OUTLINE

▪ WHAT IS BUILDING INFORMATION MODELING?
▪ COLLABORATION TOOLS FOR LIGHTING DESIGNERS
▪ PRE-REQUISITES TO START BIM LIGHTING PROJECT
▪ BIM (REVIT)
▪ BIM (REVIT & ELUMTOOLS)
▪ THE ‘OLD FASHIONED’ WAY (AGI 32)
▪ QUESTION PERIOD
LEARNING OBJECTIVES

▪ WHEN TO USE ELUMTOOLS VS. AGI32

▪ MAIN DIFFERENCES BETWEEN ELUMTOOLS & AGI32

▪ TIPS & TRICKS

▪ CHOOSE WISELY
WHAT IS BUILDING INFORMATION MODELING (BIM)?

- 3D MODELING SOFTWARE
- BUILT FROM PIECES THAT CONTAIN UNIQUE INFORMATION
- PIECES INTERACT WITH EACH OTHER AND FORM A WEB OF CONNECTIONS
- COLLABORATION TOOL

COLLABORATION TOOLS FOR LIGHTING DESIGNERS

RHINOCEROS

SKETCHUP

AUTODESK AUTOCAD

AUTODESK REVIT

AGi32 lighting software by Lighting Analysts

ElumTools™
LIGHTING DESIGN PRE-REQUISITES

- DETERMINING THE *FUNCTION* OF THE SPACE
- PHOTOMETRIC FILES
- 3D MODELS
- SURFACE REFLECTIVITY ESTIMATION
- LIGHTING POWER DENSITY GOALS
PHOTOMETRIC FILE

http://www.photometrictesting.co.uk/Image/Polar%20Chart%20on%20Spotlight.jpg
3D MODEL

MEDICAL EXAM ROOM
SURFACE INFORMATION

- ABSORPTION VS REFLECTIVITY
- WALLS, CEILINGS & FLOORS HAVE INFORMATION
- EXAMPLE:
  - 80% CEILING REFLECTIVITY
  - 50% WALL REFLECTIVITY
  - 20% FLOOR REFLECTIVITY
LIGHTING POWER DENSITY

- DESIGN STARTING POINT
- BUILDINGS MUST ABIDE BY THE NATIONAL ENERGY CODE
  - OFFICE: 9.7 W/m^2
  - CLASSROOM: 10.7 W/m^2
  - HOSPITAL: 13.0 W/m^2
BUILDING INFORMATION MODELING (BIM)
- DOMINANT BIM FORMAT IN NORTH AMERICA
- CREATED BY AUTODESK (AUTOCAD)
- POWERFUL SOFTWARE, COMBINING MANY DISCIPLINES INTO ONE BUILDING MODEL.
- ALLOWS MANY PEOPLE TO WORK SIMULTANEOUSLY IN A MODEL
ELUMTOOLS FOR REVIT
LINKED MODELS
STRUCTURE
LINKED MODELS
ENVELOPE
LINKED MODELS

ELECTRICAL
LINKED MODELS

COMBINED
SPACES & ROOMS
SPACES & ROOMS
3D MODEL

AUTOMATIC FIXTURE HOSTING
3D MODEL

AUTOMATIC FIXTURE HOSTING
3D MODEL

‘COMPLICATED’ DOESN’T NECESSARILY MEAN ‘BETTER’
3D MODEL

3D PLACEMENT OF FIXTURES
SURFACE INFORMATION

- WALLS, CEILINGS, FLOORS ARE MODELED
- PULLED FROM THE INTERIOR DESIGN MODEL
- AUTO-UPDATES
- SAVES TIME
- MORE ACCURATE
## LIGHTING POWER DENSITY

### REAL-TIME LPD CALCULATIONS

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<tr>
<th>Name</th>
<th>Number</th>
<th>Actual LTG. Load</th>
<th>Watts</th>
<th>Area</th>
<th>LPD-W/m²²</th>
<th>LPD-W/ft²</th>
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<tr>
<td>WAITING</td>
<td>0500</td>
<td>503 VA</td>
<td>503 W</td>
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<td>4.83 W/m²</td>
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<td>0501</td>
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<td>0502</td>
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<td>CLINIC MANAGER</td>
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<td>172 W</td>
<td>14</td>
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<td>STAFF WC</td>
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<td>BARIATRIC WASHROOM</td>
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<td>258 W</td>
<td>16</td>
<td>16.01 W/m²</td>
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</tr>
</tbody>
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ELUMTOOLS FOR REVIT

EMERGENCY LIGHTING CALCULATIONS
ELUMTOOLS FOR REVIT

QUICK & EASY RENDERS
ELUMTOOLS FOR REVIT
QUICK & EASY RENDERS
ELUMTOOLS FOR REVIT

SHORTFALLS

▪ CALCULATION POINT PLACEMENT
▪ ADDED COMPLEXITY LEAVES ROOM FOR ERROR
▪ CAN’T CREATE SCENES
▪ A POPULATED MODEL MUST EXIST BEFORE DOING CALCULATIONS
TIPS AND TRICKS

▪ USE WORKSETS FOR VARIOUS LAYOUTS
▪ STANDARIZE REFLECTIVITY
▪ TURN OFF FURNITURE
▪ CHECK SPACES
▪ CHECK LIGHT SOURCES / FAMILIES
THE ‘OLD FASHIONED’ WAY
AGI32
PLACING CALCULATION POINTS ANYWHERE
AGI32

SIMPLE ROOM CALCULATIONS
AGI32
ARCHITECTURE DESIGN TOOLS -> AGI32
AGI32
SCENE CONTROL
AGI32
SCENE CONTROL
AGI32

SHORTFALLS

- MAY BE TIME CONSUMING
  - MULTI-LEVEL
  - STAIRS
- HARD TO MODIFY ROOM SHAPE
  - DYNAMIC EDIT NOT FRIENDLY
TIPS AND TRICKS

▪ ALWAYS WORK ON PLAN VIEW
▪ TEST PHOTOMETRIC FILE
▪ IMPORT SKETCHUP MODELS IF AVAILABLE
▪ USE AUTOCAD BASE PLAN TO HELP BUILD THE 3D MODEL
▪ SCENE MANAGER IS YOUR FRIEND
SUMMARY

▪ INTUITION IS IMPORTANT AND IS GAINED THROUGH EXPERIENCE. SOFTWARE IS ONLY AS SMART AS THE INFORMATION YOU PROVIDE.

▪ BIM IS A COLLABORATIVE TOOL THAT SAVES TIME

▪ BIM PLAYS A STRONG ROLE IN THE LIGHTING DESIGN WORKFLOW.

▪ CHOOSE YOUR TOOL APPROPRIATELY
WHAT WE LEARNED

▪ WHEN TO USE ELUMTOOLS VS. AGI32

▪ MAIN DIFFERENCES BETWEEN ELUMTOOLS & AGI32

▪ TIPS & TRICKS

▪ CHOOSE WISELY