Supplement Supporting Documentation

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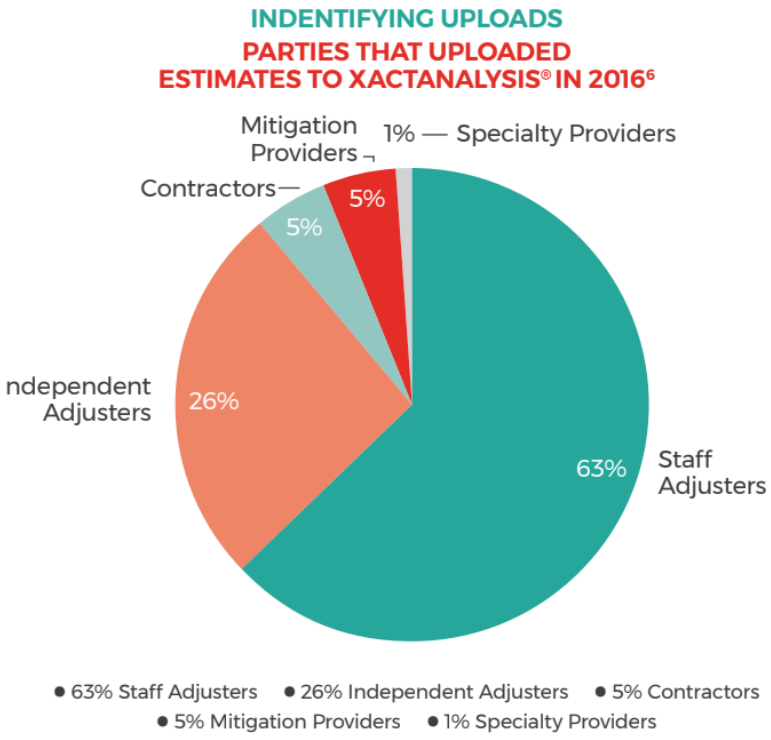
Chapter 1: Xactimate

A. Xactimate User Agreement; What does XM8 say about pricing jobs?

Most adjusters argue that XM8 pricing is the only pricing they will use. As you can see from the document, Xactimate encourages the modification of line-item pricing to meet individual contractor needs. Also, XM8 is a median price point collected from historical market data, dominated by desk adjusters estimates, not real-world contractor invoicing. As you can see by the pie chart provided by XM8, real-world pricing is only accounting for 11% of XM8's historical data, the other 89% is generated by Adjusters who are following internal estimating procedures and often do not reflect the actual cost of the work to be performed. Fortunately, XM8 has even stated that each line item is "a great starting point" to build your estimate, which is exactly what will be done. Any attempt to disqualify our XM8 estimate due to price variance will result in a formal complaint being filed against your XM8 consumer licensing for breaching the Xactimate USER AGREEMENT.



Xactware Solutions, Inc. License Agreement

AS A CONDITION TO YOUR LICENSE TO USE LICENSED PRODUCT AS FURTHER DEFINED HEREIN, OR ANY OF ITS PARTS, YOU MUST AGREE TO THE FOLLOWING TERMS. YOUR SUBSEQUENT USE OF THE LICENSED PRODUCT WILL BE SUBJECT TO ANY ADDITIONS OR MODIFICATIONS IN EFFECT ON THE DATE OF THAT USE. IF YOU DO NOT AGREE WITH ANY OF THESE TERMS, DO NOT PROCEED AND DO NOT USE THIS LICENSED PRODUCT. BY PROCEEDING, YOU ARE INDICATING YOUR AGREEMENT TO BE GOVERNED BY THIS AGREEMENT IN ITS ENTIRETY.

This License Agreement is valid for short term evaluation or subscription of up to 25 licenses of the Licensed Product. If you need more than 25 licenses of the Licensed Product, please contact Xactware's Sales Team at 1-800-424-9228 for appropriate license agreements.

Pursuant to this Agreement, Xactware Solutions, Inc. (hereinafter "Xactware") authorizes you ("Licensee") to accept a non-transferable and non-exclusive license to: (a) utilize the Licensed Product for internal purposes during the term of this Agreement on computer(s) located at your office and used by you or any of your employees; (b) copy the accompanying Licensed Product onto a single computer and use such Licensed Product on that single computer; (c) copy the accompanying Licensed Product onto multiple computers as long as you purchase a number of licenses of the Licensed Product equal to the number of computers upon which the Licensed Product will be used; (d) when applicable, access the Licensed Product online using an individual user ID and password.

1. DEFINITIONS.

As used in this Agreement, the terms below shall have the following meanings:

"Licensed Product" shall mean, as applicable, a single copy of Xactimate, a single copy of Xactimate Professional, **or** a single licensed user of Xactimate Online or Xactimate Mobile. Should Licensee pay the applicable additional license fees, Licensed Product shall also mean access to a single copy of XactContents, access to XactScope through Xactimate Professional, and/or access to XactAnalysis (including a license to use XactAnalysis for SP).

"Price Data" shall mean any applicable pricing information authored by, or licensed to Xactware (including but not limited to Xactware's copyrighted price lists, and data submitted to Xactware by a third party through a data feed) in an organized format for the specific limited purpose of estimating fixed residential and/or light commercial structural remodel and repair costs, that is compatible with the current version of the Licensed Products. This pricing information is provided for informational purposes only.

"XactContents" shall mean an application and database created for use in inventorying personal property items lost, estimating the cost to replace the items, and tracking associated payments on personal property claims.

"XactAnalysis" shall mean Xactware's secure, online full-cycle, electronic-assignment network, connecting assignment senders and receivers in a secure and private network environment and providing a management reporting tool that generates real-time management reports. Through XactAnalysis, insurance companies, adjusters, contractors, and any applicable organization sending or receiving assignments can securely exchange, among other things, estimates, price lists, data reports, and messages.

"Xactimate" shall mean Xactware's structural damage repair estimating software.

agree not to rely thereon without independent verification, except at your own risk. You agree that as between you and Xactware, you are in the best position to assess your loss potential for any damage or injury incurred by you which arises out of your use of the Licensed Product, and you therefore contract and agree to accept the burden of insuring against such loss, including, but not limited to, losses caused by breach of express or implied warranty, product or service defect, negligence, and the acts or omissions of Xactware. You waive any right of subrogation as to Xactware against any such insurable loss. You agree to indemnify and hold Xactware harmless from liability arising out of your use of the Licensed Product website, www.xactware.com, or data obtained therefrom which arise out of any such insurable loss. You accept responsibility for all statements made, acts, or omissions that occur as part of the use of this website when such use is made possible through the use of your ID and password. You agree to indemnify Xactware from claims arising out of your use or from disclosure of your ID or password.

Contingent upon payment of the associated XactAnalysis license fees, you may also list or certify your company's credentials and update your contact information at www.xactanalysis.com. You shall be responsible to review and update the accuracy of the information contained therein on at least a semi-annual basis. Your contact information, including phone, beeper, fax, and modem numbers, along with address information and company name shall be kept current at all times and on an ongoing basis. The completion and submission of your company information authorizes Xactware to publish the information listed. You accept full and sole responsibility for the accuracy of its content. You agree to hold Xactware harmless from any action arising from information published in your public profile. By subscribing, you consent to said publication and the disclosure of such information to the public indefinitely.

9. XACTWARE'S LIMITED WARRANTIES.

The Licensed Product represents an integration point for content obtained from a vast array of sources. You assume the risk of human, mechanical or other error by Xactware, its members, licensees or other contributors that may cause delays, errors, or omissions. You acknowledge and agree that the Licensed Product may provide links to sites and information (including but not limited to pricing information) provided by others. Xactware makes no implied or express representation or warranty with respect to the accuracy of information contained in these linked sites or the pricing information.

Xactware does not warrant that the operation of the Licensed Product or any of its parts will meet your particular application requirements, or that operation of the Licensed Product or any of its parts will be uninterrupted or error free. You assume full responsibility for determining suitability of the Licensed Product and its parts for your use.

Xactware does not warrant the accuracy of pricing information in the Price Data. Price Data are intended to be a representation of historical information to be used as a baseline or place to begin creation of an estimate. You are responsible to ensure the estimate includes pricing consistent with components including but not limited to actual materials, equipment, and labor pricing. You acknowledge and understand that Price Data provided as part of the Licensed Product are intended to target the most representative price of the various price points collected relevant to the specific line item in question. Having this single representative price per line item, computed from all valid price points researched in the market, means that some market price data are higher and some market price data are lower than that which are reported. You agree not to prohibit or preclude deviations from the Price Data where contractor requirements, market conditions, demand or any other factor warrants the use of a different line item price in the specific situation.

Internet Explorer for XactAnalysis. You further acknowledge and agree to legally purchase a license for any other software products not covered by this Agreement.

C. You acknowledge that Xactware is a service provider allowing Assignor and Assignee to pass Assignment information through its systems. Assignee acknowledges that it will be necessary for Assignee to reach an agreement with an Assignor (not Xactware) in order to begin receiving Assignments.

D. If any provision of this Agreement is held invalid or otherwise unenforceable, the enforceability of the remaining provisions shall not be impaired thereby.

E. The failure or delay of Xactware to exercise any right under this Agreement shall not be deemed a waiver of that or any other right. A waiver or consent given by Xactware on any one occasion is effective only in that instance and will not be construed as a waiver of any right on any other occasion.

F. Any other provisions contained herein to the contrary notwithstanding, neither party hereto shall be liable to the other party for loss, injury, delay, or damages, or other casualty suffered or incurred by such other party due to governmental regulations or directions, outbreak of a state emergency, Act of God, war, warlike hostilities, civil commotion, riots, epidemics, storms, fires, strikes, lockouts, and any other similar cause or causes beyond the reasonable control of the party whose performance is affected by such cause or causes.

G. You shall not assign, rent, sell, sub-license, sub-contract or otherwise transfer this Agreement or any portion thereof to any other person, firm, or entity without the express prior written consent from Xactware. The foregoing notwithstanding, however, a party may assign this Agreement without the express consent of the other to a purchaser of a controlling interest, or substantially all of the operational assets of the assigning party.

H. In the event of a breach of this Agreement by you, you shall be liable to Xactware for any and all attorneys' fees and costs incurred by Xactware in connection with its efforts to enforce this Agreement, whether such attorney's fees and costs are incurred in connection with a court proceeding or any other action taken by Xactware to enforce the terms of this Agreement.

I. This Agreement will be binding upon and inure to the benefit of the parties hereto, and their respective successors and assigns.

J. In the case of a beta test or demo, Xactware authorizes you a temporary use license to utilize the Licensed Product for the sole purpose of internal pre-release evaluation and testing. This right is subject to additional agreements and covenants by you concerning the specific beta test or demo, which by this reference are incorporated herein. In addition, in the case of a demo, Section 4 does not apply. In the case of a beta test, Sections 4, 9 and 15 do not apply.

K. You hereby grant your permission and consent to receive information via fax transmission from Xactware.

L. **YOU ACKNOWLEDGE THAT YOU HAVE READ THIS AGREEMENT, UNDERSTAND IT, AND AGREE TO BE BOUND BY ITS TERMS, AND FURTHER AGREE THAT THIS IS THE COMPLETE AND EXCLUSIVE STATEMENT BETWEEN XACTWARE AND YOU RELATING TO THIS AGREEMENT.** Furthermore, you represent that you are 18 years of age or older and you accept responsibility for all statements made, acts or omissions that occur as part of the use of this website when

B. Overhead & Profit

According to Xactimate, Overhead & Profit is due on every job and ONLY subcontractor O&P is included in the standard line items produced by XM8. Be advised, your companies “internal guidelines” have no bearing whatsoever on what is owed per the property insurance policy. There is indeed an exclusion for O&P Roofing that some policies contain but without this exclusion, O&P is a legitimate addition to any Xactimate estimate. To dismiss our estimate based on the inclusion of O&P will result in an official complaint being filed with Xactimate for a breach in the User Agreement.

Overhead and Profit

WHITEPAPER

02.05.2020

WHAT IS AND ISN'T INCLUDED IN XACTWARE PRICING

For individual trades, Overhead is any additional expense not charged (attributed) directly to the work being performed. Overhead is typically classified as an indirect cost. Profit is formally defined as "the excess of the selling price of goods over cost."* Profit is typically added to the cost of a construction-related job to allow the entity performing the work to grow their company through reinvestment. Xactware Solutions, Inc., an industry leader in providing estimating software, services, and building cost data since 1986, has recognized three categories of overhead. While ultimately, the amount of overhead and profit, as well as how and where it is accounted for within the estimate is left to the discretion of the estimator based upon the conditions of the job and the service provider performing the work, the information listed below should provide general guidelines into how Xactware's published pricing is created and intended to be used.

When Xactware performs market research on unit prices, those surveyed are specifically asked to not include expenses that would be included in the General Overhead and Profit markup percentages (item #1 below).

Profit is typically added to the cost of a construction-related job to allow the entity performing the work to grow their company through reinvestment.

- **General Overhead** are expenses incurred by a General Contractor, that cannot be attributed to individual projects, and include any and all expenses necessary for the General Contractor to operate their business. *Examples (including but not limited to):* General and Administrative (G&A) expenses, office rent, utilities, office supplies, salaries for office personnel, depreciation on office equipment, licenses, and advertising. *Including General Overhead expenses in an Xactimate estimate*–General Overhead expenses are not included in Xactware's unit pricing, but are typically added to the estimate as a percentage of the total bid along with the appropriate profit margin. These two costs together constitute what is normally referred to in the insurance restoration industry as General Contractor's O&P, or just O&P. General Overhead and Profit percentages can be added in the Estimate Parameters window within an Xactimate estimate.

General Overhead and Profit percentages can be added in the Estimate Parameters window within an Xactimate estimate.

- **Job-Related Overhead** are expenses that can be attributed to a project, but cannot be attributed to a specific task and include any and all necessary expenses to complete the project other than direct materials and labor. *Examples (including but not limited to):* Project managers, onsite portable offices and restroom facilities, temporary power and fencing, security if needed, etc.

  Including Job-Related Overhead expenses in an Xactimate estimate–Job Related Overhead expenses should be added as separate line items to the Xactimate estimate. This is done within the Line Item Entry window of an Xactimate estimate by selecting the proper price list items, or creating your own miscellaneous items.

- **Job-Personnel Overhead** represents the non-wage related expenses incurred by a General Contractor that are associated to having their own employees perform the work, or the total G&A expenses incurred by a professional Sub-Contractor when using their services. *Examples:* Vehicle costs, uniforms, mobile phones, depreciation on hand-tools owned by the company, etc. Job-Personnel Overhead also includes the portion of General and Administrative expenses and profit that correlate to employees performing billable tasks, and that are not included in the General Contractor O&P mark-up. These expenses will be incurred either by the general contractor using employees or by a sub-contractor, depending on who is actually performing the work. If the work is being sub-contracted, then these expenses are commonly called Sub-Contractor Overhead and Profit. *Including Job Personnel Overhead/Sub-Contractor O&P in an Xactimate estimate*–Job Personnel Overhead (or Sub-Contractor O&P) expenses are included in the Labor Overhead portion of each unit price in the Xactware price list. The Labor Overhead, along with expenses for Labor Burden and Worker Wage (wage paid to the individual) make up the Retail Labor Rate. For more information on Retail Labor Rates, see the white-paper in Xactware's eService Center.

Updating the Labor Overhead portion of the Retail Labor Rate is done from the Component List of an Xactimate estimate. Once within the Component List, select the option to view Retail Labor Rate components. This list allows you to view and modify all Retail Labor Rates used within the estimate. Price changes to a Retail Labor Rate here will affect prices in all items in the estimate that use this Retail Labor Rate.

Xactware, Inc. publishes and makes unit price data available to all customers each month, based off market surveys.

Xactware, Inc. publishes and makes unit price data available to all customers each month, based off market surveys. Every effort has been made to ensure that Xactware's users can access, view, and modify all detail within the published unit prices.

The building cost data published by Xactware is not designed to be inclusive of sales tax, General O&P, or Job-Related O&P within the unit prices. These can be specified and added at print time after all line items have been listed. However, Xactware has designed flexibility into the system so this is not mandatory. Xactware's users have the option to add these costs to their line items as they choose. The Xactimate system is designed to provide full detail on all costs that are incurred.

**Merriam-Webster's Collegiate Dictionary, Eleventh Edition, Principal copyright 2003*

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Chapter 2: IRC Code Pertaining to Roofing

Please review the highlighted areas of code, prior to submitting a rebuttal.

Regardless of whether or not a local jurisdiction requires the use of permits for roof work, all code and manufacturer requirements are still binding.

R105.8 Responsibility.
It shall be the duty of every person who performs work for the installation or repair of building, structure, electrical, gas, mechanical or plumbing systems, for which this code is applicable, to comply with this code.

Manufacturer Installation instructions ARE REQUIRED by code. Meaning, if a manufacturer requires a specific application of the product, it is required by code. An example of this would be Ice & Water Shield being installed under all flashing.

R106.1.2 Manufacturer's installation instructions.
Manufacturer's installation instructions, as required by this code, shall be available on the job site at the time of inspection.

R905.1 Roof covering application.

Roof coverings shall be applied in accordance with the applicable provisions of this section and the manufacturer's installation instructions.

R903.1 General.
Roof decks shall be covered with *approved* roof coverings secured to the building or structure in accordance with the provisions of this chapter. Roof assemblies shall be designed and installed in accordance with this code and the *approved* manufacturer's instructions such that the *roof assembly* shall serve to protect the building or structure.

Buying Material From a Third-Party and/or ‘Harvesting’ Shingles: These methods are unacceptable.

R904.4 Product identification.
Roof covering materials shall be delivered in packages bearing the manufacturer’s identifying marks and *approved* testing agency *labels* required.

Flashing & Vents

R903.2 Flashing.
Flashings shall be installed in a manner that prevents moisture from entering the wall and roof through joints in copings, through moisture permeable materials and at intersections with parapet walls and other penetrations through the roof plane.

R903.2.1 Locations.
Flashings shall be installed at wall and roof intersections, wherever there is a change in roof slope or direction and around roof openings. A flashing shall be installed to divert the water away from where the eave of a sloped roof intersects a vertical sidewall. Where flashing is of metal, the metal shall be corrosion resistant with a thickness of not less than 0.019 inch (0.5 mm) (No. 26 galvanized sheet).

R905.2.8 Flashing.
Flashing for asphalt shingles shall comply with this section and the asphalt shingle manufacturer’s *approved* installation instructions.

ALL flashing must be replaced when performing a reroof. Flashing is damaged when it is penetrated by the existing roof covering AND the manufacturer requires I&W Shield to be applied under the flashing and up the side wall which is inaccessible unless the flashing is removed. The same applies for vents that have rust, damage or UV deterioration.

R908.5 Reinstallation of materials.
Existing slate, clay or cement tile shall be permitted for reinstallation, except that damaged, cracked or broken slate or tile shall not be reinstalled. Any existing flashings, edgings, outlets, vents or similar devices that are a part of the assembly shall be replaced where rusted, damaged or deteriorated. Aggregate surfacing materials shall not be reinstalled.

Drip Edge

R905.2.8.5 Drip edge.
A drip edge shall be provided at eaves and rake edges of shingle roofs. Adjacent segments of drip edge shall be overlapped not less than 2 inches (51 mm). Drip edges shall extend not less than ¼ inch (6.4 mm) below the roof sheathing and extend up back onto the roof deck not less than 2 inches (51 mm). Drip edges shall be mechanically fastened to the roof deck at not more than 12 inches (305 mm) o.c. with fasteners as specified in Section R905.2.5. *Underlayment* shall be installed over the drip edge along eaves and under the drip edge along rake edges.

Chimney

R903.2.2 Crickets and saddles.
A cricket or saddle shall be installed on the ridge side of any chimney or penetration more than 30 inches (762 mm) wide as measured perpendicular to the slope. Cricket or saddle coverings shall be sheet metal or of the same material as the roof covering.

Underlayment

Table R905.1.1

For roof slopes from two units vertical in 12 units horizontal (2:12), up to four units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: apply a 19-inch strip of underlayment felt parallel to and starting at the eaves. Starting at the eave, apply 36-inch-wide sheets of underlayment, overlapping successive sheets 19 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6

feet.

For roof slopes of four units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied in the following manner: underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 2 inches, Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet.

Decking

R905.2.1 Sheathing requirements.
Asphalt shingles shall be fastened to solidly sheathed decks.

Fasteners

R905.2.5 Fasteners.
Fasteners for asphalt shingles shall be galvanized steel, stainless steel, aluminum or copper roofing nails, minimum 12-gage [0.105 inch (3 mm)] shank with a minimum ⅜-inch-diameter (9.5 mm) head, complying with ASTM F1667, of a length to penetrate through the roofing materials and not less than ¾ inch (19.1 mm) into the roof sheathing. Where the roof sheathing is less than ¾ inch (19.1 mm) thick, the fasteners shall penetrate through the sheathing.

Reroof

R908.3.1.1 Roof recover not allowed.
A *roof recover* shall not be permitted where any of the following conditions occur:

1. 1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. 2. Where the existing roof covering is slate, clay, cement or asbestos-cement tile.
3. 3. Where the existing roof has two or more applications of any type of roof covering.

Chapter 3: OSHA Requirements for Roofing Contractors

Safety Supervision is REQUIRED on every job. This is a job related expense that will be billed for.

1926.502(h)
"Safety monitoring systems." Safety monitoring systems [See 1926.501(b)(10) and 1926.502(k)] and their use shall comply with the following provisions:

1926.502(h)(1)
The employer shall designate a competent person to monitor the safety of other employees and the employer shall ensure that the safety monitor complies with the following requirements:

1926.502(h)(1)(i)
The safety monitor shall be competent to recognize fall hazards;

1926.502(h)(1)(ii)
The safety monitor shall warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner;

1926.502(h)(1)(iii)
The safety monitor shall be on the same walking/working surface and within visual sighting distance of the employee being monitored;

1926.502(h)(1)(iv)
The safety monitor shall be close enough to communicate orally with the employee; and

1926.502(h)(1)(v)
The safety monitor shall not have other responsibilities which could take the monitor's attention from the monitoring function.

All employees must use personal fall arrest systems. This is a job related expense that will be billed for.

1926.501(b)(1)
"Unprotected sides and edges." Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet (1.8 m) or more above a lower level shall be protected from

falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.

Chapter 4: Decking; Non-nailable Surface

R905.2.1 Sheathing requirements.
Asphalt shingles shall be fastened to solidly sheathed decks.

Manufacturer Application Instructions
Before installing this product, check local building codes for roofing requirements.

These shingles are designed for new or reroofing work over any properly built and supported wood roof deck having adequate nail holding capacity and a smooth surface. Must comply with local building codes.

Roof Deck: Minimum 6-inch roof deck boards, minimum 3/8-inch plywood, minimum 7/16-inch OSB, sheathing placed minimum 1/8 inch and maximum ¼-inch.

No decking with a gap greater than ¼ inch is allowable per manufacturer installation instructions.

When deteriorated wood is discovered at tear-off, the wood must be replaced with a compatible substrate meeting the requirement of having “adequate nail holding capacity”. Deteriorated wood does not have an adequate nail holding capacity. We know that often times, rotten wood is not a covered cause of loss in the policy BUT that is NOT the cause of loss on this roof claim. Replacing the deteriorated wood is the only way to follow manufacturer installation instructions and replace the roof following all

applicable codes and requirements. Furthermore, any expense incurred due to a covered cause of loss is part of the ensuing loss. For example, if wind blows over a tree and it hits a home, the loss is generally covered. If water from the storm entered a storm created opening and ruined the hardwood floors, the homeowner would not file a new claim for water damage because the damage is part of the ensuing loss from the storm blowing over the tree, which created the opening, which allowed water into the structure, and ultimately damaged the floors. Hence, ensuing loss. In most situations, a covered cause of loss has damaged the roof that we are replacing, in order to bring the homeowner back to pre-loss condition, the right way (following Code and Manufacturer Installation instructions), we must replace the non-nailable substrate.

Duration® Series Shingles

Installation Instructions

Instrucciones Para La Instalación De Tejas Duration® Series

Duration® Premium Cool Shingles

TruDefinition® Duration® COOL Shingles

TruDefinition® Duration® Designer Colors Collection Shingles

TruDefinition® Duration® Shingles

CAUTION: Do not mix bundles with different plant locations. See side of bundle.

Application Instructions

Before installing this product, check local building codes for roofing requirements.

These shingles are designed for new or reroofing work over any properly built and supported wood roof deck having adequate nail holding capacity and a smooth surface. Must comply with local building codes.

Precautionary Note:

The manufacturer will not be responsible for problems resulting from any deviation from the application instructions and the following precautions:

Roof Top Loading: Lay shingle bundles flat. Do not bend over the ridge.

Roof Deck: Minimum 6 inch roof deck boards, minimum ⅜ inch plywood, minimum 7/16 inch OSB, sheathing placed minimum ⅛ inch and maximum ¼ inch.

Regardless of deck type used, the roofing installer must:

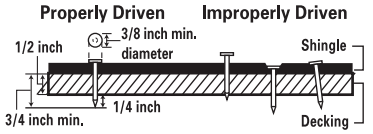
1. Install the deck material in strict compliance with the deck manufacturer's instructions.
2. Prevent the wood deck from getting wet before, during and after installation.

Ventilation: Must comply with local building codes.

Handling: Use extra care in handling shingles when the temperature is below 40°F.

Storage: Store in a covered ventilated area at a maximum temperature of 110°F. Bundles should be stacked flat. Protect shingles from weather when stored at the job site. Do not store near steam pipes, radiators, etc.

Fastener requirement: Use galvanized steel, stainless steel, or aluminum nails minimum 12 gauge shank with ⅜ inch diameter head. Owens Corning Roofing recommends that fasteners comply with ASTM F1667. Must comply with local building codes.



All Fasteners must penetrate at least ¾ inch into the wood deck or completely through the deck by a minimum of ¼ inch.

Notice: Owens Corning Roofing requires the use of nails as the preferred method of attaching shingles to wood decking.

PRECAUCIÓN: No mezcle paquetes que provengan de diferentes plantas. Consulte la parte lateral del paquete.

Instrucciones para la instalación

Antes de instalar este producto, verifique los códigos de construcción locales para saber cuáles son los requisitos del techo.

Estas tejas están diseñadas para trabajos de techado nuevo o para la reconstrucción de un techo antiguo que posea una plataforma de madera adecuada, con capacidad para sostener clavos y con una superficie lisa.

Consulte los códigos de construcción locales.

Nota de precaución:

El fabricante no se hará responsable por los problemas que puedan resultar de cualquier desviación de las instrucciones para la instalación de las tejas y de las siguientes notas de precaución:

Carga en los techos: Coloque los paquetes de tejas planos. No los doble sobre la cumbrera.

Estructura base del techo: Placas de mínimo 6 pulg., madera contrachapada de mínimo ⅜ pulg., paneles de fibra orientada (OSB) de mínimo 7/16 pulg., revestimiento colocado de mínimo ⅛ pulg. y máximo ¼ pulg.

Cualquiera sea el tipo de estructura base utilizada, el instalador del techo debe:

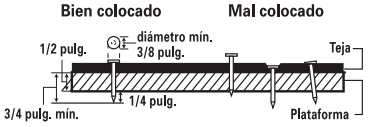
1. Instalar el material de la estructura base del techo de manera que cumpla con las instrucciones de instalación de techos del fabricante.
2. Asegurarse de que la estructura base de madera no se moje antes, durante y después de la instalación.

Ventilación: Debe cumplir con la normativa local de construcción.

Manipulación: Tenga cuidado especial con la manipulación de las tejas cuando la temperatura sea inferior a 40°F.

Almacenamiento: Conserve en un área cubierta y ventilada a una temperatura máxima de 110 °F. Los paquetes deben estar apilados sobre sus caras. Proteja las tejas del clima cuando las almacene en el lugar de trabajo. No las almacene cerca de tuberías de vapor, radiadores, etc.

Requisito de los sujetadores: Use clavos de acero galvanizado, acero inoxidable o aluminio, de calibre 12 como mínimo y diámetro de cabeza de ⅜ pulg. Owens Corning Roofing recomienda que los sujetadores cumplan con la norma ASTM F1667. Debe cumplir con la normativa local de construcción.



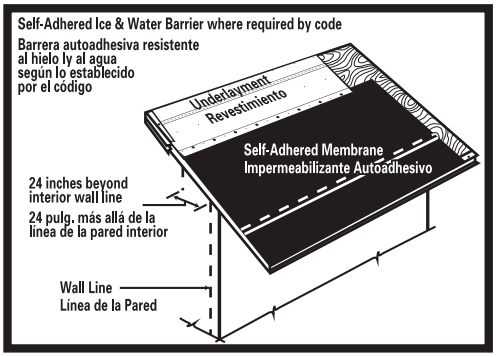
Todos los sujetadores en penetrar al menos ¾ pulg. en la estructura de madera o atravesarla completamente un mínimo de ¼ pulg.

Aviso: Owens Corning Roofing exige el uso de clavos como método preferido para fijar tejas a plataformas de madera.

1 Self-Adhered Ice & Water Barrier:

Use an Owens Corning® Self-Adhered Ice & Water Barrier on the eaves in all regions of the county where roofs have had a history of ice and water backup. Apply starting at the eave edge and extend upslope a minimum of 24 inches from the interior wall line. *See Fig. 1.*

Fig. 1 Self-Adhered Ice & Water Barrier
Barrera autoadhesiva resistente al hielo y al agua



1 Barrera autoadhesiva resistente al hielo y al agua:

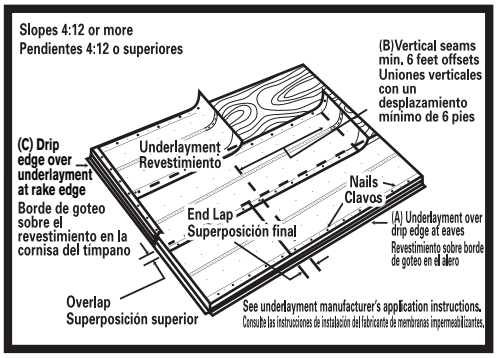
Utilice la barrera autoadhesiva resistente al hielo y al agua de Owens Corning® en los aleros de todas las regiones del país en las que los techos estén expuestos a filtraciones por causa de la acumulación de agua y hielo. Para la instalación, comience en el borde del alero y extienda hacia arriba un mínimo de 24 pulgadas desde la línea de la pared interior. *Ver la Fig. 1.*

2 Synthetic Underlayment:

Standard Slopes 4:12 and Greater

Use an Owens Corning® Synthetic Underlayment or equivalent underlayment meeting ASTM D226, D4869 or D6757. Follow underlayment manufacturer's application instructions and local building codes. *See Fig. 2.*

Fig. 2 Synthetic Underlayment Standard Slope
Membrana impermeabilizante sintética – Pendiente estándar



2 Contrapiso sintético:

Pendientes estándar de 4:12 y mayores

Use un contrapiso sintético Owens Corning® o un contrapiso equivalente que cumpla con las normas ASTM D226, D4869 o D6757. Siga las instrucciones de aplicación del fabricante del contrapiso y la normativa local de construcción. *Ver fig. 2.*

3 Synthetic Underlayment:

Low Slope 2:12 to Less than 4:12

Use an Owens Corning® Synthetic Underlayment or equivalent underlayment meeting ASTM D226, D4869 or D6757. Underlayment must be installed per the manufacturer's application instructions and local building codes. Each underlayment course must be overlapped a minimum of ½ the width of the underlayment plus 1 inch. *See Fig. 3.*

Or Owens Corning® Self-Adhered Ice & Water Barrier or equivalent with a standard overlap of 3 inches and metal drip edge. *See Fig. 3A.*

Note: See Technical Bulletin for felt application.

Fig. 3 Synthetic Underlayment Low Slope
Membrana impermeabilizante sintética – Pendiente baja

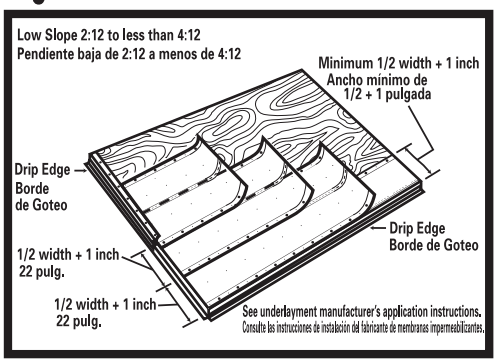
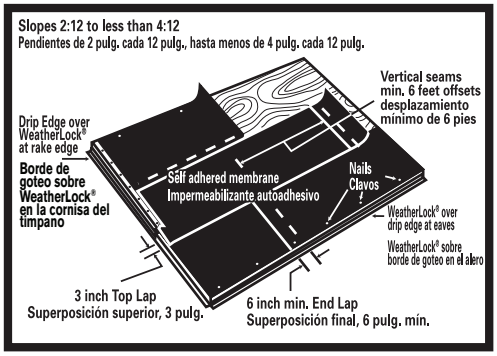


Fig. 3A WeatherLock® Underlayment Low Slope
Membrana impermeabilizante WeatherLock® – Pendiente baja



3 Contrapiso sintético:

Pendientes poco pronunciadas de 2:12 a menos de 4:12

Use un contrapiso sintético Owens Corning® o un contrapiso equivalente que cumpla con las normas ASTM D226, D4869 o D6757. El contrapiso debe instalarse según las instrucciones de aplicación del fabricante y la normativa local de construcción. Cada capa de contrapiso debe solaparse un mínimo de la ½ del ancho del contrapiso más 1 pulgada (2,5 cm). *Ver fig. 3.*

O barrera autoadherente contra agua y hielo de Owens Corning® o equivalente con un solapamiento estándar de 3 pulgadas (7,6 cm) y borde de goteo metálico. *Ver fig. 3A.*

Nota: para la aplicación de fieltro, consulte el Boletín técnico.

4 Shingle Fastening Pattern:

Place fasteners 6⅛ inch up from bottom edge of each shingle and 1 inch from each end.

Standard Fastening Pattern

Use four fasteners. *See Fig. 4.*

Six Nail Fastening Pattern

For 6 nail fastening pattern. *See Fig. 4A.*

Mansard or Steep Slope Fastening Pattern

Place fasteners 6⅛ inches from bottom edge to secure both layers of the shingle. Fasteners need to be located 6⅛ inch above the butt edge of the shingle, regardless of whether they are in the granules or the SureNail® Technology fastening area. *See Fig. 4B.*

REQUIRED: For slopes exceeding 60 degrees or 21 inches per foot, use six fasteners and four spots of asphalt roof cement per shingle. Apply immediately; one 1 inch diameter spot of asphalt roof cement under each shingle tab. Center asphalt roof cement 2 inches up from bottom edge of shingle tab. *See Fig. 4B.*

Asphalt Roof Cement where required must meet ASTM D4586 Type I or II (Asbestos Free). **Note: Please be aware that excessive amounts of asphalt roof cement could blister the shingle.**

Six nail fastening pattern is required for maximum wind warranty. In addition, Owens Corning® Starter Shingles are required along the eaves and rake. See Starter Shingle instructions for details.

Fig. 4 Standard Fastening Pattern
Esquema de instalación estándar

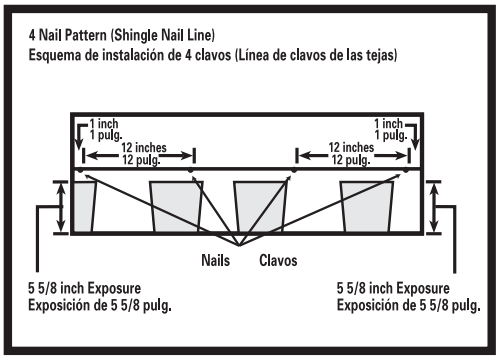


Fig. 4A Six Nail Fastening Pattern
Esquema de instalación con seis clavos

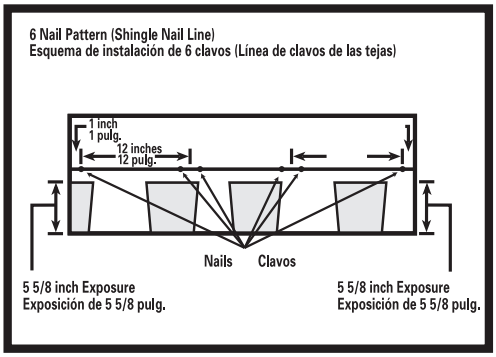
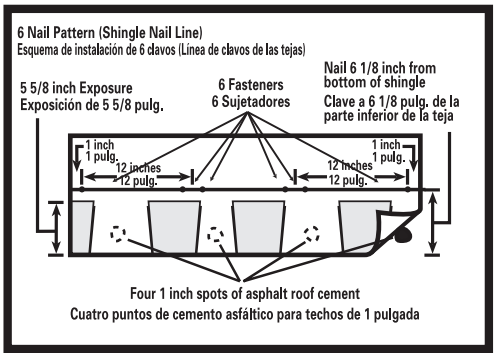


Fig. 4B Mansard or Steep Slope Fastening Pattern
Esquema de instalación en pendientes pronunciadas o mansardas



4 Patrón de fijación de tejas:

Coloque sujetadores a 6⅛ pulgadas del borde inferior de cada teja y a 1 pulgada de cada extremo.

Patrón de fijación estándar

Utilice cuatro sujetadores. *Ver la Fig. 4.*

Patrón de fijación con seis clavos

Para un patrón de fijación con seis clavos. *Ver fig. 4A.*

Patrón de fijación para buhardilla o pendiente pronunciada

Coloque las piezas de fijación a 6 ⅛ pulgadas (15,55 cm) del borde inferior para fijar las dos capas de la teja. Es imprescindible que las piezas de fijación se encuentren 6⅛ pulgadas (15,55 cm) por encima del borde inferior de la teja, aunque queden sobre los gránulos o en el área de fijación de la tecnología SureNail®. *Ver fig. 4B.*

REQUISITOS: En el caso de las pendientes que superen los 60 grados o 21 pulgadas por pie, utilice seis sujetadores y cuatro puntos de cemento asfáltico para techos por teja. Aplique inmediatamente un punto de cemento asfáltico para techos de 1 pulgada de diámetro debajo de cada lengüeta de las tejas. Coloque el cemento asfáltico para techos a 2 pulgadas del borde inferior de la lengüeta de la teja. *Ver la Fig. 4B.*

En los casos en que se requiera, el cemento para techos debe cumplir con la norma ASTM D4586 Tipo I o II (libre de asbesto).

El esquema de fijación de seis clavos es obligatorio para la máxima arantía contra vientos. Además, es necesario instalar las tejas para la hilera inicial de Owens Corning® a lo largo de los aleros y las cornisas. Para obtener más información, consulte las instrucciones de instalación de las tejas para la hilera inicial.

5 Shingle Application:

These shingles are applied with a 6½ inch offset, with 5⅝ inch exposure, over prepared roof deck, starting at the bottom of the roof and working across and up. This will blend shingles from one bundle into the next and minimize any normal shade variation. Application with offsets of 4 inches or 8 inches are also acceptable.

Caution must be exercised to assure that end joints are no closer than 2 inches from fastener in the shingle below and that side laps are no less than 4 inches in succeeding courses. Refer to course application steps for specific instructions.

(continued on next page)

5 Instalación de tejas:

Estas tejas se instalan con un desplazamiento de 6½ pulgadas y un área expuesta de 5⅝ pulgadas, sobre estructuras base de techos preparados, comenzando en la parte inferior del techo y realizando la aplicación de forma transversal y hacia arriba. De esta manera, las tejas de un paquete se mezclarán con las del siguiente y se reducirán al mínimo las variaciones normales de tonalidad. Las aplicaciones con desplazamientos de 4 u 8 pulgadas también son aceptables.

Es necesario tener cuidado para garantizar que las uniones de los extremos no queden a menos de 2 pulgadas del sujetador de la siguiente teja y que las superposiciones laterales no sean de menos de 4 pulgadas en las hileras siguientes. Consulte las instrucciones específicas para la aplicación de hileras.

(continúa en la página siguiente)

5 Shingle Application (cont.):

Starter Course:

Use an Owens Corning® Starter product. Trim 6 ½ inches off the rake of the starter course shingle and flush with the drip edge along the rake and eaves edge, and continue across the roof. Use 5 fasteners for each shingle, placed 2 to 3 inches up from eaves edge. *See Fig. 5.* **If no drip edge is used, shingles must extend a minimum of ½ inch and no more than 1 inch from rake and eaves edge.**

First Course:

Apply first course starting with the full shingle even with the starter course. *See Fig. 5A.*

Fasten securely according to fastening instructions. *See Fig. 4.*

Second Course:

Remove 6½ inches from the left end of this shingle and apply the remaining piece over and above the first course shingle and flush with edge of the first course with 5⅝ inch exposure. *See Fig. 5B.*

Fasten securely according to fastening instructions. *See Fig. 4.*

Third Course:

Remove 13 inches from the left end of this shingle and apply the remaining piece over and above the second course shingle flush with edge of the second course with 5⅝ inch exposure. *See Fig. 5C.*

Fasten securely according to fastening instructions. *See Fig. 4.*

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Fig. 5 Starter Strip Shingle Eaves Application
Aplicación de las tejas para la hilera inicial en el alero

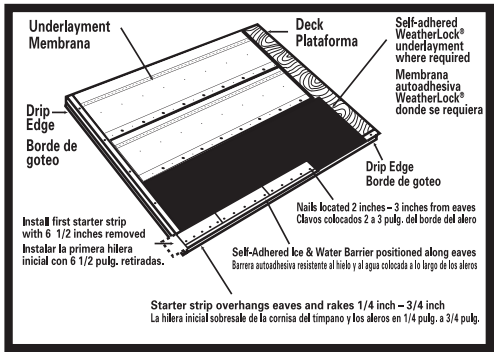


Fig. 5A Shingle Application
Instalación de tejas

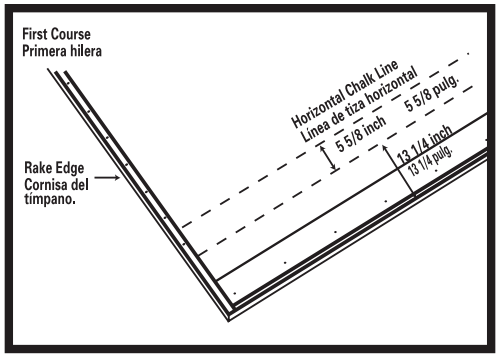


Fig. 5B Shingle Application
Instalación de tejas

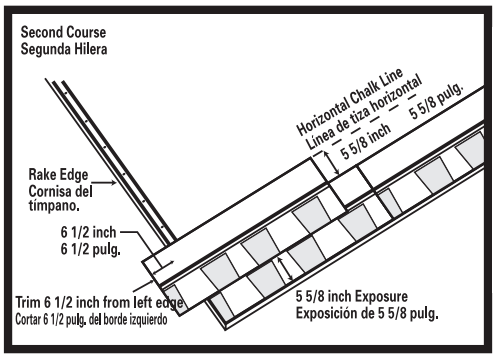
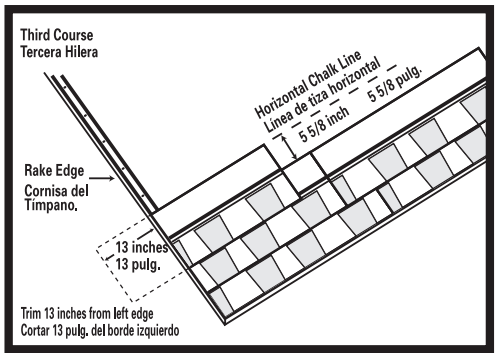


Fig. 5C Shingle Application
Instalación de tejas



5 Instalación de tejas: (cont.):

Hilera inicial:

Utilice un producto de hilera inicial para techos de Owens Corning®. Recorte 6½ pulgadas desde la cornisa del tímpano en la teja de la hilera inicial y nivele con el borde de goteo a lo largo de la cornisa y el borde del alero, y continúe a través del techo. Utilice 5 sujetadores para cada teja, colocados a una distancia de 2 a 3 pulgadas arriba del borde del alero. *Ver la Fig. 5.* **Si no utiliza un borde de goteo, las tejas deberán extenderse un mínimo de ½ pulgada y un máximo de 1 pulgada desde la cornisa y el borde del alero.**

Primera hilera:

Con una teja completa, nivelada con la hilera inicial. *Ver la Fig. 5A.*

Sujete firmemente de acuerdo con las instrucciones de sujeción. *Ver la Fig. 4.*

Segunda hilera:

Quite 6½ pulgadas del extremo izquierdo de esta teja y aplique la pieza restante sobre y por encima de la teja de la primera hilera, nivelando con el borde de la primera hilera con un área expuesta de 5⅝ pulgadas. *Ver la Fig. 5B.*

Sujete firmemente de acuerdo con las instrucciones de sujeción. *Ver la Fig. 4.*

Tercera hilera:

Quite 13 pulgadas del extremo izquierdo de esta teja y aplique la pieza restante sobre y por encima de la teja de la segunda hilera, nivelando con el borde de la segunda hilera con un área expuesta de 5⅝ pulgadas. *Ver la Fig. 5C.*

Sujete firmemente de acuerdo con las instrucciones de sujeción. *Ver la Fig. 4.*

(continúa en la página siguiente)

5 Shingle Application (cont.):

Fourth Course:

Remove 19½ inches from the left end of this shingle and apply the remaining piece over and above the third course shingle and flush with edge of the third course with 5⅝ inch exposure. *See Fig. 5D.*

Fasten securely according to fastening instructions. *See Fig. 4.*

Fifth Course:

Remove 26 inches from the left end of this shingle and apply the remaining piece over and above the fourth course shingle and flush with edge of the fourth course with 5⅝ inch exposure. *See Fig. 5E.*

Fasten securely according to fastening instructions. *See Fig. 4.*

Sixth Course:

Remove 32½ inches from the left end of this shingle and apply the remaining piece over and above the fifth course shingle and flush with edge of the fifth course with 5⅝ inch exposure. *See Fig. 5F.*

Fasten securely according to fastening instructions. *See Fig. 4.*

Succeeding Courses:

For succeeding courses, repeat first through sixth course. *See Fig. 5G.*

Fig. 5D Shingle Application
Instalación de tejas

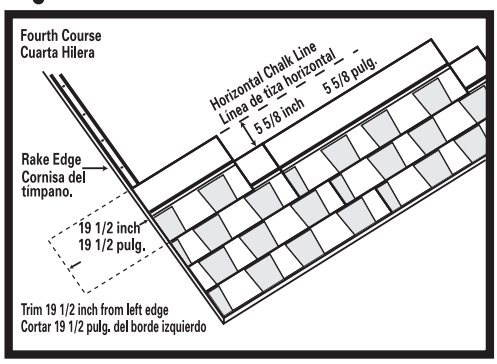


Fig. 5E Shingle Application
Instalación de tejas

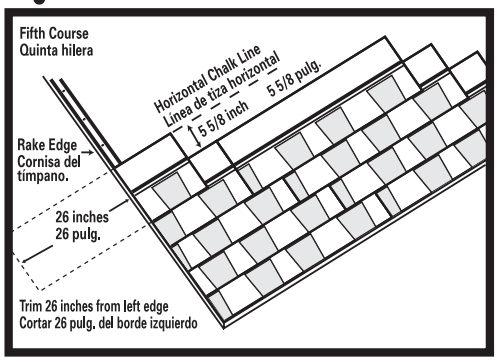


Fig. 5F Shingle Application
Instalación de tejas

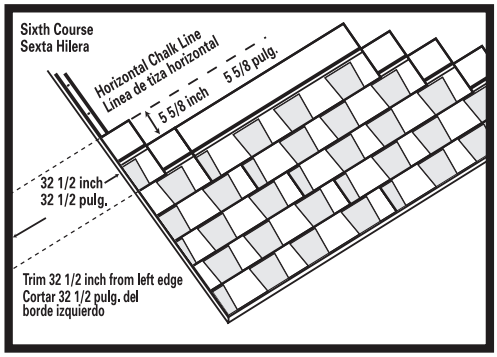
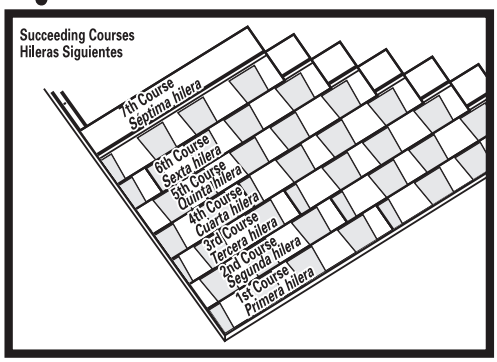


Fig. 5G Shingle Application
Instalación de tejas



5 Aplicación de las tejas (cont.):

Cuarta hilera:

Quite 19½ pulgadas del extremo izquierdo de esta teja y aplique la pieza restante sobre y por encima de la teja de la tercera hilera, nivelando con el borde de la tercera hilera con un área expuesta de 5⅝ pulgadas. *Ver la Fig. 5D.*

Sujete firmemente de acuerdo con las instrucciones de sujeción. *Ver la Fig. 4.*

Quinta hilera:

Quite 26 pulgadas del extremo izquierdo de esta teja y aplique la pieza restante sobre y por encima de la teja de la cuarta hilera, nivelando con el borde de la cuarta hilera con un área expuesta de 5 ⅝ pulgadas. *Ver la Fig. 5E.*

Sujete firmemente de acuerdo con las instrucciones de sujeción. *Ver la Fig. 4.*

Sexta hilera:

Quite 32½ pulgadas del extremo izquierdo de esta teja y aplique la pieza restante sobre y por encima de la teja de la quinta hilera, nivelando con el borde de la quinta hilera con un área expuesta de 5⅝ pulgadas. *Ver la Fig. 5F.*

Sujete firmemente de acuerdo con las instrucciones de sujeción. *Ver la Fig. 4.*

Hileras siguientes:

Para las hileras siguientes, repita los pasos de la primera a la sexta hilera. *Ver la Fig. 5G.*

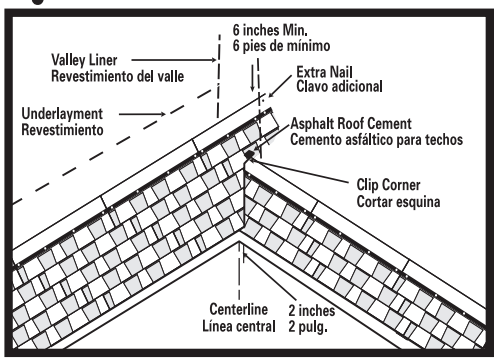
6 Valley Construction:

Closed-Cut Valley *See Fig. 6.*

A closed-cut valley can be used as an alternative to woven and open valley and is applied as follows: Lay a 36 inch wide valley liner of self adhered membrane underlayment or equivalent. A 36 inch wide minimum 50 lb. smooth surface roll roofing can also be used as a valley liner. Lay all shingles on one side of valley and across center line of valley a minimum of 12 inches. Fasten a minimum of 6 inches away from center line on each side of valley. Strike a chalk line 2 inches from the center line of the unshingled side. Apply shingles on the unshingled side up to the chalk line and trim, taking care not to cut the underlying shingles. Clip upper corners of these shingles, cement and fasten. Both woven and metal valleys are acceptable alternatives.

For California-Cut Valley, see Technical Bulletin at www.owenscorning.com.

Fig. 6 Closed-Cut Valley Construction
Construcción del valle con corte cerrado



6 Construcción de limahoyas:

Limahoya cubierta *Ver la Fig. 6.*

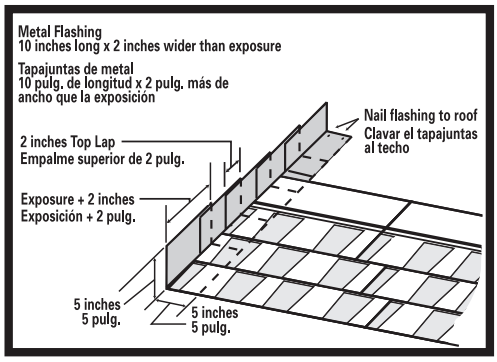
Es posible usar como alternativa una limahoya cubierta en lugar de una limahoya entramada o descubierta, y se aplica de la siguiente manera: Coloque un revestimiento de limahoya de 36 pulgadas de ancho de impermeabilizante autoadhesivo o su equivalente. También es posible utilizar como revestimiento de limahoyas un rollo para techos de superficie lisa de 50 libras con un ancho mínimo de 36 pulgadas. Coloque todas las tejas en un lado de la limahoya y atravesando la línea central de la limahoya un mínimo de 12 pulgadas. Sujete a una distancia mínima de 6 pulgadas de la línea central a cada lado de la limahoya. Con una tiza, trace una línea a 2 pulgadas de la línea central del lado que no tenga tejas. Coloque las tejas sobre el lado que no tenga tejas hasta llegar a la línea de tiza y haga un recorte cuidando de no cortar las tejas que se encuentran por debajo. Recorte las esquinas superiores de estas tejas, colóqueles adhesivo y sujételas. Es aceptable utilizar tanto limahoyas metálicas como tejidas.

Para una limahoya California, consulte el Boletín técnico en www.owenscorning.com.

7 Step Flashing:

Use 10 inches long and 2 inches wider than expected exposure corrosion-resistant metal where roof planes butt against vertical sidewalls or chimneys. Check local building codes. For additional flashing details, go to www.owenscorning.com. *See Fig. 7.*

Fig. 7 Step Flashing
Tapajuntas escalonado



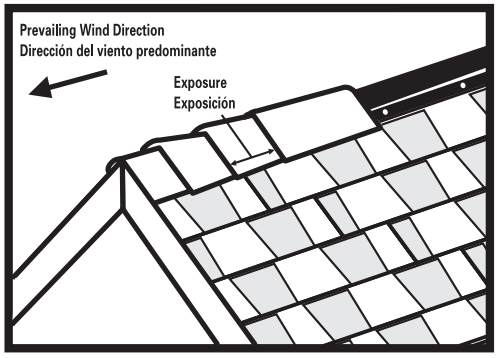
7 Tapajuntas escalonado:

Utilice metal resistente a la corrosión con una exposición de 10 pulgadas de longitud y de 2 pulgadas más de ancho que la exposición esperada en los puntos en los que los planos del techo se unen a las paredes laterales verticales o a chimeneas. Consulte los códigos de construcción locales. Para obtener más información sobre tapajuntas, visite www.owenscorning.com. *Ver la Fig. 7.*

8 Hip & Ridge Application:

Use corresponding Owens Corning® Hip & Ridge shingles to best complement shingle color. Follow specific application instructions as printed on the Hip & Ridge shingle package. *See Fig. 8.*

Fig. 8 Hip & Ridge Application
Instalación de caballetes y cumbreras



8 Aplicación para limatesa y cumbrera:

Use las tejas de limatesa y cumbrera Owens Corning® apropiadas para complementar el color de las tejas. Siga las instrucciones específicas de aplicación que se indican en el paquete de tejas de limatesa y cumbrera. *Ver la Fig. 8.*

For more information on Owens Corning® roofing products, or any of our wide range of building products and systems, it's easy to reach us:

1-800-GET-PINK® | www.owenscorning.com/roofing

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