

# Parametric Variable Wall Tutorial using PanelingTools Add-On to Grasshopper

## Overview

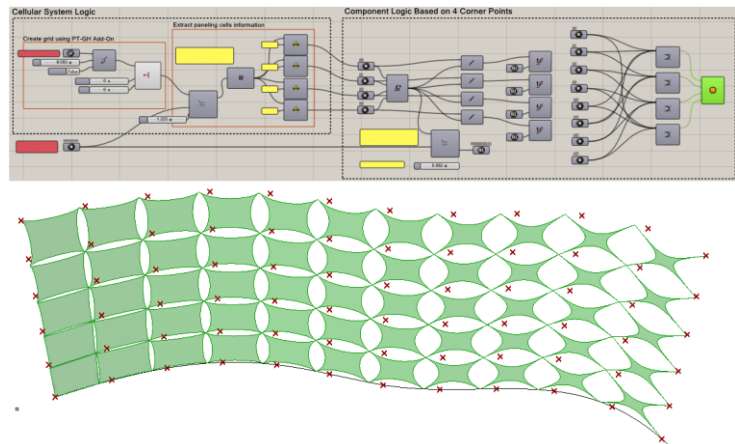
This tutorial shows how to create a parametric wall with variable system and variable components based on a curve.

## Where to find PanelingTools Add-On to Grasshopper

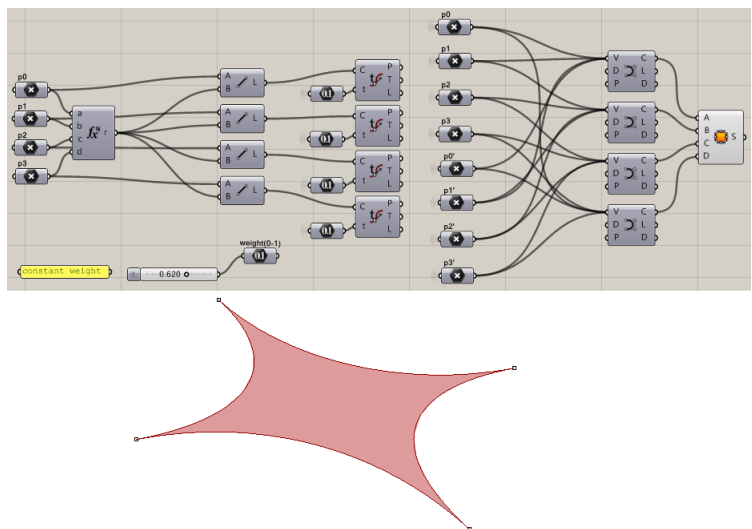
Downloads, examples and forum is found here: <http://www.grasshopper3d.com/group/panelingtools>

## Step by Step Variable Wall Tutorial

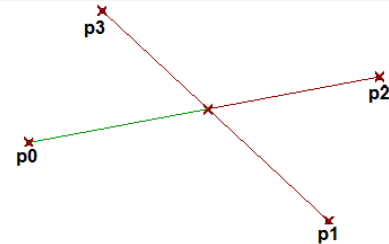
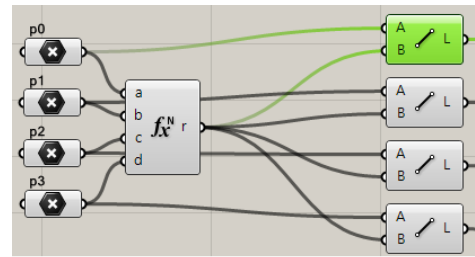
- 1- This is how the final definition looks. The wall component logic uses standard GH components based on four corner points. It also uses attractor component in PT-GH to create variable component. The system logic defines a rectangular grid of cells using PT-GH as will be illustrated below. The system has variable cell size using PT-GH attractor component



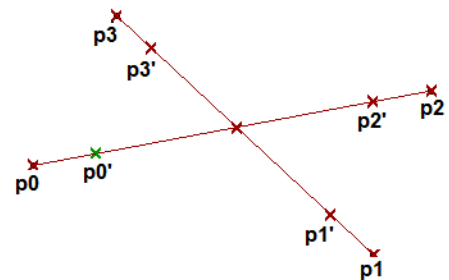
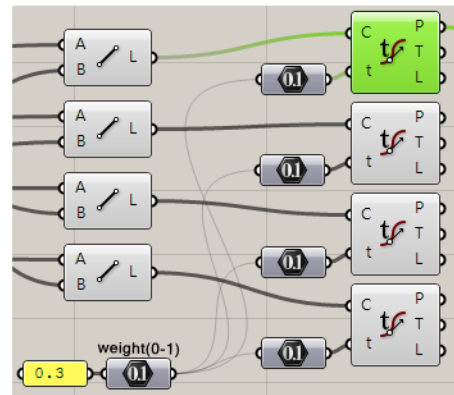
- 2- The following image shows an overview of the component logic based on 4 corner points and weight. Will explain in detail how the component is defined in the following steps.



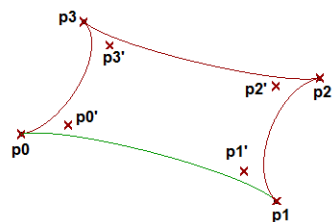
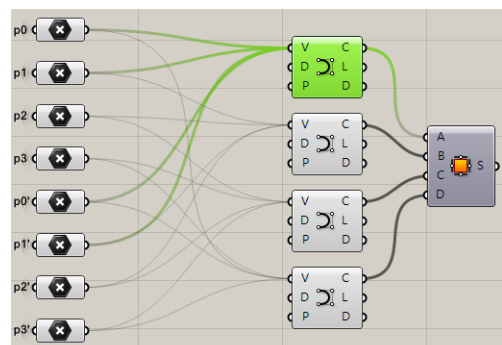
- 3- Define four corner points and mid-point, then connect each of the corner points with the center using line component.



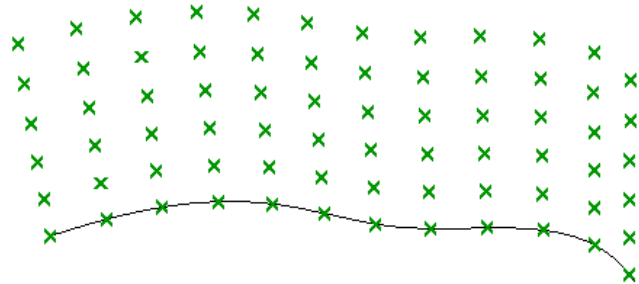
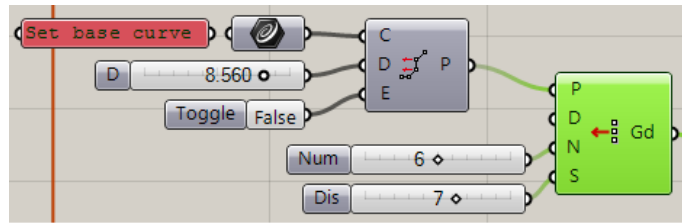
- a- Define points on each of the lines that fall within the line domain. Here we are using constant number. You can also hook a number slider between 0-1 to see the effect of changing the weight on the final component.



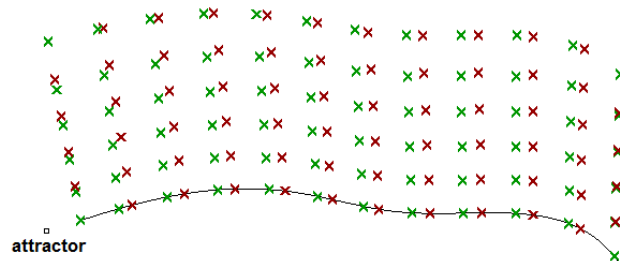
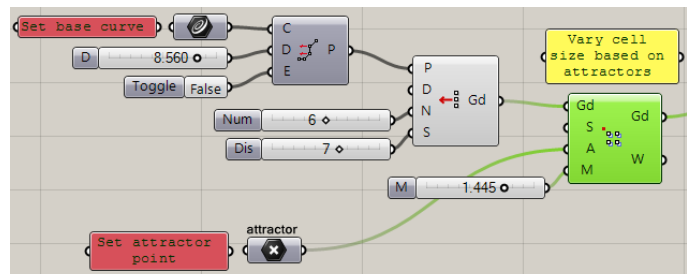
- 4- Next, create a curve using corner and line points as illustrated. This concludes the creation of the parametric component. Each component represents a cell in the wall system that we will build next.



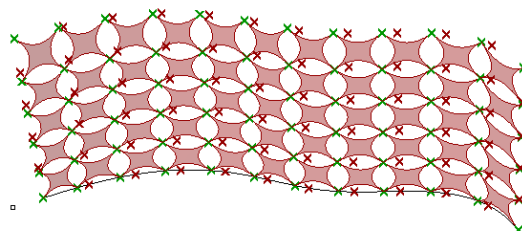
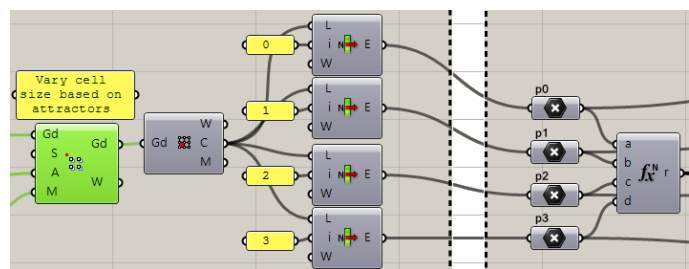
- 5- The wall system will be based on a curve created in Rhino and referenced by GH. You can use any of the curve divide components to get the list of points and feed into the linear extrude grid components in PT-GH Grid tab.



- 6- Next, we use an attractor point to vary cell size and basically shuffle grid points. Green points are the ones shifting towards the attractor point.



- 7- We need to extract lists of corner points of the system cells to feed into our component logic. To do that, use the cellulite component in PT-GH and separate each of the corners as illustrated.



- 8- In this step, we replace the constant weight of each component with a variable one based on distance from our attractor point.

