

**PROJECT MANUAL  
FOR  
CITY OF LYNCHBURG**

**May 21, 2013**

**Roof Replacement for  
Task 9: METAL BUILDING AT  
FORMER ALLEN MORRISON SITE**

**329 Rutherford Street      Lynchburg, VA**

**Lynchburg City Building Number: PR827**



**PROCUREMENT DIVISION  
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## **SECTION 01-1000**

### **SUMMARY**

#### **PART 1 GENERAL**

##### **1.01 PROJECT**

- A. Project Name: Roof Replacement for Task 9: Metal Storage Building at former Allen Morrison Site.
- B. Owner's Name: City of Lynchburg.
  - 1. Owner's Project representative: Randy Dalton.
- C. Architect's Name: Craddock Cunningham Architectural Partners.
  - 1. Project Architect: Mark W. Smith.
- D. The Project consists of the replacement of metal roof and drainage system on a pre-engineered metal building.
  - 1. Remove the existing metal roof panels and replace with new panels of same design. Install new gable and eave trim. Replace gutter and downspouts.
  - 2. Building area is approximately 25,000 square feet.
- E. Alternate: Retrofit roof panel over existing roof panels.

##### **1.02 CONTRACT DESCRIPTION**

- A. Contract Type: A single prime contract based on a Stipulated Price as described in agreement.

##### **1.03 WORK BY OWNER**

- A. Owner will remove trees and brush from the perimeter of building for construction access.

##### **1.04 OWNER OCCUPANCY**

- A. Owner will continue to use the building for storage operations during construction, building will need to be weatherproofed during construction.

##### **1.05 CONTRACTOR USE OF SITE AND PREMISES**

- A. Construction Operations: Limited to surrounding areas. The site has adequate open space for roofing operations.
- B. Parking and Storage: The contractor may use parking areas. No interior storage will be permitted at the building due to Owner's continuous use of this building during construction).

#### **PART 2 PRODUCTS - NOT USED**

#### **PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01-2300**

**ALTERNATES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Description of alternates.
- B. Procedures for pricing alternates.

**1.02 ACCEPTANCE OF ALTERNATES**

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted alternates will be identified in the Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work to integrate the Work of each alternate.

**1.03 SCHEDULE OF ALTERNATES**

- A. Alternate No. 1 - Retrofit Roofing:
  - 1. Base Bid Item: Remove existing roof panels, trim and drainage systems and replace with new roof panels, trim and drainage systems as indicated in Sections 07-0150.19 and Section 07-4113 Metal Roof Panels.
  - 2. Alternative Item: Remove existing trim and drainage system. Existing roof panels to remain in place. Add "Roof Hugger" sub-purlins as indicated in Section 07-7100 Retro-fit Roofing and install new roof panels, trim and drainage systems as indicated in Section 07-4113 Metal Roof Panels.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

## SECTION 01-3000

### ADMINISTRATIVE REQUIREMENTS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Preconstruction meeting.
- B. Submittals for review, information, and project closeout.
- C. Submittal procedures.

##### 1.02 RELATED REQUIREMENTS

- A. Section 01-7000 - Execution and Closeout Requirements: Additional coordination requirements.

##### 1.03 PROJECT COORDINATION

- A. Project Coordinator: Randy Dalton.
- B. During construction, coordinate use of site and facilities through the Project Coordinator.
- C. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.
- D. The project coordinator may allow the general contractor to submit the following directly to the architect. This will be determined at the pre-construction meeting:
  - 1. Requests for interpretation.
  - 2. Requests for substitution.
  - 3. Shop drawings, product data, and samples.
  - 4. Test and inspection reports.
  - 5. Manufacturer's instructions and field reports.
  - 6. Applications for payment and change order requests.

#### PART 2 PRODUCTS - NOT USED

#### PART 3 EXECUTION

##### 3.01 PRECONSTRUCTION MEETING

- A. Owner will schedule a meeting after Notice of Award.
- B. Attendance Required:
  - 1. Owner.
  - 2. Architect.
  - 3. Contractor.
- C. Agenda:
  - 1. Designation of personnel representing the parties to Contract, Contractor and Architect.
  - 2. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
  - 3. Use of premises by Owner and Contractor.
  - 4. Scheduling.
  - 5. Procedures for maintaining record documents.
  - 6. Security and housekeeping procedures.
  - 7. Temporary utilities provided by Owner.
- D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

##### 3.02 SUBMITTALS FOR REVIEW

- A. When the following are specified in individual sections, submit them for review:
  - 1. Product data.

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2. Shop drawings.
  3. Samples for selection.
  4. Samples for verification.
- B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- C. Samples will be reviewed only for aesthetic, color, or finish selection.

**3.03 SUBMITTALS FOR PROJECT CLOSEOUT**

- A. When the following are specified in individual sections, submit them at project closeout:
1. Project record documents.
  2. Operation and maintenance data.
  3. Warranties.
  4. Bonds.
  5. Other types as indicated.
- B. Submit for Owner's benefit during and after project completion.

**3.04 SUBMITTAL PROCEDURES**

- A. Transmit each submittal with architect provided form.
- B. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- C. Deliver submittals to Architect at business address.
- D. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
- E. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
- F. Provide space for Contractor and Architect review stamps.
- G. When revised for resubmission, identify all changes made since previous submission.
- H. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- I. Submittals not requested will not be recognized or processed.

**END OF SECTION**

## **SECTION 01-4000**

### **QUALITY REQUIREMENTS**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Control of installation.
- B. Manufacturers' field services.

##### **1.02 RELATED REQUIREMENTS**

- A. Section 01-3000 - Administrative Requirements: Submittal procedures.

##### **1.03 SUBMITTALS**

- A. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- B. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
  - 1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

#### **PART 2 PRODUCTS - NOT USED**

#### **PART 3 EXECUTION**

##### **3.01 CONTROL OF INSTALLATION**

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have Work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

##### **3.02 MANUFACTURERS' FIELD SERVICES**

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, as applicable, and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

##### **3.03 DEFECT ASSESSMENT**

- A. Replace Work or portions of the Work not conforming to specified requirements.

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- B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct an appropriate remedy or adjust payment.

**END OF SECTION**

**SECTION 01-5000**

**TEMPORARY FACILITIES AND CONTROLS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Temporary utilities.
- B. Temporary sanitary facilities.
- C. Security requirements.
- D. Vehicular access and parking.
- E. Waste removal facilities and services.

**1.02 TEMPORARY UTILITIES**

- A. Owner will provide the following:
  - 1. Electrical power, consisting of connection to existing facilities.
  - 2. Water supply, consisting of connection to existing facilities.
- B. Use trigger-operated nozzles for water hoses, to avoid waste of water.

**1.03 TEMPORARY SANITARY FACILITIES**

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. Maintain daily in clean and sanitary condition.

**1.04 EXTERIOR ENCLOSURES**

- A. Provide temporary roofing at conditions required to maintain a dry interior during construction.

**1.05 SECURITY**

- A. Provide security and facilities to protect Work, and Owner's operations from unauthorized entry, vandalism, or theft.
- B. Coordinate with Owner's security program.

**1.06 VEHICULAR ACCESS AND PARKING**

- A. Provide and maintain access to fire hydrants, free of obstructions.
- B. Existing parking areas may be used for construction parking.

**1.07 WASTE REMOVAL**

- A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

## **SECTION 01-6000**

### **PRODUCT REQUIREMENTS**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Transportation, handling, storage and protection.
- B. Product option requirements.
- C. Substitution limitations and procedures.

##### **1.02 SUBMITTALS**

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
  - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

#### **PART 2 PRODUCTS**

##### **2.01 EXISTING PRODUCTS**

- A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.
- B. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

##### **2.02 NEW PRODUCTS**

- A. Provide new products unless specifically required or permitted by the Contract Documents.

##### **2.03 PRODUCT OPTIONS**

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

#### **PART 3 EXECUTION**

##### **3.01 SUBSTITUTION PROCEDURES**

- A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.
- B. Architect will consider requests for substitutions only within 15 days after date established in Notice to Proceed.
- C. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.

- D. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- E. A request for substitution constitutes a representation that the submitter:
  - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
  - 2. Will provide the same warranty for the substitution as for the specified product.
  - 3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
  - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
- F. Substitution Submittal Procedure:
  - 1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
  - 2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
  - 3. The Architect will notify Contractor in writing of decision to accept or reject request.

### **3.02 TRANSPORTATION AND HANDLING**

- A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- B. Transport and handle products in accordance with manufacturer's instructions.
- C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.
- F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

### **3.03 STORAGE AND PROTECTION**

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
- G. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- H. Prevent contact with material that may cause corrosion, discoloration, or staining.
- I. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- J. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

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**END OF SECTION**

## **SECTION 01-7000**

### **EXECUTION AND CLOSEOUT REQUIREMENTS**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Examination, preparation, and general installation procedures.
- B. Requirements for alterations work, including selective demolition, except removal, disposal, and/or remediation of hazardous materials and toxic substances.
- C. Pre-installation meetings.
- D. Cutting and patching.
- E. Cleaning and protection.
- F. Closeout procedures, except payment procedures.

##### **1.02 RELATED REQUIREMENTS**

- A. Section 01-1000 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.
- B. Section 01-5000 - Temporary Facilities and Controls: Temporary exterior enclosures.

##### **1.03 REFERENCE STANDARDS**

- A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2009.

##### **1.04 SUBMITTALS**

- A. See Section 01-3000 - Administrative Requirements, for submittal procedures.

##### **1.05 COORDINATION**

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements.
- B. Coordinate access to building for owner and visitors to keep facility accessible throughout construction period.
- C. Coordinate completion and clean-up of work of separate sections.

#### **PART 2 PRODUCTS**

##### **2.01 PATCHING MATERIALS**

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01-6000.

#### **PART 3 EXECUTION**

##### **3.01 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

### **3.02 PREPARATION**

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

### **3.03 PREINSTALLATION MEETINGS**

- A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify Architect four days in advance of meeting date.
- D. Prepare agenda and preside at meeting:
  - 1. Review conditions of examination, preparation and installation procedures.
  - 2. Review coordination with related work.
- E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

### **3.04 GENERAL INSTALLATION REQUIREMENTS**

- A. In addition to compliance with regulatory requirements, conduct construction operations in compliance with NFPA 241, including applicable recommendations in Appendix A.
- B. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- C. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- D. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- E. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- F. Make neat transitions between different surfaces, maintaining texture and appearance.

### **3.05 ALTERATIONS**

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
  - 1. Verify that construction and utility arrangements are as shown.
  - 2. Report discrepancies to Architect before disturbing existing installation.
- B. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
  - 1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.

- C. Remove existing work as indicated and as required to accomplish new work.
  - 1. Remove items indicated on drawings.
  - 2. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
  - 3. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.
- D. Protect existing work to remain.
  - 1. Prevent movement of structure; provide shoring and bracing if necessary.
  - 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
  - 3. Repair adjacent construction and finishes damaged during removal work.
- E. Adapt existing work to fit new work: Make as neat and smooth transition as possible.

### **3.06 CUTTING AND PATCHING**

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. See Alterations article above for additional requirements.
- C. Perform whatever cutting and patching is necessary to:
  - 1. Complete the work.
  - 2. Fit products together to integrate with other work.
  - 3. Match work that has been cut to adjacent work.
  - 4. Repair areas adjacent to cuts to required condition.
  - 5. Repair new work damaged by subsequent work.
  - 6. Remove and replace defective and non-conforming work.
- D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to specified condition.
- E. Restore work with new products in accordance with requirements of Contract Documents.
- F. Patching:
  - 1. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

### **3.07 PROGRESS CLEANING**

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

### **3.08 PROTECTION OF INSTALLED WORK**

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

### **3.09 FINAL CLEANING**

- A. Execute final cleaning.
- B. Extent of cleaning is limited to the work involved in this contract.
- C. Clean debris from roofs, gutters, downspouts, and drainage systems.
- D. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

### **3.10 CLOSEOUT PROCEDURES**

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- A. Notify Architect when work is considered ready for Substantial Completion.
- B. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.
- C. Accompany Project Coordinator on preliminary final inspection.
- D. Notify Architect when work is considered finally complete.
- E. Complete items of work determined by Architect's final inspection.

**END OF SECTION**

**SECTION 07-0150.19**

**PREPARATION FOR RE-ROOFING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Removal of existing roofing system in preparation for a new roof membrane system.

**1.02 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene one week before starting work of this section.
- B. Schedule work to coincide with commencement of installation of new roofing system.

**1.03 FIELD CONDITIONS**

- A. Do not remove existing roofing membrane when weather conditions threaten the integrity of the building contents or intended continued occupancy.
- B. Maintain continuous temporary protection prior to and during installation of new roofing system.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Materials as deemed necessary by contractor for protection and weather-tightness of interior spaces.

**PART 3 EXECUTION**

**3.01 MATERIAL REMOVAL**

- A. Remove only existing roofing materials that can be replaced with new materials as the weather will permit.
- B. Remove eave and gable trim, gutters and downspouts.

**3.02 FIELD QUALITY CONTROL**

- A. The drawings identify the approximate limits to material removal.
- B. Protect existing insulation from damage. Replace missing insulation.

**3.03 PROTECTION**

- A. Provide temporary protective sheeting over uncovered deck surfaces.
- B. Provide for surface drainage from sheeting to existing drainage facilities.

**END OF SECTION**

## SECTION 07-4113

### METAL ROOF PANELS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Contractor's Option: Complete roof panel, gutter, downspout, fascia system by a pre-manufactured metal building company or manufactured roof panels and shop fabricated gutter, downspouts and fascia specified herein or in others sections.
- B. Structural roofing system of preformed steel panels.
- C. Fastening system.
- D. Factory finishing.
- E. Gutters and Downspouts.
- F. Accessories and miscellaneous components.

##### 1.02 RELATED REQUIREMENTS

- A. Section 07-6200 - Sheet Metal Flashing and Trim: Gutters, downspouts and fascia trim shop fabricated.
- B. Section 07-9005 - Joint Sealers: Field-installed sealants.

##### 1.03 SUBMITTALS

- A. See Section 01-3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Storage and handling requirements and recommendations.
  - 2. Installation methods.
- C. Shop Drawings: Include layouts of roof panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, and special conditions.
  - 1. Show work to be field-fabricated or field-assembled.
- D. Test Reports: Indicate compliance of metal roofing system to specified requirements.

##### 1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in the manufacture of roofing systems similar to those required for this project.
- B. Installer Qualifications: Company trained and authorized by roofing system manufacturer.

##### 1.05 DESIGN REQUIREMENTS

- A. Manufacturer Design Requirements: Submit certification that roof panels will span a minimum of 5 feet and will be compatible for attachment to the existing purlin framing type.

#### PART 2 PRODUCTS

##### 2.01 MANUFACTURERS

- A. Acceptable manufacturers are:
  - 1. Architectural Building Components: [www.archmetalroof.com](http://www.archmetalroof.com).
  - 2. ATAS International, Inc: [www.atas.com](http://www.atas.com).
  - 3. Fabrel: [www.fabrel.com](http://www.fabrel.com)
  - 4. Metal Sales Manufacturing Corporation: [www.metalsales.us.com](http://www.metalsales.us.com).
  - 5. Petersen Aluminum Corporation: [www.pac-clad.com](http://www.pac-clad.com).
  - 6. Substitutions: See Section 01-6000 - Product Requirements.
- B. Metal Building Systems manufacturers are:

1. Butler Manufacturing Company; www.butlermfg.com.
2. Ceco Building Systems; www.cecobuildings.com.
3. Metallic Building Company; www.metallic.com.
4. Nucor Building Systems: www.nucorbuildingsystems.com
5. VP Buildings; www.vp.com.
6. Substitutions: See Section 01-6000 - Product Requirements.

## **2.02 STRUCTURAL METAL ROOF PANELS**

- A. Structural Metal Roofing: Provide complete roofing assemblies, including roof panels, clips, fasteners, connectors, and miscellaneous accessories, tested for conformance to the following minimum standards:
  1. Structural Design Criteria: Provide panel assemblies designed to safely support design loads at support spacing indicated, with deflection not to exceed 1/180 of the span when tested in accordance with ASTM E1592.
    - a. Dead Loads: Weight of roofing system.
    - b. Live Loads: As required by building code.
  2. Overall: Complete weathertight system tested and approved in accordance with ASTM E1592.
  3. Thermal Movement: Design system to accommodate without deformation anticipated thermal movement over ambient temperature range of 100 degrees F.
- B. Metal Panels: Factory-formed panels with factory-applied finish.
  1. Type: Single skin, uninsulated.
  2. Steel Panels:
    - a. Zinc-coated SS (structural steel) sheet conforming to ASTM A653/A653M; minimum G60 galvanizing.
    - b. Steel Thickness: Minimum 0.024 inch.
  3. Profile: Lapped seam, with integral sealant bead and exposed fastener system.
  4. Texture: Smooth.

## **2.03 ATTACHMENT SYSTEM**

- A. Exposed System: Provide manufacturer's recommended stainless steel fasteners engineered to meet performance requirements and equipped with appropriate sealant separators to provide weathertight connections that will accommodate anticipated thermal movement.

## **2.04 PANEL FINISH**

- A. Siliconized Polyester Coating: Epoxy primer and silicone-modified polyester enamel topcoat with minimum dry film thickness of 0.8 mil; color and gloss to match sample.

## **2.05 ACCESSORIES AND MISCELLANEOUS ITEMS**

- A. Miscellaneous Sheet Metal Items: Provide flashings, gutters, downspouts, trim, closure strips, caps, and ridge ventilator of the same material, thickness, and finish as used for the roofing panels. Items completely concealed after installation may optionally be made of stainless steel.
- B. Rib and Ridge Closures: Provide prefabricated, close-fitting components of steel with corrosion resistant finish or combination steel and closed-cell foam.
- C. Sealants: As specified in Section 07-9005.
  1. Exposed sealant must cure to rubber-like consistency.
  2. Concealed sealant must be non-hardening type.

## **2.06 FABRICATION**

- A. Panels: Fabricate panels and accessory items at factory, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Coordinate roofing work with provisions for roof drainage, flashing, trim, penetrations, and other adjoining work to assure that the completed roof will be free of leaks.
- B. Separate dissimilar metals by applying a bituminous coating, self-adhering rubberized asphalt sheet, or other permanent method approved by roof panel manufacturer.
- C. Where metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

### **3.02 INSTALLATION**

- A. Overall: Install roofing system in accordance with approved shop drawings and panel manufacturer's instructions and recommendations, as applicable to specific project conditions. Anchor all components of roofing system securely in place while allowing for thermal and structural movement.
  - 1. Install roofing system with exposed fasteners prefinished to match panels.
  - 2. Minimize field cutting of panels. Where field cutting is absolutely required, use methods that will not distort panel profiles. Use of torches for field cutting is absolutely prohibited.
- B. Accessories: Install all components required for a complete roofing assembly, including flashings, gutters, downspouts, trim, moldings, closure strips, caps, rib closures, ridge closures, and similar roof accessory items.
- C. Roof Panels: Install panels in strict accordance with manufacturer's instructions, minimizing transverse joints except at junction with penetrations.

**END OF SECTION**

## SECTION 07-7100

### RETROFIT ROOFING SYSTEM

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. The structural retrofit roof sub-framing system will provide support for a new metal roofing system constructed over the existing building roof. It shall be engineered in accordance with the specified code and design loading and shall transfer positive acting loads at each attachment location into an existing structural member.
- B. Furnish labor, material, tools, equipment and services for the retrofit roof sub-framing as indicated, in accordance with provisions of the Contract Documents.
- C. Completely coordinate work with of other trades.
- D. Although such work is not specifically indicated, furnish and install supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
- E. See Division 1 for General Requirements

##### 1.02 RELATED WORK

- A. Section 07 4113 – Metal Roof Panels.

##### 1.03 QUALITY ASSURANCE AND REFERENCES

- A. American Society for Testing and Materials (ASTM)
  - 1. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - 2. ASTM A 1011/A 1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
  - 3. ASTM E 1592 - Structural Performance Test for Metal Panel and Siding Systems by Uniform Static Air Pressure Difference
- B. American Iron and Steel Institute (AISI)
  - 1. AISI – 2008 Edition of the “Cold Form Steel Design Manual”
  - 2. AISI – 2007 Edition of the “North American Specification for the Design of Cold-Formed Steel Structural Members”
- C. American Institute of Steel Construction (AISC)
  - 1. AISC - “Specification for Structural Steel for Buildings”

##### 1.04 SUBMITTALS

- A. Comply with Section 01-3000 – Administrative Requirements.
- B. Product Data: Submit manufacturer's product data, including installation instructions.
- C. Shop Drawings: Submit manufacturer's shop drawings for sub-purlins indicating gauge, yield strength, flange and web sizes, cut-out dimensions, and punch pattern for attachment holes in base flange.
- D. Design Data: Submit design data from independent engineering firm indicating table of wind uplift capacity of sub-purlins.

#### **1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery: Deliver materials to site in manufacturer's original, unopened bundles, containers, and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage:
  - 1. Store materials in accordance with manufacturer's instructions.
  - 2. Protect sub-purlins from corrosion, deformation, and other damage.
  - 3. Store sub-purlins off ground, with 1 end elevated to provide drainage.
- C. Handling: Protect materials during handling and installation from corrosion, deformation, and other damage.

#### **1.06 EXISTING ROOF SYSTEM AND PRE-CONSTRUCTION INSPECTION**

- A. The existing roof system consists of through fastened metal panels with 12" o.c. major rib spacing with ribs approximately 1 ¼" to 1 ½" height, attached to zee-shaped purlins spaced 5' o.c. supporting the metal panels.
- B. The Contractor shall conduct a detailed inspection of the existing roof(s) to identify any existing roof elements that are a cause for concern IE: panel deterioration, structural deterioration, equipment curbs, plumbing and electrical penetrations, special flashing requirements, and any other items that should be submitted to the Architect for review and evaluation.
- C. The Contractor shall perform a detailed survey of the existing roof(s) and confirm the existing panel dimensions, type and profile. In the case of existing standing seam roofing it should be determined if the existing roof employs standard or tall clips. If tall clips are existing the standoff dimension should be determined.
- D. The Contractor shall obtain field measurements on the existing roof geometry including width, length, building height, roof pitch and purlin spacing. This information is to be forwarded to the retrofit sub-framing system manufacturer for coordination and integration into the design and installation documents.

#### **1.07 DESIGN REQUIREMENTS**

- A. General
  - 1. Design for approval and installation in accordance with the included drawings and these specifications, a complete retrofit sub-framing and metal roof panel assembly as a structural package, engineered and factory fabricated in accordance with AISI, MBMA and ASCE references with the understanding the sub-framing system may be designed by the retrofit sub-framing manufacturer and the metal roof panel system may be designed by the metal roof manufacturer. However, both systems are to be designed to perform as one engineered structural package where the metal roof system controls the placement of sub-framing members.

2. Any additions/revisions to sub-framing members as a result of field conditions and/or demands, shall be the contractor's responsibility, and shall be submitted for review and approval by the manufacturer.

B. Engineering Design Criteria:

1. Code: 2009 Virginia Uniform Statewide Building Code.
2. Occupancy Group: Storage-S.
3. Occupancy Category: I.
4. Importance Factor: 0.87
5. Minimum Roof Snow Load: 18 PSF
6. Ground Snow Load: 25 PSF
7. Wind Speed: 90 MPH, 3 Second Gust
8. Exposure Category: C
9. Enclosure: Enclosed

## PART 2 - PRODUCTS

### 2.01 MANUFACTURER QUALIFICATIONS

- A. Manufacturer shall have a minimum of five years experience in manufacturing and fabrication of retrofit sub-framing systems of this nature. Light-gauge steel sub-framing components specified in this section shall be produced in a factory environment by roll forming and press-brake equipment assuring the highest level of quality control.
- B. Acceptable Manufacturers
  1. Roof Hugger, Inc., PO Box 1027, Odessa, Florida 33556. Toll Free Phone (800) 771-1711. Toll Free Fax (877) 202-2254. Phone (813) 909-4424. Fax (813) 948-4742. Website: [www.roofhugger.com](http://www.roofhugger.com). E-Mail: [sales@roofhugger.com](mailto:sales@roofhugger.com).
  2. Substitutions: See Section 01-6000 Product Requirements.

### 2.02 RETROFIT STEEL SUB-PURLINS

- A. Retrofit Notched Sub-Purlins: "Roof Hugger".
  1. Description:
    - a. 1-piece, custom-punched, Z-shaped section.
    - b. Pre-punched to nest over existing roof panel ribs for low-profile appearance.
    - c. Pre-punched for attachment fasteners.
    - d. Fastens directly into existing purlins with fasteners.
  2. Material:
    - a. Galvanized steel, ASTM A 653 or A 1011, G-90, yield strength 50 KSI.
    - b. Thickness: 0.060" minimum, 16-Gauge.
    - c. Web Height: manufacturer's standard.
  3. Base Flange Width: Pre-punch base flange to manufacturer's standard unless otherwise specified.

4. Top Flange Width: Nominally 2" with 0.25" minimum stiffening lip unless otherwise specified.
  5. Length: Nominally 10'-0" long, plus an additional +/- 1" top flange extension for part lap or per manufacturer's recommendations.
- B. Attachment Fasteners/Anchorage
1. Attachment to Existing Purlins: ¼"-14 or #12-14 threads per inch, DP3 self-drilling fastener.
  2. Length: Required to penetrate existing purlins in accordance with fastener attachment standards.
  3. Sub-Purlins Installed Mid-Span: ¼"-14 or #12-14 threads per inch, DP3 self-drilling fasteners or equal into sub-rafter structure, #17-14 into existing panel when indicated and #10-16 DP3 pancake head through Hugger top flange into sub-rafter when indicated.

### **PART 3 - EXECUTION**

#### **3.01 EXAMINATION**

- A. Examine existing roof areas to receive sub-purlins. Notify Architect if areas are not acceptable or structurally adequate. Do not begin installation until unacceptable conditions have been corrected.
- B. Verify existing purlins and eave struts are in good serviceable condition, without rust-thru of flanges.
- C. Field Verify Before Ordering of and Installation of Sub-Purlins:
  1. Existing panel profile and panel rib dimensions.
  2. Existing panel run-out by measuring roof over several 20-foot areas to confirm panels were installed on module and in-square. Note variations.

#### **3.02 INSTALLATION OF SUB-FRAMING AND OTHER ROOFTOP APPURTENCES**

- A. Install sub-purlins in accordance with manufacturer's instructions at locations indicated on the standard details or Engineered Drawings if provided.
- B. Limit installation of sub-purlins to amount that can be roofed over each day.
- C. Install fasteners as directed by Manufacturer.
- D. Install sub-purlins directly over existing purlins and fasten to existing purlin through existing panel pan section.
- E. If required by wind loading, install Sub-rafters over the existing panel high ribs and between the existing purlins. Sub-rafter spacing and number of fasteners shall be as specified on the manufacturer's drawings or the engineered drawings.
- F. Press the Roof Hugger sub-purlins over the sub-rafters on the existing purlin lines in areas where they are specified and install #12-14 DP3 fasteners (or as specified) through the base flange of the Hugger sub-purlin, through the sub-rafter and then into the existing purlins being careful to

- maintain the alignment of the sub-rafters.
- G. Install Huggers onto the sub-rafters between the existing purlins as specified with #12-14 threads per inch, DP3 fasteners, typically one fastener on each side of the sub-rafter unless otherwise specified.
  - H. Where the Roof Hugger is attached to the existing roof panel the pre-punched base flange hole should be drilled out to the correct diameter to allow for the installation of a #17-14 fastener through the Roof Hugger and into the existing roof panel.
  - I. Where the Roof Hugger passes over the fitted sub-rafter a #10-16 pancake head fastener should be installed through the top flange of the Roof Hugger into the top of the new fitted sub-rafter.
  - J. Removal of Existing Roof Fasteners:
    - 1. Do not remove existing roof fasteners unless installation of sub-purlins over fasteners causes sub-purlins to roll or "porpoise". Some distortion of base flange of sub-purlins caused by existing roof fasteners is normal.
  - M. Existing flue stacks for high temperature apparatus shall be extended to the new metal roof plane and protected with a high temperature jack or curb. The contractor shall install the new equipment 3 feet higher than the elevation of any roof in accordance with the governing building code.
  - Q. Existing gravity vents are to be installed at the new metal roof plane.

**END OF SECTION**

**Appendix Photos for  
Task 9: Metal Building - Allen Morrison Site**



Photo 1.JPG



Photo 2.JPG



Photo 3.JPG



Photo 4.JPG



Photo 5.JPG



Photo 6.JPG

**Appendix Photos for  
Task 9: Metal Building - Allen Morrison Site**



Photo 7.JPG



Photo 8.JPG



Photo 9.JPG



Photo 10.JPG



Photo 11.JPG



Photo 12.JPG

**Appendix Photos for  
Task 9: Metal Building - Allen Morrison Site**



Photo 13.JPG

# ROOF REPLACEMENT FOR TASK 9: METAL BUILDING AT FORMER ALLEN MORRISON SITE 329 RUTHERFORD LYNCHBURG, VIRGINIA CITY BUILDING NUMBER: PR827

## ARCHITECT

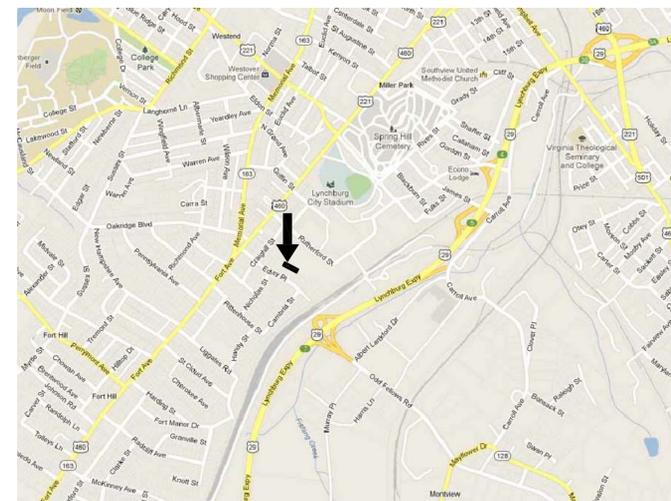
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## OWNER

CITY OF LYNCHBURG, VA  
PUBLIC WORKS DEPARTMENT  
BUILDINGS & GROUNDS DIVISION  
800 ORCHARD STREET  
LYNCHBURG, VA, 24501  
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fax: (434) 845-1813  
email: Randy.Dalton@lynchburgva.gov  
contact person: Randy Dalton

## DRAWING LIST

CS1.1 Cover Sheet  
A1.1 Roof Plan and Details



VICINITY MAP  
NORTH



SITE MAP  
NORTH

## ABBREVIATIONS

AB ANCHOR BOLT	DET DETAIL(ED)	GRG GRATING	LLV LONG LEG VERTICAL	FLYND PLYWOOD	STC SOUND TRANSMISSION COEFFICIENT
ABV ABOVE	DIA DIAMETER	GNB GYPSUM WALLBOARD	LOC LOCATION	PNLG PANELING	STD STANDARD
ACST ACOUSTIC	DIAG DIAGONAL, DIAGRAM	GYP GYPSUM	LONG LONGITUDINAL	PR PAIR	STL STEEL
ACT ACOUSTICAL CEILING TILE	DIM DIMENSION	H HEIGHT, HIGH	LPT LOW POINT	PSF POUNDS PER SQUARE FOOT	STO STORAGE
AFF ABOVE FINISHED FLOOR	DK DECK	HB HOSE BIBB	MACH MACHINE	PSI POUNDS PER SQUARE INCH	STRUCT STRUCTURAL
AGGR AGGREGATE	DN DOWN	HED HARDBOARD	MEZZ MEZZANINE	PT PRESSURE TREATED, POINT, POINT OF TANG.	SUSP (SUSPENDED)
AHR ANCHOR	DOH DOOR OPENING HEIGHT	HC HANDICAPPED	MATL MATERIAL	PTN PARTITION	SYM SYMMETRICAL
AL ALUMINUM	DON DOOR OPENING WIDTH	HDR HARDWARE	MAX MAXIMUM	PVC POLYVINYL CHLORIDE, POINT OF VERTICAL CURVE	SYS SYSTEM
APC ARCHITECTURAL PRECAST	DP DAMPROOFING	HWD HARDWOOD	MCT MARMOLEUM COMPOSITE TILE	QT QUARRY TILE	TEL TELEPHONE
APPROX APPROXIMATE	DR DOOR	HM HOLLOW METAL	MDF MEDIUM DENSITY FIBERBOARD	R RADIUS, REACTION, RISER, RESISTANCE	T46 TONGUE AND GROOVE
ARCH ARCHITECTURAL	DS DOWNPOUT	HMD HOLLOW METAL DOOR	MECH MECHANICAL	RA RETURN AIR	THK THICKNESS
AVG AVERAGE	DWG DRAWING	HMF HOLLOW METAL FRAME	NEZZ NEZZANINE	RESIL RESILIENT ATHLETIC FLOORING	THR THRESHOLD
BD BOARD	EA EACH	HOR HORIZONTAL	MFR MANUFACTURER	RCP REFLECTED CEILING PLAN	TOL TOP OF JOIST
BET BETWEEN	EIFS EXTERIOR INSULATION FINISH SYSTEM	HPT HIGH POINT	MIN MINIMUM	RCPRT RECEPTACLE(S)	TOS TOP OF STEEL
BLDG BUILDING	EJ EXPANSION JOINT	HR HANDRAIL	MISC MISCELLANEOUS	RD ROOF DRAIN	TOT TOTAL
BLK BLOCKING	EL ELEVATION	HT HEIGHT	MO MASONRY OPENING	REF REFERENCE	TRD TREAD
BM BEAM	ELEC ELECTRICAL	HVAC HEATING, VENTILATING & AIR CONDITIONING	MOH MASONRY OPENING HEIGHT	REINF REINFORCEMENT( ) (ING)	TRTD TREATED
BOT BOTTOM	ELEV ELEVATION, ELEVATION	HW HOT WATER	MOM MASONRY OPENING WIDTH	REQD REQUIRED	T STAT THERMOSTAT
BRG BEARING	ENCL ENCLOSE(URE)	ID INSIDE DIAMETER	MT MOUNT	REQM REQUIREMENT(S)	TYP TYPICAL
BUR BUILT-UP ROOF(ING)	EQ EQUAL	IN INCH	MTL METAL	RESIL RESILIENT	UON UNLESS OTHERWISE NOTED
C/C CENTER TO CENTER	EGPT EQUIPMENT	INCL INCLUSIVE	MUL MULLION	RET RETURN	UTIL UTILITY
CIP CAST-IN-PLACE, CAST IRON PIPE	ENG ELECTRIC WATER COOLER	INSTL INSTALLED	MWP MEMBRANE WATERPROOFING	REV REVERSE ACTING, REVISED, REVISION	VCT VINYL COMPOSITION TILE
CJ CONTROL JOINT	EXH EXHAUST	INSUL INSULATE(ED) (ING) (ION)	N NORTH	RF RETURN FAN, ROOF	VENT VENTILATE
CL CENTER LINE	EXIST EXISTING	INT INTERIOR	NO NOT IN CONTRACT	RG RETURN GRILLE	VERT VERTICAL
CS CL GOLD FORMED STEEL	EXP EXPOSED	INTMD INTERMEDIATE	NO NUMBER	RM ROOM	VEST VESTIBULE
CFMF COLD FORMED METAL FRAMING	EXPN EXPANSION	ISOL ISOLATION	NOM NOMINAL	RO ROUGH OPENING	VIF VERIFY IN FIELD
CLG CEILING	EXT EXTERIOR	JAN JANITOR	NST NONSLIP TREAD	RJ ROLL UP	VNR VENEER
CLR CLEAR	F4R FLASHING & NEEPS	JST JOIST	NIS NOT TO SCALE	S SOLID, SOUTH, SWITCH	VTR VENT THRU ROOF
CMU CONCRETE MASONRY UNIT	FD FLOOR DRAIN	JT JOINT(S), POWER TRANSMITTER	OAH OVERALL HEIGHT	SA STATUS ALARM, SUPPLY AIR	VWG VINYL WALL COVERING
COL COLUMN	FDN FOUNDATION	KOP KNOCKOUT PANEL	OC ON CENTER	SCF STEEL CHANNEL FRAME	W/ WITH
COMP COMPOSITE	F/F FACE TO FACE	L LENGTH, LINE, LONG	OD OUTSIDE DIAMETER	SCHED SCHEDULE	WC WATER CLOSET, WATER COLUMN
CONC CONCRETE, CONCENTRATED	FIN FINISH(ED)	LAB LABORATORY	OFCD OWNER FURNISHED CONTRACTOR INSTALLED	SECT SECTION	WD WOOD
CONN CONNECT(ED), CONNECTION	FL FLOOR	LAM LAMINATE	SF SQUARE FEET (FOOT)	SF SUPPLY GRILLE	WDO WINDOW
CONSTR CONSTRUCTION	FRP FIBERGLASS REINFORCED POLYESTER	LAV LAVATORY	S6 SUPPLY GRILLE	SGR STRUCTURAL GLAZED FACING UNITS	W/O WITHOUT
CONT CONTINUATION, CONTINUOUS, CONTROL	FT FOOT(FEET)	LF LINEAR FOOT	SH SHEET	SGM SINGLE PLY MEMBRANE	WOH WINDOW OPENING HEIGHT
CONTR CONTRACT, CONTRACTOR	FRT FIRE RETARDANT TREATED	LG LENGTH, LONG	OPN OPENING	SIM SIMILAR	WOW WINDOW OPENING WIDTH
COORD COORDINATE	FUT FUTURE	LIN LINEAR	OPP OPPOSITE	SLP SLOPE	WP WEATHERPROOF, WORKING POINT
CORR CORRIDOR, CORRUGATED	GA GAGE	LL LIVE LOAD	O/O OUT TO OUT	SNT SEALANT	WRB WATER RESISTANT GYPSUM WALLBOARD
CT CERAMIC TILE	GAL GALLON	LLH LONG LEG HORIZONTAL	PI PERIMETER INSULATION	SPEC SPECIFICATION(S)	WNF WELDED WIRE FABRIC
CTNS COATING	GALV GALVANIZED	FL FLATE	PL PROPERTY LINE	SPEI SPRAY POLYURETHANE FOAM INSULATION	W/ W/
CTR CENTER	GLASS GLASS	PLM PLASTIC LAMINATE	PLAS PLASTER	SQ SQUARE	W/ W/
COUNTERSUNK				ST STAINLESS STEEL	W/ W/
DEPTH DEEP					W/ W/
DBL DOUBLE					W/ W/
DEPT DEPARTMENT					W/ W/

## SYMBOL LEGEND

	PRE CAST ARCHITECTURAL CONCRETE "APC"		FINISH WOOD
	GYPSUM WALLBOARD		PLYWOOD
	BRICK OR MASONRY VENEER		CONCRETE
	CONCRETE MASONRY UNITS "CMU"		CRUSHED STONE BASE MATERIAL
	RIGID INSULATION		EARTH
	BATT INSULATION		STEEL
	COLUMN TAG		ELEV. NO. ELEVATION REFERENCE SYMBOL
	ELEVATION MARKER		DETAIL NO. DETAIL REFERENCE SYMBOL
	WALL TYPE TAG		SECTION NO. SECTION REFERENCE SYMBOL
	GENERAL NOTE TAG		INTERIOR ELEVATION MARKER
	LOUVER TAG		FINISH SCHEDULE TAG
	WINDOW TAG		
	DOOR TAG		
	SECTION REFERENCE SYMBOL		
	SECTION REFERENCE SYMBOL		
	SECTION REFERENCE SYMBOL		



WRITTEN DIMENSIONS ON THESE DRAWINGS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS. CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB AND THIS OFFICE MUST BE NOTIFIED OF ANY VARIATIONS FROM THE DIMENSIONS AND CONDITIONS SHOWN BY THESE DRAWINGS.

DESIGNED: MWS  
DRAWN: TCC  
CHECKED: MWS  
DATE: 2013-05-21  
REVISIONS:

## COVER SHEET

CS1.1

