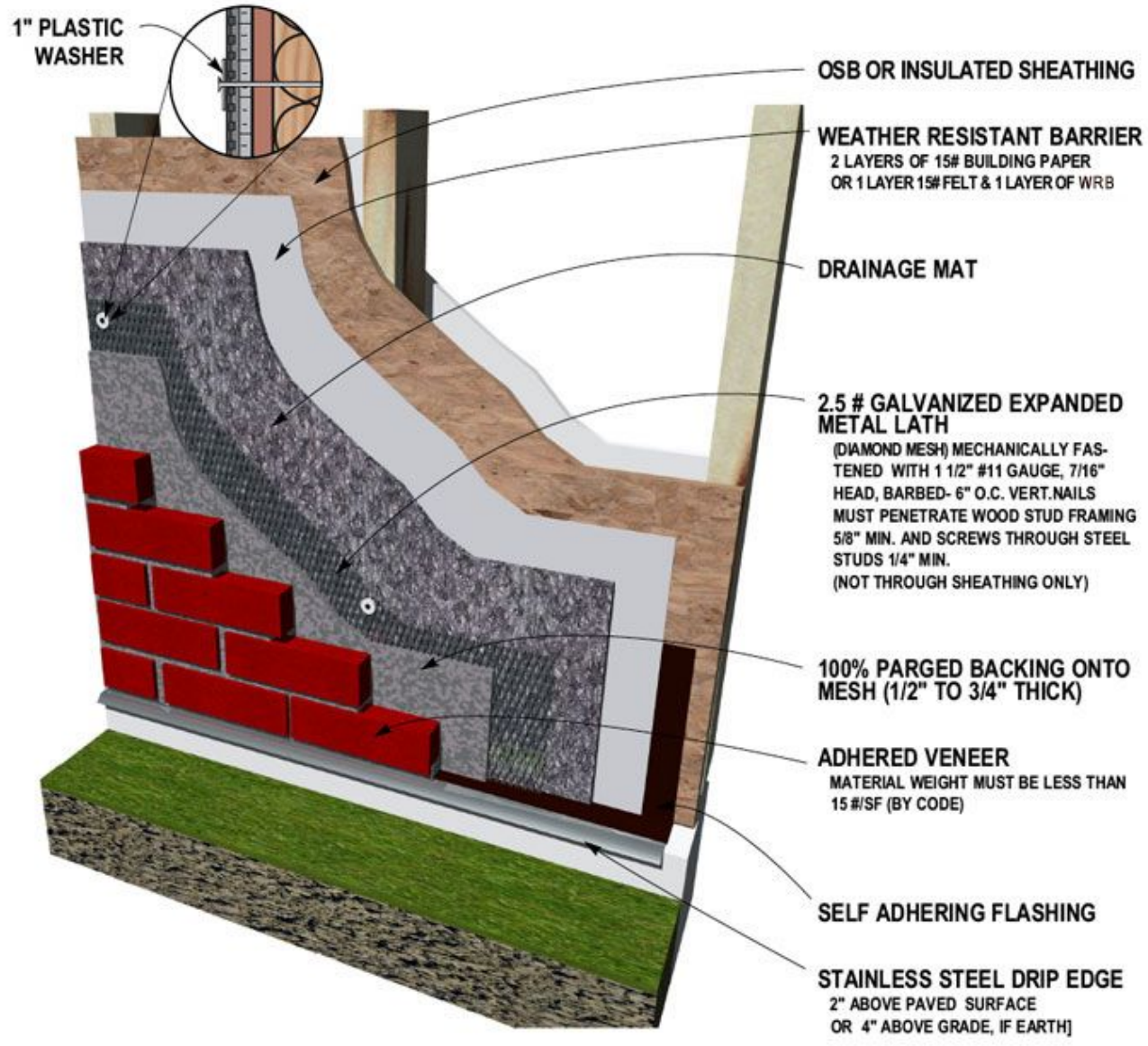
Adhered Veneer

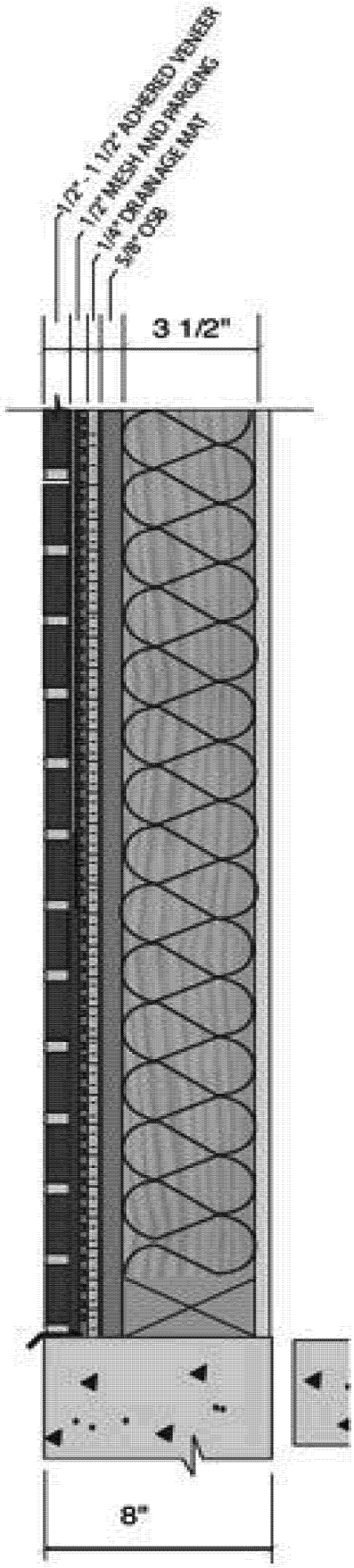
The two most common uses of masonry veneer:

There are two types of veneers predominantly used in today's built environment. The most prominent is anchored veneer, which is constructed with brick veneer anchored to wood stud, metal stud, or concrete masonry backup systems. The other type of veneer that has become increasingly popular in the last 15 years is called adhered veneer. It's different from an anchored veneer!

There are different requirements for these types of veneers. In Chapter 6 Veneers of Building Code Requirements for Masonry Structures (commonly referred to as ACI-530 or TMS402) these adhered veneers are well described.



What I will do in this article is try to point out some of the most important elements to consider if you're using adhered veneer to avoid potential installation and/or detailing problems. The general design requires the backing system of the exterior veneer to be designed to resist water penetration. The detailing of flashing with weep holes in the exterior veneer is critically important to divert water to the exterior. Weep holes are required to be at least 3/16" in diameter and spaced not less than 33" on center. The design and detailing must accommodate differential movement (see picture #2).The above isometric detail has been drawn in successive layers to illustrate the proper installation of adhered veneer systems . The OSB or sheathing between the metal or wooden studs is the first vertical material that is installed. Next, two layers of building paper are installed in a shiplapped fashion to protect the sheathing material. On top of the uilding paper, a drainage mat is installed to stop any water that gets through the adhered veneer. This drainage mat diverts the water that does get through the mesh and drains the water all the way down to the flashing. The flashing collects the water and safely diverts it to the exterior through the aforementioned weep holes. On top of the drainage mat, 2 1/2# galvanized expanded metal lath, (diamond mesh) is mechanically fastened. This attachment is very important. It is the only thing that is holding the veneer system to the wooden or steel studs.



Adhered Veneer
Cross Section

The nails with plastic washers that are used to hold the mesh in place should be of the proper length to maintain the penetration of 5/8" into the stud's wood framing. For steel stud backup, screws must penetrate a minimum of 1/4" into the studs. Because a regular nail or screw head can easily pull threw the diamond mesh, a larger headed nail or screw should be used to properly engage the mesh and to spread the load out. A 100% parging backing should be applied onto the mesh at least 1/2" to 3/4" thick. The adhered veneer material must weigh less than 15 pounds per square foot by code. The code does not directly address the durability of adhered veneer. It may be assumed to be severe weathering. Picture #1 clearly shows a problem project. Unfortunately, an interior material (selected by an owner) was selected and used for an exterior job. Assume nothing!

Adhered veneer is applied onto the parged surface by applying additional mortar material all over the back side of the adhered material and pushing it into the parged surface.

Enclosed with this information is the isometric drawing and a picture of a local project in which the movement joints were properly detailed for differential movement. These must also be detailed on the projects elevation drawings, by code, for the installer to install at the designed location. (picture 2).

Unfortunately, one of the most common things that have been missing in many adhered veneer systems is the drainage material. It was never called for on the drawings, therefore it was not installed. How else would water be removed that does penetrate through this thin veneer? How else can the system prevent water from getting to the inside and causing perhaps mold or mildew damage? To responsibly use this system, the designer must call out for this drainage material to be installed. Another prevalent and crucial element often missed is flashing. Without flashing there is nothing to stop and divert water. Another problem is not having the proper spacing of nails or screws 6" O.C. vertically into the studs.

We have seen projects done where the adhered veneer is only coated with mortar on its backside and then the adhered material is stuck to the substrate, (sometimes refered to just as "lick & stick") without the mesh being parged prior to the adhered material being set in. It's recommended that the continuous parging be applied before the material is installed. This material should only be installed at least 2" above paved surfaces or at least 4" above grade if earth is around this particular building or it's being used on the perimeter side of the building.

Picture 1
Adhered veneer failure. Materials used must be durable for a severe weather application. The durability of an adhered veneer used in Sedona, Arizona is different than that for a product used in the midwest with wind driven rain, water penetration and freeze/ thaw cycles.

Picture 2
An adhered veneer with movement joints properly installed. By code, these movement joints must be shown on the drawings.