

Roofing Replacement Project

One Credit CEU Class for Community Association Managers

- * A Continuing Education Unit Credit Course prepared for Community Association Managers by:



KWA Engineers, LLC

SARASOTA
2017 Fiesta Drive
(941) 927-8525

FT. LAUDERDALE
5200 NW 33rd Ave. # 210
(954) 551-5936

ST. PETERSBURG
5959 Central Ave. #301
(727) 895-9119

NAPLES/FT MYERS
9696 Bonita Beach Rd., #210
(239) 444-1440

- * CEU Provider No. 0004454
- * Class No. 9626443
- * Credit: 1 Credit Hour

Roofing Replacement Project

- | | |
|------------------------------------|------------|
| * Introduction | 05 minutes |
| * Hiring a P.E. | 15 minutes |
| * Four Phases, Engineering Service | 25 minutes |
| * Review | 10 minutes |
| * Examination | 05 minutes |

Roofing Replacement Project

- * The First Step
- * When do you need to contact a Professional Engineer concerning roof issues?



- * Whenever issues are present that affect the integrity of the structure or the soundness of the building envelope.

Roofing Replacement Project

- * Occasionally, a roofing contractor will encounter conditions that are beyond their scope and recommend that the Owners employ a Professional Engineer to assess the condition and recommend products and procedures.

Roofing Replacement Project

- * **Hiring a Professional Engineer**
 - * The Request For Proposal

- * The Owners and/or their Management company prepares a written “Request For Proposal” (RFP) for a qualified and licensed Structural Engineer to provide a response.
- * The RFP should include a detailed scope of work.
- * The invited Engineers then arrange to visit the site to observe the conditions in order to become familiar with the project scope. The bidding Engineers then provide the Owners with a written proposal for Professional Services based on the work defined in the RFP.

Roofing Replacement Project

* Hiring a Professional Engineer

- * Proposals are assembled by the Manager, then reviewed by the Owners and a decision is usually made to meet with the selected bidder for a final interview regarding any clarifications.
- * Once both parties are in agreement, a written contract is signed.

Roofing Replacement Project

- * **Hiring a Professional Engineer**

- * ANY QUESTIONS?

Four Phases of Engineering Services

Roofing Replacement Project

- * **The Four Phases of Engineering Services for a Roofing Replacement Project**
- * A roofing project usually occurs in four phases. The phases follow logical order and have specific benefits to the Owners.
- * Phase I Observations and Existing Conditions Report
- * Phase II Project Manual
- * Phase III Bidding
- * Phase IV Construction Administration

Observations/Existing Conditions

Roofing Replacement Project

* **Phase I - Observations & Existing Conditions Report**

- * Plan and Document Review
- * Roof Condition Inspection and Evaluation
- * Photographic Documentation
- * Non-Destructive & Destructive Testing Options
- * Written Report with Photo Exhibit and Recommendations
- * Opinion of Probable Replacement Cost
- * Expected Remaining Useful Life

Observations/Existing Conditions

Roofing Replacement Project

* **Phase I - Observations & Existing Conditions Report**

- * Inspections and investigations are performed in order to obtain enough information for an Engineer to offer an opinion concerning the existing conditions.
- * A clear report of these findings is made outlining the items found including recommendations based on the findings along with an opinion of probable cost.
- * Also included is the estimated remaining useful life of the roofing system.

Observations/Existing Conditions

Roofing Replacement Project

- * **Phase I - Observations & Existing Conditions Report**

- * Items observed may include the roofing materials such as:
 - * Modified Bituminous Membrane (SBS)
 - * Elastomeric Membrane (EPDM)
 - * Thermoplastic Membrane (TPO)
 - * Fluid Applied Roofing
 - * Coated Foam Roofing
 - * Asphalt Rolled roofing

Observations/Existing Conditions

Roofing Replacement Project

* Phase I - Observations & Existing Conditions Report

- * Observations of:
 - * roof penetrations
 - * pitch pans
 - * exhaust fans
 - * dryer vents
 - * AC stands
 - * plumbing stacks, etc.



Observations/Existing Conditions

Roofing Replacement Project

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Roofing Replacement Project

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Observations/Existing Conditions

Roofing Replacement Project

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Roofing Replacement Project

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Observations/Existing Conditions

Roofing Replacement Project

* Phase I - Observations & Existing Conditions Report

- * Observations of:
 - * coping
 - * metal flashings
 - * line sets
 - * wiring & disconnect
 - * mansard
 - * parapets



Observations/Existing Conditions

Roofing Replacement Project

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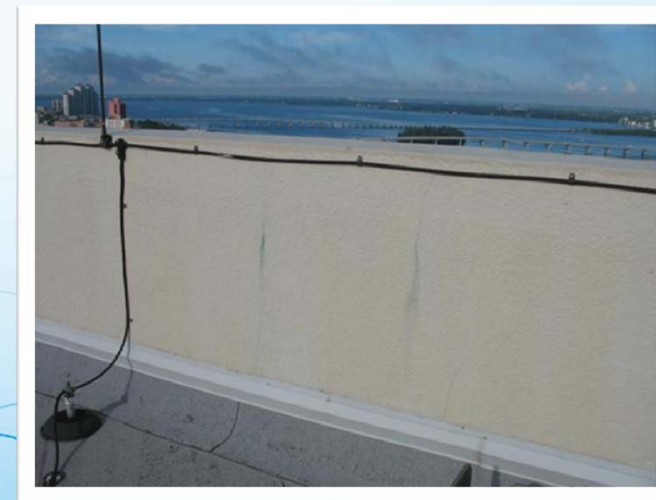


Observations/Existing Conditions

Roofing Replacement Project

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 - * metal flashings
 - * line sets
 - * wiring & disconnects
 - * mansards
 - * parapets



Observations/Existing Conditions

Roofing Replacement Project

- * **Phase I - Observations & Existing Conditions Report**
- * Observations of:
 - * overflow scuppers,
 - * roof drains and their elevations.



Observations/Existing Conditions

Roofing Replacement Project

- * **Phase I - Observations & Existing Conditions Report**
- * Additional considerations are taken into account which will determine the scope of work to be performed by the roofing contractor.
- * For example, lightning arrestors, access ladders, hatches, walkway and service pads.

Observations/Existing Conditions

Roofing Replacement Project

- * **Phase I - Observations & Existing Conditions Report**

- * Photographic Documentation of Conditions
- * Photos included in the written report will address each issue noted.
- * Photos should be numbered and location specific for easy reference.

Observations/Existing Conditions

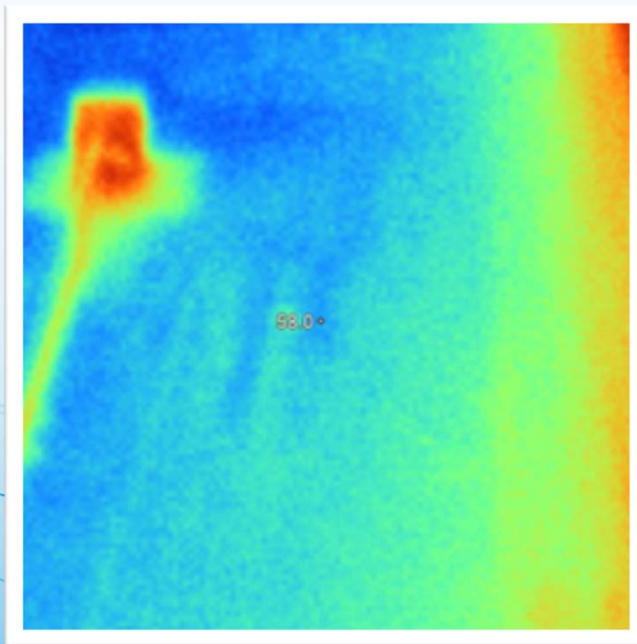
Roofing Replacement Project

- * **Phase I - Observations & Existing Conditions Report**
- * During the roof condition inspection some testing may be warranted. Tests are typically done to provide additional information when visual observations detect potential problem areas.
- * Non-destructive testing can include the use of infrared thermographs to determine the presence of moisture in the underlayment assembly.

Observations/Existing Conditions

Roofing Replacement Project

- * **Phase I - Observations & Existing Conditions Report**
 - * Non-Destructive Testing, infrared imaging.



Observations/Existing Conditions

Roofing Replacement Project

- * **Phase I Observations & Existing Conditions Report**
- * Destructive Testing
- * This may include the use of moisture meters and core sampling to determine the extent and conditions of the insulation and lightweight topping. This testing may confirm if moisture is present in the underlayment system or structure.



Observations/Existing Conditions

Roofing Replacement Project

* Phase I Observations & Existing Conditions Report

- * Ponding or standing water on the roof assembly may warrant destructive testing to determine the extent of moisture penetration.



Observations/Existing Conditions

Roofing Replacement Project

- * **Phase I Observations & Existing Conditions Report**
- * Determine repair or replacement.
- * The extent of repairs or replacement is determined by the Florida Building Code 5th Edition (2014) Building, Chapter 15 Roof Assemblies, Section 1510 Reroofing.



Observations/Existing Conditions

Roofing Replacement Project

- * **Phase I Observations & Existing Conditions Report**
- * Determine recover or replacement
- * The Florida Building Code, 1510.3 outlines five conditions when new roof covering shall not be installed without first removing the existing roof coverings.
- * For example, if there is moisture in the roof assembly or blisters in the roofing.



Observations/Existing Conditions

Roofing Replacement Project

- * **Phase I - Observations & Existing Conditions Report**
- * **Determine if the roofing is part of the structures wind load diaphragm.**
- * **If the roof is part of the building diaphragm, additional calculations and additional fastening may be required for wind resistance.**
- * **This is usually an issue for frame or trussed roofs.**

Observations/Existing Conditions

Roofing Replacement Project

- * **Phase I - Observations & Existing Conditions Report**
- * **Preparation of Written Report**
- * **This report should enable even those unfamiliar with roof construction to understand the issues present.**
- * **The report includes the Engineer's recommendations, opinion of probable replacement costs and expected remaining life.**
- * **The report will allow the Owners to determine their best course of action, and assist in making budget and scheduling decisions.**

Observations/Existing Conditions

Roofing Replacement Project

- * **Phase I Observations & Existing Conditions Report**
 - * **Phase I – Review**

- * **Roof Condition Inspection – Visual observations of the roof conditions.**
- * **Photographic Documentation – photo exhibit of areas to be addressed.**
- * **Destructive / Non-Destructive Testing – During investigation should visual observations warrant further testing, the engineer may call for non-destructive or destructive tests to be performed.**
- * **Preparation of Written Report – A written report outlining the observations and recommendations for the roof. Also included will an “opinion of probable cost”.**
- * **The information gathered from conducting the Phase I Inspection is then used to prepare the Phase II Project Manual.**

Observations/Existing Conditions

Roofing Replacement Project

- * **Phase I - Observations & Existing Conditions Report**

- * **QUESTIONS?**

Project Manual Phase

Roofing Replacement Project

* Phase II - Project Manual

- * Using information gathered during Phase I, the Project Manual is created. Typically it contains:
- * Roofing Specifications- Products and Procedures
- * Bid Forms, Instructions to Bidders
- * Owner / Contractor Agreements
- * General Conditions
- * Summary of Work
- * Temporary Facilities and Schedules
- * Project Close Out

Project Manual Phase

Roofing Replacement Project

* Phase II - Project Manual

- * **Roofing Specifications- Products and Procedures**
- * **The specifications section is prepared based on the observation report.**
- * **In some cases specialty items are required. For example, AC stands may need to be replaced and require a specialty engineer's design.**
- * **Proper specifications are critical for the success of the project.**
- * **The purpose is to make sure each of the roofing contractors is fully aware of the entire project requirements and desires of the Owners, avoiding confusion later during the project.**
- * **The owners thereby receive competitive “apples to apples” pricing.**

Project Manual

Roofing Replacement Project

- * Phase II - Project Manual
- * Specifications provide specific products and procedures
- * Based on the Construction Specification Institute (C.S.I.) format.

Boca Siesta Condominiums Roof

5911 Midnight Pass Road
Sarasota, FL 34242
August 1, 2011
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00700	EJCDC C-700 Standard General Conditions of the Construction Contract
00800	Supplementary Conditions Erakote Specification Thermoplastic SPR Urethane
Division 01	General Requirements
01010	Summary of Work Addendum #1

Project Manual

Roofing Replacement Project

- * Phase II - Project Manual
- * Bid Form
- * Instructions to Bidders

SECTION 00200 BID FORM

PART 1 – BID FORM

1.01 General Notes

The following proposal (BID) provides for complete execution of the work as defined by the Contract Documents within the terms of a formal agreement established upon the stipulated compensatory sum. The undersigned, having familiarized themselves with the existing conditions of the project area affecting the cost of the work, and the Project Manual, drawings and specifications hereby proposes to furnish all supervision, technical personnel, labor, materials, machinery, tools, services, appurtenances, equipment, including site security of all items thereon, and all fees and permits, utility and transportation services required to complete the Contract for this project.

The Bidder, by affixing their signature hereto, declares the following:

- A. Bidder has thoroughly examined the site of the Work in accordance with Article 7 of the Agreement.
- B. The only persons, company or parties interested in this Bid or the Contract to be entered into as principals are named herein, without connection to any other person, company or party submitting a Bid for this Project.
- C. This Bid is submitted in good faith without collusion or fraud.
- D. Bidder is familiar with the Federal, State and Local laws, ordinances or regulations governing the Project.
- E. If this Bid is accepted in part or in total, Bidder will furnish Work in full and in complete accordance with shown, noted, referenced, described, and reasonably intended requirements of the attached Contract Documents and all Attachments and Addenda thereto for the following prices.

Notes:

1. Fixed Price and Unit Prices shall include all items such as surface preparation, sealants, control joints, installation, cant, finishes, etc. as may be necessary to complete the work.
2. Fixed Price and Unit Price shall include all material, labor, equipment, shoring, scaffolding, clean-up, etc. as may be necessary to complete the work.
3. Estimated Unit Price prices are for bidding purposes only. Unit Price work will be billed based upon the actual quantities as verified by ENGINEER. General Conditions shall be included in the unit price.
4. Unit and Fixed Price shall include the removal and replacement of finish materials. (I.E. Existing Roofing, Stucco, Paint, etc.)
5. Mobilization shall include job start up and breakdown, staging setup, deposits on equipment, etc.
6. General Conditions shall include, but not be limited to, office overhead, supervision, staging rental, portable sanitation, dumpsters, and any item not included elsewhere in the bid costs. General Conditions associated with additions or reductions in quantities of Unit Price Work shall be included in the unit prices.
7. Estimated quantities in the Fixed Price are for informational purposes used during the evaluation of the bidders. Fixed Costs shall be billed at the Fixed Cost price.
8. Permit Costs shall be billed as a direct cost to the Owner plus time expended.

Project Manual

Roofing Replacement Project

- * Phase II Project Manual
- * Owner / Contractor Agreement

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification.

SUGGESTED FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN COUNCIL OF ENGINEERING COMPANIES

AMERICAN SOCIETY OF CIVIL ENGINEERS



This document has been approved and endorsed by
The Associated General Contractors of America
Construction Specifications Institute



This Suggested Form of Agreement has been prepared for use with the Standard General Conditions of the Construction Contract (C-700, 2002 Edition). Their provisions are interrelated, and a change in one may necessitate a change in the other. The language contained in the Suggested Instructions to Bidders (C-200, 2002 Edition) is also carefully interrelated with the language of this Agreement. Their usage is discussed in the Commentary on EJCDC Construction Documents. See also Guide to the Preparation of Supplementary (C-800, 2002 Edition).

National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314-2715

American Council of Engineering Companies
1015 15th Street, N.W., Washington, DC 20005

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400

Bidding Phase

Roofing Replacement Project

- * **Phase II - Project Manual**

- * **General Conditions**

- * **This section provides definitions to terminology along with insurance requirements, bonds, etc.**

Bidding Phase

Roofing Replacement Project

- * **Phase II - Project Manual**

- * **Summary of Work**

- * **The summary of work section of the contract provides the contractor with the scope outline and information necessary to complete the project.**

Bidding Phase

Roofing Replacement Project

- * **Phase II - Project Manual**

- * **Review**

- * **Specifications, Products and Procedures**
 - * **Bid Form, Instructions to Bidders**
 - * **Owner / Contractor Agreement**
 - * **General Conditions**
 - * **Summary of Work**
 - * **Temporary Facilities and Schedules**
 - * **Project Close Out**
-
- * **Phase III begins once the Owners authorize the preparation of the Invitation to Bid letters.**

Project Manual Phase

Roofing Replacement Project

* **Phase II - Project Manual**

* **Any QUESTIONS?**

Bidding Phase

Roofing Replacement Project

* Phase III - Bidding

- * **Bidding Phase**
- * **Invitation to Bid letters are sent to qualified bidders.**
- * **A pre-bid meeting is held on site.**
- * **The bids are received, reviewed, and a spreadsheet is compiled by the Professional Engineer for the Owners consideration.**
- * **The Owners select a bidder and signs a contract with the winning Contractor.**

Bidding Phase

Roofing Replacement Project

* Phase III - Bidding

- * **Chose a Qualified Roofing Contractor:**
- * **Contractors should be pre-qualified for the type of work outlined in the Scope of Work section.**
- * **Contractors should have a proven track record with verifiable references.**
- * **Contractor should be in a position to provide any Bond required.**
- * **Contractor should demonstrate that they have key experienced personnel with a minimum of 5 years experience directly related to your project type.**
- * **Contractors should be licensed, insured and be able to provide any bonds required.**

Construction Administration

Roofing Replacement Project

* Phase IV - Construction Administration

- * **Open Permit Letter**
- * **Pre-construction meeting. A crane or chute may be used to remove debris. The location of the crane and other items are decided at the pre-construction meeting.**
- * **Review submittals for the products to be used.**
- * **Construction Phase Begins.**

Construction Administration

Roofing Replacement Project

* Phase IV - Construction Administration

- * Provide inspections and reports with photo exhibits.
- * Verify compliance with general contract specifications.
- * Review of contractors pay applications and lien releases.
- * Provide project close out.

Construction Administration

Roofing Replacement Project

* Phase IV - Construction Administration

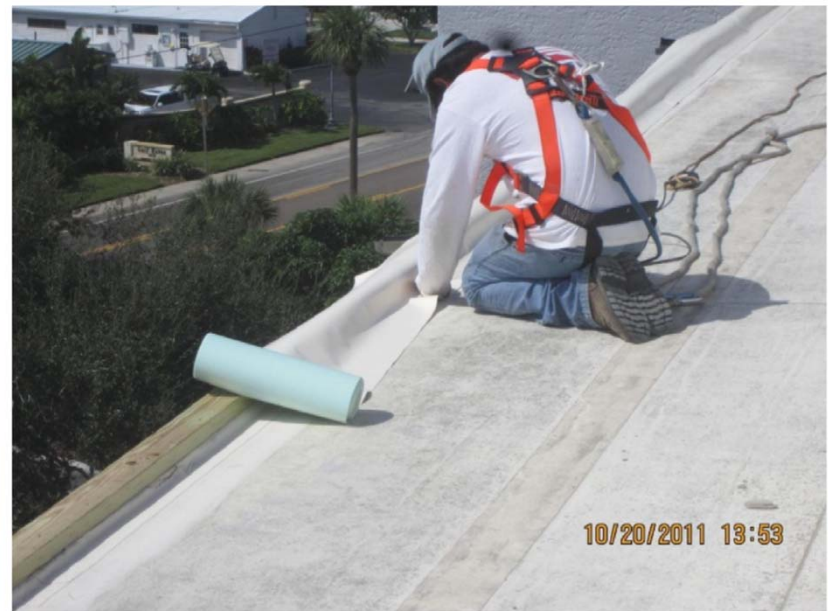
- * **Verify compliance with the contract specifications.**
- * **The inspector will review specifications and submittals to verify that work is being completed in accord with the Contract and Project Manual.**

Construction Administration

Roofing Replacement Project

Phase IV - Construction Administration

- * Observe work in progress, provide field reports



Construction Administration

Roofing Replacement Project

- * **Phase IV - Construction Administration**
- * **In Progress Observations**
- * **Inspection of the substrate during roofing removal for any deficiencies.**



Construction Administration

Roofing Replacement Project

* Phase IV - Construction Administration

- * **In Progress Observations**
- * **The substrate is installed/prepared prior to installing the base layer.**
- * **The base sheet is installed and all penetrations are detailed including access hatches and ladders, etc.**

Construction Administration

Roofing Replacement Project

- * **Phase IV Construction Administration**
- * **In Progress Observations**
- * **New AC stands with lead boots are installed.**



Construction Administration

Roofing Replacement Project

- * **Phase IV -
Construction Administration**
- * **In Progress Observations**
- * **Access hatches and ladders
are installed.**
- * **Scupper are flashed.**
- * **All penetrations are detailed.**



Construction Administration

Roofing Replacement Project

* Phase IV - Construction Administration

- * In Progress Observations
- * The intermediate layer(s) is installed.
- * The number of plies will depend on the selected system and the desired warranty.

Construction Administration

Roofing Replacement Project

* Phase IV - Construction Administration

- * In Progress Observations
- * The cap sheet or top layer is installed.
- * Parapet and/or mansard layers are included at all ply applications.

Construction Administration

Roofing Replacement Project

- * **Phase IV
Construction
Administration**
- * **In Progress Observations**
- * **Coping flashing all cap
flashing is installed.**
- * **Final Inspections**



Construction Administration

Roofing Replacement Project

* Phase IV - Construction Administration

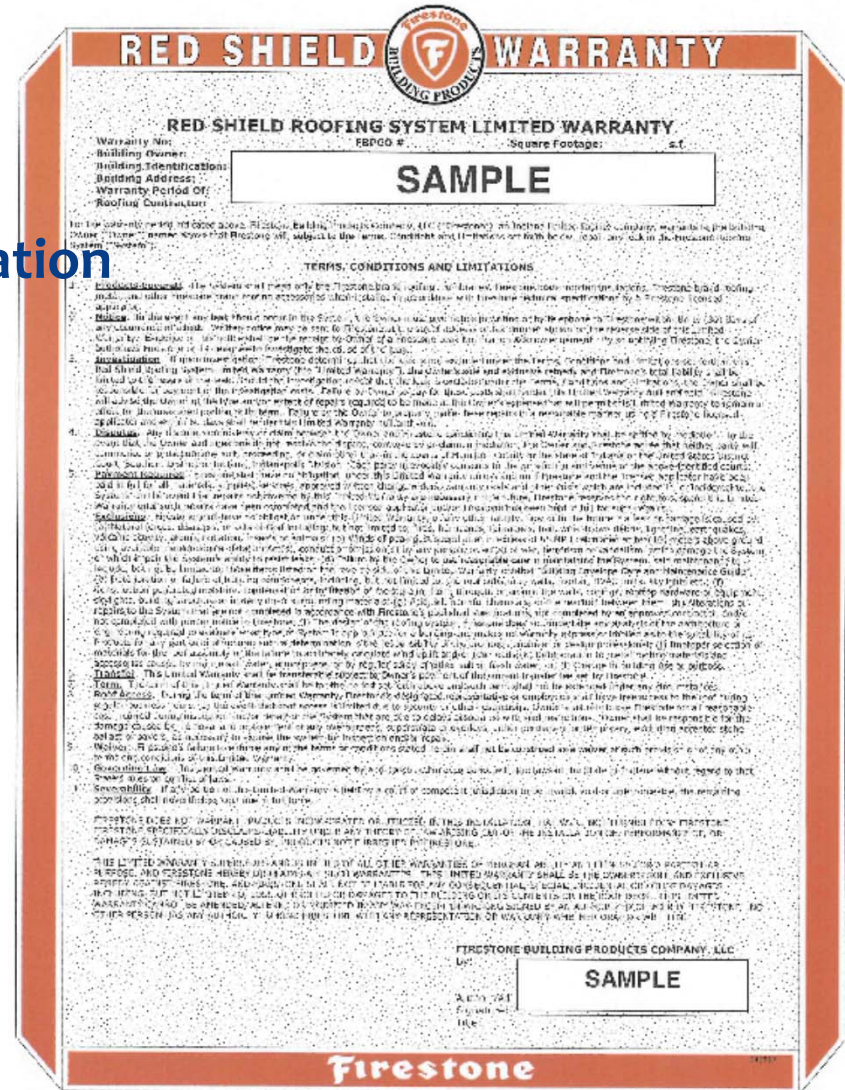
- * **Project Close Out**
- * **Review of contractors final pay request and lien releases.**
- * **Engineer provides the final inspection and report.**
- * **After all punch list items have been completed, the engineer may be required to inspect the completed punch work.**
- * **After final approval, the project close out package is prepared and all warranties are put into effect.**

Construction Administration

Roofing Replacement Project

Phase IV - Construction Administration

- * Project Close Out Items
- * Final Field Inspection
- * Final Pay Application
- * Final Lien Release
- * Contractors Affidavit
- * Bonds
- * Warranties
- * Certification
- * Close Permit Letter



Construction Administration

Roofing Replacement Project

* **Phase IV - Construction Administration**

* **QUESTIONS?**

Roofing Replacement Project

* Review

- * **The first step when planning a Roof Replacement Project should be to select a professional engineering firm experienced in roofing projects.**

Roofing Replacement Project

Phases I - VI

* Review

- * **Phase I – Is the segment of a project in which information is gathered regarding the condition of the existing roofing system. It may include visual observations, photographic documentation, plan review, non-destructive or destructive testing and includes a written report.**

Roofing Replacement Project

* Review

- * **Phase II – The Project Manual contains all documents necessary for managing the roofing project. It contains: product and procedure specifications, bid documents, drawings, contract administration documents and more...**

Roofing Replacement Project

* Review

- * **Phase III – Bidding– Bids are obtained, reviewed and a spreadsheet compiled for easy comparison.**
- * **Final interviews may take place.**
- * **The Owners make a selection and enters into a contract.**

Roofing Replacement Project

* Review

- * **Phase IV – Construction Administration; demolition and re-roofing work begins, inspections take place and field reports provided.**
- * **The professional engineering company performs submittal reviews, pay application reviews and performs the project close out.**

Roofing Replacement Project

* Examination

* Question No. 1

- * One of the first steps in planning any Roofing Replacement Project should involve contracting a Professional Engineering Firm. True ___ False ___

Roofing Replacement Project

* Examination

* Answer No. 1

- * One of the first steps in planning any Roofing Replacement Project should involve contracting a Professional Engineering Firm. True X False __

Roofing Replacement Project

* Examination

* Question No. 2

- * Open seams or blisters in roofing material can indicate a lack of adhesion to the substrate. True ___ False ___

Roofing Replacement Project

* Examination

* Answer No. 2

- * Open seams or blisters in roofing material can indicate a lack of adhesion to the substrate. True X False

Roofing Replacement Project

* Examination

* Question No. 3

- * Phase II, A well prepared project manual contains all the documents necessary to bid, permit and conduct a roofing project. True _____ False _____

Roofing Replacement Project

* Examination

- * Answer No. 3
- * Phase II, A well prepared project manual contains all the documents necessary to bid, permit and conduct a roofing project. True X False _____

Roofing Replacement Project

* Examination

* Question No. 4

- * A Permit is required for all Roofing replacement projects. True ___ False ___

Roofing Replacement Project

* Examination

* Answer No. 4

* A Permit is required for all Roofing replacement projects. True X False __

*

Roofing Replacement Project

* Examination

* Question No. 5

- * Roofing Contractors bid on the physical roofing work. A Roofing Contractor may provide his own inspections of work completed on High-Rise Condominiums over 5 stories. True _____ False _____

Roofing Replacement Project

* Examination

* Answer No. 5

- * Roofing Contractors bid on the physical roofing work. A Roofing Contractor may provide his own inspections of work completed on High-Rise Condominiums over 5 stories. True ___ False X .

Roofing Replacement Project

* Examination

* Question No. 6

- * During a roofing replacement project where the building contains 20 floors, an Inspector is on the job site in part to make sure the roofing contractors work is in compliance with the letter of the contract.

True ___ False ___

Roofing Replacement Project

* Examination

* Answer No. 6

- * During a roofing replacement project where the building contains 20 floors, an Inspector is on the job site in part to make sure the roofing contractors work is in compliance with the letter of the contract.

True X False

Roofing Replacement Project

* Examination

* Question No. 7

- * Upon completion of work and upon passing final inspection the contractor warrants to the Owner. Note: Often manufacturers will provide material warranties. True ___ False ___

Roofing Replacement Project

* Examination

* Answer No. 7

* Upon completion of work and upon passing final inspection the contractor warrants to the Owner.
Note: Often manufacturers will provide material warranties. True X False

Roofing Replacement Project

* End of Section

Thank you for your interest and participation!

KWA ENGINEERS, LLC

