Tip Sheet

ArchiCAD 11
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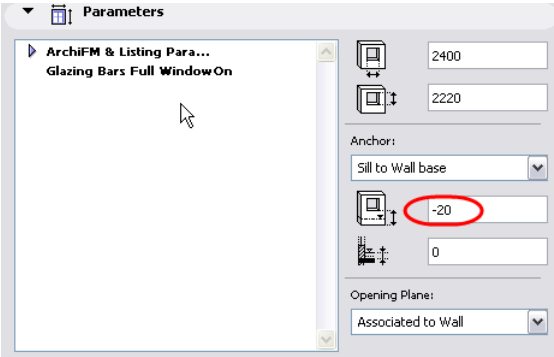
Concrete Foundations

This tip provides a few methods of accurately modelling your floor slab and foundations in order to reduce 2d drafting, and use BIM more productively. The tips are based around the ArchiCAD 11 Template and aims to provide sufficient information for general location drawings (1:100, 1:50) that can then be detailed at smaller scale (1:5, 1:10). Successfully modelling these items reduces the amount of 2d drafting time especially if there are multiple sections cutting through the model. 2D overlays can be used in addition to modelling the main structure in order to provide additional information. The golden rule of productivity is always to model information that you see in3 or more views (ie plan and 2 sections), if you only see it in 2 views it might only be worth drawing it in 2 dimensions with lines fills or smart objects such as rapid details.

Foundations and floor slabs are often made up of many different components; often a standard rectilinear floor slab does not adequately represent these; for example providing rebates for joinery and cladding systems as well as foundation systems such as RibRaft.

Rebated Joinery

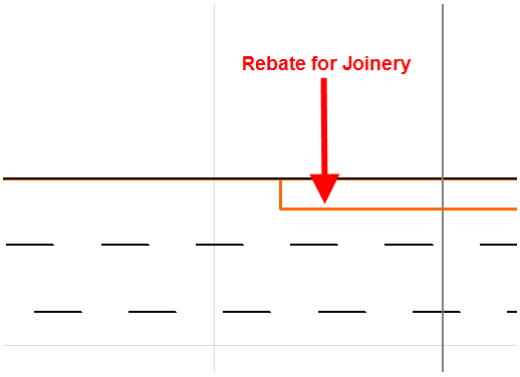
Often Joinery at floor level especially doors will be rebated into the floor slab to provide a level transition between spaces.



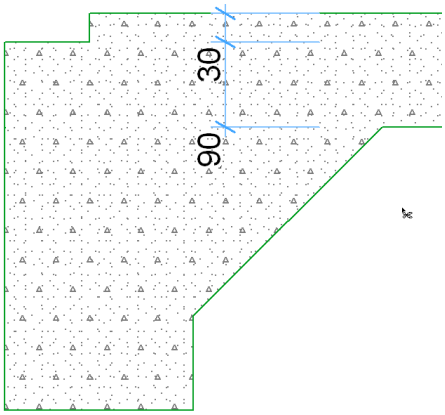
Both the standard ArchiCAD windows & doors and the Cadimage Door & Window Builder allow for rebates in the slab by setting the Sill/Header Value to a negative number eg -20.
Note: This sets the entire window to 20mm below so you will need to add this 20mm to your frame height to achieve a uniform head height.

Rebating the Slab

In order to provide for rebates in the slab for joinery or shower setdown, it is necessary to create to create two floor slabs; one the depth of the rebates, the other the remainder of the slab thickness eg 30mm + 70mm = total of 100mm.

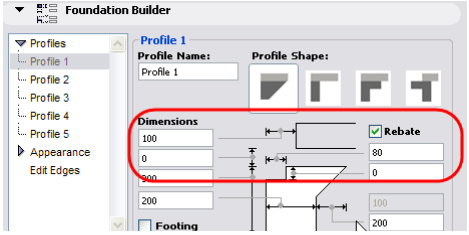


When viewed in plan the rebates can be traced around the openings by editing the edges of the top slab. **Note:** Don't forget to allow for the rough opening size vs the frame size.
Your Foundation Plan should now show the overall slab edges as well as the rebate sizes and positions.
By using the same cut fill, both slabs appear as a single shape when viewed in section.
In the example shown the top slab is 30mm and the bottom slab is 90mm allowing for a total slab thickness of 120mm. Shower rebates / set downs and garage floor set downs can also be modelled in the same way.



The Cadimage Accessory Tool, Foundation Builder has been applied to the Lower Slab, to model the foundation profile.

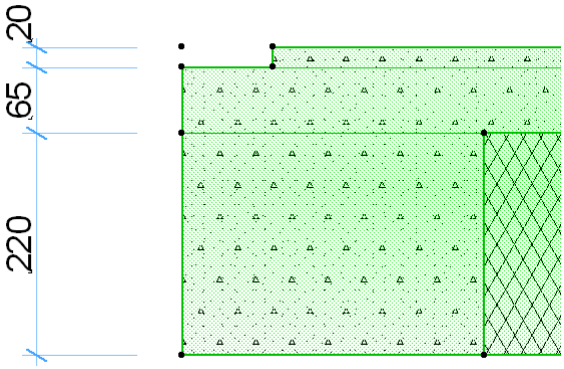
If the entire floor slab needs to be rebated for exterior claddings such as Masonry or brick veneer, the Foundation Builder has the ability to provide for this. **Note:** Remember adding extra points to your slab edges allows for multiple foundation profiles on the same edge; remember you can have up to 5 different foundation profiles for each slab.



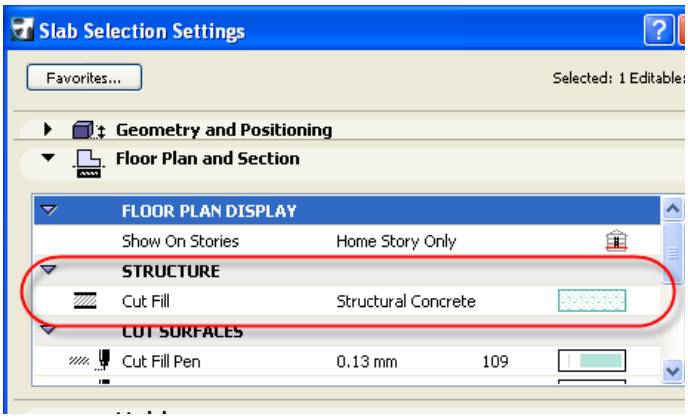
RibRaft & Pod Foundation Systems

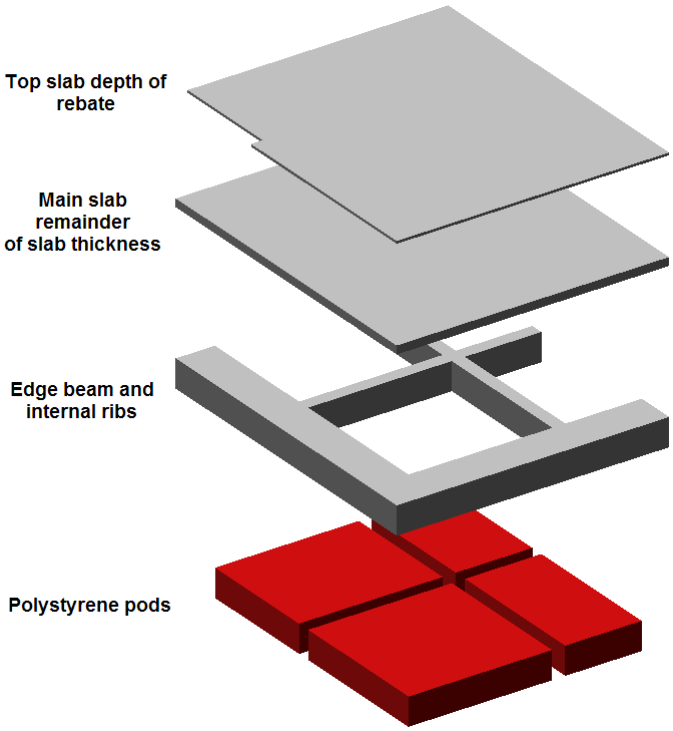
In order to successfully model a RibRaft type foundation system we are going to model all of the major components.

Following the instructions for the Joinery rebate above, we have modelled two slabs with a total thickness of 85mm (20mm + 65mm). The top one shows a rebate for joinery; if a brick veneer was being used this can be increased to the required size (refer manufacturers' specification).



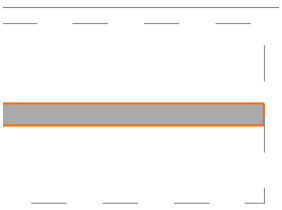
To model the edge beam and internal ribs we have modelled another slab 220mm thick, the polystyrene pods have been modelled with a different hatching (batt insulation). By giving the concrete materials the same cut fill they blend in section view and it appears as if it is a single concrete pour.



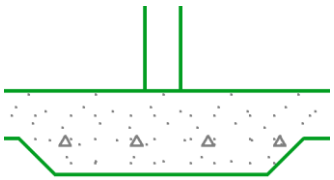
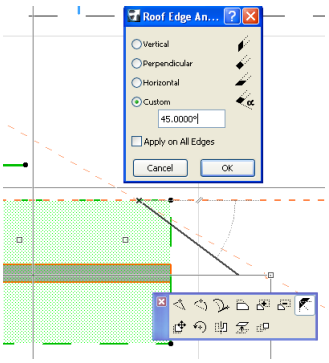


Slab Thickenings

Slab thickenings can occur under load bearing walls and points loads, often it is easiest to draw thickenings in 2d as a dotted line in plan and as a fill in section. If the thickening shows in a number of views it may be worth modelling it. In the example below the thickening is modelled with a piece of roof (roofs allow sloping edges).



plan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