



OMNICRETE INTERNATIONAL, INC.

TECHNICAL QUESTIONS & ANSWERS

Technical Question #4 - Will it cost my builder more (hence cost me more) to attach exterior doors and windows, interior doors, kitchen and bath cabinets, towel racks, base and crown moldings and wainscoting during construction? What about after I move in the home will it cost me more time and money to attach window coverings, mirrors, and pictures to a wall that is solid concrete?

Answer: No, to all the above, in fact attaching **everything** to an Omnicrete wall is made much easier and affordable (saves time and money) than ALL types of construction. After reading the “reasons” below and you feel that we missed something and you want to challenge us, please write to info@omnicrete.com and we will respond. All responses both negative and positive are welcome. We feel that the only stupid question is one not asked! This is one of the most widely misunderstood topics of our system.

Reason: When hearing the word “concrete” nearly everyone instantly thinks: “hard”, “unworkable” and “costly”. It is a very natural thought process to equate concrete with hard, unfriendly, costly and harsh working conditions when it comes to working with it especially with attaching materials to it.

There are three types of concrete used in the Omnicrete process and they are as follows:

- **Solid Poured Concrete**, which is what we use in the center core of our exterior walls. For the scientifically minded person who thinks that concrete will crack, twist, expand and contract eventually and that something attached to it will also crack. The myth that “not if but when” concrete cracks is just that, “a myth”. The way most builders build (low PSI and poor forming, placement and finish) yes, that myth is true; it will crack after numerous expansions and contractions especially if it is allowed to be exposed to the direct sun and then rain is allowed to be dropped on it and potentially change the temperature by 20 to 40 degrees in a few minutes. One side is still hot perhaps 100 degrees or more and the side where the rain is hitting could drop to 70 degrees in minutes causing a twisting affect causing stress over a wide area. However, the five inches, solid, monolithic, steel reinforced, concrete center core in our tri-wall system never has drastic changes in its temperature since it is surrounded on both sides by 4 inches of Autoclaved Aerated Concrete which has massive thermal resistance power. To heat up the core even slightly sun would have to be shining for hundreds of hours which is absolutely impossible as you know. Additionally, and more importantly we are concrete experts and know what to do to strengthen concrete for very little additional cost. The inventor of this system has poured concrete driveways and after dozens of years the driveway remains looking new with not even so much as a hair crack. The



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remaining reasons as to why our wall system is so stable would take three to four pages of reading. So, we will wait for another time to explain that detail. But for now, we must stay focused on attachments of our completed walls system.

- Concrete Composite Board which is what we use on soffits and fascia boards around the base of our roofs. In fact, anywhere there is need for a wood like textured material and we want to keep with our theme of fire protection, we use Concrete Composite Board. This material is available from any Home Depot or Lowes Home Centers. If you are interested in this product just get the specifications from either Home Depot or Lowes website.
- Aerated Concrete aka Autoclaved Aerated Concrete (AAC) which is what we use on either side of our center core on our exterior walls and used singly on our interior wall partitions. AAC cuts, nails, screws and drills like wood but does not rot, decay, warp, burn and prone to attract wood destroying insects like wood. Simply put, AAC has **ALL** of the *positive attributes of wood* but **NONE** of the *negative attributes of wood* plus it is far more eco-friendly and sustainable than wood.

Studying closely the answer to this question the reader will begin to glean that Omnicrete creation brings superiority to the construction industry regarding many factors including “attachments” of materials to the wall system of a building. This is one of the reason **this system is the most sophisticated and user friendly** but strong systems on the planet. It is important at this juncture to understand how Omnicrete is designed. Omnicrete is a “tri-wall” construction system; some think of it as a “sandwiched” wall system. The center component is a solid monolithic, poured in place concrete core which is the structural component of the entire wall system. This solid core is “sandwiched” between two Autoclaved Aerated Concrete (AAC) stay-in-place forming walls on either side of the core. The “means and methods” of actual assembly on the job site is delineated elsewhere in our reports and not covered here since it is not the focus of this question. Suffice it to say, that the finished wall system incorporates 4 inches AAC on either side which makes attachments very user friendly. That being said, let’s now understand the basic facts about this amazing material called Autoclaved Aerated Concrete commonly known as AAC.

During its manufacturing, Autoclaved Aerated Concrete is mixed and cast in forms; several chemical reactions take place that give AAC its light weight (*20% - 30% of the weight of concrete*) and thermal properties. Aluminum powder reacts with [calcium hydroxide](#) and water to form [hydrogen](#). The hydrogen gas foams and doubles the volume of the raw mix (*creating gas bubbles up to 3mm [$\frac{1}{8}$ inch] in diameter*). At the end of the foaming process, the hydrogen escapes into the atmosphere and is replaced by air.



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When the forms are removed from the material, it is solid but still soft. It is then cut into either blocks or panels, and placed in an [autoclave](#) chamber for 12 hours under steam pressure. During this steam pressure hardening process, when the temperature reaches 190° Celsius (374° Fahrenheit) and the pressure reaches 8 to 12 [bars](#), quartz sand reacts with [calcium hydroxide](#) to form [calcium silica hydrate](#), which gives AAC its high strength (*but not as strong as regular concrete*) and other unique properties. After the autoclaving process, the material is ready for immediate use on the construction site. Depending on its [density](#), up to 80% of the volume of an AAC block is air. AAC's low density also accounts for its **low structural compression strength**. It can carry loads of up to 8 MPa (1,160 PSI), approximately 40% to 50% of the compressive strength of regular concrete. However, when AAC is used as a component of the Omnicrete wall system its deficient structural strength is irrelevant, since the Omnicrete system relies on the solid monolithic center core as the main structural component of the entire wall system. The center core of the Omnicrete wall system alone is stronger than any other wall system currently being used due to its monolithic nature. All other walls systems have a web type of design or breaks in the solid components of its wall. But again, that is not the focus of this question so more on the structural abilities of this system later. Below are some advantages and disadvantages of AAC:

Advantages of AAC:

- Same workability as wood but far more superior than wood. For example, AAC cuts, **nails, screws and drills like wood** but does not rot, decay, warp, burn and prone to attract wood destroying insects like wood. Simply put, AAC has **ALL** of the *positive attributes of wood* but **NONE** of the *negative attributes of wood* plus it is far more eco-friendly and sustainable than wood.
- Improved thermal efficiency reduces the heating and cooling load in buildings.
- Porous structure allows for superior fire resistance.
- Workability allows accurate cutting, which minimizes the generation of solid waste during use.
- Resource efficiency gives it lower environmental impact in all phases of its life cycle, from processing of raw materials to the disposal of waste.
- Light weight saves cost & energy in transportation.
- Light weight saves labor expenses.
- Light weight increases chances of survival during seismic activity.

Disadvantages of AAC:

- Regarding workability of attachments of AAC, there are NO disadvantages.



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The Omniconrete wall system contains all the positive attributes as AAC plus it is massively more structural and resists wind pressure far beyond any other system due to its solid 5 inch concrete steel reinforced core. The “protective blanket” of AAC surrounding the center core yields massive superiority of fire protection, energy efficient and **ease of placing attachments** than any other system worldwide.

Brief Methodology as to how certain common materials are attached:

- **Exterior Doors** – Attached directly to the concrete with Tapcons or any concrete anchor. We do not use “wood bucks” around doors and windows like standard construction. There are many advantages for not putting treated wood around doors and windows but again this is not within the scope of this question. The cost of concrete anchors are slightly more than standard course threaded screws used in standard or conventional construction the cost of the whole building with cost slightly more than conventional but, since wood bucks are NOT used in our system around doors, the total cost will be DECREASED netting a savings using our methodology no matter how you measure it. Once AGAIN, Omniconrete’s cost is less and the quality is much higher considering we are attaching exterior door directly to the concrete core and not to a wood stud. In conventional construction, you have twice the work and twice the fasteners yielding a higher cost than Omniconrete’s attachment system.
- **Windows** – Attached directly to the concrete core with Tapcons or any concrete anchor. See one above for explanation. Attaching windows with Tapcons gives a more superior hold than any other type of construction. Tapcons are used with block construction also to attach wood bucks to the block and then wood screws are used to hold the window to the wood bucks. Twice the work and twice the fasteners yielding a higher cost than Omniconrete’s attachment system.
- **Interior Doors** – Wire nailed into the AAC exactly as interior doors are attached to wood studs in conventional construction and therefore the workability and costs are identical.
- **Kitchen and Bath Cabinets** – Attached identically as conventional construction and therefore the workability and costs are identical. But here again, Omniconrete’s AAC wall is a “nailer” so with our system the cabinet installer can place a screw anywhere so labor should be less!
- **Base and Crown Molding** – Attached identically as conventional with a couple of advantages. Unlike conventional construction where you must search for a stud or “nailer” the entire AAC interior wall is a stud or “nailer”. Moreover, you can simply glue the moldings to the AAC lessening the cost of labor by saving labor for the painter (no patching nail holes and sanding and touch up painting of the molding or trim).



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- Trim Moldings (around doors and windows) – Less expensive with Omnicrete than conventional methods of construction for the same reasons as 5 above.
- Wainscoting and chair railings – No nailing and patching holes and sanding and touch up painting! Glue it on the AAC directly. All conventional and non-conventional methods place drywall, screw or nail then patch up nail or screws holes then nail or glue the wainscoting to the drywall. With Omnicrete's system just simply glue or nail the wainscoting to the AAC and save the high cost of placing drywall. This is a huge savings using our system.
- Heavy Mirrors and Decorations – Here AAC stand head above all other systems. Again, the whole wall is a "stud" or "nailer". No more placing heavy item off center due to the location of a stud. No more using expensive drywall anchors and always worry if the drywall will someday give way and cause damage. Simply use an official AAC anchor or use any type of course threaded screw and never worry about it. When you remove the screw later simply patch using drywall / joint compound found at Lowes or Home Depot, sand and paint. The workability is far superior at a fraction of the cost using Omnicrete!

Conclusion: When looking at the entire cost of a home, even though this topic attracts much interest and curiosity, one must be mindful that the cost of attaching items such as kitchen and bath cabinets, pictures, mirrors and the like are irreverent since they are in most cases LESS EXPENSIVE as conventional construction methods plus the ease of attachments with Omnicrete is far better: you don't need to search for a "stud", the entire wall is a "stud" so to speak. This topic should carry absolutely **NO** weight for deciding for or against using Omnicrete. It is a strong check mark in the POSITIVE column for using Omnicrete! Foolishly deciding against Omnicrete because of some perceived notion that concrete is too hard to work with crosses the line of ridiculous. It would be a sad commentary for ANYONE to forego the massive benefits including perpetual savings of utilities, insurance premiums and maintenance for years and decades to come because they based their decision on deception. Nevertheless, this topic seems to be one of the top ten concerns with people who are considering Omnicrete. That is why we've spent so much time explaining the facts and relevance regarding fasteners and their means of attachment. Keep in mind again, that the cost of fasteners and cost of applying them are in most cases LESS for the "trades" to deal with and LESS expensive no matter which building system you choose.

AAC makes available special AAC Anchors that can be used when very heavy items need to be attached to AAC material. If we had extremely heavy objects that we needed to attach we would just bolt them to our concrete core through the AAC which we never have had to do but if we did that is what we would do. That concrete anchor (sold at Home Depot or Lowes) cost less than two dollars. The AAC anchor costs even less than two dollars. We have hung many



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kitchen and bath cabinets and have NEVER used any screw other than what cabinet installers use on standard applications on conventional construction. Again, attachments are easier (no trying to find a “nailer”) when installing on an Omnicrete exterior wall or AAC interior wall since the whole wall is a stud, so to speak. Again, Omnicrete is better than conventional construction in workability and cost: pure and simple!