CSI SECTION 04242 CONCRETE MASONRY fire rated wall systems

This suggested guide specification has been developed using the current edition of the Construction Specifications Institute (CSI) “Manual Practice”, including the recommendations for the CSI 3 Part Section Format. Additionally, the development concept and organizational arrangement of the American Institute of Architects (AIA) MASTERSPEC Program have been recognized in the preparation of this guide specification. Neither CSI nor A/A endorse the use of specific manufacturers and products.
ED NOTE: THIS SECTION COVERS INFORMATION SPECIFIC TO CONCRETE MASONRY FIRE RATED WALL SYSTEM UNITS FOR EXTERIOR AND/OR INTERIOR WALLS AS SINGLE WYTHE AND/OR MULTI WYTHE SYSTEMS USED FOR LOAD-BEARING AND/OR NON-LOAD BEARING WALLS AS INDICATED ON THE PLANS AND/OR SCHEDULE OF FINISHES.

Part 1 General
1.01 Summary

Ed Note: REVISE BELOW TO SUIT PROJECT CONDITIONS.

A. Section Includes: Adams Redline™ Blended Lightweight Concrete Masonry Fire Rated Wall System Units.

B. Related Sections: Refer to Division 4 Masonry, Division 5 Metals, and Division 7 Thermal and Moisture Protection Sections for the following:

1. Section 04100 Mortar and Masonry Grout.

2. Section 04150 Masonry Accessories.

3. Section 04200 Unit Masonry.

4. Section 04500 Masonry Restoration and Cleaning.

5. Section 05500 Metal Fabrications: Placement of loose steel lintels.

6. Section 07150 Dampproofing.

7. Section 07180 Water Repellents.

8. Section 07200 Insulation

    a. Vermiculite/Perlite Loose Fill Insulation.

b. KORFIL Block Insulation.

c. Integra Wall System Insulation.

9. Section 07600 Flashing and Sheet Metal.

10. Section 07900 Joint Sealers.

1.02 REFERENCES

A. American Society for Testing and Materials
(ASTM):

1. ASTM C 90-06 Standard Specification for Load-Bearing Concrete Masonry Units.

2. ASTM C 140-06 Standard Methods of Sampling and Testing Concrete Masonry Units.

3. ASTM E 119-00 Method of Fire Tests of building Construction and Materials.

4. ASTM C 331-05 Standard for Lightweight Aggregate for Concrete Masonry Units.

5. ASTM C 33-03 Standard for Normal weight Aggregate for Concrete Masonry Units.

B. Joint Effort of the American Concrete Institute, the American Society of Civil Engineers, and the Masonry Society.

1. Building Code Requirements for Masonry Structures (ACI 530-2005/ASCE 5-2005/TMS 402-2005).

2. Specifications for Masonry Structures (ACI 530.1-2005/ASCE 6-2005/TMS 602-2005).

3. Commentary on Building Code Requirements for Masonry Structures (ACI 530-2005/ASCE 5-2005/TMS 402-2005).

4. Commentary on Specifications for Masonry Structures (ACI 530.1-2005/ASCE 6-2005/TMS 602-2005).

C. Underwriters Laboratory, Inc. (UL):

1. UL Fire Resistance Directory, current edition.

2. UL Building Materials Directory, current edition.

1.03 Submittals

A. General: Prepare, review, approve, and submit specified submittals in accordance with Division 1 Submittals Sections. Submit the following:

1. Product Data: Submit product data for each type of product specified, including certification that each type complies with specified requirements.

2. Samples: Submit verification samples for colors, textures.

3. Test Report: Submit test report from an independent testing agency indicating compliance with ASTM C 90 for concrete masonry units.

1.04 Quality Assurance

A. Mockup (Field Constructed): Install at project site a job mockup using acceptable products and manufacturer approved installation methods. Obtain Owner's and Architect's acceptance of finish color, texture and pattern, joint sizes, and installation workmanship standard.

ED NOTE: SPECIFY BELOW MOCKUP SIZE AND SUBSTRATE:

1. Mockup Size 3’4” (5 courses high) by 4’0” (3 block wide) is recommended as the minimum size

2. Maintenance: Maintain mockup during construction for workmanship comparison; remove and legally dispose of mockup when no longer required.

3. Incorporation: Mockup may be incorporated into final construction upon owner's and Architect's approval.

B. Pre-Installation Conference: Convene prior to commencing work of this section, under provisions of Section 01040 Coordination and Project Meetings.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Storage and Protection: Store materials protected from exposure to harmful weather

conditions.

Part 2 Products
ED NOTE: COORDINATE BELOW ARTICLE WITH DIVISION 1 MATERIAL AND EQUIPMENT (PRODUCT OPTIONS AND SUBSTITUTIONS) SECTION, AND BIDDING DOCUMENTS, IF ANY.

2.01 Manufactures

A. Acceptable Manufacturers; Adams Products Company, Oldcastle, Architectural Products Group Companies.

1. Production Facilities: Castle Hayne, NC, Dunn, NC, Fayetteville, NC, Kinston, NC, Morrisville, NC, Myrtle Beach, SC, Wilson, NC
   a. Website www.adamsproducts.com

2. Proprietary Product(s)/System(s): Adams Redline™ Blended Lightweight Concrete Masonry Fire Rated Wall System Units.

   a. Size: Width (W) X Height (H) X Length (L).

   b. Color: Standard Color and Texture.

   c. Minimum Net Area Average Compressive Strength: Average of three units 1900 PSI, individual unit 1700 PSI. Meets ASTM C 90 standard average of three units 1900 PST, individual unit 1700 PSI.

   d. Maximum Absorption: Absorption is less than 18 lbs/CF. Meets ASTM C 90 standard of 18/lbs/CF absorption rate.

   e. Weight Classification: Units shall be lightweight, blended with expanded shale, clay or slate, produced by the rotary kiln process and shall conform to ASTM C331 and ASTM C33 shall be graded to assure consistent texture with total mix weight not more than 105 lbs/CF and not less than 90 lbs/CF. Meets ASTM C 90 standard for lightweight not more than 105 lbs/CF.

   f. All units shall be free of organic impurities that will cause rusting, staining, or pop outs and shall contain no combustible material. All lightweight material to be manufactured by rotary kiln process. The use of coal cinder aggregate/bottom ash or similar waste products will not be allowed.

   g. The producer of the lightweight concrete masonry units shall furnish a letter of certification stating that all lightweight aggregate used In the manufacturer of the

units was expanded shale, clay or slate produced by the rotary kiln process, Big River industries or approved equal conforming to ASTM C331 and ASTM C330.

3. Product(s)/System(s)/Testing:

a. Concrete Masonry Unit Product Standard: Comply with ASTM C 90 for lightweight concrete masonry units.

b. Provide fire rated units with UNDERWRITERS LABORATORY CERTIFICATES of the hour classification needed.

2.02 related material

A. Mortar and Grout: Refer to Division 4 Masonry Section for mortar and grout materials.

2.03 Source Quality control

A. General:

1. Obtain Redline™ Blended Lightweight Concrete Masonry Fire Rated Wall System Units from a single source to ensure color, finish and texture continuity.

2. Manufacturer shall not have less than ten (10) years experience for this type of unit.

Part 3 Execution

3.01 Manufacturer's Instructions

A. Compliance: Complies with manufacturer's product data, including product technical bulletins and product catalog installation instructions.

3.02 Examination

A. Site verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions.

3.03 Preparation

A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.

3.04 Installation

A. General: Refer to Division 4 Masonry Section for installation requirements and other Contract documents for designation for hourly ratings of fire rated wall systems.

B. Pattern: Install Redline™ Blended Lightweight Concrete Masonry Fire Rated System Units in pattern indicated on drawings. Maintain pattern lines. Match approved job mockup.

C. Elevation Tolerances: Elevations of installed Redline™ Blended Lightweight Concrete Masonry Fire Rated System Units do not exceed 1/4" in 10' or 3/8" in a story height of 20' maximum, except for external corners, expansion joints and other conspicuous lines; do not exceed 1/4" in any one story 20' maxi- mum.

D. Expansion and Control joints: Refer to Division 4 Unit Masonry section for expansion and control joints.

3.05 Cleaning and Protection

A. Cleaning:

1. Good workmanship and job housekeeping practices shall be used to minimize the need for cleaning the masonry. Masonry wall should be dry brushed at end of each days work and also after final pointing and should be left clean and free from mortar droppings. Protect the base of the wall from mud splashes and mortar droppings, protect the wall by setting scaffolds so that mortar is not deflected onto the wall and at the end of each day set the scaffolding boards so that they do not deflect rainfall onto newly laid masonry. The masonry laying technique shall be such that mortar does not run down the face of the wall, or smear the masonry face, after the joints are tooled, cut off mortar tailings with the trowel and brush excess mortar burrs and dust from the face of the masonry.

2. If after using the above outlined techniques, additional cleaning of masonry is necessary, the technique, solutions and test area shall be approved by the owner, architect and manufacturer in writing. The masonry shall be thoroughly saturated prior to and at the time the cleaning solution is applied. Clean the masonry only with an approved cleaning solution (Water, Vana Trol or Sure Klean 600) with a brush starting at the top of the masonry. The solutions and the method of scraping shall be as outlined on the container by the manufacturer. Immediately after cleaning a small area, the masonry shall be rinsed thoroughly with quantities of water sufficient to rinse cleaning solution completely. High pressure water and sandblasting shall not be used for cleaning except with the recommendation of the manufacturer and the written approval of the architect and the owner.

3. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Remove construction debris from protected site and legally dispose of debris.

B. Protection: Protect installed product's finish surfaces from damage during construction.

ED NOTE: IF NON PROPRIETARY SPECIFICATION IS REQUIRED, DELETE ANY REFERENCE TO ADAMS PRODUCTS COMPANY. THE REMAINING SPECIFICATION WILL BE A PERFORMANCE SPECIFICATION.