Greenbuild Consultants

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www.greenplan.co.za

Dear Professional

DesignBuilder Training

We offer a two day Training Workshop, based mainly on the layout being used in the U.K. and USA at a suitable venue in Stellenbosch.

Some aspects of importance:

- If possible, everyone attending should bring a laptop or PC.
- We can install a fully operational version of DesignBuilder on the first day, or otherwise the persons involved can download it (without cost) from the DesignBuilder website beforehand to save time and ensure that it works on their machines.
- We shall provide refreshments at tea breaks and a light lunch every day.
- The workshop cost does not include accommodation and travel expenses and attendees have to make their own travel and accommodation arrangements.
- To enable us to prepare for the event, we would need the final details of persons attending, about a week before the workshop starts.
- The cost, per attendee, is **R 4 000-00** for a two day workshop.

After this workshop, trainees will be able to:

- Create building geometry either from scratch or from DXF, or other floor plan data, making best use of the powerful DesignBuilder productivity features.
- Enter data on activity, building constructions, glazing, solar shading, schedules of building operation, lighting systems and HVAC systems.
- Create components and templates and import/export these between projects.
- Understand the various model options.
- Size heating and cooling systems using EnergyPlus.
- Run EnergyPlus simulations using real weather data and check building energy consumption, occupant comfort etc.
- Work with Simple and Compact HVAC.

Outline Programme

The proposed elements of the workshop are shown below under the header of the day on which it is expected that we will cover the material. The actual timing of each element may differ from this on the particular day.

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Day 1 - Setting up the Model and Simulation Basics

Day 1 will cover the basics of entering DesignBuilder simulation models, running simulations and reviewing results. More specifically:

Basics, terminology etc.

· Blocks, partitioning blocks into zones, setting model data, inheritance, navigating the model.

Importing DXF floor plan data

· DXF files, removing unnecessary details.
· DXF restrictions e.g. files must be 2D, not 3D dxf output by E+.
· DXF compatibility (R-11 or earlier)
· Scaling and aligning floor plans

Creating blocks by tracing over DXF data.

· Controlling wall thickness, block height, block form, auto-complete etc.
· Moving DXF data
· Block types

Partitioning blocks by tracing over DXF data.

· Using partitions to zone blocks
· Automatic zoning
· Controlling partition thickness
· Hanging partitions - comparison with internal mass
· Virtual partitions
· Avoiding snapping to DXF partition lines where these may compete with existing DesignBuilder block and partition snap points.

Using Outline Blocks

· Using outline blocks to create a roof gable block
· Convert to standard blocks

Using Snaps, Drawing Guides, Measure and Construction Lines

· Axis snaps
· Parallel and Normal snaps
· End point/midpoint snaps
· Increment snap
· Drawing guides
· Protractor
· Measure tool and construction lines

B**lock manipulation**

· Changing block type and other geometric parameters for existing blocks
· Stretching, drag face, cutting tool.
· Interblock partitions and other block connection surfaces

Controlling adjacency

· Effect of adjacency Auto detection, block, zone or surface level definition
· Adjacency to ground - boundary condition
· Adiabatic

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Creating openings: windows, doors and vents using model data
· Facade types
· Percentage glazing, window spacing, frames etc.
Creating openings: windows, vents, doors, sub-surfaces and holes by drawing at the surface level.
Move, copy, delete openings at building level
Model data overview
· Activity
· Constructions – combined and separate
· Openings
· Lighting
· HVAC
Using local shading devices:
· Overhangs, side fins, louvres.
Using standard, adiabatic and ground component blocks
· Remote shading.
Using window shading devices
· internal, external and mid-pane blinds
Using model options
· Compact HVAC, Calculated ventilation, Advanced options, Calculation options.
Creating custom components
· Constructions, glazing, shading devices etc. - understand difference between model components and library components.
Templates
· Clarify distinction between templates and components.
· Templates as the source of all data - header at the top of each tab.
· Understand most important templates: activity, constructions, glazing, lighting, HVAC
· Creating custom templates for easily accessing commonly used data sets
Model data management
· Load data from template
· Clear data
Program options
· Learning mode
· Automatic backups
Visualisation
· Graphics card requirements

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Day 2 – EnergyPlus Simulations continued

Day 2 builds on the experience gained on Day 1 to learn more applications of the software to real world design processes.

Heating and Cooling Design System sizing

· How to size heating and cooling systems using DesignBuilder
· System sizing options.

Simple HVAC

· Energy consumption/plant modelled outside EnergyPlus using seasonal efficiency factors.
· Minimum fresh air data and other system control zone data associated with the activity set on the Activity tab.
· Setting minimum fresh air.

Compact HVAC

· 5 Compact HVAC types, description of each.
· Mechanical ventilation, setting minimum fresh air.
· Controlling VAV/CAV heating system types (pre-heat, main heating, reheat).
· Economisers, heat recovery.
· DHW.

Daylighting calculations

· Stepping/continuous dimming
· Positioning sensor
· **Simulation results**
· Understanding simulation output.

Export results

· Export DB data

CFD & Radiance (Introduction)

· Highlights of the power and application of these modules and ease of use

Please feel free to discuss with me any details of the proposed workshop or any special topics that you would like to be addressed.

Kind Regards,

Francois Joubert

local data/francois/joubertdekker gbc/kwotasies/DB_training Dec 2011

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