Computing Rendering
1. Why do Architects Render

2. Technical Components of Rendering

3. Illuminating a Model
Rendering in Architecture

- Test Design Quality & Performance
- Test Quantitative Performance
- Present Information
- Renderings have different purposes
Purpose of Rendering

• Providers of Light to Models Constructed of Lines

• Present Design Possibilities

• Software: Most are Rendering and Modeling Packages are Bundled Together
[ Quality Vs Quantity ]
[Designing Colors ]
[ Designing Artificial Lights ]
[ Designing Natural Light ]
Summary of Rendering Qualities

- Capturing Light & Shadow
- Find the right balance of color and depth
- Scaling - Texture
Technical Components of a Rendering

• Lighting Algorithm

• Surface Treatment – Texture Maps

• Image Manipulation – (Photoshop)
Model Representations

- Surface Models
- Ruled Surface
- Solid Modeling
- NURB Surface Modeling
- Parametric Modeling
Model Representations

- Surface Models
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Rendered Representation

Geometrical Representation

Hidden Line

Shading

Render

Raytrace

Radiosity
Axonometric Projections

Trimetric
3 axes, no equal angles

Isometric
3 axes with equal angles

Dimetric
3 axes, but only two of these have equal angles

Figure by MIT OpenCourseWare.
Rendering Components

1 - Modeling

2 - Rendering
   Lights
      Spots
      General
      Day lighting
   Cameras
      Lens Manipulation
      Change in Location
   Operations on Surfaces
      Shading
      Ray Tracing
      Textures
      Maps

3 - Animation
Rendering Scene

- Illumination
- Virtual Camera
- Geometry
  - CAD Model
Surfaces - Wire Frame
Surfaces - Shading
Surfaces - Color
Surfaces – Ray Tracing
Surfaces - Radiosity
Surface - Textures And Maps
Image Manipulation
Illumination

- Import a Model
- Setting up Lights
- Setting up Cameras
- Creating an Image
Rendering Process

Mono Chromatic Model
Mono Chromatic Model
Color and Light Model
Surface and Light
Color and Light
Color and Light
Light & External Textures
Texture Maps
Final Camera Views