AAC CLADDING SYSTEM OVERVIEW FOR ENGINEERS AND INSPECTORS

AAC panels are part of an affordable, high performance cladding system for wood and light gauge steel framed construction. Panels are 2" or 3" thick, steel reinforced, light-weight pre-cast aerated concrete panels that are attached direct to framing members, or over sheathing, as the architect/designer and engineer may specify. Panels are available in three sizes; 24"x 48", 24"x 80" and 24"x 96". AAC panels supplied by AAC Build are manufactured by Aircrete MX to ASTM C 1693.11 , Class AC-4.

parameter	*characteristic*
Compressive Strength *(min)*	580 lb/in^2
Design Weight	37 lb/ft^3
Allowable Shear	15 lb/ in^2
Modulus of Elasticity	296,000 lb/in^2
Dry Shrinkage	0.0024 in/ft
Thermal Expansion	4.5 x 10^{-6}
Moisture Content	9% (by mass)

During the manufacturing process panels are cured by autoclave, resulting in a dimensionally stable end product with negligible thermal expansion or shrinkage. Entrained air pockets result in a very light weight panel with significant compressive strength (see chart above). An integral grid of high tensile coated steel (~0.12" dia. welded wire) augments the natural rigidity and protects against cracking during transportation and installation.

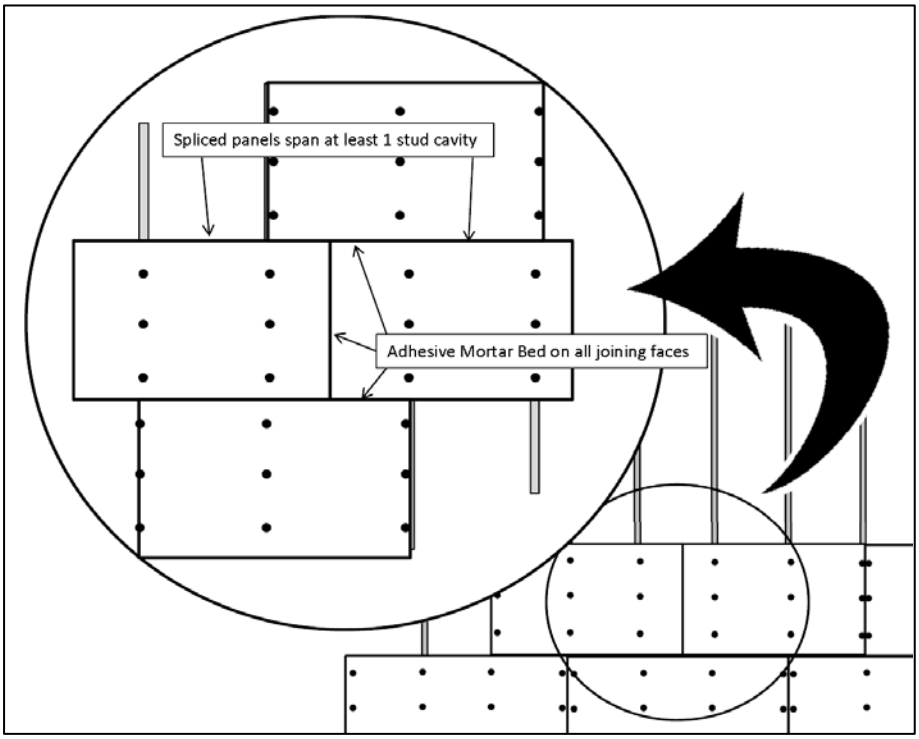
AAC panels can be installed directly over framing or sheathing. An appropriate weather barrier should be installed (per manufacturer's instructions) prior to panel installation. Panels are attached in a running bond pattern with AAC Adhesive Mortar bed at all horizontal and vertical joints. Panels are then attached to framing members spaced no greater than sixteen inches (16") on center. There shall be at least three (3) fasteners per stud, per panel. Spacing shall be one fastener four inches (4") from the top and bottom edges of the panel and one fastener near the center of the panel, eight inches (8") from each to the center. If more than three (3) fasteners per stud are indicated by the engineer they should be appropriately spaced to provide consistent holding pressure across the panel.

Fasteners used should allow for penetration into the framing of at least 1½". Fasteners for metal framing shall be of sufficient length to allow penetration of the metal stud by at least three (3) full threads. All fasteners should have a low profile or bugle head of at least three eights (3/8"). Deck screws or roofing screws are acceptable for this application. Fasteners should be coated to resist climate conditions and shall have a shear rating of ≥ 280lbs with pullout of ≥ 320lbs.

Product	*Compressive Strength @ 28 days (psi)*	*Shear (lbs)*	*Pullout (lbs)*	*Allowable Load Per Fastener (lbs)*	
Adhesive Mortar	1,450				
Leveling/Repair Mortar	1,450			*2" Panel*	*3" Panel*
Fastener #12 x 3 ½"		≥ 280	≥ 320	89	134

Smaller trim pieces are used to complete installation around window and door openings. Edges facing window and door casings should be held back ~1/32" to allow for the application of caulk. Facing edges may be left cut square, or may be beveled or bull nosed.

Short pieces less than full panel length should be installed across two studs. If a portion of panel extends beyond the end of a stud it need not be cut at the stud as the Adhesive Mortar used in this system will bond sufficiently to the mating panel without compromising panel strength. Panel pieces from both sides of this "splice" should be long enough to span at least one additional stud cavity (see diagram).



Panel splice between studs is allowed with proper attachment of both end pieces.

The surface is then leveled by rasp or power grinder to eliminate areas beyond the plane. Valleys, depressions and chip damage shall be filled using Leveling/Repair Mortar. Utility penetrations shall be sealed with either Leveling/Repair Mortar, aerosol insulating foam, or a combination of both.

Prepared walls are washed to remove accumulated dust and dirt. Once dry a layer of fiberglass mesh is embedded in a skim coating of cementitious acrylic base coat. This vapor permeable coating provides a second water resistant layer to the wall assembly. An optional coating of primer can be applied at this stage.

Caulk is applied at the perimeter of all window and door casings and at the top of the wall at the intersection with the soffit. Utility penetrations may also receive caulk as appropriate.

The final coat of colored textured acrylic finish is then applied. This step concludes the assembly process of the system.

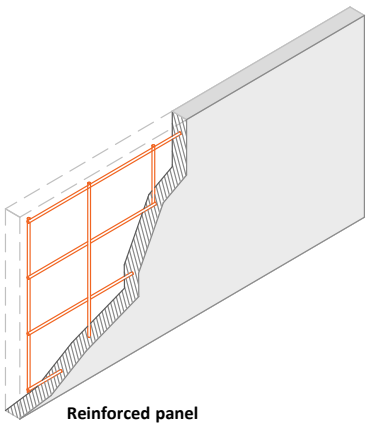
CLADDING

Technical Data Sheet

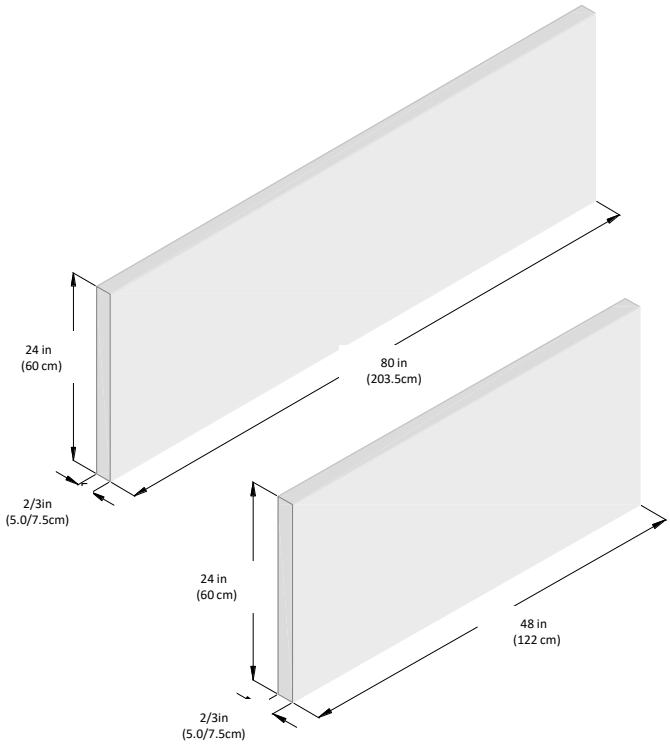
AUTOCLAVED AERATED CONCRETE

TECHNICAL INFORMATION				
THICKNESS in (cm)	LENGTH in (cm)	WIDTH in (cm)	weigth per piece lb/pc (kg/pc)	area per piece ft^2 (m^2)
2 (5.0)	48 (122)	24 (60)	55.6 (25.3)	7.9 (0.732)
3 (7.5)	48 (122)	24 (60)	83.4 (37.9)	7.9 (0.732)
2 (5.0)	80 (203.5)	24 (60)	92.8 (42.1)	13.1 (1.221)
3 (7.5)	80 (203.5)	24 (60)	139.2 (63.2)	13.1 (1.221)

PARAMETER	unit	AAC-4
Compressive Strength	psi (kg/cm^2)	580 (40.8)
Nominal Density	lb/ft^3 (kg/m^3)	37 (600)
Real Density	lb/ft^3 (kg/m^3)	36 (576)
Drying Shrinkage	%	0.02
Thermal Conductivity	BTU in/ h ft^2 °F (W/m·K)	0.8057 (0.1162)
Thermal Resistivity	h ft^2 °F/ BTU in (m·K/W)	1.24 (8.6)
Water vapor transmission	Perm in (ng/Pa s m)	0.287 (0.418)
Moisture adsorption	mass %	9.02
Water Absorption	mass %	66.71
Modulus of Elasticity	psi (kg/cm^2)	295, 845 (20,800)



Reinforced panel



AIRCRETE MEXICO
innovation built on experience

Certificate of manufacturer

February 2018

AIRCRETE MEXICO SAPI de C.V. certifies that their Autoclaved Aerated Concrete (AAC) products are manufactured in accordance with ASTM C 1693 “Standard Specification for Precast Autoclaved Aerated Concrete (AAC) Wall Construction Units “ and ASTM C1694 “Standard Specification for Reinforced Autoclaved Aerated Concrete (AAC) Elements).

Our 2” and 3” thick cladding are classified products as AAC4 with the following characteristics:

	AAC4	
Compressive strength, min	580 psi	(40.8 kg/cm^2)
Dry Density	37 lb/ft^3	(600 kg/m^3)

ASTM C1693

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