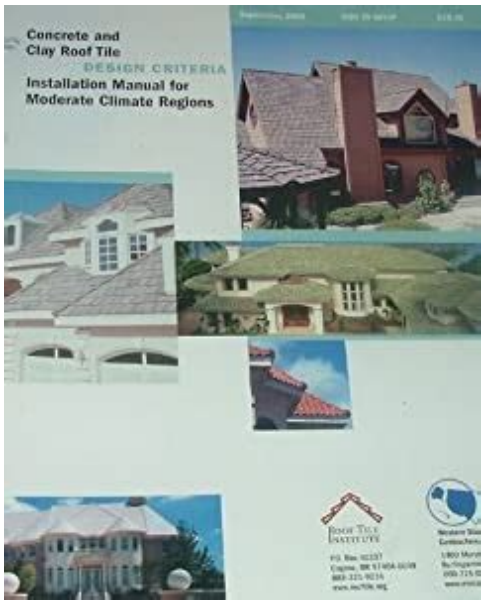

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Book Descriptions:

concrete and clay tile installation manual for moderate climate regions

TRI Alliance and WSRCA submitted this manual for formal review and issuance of an IAPMO Uniform ES Evaluation Report ER2015 to help provide a stronger foundation to formal practices and recommendations included. See current schedule. See current schedule. Designed to provide answers to installation questions from roofers, contractors, architects, and building officials, the document addresses the installation needs of coldweather climates and is a companion to manufacturer installation guides. TRI offers classroom certication training and free handson demonstrations. The changes made to the manual became effective in the field Jan. 1. The new manual can replace the numerous individual installation guides currently in circulation, which are provided by individual tile manufacturers as part of their code approval. There currently are more than 50 manuals by various tile manufacturers in North America. Almost all tile manufacturers in North America now have formally replaced their manuals with RTIs and WSRCAs manual. The recommendations are meant for areas with moderate climates that may experience occasional winter storms and heavy rain. In locations where the January mean temperature is 30 F 1 C or less or where ice damming occurs, RTI and WSRCA suggest roofing professionals refer to the organizations Concrete and Clay Tile Roof Design Criteria Manual for Cold and Snow Regions. Copies may be ordered on RTIs Web site, www.rooftile.org. Local building officials should be consulted for engineering criteria or other special requirements. The effectiveness of a tile roof system as a weatherresistant assembly, however, depends on the proper installation of the tile roof components. The minimum recommendations for moderate regions in the manual are effective for a range of conditions, including occasional heavy rain or snow.http://www.chirakekaren.com/userfiles/944-factory-shop-manuals.xml

- **concrete and clay roof tile installation manual for moderate climate regions, 1.0, concrete and clay roof tile installation manual for moderate climate regions.**

Although it is not practical to prescribe precise solutions for all conditions, the manual has been designed to offer suggestions for various treatments in moderate climate applications. Local building officials always should be consulted about special requirements that may exist. The manual has been submitted to ICBOs evaluation service ICBOES to obtain a report number. RTI and WSRCA stress roof system designers should be familiar with local climatic conditions and review the proper design manual. In the manual, RTI and WSRCA attempt to provide basic, general information about tile that includes information about material checklists, tile specifications and recommendations, materials and manufacturing; definitions of terms relating to tile; highwind considerations; and general topics about tile issues. These areas include the following With the new International Code Council ICC codes about to take effect, RTI and WSRCA have updated flashing requirements to include the use of No. 26gauge metal. This recommendation is not a new concept and has been in practice for the past few years. For new construction, this will mean One layer of ASTM D226 Type II No. 30 felt, in a recognized code evaluation report, completely will cover the deck and be lapped over the hips and ridges and through valleys. Underlayment will be lapped 6 inches 1.5 mm vertically end or side lap and 2 inches 0.5 mm horizontally head lap. Tile roofs with slopes less than 3in12 14 degrees still are considered decorative. For roofs with slopes between 3in12 14 degrees and 4in12 18 degrees, underlayment may be installed as described previously or a single layer of Type 90 granularsurfaced asphalt roll roofing; two layers of ASTM D226 Type II No. 30 felt installed in shingle fashion; singleply system installed per code; or other approved underlayments may be

installed.http://exhibitionchannel.com/upload/944-factory-service-manual.xml

After Hurricane Andrew struck south Florida, RTI spent several years attempting to identify a specific ASTM standard that could be referenced for use within the manual. Previously, there had not been a proper way to identify a specific coating level. The ASTM A641 Class 1 specification provides a minimum weight of zinc per unit area of uncoated wire surface. Because the nail industry never has been able to equate surface coating to expected life of a fastener, RTI has determined that by specifying the minimum adherence to ASTM A641 Class 1, RTI and WSRCA will at least form a threshold for tile fasteners to meet. The balance of the fastener requirements will come from the Uniform Building Code UBC. Although performed in most U.S. regions, there are specific areas in the Southwest where this practice has not been used. RTI was concerned enough about this issue to provide a subsequent Technical Bulletin about weatherblocking issues; it can be downloaded at www.rooftile.org. The bulletin provides the numerous options that are available for roofing professionals to consider. The issue of ICBOESapproved weatherblocking materials still is being developed. There currently is not an approved acceptance criteria against which weatherblocking materials are tested. Discussions with ICBOES and several weatherblocking manufacturers are occurring to commence drafting acceptance criteria. Once completed, the products then can be tested against those criteria for an official ICBOES approval as a weatherblocking material. The figure was based on engineering calculations and is provided as a guideline for design professionals. Each installation method may have limiting factors depending on wind speed. As a result, RTI and the University of Southern Californias Structural Engineering Department conducted a series of tests on seismic performance of concrete and clay tile.

Tile is the only roofing material that has undergone such testing and resulted in a finding that no additional fasteners are required. By raising the quality of tile installations, RTI and WSRCA believe longerlasting roof assemblies will be installed. In addition, RTI and WSRCA will provide a Spanishlanguage version of the manual by the end of 2002. The presentation will provide a pagebypage tutorial of the changes that have been included in the manual, as well as any revisions. Comments or input about the manual are encouraged and welcomed.Please log in to leave a comment. But what is “abovesheathing ventilation” Heat from solar radiation and interior heat loss from the conditioned space are easily transferred through the deck and roof system. This can increase energy costs and cause ice damming. The buildup of heat and extreme temperatures wings can also reduce the life of underlayment and other system components. This space reduces heat transfer and allows heat buildup to dissipate from the sheathing and roofing materials. This abovesheathing ventilation, or ASV, inherent to tile roof installations can be enhanced using counter battens, shims or manufactured systems to raise the horizontal battens above the roof deck. The system design will vary with the environmental challenge and goals. Specific examples are described below. This space reduces heat transfer and allows heat buildup to dissipate from the sheathing and roofing materials. This space reduces heat transfer and allows heat buildup to dissipate from the sheathing and roofing materials. With these components in place, heat transfer is minimized and heat buildup is dissipated, which reduces energy costs. Vertical counter battens or shims that raise the horizontal battens increase this space and the corresponding benefit. The addition of vented eave riser flashing and ridge ventilation completes an energysaving ASV system.

The system shown below is the Elevated Batten System made by Boral Roofing, which uses treated 1 by 2s with highgrade plastic pads, a vented eave riser flashing and vented weather blocking at the ridge. With these components in place, heat transfer is minimized and heat buildup is dissipated, which reduces energy costs. The upgraded ASV reduces temperature extremes that shorten the life of the underlayment and other roofing components. These benefits are achieved with no mechanical or moving parts. In this climate, moistureladen air can migrate under the tile and condense in the space between the tile and roof deck. The underlayment is there to protect the sheathing but if the

battens are raised above the deck, condensation will be reduced. Raised battens also allow moisture under the tile to escape to the eave. When roof tiles are fastened to a raised batten, underlayment penetrations are minimized. Snow movement on roof surfaces can cause damage to people and property. The goal in cold and snowy environments is to prevent ice dams by enhancing the ASV under the tile roof. Typically, a more substantial air space is created using larger vertical battens. A welldesigned “cold roof” system that includes proper snow retention is the solution. Regions “in locations where the January mean temperature is 25 deg. F or less or where ice damming often occurs”. Through the voices of professionals in the field, Roofing ’s editorial provides a unique perspective. Please try again.Please try again.Please try again. Then you can start reading Kindle books on your smartphone, tablet, or computer no Kindle device required. Register a free business account To calculate the overall star rating and percentage breakdown by star, we don’t use a simple average. Instead, our system considers things like how recent a review is and if the reviewer bought the item on Amazon. It also analyzes reviews to verify trustworthiness.

http://foot-five.com/images/canon-850i-manual.pdf

Eagle is a familyowned company that has been in the tile roofing business for over 40 years and is a joint venture of USA Owned Burlingame Industries. Eagle was founded in 1989 with the goal of manufacturing quality concrete roof tile in modern, automated and highspeed plants. As one of the nations leading manufacturers, Eagle is dedicated to servicing the new construction and remodeling industries worldwide with roof tile and accessories. Eagle also strives to innovate trend setting technologies and products that benefit the environment while helping our customers and their customers. Eagles entire team is dedicated to becoming the industrys tile company of choice providing the industry with green solutions that increase curb appeal while reducing energy costs. For more information, samples or assistance from Eagle Roofing Products, please visit our website. See our SpecWizard Click Here August 2007. Consult with Eagle for additional information or assistance. Indicate tile layout with location of cut and special shaped tiles identified. Include range samples if variation of finish is anticipated. Delete if not required. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. The following is one example of how a mockup on a large project might be specified. When deciding on the extent of the mockup, consider all the major different types of work on the project. Do not install products under environmental conditions outside manufacturers absolute limits. Fax 909 8225940. Website www.eagleroofing.com. Fax 209 2344366. Website www.eagleroofing.com. Fax 602 4428841. Website www.eagleroofing.com. Fax 877 3003248. Website www.eagleroofing.com. Please visit the Eagle website for a list of colors and reflectance, emittance and SRI values. Delete if not required. Delete weight not required. Boosted Cap is an available application and should be specified in addition to Malibu field tile.

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Delete weight not required. Delete weight not required. Boosted Cap is an available application and should be specified in addition to Capistrano field tile. Delete weight not required. Delete weight not required. Delete weight not required. Delete weight not required. Delete weight not required. Double Eagle Bel Air not available in Lightweight. Lightweight concrete roof tiles are not available in all areas. Delete weight not required. White is special order. Delete color snot required. Delete colors not required. White is special order. Delete color not required. Helps to improve ventilation under the tile. 1 inch by 2 inch battens must be specified separately. Delete if not required. Not available in Florida. Provide 2 inches by 2 inches 51 mm by 51 mm ridge board. Delete if not required. Product for elevating battens off of the roof deck. White is special order. Delete colors not required. Delete colors not required. White is special order. Delete colors not required. Delete rake style and colors not required. Delete rake style and colors not required. Delete if not required. Delete colors not required. Delete if not required. Delete colors not required. Fold down onto fascia

or barge board, minimum of 1 inch 25 mm. Secure with nails and tin tags, round cap nails or other fasteners 6 inches 152 mm on center. Fold down and seal onto fascia or barge board. Comply with Tile Roofing Institute Moderate Climate Installation Guide Table 1A and 1B. ASTM A641 Class 1 is a nail specification that can be converted to screw fasteners through performance testing ASTM B 117. Each fastener manufacturer is responsible for supplying this support this data.Do not commence tile installation until unsatisfactory conditions are corrected. Quick Reference charts on pages 2, 23, 45, 67 and manufacturers instructions. See drawings 11,12,12,14 and 11b, 12b, and 14b. For self curbing or prefabricated skylights, refer to skylight manufacturers installation instructions.

Florida install according to manufacturers instructions and local code requirements. We have no relationship with advertisers, products, or services discussed at this website. Clay roofing tiles have been used in Europe, the Middle East, and Asia, since the Greek and Roman Empires, and the Americas since Europeans arrived there. But other roofs use clay tiles to protect a waterproof underlayment from sun and for aesthetic reasons. Thus, Chongjon enshrined the souls still roaming the earth, while Yongnyong held those who had achieved eternal rest. Roman terms for this roof tile shape include imbrex and tegula. A lug on the back allowed the tiles to hang on the lathing without nails or pegs. In the Southwest, the tile roofs of the Spanish missionaries mission tiles were first manufactured ca. 1780 at the Mission San Antonio de Padua in California. Sometimes mortar was applied between the courses to secure the tiles in a heavy wind. Best Practices Guide to Residential Construction points out that At abovbe right, a vitrified clay glazed flat tile roof in Duluth, Minnesota. Both of these roofs tolerate freezing climate and other harsh weather conditions. The vitrification glasification process makes the tiles hard and waterproof by melting and fusing silicas and aluminas in the clay. The clay tile roof shown at above left is located near Phoenix, and at above right the clay tile roof is on a building located in Surprise, Arizona. Inexpensive clay roofing tiles that are fired to lower temperatures insufficient to achieve vitrification are soft, easy to break, and less water resistant. Tile end closure is discussed at How clay roofing tiles are secured. The tabs should be bent up over the tile edges but appeared to have been flattened by snow sliding down the roof. Lots of these tiles were broken, particularly on the low slope roof section we suspected some of the clay tile roof damage was due to foot traffic.

Contact the company for additional details about this product and its installation. At below right is an open eaves clay tile roof design in Molde, Norway. These guidelines may not be applicable in all geographical areas. It is theAccordingly, the Florida Roofing, Sheet Metal and AirIndividual tiles were built right side up on a mold, with a pair of profiled templates guiding the shape of the top. Replication experiments reveal that the template design for these tiles is much simpler than formerly believed. Nonetheless, it is likely that the Corinthians created their first tiles in imitation of an earlier terracotta roofing system with separate cover and pan tiles, perhaps developed outside the Corinthia. From the above observations The tiles carved on the standard are curved and thin Fig. 2, plan EFtheyAll Laconian titles, so far as the writer is aware,A highly paid stonecutter would have to beOn account of the expense involved, marbleIt also contributes considerably to the dissemination of information about Greek history and archaeology to the Greek public, as well as to the international and Greek scholarly communities. The basis for my argument is a comparison between documented finds of roof tiles from the period 700650 and those from 650600 B.C. However clay tile roofs are often damaged by foot traffic, ice and snow, or by severe storms. Flat clay tiles, not the Mediterranean type. You might ask if theres a roof job theyve done and drive by to see if the roof looks like its in place and is tile. Some roofers also give prior clients as referrals but it may help to hear my experience Ive done roofing work as well as other contracting It can be intrusive, invade privacy, and unannounced it could upset a prior client to be bothered. I might also never make a final payment before I was sure the job was properly finished. Rather for slopes at 312 or less the installer is required to install a BUR or similar waterproof membrane on the roof below the tiles.

Does that mean it leaks We checked for water leaks and surprisingly there are none but on a sunny day, we can see the light poking through the holes.How could that be Can someone advise if it is safe to purchase it.I am curious about what happened in your situation. I just found out that the home I really want to buy has the same problem with no underlayment concrete tiles,not clay. The roof may never leak, given pitch and adequate head lap of the slates or tiles, OR it may leak horribly if there is winddriven rain blowing water upslope. ISBN10 0471648361, ISBN13 9780471648369, Hardcover 320 pages, available from Amazon.com and also Wiley.com. See our book review of this publication. Mr. Cramer serves on the ASHI Home Inspection Standards.Proper planning and installation ensure a tile roof with elegance. Many of the technical books about roof tiling and slating are rather vague and conveniently ignore some of the trickier problems and how they can be resolved. In Roof Tiling and Slating, the author rejects this cautious approach. Kevin Taylor uses both his extensive knowledge of the trade and his ability to explain the subject in easily understandable terms, to demonstrate how to carry out the work safely to a high standard, using tried and tested methods. This clay roof tile guide considers the various types of tiles, slates, and roofing materials on the market as well as their uses, how to estimate the required quantities, and where to buy them. The author, Kevin Taylor, works for the National Federation of Roofing Contractors as a technical manager presenting technical advice and providing education and training for young roofers. ISBN10 0471648361, ISBN13 9780471648369, Hardcover 320 pages, available from Amazon.com and also Wiley.com. See our book review of this publication. Congress Catalog Card Nr. 8150643. National Bureau of Standards. Technical note, William C Cullen, Superintendent of Documents, U.S. Govt. Print.

Off 1963, ASIN B0007FTV2Q Alan Carson is a past president of ASHI, the American Society of Home Inspectors. Carson Dunlop Associates provides extensive home inspection education and report writing material. The text is intended as a reference guide to help building owners operate and maintain their home effectively. Field inspection worksheets are included at the back of the volume. Special Offer For a 10% discount on any number of copies of the Home Reference Book purchased as a single order. InspectAPedia.com editor Daniel Friedman is a contributing author. Or choose the The HOME REFERENCE eBook for PCs, Macs, Kindle, iPad, iPhone, or Android Smart Phones. Special Offer For a 5% discount on any number of copies of the Home Reference eBook purchased as a single order. InspectAPedia.com editor Daniel Friedman is a contributing author. Clay tile roof inspection, failures, repair, product defects. Roof inspection, leak detection, roof diagnosis, roof repair.We have no relationship with advertisers, products, or services discussed at this website. Our page top photo shows clay roofing tiles installed on a low slope roof in San Miguel de Allende, Mexico. Below we comment on the special steps needed to keep a low slope clay tile roof from leaking. For example at How clay roofing tiles are secured we include a photograph of a clay tile roof in a mountainous area of Mexico where very little is done to fasten the tiles to the roof structure. Notice the drainage gaps in the batten strips. In coastal areas where high winds and hurricanes are a threat to all roofs, extra steps are taken to fasten tiles to the roof surface. Raising the high end of this shed roof a few inches will improve the roof drainage and stop the leak problem. This system works acceptably in areas such as central Guanajuato, Mexico where the structure is not subjected to high winds nor freezing weather. Mr. Cramer serves on the ASHI Home Inspection Standards.

Many of the technical books about roof tiling and slating are rather vague and conveniently ignore some of the trickier problems and how they can be resolved. In Roof Tiling and Slating, the author rejects this cautious approach. Kevin Taylor uses both his extensive knowledge of the trade and his ability to explain the subject in easily understandable terms, to demonstrate how to carry out the work safely to a high standard, using tried and tested methods. This clay roof tile guide considers the various types of tiles, slates, and roofing materials on the market as well as their uses, how to estimate the required quantities, and where to buy them.ISBN10 0471648361, ISBN13

9780471648369, Hardcover 320 pages, available from Amazon.com and also Wiley.com. See our book review of this publication. The text covers moisture needs, heat tolerance, hardiness, bloom color, foliage characteristics, and height of 350 species and cultivars. Congress Catalog Card Nr. 8150643. Alan Carson is a past president of ASHI, the American Society of Home Inspectors. Carson Dunlop Associates provides extensive home inspection education and report writing material. The text is intended as a reference guide to help building owners operate and maintain their home effectively. Field inspection worksheets are included at the back of the volume. Special Offer For a 10% discount on any number of copies of the Home Reference Book purchased as a single order. InspectAPedia.com editor Daniel Friedman is a contributing author. Or choose the The HOME REFERENCE eBook for PCs, Macs, Kindle, iPad, iPhone, or Android Smart Phones. Special Offer For a 5% discount on any number of copies of the Home Reference eBook purchased as a single order. InspectAPedia.com editor Daniel Friedman is a contributing author. Clay and concrete roof tiles are designed to protect homes during excessive rain and thunderstorms, maintaining aesthetic curb appeal despite intense elements.

This article is the exclusive property of Green Builder Media. Please contact a member of our editorial staff if you need more information. Tile roofs are strong, versatile, and durable. Available in a variety of styles and finishes, tile adds curb appeal to any home, be it American Colonial, Spanish Hacienda, or French Provincial. As with any roof type, weather proofing and installation are keys to longterm performance. This article will provide tips on how to avoid common errors in tile installation. Several industry standards have been developed and are used in order to assure quality installation of clay and concrete tiles, such as the National Roofing Contractors Association, the Roof Tile Institute, and the Western States Roofing Contractors Association. But even with these established standards, tile roofs are frequently installed incorrectly, with mistakes that are repeatedly the same. Some local building codes may require two layers of underlayment be provided due to cold climate conditions or the low slope of a roof; therefore, it is important to verify underlayment requirements before installation begins. Underlayment is a crucial component to the roof because it acts as a drainage plane for a watershedding tile roof. Tile roofs are unique in this aspect, as the primary drainage plane is the underlayment and not the topmost layer like other roofing materials, such as asphalt or wood shingles. This is why any puncture or tear in the underlayment should be sealed so no water intrusion below the underlayment can occur. Water intrusion could eventually result in leaks into the residence, which could cause a substantial amount of damage. However, leaks don’t always show up right away, even though deterioration could be occurring to the roof decking and other wood components. The underlayment should lap over the top of roof penetration flashings and under the bottom, creating a shinglelike order to ensure the water shedding capabilities of the underlayment.

This technique is important at small penetrations, such as plumbing and roof vents, as well as at large penetrations such as skylights and chimneys. The flashing surrounding these large penetrations is made up of several pieces, so the same shinglelike lapping is essential at these locations. It should also be mentioned that at penetrations with a width larger than 30 inches, installment of a cricket flashing is recommended to prevent snow and debris buildup. At rakes, the underlayment should be lapped under the rake flashing to prevent water intrusion from winddriven rain and snow below the underlayment. At eaves, the underlayment should be lapped over the eave flashing in order to provide a continuous avenue for water to drain off of the roof. In all of these cases, reverselapped underlayment and flashing interfaces can result in damaged components and can eventually lead to leaks. Note the roof underlayment is run under the uphill side of the penetration flashing. Water will run under the flashing and into the deck penetration at this location. Source Concrete and Clay Roof Tile Installation Manual for Moderate Climate Regions Design Criteria, by Roof Tile Institute and Western States Roofing Contractors Association Two events are necessary to create an ice dam a warm interior and a cold exterior. When snow accumulates on a

roof with a warm attic, it begins to melt. When the melting snow reaches the end of the roof at the eaves, which stay cold as they are not adjacent to attic space, the melted snow refreezes. This situation can cause major damage to homes if the moisture management materials are not correctly lapped. If not properly protected, water can travel under the underlayment and enter the home's walls, ceiling, and building components. This is just one more reason why paying particular attention to the lapping conditions of moisture management materials is so important.

Other precautions can be addressed to ensure that ice damming occurrences are significantly reduced. One option, and probably the most effective, is to eliminate the warm attic environment. To do this, insulation should be placed above the ceiling in the attic to keep the warm air in the living space of the home and not in the attic space. Additionally, sufficient ventilation should be established to provide a constant flow of air through the attic space from the ridge to the eaves. If this cold attic system is correctly installed, the probability of ice damming should be completely eliminated. Valleys are located at the intersection of two sloping roof planes which creates an area of concentrated water flow, so additional protection is necessary to prevent water intrusion. Whether using additional underlayment or sheet metal flashing at valleys, installation should consider the flow of water. This will ensure all valley components are lapped in a shinglelike manner, in the direction of water flow. Note battens and bird stop extended into valley flashing resulting in debris accumulation. Construction debris, such as tile fragments and underlayment scraps also block the flow of water.Note placement of battens around valley flashing. Source Concrete and Clay Roof Tile Installation Manual for Moderate Climate Regions Design Criteria, by Roof Tile Institute and Western States Roofing Contractors Association. Battens are usually 1inch x 2inch wood supports nailed or stapled horizontally to the roof decking. Tiles with projecting anchor lugs are hung on the battens and fastened to them. The purpose of battens is to provide space for water and debris to drain below the tiles, as well as to allow the system to ventilate. It is also pertinent that battens be withheld from the valleys so a clear drainage path is present for water and debris to exit the system. Another method for providing a drainage plane below the tiles is to install counter battens.