig. 8 nailing pattern).
6. Now align the opposite edge of the sheet with the chalk line. Nail in place (see Fig. 8) along the second corrugation from the chalk line to allow for the side lap of the next sheet. If using closure strips, install before nailing eave.

Fig. 8



Edges with X's are not nailed down until lapped by adjoining sheets.

Finishing The First Row Of Sheets.

You can now install the remainder of the first row.

1. From the first chalk line, mark off successive 44-inch spaces along the eave. Do the same at the ridge. (The 44-inch distance allows for a 1-corrugation side lap.)
2. Snap chalk lines between the eave and ridge marks for sheet alignment.
3. Noting the nailing pattern in **Figure 8**, install the rest of the eave row (see sidelap in Fig. 9).

Installing The Second Row Of Sheets.

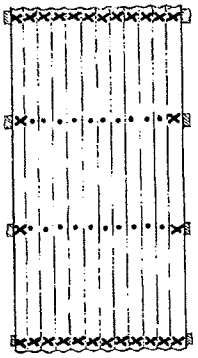
The second row can be installed so that all side-laps meet lower sheets in the middle, or so that all side-laps line up from row to row up the slope of the roof to offset the sidelap of one row from the other.

To stagger the sidelaps from row to row, begin the second row with a sheet cut in half along its length (see **Fig. 9**). Be sure to cut the sheet in its valley. Since the edge of this first sheet won't line up with the chalk line of the first row, make a new line half a sheet's distance in from the rake. Now install the remainder of the second row using full sheets and new chalk lines (every 44″) for alignment. Lap the lower end of the second sheet row 7 inches over the upper end of the first row. And be sure the center of each lap is over the center of the purlin beneath (see **Fig. 10**).

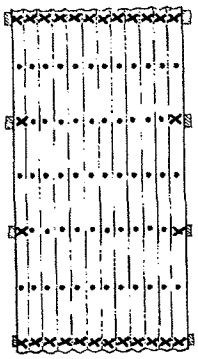
NOTE: For instruction on installing the ridge and other installation tips, turn to page 7.

Fig. 11

For High Wind Areas – Increase the number of nails used. Place nails on every crown with rows 24″ on center. Edge with X's are not nailed down until lapped by adjoining sheet.



For Areas of Extreme Wind – Increase the number of nails used. Place nails on every crown with rows 12″ on center. Edge with X's are not nailed down until lapped by adjoining sheet.



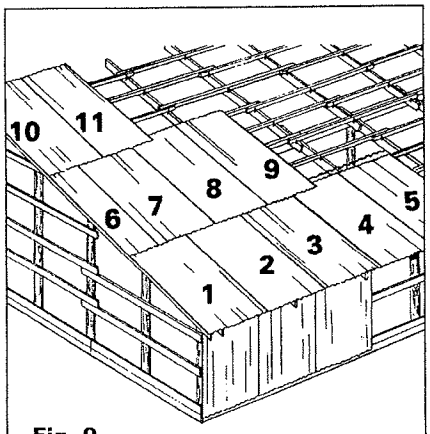
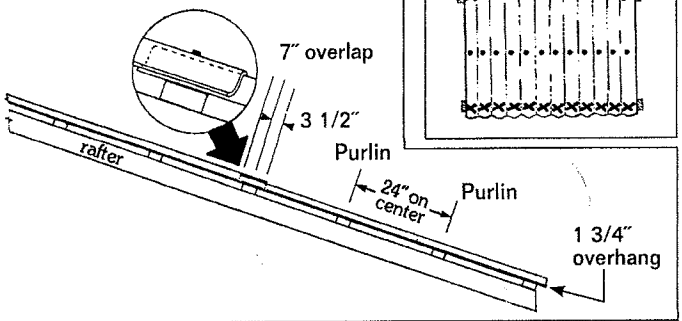


Fig. 9

Fig. 10 CAUTION: Be sure to center endlaps on purlins and center nails on endlaps.



TILE

Installing Ondura Tile On A New Structure.

On new buildings, Ondura tiles install over solid decking of a minimum of 1/2″ thick exterior grade o.s.b. or plywood (or thicker as required by your local building code). Cover this deck with a minimum 15 pound asphalt roofing felt (or heavier as required by your local building code) or ice water shield. Install drip-edges and gable trim as desired or required. Seal the asphalt felt with roofing cement to all areas to be flashed. To check the squareness of your roof visit our website for useful tips.

CAUTION: Avoid installation when the material temperature is below 35°F.

Re-Roofing With Ondura Tiles.

Ondura tiles make an ideal re-roof over both shingles (up to two old roof layers) and metal roofing.

Over shingles, simply nail in place as you would a new roof after first removing shingle ridge and hip covers and repairing any rotted or unstable deck.

Over flat, standing seam metal over a solid deck, simply flatten the metal seams and proceed as if over shingles. Check local codes for other dry-in procedures.

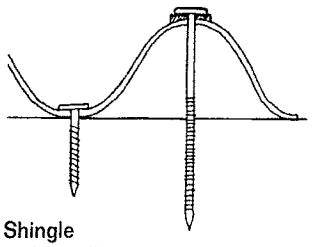
Over corrugated or irregular metal roofing, we recommend use of Ondura sheets instead of tiles.

Drive Shingle Nails And Ondura Nails Correctly.

Drive shingle nails through the valleys 4 1/2" from the top edge of the tile so that the lapping tile covers heads. Drive perpendicular into roof decking - not at an angle - so nail head is snugly in contact with tile. See Fig. 12. Do not overdrive or *underdrive* nails. You can also use a roofing nail gun; however, never use a staple gun.

Use only genuine 3" Ondura nails to drive through corrugation crowns at the eave, through ridge cap at corrugation crowns, and at the lower corners and center of end lap of each tile to protect against wind lift. See Fig. 13.

Fig. 12



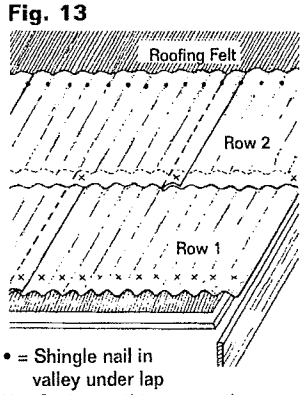
Installing The First Tile On A Square Roof.

1. From the corner where the eave and rake meet, measure along the eave 48 inches and mark.
2. From the corner of the rake and the ridge, measure along the ridge 48 inches and mark.
3. Snap a chalk line between these marks for tile alignment.
4. Now you can install the first tile with a 1.75" overhang. Starting at the rake edge of the tile, nail down the first corrugation so that this edge is aligned with the rake.
5. Place a closure strip between the tile and drip-edge and nail tile in place with barbed roofing nails (4 1/2" from top) and Ondura nails (through closure at eave). See Fig. 13 nailing pattern. Check eave alignment to insure installation is straight.

Finishing The First Row Of Tiles.

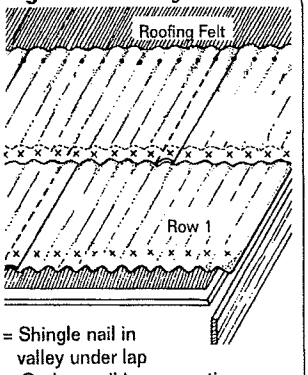
1. From the first chalk line, mark off successive 44-inch spaces along the eave. Do the same at the ridge. This distance allows for a one corrugation side lap.
2. Snap chalk lines between the eave and ridge marks for tile alignment.
3. Now lap the second tile one corrugation over the first, fastening it as you did the first one.
4. Continue fastening tiles until you are five tiles from the end of the eave row. Lay the last five into position to see if you have a tile valley flush with the rake. If you do not have a valley flush with the rake, shift all five unnailed tiles left or right until you have a valley flush with the rake. Fasten these tiles in place with closure strips beneath eave edge.

Fig. 13



• = Shingle nail in valley under lap
X = Ondura nail in corrugation crown

Fig. 14 *For high wind ereas.*

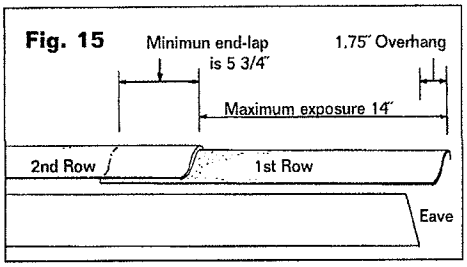


• = Shingle nail in valley under lap
X = Ondura nail in corrugation crown

Installing The Second Row.

1. Snap a chalk line (or pull a string line) 14" from the lower edge of the first row of tiles (See Fig. 15).
2. Begin the second and all even-numbered rows with a tile cut along a valley with a knife so that this tile has only six crowns. Doing this staggers side-laps from row to row so there are never four tiles thick at any point.
3. Place this six-corrugation tile flush with the rake edge, butting the chalk line snapped on the first row. This will give you an even exposure along the roof.
4. Nail this tile in place and install the remainder of the second row using full tiles.
5. Continue installing rows on both sides of roof until reaching the ridge.

Fig. 15



NOTE: With roof valley, always flash the valley first, then work from the rake edge to the valley.

FLASHING

Small Pipeflashing Accessory (12"x12" Flat Center).

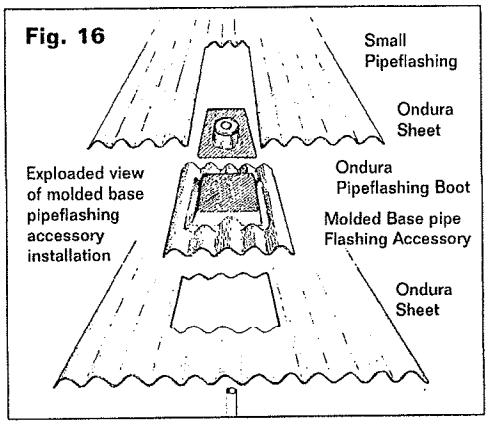
The small pipeflashing accessory can be used for cold pipes up to 10" in outside diameter or for hot pipes with a maximum of 6" in outside diameter. To install, line up the corrugations of the accessory with those of the Ondura sheet so the pipe to be flashed will come through the center of the accessory. Cut a 15" x 15" square hole in the Ondura sheet so the accessory will nest well. Apply two beads of rubberized elastomeric flashing cement/caulk around the square hole before placing the accessory.

Cold Pipes: Cut a hole in the center area of the accessory to fit the pipe. Insert the pipe. Slip an Ondura pipe flashing boot with rubber collar over the pipe, caulk the boot to the flashing accessory and then fasten it to the accessory with sheet metal screws.

Hot Pipes: Cut a hole in the center area of the accessory that is 2" bigger all around than the hot pipe. Install the hot pipe manufacturer's boot with caulk and sheet metal screws. Then install the pipe manufacturer's storm collar per their instructions.

Finishing Up: Cut a full-sized Ondura sheet to a seven-corrugation width. Cut an opening 20 inches deep from the bottom edge of the sheet and three corrugations wide. Fit the sheet over the flashing accessory so that it will cover the top and both side corrugations. This sheet should fit directly over the sheet to which the accessory is applied, be caulked to the accessory, and its upper end should be under the lap of the next higher row of Ondura sheets. Fasten with Ondura nails (see Fig. 16).

Fig. 16



Large Pipeflashing Accessory (20"x20" Flat Center).

The large pipeflashing accessory can be used for cold pipes up to 18 inches in outside diameter or for hot pipes with a maximum of 14 inches in outside diameter. To install, line up the corrugations of the accessory with those of the Ondura sheet so the pipe to be flashed will come through the center of the accessory. Cut a 23" x 23" square hole in the Ondura sheet so the accessory will nest well. Apply two beads of rubberized elastomeric flashing cement/caulk around the square hole before placing the accessory.

Cold Pipes: Install the same as the small pipeflashing accessory.

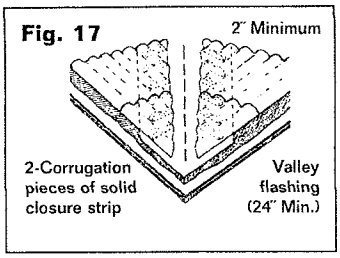
Hot Pipes: Install the same as the small pipeflashing accessory.

Finishing Up: Cut a full-sized Ondura sheet to a nine-corrugation width. Cut an opening 27 inches deep from the bottom edge of the sheet and five corrugations wide. Place the sheet over the flashing accessory so that it will cover the top and both side corrugations. This sheet should fit directly over the sheet to which the accessory is applied, be caulked to the accessory, and its upper end should be under the lap of the next higher row of Ondura sheets. Fasten with Ondura nails (see Fig. 16).

Valley Flashings.

For valleys, install a minimum 24" wide metal valley flashing. Cut sheets or tiles at an angle to fit the valley; then turn over, and on the undersides along the valley edge, caulk two corrugation pieces of closure strip in an overlapping pattern (Fig. 17). Then put a 1/2" bead of caulking on the flat side of the closure strips and on the sheet between the closure strips. Turn sheets or tiles right side up, carefully lay in place so caulked closures seat on flashing, and nail in place.

Fig. 17



Slope Changes.

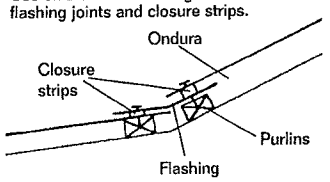
See Fig. 18 and 19 for Ondura installation at a slope change. Flashing width should be increased as slope differences increase or whenever water build-up on the lower slope can be substantial.

Sidewall Flashing.

See Figs 20 and 21 on how to flash when Ondura roofing meets a sidewall.

Fig. 18

Use elastomeric caulking at all flashing joints and closure strips.



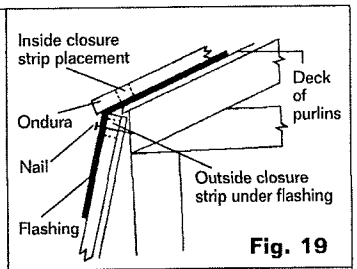


Fig. 19

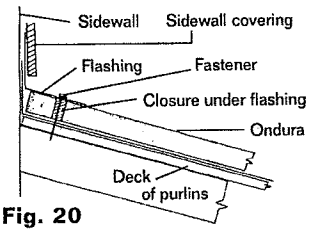


Fig. 20

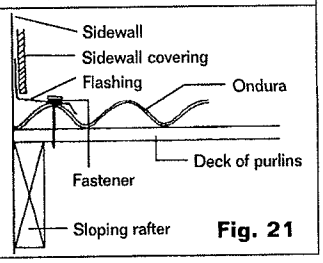


Fig. 21

FINISHING

Handling Hips With Sheets or Tiles.

For hips, sheets or tiles from either side must meet to support hip cover (an Ondura ridge cap). Framing should also be in place beneath and near enough to the upper ends to receive nails securing the hip cover. Snap chalk lines on each side of hip to mark area of hip cover. Then cut closure strips in two corrugation pieces and using rubberized elastomeric flashing cement/caulking, caulk in place a two corrugation overlapping pattern (Fig. 30 or 31). Install hip cover with 7" end laps. To achieve a tile effect, either buy ridges cut to tile or cut ridges to 19 3/4".

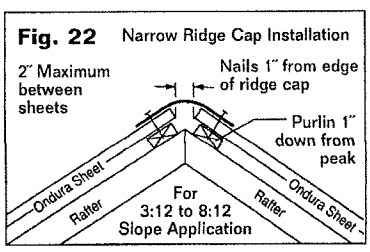
Installing The Ridge On A Sheet Or Tile Roof.

Install all sheets or tiles on both sides of the roof before laying the ridge. At the ridge, the upper ends of sheets or tiles should be no more than two inches apart to support the ridge cap (Fig. 22, 27, 28 or 29). Don't nail down the upper ends yet. They're secured with Ondura nails when the ridge cap is nailed in place. Ondura ridge caps are available in two widths to cover a wide range of building applications.

Place the first ridge cap at the end of the ridge away from the prevailing wind, allowing it to project out three to six inches from the ridge end. Insert closure strip, then drive Ondura nails through ridge piece, closure strip, and every crown of underlying sheets or tiles. Now cut in three to six inches along the crown of the portion of ridge cap projecting out from the end. Fold down resulting flaps for a weather guard. Position subsequent ridge caps with a 7" end lap.

To achieve a tile effect, cut ridges into fourths and install in the same manner as full sized ridges with a 7" end lap.

Fig. 22 Narrow Ridge Cap Installation



Ondura Sheets As Siding.

As siding, Ondura sheets are installed either vertically over girt framing or horizontally over studs. Short common washered nails can be used in valleys. Always use 3" nails in side-lap crowns. In both applications, 24 inches is the maximum suggested support spacing.

Easy Maintenance.

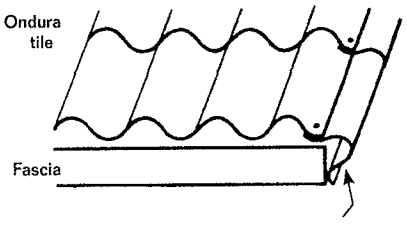
Ondura sheet and tile roofs are easy to maintain. Over a period of years, weathering will age your Ondura's roof coating. So you'll want to give your Ondura roof new life by repainting. First, sweep dirt and loose debris off your roof. Then either brush or spray with acrylic latex or another top quality 100% acrylic latex exterior paint.

Caution: Do not steam clean or use pressurized cleaning equipment on Ondura roofing.

Ondura Tile Rake Trim.

Bring roofing felt 1" to 1 1/2" over the edge of the rake board. Snap a chalkline 4" from the top of the rake board. Cut one-corrugation lengths from an Ondura tile. Make certain to cut in a straight line in the valley. Starting at the eave/rake corner, lay first tile, not securing rake edge. Nail the side portion of the one-corrugation strip under the rake edge of the tile, securing at both corners where strip and tile meet. Nail the other side portion of strip at each corner to the rake board, aligning with the chalk line. Finish installing first row of tile. Continue installing rake edge trim with first tile on each row. Make certain to use genuine Ondura nails wherever nail head is exposed (See Fig. 23 & 25).

Fig. 23



Tips

Planning For Ventilation.

All roofing requires ventilation. It's a false economy to try to conserve heat in an uninsulated building by closing off ventilation openings. That's because poor ventilation can cause severe condensation problems and dripping, which in turn can cause deterioration of roof framing and covering materials.

See Figs. 24-28, for suggestions on how to take advantage of Ondura's corrugated design and Ridgeline Ridge Vents and Ondura Ventilated Closure Strips to assist ventilation.

NOTE: The flexibility of Ondura sheets and tiles may lead to misalignment or "spreading" if care is not taken to keep sheet and tiles at nominal width (48") during installation.

Walking On Ondura Sheets.

Installation of roofing materials can be dangerous. The relative amount of danger is increased by the height from the ground, increasing pitches of the roof slope, inclement weather conditions or other factors. We strongly recommend anyone installing Ondura or working on a roof in any manner take all precautions possible to insure their personal safety.

When walking on nailed-down Ondura sheets wear soft-soled shoes and walk on top of purlins only, placing feet across corrugations.

Ondura is more pliable in hot weather; less pliable in cold weather. Always use care in walking on Ondura or any other roof.

Fig. 24

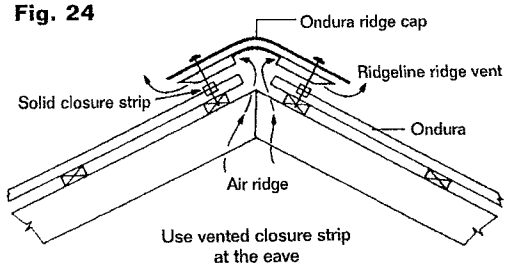


Fig. 25

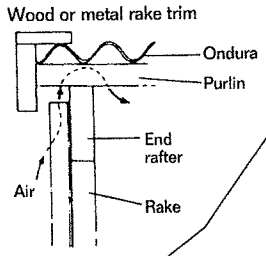


Fig. 26

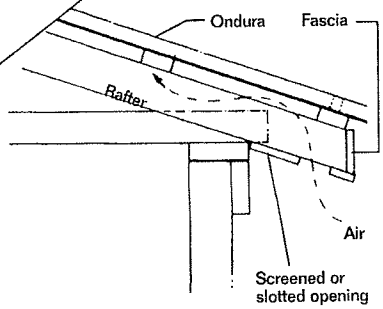


Fig. 27

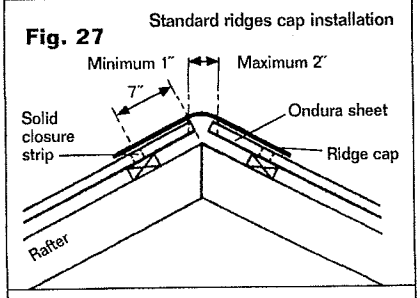
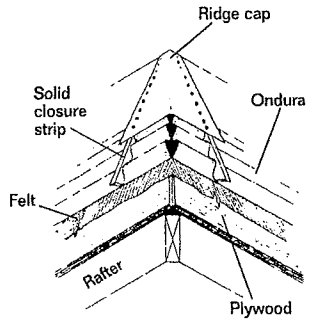


Fig. 28



Put a nail through ridge cap at every corrugation crown.

Fig. 29

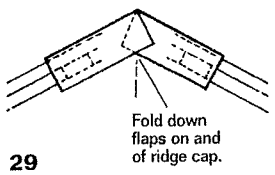


Fig. 30

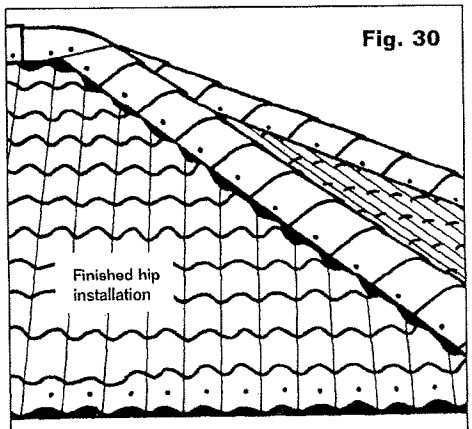
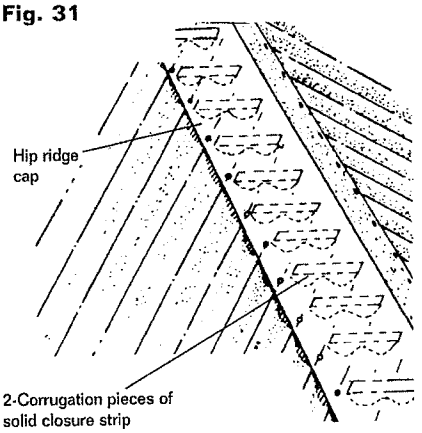
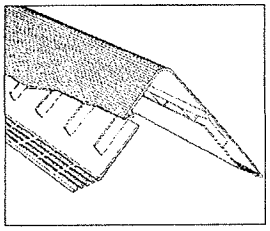


Fig. 31



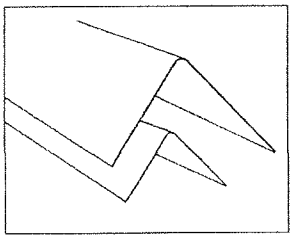
Accessories

Ridgeline Ridge® Vent.



Ridgeline is the ideal product for achieving balanced air flow throughout the attic area, which helps eliminate moisture, reduce energy costs and increase roof life. What's more, the Ridgeline vent is practically invisible once installed. Note: When installing Ridgeline Ridge Vent under Ondura Ridges, you must use Ondura Narrow Ridge Caps (79" x 12 1/2"), and Ondura 4" nails.

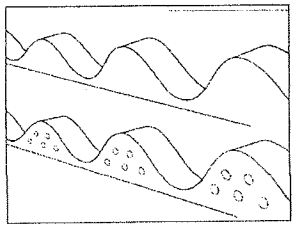
Ridge Caps.



Now available in two widths. Narrow Ridge Caps, ideal for residential use, measure 79" long x 12 1/2" wide. For farm or commercial use, wider Ondura ridge caps measure 79" long x 19" wide. Both widths are made from the same material as Ondura sheets and cover 6 feet of ridge or hip with a 7" overlap (Also available in Ridge tile.)

Lightweight and easy to install. Use alone or with Ridgeline Ridge Vents.

Closure Strips.



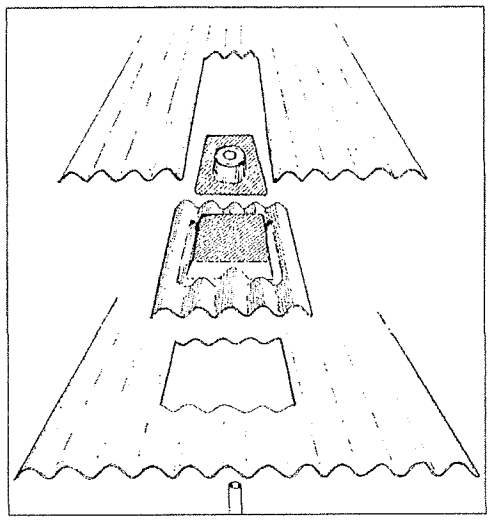
Available in two styles: Vented and Solid. Use Ventilated Closure Strips at the eave to improved airflow beneath the corrugations. Use Solid Closure Strips in all the valleys, hips and wherever a watertight seal is required. Also use Solid Closure Strips in conjunction with Ridgeline Ridge Vents for an improved ventilation system.

Ondura Skylights For Use With Sheets.

Ondura translucent-white fiberglass skylights are not recommended for residential applications, but are an excellent source of natural lighting for agricultural and commercial structures. Ondura skylights are manufactured with the same dimensions and corrugations as the Ondura roofing sheets. Nail holes must be pre-drilled 1/8" larger than the nail to allow for weathering expansion/contraction. Follow the suggested Ondura sheet nailing pattern. Wherever one skylight panel laps with another, we recommend use of a clear mastic such as silicone sealant, and the use of grommet fasteners at side laps between purlins. Wherever a skylight panel laps with a regular Ondura sheet, we recommend the use of rubberized elastomeric flashing cement/caulk.

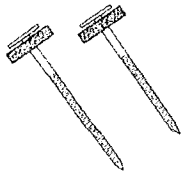
Pipeflashing And Boots.

Available in two sizes to accept a wide range of hot or cold pipes. The pipeflashings install easily with one of Ondura's new thermoplastic pipe boots. The small size measures 12" x 12" flat center. The large measures 20" x 20" flat center.



Washered Nails.

They're galvanized or painted to match sheet colors, ring shanked, and come with a large EPDM rubber washer assembled. 3" standard length. 4" length is available for use over rigid insulation. In high corrosion conditions near salt water or in fertilizer applications, stainless steel nails are required.



Fire Rating.

Ondura special order sheets are available with a class "C" fire rating.

For additional tips, such as installing Ondura on an out-of-square roof, chimney flashing, and additional helpful illustrations, see our website at: www.ondura.com or call: 1-800-777-7663.

No statement in this literature should be construed as a warranty claim. For an Ondura warranty, please contact the customer service department at the address listed below.

Meets EPA recycled-content recommendations under the CPG (Comprehensive Procurement Guidelines.) Ondura is listed as a recommended product on the Environmental Protection Agency website.

ONDURA®
THE NEW WAVE IN ROOFING

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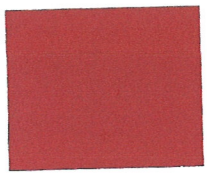
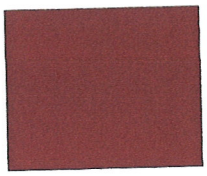
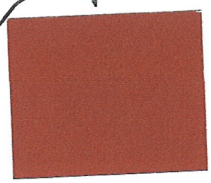

▲★ Cardinal Red

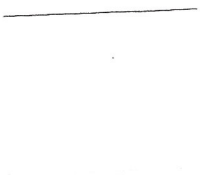

▲★ Colonial Red


Burgundy


▲★ Terra Cotta

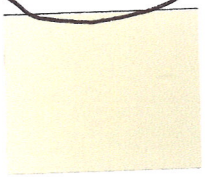

▲★ Sierra Tan


▲★ Mansard Brown


▲★ Stone White

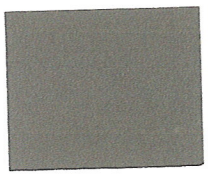

▲★ Granite


▲★ Sandstone


▲★ Almond


▲★ Medium Bronze


▲★ Dark Bronze


▲★ Slate Gray

▲★ Bone White

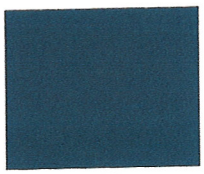

▲★ Musket Gray

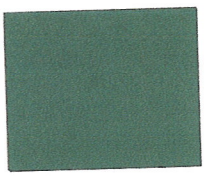

▲★ Charcoal

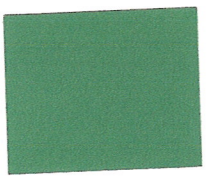

Midnight Bronze

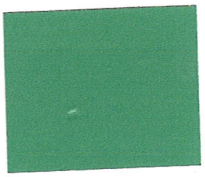

Matte Black

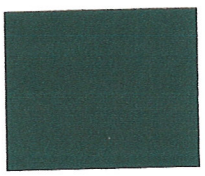

▲★ Cityscape

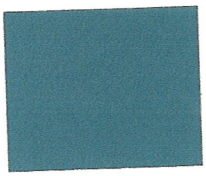

Interstate Blue

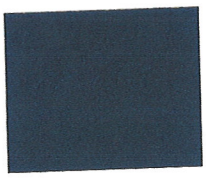

▲★ Hemlock Green

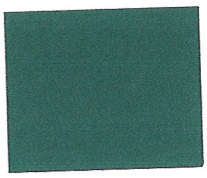

▲★ Arcadia Green


▲★ Patina Green


▲★ Hunter Green


▲★ Military Blue

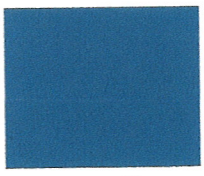

Award Blue

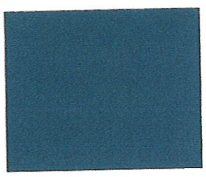

▲★ Teal


Hartford Green


Forest Green


▲★ Evergreen


★ Berkshire Blue

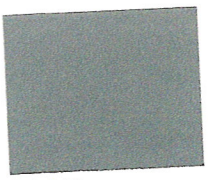

▲★ Slate Blue

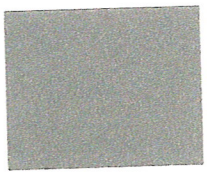
● Denotes PAC-CLAD Metallic Colors
▲ Denotes PAC-CLAD Cool Colors
★ Denotes Energy Star® Colors

See back for color availability chart. Note: Midnight Bronze available in .040 aluminum only.

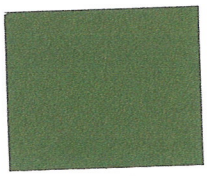
Kynar 500® or Hylar 5000® pre-finished galvanized steel and aluminum for roofing, curtainwall and storefront applications.

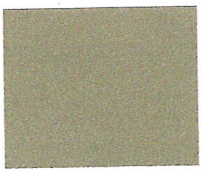
PAC-CLAD Metallic Colors

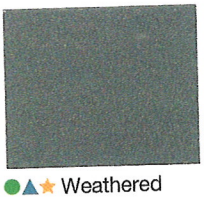

●▲★ Zinc


●▲★ Silver


●▲★ Copper Penny


●▲★ Aged Copper


●▲★ Champagne


●▲★ Weathered Zinc

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F: 770-420-2533

PAC-CLAD® COLOR AVAILABILITY

PAC-CLAD STANDARD COLORS	REFLECTIVITY	EMISSIVITY	3 YEAR EXPOSURE	SRI	STEEL 24GA.	STEEL 22GA.	ALUMINUM .032	ALUMINUM .040	ALUMINUM .050	ALUMINUM .063	ENERGY STAR®
Almond	0.56	0.83	0.27	64	√	√	√	√	√		•
Arcadia Green	0.33	0.84	0.32	33	√		√				•
Bone White	0.71	0.85	0.71	86	√	√	√	√	√	√	•
Cardinal Red	0.42	0.84	0.41	45	√		√		√		•
Charcoal	0.28	0.84	0.28	27	√		√		√		•
Cityscape	0.37	0.85	0.34	39	√		√	√	√		•
Colonial Red	0.34	0.85	0.33	35	√		√	√	√		•
Dark Bronze	0.27	0.85	0.26	26	√	√	√	√	√	√	•
Evergreen	0.27	0.85	0.25	26	√		√				•
Granite*	0.36	0.84	0.35	37	√	√	√	√	√		•
Hemlock Green	0.30	0.85	0.31	30	√	√	√		√		•
Hunter Green	0.26	0.84	0.26	24	√		√				•
Mansard Brown	0.26	0.84	0.24	24	√	√	√	√	√		•
Medium Bronze	0.30	0.85	0.29	30	√	√	√	√	√	√	•
Military Blue	0.29	0.84	0.28	28	√		√				•
Musket Gray	0.32	0.84	0.31	32	√	√	√		√		•
Patina Green	0.34	0.85	0.33	35	√		√				•
Sandstone	0.51	0.83	0.51	57	√	√	√	√	√	√	•
Sierra Tan	0.38	0.85	0.35	40	√	√	√	√	√		•
Slate Blue	0.25	0.84	0.27	23	√		√				•
Slate Gray	0.38	0.84	0.37	40	√	√	√	√	√		•
Stone White	0.61	0.86	0.59	72	√	√	√	√	√	√	•
Teal	0.26	0.85	0.26	24	√		√				•
Terra Cotta	0.37	0.84	0.37	39	√		√		√		•
PAC-CLAD METALLIC COLORS											
Aged Copper	0.27	0.83	0.25	25	√		√		√		•
Champagne	0.45	0.78	0.41	57	√		√	√	√		•
Copper Penny	0.45	0.82	0.42	49	√		√	√	√		•
Silver	0.53	0.80	0.51	59	√		√	√	√		•
Weathered Zinc	0.27	0.80	0.27	23	√		√		√		•
Zinc	0.30	0.85	0.30	30	√		√	√	√		•
Galvalume Plus**	0.68	0.14	0.55	57	√						
PAC-CLAD STANDARD COLORS (DO NOT MEET COOL ROOF REQUIREMENTS)											
Award Blue					√		√		√		
Berkshire Blue*	0.25	0.84	0.22	23	√						•
Burgundy					√		√		√		
Forest Green					√	√	√	√	√		
Hartford Green					√		√	√	√		
Interstate Blue					√		√		√		
Matte Black					√		√	√	√	√	
Midnight Bronze								√			

PAC-CLAD® Metallic finishes are available from stock at a moderate extra cost. PAC-CLAD® Copper Penny is a Non-Weathering finish.
Solar Reflectance Index calculated according to ASTM C-1549. *Low Gloss/Low Sheen,full Kynar 500® or Hylar 5000® finish. **Acrylic coated, non-Kynar Finish.

Energystar® Performance Criteria: Emissivity uses ASTM C1371. Reflectivity uses ASTM C1549.
Samples: These color reproductions are as accurate as modern printing technology will permit. Free material samples are available on request.
Technical Data for Kynar 500® / Hylar 5000® Coating:

- Life Expectancy: 20 years exposure: Chalk – rating of 8 or better. Color - <5ΔE (Hunter Units) change.
- Accelerated Weathering: (ASTM G-23 Type EH Apparatus) 5,000 hours: Chalk – rating of 8 or better. Color: ≤2ΔE (Hunter Units) color change.
- Solvent Resistance: (NCCA procedure 11-18, no comparable ASTM test) – Pass.
- Humidity Resistance: (ASTM D 2247, Apparatus A1) - 2,000 hours, hot dipped Galvanized, or 3000 hours, Aluminum: No field blisters.
- Salt Spray Resistance: (ASTM B 117), 3,000 hours, aluminum – No creep from scribe; no blisters. 1000 hours, hot dipped galvanized – creep from scribe not to exceed 1/16"; no blisters.
- Chemical/Acid Pollution Resistance: (ASTM D 1308) - Pass.
- Formability: (ASTM D 4145) – 1T – 3T, No loss of adhesion.
- Pencil hardness: (ASTM D 3363) – HB to 2H.
- Specular Gloss (ASTM D 523) – At 60 degrees; Typical; 20 – 35 (low gloss/low sheen available).
- Abrasion Resistance: (ASTM D 968) – 65±10 liters.
- Adhesion: (ASTM D 3359) – No loss of adhesion.
- Impact Resistance: (ASTM D 2794) – 1/2" ball indenter, Gardner Impact tester: No cracking; no loss of adhesion.
- Flame Test (ASTM E 84) – Class A coating

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