



## Cat5 Wall System - External

### Cat5+WallSystem Block:

There are five blocks used in the Cat5+ External Wall System:

- Cat5+ Regular Block (Grey)
- Cat5+ Corner Block, (left and right corners) (Red)
- Cat5+ U Block (Black)
- Cat5+ Half Block (Red)
- Cat+5 Electrical Block (Blue) not illustrated & optional

The Regular Blocks (Grey) are the blocks used to make up majority of the structure. These are approximately 33% more dense than the typical block used in a conventional CMU. The regular block (Grey) is the “core” of the dwelling and connects between the corner blocks (Red).

U blocks (Black) are placed on top of usually every 6 regular grey blocks and at the top of each floor for additional structural support and leveling. Half blocks (Red), along with Corner Blocks (Red) are used around all openings such as door and window openings. Rebar and then concrete is strategically placed within the system as it is built (designed by the structural engineers) normally every 32 inches vertically and everywhere where the U block (Black) is used.

EPS Foam installation is then injected to fill all the remaining wall chambers adding significantly to the structural strength and providing superior installation compared to a normal wall system. No additional installation is required to the structure; the wall system will out-perform any conventional wall system where fiberglass or foam installation is installed inside against the wall structure. **Once finished it takes approximately 8 hours for heat or cold to pass through our block system.**



### **Design of “Regular Block” (Grey) 8x8x16**

When looking at the “regular” (Grey) block of the Cat5+WallSystem from above, two unique chambers are noticeable: an inside wall chamber (one whole chamber and two half chambers) and an Outside Wall Chamber (one chamber). These chambers serve two purposes; to add structural strength and insulation value.



The inside wall chambers are created and used for two reasons: rebar to be inserted vertically (usually every 32 inches) and to have a vertical locking system with the insulation component. The outside wall chamber is created for the insulation component and to lock the block horizontally. The amount of vertical rebar needed depends on the engineering, which is based upon the geographical location and local building codes. Typically, every 7<sup>th</sup> course is used for the U block (Black) where horizontal rebar is placed. The U block is then filled with concrete, so the 7<sup>th</sup> U block course also acts as a leveling course. Installation of vertical rebar depends on local building codes but is typically inserted for Cat 5 storms every 32 inches. Because the vertical rebar is placed in an inside chamber all to itself, it is extremely efficient to pour concrete inside the chamber without affecting the insulation value of other inside chambers.

Because of the unique interior webbings of the block that creates our reinforced chambers it forms a honeycomb of reinforced concrete within the wall system. Injecting Cat5+ Foam into the remaining chambers acts as another structural component, interlocking the block both horizontally and vertically. Electrical conduit and water pipe is placed into the interior chambers as the wall is built before the concrete and foam is inserted creating time huge savings for the electricians and plumbers as all the

electrician/plumber have to do is to run their wires or pipes through the conduit. These time savings are estimated to save at least \$5 a square foot from the overall construction costs.

#### **Design of Electrical (Blue not shown) 8x8x16**

An Electrical Block (Blue) can be provided. It identical to the regular block (Grey), the only difference it can be manufactured with a pre-made cutout in the block allowing for the insertion of an electrical box directly into the block. The purpose of this block is to improve the speed and productivity while handling the electrical conduit and its components.

Typically, clients use a normal Grey block and the cutout is done on site using a concrete saw.

#### **Design of “Half Block” (Red) 8x8x8**

The design of the Half Block (Red) is half of a conventional CMU block with the dimensions of the Cat5+WallSystem Block. Half block is only used on each side of an opening (doors and windows) where a full corner block red will not fit, creating a hollow cavity, rebar is placed vertically in the block which is then filled with concrete. Concrete lintels or H beams sit directly on the half block and span the top portion of the opening.



#### **Design of “Corner Block” (Red) 8x8x16**

The design of the Corner Block (Red) matches perfectly with the design of the regular block (Grey) forming the same chambers as the regular block, allowing for insulation to horizontally lock the corner block and the regular block together. In addition to the two chambers it creates a third chamber located at the corner of the wall system. This third chamber is exactly like half block, it is positioned in each corner of the building shell or at a window or door opening and creates a hollow cavity rebar is inserted which is then filled with rebar and concrete. The purpose of the corner block is to tie one wall into the other wall at the walls corner where each wall meets or at a window or door opening.



### **Design of “U Block” (Black)**

The U Block (Black) sits directly on top of the regular and corner blocks and has two rebar's laid inside (the amount of rebar and space between depends on local building codes). The concrete is poured inside the U Block completely covering up the horizontal rebar in concrete. The purpose of this is structural but it also acts as another leveling course.



### **Cat5+ System Insulation (Cat5+ Foam)**

The second component to the Cat5+ Wall System is perhaps the most important, the insulation component. Building codes dictate the number of courses that can build before having a bond beam. In most cases, every 7<sup>th</sup> course is a bond beam. In that instance, the first 6 courses would be erected. Then filling the rebar chambers with concrete and injecting specially engineered expandable building EPS foam into the remaining chambers. The foam expands throughout all the chambers, creating highly efficient insulation with a value (R30 or better) as well as structural value, interlocking the block both horizontally and vertically. Once this process is done, place and pour a bond beam using U block (Black) for the next course, stack the block according to code, immediately repeating the process for the next 7 courses of block.



### **Cat5+ System Structure Coat (Cat5+ Mud)**

Once the dwelling has been erected using the Cat5+WallSystem and the roof has been put in place it is now time to apply the structure coat. The structure coat is a specially designed cement product mixed with fiberglass that has the advantages of decorating, waterproofing and strengthening the Cat5+WallSystem.

Because the insulation and electrical and plumbing are already in the walls, the Cat5+ Mud acts as the final interior and exterior finish, further reducing costs of furring out interior walls and the expenses associated with dry walling interior walls. The Cat5+ Mud can be hand troweled onto the walls or can be put on via a spray hopper gun and then finished.

The structural coating is an important factor of the system which solidifies the whole system.

It also improves or adds;

- Structural integrity
- Energy efficiency
- Sound efficiency
- Gives it a 4 hour + fire rating
- Weather resistance (tornado, earthquake & hurricane)
- Immune to water damage and therefore mold proof
- Rodent/insect/termite Proof
- Little or no maintenance
- Long life cycle