Alexis Behilo | Project 1 | VSFX 350 ~ Spring 2021 | Houdini Version 18.5.351

Project 1: Modeling a Procedural Building

American Can Building | User Guide & Breakdown

Rendering Statistics

Renderer	Mantra
Average Render Time	6.1 min/frame
Image Resolution	1280 x 720
Number of Lights	2 → Sun and Skylight

Sampling

Min Rays	4
Max Rays	9
Noise Level	0.01
Global Quality	1
Diffuse Quality	2
Diffuse Limit	1

Complexity of Geometry

Primitives	63,334
Points	85,696

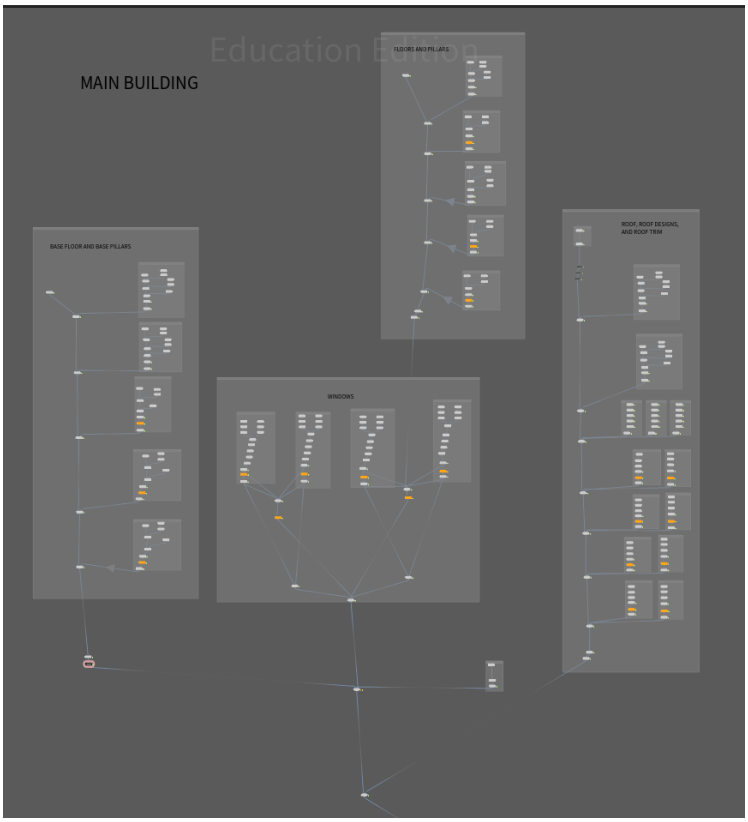
User's Manual

This tool is used in order to change the appearance of a building built in 1885 that was later occupied by the American Can company. The controls for the side wing buildings are the same but are below the first building's controls and listed as "second". Here is a guide to the controls:

Number of Floors	Changes how many floors there are on the building
Length	Changes the length of the building (x-direction)
Depth	Changes the depth of the building (z-direction)
Height of Floors	Changes the height of individual floors added
Window Size & Window Spacing	Affects the spacing of how far apart the windows are
Pillar Size & Pillar Spacing	Affects the spacing of how far apart the middle pillars are
Roof Design Size & Roof Design Spacing	Affects the spacing of how far apart the roof designs are
Z Window Size & Z Window Spacing	Affects the spacing of how far apart the right side windows are
Z Window Percent	Affects the percentage of how much space the right side windows take up from the floor

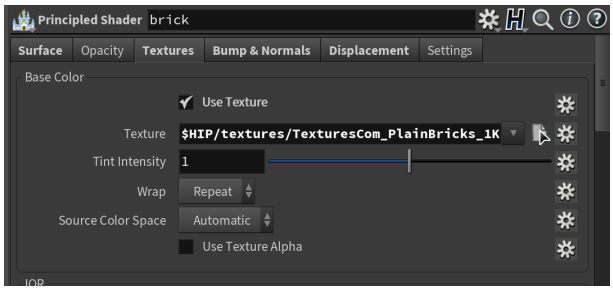
Technical Guide

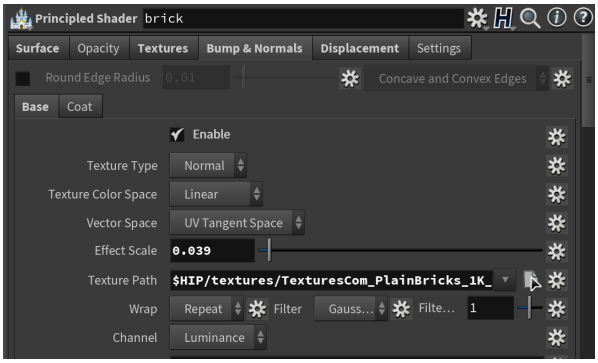
- The geometry for the buildings were all made in one geometry container to make it easier to find parts of the building. Organization was done by using network boxes and sticky notes to label certain parts of the building such as the pillars, windows, etc.



- In order to make the parts of the building such as the windows, middle pillars, and corner pillars move along with the main building form, I referenced the building's length and depth. Then I used a transform node and put the length and width in their relative places so the pillars and windows would move along with the building as it changed in length or depth.
- The two buildings that are wings of the main building were placed by referencing the bbox of the main building on their perspective sides. Also in order to keep the depth of the secondary buildings only going outwards, the main building's bbox was referenced again.

- In order to have materials that looked similar to the reference picture of the building, I went to textures.com to look for 3D scanned textures. Using textures of brick and concrete, I applied that to a principled shader and changed the controls from there.





Beyond the Requirements

- I added additional controls for the user so they could change the distances of the windows, pillars, and roof designs.
- In order to get the inside of the windows to be a different colors, I used uvproject and grouping. Once I selected the points of the uv that I wanted to have my specific color inserted, I dragged and dropped my brick texture onto the rest of the window.