CertainTeed Shingle Applicator's Manual – Eleventh Edition

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CertainTeed

Shingle Applicator's Manual

Eleventh Edition

Master Shingle APPLICATOR™

CertainTeed

An educational program
and technical manual for professional
shingle roofing contractors

CertainTeed
SAINT-GOBAIN

American Shingles - Australian Distributor & Supplier Telephone: 1300 131 881

We Never Stop Improving

Shingle Applicator's Manual

"The CertainTeed Shingle Applicators' Manual is the best resource I have seen yet on the proper installation of asphalt roofing shingles."

Patrick McCombe, Associate Editor
The Journal of Light Construction

"To promote education and professionalism in our industry requires shinglers and subcontractors to become Master Shingle Applicators, or at least provide them some incentive or bonus for becoming an MSA. Owners and supervisors should be one for sure, to set an example. Our industry needs more education and professionalism."

Stuart Bauer, contractor
Brocton, New York

"This manual, expertly written and presented, is in my view the finest reference source of its kind."

George Fallet, P.E.
Nashua, New Hampshire

More Ways to Learn

The CertainTeed *Shingle Applicator's Manual* is printed in English or Spanish, and the companion DVD is also available in English or Spanish.

On-line Testing

You can test on-line at *www.certainteed.com/msatest* for instant grading.

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CertainTeed offers extra benefits to companies that attain ShingleMaster™ or SELECT ShingleMaster™ Credentials.

For information on how these credentials work and the many benefits they offer, call 800-404-9880 or visit www.certainteed.com/edge

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The editor, Jay Butch gratefully acknowledges contributions by the following team members: Richard Snyder, Anna Amatruda, Bob Jenkins, Steve Koch, Dale Walton and Jim Brandt; plus the entire Roofing, Technical, Sales and Marketing Departments.

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Introduction

YOUR OBJECTIVE:
Distinguish yourself as a more professional craftsman.

The "Master Shingle Applicator™" (MSA) program is a self-study course. By studying and learning the information in this handbook, you can become a more effective and more professional craftsman.

This can pay off in several ways:

1. You are a more valuable employee for your employer because:
   - Your status as a Master Shingle Applicator is proof to the homeowner that your company employs competent workers who can do the job right.
   - Your company can be confident that the work you do will be done in accordance with CertainTeed warranty requirements.
2. Your proven competence as a Master Shingle Applicator is valuable to your career in the roofing trade because:
   - Your professional capability, along with your Master Shingle Applicator status, can make you a more valued and dependable worker. This can mean added job security.
   - Added confidence and competence can result in more job satisfaction and responsibility, as well as more challenging work.

STUDY HINTS

To become a Master Shingle Applicator, CertainTeed recommends that you study this material in the following manner:

1. Read over the entire handbook once, without attempting to answer questions. This will give you the "big picture."
2. Next, read just one chapter. Underline or highlight the details that are new to you or that seem to be of special importance.
3. After you have studied the chapter, try to answer the questions at the end. If the answers are not obvious, re-read the chapter to find the right answers and underline, highlight, or circle them.
4. Repeat hints two and three for all chapters.
5. After you have read and tested yourself on all the chapters, use scratch paper to take the Master Shingle Applicator's Test. Do not write on the test form yet.
6. Follow the same recommendations to take the MSA Wizard test.
7. Identify the questions about which you are unsure. Re-read the handbook to find the answers. Some questions are answered directly in the manual. These are classified in the self-test sections as "simple." Some require that you put together several pieces of information from the same chapter – or from two or more chapters – to find the answer. These are classified as "difficult."
8. To answer the tougher questions, it is sometimes best to talk them over with someone else who has read the handbook. This is not cheating in the MSA exam. This is part of the learning process.

When you are as certain as you can be about the answers to the questions, mark the correct answers on the test form and return it to CertainTeed, as instructed.

MASTERS AND WIZARDS

Information tested in the standard MSA test is about hands-on installation and roof system knowledge. Information in the MSA Wizard exam is about estimating, planning and the business side of shingle installation. Hands-on installers will normally find the standard MSA test questions directly relevant to their work. MSA Wizard questions will be more useful for supervisors, estimators, owners and obsessive compulsive types who have to be sure they know it all…

We expect some participants will have to retake the MSA test to pass. **Wizard "wanna-be's" only have one opportunity** to take the optional Wizard exam and must take it at the same time as the standard MSA test. Wizard questions are indicated on the test pages with the icon (W). Questions 3-1 through 3-10 are all Wizard questions.

REQUIRED VS. RECOMMENDED

Information contained in this manual falls into several categories: whether it is a required or just recommended procedure, whether it is a procedure or advice concerning workmanship, or whether is it just advice of general use to the roofing profession.

- **REQUIRED PROCEDURES** must be followed otherwise CertainTeed's warranty coverage may not be in force for the completed job. Required procedures are either specifically labeled as "required" in the text or the procedure contains the word "must."

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- **RECOMMENDED PROCEDURES on WORKMANSHIP** can be valuable to an installer but do not affect the CertainTeed product warranty. CertainTeed does not have control over every detail of workmanship and therefore does not usually warrant it. The warranty is extended for 5STAR coverage, however, to include the workmanship of the SELECT ShingleMaster™. Therefore, these procedures that are just recommended for ordinary jobs become required procedures for 5STAR coverage.
- **INFORMATION and ADVICE on a CONTRACTOR'S BUSINESS DEALINGS** is offered as coaching. A contractor should consider these as recommendations for his/her own organization. Included in this category is material on safety and material that's useful for estimating a job, such as ventilation, tear-offs and seasonal roofing.

SOME REPETITIVE INFORMATION...

The *CertainTeed Shingle Applicator's Manual* contains two different types of chapters. One type is the roof-system-oriented chapter, the other is product application. Roof system chapters include, for example, "The Roof Deck" and "Flashing." These chapters focus exclusively on the roof system components described by the title and are different from each other.

On the other hand, product application chapters focus on the installation of the specified product and contain some repetitive information from chapter to chapter. This is intentional so that a quick brush-up on the installation instructions for a single product is possible without flipping back and forth among the different chapters.

In addition, each product chapter contains much of the detailed application instructions and illustrations that appear on the simplified bundle wrappers of CertainTeed shingle products. This illustrated instructional format was developed in response to requests from roofing contractors, who asked for wrappers that would help applicators more quickly grasp the essential details of proper installation.

A glossary of roofing terms and definitions are incorporated into the manual.

NEW OR REVISED INFORMATION...

IN THE ELEVENTH EDITION OF THE SHINGLE APPLICATOR'S MANUAL

New or revised information is marked in the manual with a blue star (★).

A few noteworthy topics include:

- New OSHA regulations
- Updated application instructions for Flintlastc® SA
- Updated information regarding Ventilation

CERTAINTEED'S WEB SITE

Please visit our web site www.certainteed.com for additional information. Always be sure to check this resource and the shingle wrappers for the most current application instructions.

AN INVITATION TO READERS

After you've had a chance to study the material in this handbook, we would appreciate hearing from you! Tell us what you think of the program and send us your ideas, suggestions, and tips so that we can keep improving this publication for shingle applicators. Send your input in an email to: jay.b.butch@saint-gobain.com. If we publish your "tip," we'll give you $200 and credit for having supplied the tip.

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Safety, Workmanship, Seasonal Roofing and Roof Repairs

1

YOUR OBJECTIVE:

To fully appreciate the importance of learning and practicing roofing safety.

You owe it to yourself, and to those who depend on you, to learn as much as possible about roofing safety equipment and its use, government safety regulations for roofers (especially those issued by the Occupational Safety and Health Administration, OSHA), and trade association safety recommendations. And, while you're learning all about roofing safety, put it immediately into practice!

There are many steep roof safety devices available to the installer. These include ropes, slings, harnesses, perimeter rails and catchers, cleats, roof jacks, and other items. Yet, perhaps 80 percent of installers use none of these things.

SOME ATTITUDES SEEM TO BE CHANGING

Fortunately, more and more of the larger contractors are requiring their crews to use a safety system. There are several reasons for this change:

- First of all, there's the high cost of insurance, especially workers' compensation. Many contractors have simply found that it is too expensive not to impose a safety program.
- Another reason we're seeing more safety programs in action is the difficulty of finding qualified and productive workers. The cost of losing an experienced worker (a valuable asset) is very high.
- OSHA is a third reason. OSHA enforces a federally mandated safety program on all roofing contractors. An inspection which reveals no safety program in effect, ignorance of the regulations or, even worse, blatant disregard for the regulations, can cost a contractor an enormous amount of money (from hundreds to many thousands of dollars).
- Finally, there is the simple human concern that we all feel for each other. Few of us want to see harm come to another.

WHAT'S PREVENTING OTHERS FROM PRACTICING SAFE ROOFING?

The statistics and day-to-day reality prove there are powerful obstacles to the adoption of effective safety programs by the majority of installers and their employers.

- Perhaps the most powerful obstacle is the **installer** himself. Many are highly confident of their own abilities to survive the risk of the roof. Others, especially younger installers, simply don't believe it will ever happen to them. Still others are afraid their images will suffer by wearing safety equipment.
- A second obstacle to adopting a safety program is that many fear that safety equipment will interfere with work productivity. This perception is shared by both installers and employers. And it is indeed true that the addition of safety lines and perimeter catches on steep roofs adds cost to a job and will force a change in traditional work procedures.

It all boils down to this: resistance to the use of safety equipment is due to a **lack of vision**. Try to picture your loved ones 10 years from now. Picture the circumstances they might be living under if you become a victim of a serious roofing accident. An accident which probably could have been prevented if you practiced "safe roofing." Test this out by seeking out a roofer who has fallen, preferably someone who was using safety equipment at the time. Ask him or her what they thought about safety before and after the fall.

The concern about productivity loss should be addressed by talking to workers and employers who have adopted and enforced safety programs. Most will say that initial productivity loss was overcome in a relatively short time by workers as they learned to use the devices. They were then able to focus a greater portion of their attention on the work at hand rather than having to constantly split their attention between getting the work done and avoiding a fall. Some will even tell you that productivity actually improved.

Let's face it, both the employer and the installer have a significant interest in working out and following an effective safety program. There are many safety devices, training materials, and experts available to assist, instruct, consult, evaluate and to even help you implement a safety program. Remember, it will always be in everyone's best interest if you decide to work under the safest conditions possible.

HERE ARE BASIC ROOF SAFETY TIPS COMPLIMENTS OF THE AMERICAN PLYWOOD ASSOCIATION (APA)

- **TIE-OFF:** Wear a safety harness that is securely tied off to a fall-resistant device.
- **AVOID SLIPPERY ROOFS:** When the roof is slippery from rain, snow, frost or dew, the best precaution is to wait until the roof surface is dry.
- **KEEP IT CLEAN:** Make sure someone keeps the roof clean by frequently sweeping up sawdust, wood, shingle particles, and other kinds of dirt.
- **WEAR RUBBER-SOLED SHOES OR BOOTS:** Rubber-soled boots typically provide better traction than leather-soled boots. Some crepe-soled boots also provide good traction. However, whatever shoes or boots you decide to wear, make sure they're in good condition. Badly worn shoes of any type can be a real safety problem.
- **SECURE OPENINGS:** Cover and secure all skylights and openings, or install guardrails to keep workers from falling through.

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Here's a Tip... *Have a 5 gallon pail with a rope attached to put extra hand tools in. Tie the rope to the top of the ladder and also use the rope to tie-off the ladder. (Thanks to Rick Mijokovich of Wauk, WI.)*

Keep at least one hand on the ladder side rail when climbing, not the rungs which require letting go of the ladder. (Thanks to Brian King, Baldwinsville, NY.)

- **KEEP THE SKID-RESISTANT SIDE OF APA PERFORMANCE RATED PANELS FACING OUT:** Some Oriented Strand Board (OSB) panels are textured or splatter-coated on one side to increase traction on the panel surface. When installing OSB panels on the roof, make sure the skid-resistant side is up.
- **INSTALL SHINGLE UNDERLAYMENT:** Cover the deck with underlayment as soon as possible to minimize its exposure to the weather. Underlayment tends to make the roof less slippery when properly installed. (However, be aware of the risk that underlayment can tear away from fasteners on a steeper pitch. The lighter weight, undersaturated felts are most likely to tear out.)
- **INSTALL TEMPORARY WOOD CLEATS FOR TOE-HOLDS:** Nail 2" x 4" wood cleats *or adjustable roof jacks* to the roof deck to provide temporary toe-holds. Remove the cleats *or roof jacks* as the roofing is installed. (See also "OSHA Regulations in Brief.")
- **CONSTANTLY INSPECT THE ROOF AND IMMEDIATELY REMOVE ANY POSSIBLE TRIPPING HAZARDS:** Tools, electric cords and other loose items can all pose hazards and should be removed from the roof.
- **LEARN THE FEDERAL, STATE, AND LOCAL WORKER-SAFETY REQUIREMENTS:** Learn what the government agencies require of you and the contractor you work for. These requirements exist to protect you. So, if you're going to be a roofing professional, it's an important part of your job to learn and follow these regulations.
- **USE YOUR COMMON SENSE:** Safety programs and regulations cannot foresee each of the roof conditions and layouts on which you must work. Adapt to protect yourself.

HERE ARE A FEW LADDER SAFETY TIPS

- **LADDER RATING:** Ladders are rated by how much weight they can safely bear, and you should consider the highest available rating of 1A or 300 pounds.
- **MATERIAL:** When it comes to safety the best material for a ladder is fiber glass. Although wood is cheaper and aluminum is easier to handle, wood also deteriorates when used outdoors, and aluminum is dangerous when used around electric circuits. Some businesses and industrial plants will not allow you to use aluminum ladders and some insist on the use of fiber glass ladders only.
- **POWER LINES:** Even ladders made of wood or fiber glass should not be used in the vicinity of power lines or other electrical hazards.
- **POSITIONING:** Ladders should extend above the eaves by 3 to 3½ feet and sit on a firm level base. Leveling can be attained by digging or by use of adjustable leg levelers. Firmness can be attained by use of a 2-foot square piece of ¾" plywood under each leg.
- **LADDER ANGLE:** To be at a proper angle, the distance of the foot of the ladder from the wall supporting it should be one quarter of the height of the wall. (1 foot for every 4 feet of vertical rise).
- **TIE-OFF:** A ladder in place for use over an extended period should be tied off at the bottom rung to a stake driven into the ground or stack two shingle bundles on the ground against the base of the ladder and near the top to an eye bolt screwed into the fascia.
- **OVER-REACHING:** Don't over-reach to either side while on a ladder: A good rule is to keep your belt buckle between the rails.
- **NOT A PLANK:** Do not use the ladder or even a section of a ladder as a plank or to provide stiffness to a wooden plank. Besides the danger of failure, the stresses set up during this usage loosen the ladder's connecting points.
- **STEP LADDERS:** Step ladders are intended for use fully opened, not closed and leaning against a wall. The highest step for standing on is 2 feet below the top.
- **INSPECTION:** A ladder should be inspected every time it is set up for use. Check the ladder from bottom to top for any visible defects or wear, and that it's correctly and securely anchored and properly positioned.

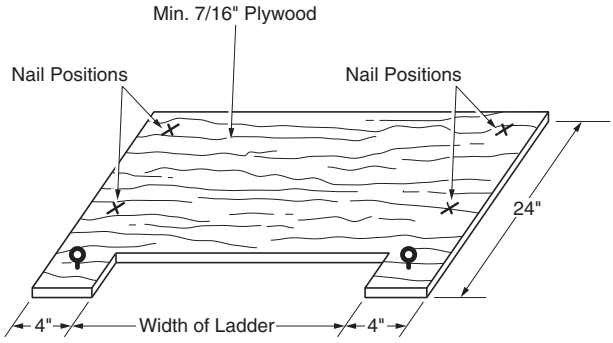

Figure 1-1: Plywood gutter guard.

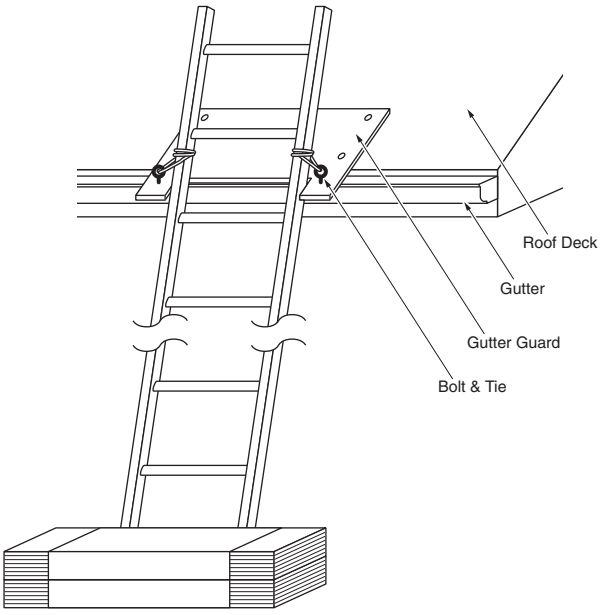

Figure 1-2: Secure ladder with gutter guard at the top and two shingle bundles at the bottom.

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Here are Some Tips… *When doing repairs and separating set/sealed shingles, you might want to try using a mason's trowel – it cuts through the fastener, it separates the shingles, and it generally does not tear any shingles. (Thanks to Brian O'Donnell from Sinsbury, CT.)*
Place first bundle parallel with the ridge, about one foot below ridge. Stack other bundles on the ridge and top edge of first bundle. This keeps the shingles flat and also provides level surfaces for tools, drinks, etc. (Thanks to Jack Connelly from Lansdale, PA.)

WET WEATHER SITUATIONS

There are three common wet weather conditions that must concern a roofing installer: dew, frost and rain. All pose safety and liability problems.

In the case of dew and frost, early mornings present increased risks for workers walking on a roof. Underlayment can be slippery without appearing so to the untrained eye. Never take safety short cuts in this situation.

Rain presents risks to both the workers and the home itself. Many professional roofers will only tear off shingles that can be replaced with new ones the same day. Rain is often accompanied by wind, so it is very important that temporary roofing used in the process of re-roofing be able to resist winds of up to 60 mph. When underlayment is wet from rain or dew, it usually wrinkles. Some inexpensive underlayments wrinkle a great deal. Do not apply shingles over the wrinkles. Allow them to dry out and re-flatten, or cut them out and install patches, or replace entire sections of underlayment.

Under no circumstances should wood roof decks be exposed to rain without well-fastened underlayment in place. When a wood deck becomes soaked for any reason, allow it to dry out before applying underlayment and shingles. Wet decking will soak underlayment applied over it, and cause it to wrinkle. This in turn can cause buckling in the shingles.

Be sure to protect shingle bundles from rain. Wet bundles are very difficult to handle. They may present safety problems and almost certainly will reduce productivity. Keep bundles under cover and off of the ground.

★ OSHA REGULATIONS IN BRIEF

OSHA IS THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, UNDER THE U.S. DEPARTMENT OF LABOR

The United States Department of Labor's Occupational Safety and Health Administration (OSHA) has issued a directive rescinding the Interim Fall Protection Compliance Guidelines for Residential Construction (STD 03-00-001).

Before issuance of this new directive, STD 03-00-001 allowed employers engaged in certain residential construction activities to use specified alternative methods of fall protection (e.g., slide guards or safety monitor systems) rather than the conventional fall protection (guardrails, safety nets, or personal fall arrest systems) required by the residential construction fall protection standard (29 CFR 1926.501(b)(13)). Employers could use the alternative measures described in STD 03-00-001 without first proving that the use of conventional fall protection was infeasible or created a greater hazard and without a written fall protection plan.

With the issuance of the new directive, all residential construction employers must comply with 29 CFR 1926.501(b)(13).

- Residential construction employers generally must ensure that employees working six feet or more above lower levels use guardrails, safety nets, or personal fall arrest systems. A personal fall arrest system may consist of a full body harness, a deceleration device, a lanyard, and an anchor point. (See the definition of "personal fall arrest system" in 29 CFR 1926.500).
  - Other fall protection measures may be used to the extent allowed under other provisions of 29 CFR 1926.501(b) addressing specific types of work. For example, 1926.501(b)(10) permits the use of warning lines and safety monitoring systems during the performance of roofing work on low-sloped roofs.
  - OSHA allows the use of an effective fall restraint system in lieu of a personal fall arrest system. To be effective, a fall restraint system must be rigged to prevent a worker from reaching a fall hazard and falling over the edge. A fall restraint system may consist of a full body harness or body belt that is connected to an anchor point at the center of a roof by a lanyard of a length that will not allow a worker to physically reach the edge of the roof.
- If the employer can demonstrate that use of conventional fall protection methods is infeasible or creates a greater hazard, it must ensure that a qualified person:
  - Creates a written, site-specific fall protection plan in compliance with 29 CFR 1926.502(k); and
  - Documents, in that plan, the reasons why conventional fall protection systems are infeasible or why their use would create a greater hazard.

For complete information on OSHA guidelines, visit www.osha.gov.

MATERIAL SAFETY DATA SHEETS (MSDS)

Asphalt shingles, accessory shingles, and roll roofing products are all considered to be non-hazardous "articles" when used according to their label directions and for their intended purpose.

Each bundle of CertainTeed asphalt shingles has the following statement imprinted on its wrapper:

"Roofing shingles do not require an MSDS (Material Safety Data Sheet). They are considered "articles" and are exempt under the provisions of OSHA's Hazard Communication Standard (29CFR1910.1200)."

Call CertainTeed Technical Services Department at (800) 345-1145 for questions related to MSDS sheets.

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YOUR OBJECTIVE:

To understand how your work performance affects roofing warranties, your employer, the homeowner, CertainTeed, and you.

THE PURPOSE OF WARRANTIES

Well-established manufacturers of quality roofing products, like CertainTeed, offer very good product warranty features such as SureStart™ protection because they believe in their products. Quality products with superior warranties are good for business.

In the same way, established roofing contractors usually provide reliable workmanship warranties. These are promises of good performance, which means good workmanship. Obviously, home-owners prefer to do business with contractors who will stand behind their work.

When the level of workmanship is low, however, a lot of the goodwill and customer confidence created by warranties and reputation goes right out the window. It costs the employer a lot of money to send a crew back to an old job site and rework a job that should have been done right in the first place. And, if a homeowner takes the employer to court and sues him for lack of professionalism, there's a chance he might lose the case. When companies lose money, everybody's job is at risk, including the installer's.

THE INSTALLER'S RESPONSIBILITY

As a professional roofer, there's a lot you can do to help keep your employer out of warranty and legal trouble, and help him maintain a good reputation in the community. Basically, your employer, the homeowner, and the roofing products manufacturer all depend on the installer to know his/her business and perform professionally. This professionalism extends from having the know-how to install a complicated valley on a steep roof to thoroughly cleaning up the job site at the end of each work day.

COMMON WORKMANSHIP DEFECTS

Some of the most common applicator faults, which can place at risk the protection offered by the manufacturer's warranty, are these:

MISAPPLIED AND MISSING FASTENERS (REFER TO CHAPTER 8 FOR MORE DETAILS)

OVER- AND UNDER-DRIVEN NAILS: This particular fastener misapplication is very common when using pneumatic nailers. Often the problem centers around changes in equipment air pressure, especially in cold weather. Generally, higher air-gun pressure is needed in colder weather. Since air pressure changes as the temperature changes, be sure to check and adjust air pressure as necessary. In cold weather, many experienced roofers hand-nail for best results.

FASTENERS OUTSIDE THE APPROVED NAIL PATTERN: Nails are sometimes driven in an arc that derives from the swing of the gun from the waist and shoulder of the installer. When you allow this arc to happen, the fasteners tend to go outside the approved nail pattern.

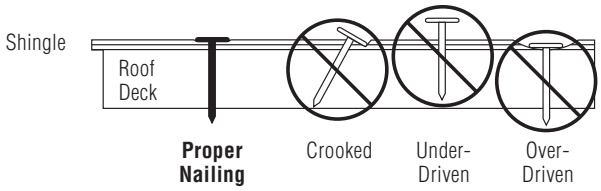

Figure 1-3: Proper and improper nailing.

MISSING FASTENERS: Missing fasteners are an obvious problem. This fault seems to occur most often when the vertical racking application method is used.

FASTENERS OUTSIDE THE TARGET AREA: Fasteners consistently applied outside the approved target area often lead to roofing failures (*Figure 1-4*).

SHORT FASTENERS: When fasteners do not penetrate the deck at least ¾" or all the way through thinner panels, the likelihood of nails backing out, or coming loose, is very high.

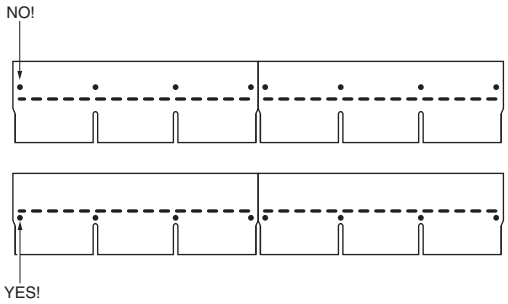

Figure 1-4: High nailing: prohibited!

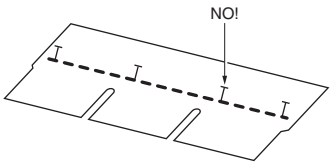

Figure 1-5: Avoid nailing into sealant strips.

Here are Some Tips… *Every roof installer needs to know that it isn't the wet roofs or icy roofs we fall off of…It is the dry hot ones [Over Confidence]! (Thanks to Kennon Halverson from Syracuse, NY.)*
I've learned that rubber bands from coiled nails are dangerous. To prevent possible falls, after removing rubber band from coil, put it on the back of your nail gun. (Thanks to David A. Sova from Flint, MI.)

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YOU LESSEN THE LIKELIHOOD OF FASTENER PROBLEMS WHEN YOU USE NAILS: *CertainTeed, the Asphalt Roofing Manufacturers Association, and the National Roofing Contractor's Association all agree that you will probably have fewer fastening problems when you use nails than you will if you use staples.* ***CertainTeed strongly advises against the use of staples.*** *In fact,* ***most building codes do not even permit the use of staples*** *to fasten asphalt shingles.*

The rationale generally given for not using staples is the tendency of the installers to apply them incorrectly by high nailing, cocking, or over- or under-driving. If you're thinking of striving toward better workmanship, a good place to start is by putting the staple gun away – for good.

VERTICAL RACKING

Some CertainTeed products may not be applied using the vertical racking method. There is a high probability that when using the vertical racking method to install some products, a pattern will appear on the roof which the homeowner will find objectionable. If vertical racking is not an approved application method, and such patterning appears, CertainTeed will not accept responsibility.

USING UNAPPROVED APPLICATION METHODS

Roofing material installation instructions can change frequently. Unfortunately, many installers do not bother to look for such changes. Also, some installers assume that the application instructions are the same from manufacturer to manufacturer. This assumption can create big problems because the instructions are not the same, they're different. Applicators are expected to know and use the correct procedures for each product they apply.

IGNORING "DO NOT MIX" LABELS

Color variations that result from mixing shingles from bundles marked with "DO NOT MIX" labels or imprints, and bundles without the labels will be entirely the contractor's and supplier's responsibility. Accordingly, complaints arising from such color variations will also be the contractor's and supplier's responsibility.

SEVEN REPUTATION-BUILDERS...

FOR CUSTOMER SATISFACTION, COMPANY GROWTH, AND JOB SECURITY

Here are some suggestions that will help build your company's reputation as a quality organization. These suggestions are all designed to please customers, because pleasing customers is good business. As your company's reputation grows, your employer will begin to outpace the competition. With this good reputation comes more business and job security for you.

1. Make sure you have the right materials before starting a job. If the roofing materials seem faulty (maybe the color is off on a bundle of shingles), contact your supervisor before proceeding.
2. Take care that you don't damage the shrubs, the homeowner's car, or create other problems that will break down goodwill between your company and the customer. Some other common things that homeowners will complain about, if you and your employer don't handle them well, are: equipment placement, product and equipment storage, missed delivery schedules, vehicle parking, electrical take-offs, and access to water.
3. If the customer talks with you, be polite and don't "bad mouth" your employer or the roofing products manufacturers. These types of things also tear down the goodwill your employer has spent years developing. The customer may lose all confidence in you and your company, and may start looking for things to complain and worry about.
4. Two effective ways a worker can respond to customer questions, comments or complaints:
    1. "What you're saying is…" (Repeat the comment or complaint. It's highly desirable to write it down on a notepad at this time.) "I understand why you might feel that way. I'll bring it to the attention of my supervisor, and let him know you'd like to hear from him as soon as possible."
    2. "I think I understand your question/comment." (Then repeat the question or comment and write it down.) "What we're doing has been company practice for a long time. But I know my supervisor is always willing to consider suggestions for improvement. I'll bring it to his attention and ask him to get in touch with you as soon as possible."

    Be sincere in your response. Don't contradict your words with conflicting facial expressions or negative body language.
5. Make sure the deck is in good condition before proceeding. Contact your supervisor if you find problems. As you know, a faulty deck can make the new roof fail. When this happens, the homeowner starts looking for someone to blame.
6. Be a gentleman while you're on the job. Keep unnecessary noise to a minimum and save the swearing and off-color jokes for times when you're not working. Dress responsibly, since you're a representative of your employer. Remember, it's important for the homeowner to have confidence in the people putting on his/her expensive new roof.
7. Watch your workmanship very carefully. The materials manufacturer will not stand behind a failed roof if the roof wasn't installed correctly. Install the roofing material just as the manufacturer suggests. Put the fasteners in the roof like you know you should, and cut the shingles the right way with no sloppy short-cuts.

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SEASONAL ROOFING

YOUR OBJECTIVE:
To learn safe and effective application techniques for underlayment and asphalt shingles during all seasons of the year.

SAFETY IS THE TOP PRIORITY

Safety should always be your first consideration while on the job. Winter can present dangerous conditions with ice and snow on the roof deck or the roofing itself. CertainTeed recommends not working at all on such roofs.

APPLYING WATERPROOFING SHINGLE UNDERLAYMENT

Products like WinterGuard™ will not stick to a wet or frozen surface, and lose most of their stickiness when the temperature is under 40°F. Before applying, check that the deck is clean, smooth, and dry, and if at all possible wait for fair weather with the temperature above 40°F. If the job cannot be put off, a compromise solution is to fasten the WinterGuard with mechanical fasteners that will hold it fast until the warm weather enables it to seal properly (provided it was an even, smooth application to a clean, dry deck). This compromise risks the possibility of leaks due to ice dams before the onset of the warmer weather. Other responses to installing WinterGuard in cold weather are:

- Use a heat gun along the seams during installation.
- Use a bead of caulk such as CertanTeed FlintBond™, Karnak "No.81 roof cement" or Monsey "MB roof cement" between the seams.

FORMING AND HANDLING SHINGLES IN COLD WEATHER

Asphalt composition shingles become very hard in cold weather. It is important that the ambient temperature be warm enough that shingles do not crack during forming, or that they be placed in a warm location that softens them before forming. Forming is necessary for applying shingles to closed valleys, hips, or ridges. Extra care is needed when installing multi-layer laminated shingles.

SEALING IN COLD WEATHER

The self-sealing capability of shingles may not be immediately effective when the shingles are applied in cold weather and tabs may be lifted by winter winds. To prevent this problem, we suggest hand-sealing the shingles in cold-weather by applying a 1" diameter spot of roofing cement as shown in the steep slope fastening diagram for the particular shingle being installed. Use just enough cement for a secure seal, because too much can cause the shingle to blister. When the sun comes out or the weather moderates sufficiently, the self-sealing material will do the job it was designed to do and bind the shingles together.

FASTENING IN COLD WEATHER

It is difficult to maintain the proper pressure on air compressors in cold weather. For this reason, many installers choose to hand-nail when temperatures drop. Hand-nailing reduces the chances for blow-through (nails being driven completely through brittle shingles) and other problems caused by improperly regulated gun pressure.

STORM NAILING

If weather conditions are such that sealing may not occur prior to a significant windstorm, then it is recommended that the shingles be fastened using the steep slope nailing instructions (Also see Chapter 8 – Applying Shingles in High-Wind Areas).

SCUFFING SHINGLES

Scuffing is sometimes caused by too little stabilizer or filler (finely pulverized minerals) added to the asphalt to give shingles more body or toughness and increase its life. Such shingles become soft and gooey and scuff easily. Even good-quality shingles with adequate filler, however, experience a certain degree of softness at high temperatures. The installer, therefore, must take special precautions to avoid scuffing during mid-day/mid-summer heat even when using good-quality shingles.

Precautions include early working hours and the use of shoe wraps and carpet or foam-rubber sit-upons. Employment of the racking method (as recommended in some application instructions) keeps installers to the side of the shingle rack and off the shingles.

MAKING REPAIRS

YOUR OBJECTIVE:
To learn how to: (1) replace damaged shingles, (2) repair waterproofing shingle underlayment and (3) remove algae from asphalt-shingle roofs.

REPLACING SHINGLES

The need to replace a relatively small number of shingles can happen at any time during the life of a roof.

- A recently installed roof might show signs of damage that occurred during installation especially if the roof was applied during very cold or very hot weather. During a cold weather installation, product brittleness could result in cracked or broken shingles, while during hot-weather, personnel and equipment can easily dislodge granules or asphalt (scuffing).
- At any time during the life span of a roof, damage can result from overhanging trees, windstorms, or installing an antenna or other device that penetrates the surface.

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Here's a Tip... *When diagnosing a roof leak, first ask the homeowner if the leak is in the bathroom or laundry room. If it is, check for condensation or ventilation problems in the attic. (Thanks to Michael Sanville of Joliet, IL.)*

Replace damaged shingles as follows:

1. Carefully break loose the seal of the tabs of selected shingles in three courses:
   (1) all tabs of the shingles to be removed,
   (2) the tabs of shingles immediately above the shingles to be removed (that overlay the shingles to be removed), and
   (3) the tabs of shingles in the second course above the shingles to be removed.

   IMPORTANT: In hot weather it is more difficult to break loose the sealant from the tab; in cold weather, simply use a simple pry like a wide-blade putty knife. In hot weather, it may be necessary to slice the sealant with a knife and carefully separate it from the tabs to avoid causing damage to the remaining shingles.
2. Remove each nail from any shingle to be removed by inserting a pry under the shingle at the site of the nail and gently raising it slightly. Push the shingle down along the shank of the nail and then pull the nail out completely.
3. Using the same technique, remove the nails from the shingles in the course above that also penetrate the damaged shingles.
4. Slide out the damaged shingles.
5. Insert a new shingle of the same design and color for each shingle removed. Depending on the age of the original shingle, colors may vary slightly, but natural aging will minimize the difference.
6. Reinstall the nails in the proper positions of the replacement shingles taking care not to lift the tabs of the remaining old shingles any higher than is necessary to hammer the nails flush.
7. Install replacement nails in the old overlying shingles where they were removed to permit the damaged shingles to be removed. Again use care when lifting overlying tabs.
8. Hand-seal all loosened tabs with an accepted asphalt adhesive.
9. **If waterproofing shingle underlayment, such as WinterGuard,™ is under the shingles removed:** fill all nail holes with a **rubber-modified asphalt cement**. Do not use an excessive amount of cement. Use a putty knife to squeeze in only enough to fill the hole.

REMOVING ALGAE

Algae discolors a roof by giving it a brown to black appearance and is particularly unsightly on a white or light-colored roof. Although it is most prevalent in coastal areas and regions subject to warm and humid weather, it occurs in all regions of the country.

The algae discolorations should not be confused with those due to moss or tree droppings, which typically produce only localized discolorations.

CertainTeed produces a line of AR (algae-resistant) products. Specifically, CertainTeed "algae resistant shingles" are warranted to remain free of algae for a period of either 10 or 15 years, depending on the product purchased.

The warranty does not cover discolorations caused by moss, soot, rust, or tree droppings, and CertainTeed reserves the right to clean algae stains from the shingles rather than repair or replace them.

Algae discolorations are difficult to remove. They may be lightened, however, by applying a solution of chlorine bleach, TSP (trisodium phosphate), and water as follows:

1. Mix a solution of 1 part chlorine bleach, 3 parts water, and a pinch of trisodium phosphate (known as TSP).
2. Apply this solution gently to the surface of the roofing, being careful to avoid damage to other parts of the building and its surroundings.
3. Avoid scrubbing as well as other physical contact with the roof because the friction may loosen and remove granules that coat the surface of asphalt shingles. Work from a ladder whenever possible, or use "walkboards."
4. Finally, rinse the bleach solution from the roof by gently spraying the surface with water.
5. Observe all possible safety precautions when working on or near the roof. Besides giving special attention to ladder safety, be advised that the solution application and rinsing process makes the surface of the roof slippery and therefore hazardous to walk on.

The effectiveness of the cleaning and bleaching techniques is temporary, and discoloration is likely to recur. A better response to the problem is to use algae-resistant roofing especially if the environment near the roof is favorable to the growth of algae.

CAUTION: High-pressure washing systems for algae removal should be used only by reliable professionals because incorrect application can result in removing granules and shortening the life of the roofing system.

Here's a Tip... *Dimitri Ledkovsky of Chapel Hill, NC cautions us that an algae stained roof can be very slippery when covered with morning dew or after a brief rain. He slipped on one with a 6/12 slope and nearly skated off due to the slippery surface. Dimitri says, "Don't walk on algae, unless the roof is completely dry."*

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