48-749 Parametric Modeling with BIM

Fall Semester • 6-12 units • R 01:30-04:20pm

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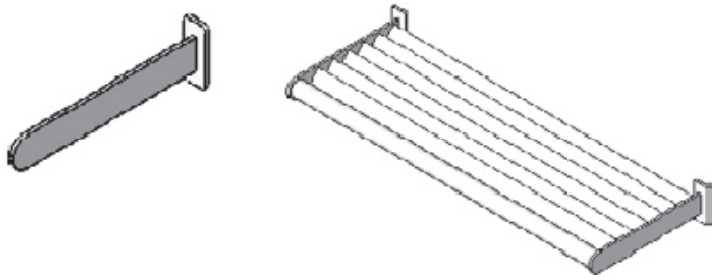
Parametric Modeling with BIM Assignment 3

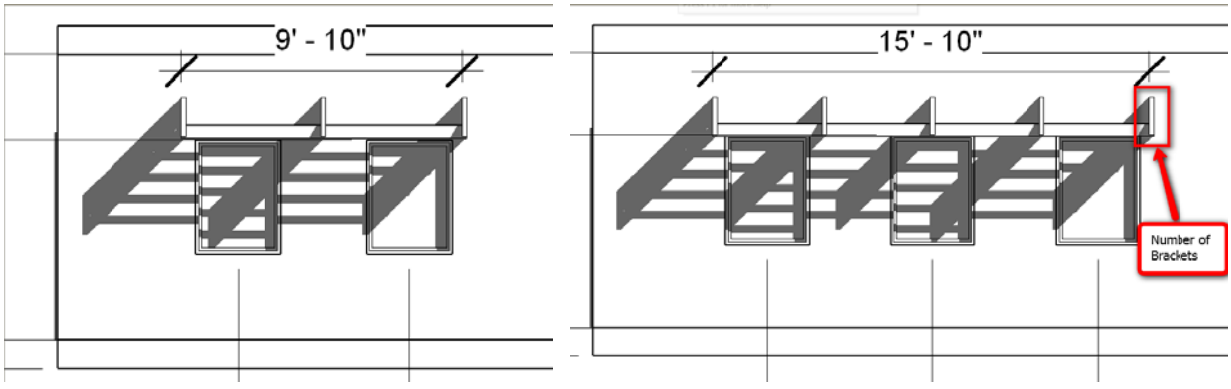
Due 8th October 2009, 01:00pm

Following lectures 5 and 6, use Revit Architecture 2010

1. Design a parametric sunshade from two components
   i) Bracket
   ii) Blade



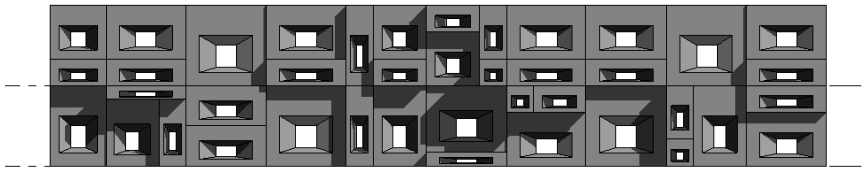
a) Use the Generic Model.rft template to develop the parametric components separately then combine them together in another Generic Model.rft template and name it SunShade. The parameters of the parametric components should be linked to parameters by the SunShade family. (15%)
b) The number of fins should vary according to the depth of the sunshade (distance from wall to overhang). (5%)
c) The number of brackets should vary according to the length of the Blades. The images below show the number of brackets changing with the length. (10%)
   Use a conditional formula for the Bracket Number.
   For example the following formula may be used:
   Suppose 'Length' is a parameter for the blade length,
   Bracket Spacing parameter for the number of brackets
   then the Number of Brackets = if (Length> 12', Length/3', 2)
   (30%)

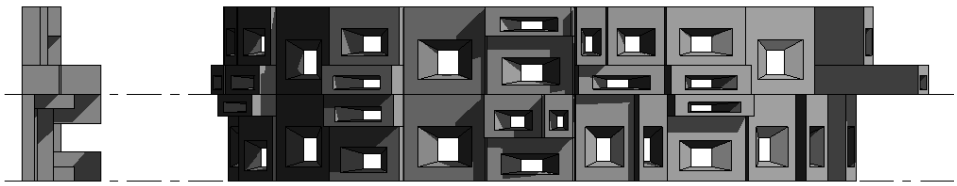


2.Design a curtain wall system to demonstrate your understanding of curtain wall customization. This should include (a) the curtain grid pattern, (b) the mullions, and (c) the panels. Take your freedom to design any interesting pattern you like. For the mullion and panel customization, each one of them should have at least 5 parameters and 2 formulas embedded. (40%)

a) The grid (8%)
b) The mullion (16%)
c) The panel (16%)

Images below are the examples we have shown in the class.





3. Use Autodesk Green Building Studio to give an account of the total energy usage per year for the project. (30%)

a) There should be at least three runs, use the building as is for the first run.
b) By changing design alternatives in Green Building Studio, show that energy use can be reduced.
c) Submit the findings from your studies in a summary (word format).