

**Please Note:** If you're new to Revit, you may be interested in my "[Beginner's Guide to Revit Architecture](#)" **84 part**

## video tutorial training course

. The course is 100% free with no catches or exclusions. You don't even need to sign-up. Just enjoy the course and drop me line if you found it useful. The [full course itinerary can be viewed here](#)

In this article we will introduce the concept of **Compound Layers** within Revit Wall structures. Specifically, we will look at the 5 hard-wired Layer

## Functions

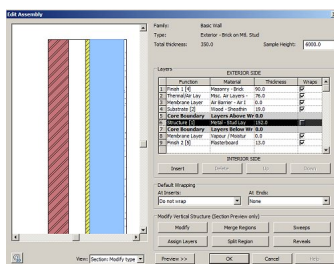
(6 if you count the "Membrane" layer which typically has a thickness of 0). And to round off we will take a look at how the "

## Priority

" system works, with regards the Layer Functions.

If you are very new to Revit, I would strongly suggest you take a quick look [at this article first](#)

, which gives a basic overview of Walls within Revit Architecture.

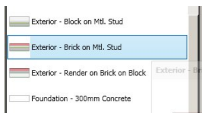


In real life walls are very rarely built-up from a single layer of material. Normally, they consist of many layers, each of a different material and performing a different function. Some layers are there to form a structural support for floors or roofs, other layers serve to form an insulation or

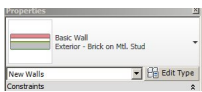
moisture barrier function.

As you would expect Revit has the ability to model complex wall structures, representing the various constituent layers that make up a wall.

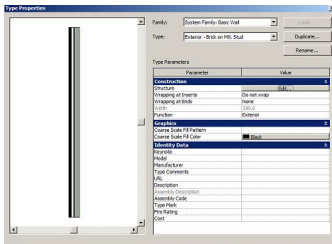
Let's just dive in and take a look at how this all works. I'm going to open a new Revit Project file and select the wall command. As soon as I do this, the Type Selector gives me a choice of all the wall types defined within this template. I am going to choose "Exterior- Brickwork on Mtl. Stud".



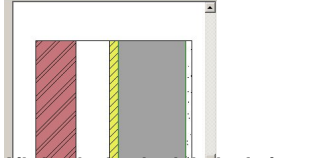
Now instead of placing a wall into the model, I'm simply going to hit the "Edit Type" button on the "Type Selector"....



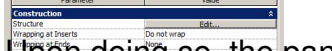
Upon doing so, we are presented with the "Type Properties" control panel.....



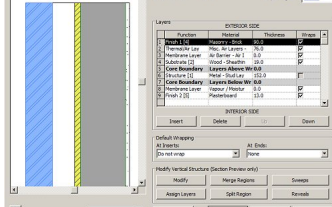
How do we control the function of each layer? Easy, just take the "Edit" button next to the wall's name in the "Layers" section of the "Type Properties" dialog, and you'll be able to edit the function of each layer.



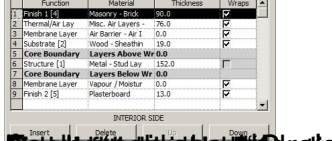
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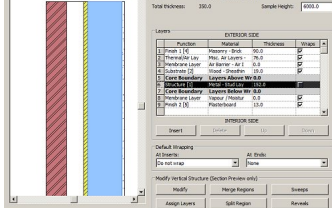
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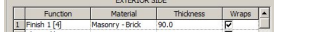
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## Function

This parameter stores the function of each layer. The function is inherently linked to a "priority system" which we will discuss in a short while

## Material

From here you can choose a material for your layer

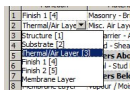
## Thickness

Self-explanatory really. This controls the thickness of the layer. PLEASE NOTE: The two “Core Boundary” layers (rows 5 and 7 in our example) have a thickness of 0. Additionally, any “Membrane” layers should also have a thickness of 0 (take a look at row 8 in our example).

## Wraps

This is a simple on/off parameter for each layer. It controls whether the layer tries to wrap back to the core, at the end of each length of wall. Wall wrapping is a whole topic in itself and we’ll cover it in a separate article.

OK. Let’s get back to “Function”- after all, that is the topic of the article! Go ahead and choose any row and click on the function entry itself. This will cause a drop-down list to appear- allowing you to choose a Function for this layer....



1	Finish 1 [4] Masonry - B
2	Thermal/Air Layer [1] Misc. Air Lay
3	Structure [1] Inter - J
4	Substrate [2] F - Gips
5	Core Boundary Layer [0] Sys Abc
6	Finish 1 [4] J - Stud
7	Finish 2 [0] Sys Bld
8	Membrane Layer Membrane / Mo

The important things to note are:-

There is a total of 6 different functions to choose from. The first 5 each have a number in parenthesis, whilst the last one (“Membrane Layer”) is unnumbered

These functions are hard-wired into Revit’s compound structure assemblies- ie walls, roof and floors. You cannot create new Functions, rename the existing ones or delete any. You are stuck with the ones here!

The most important thing to know is that the numbers represent the “priority” of the layers that you assign the functions to. “Priority” is used when joining walls together- to ensure the various

layers “clean-up” correctly.

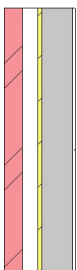
There are some basic rules of Priority, that all compound structures follow, when joining together.

1) The higher priority layers always take precedent. For example, a Priority 1 layer will barge it's way through lower priority layers in order to join up to another Priority 1 layer.

2) Lower priority layers cannot cut through higher priority layers, during the “clean up process”- they are just stopped by them.

3) The exception to both of the above are layers that fall within the Core boundaries. A priority 2 layer “within the core boundaries” will override a priority 1 later” that is situated “outside of the core boundary”.

Let's take a look at this is practice. Let's put a small section of wall into our model...

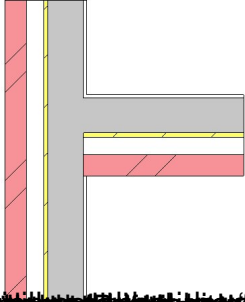


Now let's add a second piece (of the same wall Type) and get it to join the first, forming a “T-junction”....

# Walls: Applying Functions to Compound Layers

Tuesday, 05 July 2011 15:40

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~~Building Physics - Heat and Mass Transfer - Chapter 10 - Compound Walls - Example 10.1~~