

MICRODESK



S213 - Introduction to Ecotect Energy Design
Peter Marchese

10:00 – 11:00
Rm 155

What is it?



An complete building design and environmental analysis tool that does much more than just Energy analysis.

A tool that allows you to work in 3d, run analysis's and prepare views for presentation.

A powerful way to get the information you need to make sustainable design decisions when its easier to do so.

Early in the process

What is it used for?



To help create sustainable design solutions by making more informed decisions about your building in the early design stages

Performing the full range of simulation and analysis functions that allow you to fully understand how a building design will operate and perform in different settings and situations.

Giving the Designer a chance to start the process with their engineers or energy consultants and have something to hand off to save time.

What it does it work with?



Ecotect is a standalone program that can read model files from other programs such as AutoCad, Max, Maya Sketchup, etc. for analysis.

It also has the ability to create the models or geometry to analyze on its own.

Who uses this?



ECOTECH was written and developed by architects with its application in Architecture and the design process firmly in mind.

It is also used extensively by engineers, local authorities, environmental consultants, building designers, owner-builders and environmental enthusiasts for analysis and studies.

Why would you want it?



You are looking for a competitive edge

You want to do conceptual design analysis of:

- Shadows and Reflections
- Shading Design
- Solar Analysis
- Photovoltaic Array Sizing and Load Matching
- Lighting Design
- Right-to-Light
- Acoustic Analysis
- Thermal Analysis
- Ventilation and Airflow

As well as the ability to do resource management, visualization and export to and import from many programs

Can this help with LEED?



Yes

The daylighting analysis can be used for the LEED calculations, and if you prefer to use other software for your calculations you can use your Ecotect model.

Many of the other tools can be used for LEED as well regarding sustainable sites, ventilation, Photovoltaics, etc.

Can this help with GSA?



Yes

The GSA has created the National 3D-4D BIM Program to allow for Advanced and Superior cost effective management of Federal buildings and Facilities.

One of the components of this is the Energy Performance and Operations section. Using Ecotect can help use your BIM model towards getting more complete and accurate energy estimates earlier in the design process. Leading to meeting their executive order to reduce their annual energy consumption.

Examples of the Interface



Autodesk Ecotect - © Autodesk, Inc. 2008

File Edit View Draw Select Modify Model Display Calculate Tools Help 12:00 1st April Climate: [No Data File] Lat: -32.0° Lng: 116.0° (+8.0)

REPORT GENERATOR ▶ FORMAT... Show Summary Page on Startup

Autodesk® Ecotect™ | **HELP!**

New Features in Autodesk® Ecotect™ v5.60...

This release of Autodesk® Ecotect™ v5.60 represents a significant update and adds many new features and refinements however, as fundamental operations and file formats remain the same, this version represents an incremental release. This page contains a detailed summary of all the new features and bug fixes in this release.

VISUALISATION	SCRIPTING AND AUTOMATION
USER INTERFACE ENHANCEMENTS	IMPORT AND EXPORT
MODELLING AND MANUPLICATION	GENERAL BUG FIXES
ANALYSIS AND SIMULATION	

VISUALISATION

Save OpenGL Renderings of Any Size

When saving a view in the VISUALISE page, you are now prompted to enter the resolution of the image to be saved. This allows very high resolution images to be created for publications and presentations. Use the **View » Copy View to Clipboard » Save to File...** menu item whilst in the VISUALISE Page to see this in action.

Copy/Paste Current View

Add two additional items in the context menu for copying and pasting the current view settings. This is useful for creating new cameras based on the settings in an existing one.

Background Bitmaps in OpenGL Views

It is now possible to load and display background images within the OpenGL view. Simply load your BMP, GIF or JPG image using the **View » Background bitmap...** menu item and choose the OpenGL setting.

More Axis and Grid Extents Options

In addition to the standard ground-plane grid, it is now possible to display the full 3D extents of the model grid as either a background or a fully enclosed box, useful when orbiting very close to the model or actually inside it. Also changed the 'Display Grid' settings to 'Model Context', with controls for grid colour, variation and what type of 3D extents to display.

Selection Information

Zones

▼ BASIC DATA

ZONE No. 0

Name:	Outside
Colour:	191919
Frozen:	False
Hidden:	False
Locked:	False
Thermal:	False
Status:	No Volume

SHADOW COLOURS

Highlight:	False
Shadows:	444444
Reflections:	FFFFFF
No Shadows:	False
No Outline:	False

OUTSIDE CONDITIONS

Design Sky:	789.7 fc
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» CUSTOM DATA

Automatically Apply Changes

Apply Changes

None Snaps: G I/OP NOT ACTIVATED

Analysis Views



ECOTECT - D:\Square One\squ1-Operations\Presentation Material\Models\Part-L Analysis\Part-L-Unit.eco

File Edit View Draw Select Modify Model Display Calculate Tools Help 11:15 18th March Climate: UK - Cardiff W,wea Lat: 51.5° Lng: -3.0° (+0.0)

Apply to Copy Proportional Current Zone: Roof

Report Format Show Summary Page on Startup

UK Part-L Heat Loss Summary

Approved Documents L1 (Tables 1-3) & L2 (Tables 1-4)

Source: ECOTECT (www.ecotect.com)

Model: D:\Square One\squ1-Operations\Presentation Material\Models\Part-L Analysis\Part-L-Unit.eco

Date: Jun 05 09:05:21 2006

Project Title: Example Terrace Units

Job Reference: X54 - 2652 7652 Approved by:

Client: Square One research

Run: Gnd Raddi Glass Block - As Windows + U1.77

Building Summary

Conditioning	Number of Zones	Floor Area (m ²)	Surface Area (m ²)	Volume (m ³)
Heated Zones	7	77.99	388.07	252.19
Unheated Zones	--	--	--	--

ADL1: Para 1.8 Overall Area of Openings

Opening Type	Total Floor Area (m ²)	Opening Area (m ²)	Ratio (%)	Allowable (%)
Windows+Doors:	77.99	37.48	(48.06)	25.00

Must pass for Elemental Method. **RESULT: FAILED**

Object Transformation

Transformations

Move

X Move: 0.0
Y Move: 0.0
Z Move: 0.0

Transform Vectors

Apply Transform

Create Array 1

Orientation

Azimuth: Altitude:

Apply Orientation

Polar Array

Group array

Axis: Z Axis

Increment angle: 0.0

No. of objects: 1

Create Array

Linear Array

Group array

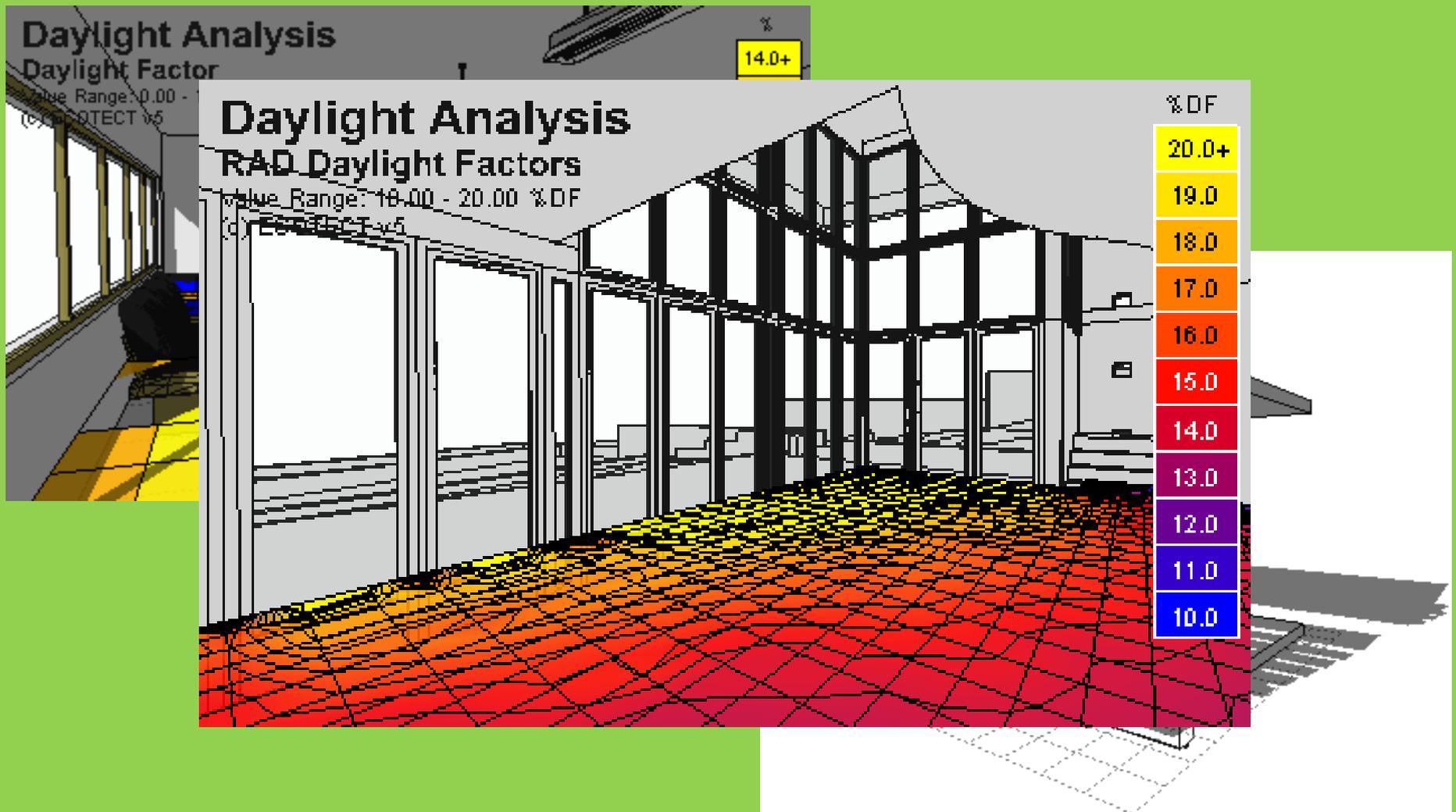
X offset: 0.0

Number of objects: 1

Y offset: 0.0

0/255 Snaps: A C G I L M O P Idle

Solar Radiation/ Daylight





Prevailing Winds

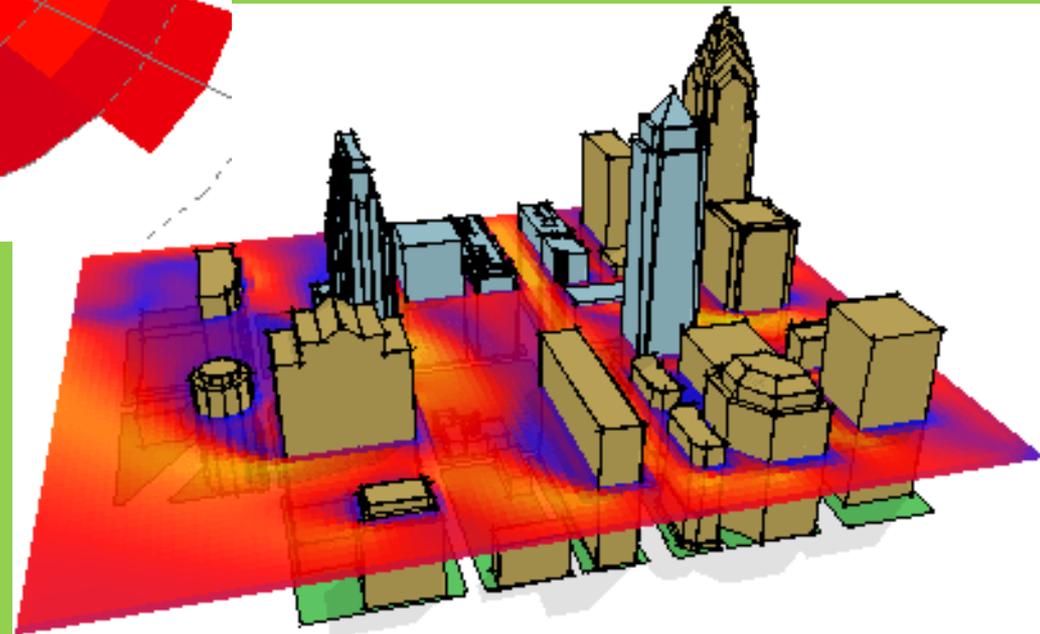
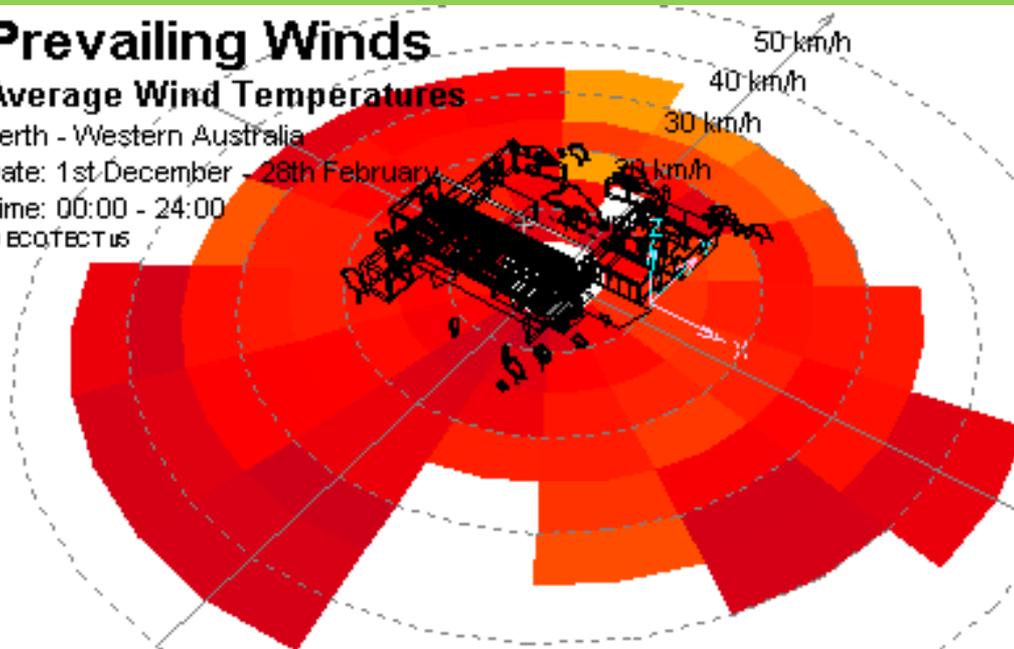
Average Wind Temperatures

Perth - Western Australia

Date: 1st December - 28th February

Time: 00:00 - 24:00

© ECOTECT US



Visualizations



The screenshot displays the ECOTECT software interface. The main window, titled "image viewer", shows a 3D rendering of an interior room. The room features a blue carpet, a desk with a chair, and a window. The interface includes a menu bar (File, Edit, View, Options, About, Help), a toolbar with various icons, and a vertical navigation pane on the left with buttons for PROJECT, 3D EDITOR, VISUALISE, ANALYSIS, and SUMMARY. The main rendering area shows a 3D view of a room with a desk, chair, and window. The interface includes a menu bar (File, Edit, View, Options, About, Help), a toolbar with various icons, and a vertical navigation pane on the left with buttons for PROJECT, 3D EDITOR, VISUALISE, ANALYSIS, and SUMMARY. The main rendering area shows a 3D view of a room with a desk, chair, and window. The interface includes a menu bar (File, Edit, View, Options, About, Help), a toolbar with various icons, and a vertical navigation pane on the left with buttons for PROJECT, 3D EDITOR, VISUALISE, ANALYSIS, and SUMMARY. The main rendering area shows a 3D view of a room with a desk, chair, and window.

test_c1.pic | FILE OPTIONS ABOUT HELP

Exposure: 0.730 Information Overlay: [None] Scale: 1000.0 Div: 10 Units: cd/m²

983x600 Pos: 338, 11 77.5 cd/m² (R:0.277, G:0.326, B:0.371)

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Thank you for your time
Questions?



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