LIGHTING & LAYOUT

Rendering and Lighting Technique

To develop lighting design for the given scene, 3D Max and V-Ray were used to create individual render elements, and Nuke was used for the final compositing. The entire scene has been illuminated with V-Ray dome light with 14K resolution HDRI map as the primary light source. V-Ray sun and sky are added to provide day light and sun direction information. In order to get relatively correct sun direction, V-Ray sun is embedded in the 3D Max day light system. The day light option was deactivated because after introducing adaptive dome light in V-Ray Next, there is no need for 3D Max day light system to be activated, according to chaos group V-Ray for Max documentation.

In order to get access to the great level of detail introduced by the texture artist, I chose to use V-Ray GPU render engines with the Brute force method for computing GI solution for this assignment. "While very slow, this method is very accurate, especially if you have many small details in the scene (V-Ray for 3D Max Documentation)." Therefore, it's an ideal method to highlight the details of the carpet as the element of focus for this assignment.

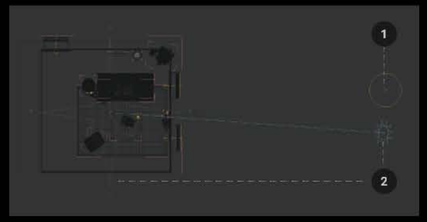
Taking advantage of render elements and utility render elements for compositing in Nuke, beauty pass render elements as well as AO as extra texture were rendered, and then saved in EXR format.

For this assignment the rug has been unwrapped and recreated with procedural V-Ray Fur modifier. Using Photoshop the required masks were produced to be used in map slots in V-Ray Fur modifier to simulate the rug with greater detail components.

Later using Phoenix FD plug-in, the three candles were lit, and the bowl next to the bar was filled with water to introduce some indirect light and reflection. Phoenix FD respective atmosphere passes is also rendered as a V-Ray render element for the final composition in Nuke. Using V-Ray Arial Perspective and V-Ray Environment Fog, two separate layers of dust and atmosphere effects were rendered into separate render elements for the final composition. V-Ray physical camera and V-Ray exposure control, with the settings depicted in the following pages, were deployed to take the photographic shots for the renderings. The following pages and diagrams visually explain both my approach and the strategies used to fulfill this assignment.

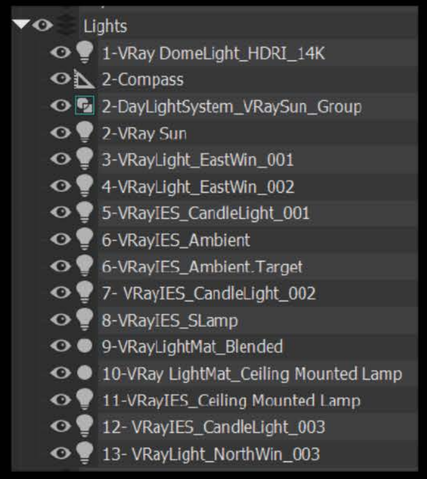
1. LIGHTING OVERVIEW

Wireframed top view showing the light position:

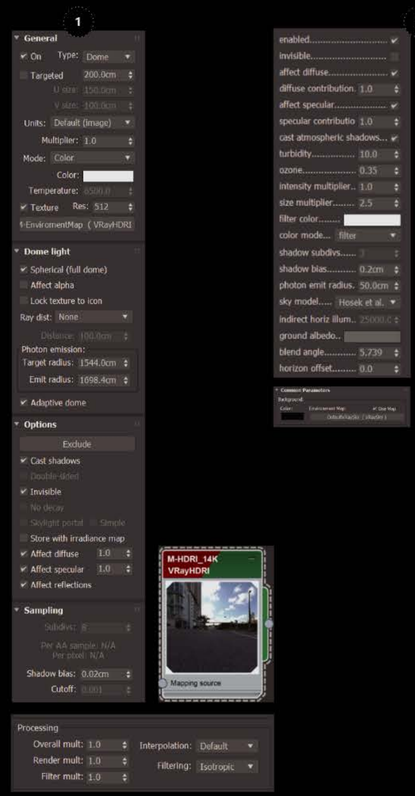


High dynamic range image -14K resolution was used as the primary ambient light. V-Ray spherical HDRI map under the dome light illuminates the scene and provides a high-resolution light map for the formation of high-resolution render elements for final compositing. It is also beneficial to generate high resolution environment background image, in this case the environment beyond the windows.

Lights screenshot:



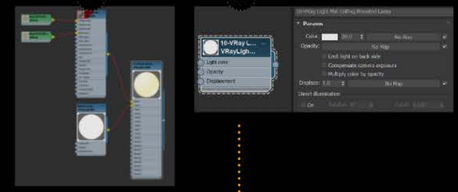
V-Ray Dome Light



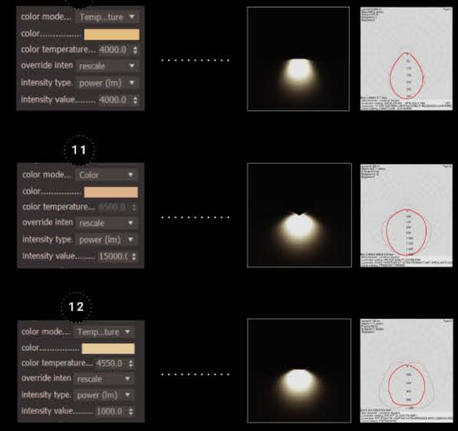
V-Ray Sun & Sky

V-Ray Rectangular Light - Opening

V-Ray Lighting Materials



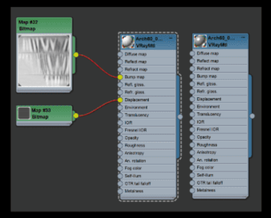
V-Ray IES

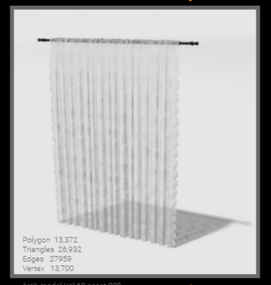


2. ADDED ASSETS

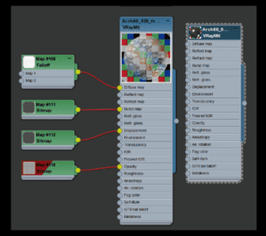
Curtains

Arch model Vol 60 asset 003

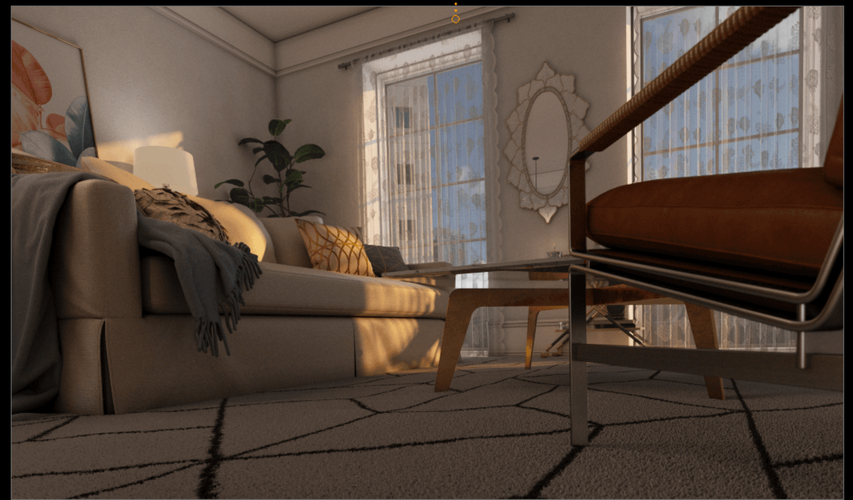




Arch model Vol 60 asset 020



Curtains are added to soften the light and bring the focus inside the room.



Original Carpet

3. RECREATING CARPET

Using Procedural V-Ray Fur

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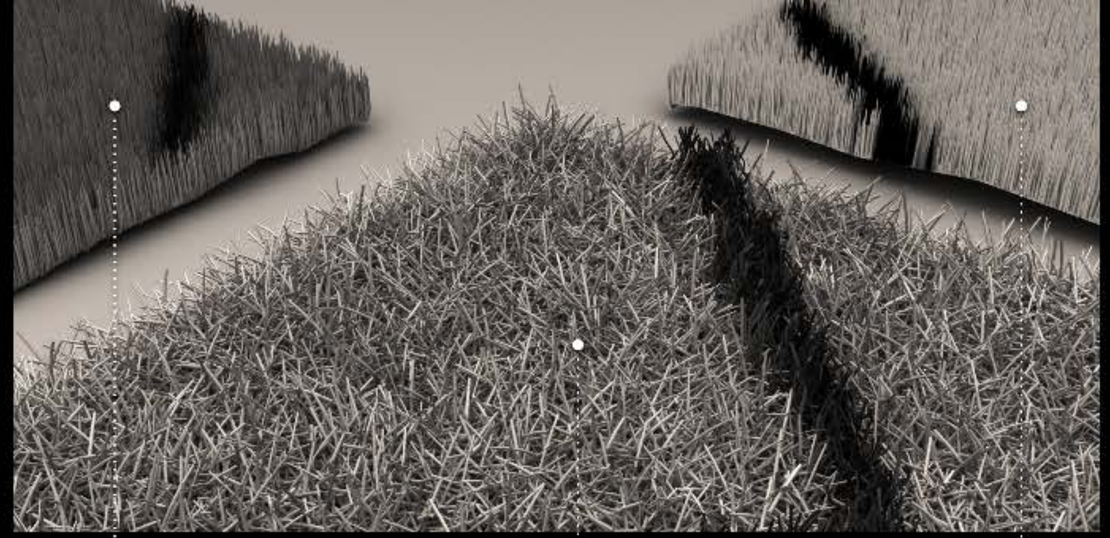
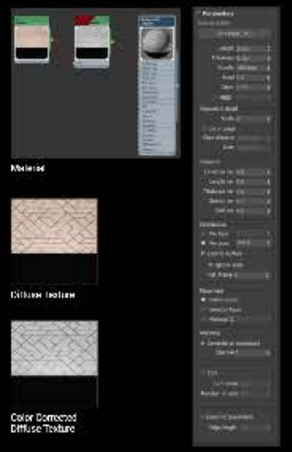
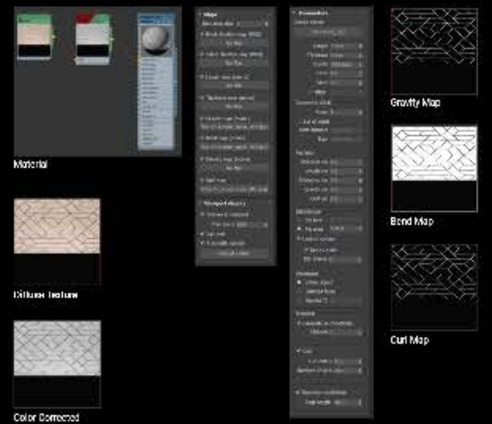
Using Procedural V-Ray Fur



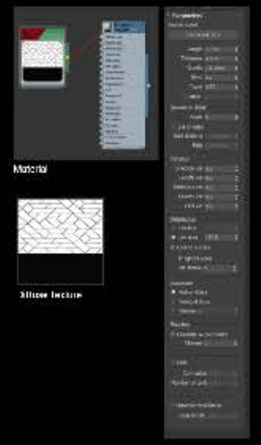
Carpet 1 Specs

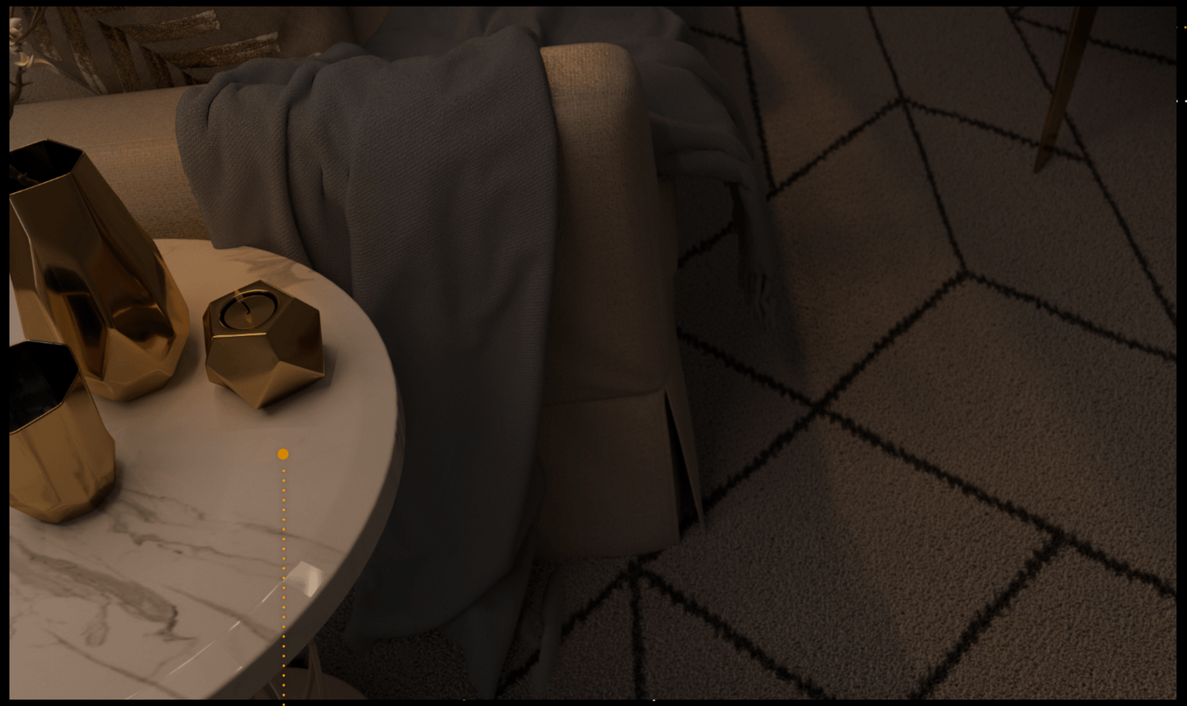


Carpet 2 Specs

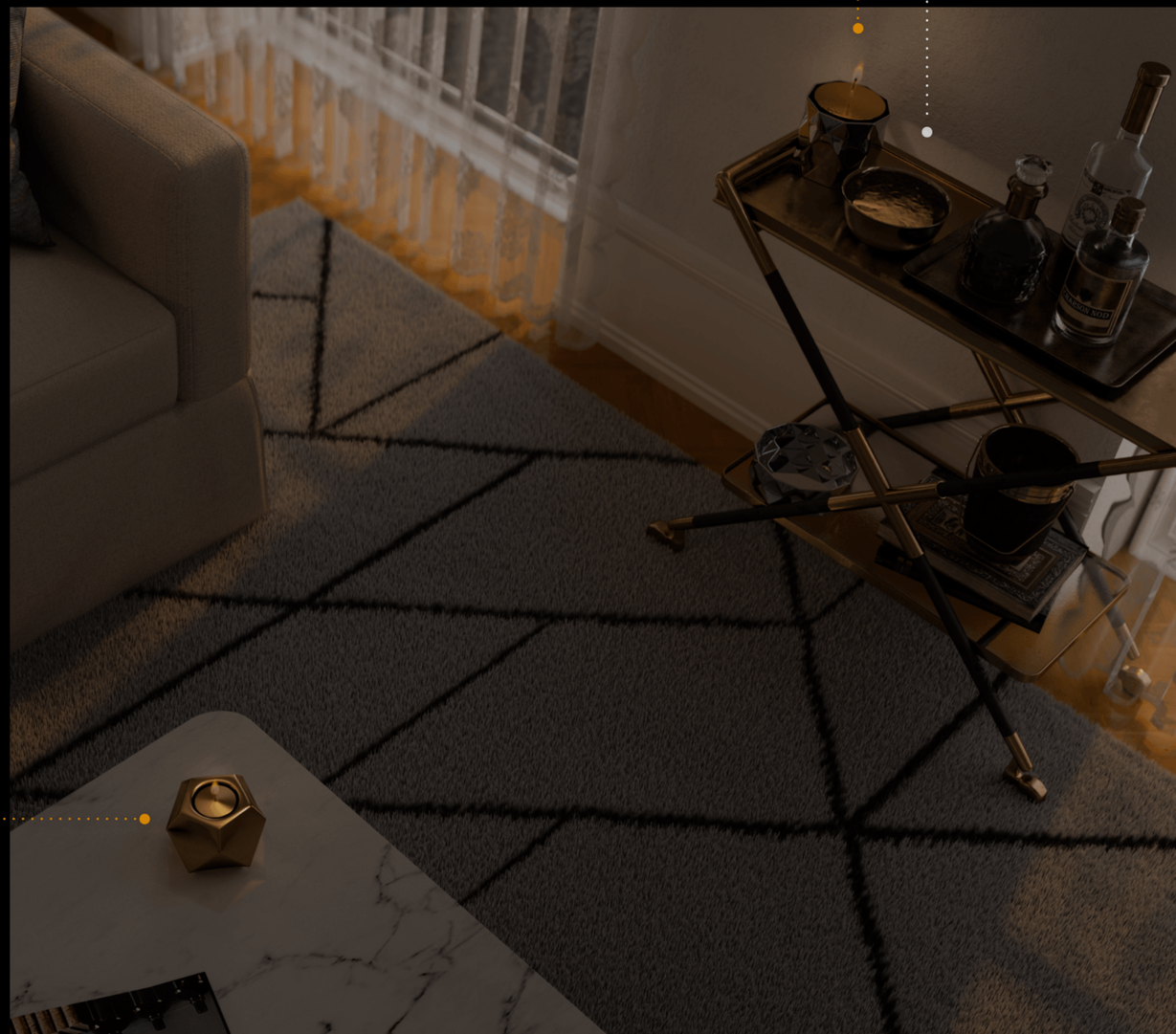


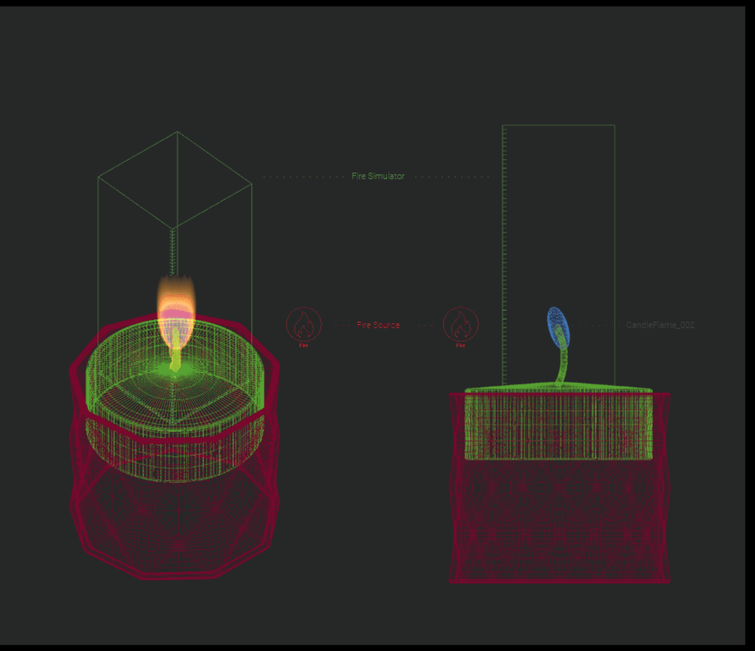
Carpet 3 Specs



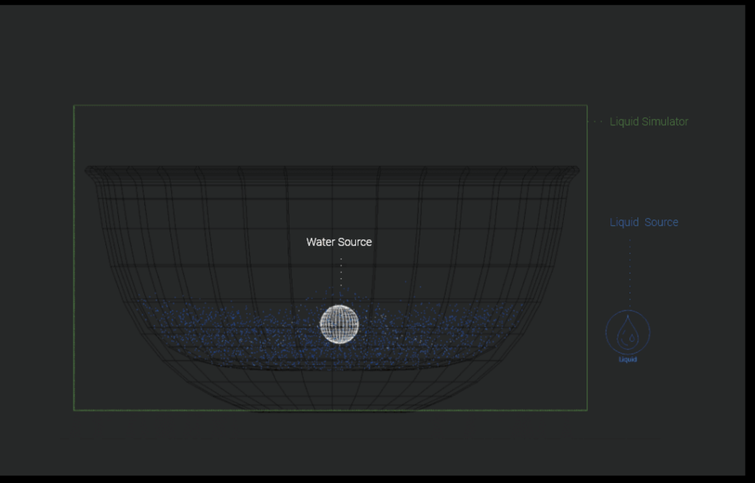


4. phoenix | 3ds Max

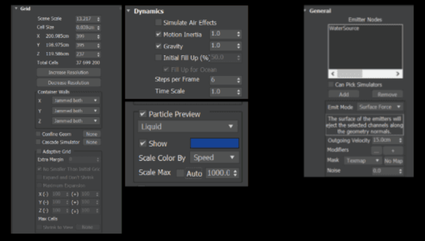




Fire Simulator ····· Fire Source



Liquid Simulator ····· Liquid Source

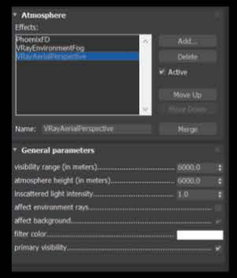


4. phoenix | 3ds Max

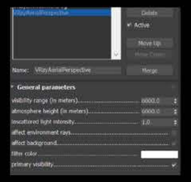
5. V-RAY ATMOSPHERE

Environment Fog

V-Ray Atmosphere

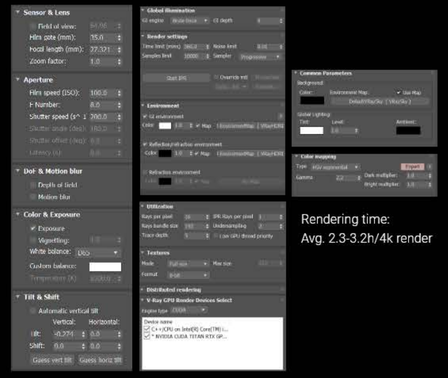


V-Ray Arial Perspective



6. RENDERING

Camera & Render Setting



Rendering time:
Avg. 2.3-3.2h/4k render

Render Elements

Multi-pass compositing was done in Nuke, where beauty pass was rebuilt and refined.

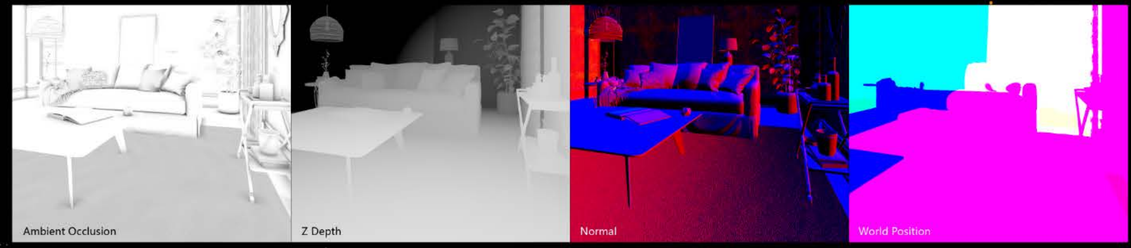
7. POST-PRODUCTION

Defocus

Bringing focus to the foreground

Ambient Occlusion

Adding details to the shadows



End