PROJECT MANUAL
FOR

CHARLESTON COUNTY PARK & RECREATION COMMISSION

Old Towne Creek
Roof Repairs

August 1, 2012

PROJECT NO. 2013-SP-001CP

SC ENGINEERS COA #1906
REI ENGINEERS
44 MARKFIELD DRIVE, UNIT F
CHARLESTON, SC 29407

CHARLOTTE * RALEIGH * GREENVILLE, NC * CHARLESTON * FORT MYERS
SECTION 00 01 10

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PART 1  GENERAL

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END OF SECTION 00 01 15
PART 1  GENERAL

1.01  RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.

1.02  WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: Old Towne Creek Roof Repairs

B. Project Location: 1400 Old Towne Road  Charleston, SC  29407

C. Owner: Charleston County Parks and Recreation Commission

D. Engineer/Engineer Identification: The Contract Documents, dated August 1, 2012, were prepared by REI Engineers, 44 Markfield Drive, Unit F, Charleston, SC 29407.

E. This work includes the provision of all labor, material, equipment, supervision and administration to integrate the work outlined in this project manual into the total building system such that no leakage into the system occurs. In general, the scope of work in the Base Bid will include:

1. Caretaker’s House (Approximately 2,300 square feet): Clean existing gutters and downspouts of all dirt and debris. Resecure existing gutter. Remove existing soil stack flashings and replace with new. Apply sealing agent over all exposed nailheads. Install a clear water repellent at chimney location where indicated.

2. Dock Shelter (Approximately 515 square feet): Clean existing 5V crimp metal roof panels of all dirt and debris. Remove rust and prepare existing 5V crimp metal roof panels to receive a rust inhibitive coating. Apply a one part primer and paint over 5V crimp metal roof panels and metal ridge cap flashing. Replace rake nailer where damaged to match existing in color, size and lumber cut type.

3. Garage (Approximately 935 square feet): Clean existing corrugated metal roof panels of all dirt and debris. Install new sheet metal cover plate over location of existing hole through the metal roof panel as indicated. Apply a one part primer and paint over corrugated metal roof panels and metal ridge cap flashing.

4. Main House (Approximately 3,800 square feet): Replace wood fascia nailer where damaged to match existing in color, size and lumber cut. Clean existing gutters and downspouts of all dirt and debris. Clean existing shingle roof covering of all dirt and debris. Resecure existing gutter where not attached. Remove existing soil stack flashings and replace with new. Apply sealing agent over locations of missing shingles and exposed nailheads. Replace damaged shingle where indicated on Contract Drawings. Install a clear water repellent at chimney locations where indicated.

5. Shed 2 (Approximately 120 square feet): Apply sealing agent over locations of exposed nailheads.

6. Stable 1 (Approximately 2,020 square feet): Replace wood fascia nailer and rafter tail where damaged to match existing in size and lumber cut. Clean existing 5V crimp metal roof panels of all dirt and debris. Remove rust and prepare metal roof panels at locations of rust to receive a rust inhibitive coating. Apply a one...
part primer and paint over 5V crimp metal roof panels and metal ridge cap flashing.

7. **Stable 2** (Approximately 2,400 square feet): Clean existing 5V crimp metal roof panels of all dirt and debris. Resecure existing metal ridge cap flashing where indicated on Contract Drawings. Remove rust and prepare existing metal ridge cap flashing to receive a rust inhibitive coating. Resecure existing 5V crimp metal roof panels to fascia board where indicated on Contract Drawings. Remove section of damaged 5V crimp metal roof panel and replace to match existing where indicated on Contract Drawings. Install sheet metal cover plate at all locations where holes are present through the existing 5V crimp metal roof panels. Apply a one part primer and paint over new sheet metal cover plates, 5V crimp metal roof panels and metal ridge cap flashing.

F. Asbestos Containing Roofing Materials (ACRM):

1. No tests were performed for presence of Asbestos Containing Roofing Materials (ACRM).
2. It is the intention of these specifications that no asbestos bearing materials be incorporated into the work.

### 1.03 CONTRACT

A. Project will be constructed under a single prime general construction contract.

### 1.04 SITE INVESTIGATION

A. The Contractor acknowledges that he has satisfied himself as to the nature and location of the Work, the general and local conditions, particularly those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, ground water table or similar physical conditions at the site, the conformation and condition of the ground, the character, quality and quantity of surface and subsurface materials to be encountered, the character of equipment and facilities needed prior to and during the prosecution of the Work and all other matters which can in any way affect the Work or the cost thereof under this Contract. Any failure by the Contractor to acquaint himself with all the available information concerning these conditions will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the Work. Field measurements shall be taken at the site by Contractor to verify all data and conditions affected by existing work.

### END OF SECTION 01 11 00
PART 1 GENERAL

1.01 SECTION INCLUDES

A. Rough Carpentry work required to facilitate installation of roof repairs indicated including:

1. Installation of new pressure treated wood blocking.
2. Re-securement of existing rough carpentry to remain in place.
3. Removal and replacement of damaged, rotted or deteriorated rough carpentry to match existing.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section, including but not limited to:

1. Alternates Section 01 23 00.
2. Preparation for Reroofing Section 07 01 50.

1.03 REFERENCES

A. Refer to the following references, current edition for specification compliance:

1. SC State Building Code
3. American Wood-Preserver’s Association (AWPA)
   a. AWPA C1 All Timber Products-Preservative Treatment by Pressure Process
   b. AWPA C2 Lumber, Timber, Bridge Ties and Mine Ties – Pressure Treatment by Pressure Processes.
   c. AWPA C9 Plywood – Preservative Treatment by Pressure Processes
   d. AWPA C15 Wood for Commercial-Residential Construction Preservative Treatment by Pressure Process.

1.04 DEFINITIONS

A. KDAT: Kiln Dried After Treatment.

1.05 SUBMITTALS

A. Manufacturer’s Product Data Sheets for all materials specified certifying material complies with this specification.

1.06 QUALITY ASSURANCE

A. Contractor shall inspect wood to be installed for damage, warping, splits, and moisture content as defined by the applicable wood products industry standards. Materials that do not comply shall be rejected.
B. Rough carpentry installation shall present a smooth, consistent substrate for roof system and gutter securement where indicated.

C. Qualifications of workers: Provide sufficient, competent and skilled carpenters in accordance with accepted practices and supervisors who shall be present at all times during execution of this portion of the work, and who shall be thoroughly familiar with type of construction involved in this section and related work and techniques specified.

D. Moisture Content:
   1. Treated wood products shall be KDAT.
   2. Treated lumber used in the roofing assembly shall not be stored or installed in a manner exposing it to rain.
   3. Moisture content of treated lumber shall be 19 percent or less before being installed into roofing assembly.
   4. Contractor shall be responsible for ensuring lumber is delivered, stored and installed at 19% or less moisture content.

E. Each piece of treated lumber shall bear the stamp of the AWPA Quality Mark, indicating compliance with the requirements of the AWPA Quality Control Program.

F. Lumber Standards: Comply with PS 20 and applicable rules of respective grading and inspecting agencies for species and products indicated.

G. Plywood Product Standards: Comply with PS 1 (ANSI A 199.1) or, for products not manufactured under PS 1 provisions, with applicable APA Performance Standard for type of panel indicated.

H. Rough carpentry installation shall ensure roof covering transitions are smooth for complete roof drainage and appearance.

I. Installation of all fasteners and associated materials to secure rough carpentry as detailed and specified.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Store a minimum of four inches above ground on framework or blocking. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks. Cover with protective waterproof covering providing for adequate air circulation and ventilation.

B. Exposure to precipitation during shipping, storage or installation shall be avoided. If material does become wet, it shall be replaced or permitted to dry prior to installation.

C. Immediately upon delivery to job site, place materials in area protected from weather.

D. Do not store seasoned materials in wet or damp portions of building.

E. Protect sheet materials from corners breaking and damaging surfaces, while unloading.

PART 2 PRODUCTS

2.01 MATERIALS
Old Towne Creek Roof Repairs

2.02 FASTENERS

A. General:

1. All fasteners shall be stainless steel.
2. Fasteners securing pressure treated lumber shall be manufactured for corrosion resistance and exposures associated with pressure treated wood applications.

B. Wood to wood:

1. Nails: 8, 10 or 16 penny, stainless steel, ring shank nails. Length to embed into base substrate a minimum 1-1/2". Acceptable manufacturers include:
   a. Maze Nails
   b. Anchor Staple and Nail
   c. Swan Secure Products
   d. Manasquan Premium Fasteners
   e. Engineers accepted equivalent.

PART 3 EXECUTION

3.01 INSPECTION

A. Contractor shall inspect substrates to receive rough carpentry, and ensure substrates are in satisfactory condition prior to installation of rough carpentry.

B. Contractor shall inspect all existing rough carpentry including fasteners for material condition before proceeding with installation. Deteriorated, rotted, damaged, split, warped, twisted or wet materials shall be removed and replaced with specified materials.

C. Contractor shall remove debris, old fasteners, etc. that interfere with the installation of new rough carpentry.

D. Contractor shall notify Engineer in writing of unsatisfactory conditions.
E. Commencement of work signifies Contractor’s acceptance of substrates. Any defects resulting from damage to existing substrates or roof coverings shall be corrected at no additional expense to the Owner.

3.02 PREPARATION

A. Roof Covering, Deck and Structure:

1. Roof covering, deck and structure shall not be used for staging or access during installation of the new rough carpentry.

3.03 INSTALLATION

A. Remove existing damaged or deteriorated wood blocking and nailers where indicated and replace with new material of same dimensions and lumber material.

B. Re-secure all existing wood nailers at roof edges where indicated. Fastener type and spacing shall comply with this specification.

C. Set rough carpentry to required levels and lines, with members plumb, true to line, material cut to fit, and braced to hold work in proper position. Use a belt sander to remove any obtrusive surface irregularities. Drive nails and spikes home; and pull bolt nuts tight with heads and washers in close contact with the wood.

D. Fit rough carpentry to other construction; scribe and cope for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction. All joints between wood shall be installed for a smooth transition.

E. Attachment:

1. The Contractor shall consult the fastener manufacturer’s published literature and follow the recommended requirements for pre-drilling, cleaning, placement and compatibility of substrates. Follow manufacturer’s requirements for fasteners spacing, substrate preparation and substrate embedment where not specified.

2. Install fasteners without splitting wood. Pre-drill where necessary. Split or damaged wood shall be removed and replaced to provide acceptable conditions.

3. Fastener spacing: Nails securing wood to wood shall be spaced 12 inches apart, staggered, with two nails installed within 6 inches of each end of nailer lengths to prevent wood from twisting at board joints.

F. Select fasteners of size and length that will not be exposed from the building interior and/or from the ground, or remove protruding fasteners, paint or finish to eliminate exposure.

G. Thickness of wood nailers shall be flush with adjacent materials. Additional fasteners shall be installed to ensure nailers are flush.

H. Wood nailers at roof perimeters shall not be less than 3 feet long unless otherwise indicated.

I. When multiple nailers are installed stacked two high or more, offset nailers no less than 12 inches such that joints at nailer end do not line-up vertically.

J. Each end of nailers shall be fastened with additional fasteners to ensure a smooth
transition at butted joints, and to prevent warping and/or twisting.

3.04 CLEAN-UP

A. The Contractor shall ensure the site and building are cleaned to meet pre-construction conditions, as accepted by the Owner.

B. The site and building shall be free of saw dust from pressure treated lumber, fasteners and other debris.

C. Damages to the building, grounds, equipment and site shall be repaired or replaced by the Contractor to meet pre-construction conditions, as accepted by the Owner.

END OF SECTION 06 10 00
SECTION 07 01 50

PREPARATION FOR REROOFING

PART 1  GENERAL

1.01  SECTION INCLUDES

A. Preparatory work to be completed prior to roof installation including removal of existing roof assemblies down to the structural deck.

1.02  RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section, including but not limited to:

1. Summary of Work  Section 01 11 00.
2. Alternates  Section 01 23 00.
3. Rough Carpentry  Section 06 10 00.
4. Asphalt Shingle Roofing  Section 07 31 13.
5. Exterior Paint  Section 09 91 13.

1.03  DEFINITIONS

A. Removal: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain property of the Owner.

B. Existing to remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Engineer, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

C. Material ownership: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner’s property, demolished materials shall become the Contractor’s property and shall be removed from the site.

1.04  EXISTING ROOF ASSEMBLIES*

A. Caretaker’s House

1. Shingle roof covering over plywood sheathing substrate.

B. Dock Shelter

1. 5V Crimp coated galvanized metal roof panels with exposed fasteners over wood truss and purlin framing.

C. Garage

1. Corrugated metal roof panels with exposed fasteners over wood truss and purlin framing.

D. Main House

1. Shingle roof covering over plywood sheathing substrate.
E. Shed 2
1. Shingle roof covering over plywood sheathing substrate.

F. Stable 1
1. 5V Crimp coated galvanized metal roof panels with exposed fasteners over wood truss and purlin framing.

G. Stable 2
1. 5V Crimp coated galvanized metal roof panels with exposed fasteners over wood truss and purlin framing.

H. Stable 3
1. Shingle roof covering over nominal 2 inch by 8 inch wood substrate in the field of roof and plywood sheathing substrate at the eaves.

*Roof system composition is based on random sampling. Contractor is responsible for verification of roof system composition.

1.05 SUBMITTALS
A. Manufacturer’s Product Data Sheets for all materials specified certifying material complies with this specification.

1.06 QUALITY ASSURANCE
A. Qualifications: Previous experience removing existing roof systems.
B. Requirements: Contractor to comply with governing EPA regulations and hauling/disposal regulations of authorities having jurisdiction.

1.07 SCHEDULING
A. Conduct demolition so that Owners operations will not be disrupted. Provide 72 hours notification to Owner of activities that will affect Owner’s operations.

PART 2 PRODUCTS
2.01 MATERIALS
A. Fasteners:
1. Provide fasteners that are rust-resistant and compatible with materials to be joined.
2. Provide stainless steel fasteners at all locations where fastener will be used in lumber products.
3. Fasteners securing sheet metal to wood: #12 stainless steel hex or pan head screws with washer and length to penetrate substrate a minimum of 1-1/2 inch. Washers shall be stainless steel with neoprene gasket backing, diameter of 3/4 inch.
4. Fasteners for securing sheet metal to sheet metal: Self drilling, stainless steel fas-
tener size and length required by fastener manufacturer for metal gauges being joined. Rivets, of equal, compatible material, color to match metal finish.

5. Rivets: #44 stainless steel rivets with stainless steel mandrel. Length of rivet as required to properly fasten particular sheet metal components. Rivets shall be factory painted to match adjacent sheet metal.

B. Gutter: .027 inch, K-style aluminum gutter to match existing gutter in size and color.

C. Sealant: One-component elastomeric gun grade polyurethane sealant conforming to ASTM C 920, Type S, Grade NS, Class 25, and use NT, M, A, G, or O as required by substrate conditions.

D. Sealant Tape: Minimum 1/2 inch wide non-skimming butyl sealant tape.

E. Sheet Metal Cover Plate: 24 gauge, galvalume coated metal panel. Match existing corrugated R-panel at Garage.

PART 3  EXECUTION

3.01  EXAMINATION

A. Survey existing conditions to determine extent of demolition.

B. Contractor shall not remove any element that may result in structural deficiency or collapse of any part of the structure or adjacent structures during demolition.

C. Contractor to inspect substrate for soundness and notify Engineer in writing of any deficiencies. Commencement of work signifies Contractor's acceptance of site conditions.

3.02  PREPARATION

A. Thoroughly clean existing roof of all debris, including but not limited to, dirt, tree limbs and pine straw.

B. Provide protection for adjacent building, appurtenances and landscaping to remain. Erect temporary fencing around trees to remain.

3.03  REMOVALS

A. Demolish and remove existing construction only to the extent required by remedial work.

B. Remove or correct any obstruction which might interfere with the proper application of new materials.

C. Remove and transport debris in a manner that will prevent damage/spills to adjacent buildings and areas.

D. Dispose of demolished items and materials on a daily basis. On-site storage of removed items is not permitted.

E. Transport demolished materials off-site and dispose of materials in a legal manner.

F. Perform progress inspections to detect hazards resulting from demolition activities.
3.04 INSTALLATION, GENERAL

A. Sheet metal shall be fitted closely and neatly.

B. Completed sheet metal components shall be true, level and straight.

C. Sheet metal joints shall be sealed with specified and compatible sealants. Joints shall be fastened and/or tightly fitted to prevent joints from buckling or opening.

D. All sheet metal work shall be thoroughly clean of all asphalt, flux, scrapes and dust.

E. Scratches through the metal finish shall be repaired to the Owner’s satisfaction.

3.05 GUTTER AND DOWNSPOUT RESECUREMENT

A. Resecure gutters to provide adequate slope for drainage to downspout locations. Joints shall be lapped 2 inches with two beads of sealant in riveted laps (rivets spaced 2 inches on center max). Hang gutters to provide adequate slope for drainage to downspout locations.

B. Downspouts: Secure downspouts to structure with straps at each end, no more than eight feet apart or less than two per downspout. Fabricate straps from downspout material.

3.06 CLEANING

A. Inspect the site daily and clean up debris and hazards at the end of each day. Adjacent roads, drives and walkways shall remain in operation and free from construction materials debris.

B. Clean adjacent structures of dust dirt and debris. Return adjacent areas to original conditions to the satisfaction of the Owner.

END OF SECTION 07 01 50
PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preparation of walls and application of water repellent treatment to existing masonry walls including protection of adjacent surfaces, and cleaning of residue.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section, including but not limited to:

1. Summary of Work Section 01 11 00.
2. Preparation for Reroofing Section 07 01 50.

1.03 REFERENCES

A. Municipal and State regulations governing cleaning, scaffolding and protection of adjacent properties.

1.04 SUBMITTALS

A. Latest edition of the Manufacturer’s current material specifications and installation instructions.

B. Manufacturer’s Product Data Sheets for all materials specified.

C. Certifications by manufacturers that all materials supplied comply with all requirements of the identified ASTM and other industry standards or practices.

1.05 DELIVERY, STORAGE AND HANDLING

A. Furnish materials in manufacturer's packaging, complete with instructions for use.

B. Store materials out of direct exposure to the elements using tarps and elevated off ground on pallets.

1.06 JOB CONDITIONS

A. Environmental conditions:

1. Do not patch, repoint, wash down or wet surfaces when temperature may drop below 40 degrees F within 24 hours.
2. Do not use any process creating dust or dirt when wind speed is over 15 miles per hour.

B. Protection

1. Protect windows, doorways, trim, roof and other surfaces from damage and immediately remove stains, efflorescence, or other unsightly excess resulting from the work of this section.
2. Protect existing surfaces and surrounding yards or landscape from damage due to work in this section.

PART 2 PRODUCTS

2.01 MATERIALS

A. Water: Clean and potable.

B. Water Repellent: Isobutyltrialkoxysilane 40% minimum active penetrating ingredient as manufactured by:

1. Evonik Protectosil Chem-Trete PB VOC
2. Pecora Corporation Klere-Seal 940-S VOC
3. Sika Sikagard 701W
4. Hydrozo Clear Double 7 VOC
5. Engineers accepted equivalent

PART 3 EXECUTION

3.01 PREPARATION

A. Cover, protect, and mask adjacent areas, materials and surfaces not receiving work of this section to be adequately protected from damage.

B. Schedule with Engineer and Owner and protect all entrances to building with appropriate warning signs and barricades. Protect all persons and property including pedestrian traffic.

3.02 WATER REPELLENT TREATMENT

A. Surface Preparation

1. Surfaces to receive sealer shall be cleaned of dirt, oil, grease, laitance, and other contaminants. Oil, grease and other automotive contaminants shall be removed with degreasers. Remove dirt, dust and materials that will interfere with the proper and effective application of the penetrating sealer. It is the responsibility of the Contractor to prepare the surfaces of the substrate to a condition acceptable to the Engineer and Owner.
2. Check the compatibility of any materials to be used with the penetrating sealer.
3. Sealants and patching materials shall have been installed and approved.

B. Field Quality Control

1. Spray Test
   a. After water repellent has dried, spray coated surfaces with water.
   b. After surfaces have adequately dried, recoat surfaces that show water absorption.

C. Application

1. Product shall be applied as supplied by the manufacturer without dilution or alteration, unless noted in the manufacturer's data sheet.
2. Apply with low pressure (15 psi) airless spray equipment with a fan spray coarse nozzle, flooding the surface to obtain uniform coverage unless otherwise recommended by the manufacturer.
3. Apply at a rate specified by manufacturer after field tests.
4. Apply at temperature and weather conditions recommended by the manufacturer or as written in this specification.
5. Follow manufacturer's recommendations concerning protection of glass, metal and other non-porous substrates. Contractor will be responsible for cleaning all surfaces which are contaminated by the water repellent.
6. Follow manufacturer's recommendation concerning protection of plants, grass and other vegetation. Contractor will be responsible for replacing all plants, grass or vegetation damaged by the water repellent.
7. Apply at temperature and weather conditions recommended by the manufacturer or as written in this specification.
8. Follow manufacturer's recommendations concerning protection of glass, metal and other non-porous substrates. Contractor will be responsible for cleaning all surfaces which are contaminated by the water repellent.

3.03 CLEAN UP

A. On a daily basis, leave mixer, other tools and all materials in a manner so as to preclude any vandalism.

END OF SECTION 07 19 00
PART 1  GENERAL

1.01  SECTION INCLUDES

A. Installation of a new Underwriters Laboratory 790 Class A, shingles and associated flashings, installation of sealing agent at locations of missing shingles and vent pipe flashing installation.

1.02  RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section, including but not limited to:

1. Summary of Work                Section 01 11 00.
2. Alternates                     Section 01 23 00.
3. Rough Carpentry                 Section 06 10 00.
4. Reroofing Preparation          Section 07 01 50.

1.03  REFERENCES

A. Refer to the following references for specification compliance:

1. SC Building Code
2. National Roofing Contractors Association - NRCA
3. Asphalt Roofing Manufacturers Association - ARMA
4. Factory Mutual Research - FM
5. Underwriters Laboratories, Inc. - UL

1.04  SUBMITTALS

A. Submit manufacturer’s installation instructions, showing required preparation and installation procedures.

B. Manufacturer’s Product Data Sheets for all materials specified certifying material complies with all specified requirements.

1.05  QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the roofing system products specified in this section, with minimum 25 years experience.

B. System application to be in accordance with the current Asphalt Roofing Manufacturer's Association's Residential Asphalt Roofing Manual (ARMA) and the proceeding requirements and details.

1.06  PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer’s unopened labeled packaging until ready for installation.

B. Store products in a covered, ventilated area, at temperature not more than 110 degrees F (43 degrees C); do not store near steam pipes, radiators, etc., or in sunlight.
C. Store bundles on flat surface to maximum height recommended by manufacturer. Weight equalization boards must be used if pallets are to be double stacked.

D. All rolls must be stored on end.

E. Bundles should not be dropped on edge nor should attempt be made to separate shingles by “breaking” over ridge or other bundles.

F. Handle shingles carefully in hot weather to avoid damaging shingle edges.

1.07 JOB CONDITIONS

A. Substrate: Proceed with shingle work only after substrate construction and penetrating work have been completed.

B. Environmental Conditions
   1. Proceed with shingle work only when weather conditions are in compliance with manufacturer’s recommendations and when substrate is completely dry.
   2. Contractor shall take extra precautions in temperatures below 40 degrees F.
   3. Contractor shall protect the deck and building interior from the elements during the course of the work.

PART 2 PRODUCTS

2.01 MATERIALS

A. Residential Shingles
   1. Fiberglass mat, mineral granule surfaced, self-sealing two-ply laminated, asphalt roofing shingle.
   2. Shingles to meet Underwriter's Laboratory Class A requirements for wind resistance and external fire hazard.
   3. Shingles shall meet ASTM D 3018 Type 1 self sealing and D 3462.
   4. Shingles shall be resistant to algae/fungus discoloration.
   5. Color to match adjacent shingles as close as possible as judged by Owner.

B. Underlayment Membrane: High temperature underlayment specifically formulated to resist temperatures up to 300°F without degradation of the butyl adhesive; composed of two waterproofing materials – an aggressive butyl rubber based adhesive backed by a layer of high density cross laminated polyethylene. Minimum 30 mil; slip-resistant surface, with release paper backing; cold-applied.

C. Miscellaneous
   1. Shingle Fasteners: Hot-dipped galvanized roofing nail of adequate length to penetrate the deck a minimum of 3/4 inch with 1-1/2” in min length, annular threaded 11 or 12 gauge with a 3/8” diameter head.
   2. Hip and Ridge Shingle Fasteners: Hot-dipped galvanized roofing nail of adequate length to penetrate the deck a minimum of 3/4 inch with 2-1/2” in min length, 11 or 12 gauge with a 3/8” diameter head.
   3. Sealing Agent: Roofing cement shall be SBS roofing cement manufactured and/or approved by shingle manufacturer for use with the shingle and associated materials and products. SBS-polymer modified bitumen asphaltic flashing
cement in a 10.4 ounce cartridge conforming to ASTM 4586 requirements.

4. Sealant: One-component elastomeric gun grade polyurethane sealant conforming to ASTM C 920, Type S, Grade NS, Class 25, and use NT, M, A, G, or O as required by substrate conditions to cover exposed nailheads at shingle roof covering locations.

5. Vent Pipe Flashings: Pre-fabricated, rigid section, high-density polypropylene or other UV-stabilized material.

PART 3 EXECUTION

3.01 INSPECTION

A. Notify Engineer in writing of unsatisfactory conditions. Do not proceed with shingle work until all unsatisfactory conditions have been corrected in a manner acceptable to the Engineer.

3.02 PREPARATION

A. General. All surfaces shall be swept or vacuumed prior to commencement of roofing.

3.03 APPLICATION

A. Underlayment Membrane

1. Install per Manufacturer’s recommendations prior to new shingle installation:
   a. At hip and ridge locations – center full width roll on hips and ridges; install over underlayment.
   b. All penetrations, a minimum of 12” out from sides of opening; install over underlayment.

B. Hips and ridges

1. To apply the capping, bend each shingle along centerline of longer dimension to extend an equal distance on each side of hip or ridge. In cold weather, warm the shingle until it is pliable before bending. Apply the shingles with a 5-inch exposure, beginning at the bottom of the hip or from end of ridge opposite the direction of prevailing winds. Secure each shingle side, 5-1/2 inches back from the exposed end and 1 inch up from the edge.
2. Apply quarter-sized dabs of sealing agent on exposed fasteners of last hip and ridge shingle.

C. Sealing Agent

1. Install sealing agent at locations of missing shingles where replacement shingle installation is not indicated. Apply sealing agent under course of shingles above missing shingle course and extend to cover shingle course below missing shingle.

D. Daily Tie-ins: Contractor is responsible for all interior damages associated with his operations.

3.04 PROTECTION

A. Lay out progression of work to minimize working on or above completed roofing.
B. Minimize traffic over finished roof surface.

END OF SECTION 07 31 13
SECTION 09 91 13
EXTERIOR PAINT

PART I    GENERAL

1.01    WORK INCLUDES

A. Contractor shall prepare existing and new substrates, prime and paint in accordance with Manufacturer’s instructions for building components specified. Substrates included in the Work are as follows:

1. Coated galvanized metal roof panels and flashing components.
2. Miscellaneous new rough carpentry.

1.02    RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section, including but not limited to:

1. Summary of Work Section 01 11 00.
2. Preparation for Reroofing Section 07 01 50.

1.03    REFERENCES

A. SSPC-SP 1 - Solvent Cleaning.
B. SSPC-SP 2 - Hand Tool Cleaning.
C. SSPC-SP 3 - Power Tool Cleaning.

1.04    SUBMITTALS

A. Product Data: Manufacturer's data sheets on each paint and coating product should include:

1. Product characteristics.
2. Surface preparation instructions and recommendations.
3. Primer requirements and finish specification.
4. Storage and handling requirements and recommendations.
5. Application methods.
6. Precautions.

B. MSDS for each product.

C. Samples: Submit color chart that represents Manufacturer's color samples available for Owner’s selection.

D. Mockup: Submit mockup of actual paint system before starting work as required by Owner for color selection/acceptance.

1.05    DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver Manufacturer's unopened containers to the work site. Packaging shall bear the Manufactures name, label, and the following list of information:
1. Product name, type (description)
2. Application & use instructions
3. Surface preparation
4. VOC content
5. Environmental issues
6. Batch date
7. Color number

B. Storage: Contractor shall store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction. Store materials in an area that is within the acceptable temperature range, per Manufacturers instructions. Protect from freezing.

C. Handling: Maintain a clean, dry storage area, to prevent contamination or damage to the coatings.

D. Contractor shall be responsible for all fire safety and prevention requirements for all materials.

1.06 PROJECT CONDITIONS

A. Contractor shall ensure or maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by Manufacturer for optimum results. Contractor shall not apply coatings under environmental conditions outside Manufacturer's absolute limits.

B. Contractor shall be responsible for all sampling, testing and abatement requirements for existing lead-based included in the Work.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturers:

1. The Sherwin-Williams Company
2. ICI Dulux
3. Benjamin Moore

B. Manufacturer’s direct to metal rust inhibitive primer for optimum performance for exposed, exterior building type, compatible with coated galvanized metal and water based and solvent based topcoats.

C. Manufacturer’s exterior primer and paint topcoat system for optimum performance for exposed, exterior building type, compatible with coated galvanized metal.

D. Manufacturer’s exterior primer and paint topcoat system for optimum performance for exposed, exterior building type, compatible with treated lumber.

2.02 MATERIALS - GENERAL REQUIREMENTS

A. Single component, waterborne acrylic, adhesion promoting coating formulated for direct application to pre-finished metal panels with the following characteristics:

1. Finish: flat.
2. Vehicle type: 100 % acrylic.
3. Rating 10 per ASTM D610 for rusting.
4. Rating 10 per ASTM D714 for blistering.
5. Pass ASTM D522 at 180° bend with 1/4” mandrel.
6. Pass ASTM D4541 with 3000 minimum psi.
7. Pass ASTM D2485 at 200°F.
8. Low odor, low VOC.

B. Single component, rust inhibitive, acrylic primer for use under water based or solvent based topcoats with the following characteristics:
   1. Finish: low sheen.
   2. Color: Match color of existing roof. Similar to gray.

C. Self priming, 100% acrylic exterior flat latex finish formulated for direct application to exterior wood with the following characteristics:
   1. Stable 1 Color: Benjamin Moore’s #1604, Silvery Moon.
   2. Dock Shelter and Main House Color: Match existing.

2.03 ACCESSORIES:

A. Coating Application Accessories: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required per Manufactures’ printed requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Contractor shall not begin application of coatings until substrates have been properly prepared. Contractor shall notify Engineer of unsatisfactory conditions before proceeding.

B. Contractor shall proceed with work only after conditions have been corrected, and approved by all parties, otherwise application of coatings will be considered as an acceptance of surface conditions.

3.02 SURFACE PREPARATION:

A. Contractor shall comply with all lead-based paint abatement requirements where existing lead based paint is encountered in the Work.

B. Contractor shall consult Manufacturer to ensure proper product selection, surface preparation, and application for optimum coating performance. Contractor shall be responsible for proper product selection, surface preparation, and application.

C. The surface shall be dry and in sound condition. Remove oil, dust, dirt, loose rust, peeling paint, coatings, or other contamination to ensure good adhesion.

D. Contractor shall remove mildew before painting by washing with a solution of 1 part liquid household bleach and 3 parts of warm water. Apply the solution and scrub the mildewed area. Allow the solution to remain on the surface for 10 minutes. Rinse thoroughly with clean water and allow the surface to dry 48 hours before painting.

E. Contractor shall not begin painting immediately after a rain, during foggy weather, when
rain is predicted, or when the temperature is below 50°F or air, surface or material is expected to rise above 120°F, unless products are designed specifically for these conditions. Relative humidity shall not exceed 85% RH during application. Follow Manufacturer’s printed instructions.

F. Methods:

1. Galvanized Metal:
   a. Clean using detergent and water or a degreasing cleaner to remove greases and oils. Sand or wire brush surface in accordance with Manufacturer’s recommendations. Apply a test area, priming as required. Allow the coating to dry at least one week before testing. If adhesion is poor, Brush Blast to remove these treatments.

2. Steel: Structural, Plate, etc. Contractor shall clean by one or more of the ten surface preparations described below. These methods were originally established by the Steel Structures Painting Council in 1952, and are used throughout the world for describing methods for cleaning structural steel. Visual standards are available through the Steel Structures Painting Council, SSPC-VIS 1-89. A brief description of these standards together with numbers by which they can be specified as follows.
   a. Solvent Cleaning, SSPC-SP1: Solvent cleaning is a method for removing all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants. Solvent cleaning does not remove rust or mill scale. Change rags and cleaning solution frequently so that deposits of oil and grease are not spread over additional areas in the cleaning process. Be sure to allow adequate ventilation.
   b. Hand Tool Cleaning, SSPC-SP2: Hand Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Before hand tool cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.
   c. Power Tool Cleaning, SSPC-SP3: Power Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Before power tool cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.

3.03 INSTALLATION

A. Contractor shall apply all coatings and materials in accordance with Manufacture printed recommendations. Contractor shall apply no less than two coats of paint. Thickness shall be determined by Manufacturer’s printed requirements for optimum or “best” performance.

B. Contractor shall not apply coatings to wet or damp surfaces, during periods of fog, or at or below the dew point temperature.

C. Contractor shall apply coatings using methods and application tools recommended by Manufacturer.

D. Uniformly apply coatings without runs, drips, or sags, without brush marks, and with consistent sheen.
E. Apply coatings at spreading rate required to achieve the Manufacturers recommended dry film thickness.

F. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.

G. Time between primer and coats shall be per Manufacturer’s printed requirements.

H. Inspection: The coated surface shall be inspected and accepted by the Engineer and Owner.

3.04 PROTECTION

A. Protect finished coatings from damage until completion of project.

B. Touch-up damaged coatings after substantial completion, following manufactures recommendation for touch up or repair of damaged coatings. Repair any defects that will hinder the performance of the coatings.

3.05 CLEAN-UP

A. Contractor shall clean-up and remove all spills, and coatings on adjacent substrates to the Owner’s satisfaction.

B. Contractor shall dispose of all containers and waste in a legal manner immediately.

END OF SECTION 09 91 13
CONTRACT DRAWINGS
NOTES:
1. RE-SECURE EXISTING METAL ROOF PANEL AT EAVE TO EXISTING WOOD FASCIA. REFER TO CONTRACT DOCUMENTS FOR RE-SECUREMENT REQUIREMENTS.
NOTE:
1. FASCIA NAILER TO BE RE-SECURED.
2. SEAL ALL EXPOSED NAIL HEADS, TYPICAL.
NOTES:
1. REPLACE DAMAGED SHINGLE.
2. REPLACE SECTION OF DAMAGED GUTTER.
3. RE-SECURE EXISTING GUTTER TO REMAIN AND FASCIA NAILER.
4. SEAL ALL EXPOSED NAIL HEADS, TYPICAL.
5. APPLY SEALING AGENT OVER LOCATIONS OF MISSING SHINGLES.
NOTE:
1. SEAL ALL EXPOSED NAILHEADS, TYPICAL.
NOTE:
1. METAL ROOF PANEL NOT SHOWN FOR CLARITY.

EXISTING 2"x4" BOARD

EXISTING 2"x4" BOARD

APPROX. 10' IN LENGTH

REPLACE DAMAGED 2"x8" FASCIA NAILER WITH NEW FASCIA NAILER. MATCH EXISTING SIZE AND CUT.
CAREFULLY CUT EXISTING DAMAGED METAL ROOF PANELS ALONG A STRAIGHT LINE

SLIDE NEW METAL ROOF PANELS A MINIMUM OF 4" UNDER EXISTING METAL ROOF PANEL AND SECURE

LAP SHALL FALL ON UNDERLYING PURLIN

EXISTING UNDERLYING PURLIN

EXISTING FASCIA BOARDS

INSTALL NEW METAL ROOF PANELS TO MATCH EXISTING PROFILE

DARK LINES - NEW
LIGHT LINES - EXISTING
EXISTING RIDGE CAP

SECURE EXISTING RIDGE CAP
FLASHING TO UNDERLYING
METAL ROOF PANEL USING
ROOF PANEL SIDE LAP STITCH
FASTENERS

EXISTING METAL
ROOF PANEL

SECURE EXISTING RIDGE
CAP FLASHING TO RAKE
NAILER WITH SHEET METAL
TO WOOD FASTENERS
NOTE:
1. STRIP IN UPSLOPE SIDE OF NEW PRE-FABRICATED VENT PIPE FLAShING WITH UNDERLAYMENT MEMBRANE UNDER EXISTING SHINGLES.
NEW SHEET METAL COVER PLATE
CONTINUOUS SEALANT TAPE
EXISTING METAL ROOF PANEL

PLACE A 4"x4" SHEET METAL
COVER PLATE OVER HOLE
IN EXISTING METAL ROOF
PANEL AND SECURE

EXISTING METAL ROOF
PANEL

NOTE:
1. APPLY CONTINUOUS SEALANT TAPE A MINIMUM OF
   1" OUTWARDS FROM HOLE. SECURE SHEET METAL
   COVER PLATE WITH FASTENERS W/ EPDM WASHERS
   INSTALLED AT 2" O.C.
REPLACE Damaged 2"x4" FASCIA NAILED WITH NEW. MATCH EXISTING SIZE AND CUT.

EXISTING 2"x6" BOARD

EXISTING 2"x6" BOARD

NOTE:
1. METAL ROOF PANEL NOT SHOWN FOR CLARITY.