DIAL

HCNE Region: Designing and building lighting projects in a smart and digital way

Friedrich Wilhelm Bremecker
Business Unit Director, DIAL GmbH

4th July 2017
DIAL GmbH
90 employees, 25 years experience.
Some definitions

→ BIM (Building Information Modeling)
  working method for planning and realizing of building projects, based on active networking

→ IFC (Industry Foundation Classes)
  A general data scheme, which enables interchanging of data between different proprietary software applications. (ISO16739)

→ bSDD (BuildingSMART Data Dictionary)
  bSDD enables a networking of terms and expressions, their dependencies and definitions (type of data, units, parameters,…) across several languages.
Aims of BIM

→ Look at the complete life cycle
→ Assists in investment decisions
→ Energy-, environment-, life cycle- and other analyses
→ Visualization and proof of producibility
→ Data exchange and quality control
→ Cost reduction, planning reliability
Banana Information Modelling (BIM)

- Included in 3D model: shape and colour

- Not included: sugar content, calories, vitamin content, date of expiry, freshness, producing country, Fair Trade Label, etc.
BIM vs CAD, Modeling or Drawing

CAD:
  Lines, Layer

BIM:
Definition:
  What do we mean with “door”?
Function:
  What are the properties of a “door”?
Performance:
  What has a “door” to performe?
Building Information Modeling (BIM)

→ **Digital image of a real building**

→ Each real object will be represented by a digital object

→ Complete information will be exchanged by open interfaces

→ Each participant of the process can access the information which is relevant for him
Interoperability

→ That’s what it is all about

→ Interoperability ensures, that the results of one flows into the plans of the others

→ Basic requirement is the use of a common agreed standard
Importance of IFC in BIM

→ Tender documents should be neutral, without specification of a proprietary software solution
→ Availability of standardized interface IFC (ISO 16739)
→ Requirements for open interfaces by public and private owners and operators

→ How long will my software be maintained?
→ Can I import/export my file in 15 years?
→ Is any software on the market to solve ALL problems?

Industry Foundation Classes (IFCs) from the International Alliance for Interoperability (IAI) are recognized as a leading example of an open, freely-available, BIM standard specification for sharing data throughout the life cycle across multiple professional disciplines and technical applications in the AECIFM sector.
The Light

→ And what does this mean for a lighting designer / manufacturer?
→ What’s about „my“ luminaires?
Is EULUMDAT/IES also BIM?
→ Do I have to buy Revit, Archicad, Vectorworks, Bentley and Allplan now?
→ How to calculate LG7, UGR and TI in my BIM software?
BIM for lighting designers

→ Lighting design is one sectoral planning in building process

→ The lighting designer needs the geometry of building/architecture/area

→ The lighting designer develops the lighting concept

→ The lighting design includes information about products and positions
Lighting consultant in the BIM Process

- Architecture
  - Revit
  - Allplan
  - ArchiCAD
- Building physics
  - Thermal
  - Acoustic
- BIM Model
- Aircondition technology
- BIM Model
- OPEN BIM
- Statics
- BIM Model
- Sanitary engineering
- BIM Model
- Light planning
- BIM model
- Luminaire PlugIn
- DIALux ULD
- proof:
  - Illuminance
  - Glare
  - Uniformity
  - Aesthetics/light effect
  - Energy rating
  - ...
Recognizing BIM Objects

→ Remember that you use BIM to implement a product, not to manufacture it
→ Key is providing the right information that is relevant at the right time
→ Example fixture: no ballast, no screw, no socket but power, voltage, size, mounting type, maintenance data

<table>
<thead>
<tr>
<th>Description</th>
<th>SBH-O 250W SHP-S IP20 Aluminium Reflector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Article no.</td>
<td>9043941 + 9043976</td>
</tr>
<tr>
<td>Mounting</td>
<td>Suspended</td>
</tr>
<tr>
<td>Housing</td>
<td>Die-cast aluminium body</td>
</tr>
<tr>
<td>Lamp included</td>
<td>No</td>
</tr>
<tr>
<td>Notes</td>
<td>Order Lamp Separately</td>
</tr>
<tr>
<td>LOR (%)</td>
<td>81 %</td>
</tr>
<tr>
<td>IP rating</td>
<td>20</td>
</tr>
<tr>
<td>IK rating</td>
<td>02</td>
</tr>
<tr>
<td>Place of use</td>
<td>Interior Luminaire</td>
</tr>
<tr>
<td>Voltage</td>
<td>220-240V</td>
</tr>
</tbody>
</table>

![Light Distribution Image]

![Lighting Diagram]
Open BIM

→ Standardized information

→ Uniform data format

→ Standardized processes

→ Any software can use it

→ https://www.youtube.com/watch?v=2m_IL99WOzQ
DIALux BIM Workflow.
Questions and problems

→ Who is the owner of the design?

→ Who pays for the lighting design?

→ With transfer of the planning results into IFC / BIM everyone has access to the data

→ Complete design: 8h
  Exchange of products: 2min