The Elements of Architectural Visualization

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Bridge House / Joeb Moore + Partners Architects | Photography by David Sundberg/Esto

The Elements of Architectural Visualization

1. Cameras

The Elements of Architectural Visualization

1. Cameras
2. Illumination

The Elements of Architectural Visualization

1. Cameras
2. Illumination
3. Composition

Architectural Visualization Software

AutoCAD

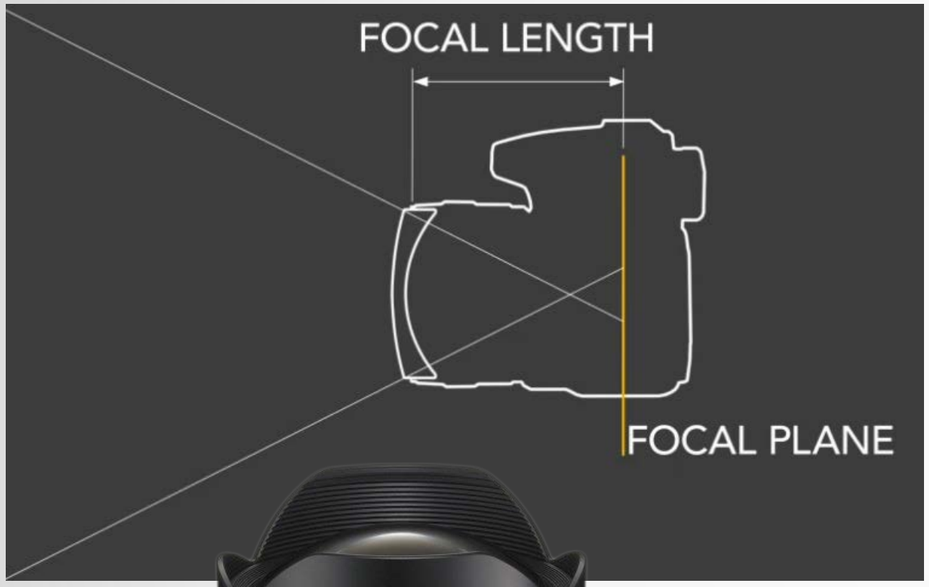
Revit

3ds Max Design

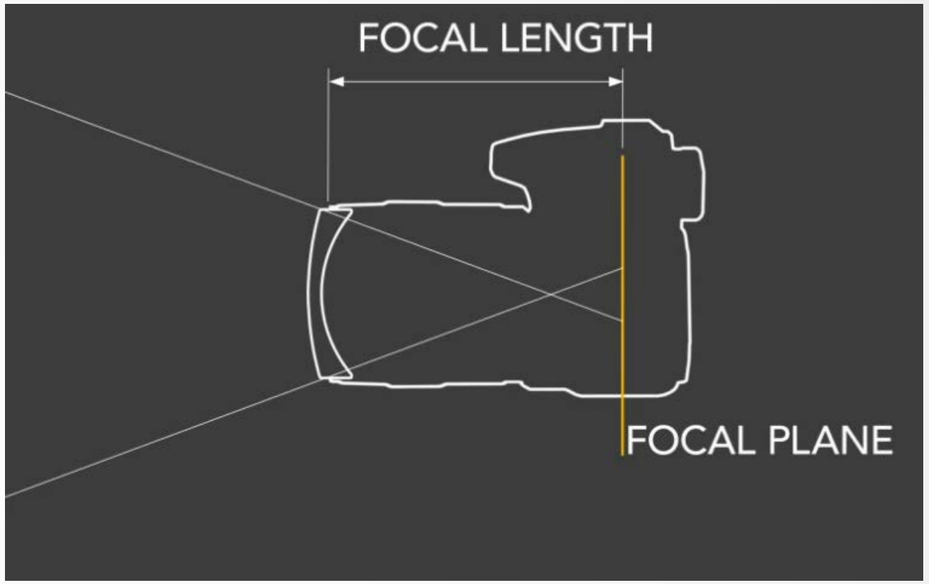
Cameras

Cameras: Lenses Focal Length

15mm



50mm



15mm

24mm

50mm


50mm


24mm


15mm

70mm—Long Lens

Flat, Balanced, Traditional

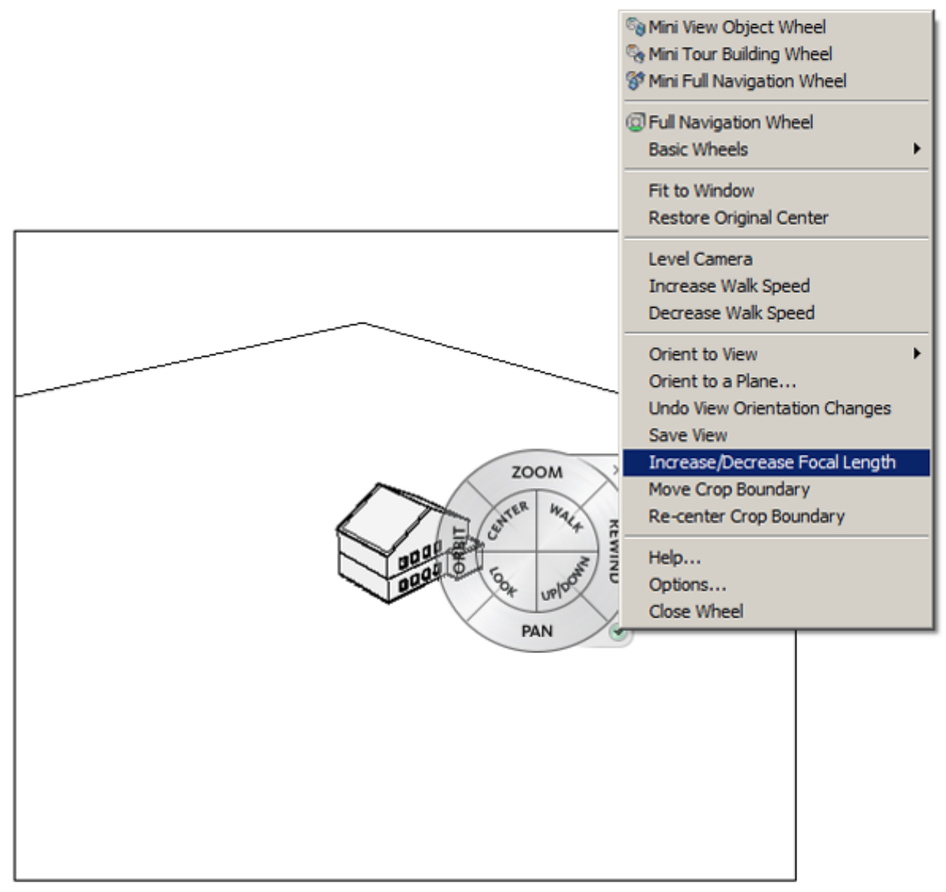
15mm—Wide Angle

Separation, Dynamic, Tension

W House by 01Arq | abduzeedo.com

Cameras: Lenses Focal Length

Revit Architecture



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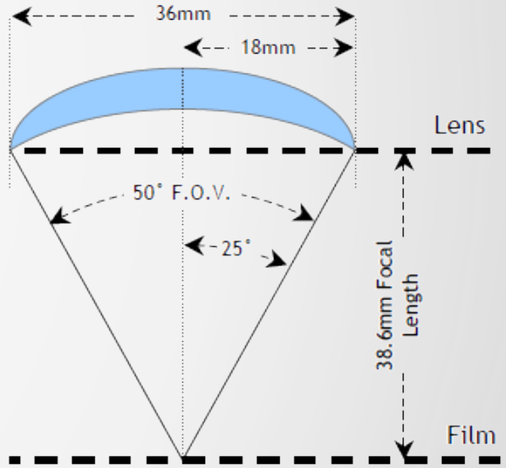
Setting up and Adjusting the Revit Camera

Focal Length and Field of View

Standard 35mm film cameras have a variety of lenses that change the focal length, and thus the field of view (FOV). A 50mm lens on a 35mm camera yields an FOV of 46˚, which is about what the human eye sees.

For a 35mm camera, the frames are usually 36mm wide x 24mm high - hence the 36mm dimension in the diagram at right. Keep in mind that the human eye sees a conical field of view - not rectangular like a camera. Because of this, the formula for 35mm film equivalence to the human eye is calculated on the diagonal frame dimension of 43.3mm. For the purpose of setting up the Revit cameras, the 36 x 24mm dimensions are more important.



The default Revit camera's focal length

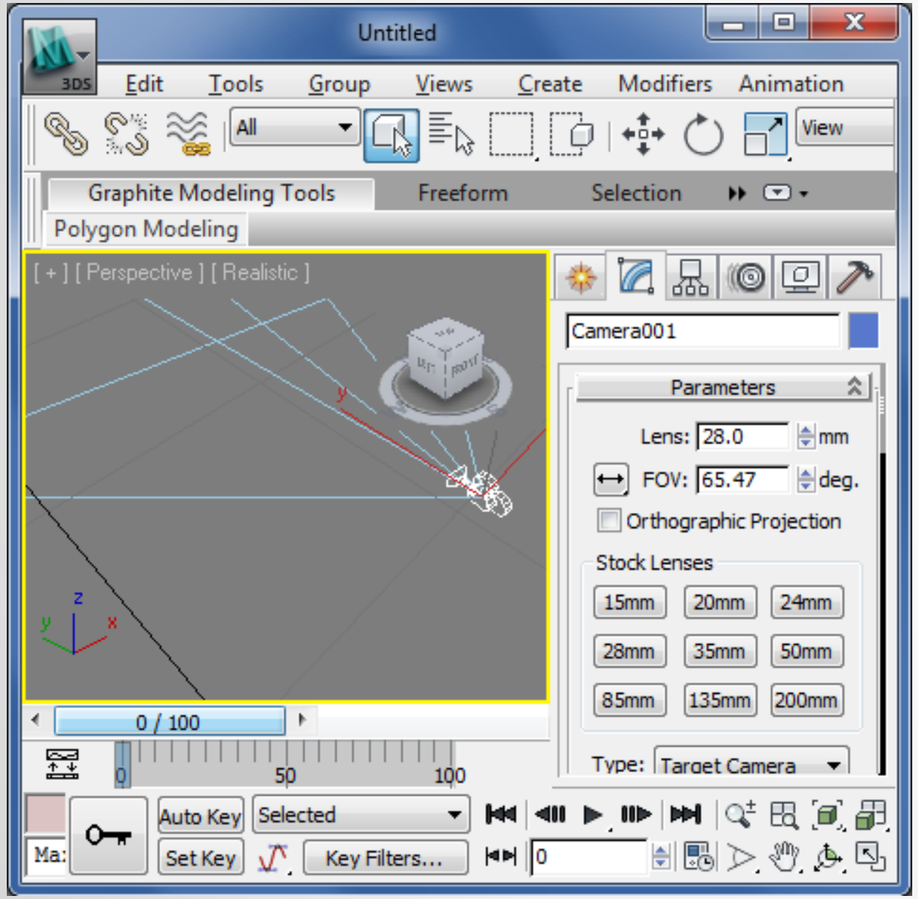
Adding a Camera

The Revit camera has, by default, a 50˚ FOV, slightly wider than our field of view. Revit cameras can have the field of view edited, effectively editing the focal length of the camera.

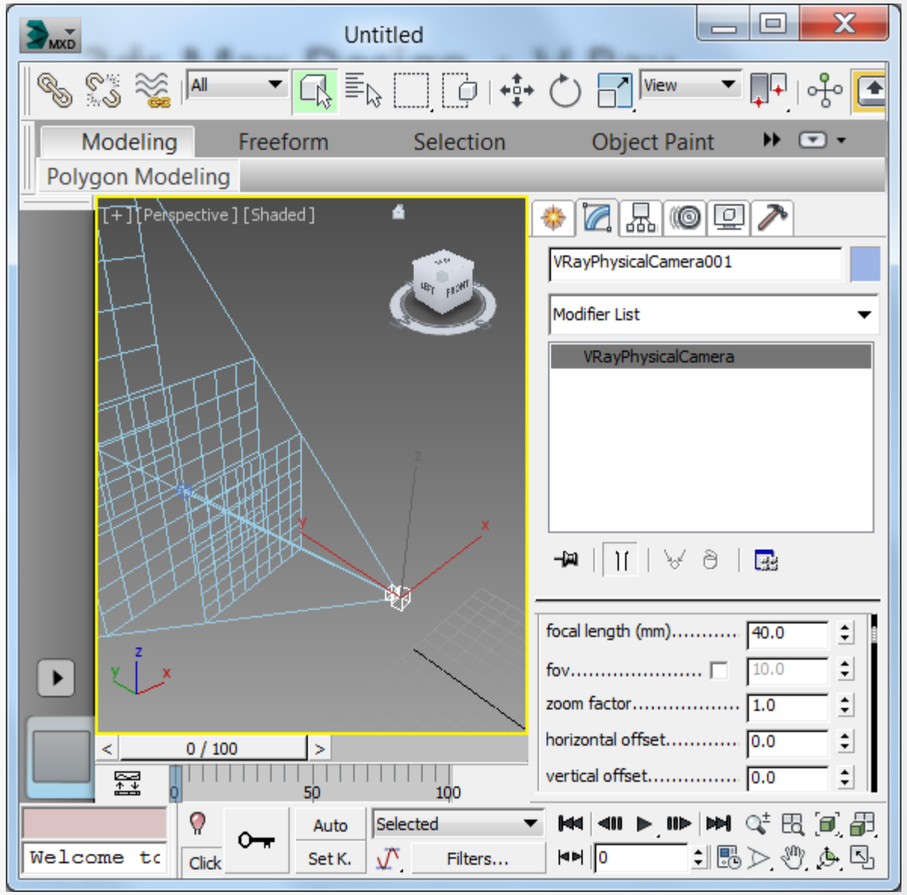
Focal length = 0.5 * Film Dimension / (tan (FOV / 2))

Cameras: Lenses Focal Length

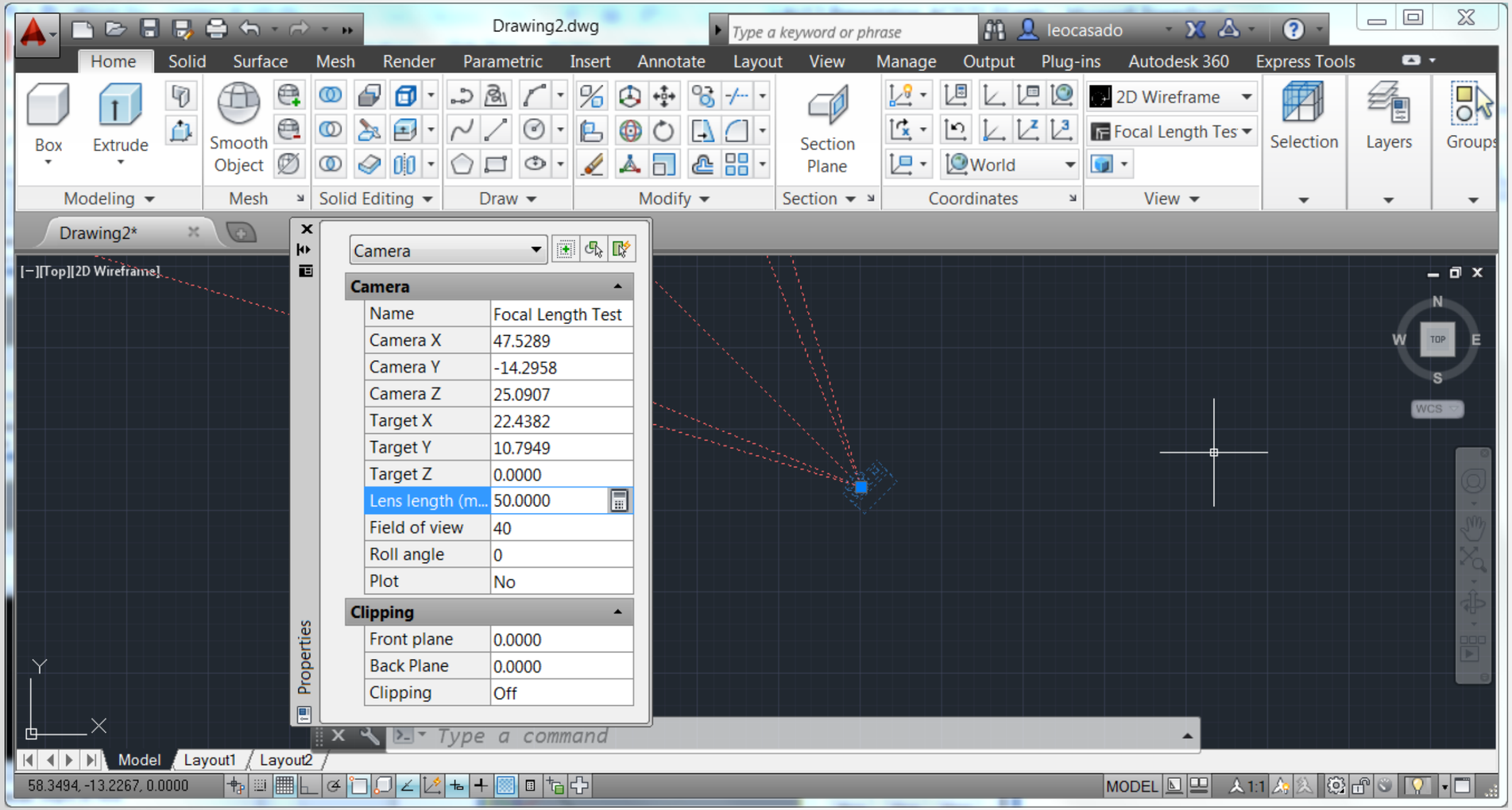
3ds Max Design



3ds Max Design + V-Ray



Cameras: Lenses Focal Length



AutoCAD

Camera Properties

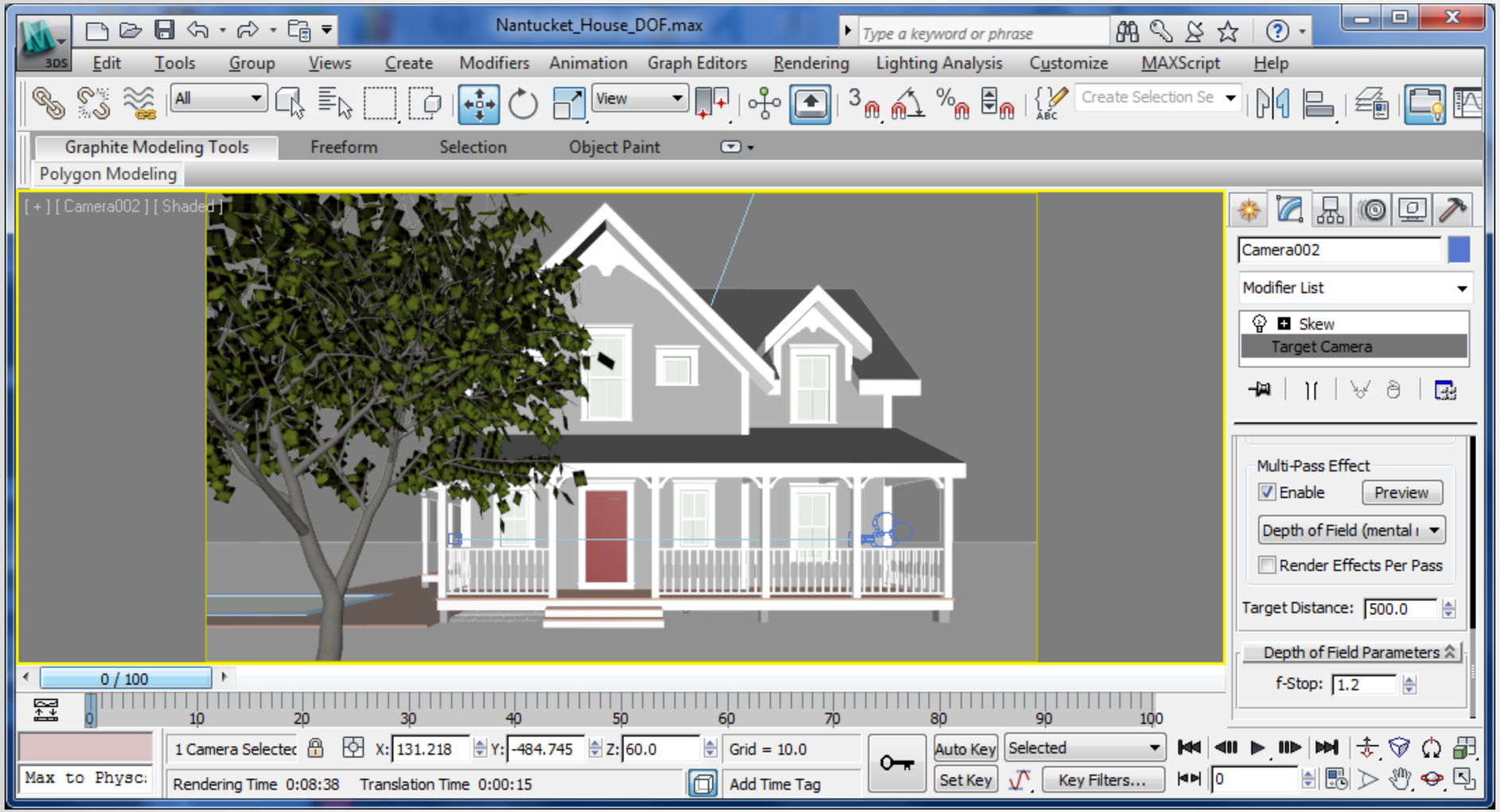
Cameras: Depth of Field

50mm f/1.8
$100

50mm f/1.4
$300

50mm f/1.2
$1,750

Cameras: Depth of Field



3ds Max

Multi-Pass Effect

DOF (mental ray)

Illumination

Illumination: Sun Light

Brian Vanden Brink Photography

Hufton + Crow

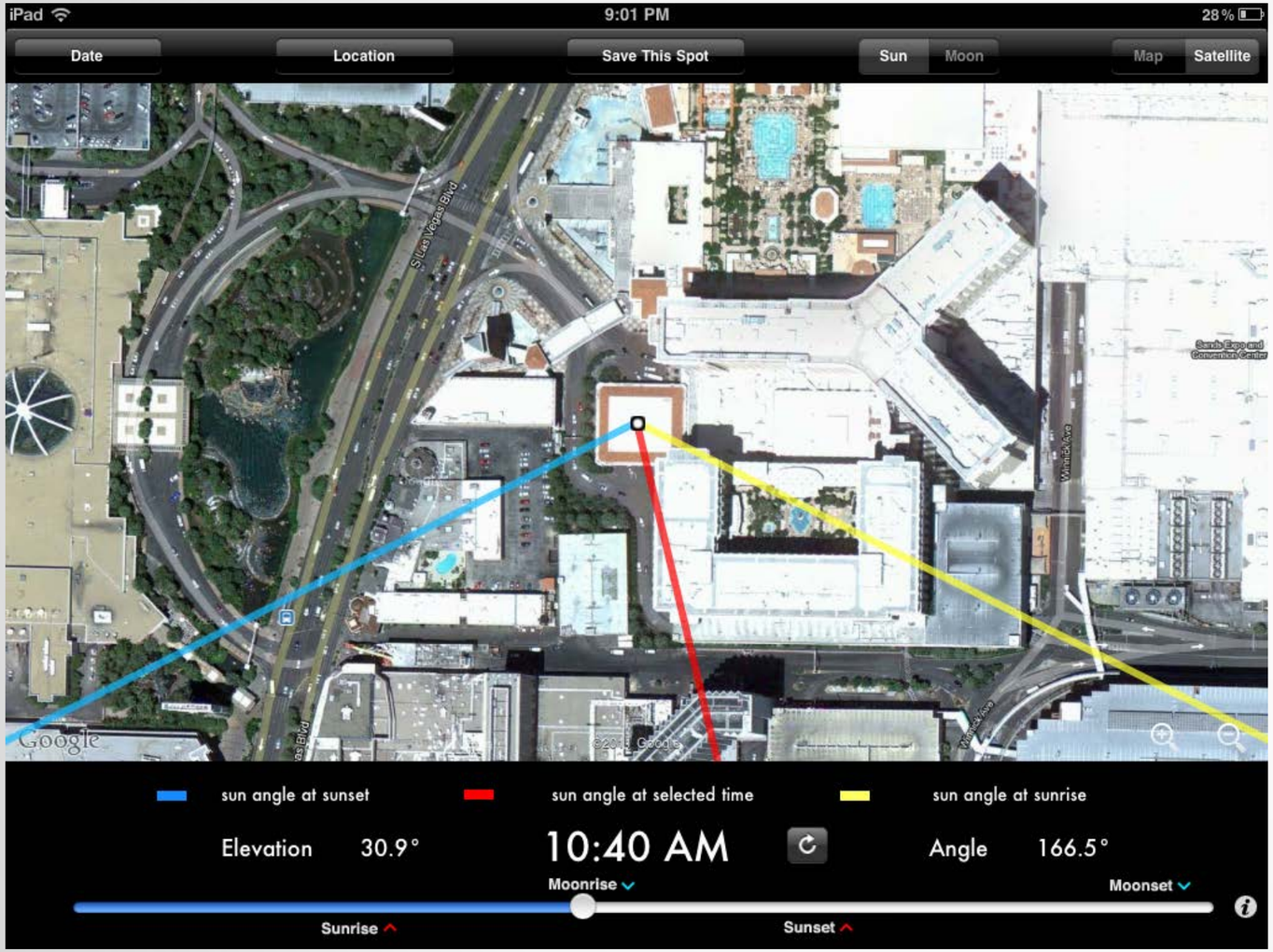

Iwan Baan


Chuck Choi

Ezra Stoller

Julius Shulman

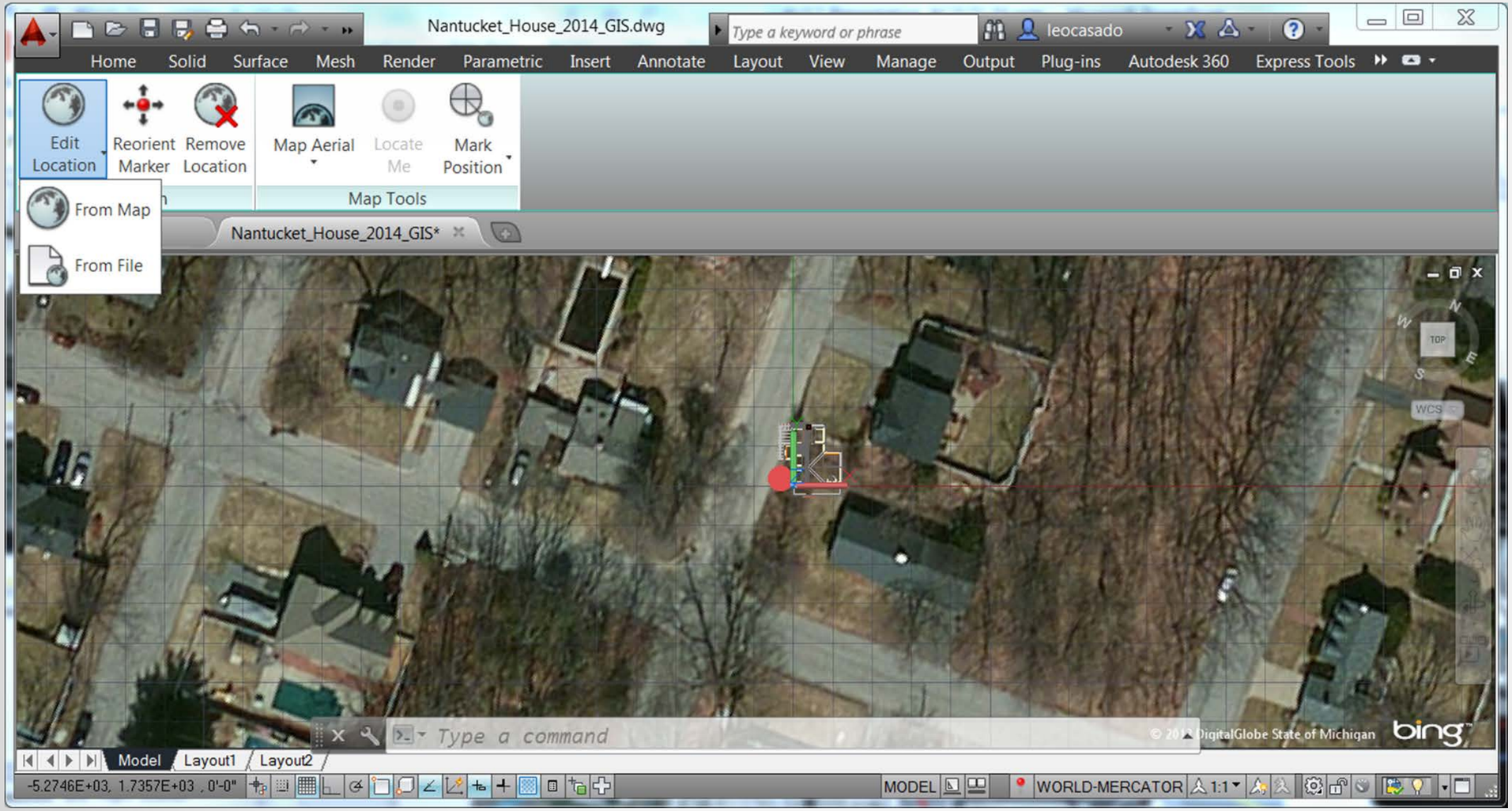
Illumination: Sun Light



LightTrac iOS App

www.lighttracapp.com

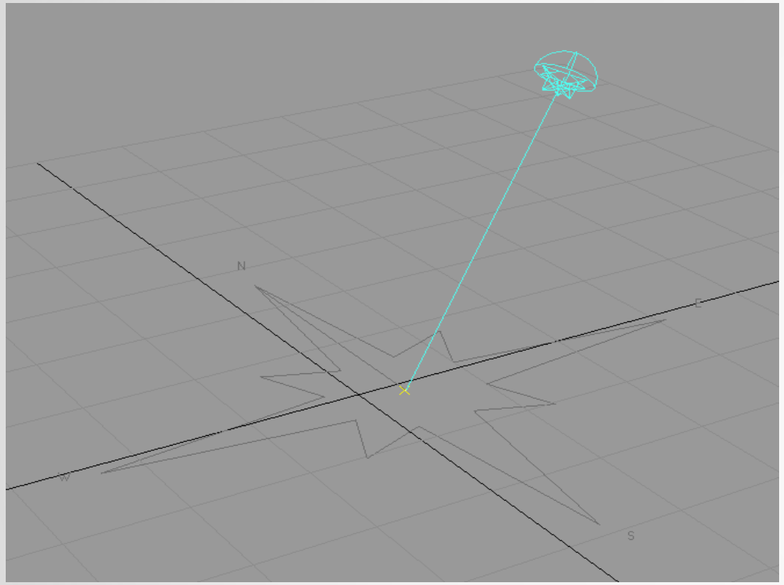
Illumination: AutoCAD Geolocation



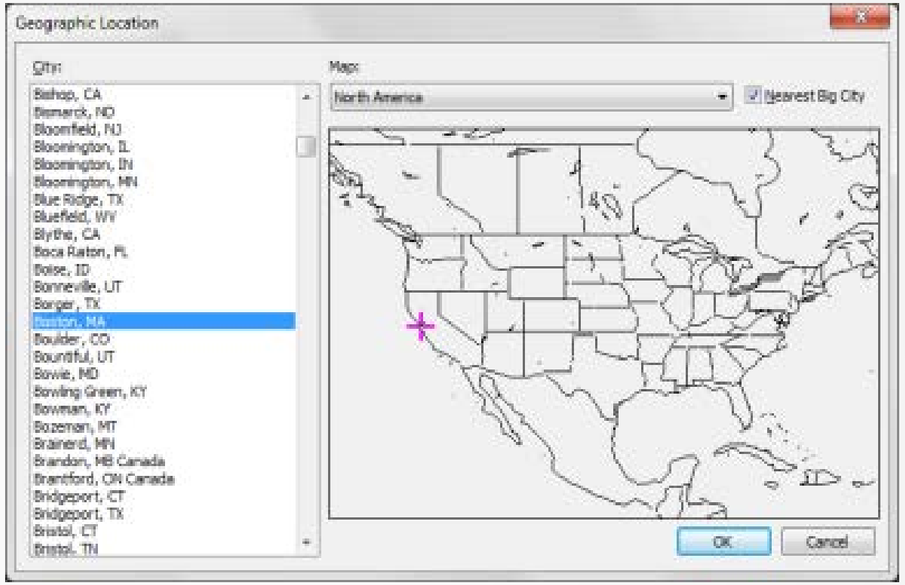
NEW in 2014!

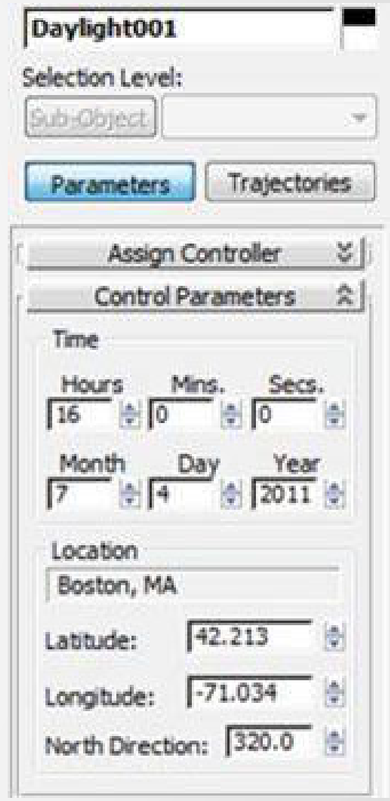
Illumination: 3ds Max Daylight System

3ds Max Daylight System



Settings (Location, Time, Date)





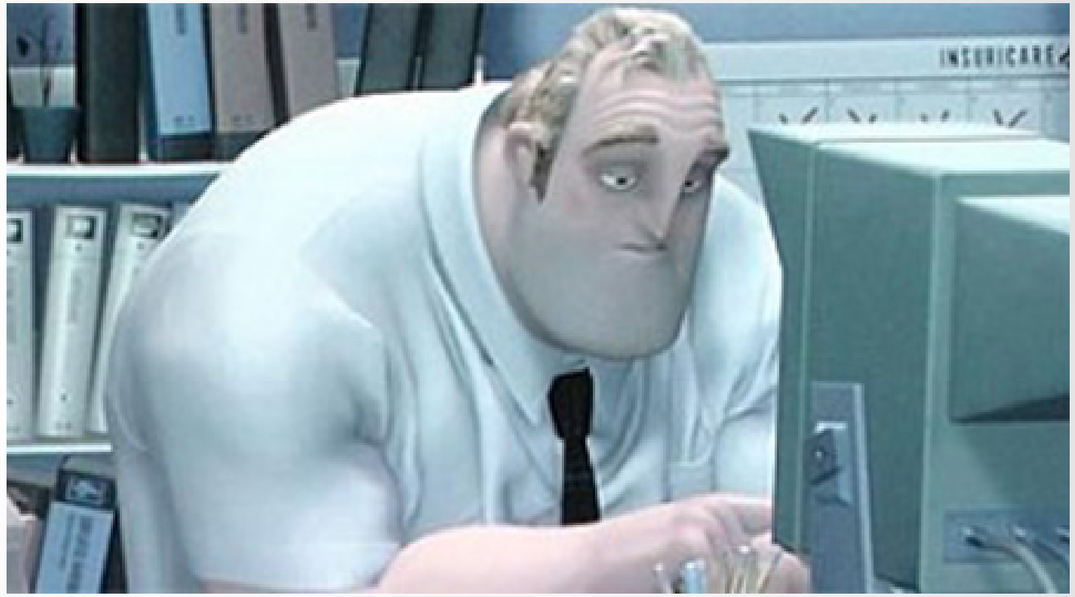
Bridge House / Joeb Moore + Partners Architects | Photography by David Sundberg/Esto


MS House | Ron Bekerman

Illumination: Post Production

Warm — Home

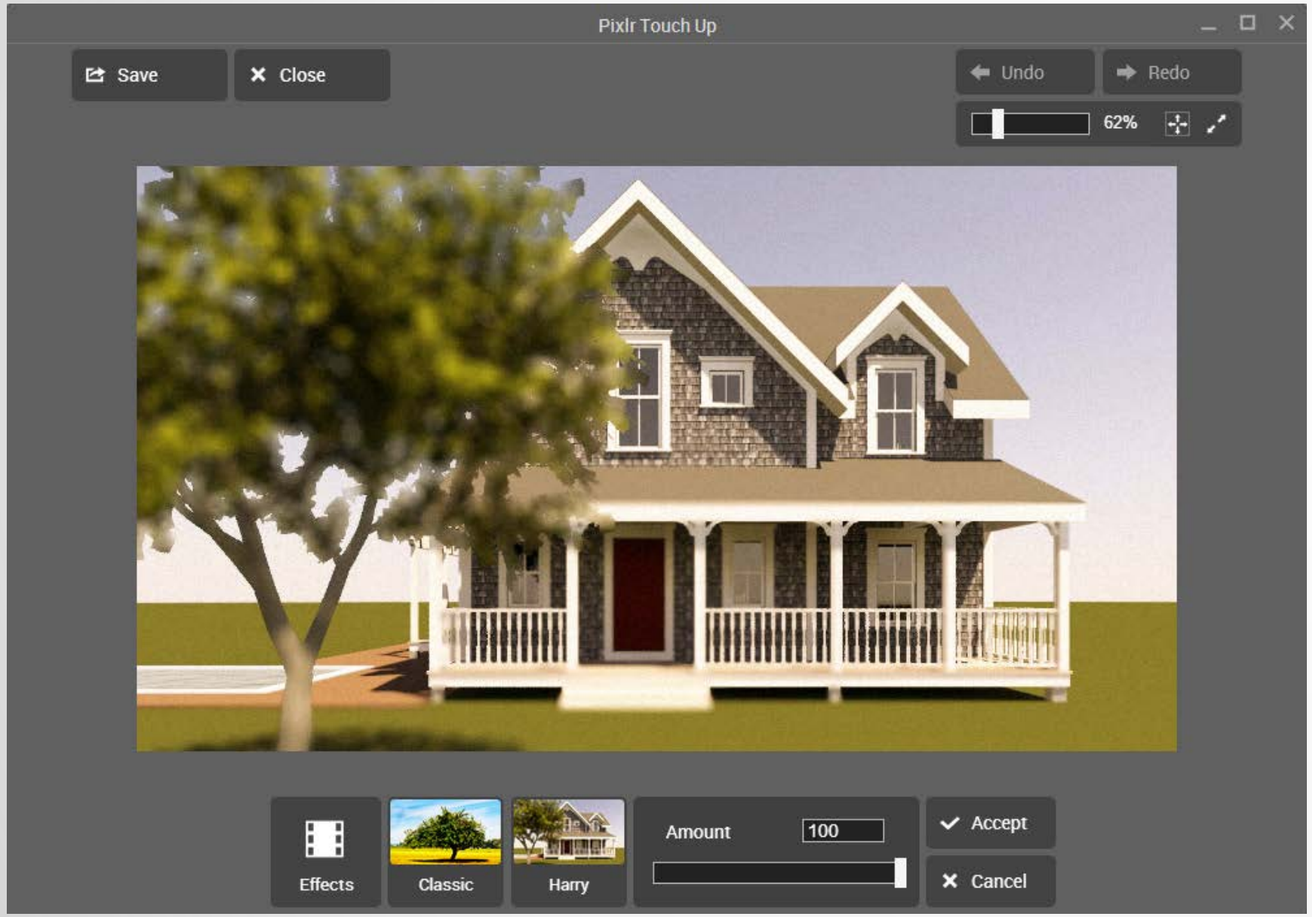
Cold — Office



Pixar Animation Studios

Illumination: Post Production

Pixlr TouchUp Google Chrome App

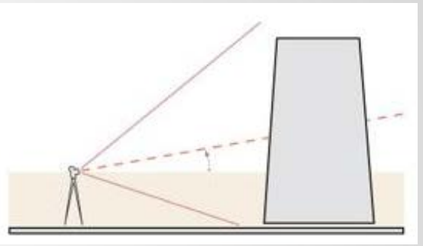


Composition

Composition: Rule of Thirds

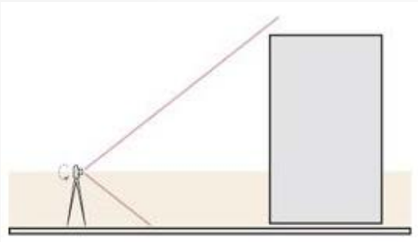
Composition: Keystone Effect

Converging Vertical Lines

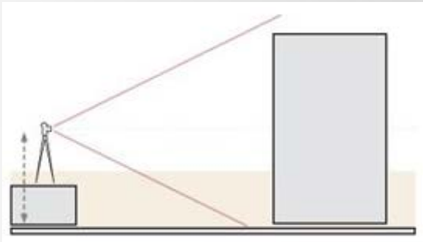


Composition: Keystone Effect

Camera Height: 60”

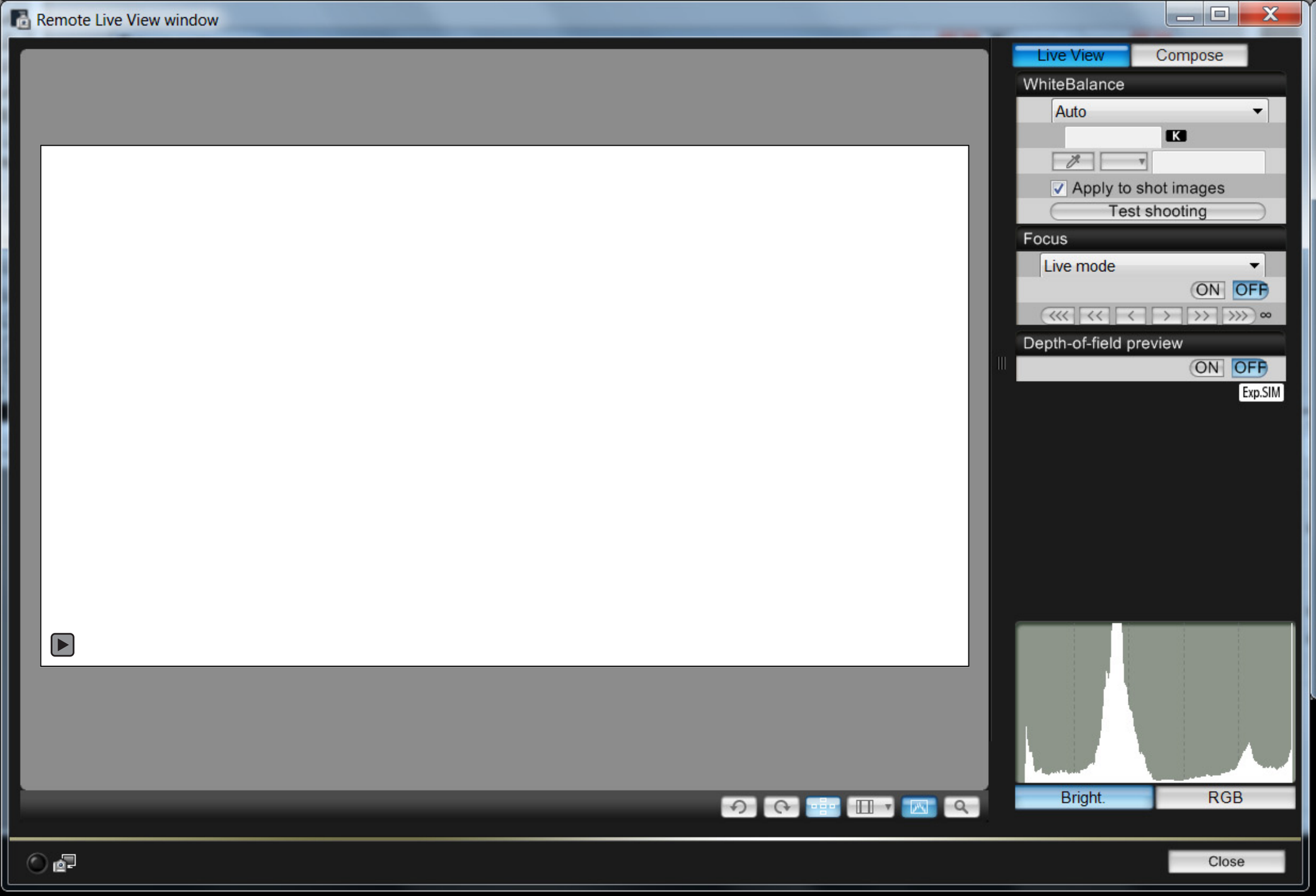


Camera



Composition: Keystone Effect

Tilt-Shift Lens


Remote Live View window
Live View
Compose
WhiteBalance
Auto
K
Apply to shot images
Test shooting
Focus
Live mode
ON
OFF
Depth-of-field preview
ON
OFF
Exp.SIM
Bright.
RGB
Close

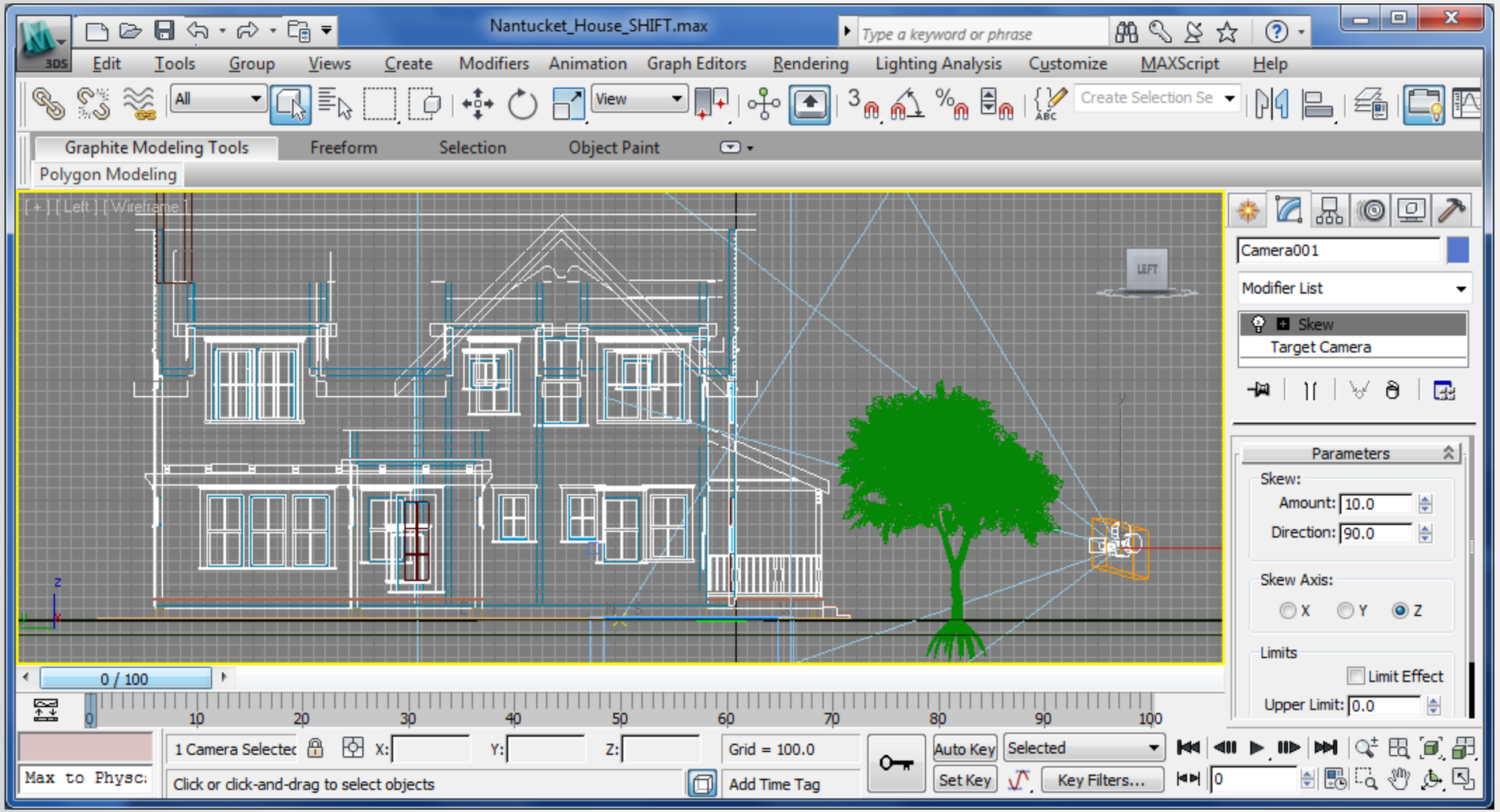

EOS REBEL T3i
7365
AF
MF
Pictures
Av
F2.8
AWB
ISO
400
RAW+L
-2 . . -1 . . 0 . . +1 . . +2
Shooting menu
Picture Style
Auto
Detail set.
3 , 0 , 0 , 0
Register User Defined style
WB SHIFT
0,0
Lens aberration correction
Live View shoot. ...
Other Functions...
Preferences...
Main Window

Composition: Keystone Effect

Tilt-Shift Lens

Camera height: 60”
Horizon line at bottom third
Roof ridge visible

Composition: Keystone Effect

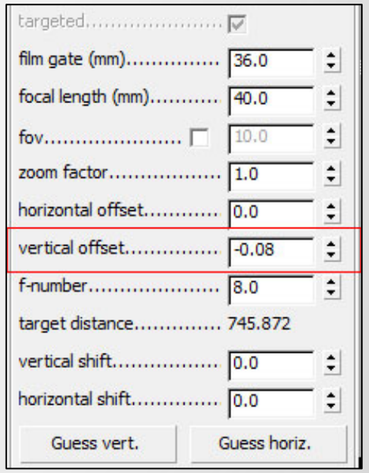


3ds Max

Camera
Skew Modifier
Amount: 10
Direction: 90

V-Ray

Vertical Offset



Architecture by Robert M. Gurney Architect | Photography by Maxwell MacKenzie

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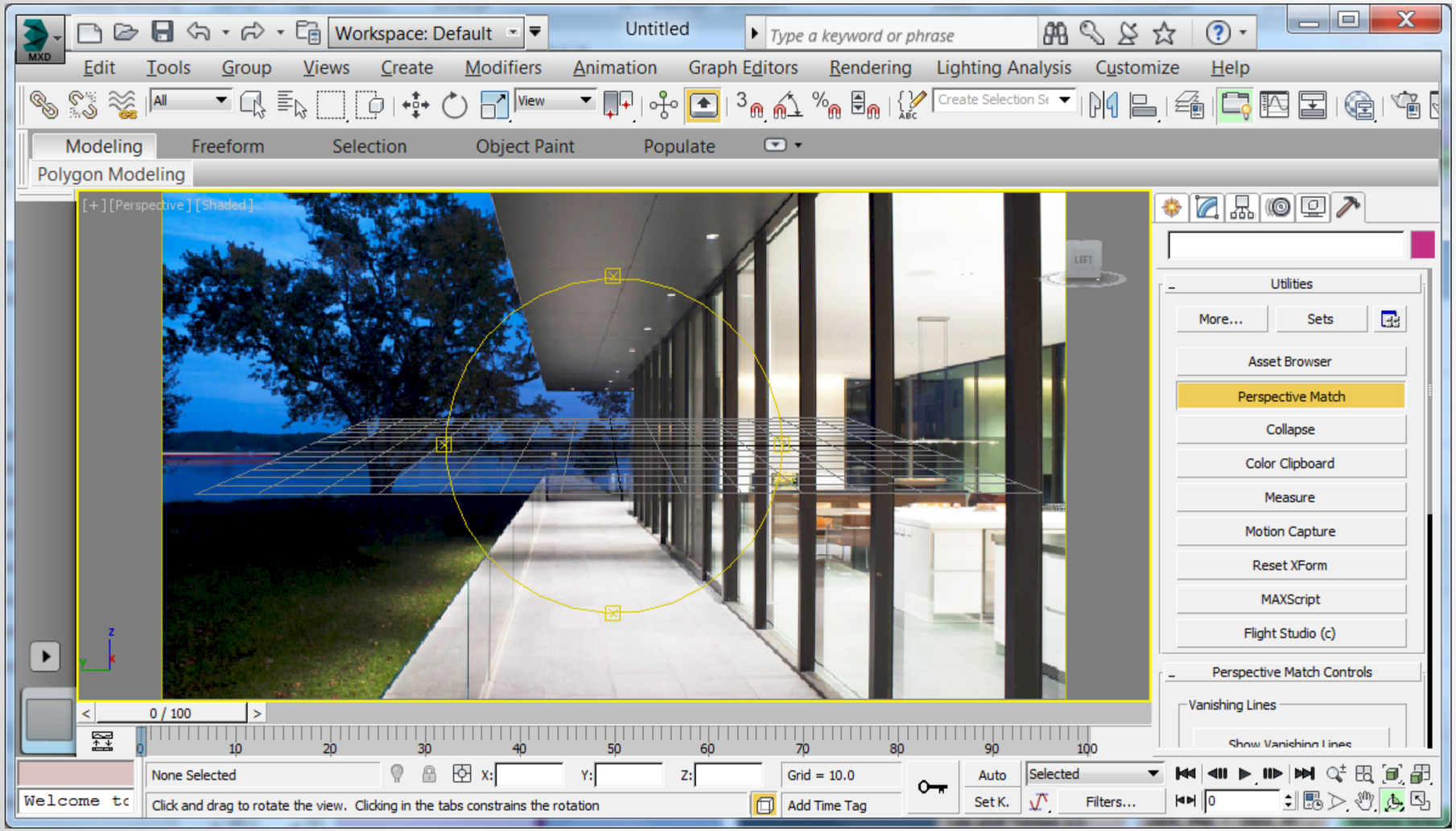
Architecture by Robert M. Gurney Architect | Photography by Maxwell MacKenzie

Composition: Perspective Match



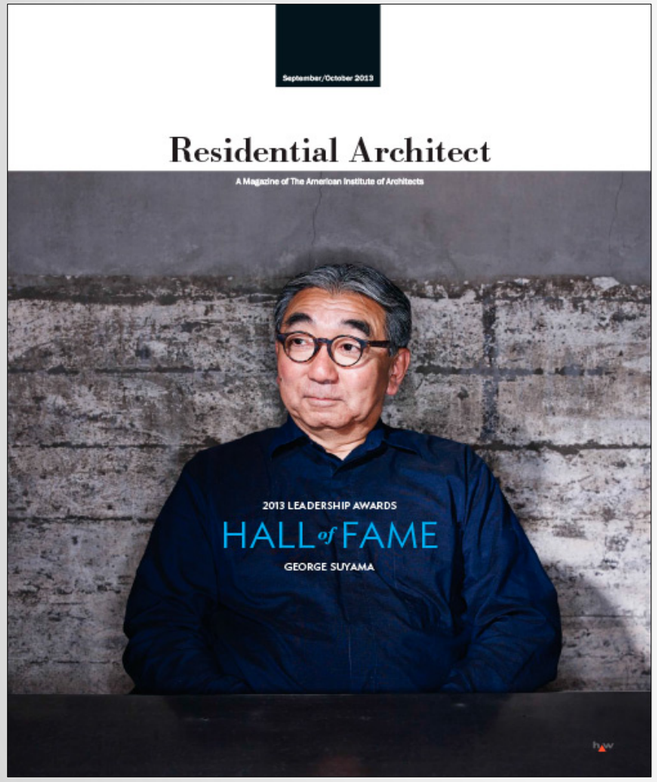
3ds Max Design

NEW in 2014!

Perspective Match Utility

Composition: Image Size

Render at 4x5, 4000 x 5000

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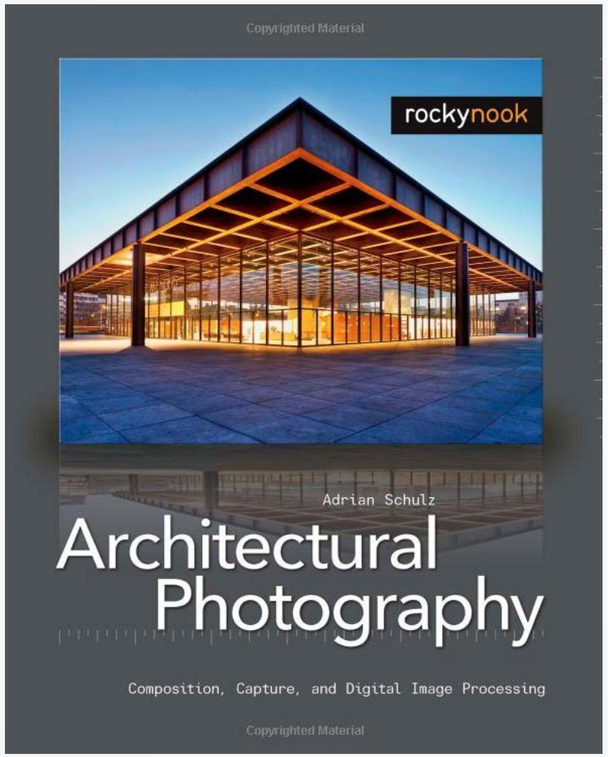
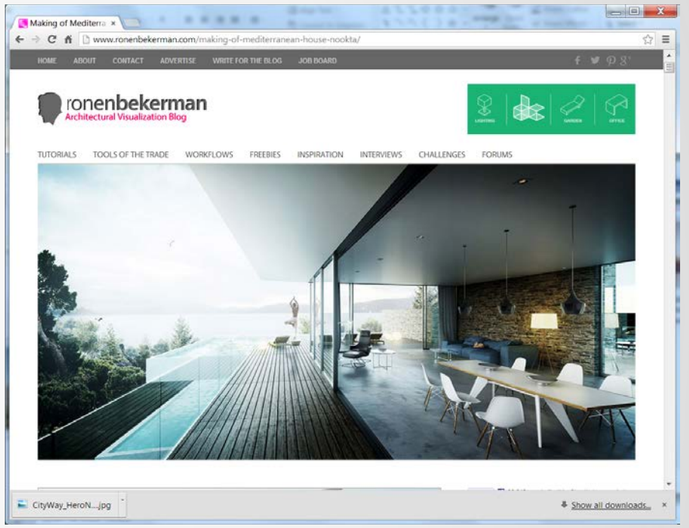
Book: Adrian Schulz



Blog: Ron Bekerman



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Class Handout

AUTODESK **UNIVERSITY** 2013

The Elements of Architectural Visualization

Leo Casado, Associate AIA – Autodesk, Inc.

AC2172

How do you tell a story with a rendering? How can a 3D model be transformed into a work of art? Is it the illumination, the camera settings, the props, or the composition that bring a project to life and transforms it from a flat image into an inspiring representation of your architectural project?

Whether you are a new AutoCAD ® or Revit ® user or a production professional looking for a new angle on your projects, this lecture will immerse you in the creative and technical architectural visualization possibilities available in the Autodesk Building Design Suite.

By learning basic principles of architectural photography, and the qualities of great interior and exterior images, you will gain a fresh perspective for producing renderings that will delight and inspire your clients.

Learning Objectives

- Identify the qualities of great interior and exterior architectural renderings
- Implement best practices for setting up lighting, camera settings, materials and composition
- Acquire knowledge of visualization resources for architectural projects
- Get inspired with a gallery of architectural rendering examples

About the Speaker:
Leo Casado is an architect, with more than 15 years of Autodesk® software experience, and currently working as a Sr. Web Marketing Manager for Autodesk. Before joining Autodesk, Leo worked as an architectural designer and CAD manager in the US and Latin America. He has also taught several CAD classes at the Boston Architectural College.
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Autodesk®

Introduction

Architectural renderings can be much more than 3D representations of your AutoCAD or Revit projects; they are communication tools that give you the opportunity to help clients understand an architectural project before it is built.

"I'm an old-fashioned guy… I want to be an old man with a beer belly sitting on a porch, looking at a lake or something."

—Johnny Depp
b. 1963, American actor

But for clients to be truly inspired by a rendering, you must approach your images at a personal level, so the results are not just "*cool*," but meaningful. This can only be achieved by not only knowing the architectural project itself, but also understanding the vision of how your client sees herself using the architectural space.

The best visualization ideas come from the imagination of your clients, and your job is to illustrate these stories into renderings. But how do you know what stories to tell? You just have to ask questions. Not only questions about square footage, location or number of rooms, but personal questions! If you are rendering a single-family home, ask your client "do you like to cook?" or "how do you spend your free time at home?" or "show me your favorite piece of furniture." This will give you dozens of ideas for 3D images, and it will also inform you how to best focus your time and production resources.

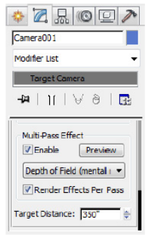
Architectural renderings are not much different that photographs, and once you know what story you want to tell, you can adopt many of the techniques used in architectural photography to improve the quality of your work, regardless of the software application that you are using, or project budget. If you know what you want to communicate, and you have purpose behind the decision of what techniques you use, you will produce work that will impress and delight the most demanding clients.

AUTODESK **UNIVERSITY** 2013
The Elements of Architectural Visualization

Depth of Field

Depth of field refers to the area of an image that is in focus. A **deep** depth of field (f/11 or more) allows objects in the foreground and background to be in focus, while a **shallow** depth of field (f/2.4 or less) allows focusing on a specific area of an image. While the ideal aperture for architectural photography is between f/8 and f/11, you can use a shallower depth of field to highlight specific elements in your images in a more creative way.

Lenses that allow for a shallower depth of field are called "fast" lenses, and they allow for a wider aperture, and thus more light can get into the camera sensor. These lenses have larger glass components, and are usually heavier and much more expensive than regular kit lenses that come with DSLR cameras.



Mental Ray Depth of Field camera parameters in 3ds Max

50mm lenses, in configuration of f/1.8, f/1.4 and f/1.2

One good thing about architecture visualization is that the camera settings allow for an unlimited configuration, simulating lenses that would otherwise cost thousands of dollars. AutoCAD and Revit do not have these options, but the Mental Ray engine in 3ds Max can be configured to recreate shallow depth of field effects that work very well in still images or animations.

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Questions?

The Elements of Architectural Visualization

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