

AAC PANEL CLADDING FOR RESIDENTIAL AND LIGHT COMMERCIAL/INDUSTRIAL APPLICATIONS

The following information relates to successful construction projects in the southern zone of Texas however the methodology is appropriate for most regions of the US. The introduction of AAC panel use as cladding and/or sheathing was initially met with curiosity by builders, code officials and engineers. As such, on each individual project, those involved looked to the project engineer of record for acceptance of this “new” material, its specifications, and the method of application as it related to current protocol and codes.

Builders are excited at the obvious advantages of AAC use, but are skeptical of the unknown impact on their project budget and market acceptance. These fears are quickly alleviated after the first project has been completed. Eventually resistance from local code and inspection personnel disappear as general acceptance of AAC panel cladding becomes a viable and affordable alternative cladding system. This cycle of curiosity, resistance and acceptance will be repeated in each local market as AAC panels are introduced.

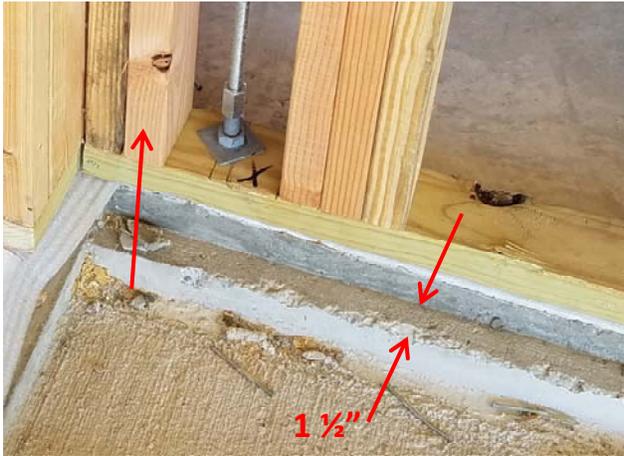
Today we are promoting AAC panel construction as an Aerated Concrete Cladding System, or ACCS. This system designation approaches the market with assembly details for application onto wood framing and lightweight steel framing. Installers are trained on general application methodology as well as specific details. Much of the science behind the development of these details has been taken from the cement plaster industry (stucco) as there is much similarity between the two products in method of application. Please refer to our training guide and generic details to be used as reference. With little change, the assembly method for wood framing and light gauge steel are the same as both focus on attachment to the respective studs to provide system strength and integrity. Proper selection of fasteners is a key element to creating a successful assembly.

The majority of residential construction in the United States uses wood framing, notably yellow pine, especially in the southern half of the US. The predominate stud placement is 16” on center. All building materials sold in the US are designed to attach in multiples of this 16” dimension.

While many regions do not require a sheathing layer on top of framing to mitigate racking of a wall assembly, areas subject to high winds, tornadoes and hurricanes do require such additional support. In our markets we install AAC panels both with and without sheathing. It is the engineer of record for the project that has the final word.



ASSEMBLE DESTRIPTION AND COMMENTARY



Before construction begins we meet with the builder and discuss unique requirement with AAC panel use. We ask for a brick ledge of 1½” – 2” (depending on the use of sheathing) and for additional studs at inside corners to create attachment points for interleaved panels. We ask that we be allowed to create all penetrations for utility access or venting rather than letting electricians, plumbers, HVAC or other contractors make their own. The key reason for this request is to protect the air penetration potential at such openings.

Prior to beginning a project framing should be inspected for wall planarity, alignment and plumb. Studs should be on uniform centers, corners should be straight and walls must be planar between floors and across floor plate lines. Roof and deck flashings should be installed.

Planarity of the brick ledge is also inspected. Minor corrections are addressed during installation. More serious deviations must be corrected prior to the start of installation.





We also find value in taking responsibility for flashing installed windows to the weather barrier. A layer of TYVEK® (or the weather barrier of builder's choice) is attached over sheathing before panel installation. If applying a system directly to studs we will coordinate installing the weather barrier with the builder so he can install windows after window openings have been properly flashed.

Today liquid applied weather barriers are becoming the norm. Liquid applied barriers are superior in all regards to fabric barriers. The small increase in cost is far outweighed by increased protection .

As with masonry work, installation begins with a chosen corner. For this discussion I am using 2"x24"x48" steel reinforced panels. Panels are installed horizontally on the long side. A great deal of time is allocated to installing the initial course of panels. A bed of adhesive is placed on the brick ledge, adjusted for plumb and level, and attached to framing members. Fasteners used are bugle head decking screws of sufficient length to allow penetration into framing of 1½". The screws should be coated to prevent long term corrosion. We like to use Torx or square drive screws which allow more positive grip with the impact drive tool. Each panel receives three fasteners across the 24" plane at each stud face. Spacing is one fastener 4" from top and bottom edge with the third centered between these two. The fastener is driven into the panel such that the head slightly penetrates the outer face of the panel, or countersunk. When the wall assembly is complete fasteners will be spaced 6' on center from bottom to top, and 16" on center, left to right.



Install the second panel with the adjacent joining face receiving adhesive. Follow the same directions as the course progresses. A second course is installed, setting the corner to allow intersecting panels to interleave at the corner. Again, all adjoining faces of the new panel receives adhesive. Minor deviations from planarity can be corrected after the entire wall has been installed.



Fenestrations, openings for windows and doors, are addressed by cutting pieces to fill the space left from last full panel end to the edge of the window or door casement. A small space is left at each face between the panel edge and the casement allowing for thermal expansion. This space should be ~1/16", and is to be sealed with caulk as the wall finish material is installed.

As a note, when cutting a panel, exposed steel reinforcement is to be immediately coated with good quality primer paint. We use Rustoleum aerosol which always part of the installer's recommended kit.



Openings for HVAC, electrical and plumbing access are drilled or cut as required and indicated by the other subcontractors. They are cut to close tolerance for the application. After these tradesmen complete their work we return to seal the remaining open space with expansive foam or some type of liquid flashing material.

Once panels are installed the wall is inspected for planarity, gaps and deflection. An 8' carpenter's level is useful to identify high spots or valleys. Valleys are filled with leveling plaster, all screw holes and gaps are filled and the entire is rasped to a smooth, level appearance. If a direct applied finish is to be applied the wall now receives a skim coat of acrylic base coat with fiberglass mesh embedded. Window and door casings are caulked. The top edge of each wall is caulked to the soffit to reduce outside air infiltration.



A variety of finish system can be applied at this point, from stucco, siding, brick or stone. In our region we usually install an acrylic texture finish system. The most popular combination is direct applied acrylic textured finish in combination with veneer (manufactured) stone.





Our installation crews include trained plastering personnel. Following Sto's system guidelines for installation we offer an extended warranty for not only the AAC panels, but for system waterproofing and the finish system. We find this to be a great selling tool as compared to classical plaster stucco renderings which have no warranty and a propensity to crack.

These images give an idea of the flexibility of design we have been able to accomplish.



"We fear no wall"

