

# **Standard Specification For Installation of ARMOROC® For Floors**

## **SECTION 06160**

### **1. GENERAL**

#### **1.01 SUMMARY OF WORK**

- A.** Materials shall be **ARMOROC®** Cement Bonded Particle Board (CBPB) as distributed by Ameriform, LLC.
- B.** All **ARMOROC®** CBPB shall be selected from the manufacturer's load tables to carry the project live load design over a maximum of 24 inches on center support spacing while limiting deflection to a maximum of L/240 as determined by project architect & engineer.
- C.** **ARMOROC®** CBPB to be of minimum thickness ¾" (19mm) and 4' x 8' (1220mm x 2440mm) dimension. Product will be factory sealed with a clear sealer and be fabricated with tongue & groove edges on long 8' dimensions of the panel.
- D.** Comply with applicable building codes for wind, seismic, uniformly distributed live-loads and other loading requirements as determined by the project architect and engineer.
- E.** **ARMOROC®** CBPB shall have the following minimum mechanical properties:
  - 1.** Density:  $\pm 75$  lbs/ft<sup>3</sup>
  - 2.** Modulus of Elasticity: > 652,000 psi
  - 3.** Shear Strength: > 1308 psi
  - 4.** Tensile Strength (parallel to surface): > 963 psi
  - 5.** Compressive Strength: > 2,938 psi

#### **1.02 RELATED WORK SPECIFIED ELSEWHERE**

- A.** Section 05200, Metal Joists
- B.** Section 05400, Cold-Formed Metal Framing
- C.** Section 06100, Rough Carpentry
- D.** Section 09100, Metal Support Assemblies
- E.** Section 09300, Tile
- F.** Section 09600, Flooring

#### **1.03 DESCRIPTION OF ARMOROC®**

- A.** **ARMOROC®** CBPB is a highly fire-resistant cement bonded particle board (CBPB) mechanically fastened to the top of floor framing members as a sub-floor.
- B.** **ARMOROC®** CBPB is load-bearing and shall have a finished floor applied over it.

#### **1.04 PERFORMANCE REQUIREMENTS**

- A.** Surface burning characteristics: **ARMOROC®** CBPB shall 0 flame spread and 5 smoke development (or less) indices in accordance with ASTM E-84.

## 1.05 SUBMITTALS

- A. Submit to the project architect or design professional a copy of **ARMOROC®** CBPB product and installation specifications and one product sample measuring 3” x 3” minimum.

## 1.06 QUALITY ASSURANCE

- A. Contractor shall have successfully installed floor-sheathing products of a similar type as this project. These past projects shall have resulted in construction with a record of successful in-service performance.

## 1.07 DELIVERY, STORAGE, AND HANDLING

- A. **ARMOROC®** CBPB as distributed by Ameriform LLC is normally delivered to site in factory crates bound with plastic sheet protection, wooden edge protection, and wooden dunnage to facilitate forklift handling.
- B. **ARMOROC®** CBPB shall be stored indoors on leveled dunnage not exceeding 32” on centers. If temporarily stored outdoors boards must be elevated above ground and protected from the weather with waterproof covering. Stacking of pallets should always be on solid stable base and never be stacked higher than 5 pallets high. Acclimatize **ARMOROC®** CBPB by storing on site not less than three days prior to installation
- C. All materials supplied by others shall be delivered and stored according to their instructions.
- D. Deliver, store & handle materials to prevent breakage, warping or damage caused by moisture.
  - 1. When transporting loose **ARMOROC®** CBPB panels by truck they must be laid flat and fully protected against edge damage and protected from weather with waterproof covering.
  - 2. When hand carrying single **ARMOROC®** CBPB panels they must be carried on edge with the short side held vertically.
- E. Damaged or deteriorated materials shall be removed from the premises.
- F. Material Safety Data Sheets shall be available for all materials.

## 1.08 PROJECT CONDITIONS

- A. Steel framing to receive **ARMOROC®** CBPB shall be structurally sound, free from bows, twists or other malformations and in general compliance with local building code requirements. Damaged framing shall be replaced before installation of **ARMOROC®** CBPB.
- B. During installation of **ARMOROC®** CBPB the temperature shall be at least 0° F during installation if mechanically fastened. If adhesive is being used temperature shall be at least 40° F and remain at this temperature or higher for at least 24 hours after installation, unless the adhesive manufacturer will permit the use of its product at a lower temperature. Prior to the application of finished flooring **ARMOROC®** CBPB must be conditioned at the same temperature as required for the finished flooring for at least 48 hours. Finished flooring shall not be applied over **ARMOROC®** CBPB that is wet, frozen or contains frost.

## 1.09 SEQUENCE AND SCHEDULING

- A. Sequence the installation of **ARMOROC®** CBPB with related work specified in other sections to ensure that the floor assemblies are protected against damage or abuse during and after construction.
- B. Provide sufficient labor and equipment to properly install all materials.

## 1.010 PRODUCT WARRANTY

- A. **ARMOROC®** CBPB is warranted by the manufacturer for a period of 10-years from date of material purchase to be free from defects in workmanship and materials under normal use. Refer to product warranty for complete terms.

# 2. PRODUCTS

## 2.01 MATERIALS

- A. Floor Framing: Cold formed steel with minimum G-60 galvanized coating, minimum 18 gauge meeting AISI and ASTM specifications and requirements for use in a structural floor system. Follow manufacturer's installation instructions.
- B. Floor Sheathing: Minimum 19mm (3/4") thick **ARMOROC®** CBPB, factory sealed, tongue & groove on 8' edges as distributed by Ameriform LLC unless otherwise noted.
- C. Adhesives: Use PEMCO 5100 non-flammable, solvent free, zero V.O.C., polyurethane adhesive as manufactured by Alpha Systems, Inc., Elkhart, IN or equal. Available for purchase through Ameriform, LLC. Follow manufacturer's installation instructions.
- D. Fasteners: Use corrosion resistant self-countersinking head screws such as Grabber Part No. CHS8200JBW, or equal. Fasteners to be minimum #8 diameter with self-drilling points. Length of fastener to equal 2-1/2 to 3 times the board thickness. Available for purchase through Ameriform, LLC. Follow manufacturer's installation instructions.
- E. Sealer: Use alkaline-resistant masonry sealers compatible with PH 11 or greater such as Sherwin Williams Loxon XP, or equal.

# 3. EXECUTION

## 3.01 FRAMING

- A. The floor joists and other floor framing components must be designed to meet the strength and deflection criteria as determined by project architect & engineer and specified in the contract documents.
- B. The attachment flange or bearing edge shall be a minimum 2" wide, or doubled up at **ARMOROC®** CBPB board edges.
- C. Metal framing shall be a minimum 18 gauge.
- D. Metal framing shall be spaced a maximum of 24" on centers.
- E. All blocking or bridging must be installed prior to the installation of **ARMOROC®** CBPB.
- F. Framing must be of good quality, free of bows, twists or other malformations.

### 3.02 STRUCTURAL PANEL SHEATHING APPLICATION

- A. Panels shall be cut to size with a circular saw equipped with cement cutting blade and a dry dust collection device or a water-dispensing device that limits the amount of airborne dust. Wear safety glasses and a NIOSH approved dust mask when cutting the panel. Collected dust shall be disposed in a safe manner and in compliance with local, state and federal ordinances.
- B. **ARMOROC®** CBPB shall be installed with the long edges perpendicular to the framing. Panels may be installed with either surface against the framing.
- C. Plan the layout so first and last panel rows are a minimum 24" wide. Start the first panel with the cut edge or tongue along the rim joist. Place each panel across three or more supports. Cut panel to length as needed to ensure butt ends are centered on the framing member.
- D. Use of adhesive at all board joints is recommended to enhance the connection strength of adjacent **ARMOROC®** CBPB panels. Follow adhesive manufacturer's product and installation instructions. Carefully apply a 1/4-3/8" diameter bead of adhesive to the joint of the installed panel. Only apply enough adhesive to bond the edges of the panels being joined.
- E. Fasten each panel to metal framing after it has been placed using the following fastening schedule:
  - 1. Fastener placement shall be a maximum of 12" on center along all supports at panel joints and edges.
  - 2. Fastener placement shall be a maximum of 16" on center along all supports in the field of the panel.
  - 3. Fastener placement shall be a minimum 3/4" from all panel edges.
  - 4. Fastener placement shall be a minimum 2" from all panel corners. Off-set fasteners to avoid 45 degree fastener placement at board corners.
  - 5. Begin fastening at one end and fan out across the panel. Do not fasten all the corners first.
  - 6. Drive fasteners so the heads are flush with the surface of the board.
- F. After installing one complete row of panels begin the next row. Slide panels together so that the tongue of the panel being installed fits into the groove of the installed panel. Install all rows in a running bond pattern so that end joints fall over the center of the framing members and are staggered by at least two supports from where the end joints fall in the adjacent rows.
- G. Cutouts in the panels should be made before installing the panel whenever possible. If a cutout is required after the panel is installed, set the depth of the saw blade to ensure that the framing is not scored. Continuous structural perimeter support such as blocking, bracing and bridging is required at all cutouts and/or penetrations larger than 4" in either direction.
- H. Panels are factory sealed for protection from moisture. During installation apply alkaline resistant masonry sealer (compatible with a PH 11 or greater) to all areas where the factory applied sealer has been compromised. Examples of areas requiring resealing include, but are not limited to, sanded areas during floor-leveling, exposed cut-edges not receiving joint adhesive and damage during construction.

### 3.03 CLEAN-UP

- A. Left over material shall be removed from the job site.
- B. Remove foreign material from floor surface and vacuum all dust from the surface.

### 3.04 SAFETY

- A. Avoid concentrated point loads on **ARMOROC®** CBPB by referring to concentrated load tables and as determined by project architect & engineer. Pay close attention to stored building materials and/or equipment such as masonry units, hoists, framing members, sheet goods, ladders, scaffolding, etc.
- B. Measures shall be taken to distribute concentrated and point loads on the deck system during construction such as the utilization of pallets, dunnage, and/or structural building panels such as plywood or OSB laid over multiple spans.
- C. Workers must take extra care to avoid impacts such as dropped masonry units, framing members, scrap material, tools, equipment, etc. Such impacts can cause deforming marks or even penetrations if dropped onto the sheathing surface of these panels and will need repair.

### 3.05 FLOOR FINISH

- A. Before the application of floor finish materials, ensure that all panels are properly installed with the fastener head driven flush or slightly below the surface of the panels. Fill all voids and depressions with compatible patching or leveling compounds.
- B. Underlayments and accessories may be secured to **ARMOROC®** CBPB by following the installation instructions provided by the manufacturer. Mechanical fasteners or adhesive and pneumatically driven, divergent point staples can be used. Staples should penetrate **ARMOROC®** CBPB 1/4" – 1/2".
- C. For wood flooring apply a building paper No. 15 felt or equivalent over **ARMOROC®** CBPB prior to applying the wood flooring. For engineered wood flooring use the moisture barrier recommended for the engineered wood flooring system specified in lieu of the building paper. Follow the wood flooring manufacturer's installation instructions for applying wood flooring to plywood or OSB floor sheathing. **ARMOROC®** CBPB must be kept dry and maintained in a conditioned space for a minimum of 30 days prior to the installation of wood flooring.
- D. Ceramic tile should be installed over a crack isolation or cleavage membrane applied to **ARMOROC®** CBPB. Use latex modified thin set mortar that complies with ANSI Standards for application of the tile to the membrane unless the tile or membrane manufacture directs the use of an alternate material that complies with ANSI Standards.
- E. Carpet should be installed using tackless strips designed for concrete application for the installation of stretched carpet.

**END OF SECTION**