# MicroStation V8*i*
# Visualization Update

Chris Bober - Director, MicroStation Product Line

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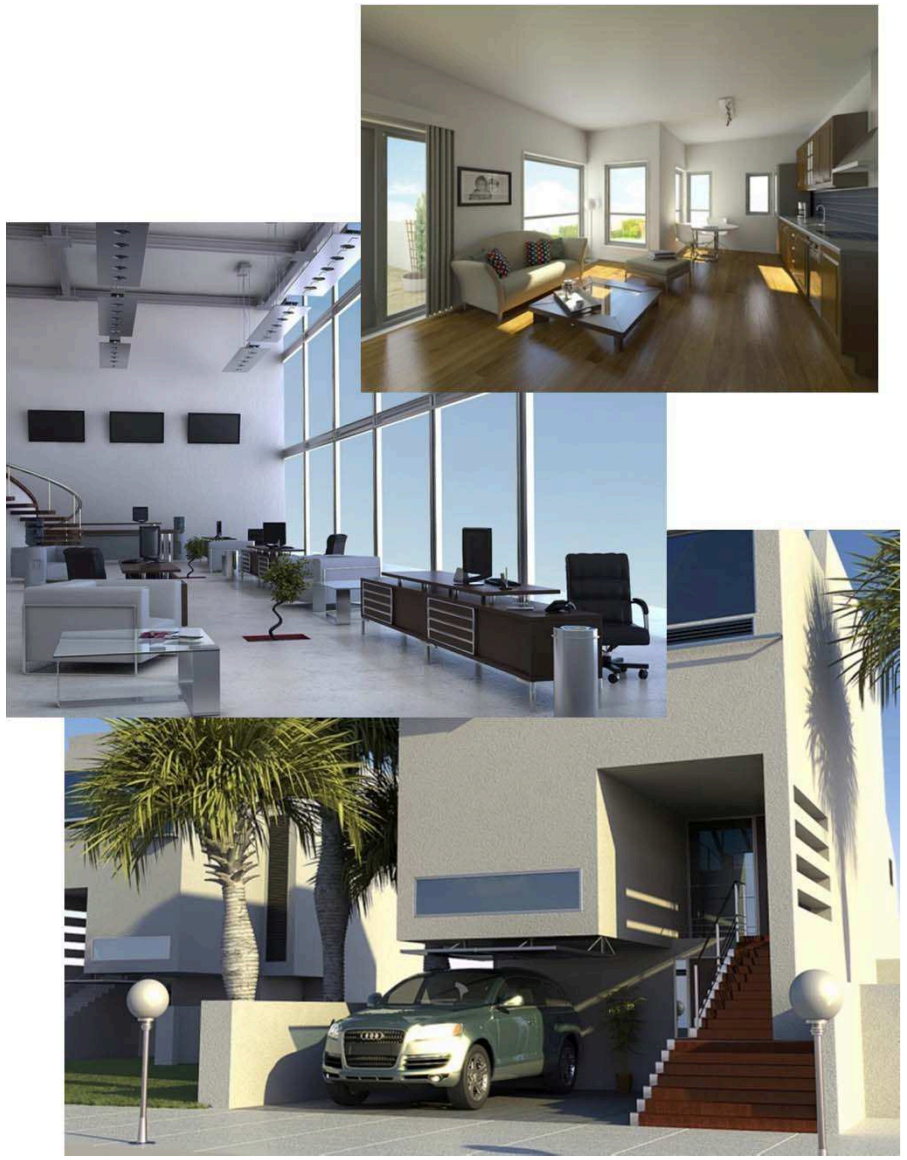
# Why Luxology?

- Produce high quality images using pre-configured settings to better balance speed and quality
- Deliver photo-realistic interior and exterior views using lighting and textures that mirror project reality
- Improve stakeholder insight and secure buy-in
- Validate the fit and finish of a project
- Secure project funding for design alternatives



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# MicroStation V8*i* (SELECTseries 1)

- Luxology Rendering Engine
  - Quality/Performance Slider
  - Material Preview Window
  - Per-material Shader Options
  - Material Preview Lighting
  - Glow Maps
  - Clear Coat Maps for Materials
  - Fur Rendering
  - Volume Lighting
  - Dome Lights
  - Reuse Solution
  - Fog
  - HDR Image Preview
- Updated Capabilities Based on Luxology Rendering Engine
  - Lighting Setups
  - Light Manager
  - Multi-layered Materials
  - Solar Study and FlyThrough
- Luxology Distributed Rendering System
- Animation
  - Camera Speed Control
  - Luxology Animation Tone Mapping

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# MicroStation V8*i* (SELECTseries 2)

- (SELECTseries 2)
  - Additional Render Outputs
  - Usability Improvements
    - Material Editor dialog
    - Light Manager dialog
    - Environment Settings dialog
    - Luxology Image Settings dialog
    - Luxology Render dialog
  - Animator Improvements

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# Simplified Lighting

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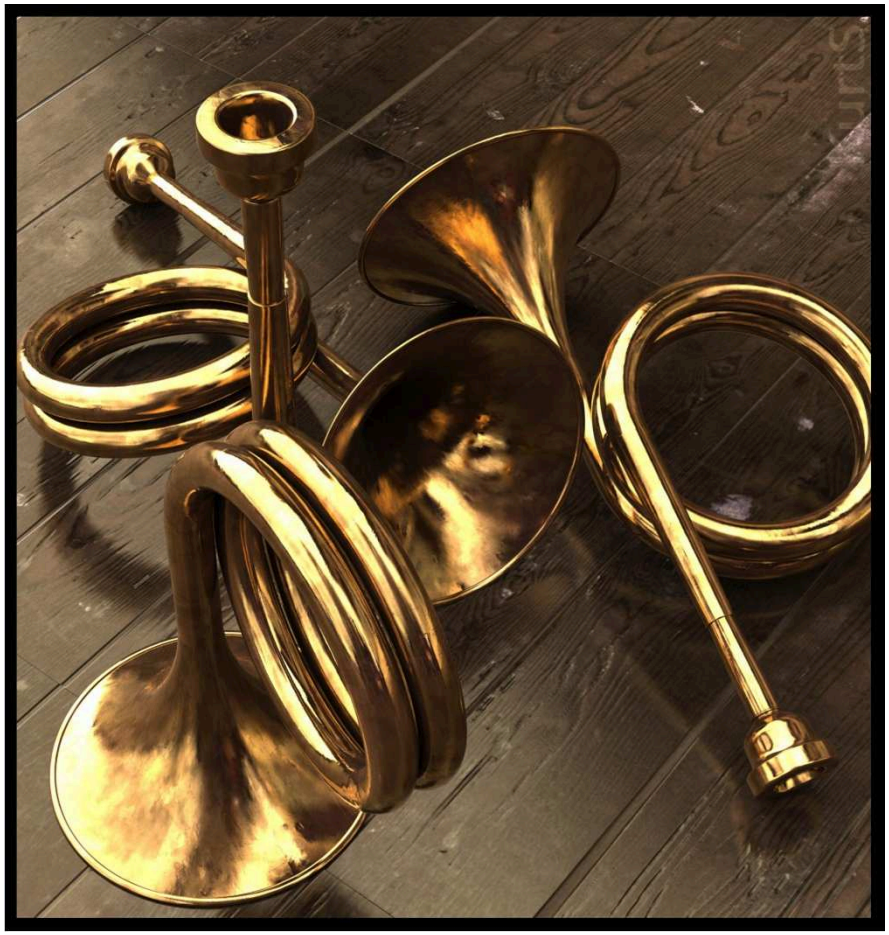
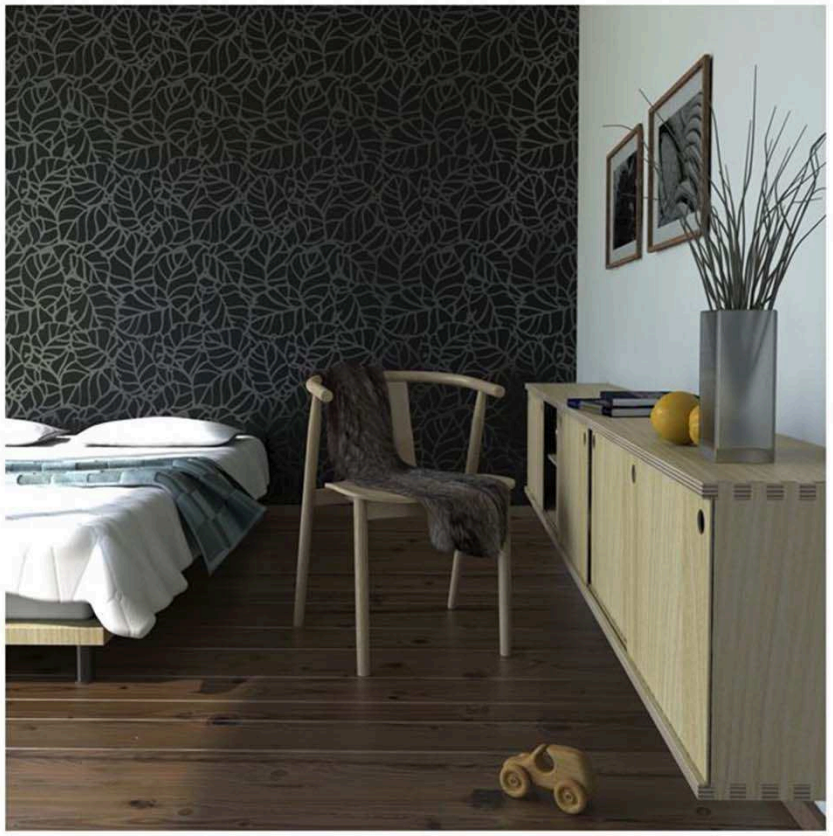
# Realistic Materials





bedroom - modeled and rendered by KurtS

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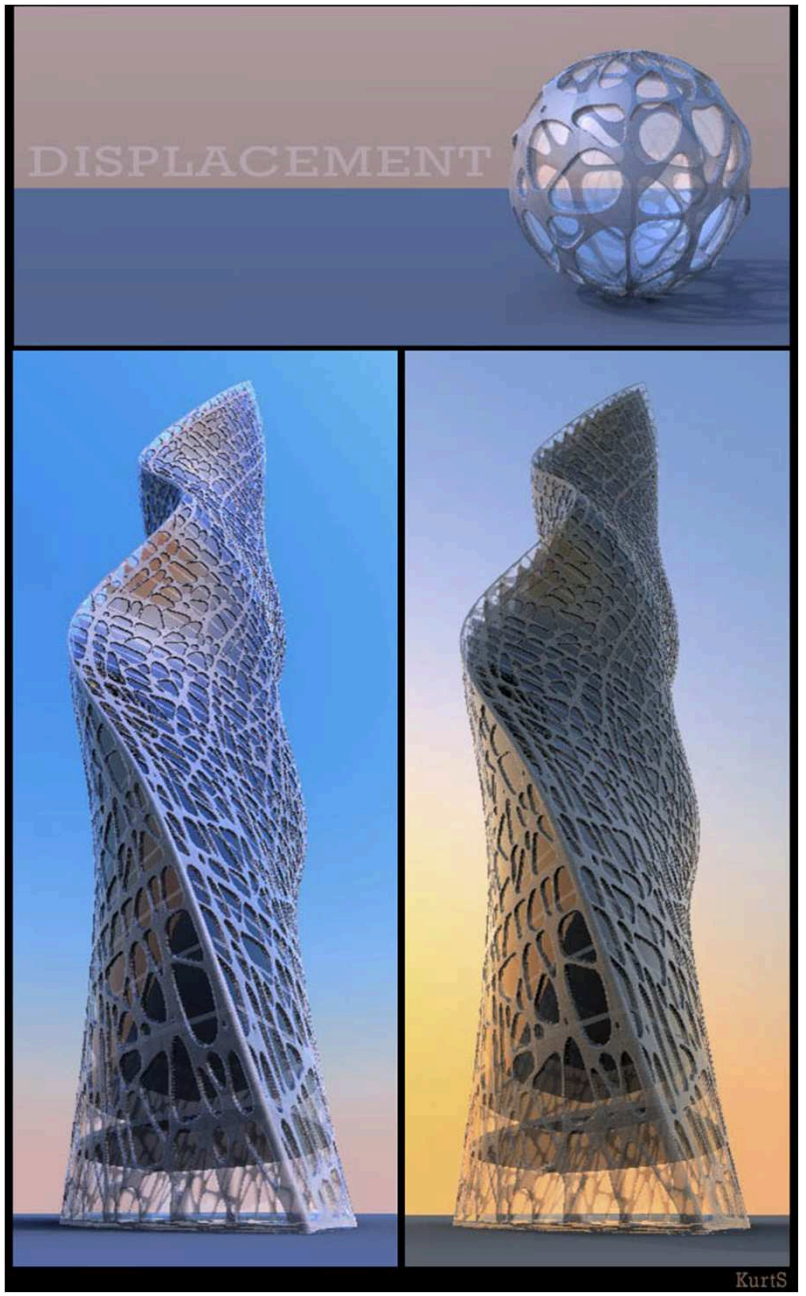
# Realistic Materials

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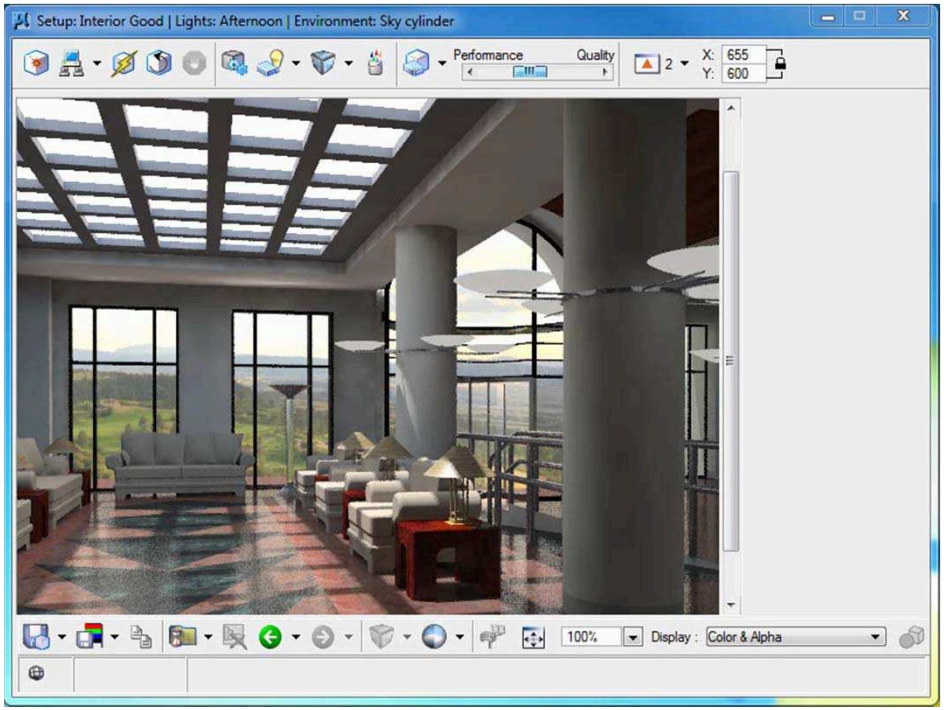
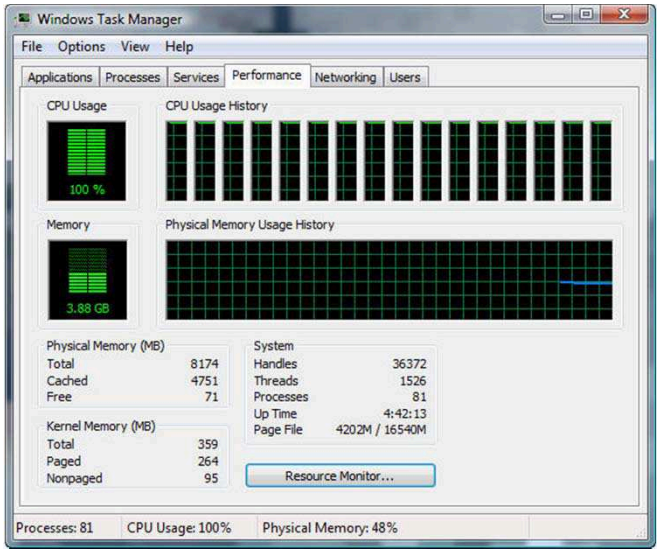
KurtS

# Performance, Performance, Performance

- Native 64 Bit Engine
- Use up to 32 Cores
- Real Time Updates Onscreen

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Way out
Way out

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rendertest - comparison

Luxolamps - 1

bmw-speed.jpg

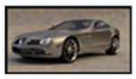
gold-silver-metallic.jpg

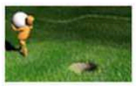
OnyxTree 4 Christmas

armchair3min31.jpg

Electric Guitar - HDR Lighting - 5 min

Fade2wireframe2 Nebula





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# The Iterative Advantage

- Save Time
  - Near real-time rendering
  - 64-bit rendering engine
  - Create time for more design review iterations
- Improve Quality
  - Photo-realistic images
  - Better design
  - Higher Project Win-Rate
- Increase Profits
  - More Efficient Teams
  - Lower Operating Costs

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# Recipe for Success

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# Visualization Recipe

- Main Ingredients
  - Camera
  - Render Settings
  - Lights
  - Environment
  - Materials
  - Output
  - Fast Hardware

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# Visualization Recipe

- Main Ingredients
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  - Lights
  - Environment
  - Materials
  - Output
  - Fast Hardware

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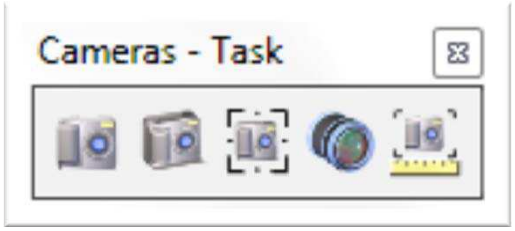
# Scene Composition

# Camera




- Setup
- Define (Manipulate)
- Photomatch
- Camera Lens
- Focal Distance

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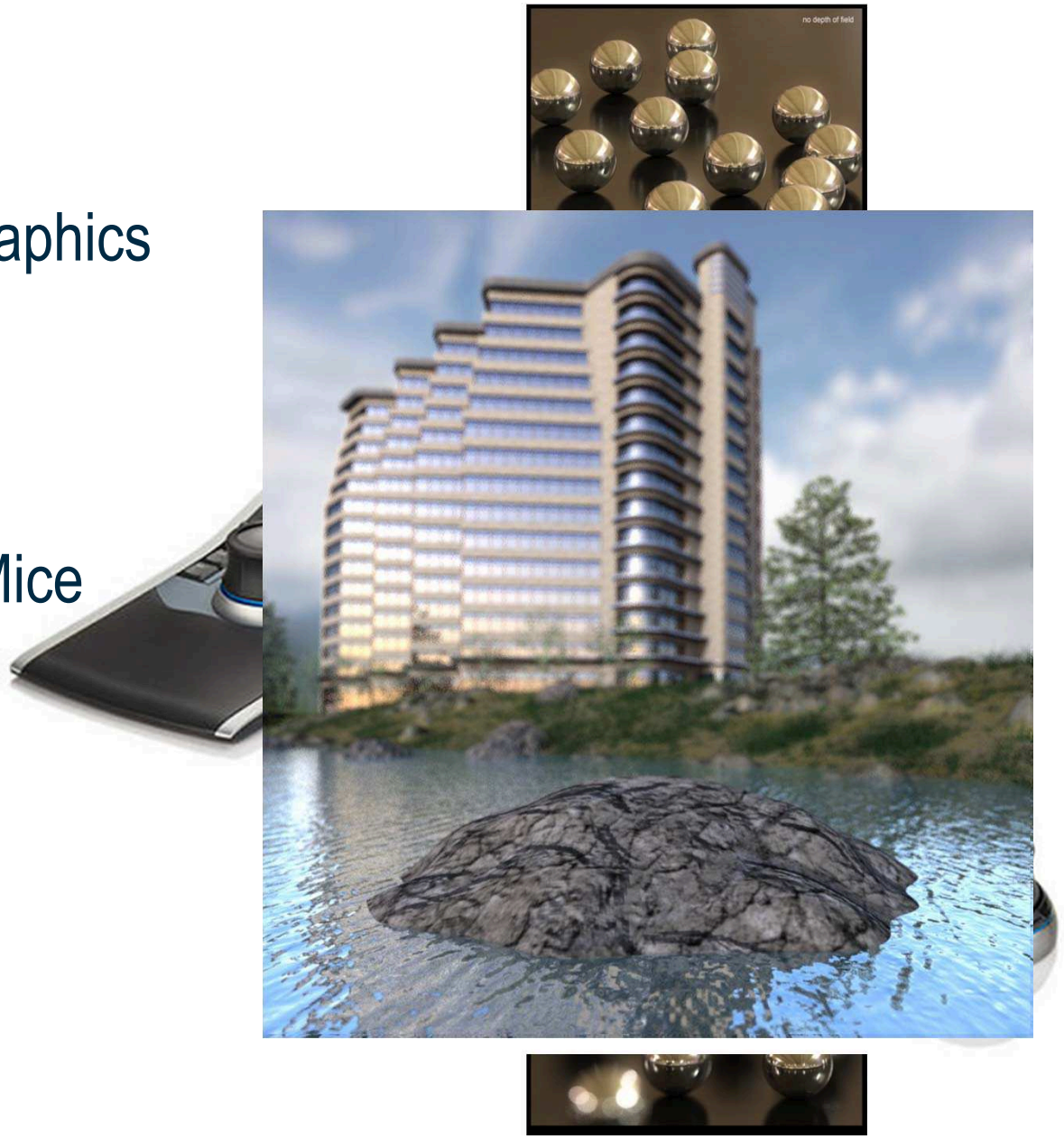
# Camera Setup

- New Camera Graphics
  - Pan
  - Tilt
  - Roll
- Support for 3D Mice

3Dconnexion
A LOGITECH COMPANY

- Focal Distance
  - New Tool

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# Lighting




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# With New Lighting in MicroStation V8*i*...

- High Quality
  - Consistent Lighting
  - Increased Depth
- Visually Reliable
  - Physically Correct
  - Undeniably Real
- Accurate
  - Light Conditions
  - Environments

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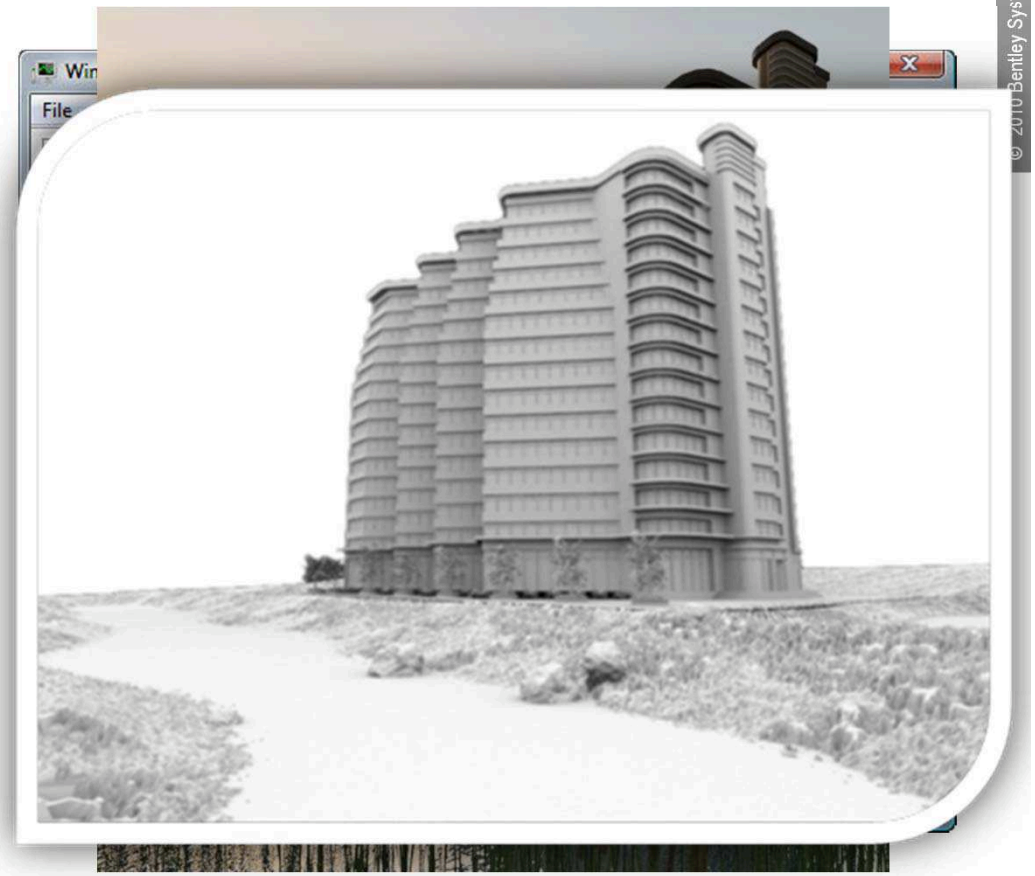
# Lighting in MicroStation V8*i*

- Global Illumination
  - Bounced light
  - Why settle for less
  - Even exteriors
- Extremely fast
- Easy to use
  - Ambient Occlusion



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# Lighting in MicroStation V8*i*

- High Dynamic Range Light Probes
- Physical & Gradient Skies

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# Volume Lighting Lighting in MicroStation V8*i*

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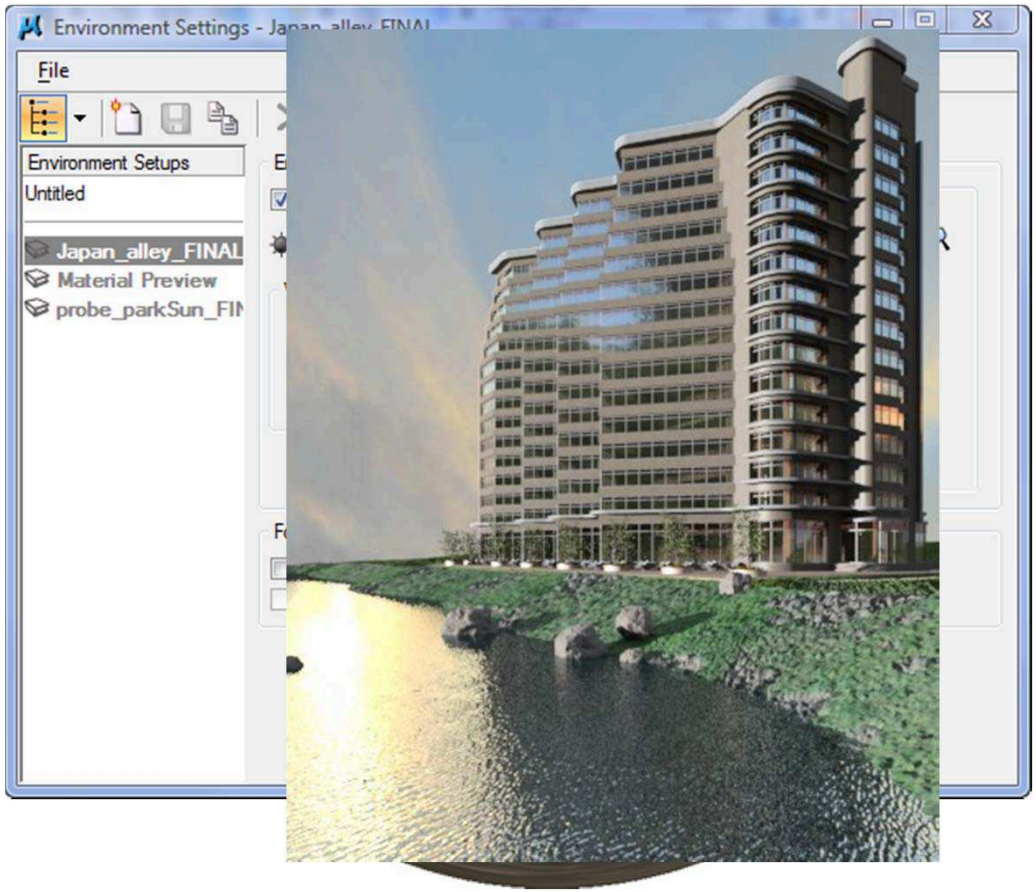
# Lighting in MicroStation V8*i*

- Spherical Environments
- HDR Light Probes
- Image Based Lighting
- Gradient Skies
- Physical Sky

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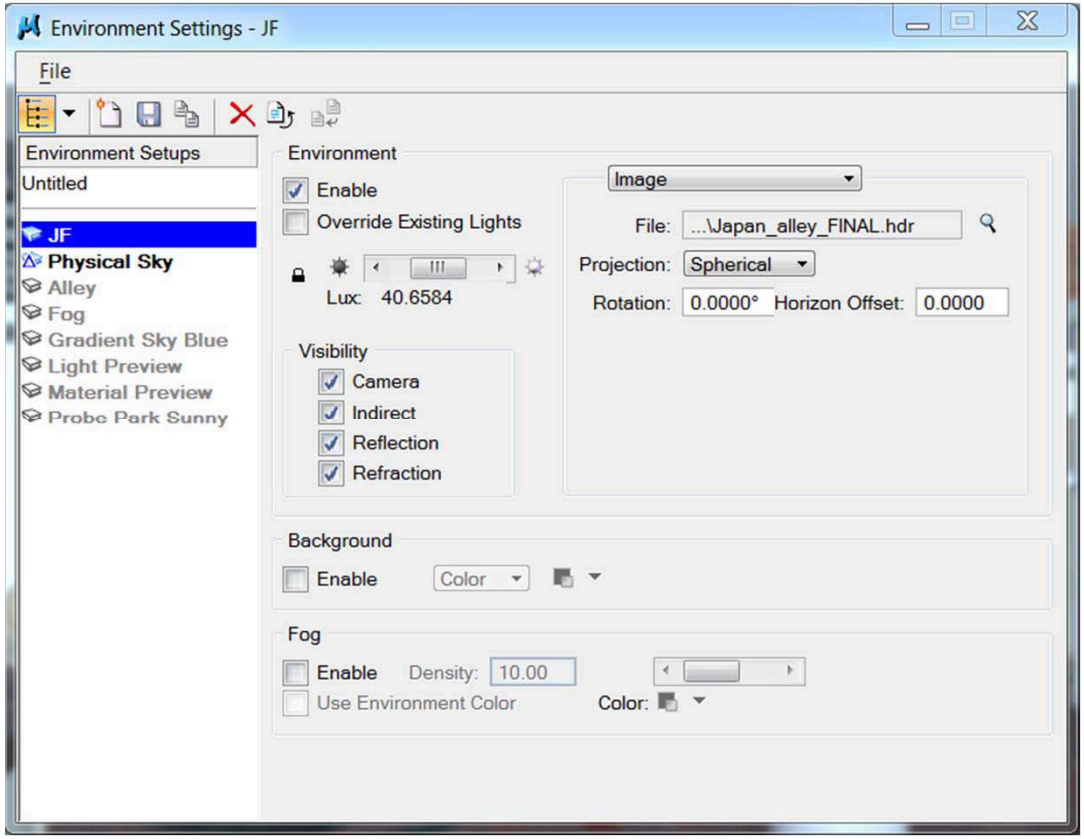
# Lighting in MicroStation V8*i*

## Visibility options

- Visible to camera
- Visible to Indirect lighting
- Visible to reflections
- Visible to refractions

## Horizon options

- Rotation
- Horizon Offset

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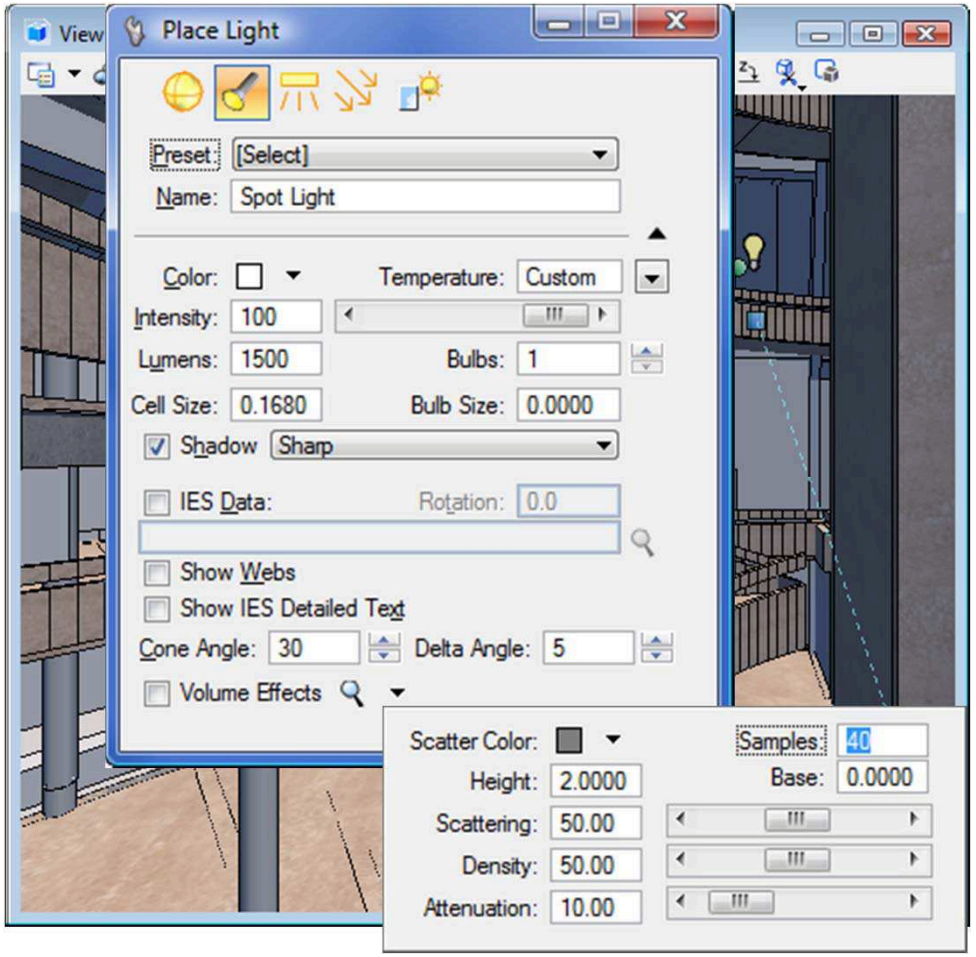
# Lighting in MicroStation V8*i*

- Place Light
- Handles

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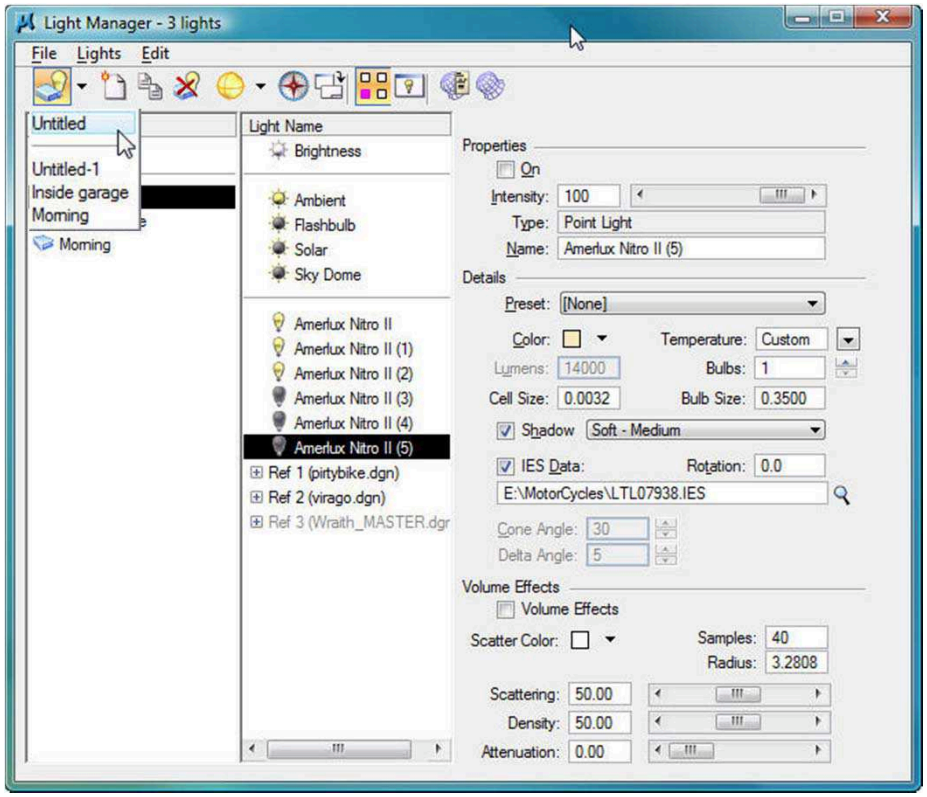
# Lighting in MicroStation V8*i*

- Light Manager
- Light Setups

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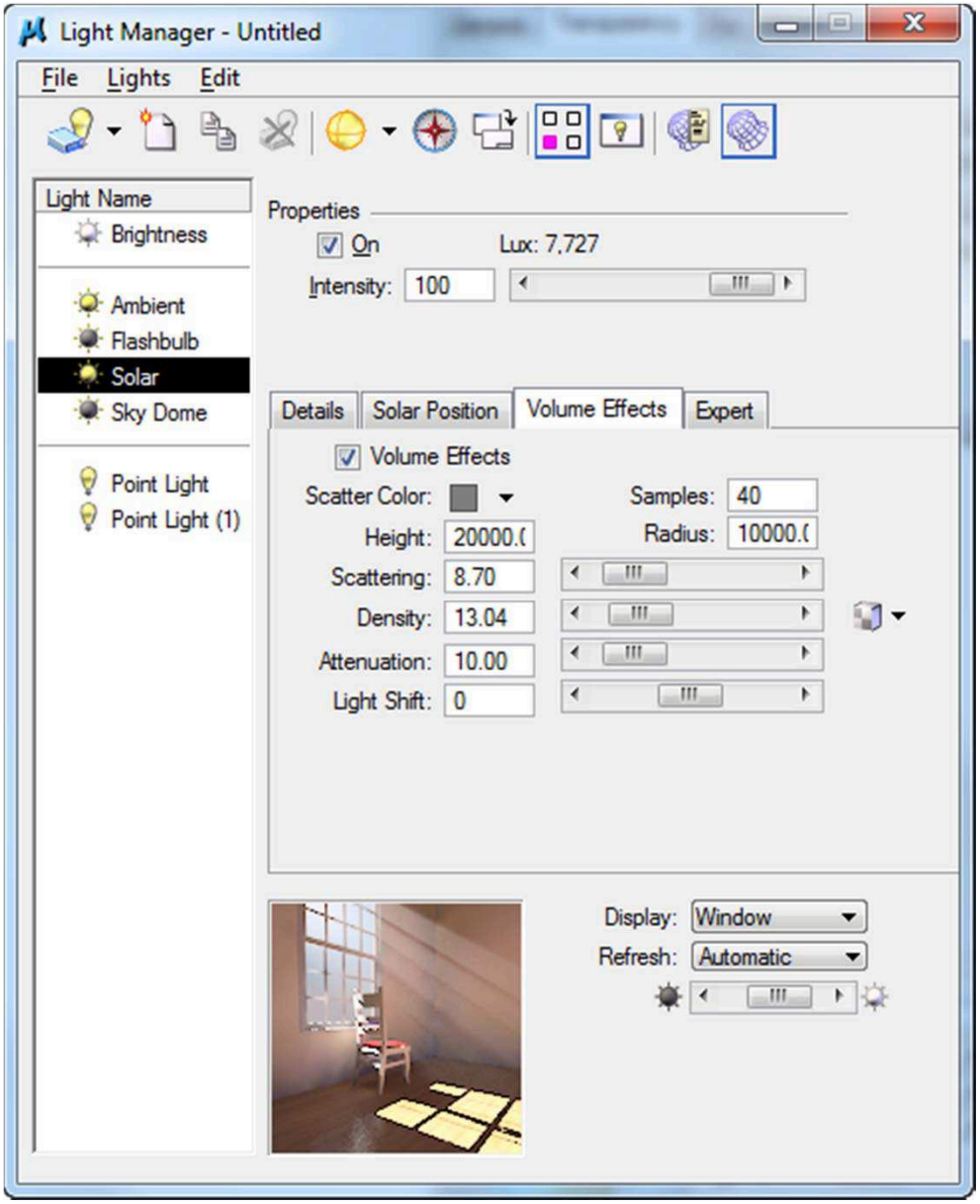
# Light Manager

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# Materials

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# With Realistic Materials in V8*i*...

- High Quality
  - Images Appear 3D
  - Materials Come Alive
- Totally Convincing
  - Subtle Materials
  - Reflect Reality
- Physically Correct
  - True Visual Depth

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# Realistic Materials in MicroStation V8*i*

- Displacement mapping
- Blurry reflections
- Anisotropic materials
- Opacity maps
- Blurry refraction
- Clearcoat – Paints
- Clearcoat Maps
- Luminous – Glow lights
- Subsurface Scattering
- Dispersion (Prismatic)
- Fur
- Bentley_materials.dgnlib
- Entourage
- LXP

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# Rendering

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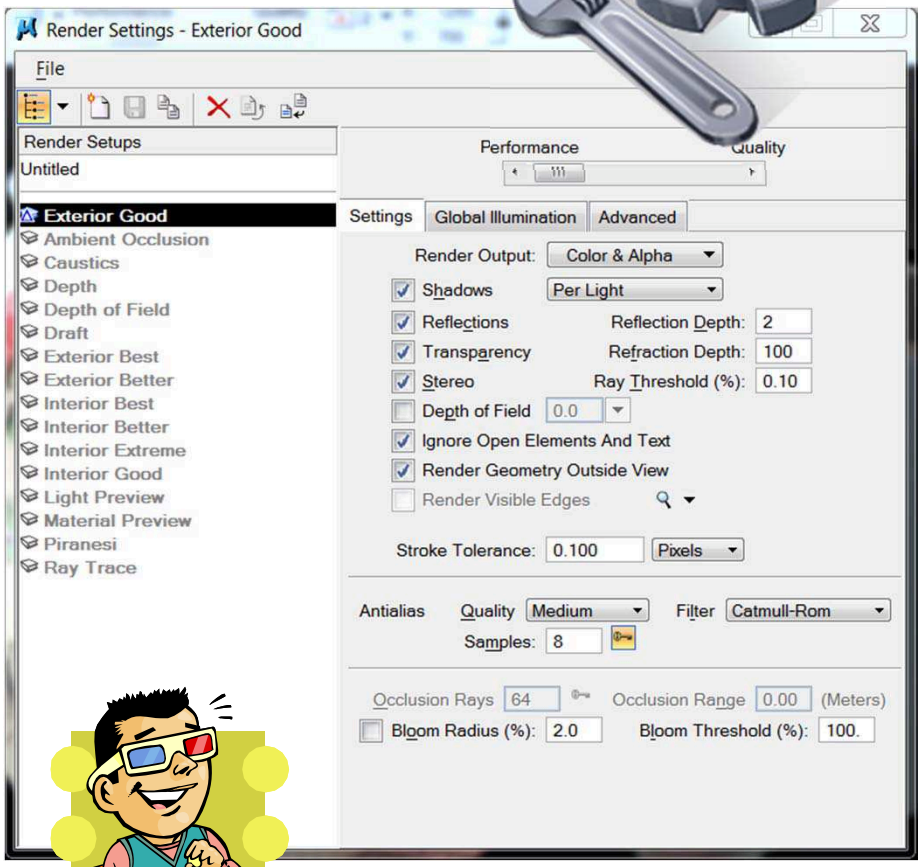
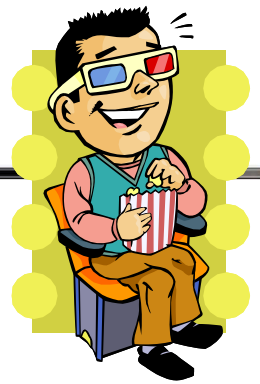
# Rendering in MicroStation V8*i*

- Render Settings
  - Ambient Occlusion
  - Caustics
  - Draft, Depth
  - Depth of Field
  - Exterior
    - Good, Better & Best
  - Interior
    - Good, Better, Best & Extreme
  - Preview (Light & Materials)



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# Rendering in MicroStation V8*i*

- Rendering output channels
  - More realistic renderings
  - Improves post-processing options
  - Visible edges overlay, stereo, etc..
  - Piranesi EPIX

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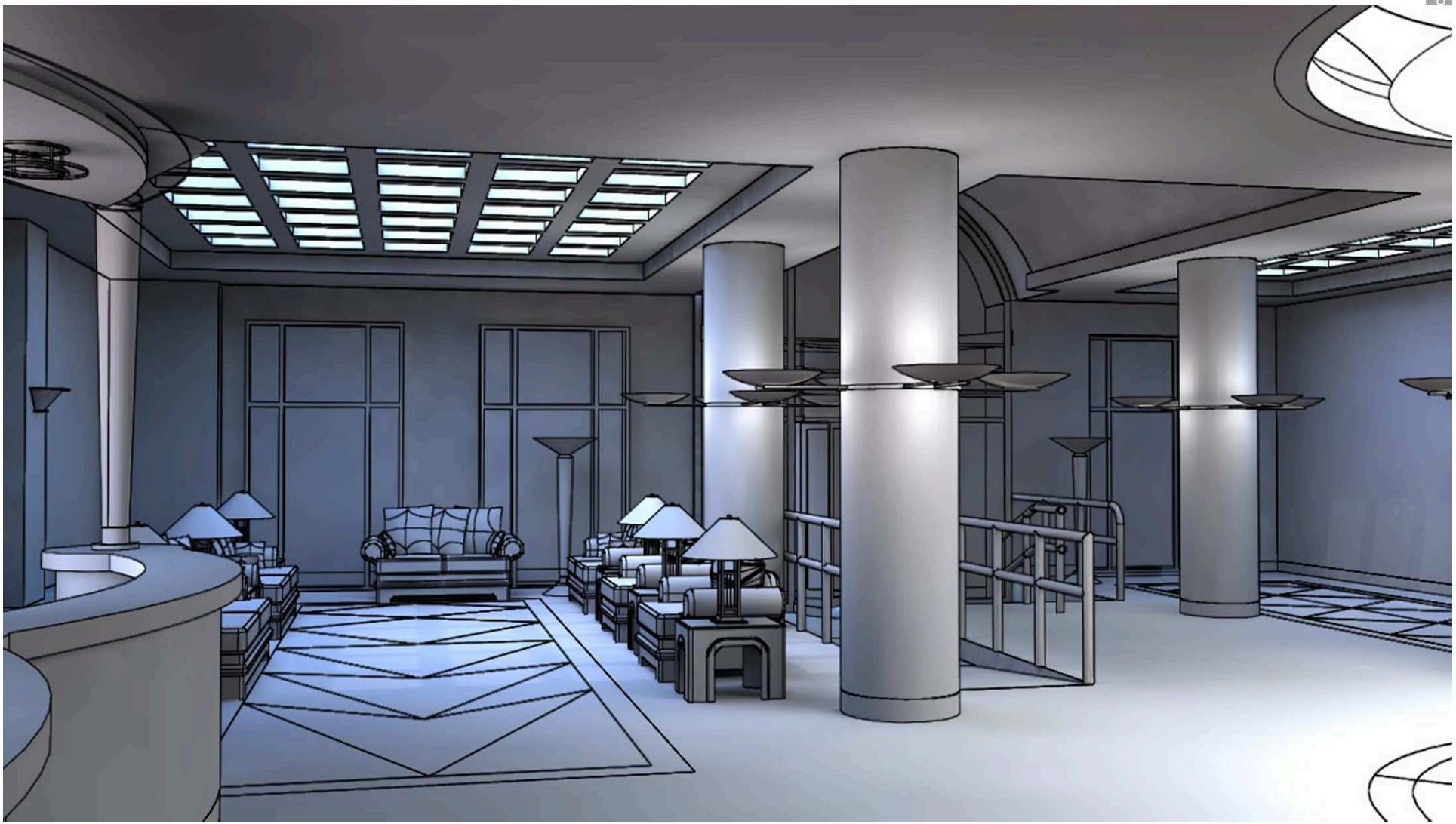
# Rendering in MicroStation V8*i*



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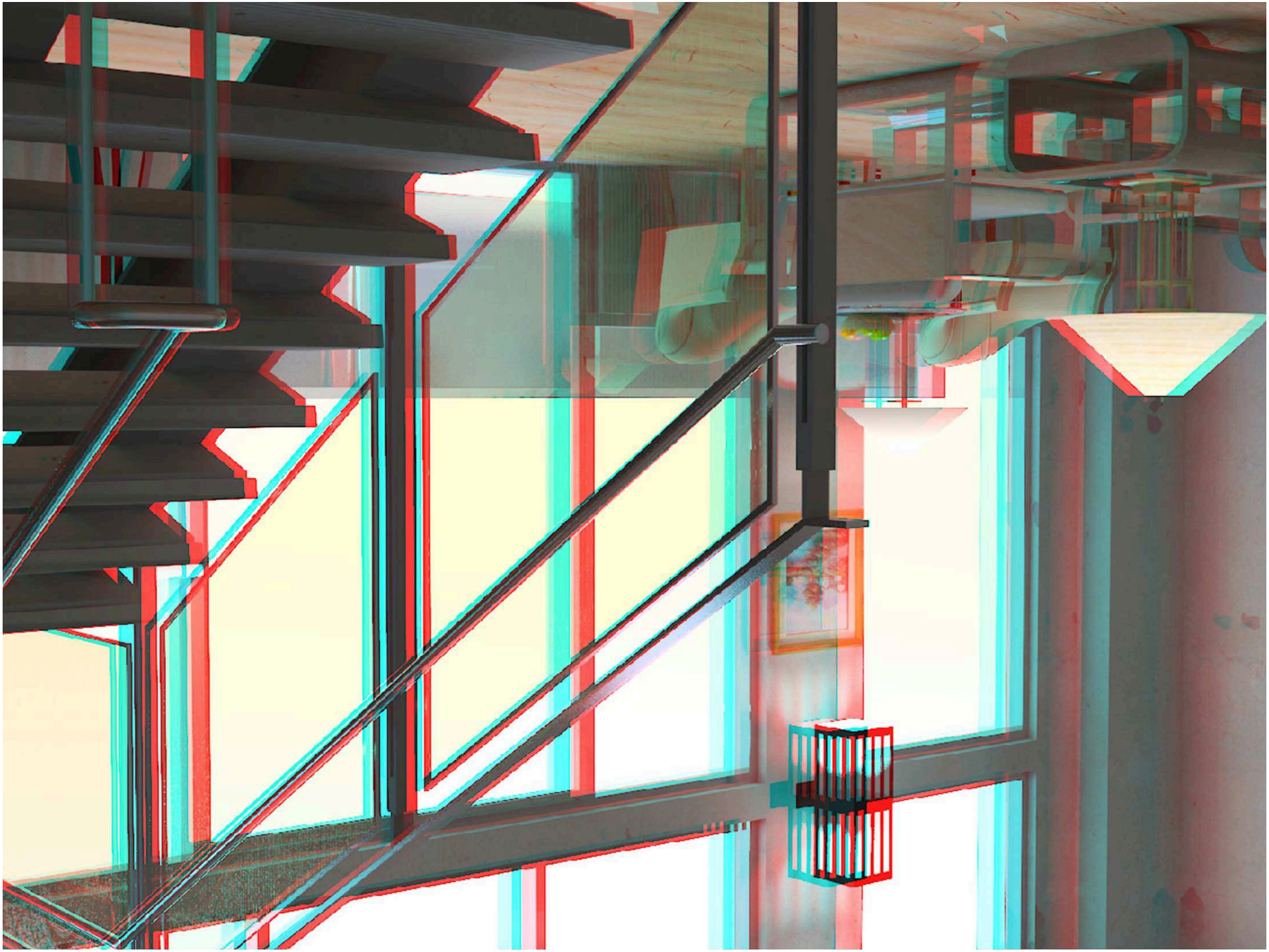

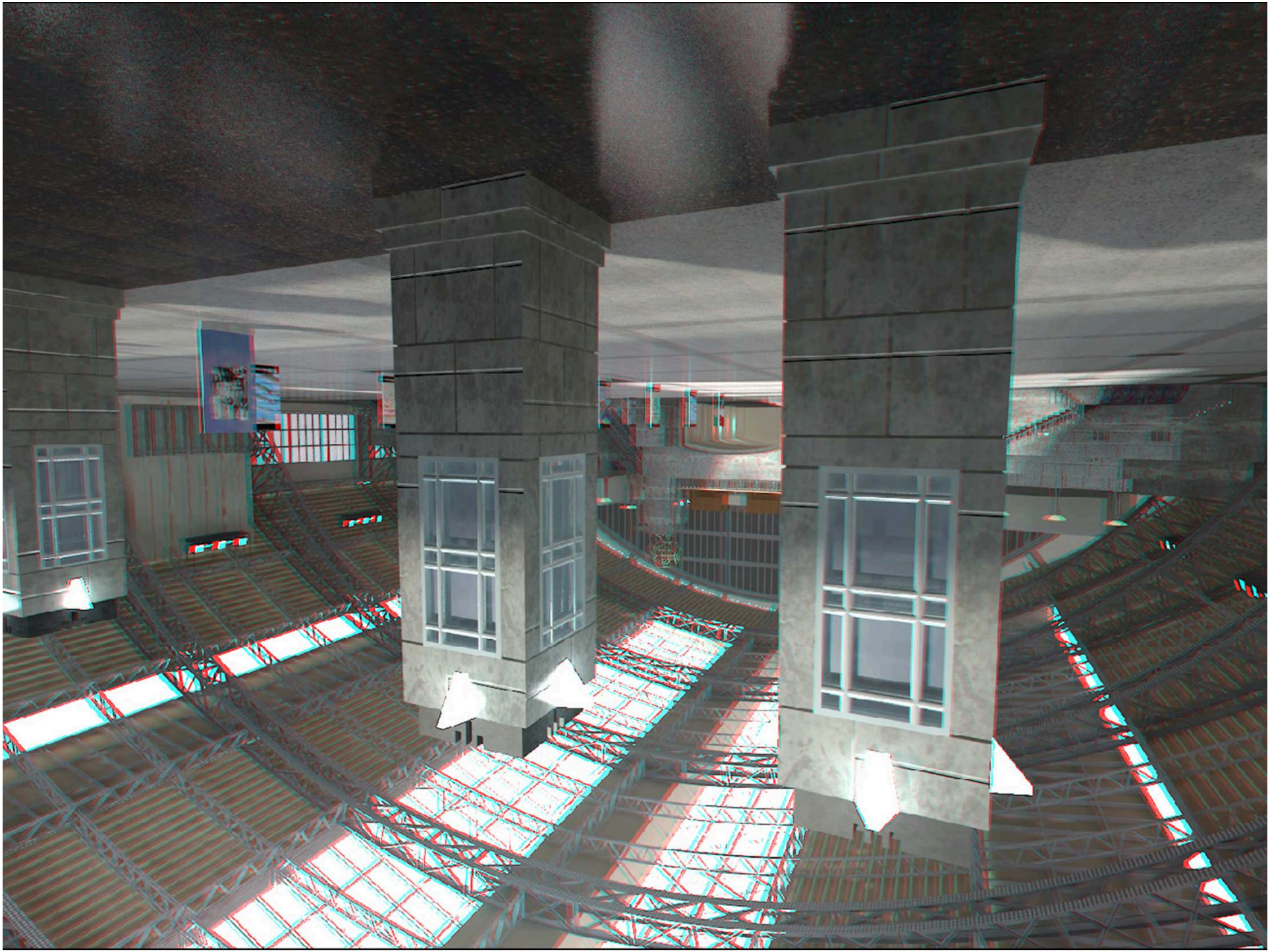

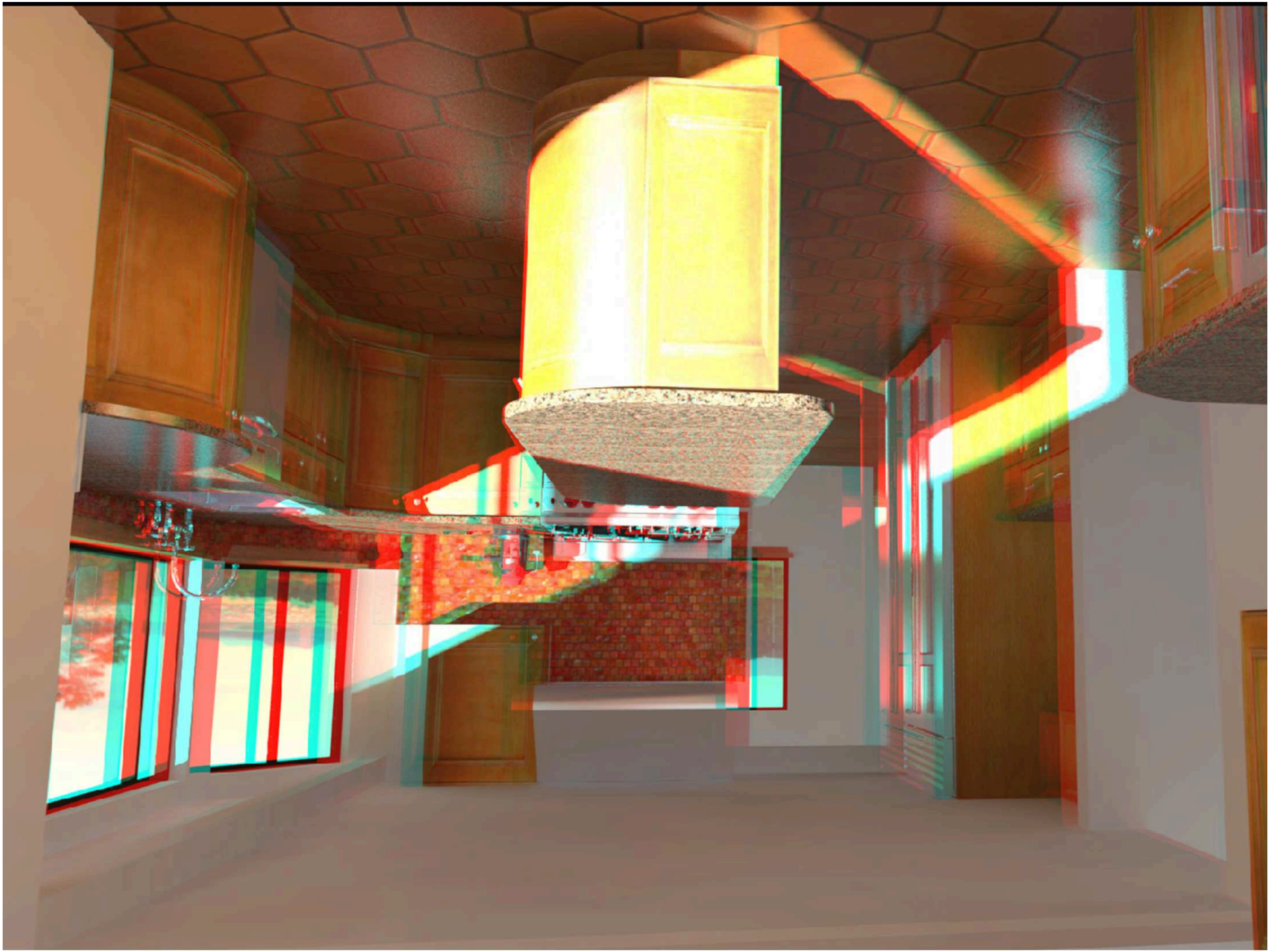

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# Iterative Luxology Rendering

What's Ahead in MicroStation V8i (SELECTseries 3)

# Iterative Luxology Rendering

- Model Population
  - Improved realism of images and animation.
  - Greatly improves productivity for populating 3D model
  - Random Scaling and Rotation Options
  - Paint Content
  - Place Along Path

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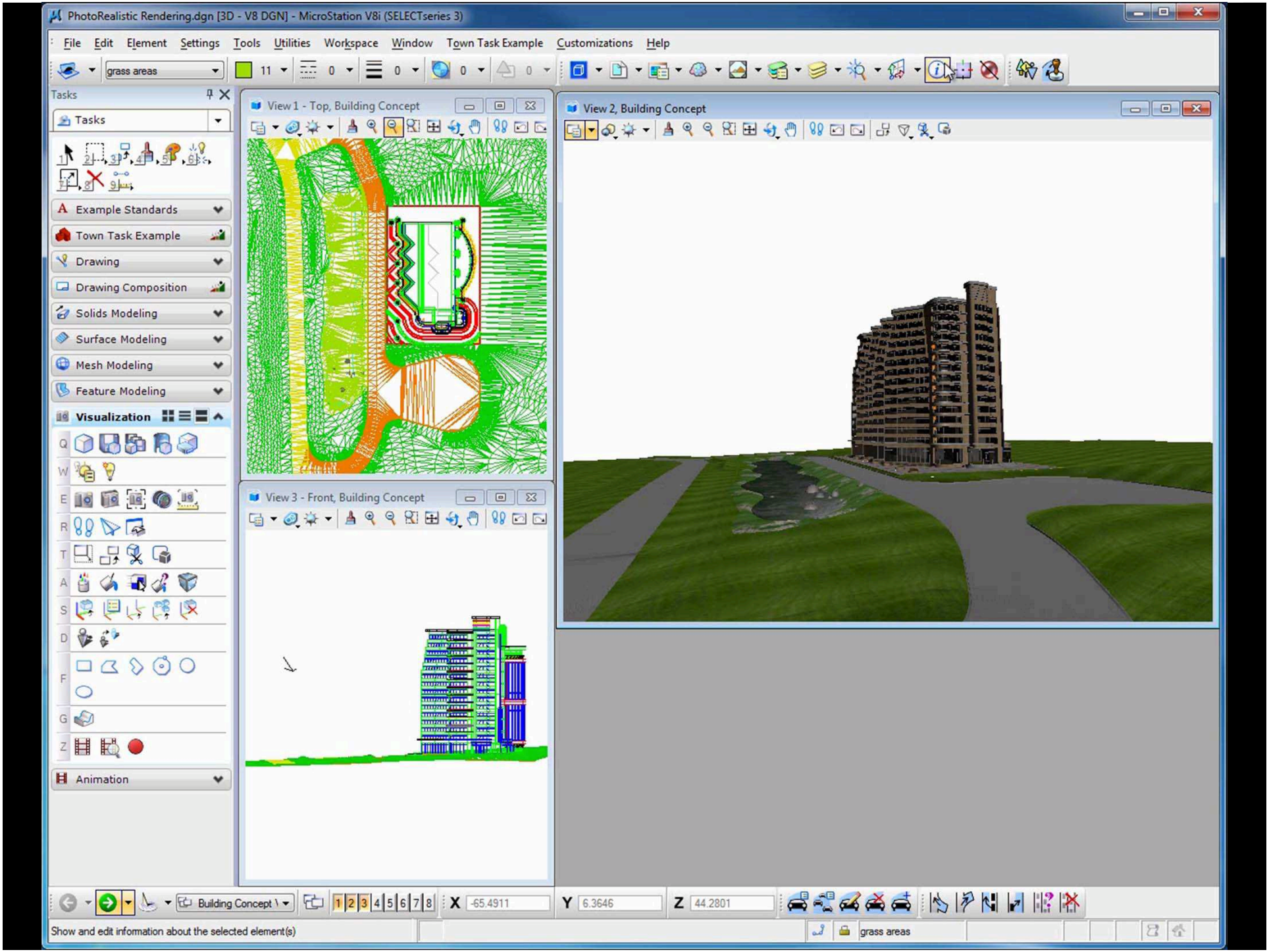
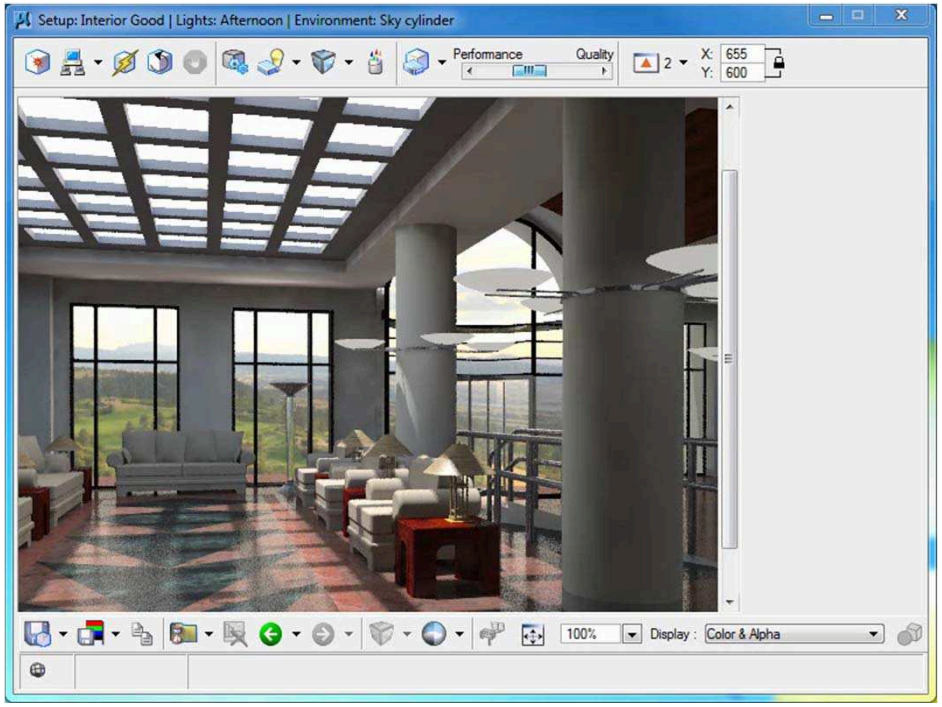

PhotoRealistic Rendering.dgn [3D - V8 DGN] - MicroStation V8i (SELECTseries 3)
File Edit Element Settings Tools Utilities Workspace Window Town Task Example Customizations Help
grass areas
Tasks
Example Standards
Town Task Example
Drawing
Drawing Composition
Solids Modeling
Surface Modeling
Mesh Modeling
Feature Modeling
Visualization
Animation
View 1 - Top, Building Concept
View 2, Building Concept
View 3 - Front, Building Concept
Building Concept
X -65.4911
Y 6.3646
Z 44.2801
Show and edit information about the selected element(s)
grass areas

# Iterative Luxology Rendering

## Fast Preview

- Significantly decrease the time to create images by increasing the speed of previews
- Regenerates a photo-realistic rendered scene in near-real time
- Material Preview
- Light Preview

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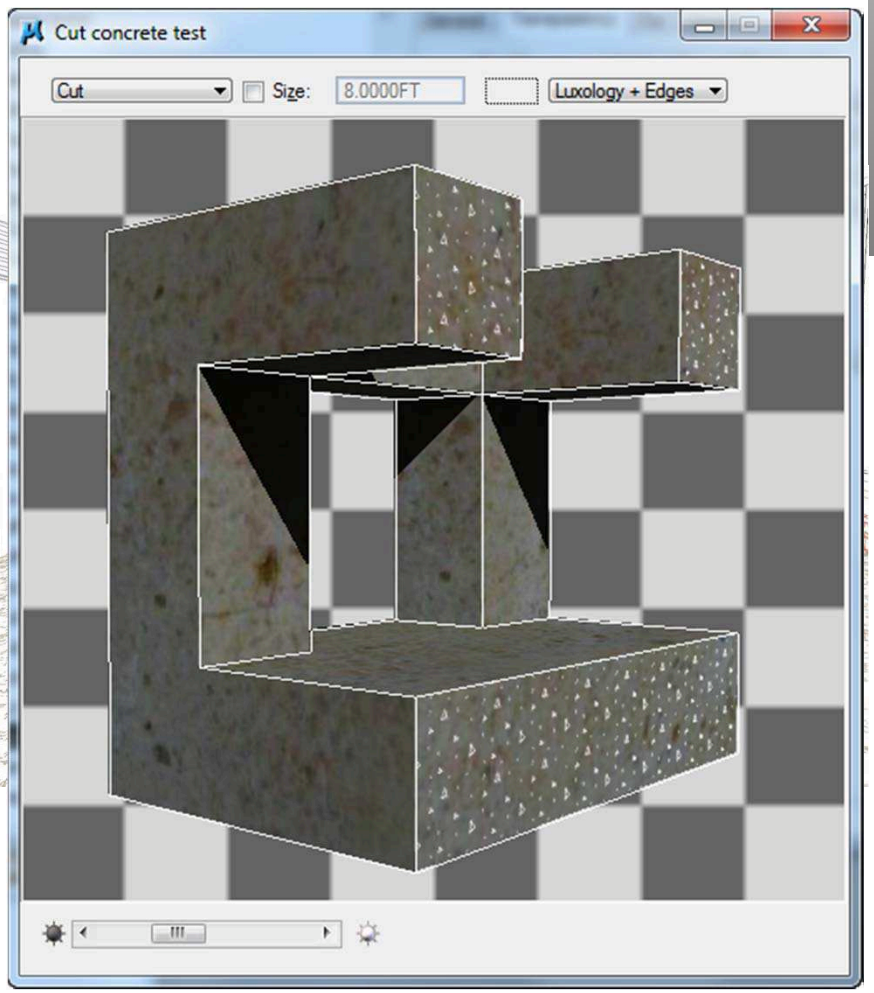
# Iterative Luxology Rendering

- Geometry Maps
  - Hidden line views are more accurate and realistic
  - Provides an efficient and convenient method for applying geometric patterns to three dimensional surfaces
  - Sections and Cuts!

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# Iterative Luxology Rendering

- Pavement Marking
  - Create realistic traffic renderings and animations without additional work
  - Creates 3D render ready pavement marking from 2D designs

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# Iterative Luxology Rendering

- Traffic Animation
  - Produce compelling highway and urban animations without needing specialized knowledge or software.
  - Provides a workflow centric approach making it easy to create complex animations of traffic
  - Vehicles align to roadway
  - Vehicle speed variation
  - Merging and Exiting Traffic
    - Vehicles maintain safe distance
    - No Collisions

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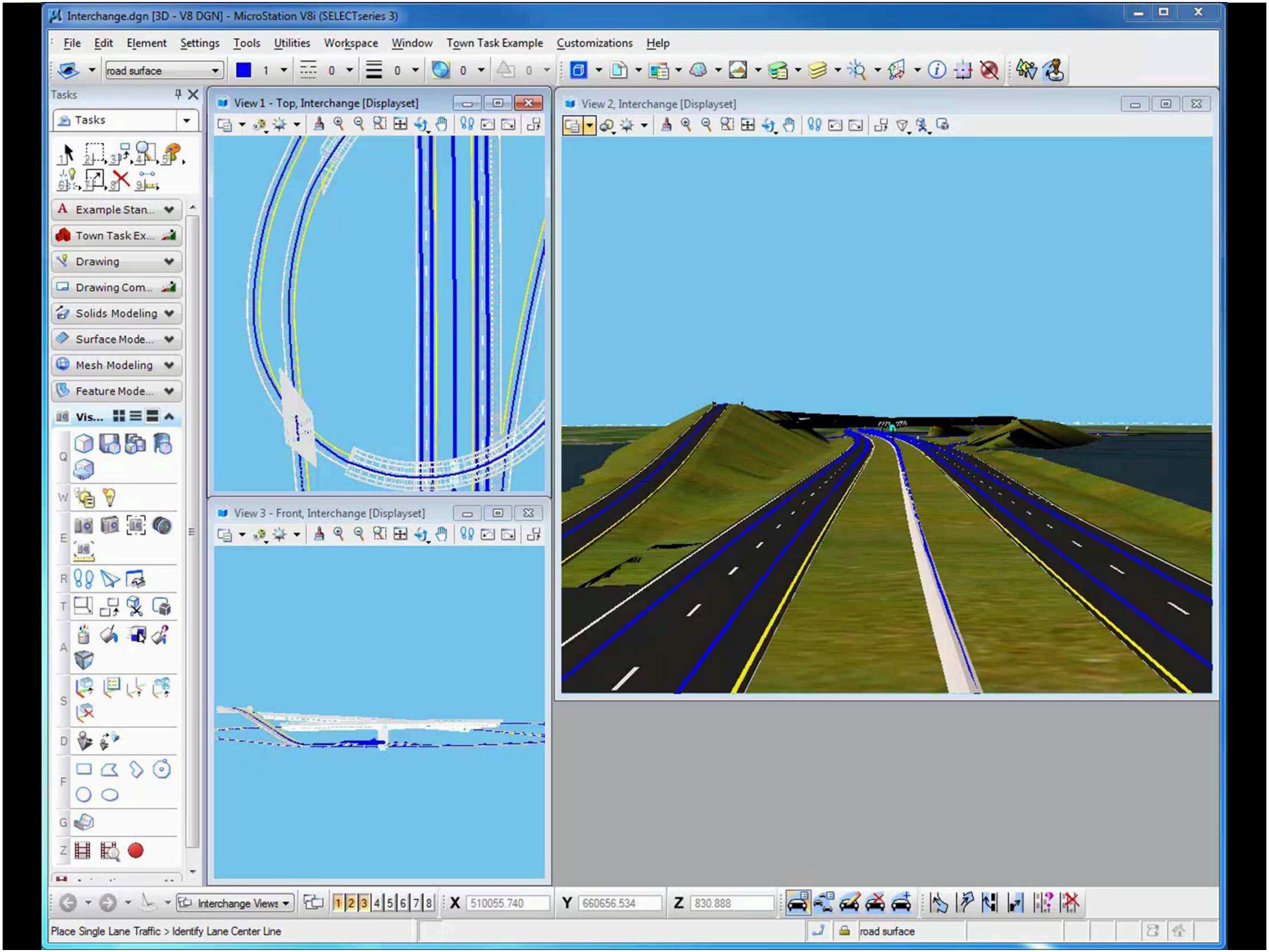
Interchange.dgn [3D - V8 DGN] - MicroStation V8i (SELECTseries 3)
File Edit Element Settings Tools Utilities Workspace Window Town Task Example Customizations Help
road surface
Tasks
Tasks
Example Stan...
Town Task Ex...
Drawing
Drawing Com...
Solids Modeling
Surface Mode...
Mesh Modeling
Feature Mode...
Vis...
View 1 - Top, Interchange [Displayset]
View 2, Interchange [Displayset]
View 3 - Front, Interchange [Displayset]
Interchange Views
X 510055.740
Y 660656.534
Z 830.888
Place Single Lane Traffic > Identify Lane Center Line
road surface

# Iterative Luxology Rendering

- More Great Capabilities
  - Native RPC Support
  - Update Procedural Textures
  - Auto Color Map Gamma
  - Material Stroke Tolerance
  - HDR Image Preview

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# Infinite Processing Power

- Distributed Rendering
- Rendering in the Cloud

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# In Summary…

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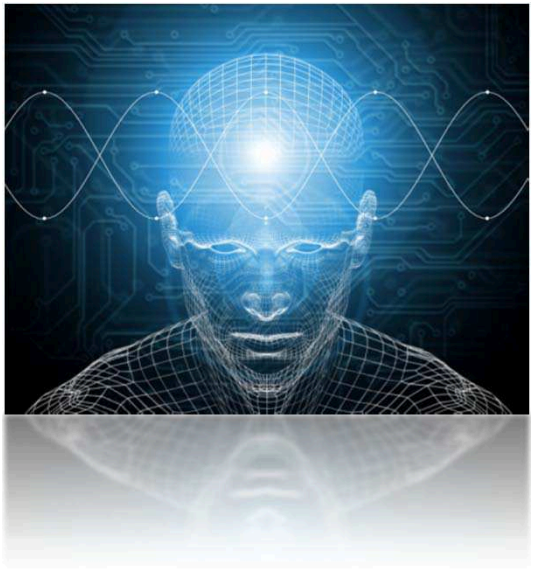
# With MicroStation V8*i*...



## ...satisfy all render needs in one product

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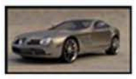
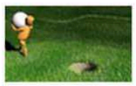
Electric Guitar - HDR Lighting - 5 min

Fade2wireframe2 Nebula





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# MicroStation V8*i*
# Visualization Update

Chris Bober - Director, MicroStation Product Line

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