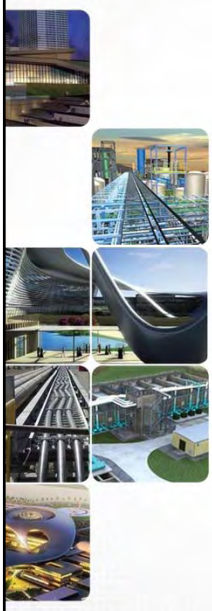

What's New in AECOsim Energy Simulator:

Conceptual Design modeling to Drag-and-drop HVAC Systems

31 May 2013

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What is AECOsim Energy Simulator?

- Full featured, graphic interface desktop software designed for engineers and energy managers modeling the energy performance of new or existing buildings
- Ideal for identifying opportunities to reduce energy use in new or existing buildings – and evaluate alternatives for reducing energy use and carbon emissions.
- Built around US DOE's flagship energy simulation engine, EnergyPlus
- Provides users with intelligent default values for all EnergyPlus inputs rather than hard-wired data or templates with limited control of inputs
- Graphic interface built from the ground up on a Building Information Modeling (BIM) platform
- Easy import of building models through DGN, DWG, gbXML, PDF, and other formats
- Conceptual design energy modeling -- 10 inputs, sketch the floor plan, select HVAC system type, and simulate
- Standardized building design load calculations from ASHRAE and CIBSE, and ASHRAE energy and ventilation standards [ASHRAE Standards 90.1 and 62.1 (2004, 2007, and 2010 versions)].
- Automates the creation of baseline building and budget buildings models for Standard 90.1, easing complicated calculations for LEED energy points
- HVAC component-based, drag-and-drop interface for modeling HVAC systems with 31 preconfigured HVAC systems and 48 HVAC components available. Users can drill down, modify, reconfigure, and change all the HVAC inputs or create their own components and systems from EnergyPlus HVAC objects.
- Extensive databases of materials, constructions, schedules, room types, HVAC equipment, and system which users and customize and extend for their project-specific needs or their company's standards

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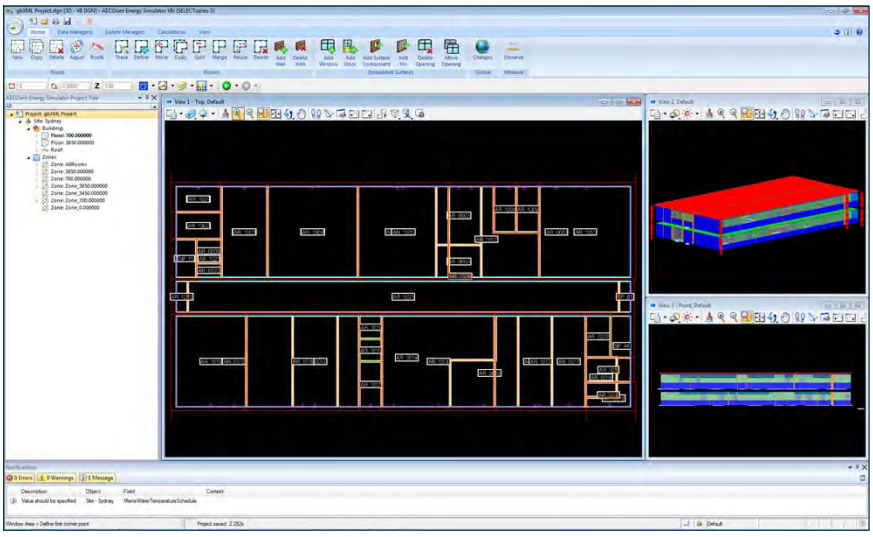
What's New in AECOsim Energy Simulator

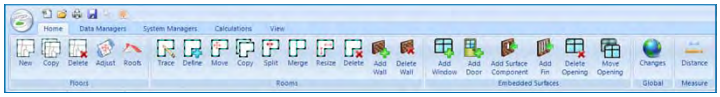
- New features in AECOsim Energy Simulator V8i (SELECTseries 3) include:
  - Conceptual design modeling
  - Creating energy models from PDFs, BMP, and other formats
  - ASHRAE Standards 90.1-2010 and 62.1-2010 compliance and data sets
  - New EnergyPlus version 7.2 simulation engine
  - Drag-and-drop HVAC component-based interface for modeling HVAC systems.

AECOsim Energy Simulator V8*i*

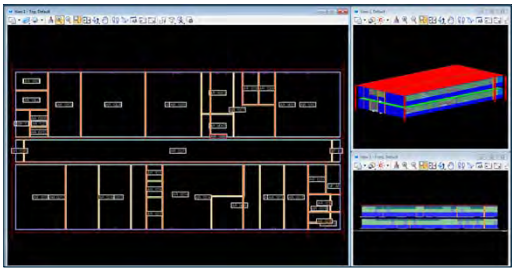


Key UI Components

Ribbon bar



Views/display controls

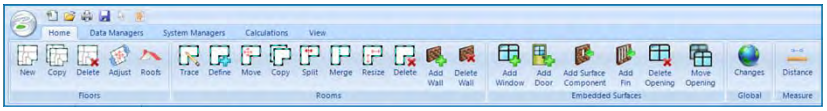


Project tree

Notifications bar*

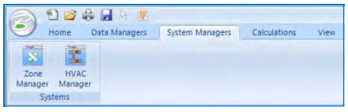
*New for SS3

Ribbon bar tabs organized by function

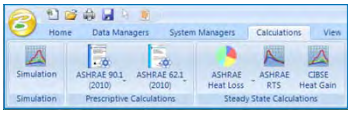


Home

Data Managers

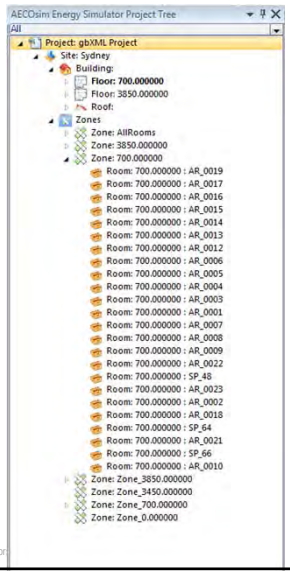


System Managers



Calculations

Project tree organized by floors, rooms, and zones



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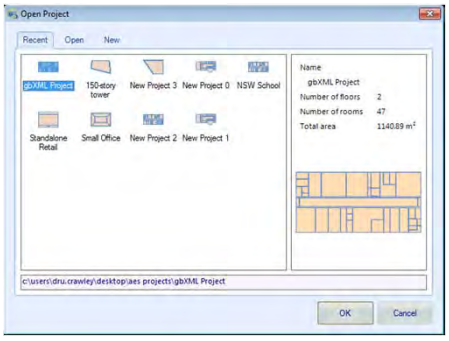
Three Ways to Create an Energy Model

- Conceptual design template*
- Import 2-D geometry
  - DWG, DGN or DXF – trace rooms
  - Import graphics – BMP, JPG, PNG, or PDF* – trace rooms
- Import 3-D data – gbXML (interoperability format)



*New for SS3

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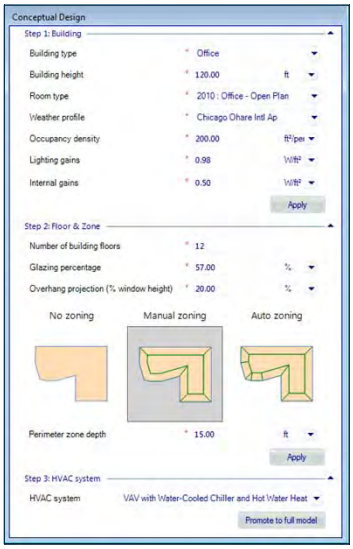
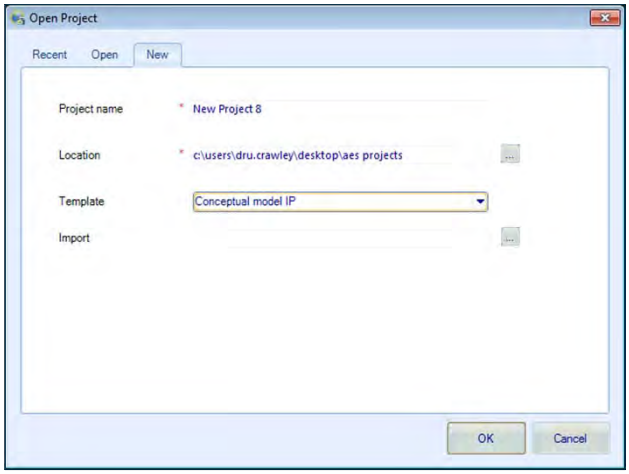
Conceptual Design Templates

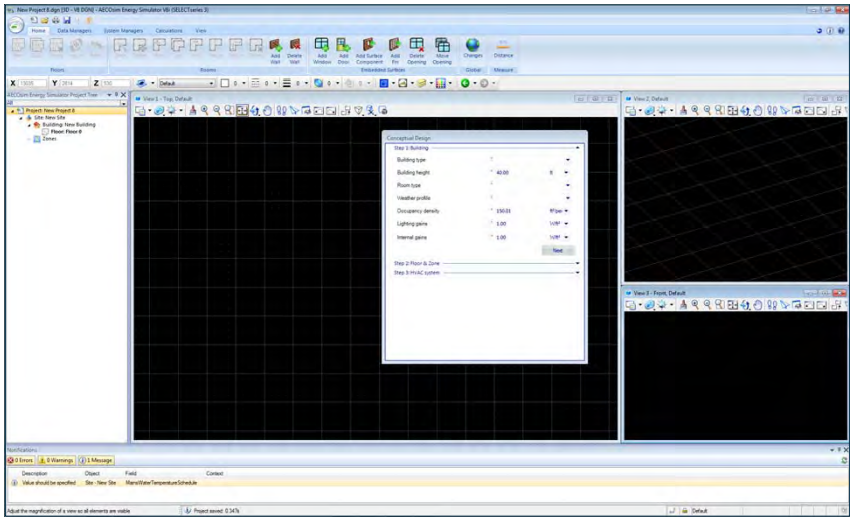
- New for SELECTseries 3
- 3 steps:
  - Enter building-level information
  - Draw floor outline, specify glazing and shading, select zoning
  - Select HVAC system
- Analyze in conceptual design mode or promote to full model



New Project, Select Template, Conceptual Model – IP or SI

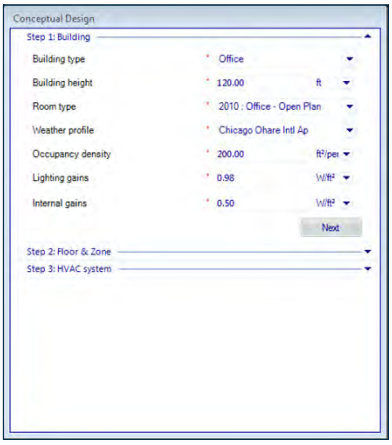


3 Steps:
Building, Floors & Zoning, and HVAC



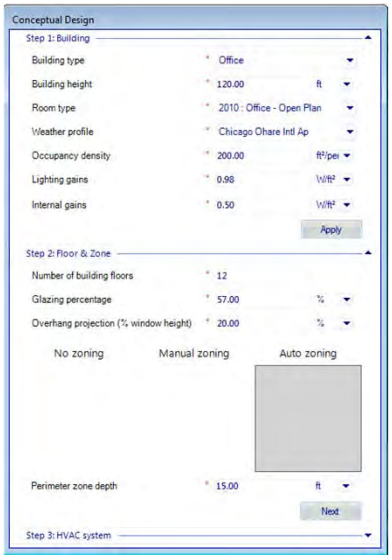
Conceptual Step 1:
Building

- Select building type (ASHRAE 90.1)
- Enter overall building height
- Select predominant room type (90.1-2004, 2007, or 2010)
- Modify default values for occupancy, lighting, and internal loads



Conceptual Step 2: Floors & Zoning

- Enter number of floors
- Enter percentage glazing
- Enter overhangs (if any)



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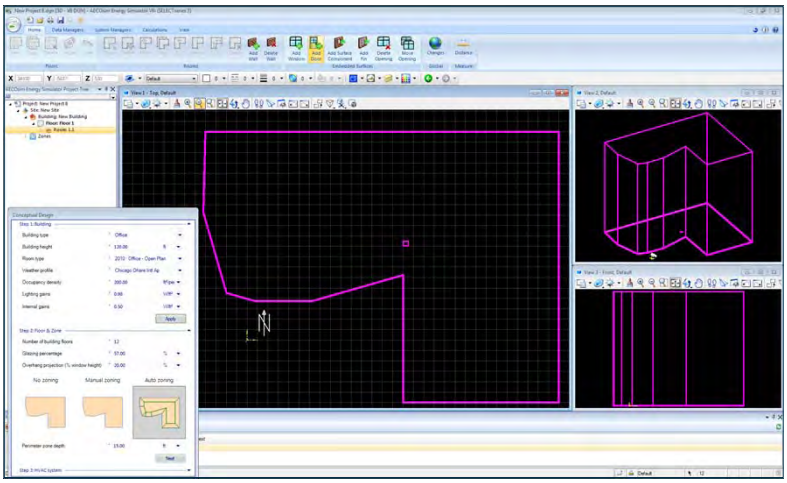
Conceptual Step 2: Floors & Zoning: Trace Floor Plan

- Trace floor plan outline on grid [grid is 4 ft (IP) and 1 m (SI)].



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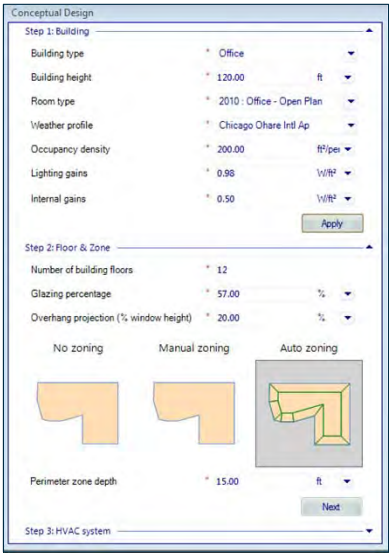
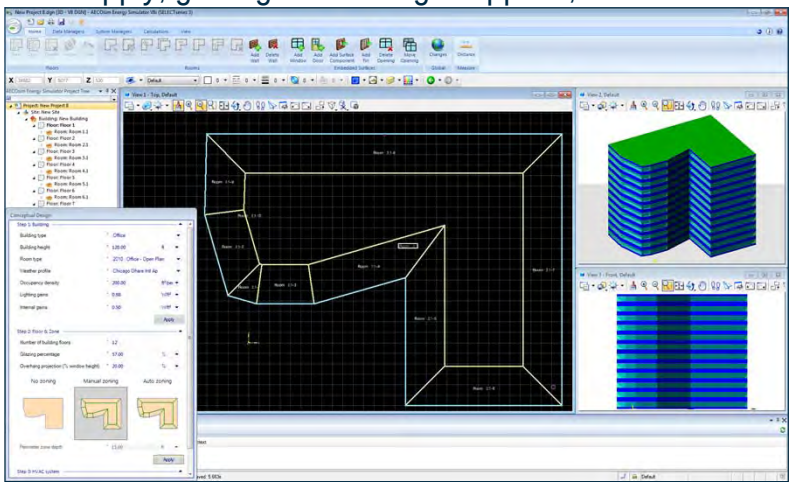
Conceptual Step 2: Floors & Zoning: Select Zoning

- Select from:
  - No zoning
  - Manual Zoning
  - Auto zoning
- If auto zoning, enter the perimeter zone depth



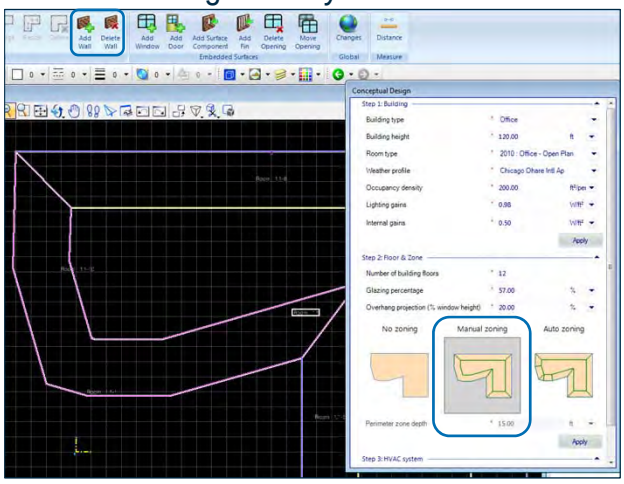
Conceptual Step 2: Floors & Zoning: Model Created

- Click Apply, glazing and zoning is applied, and model created



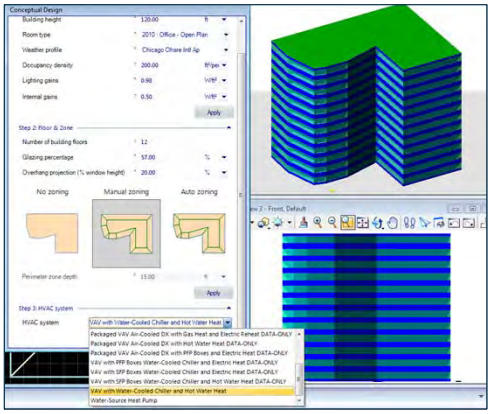
Conceptual Step 2: Floors & Zoning: Model Created

- Manual zoning allows you to add or delete interior walls



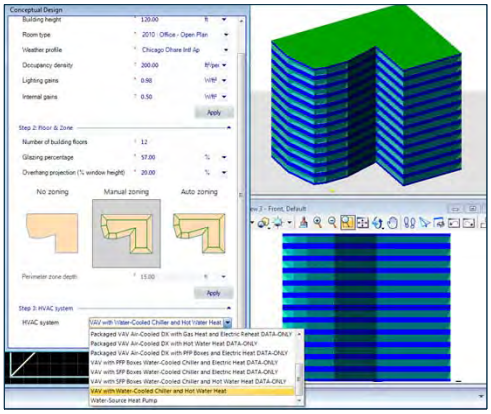
Conceptual Step 3: HVAC System

- Select from list of Preconfigured HVAC systems:
  - Defaults include most ASHRAE 90.1 baseline and budget systems
  - Users can select systems to include and can create their own



Conceptual Analysis Options

- Full set of calculations in AES:
  - Heating and Cooling Load Calculations
  - ASHRAE 90.1/62.1 prescriptive requirements
  - EnergyPlus simulation
- Modify conceptual design input choices and repeat analysis
- Or 'Promote' to full model for complete control of data



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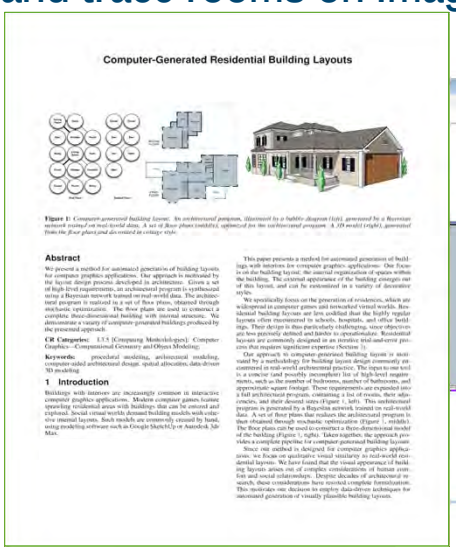
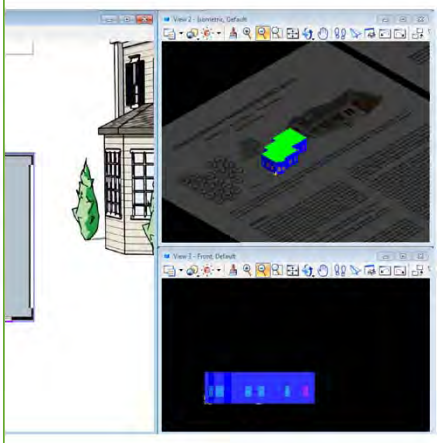
Import BMP, JPG, PNG, PDF and trace rooms on images



Computer-Generated Residential Building Layouts

Abstract

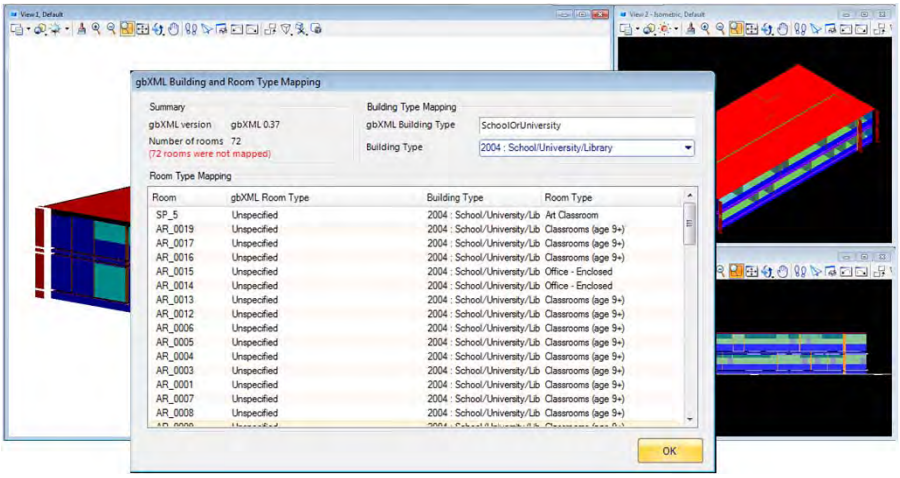
1 Introduction



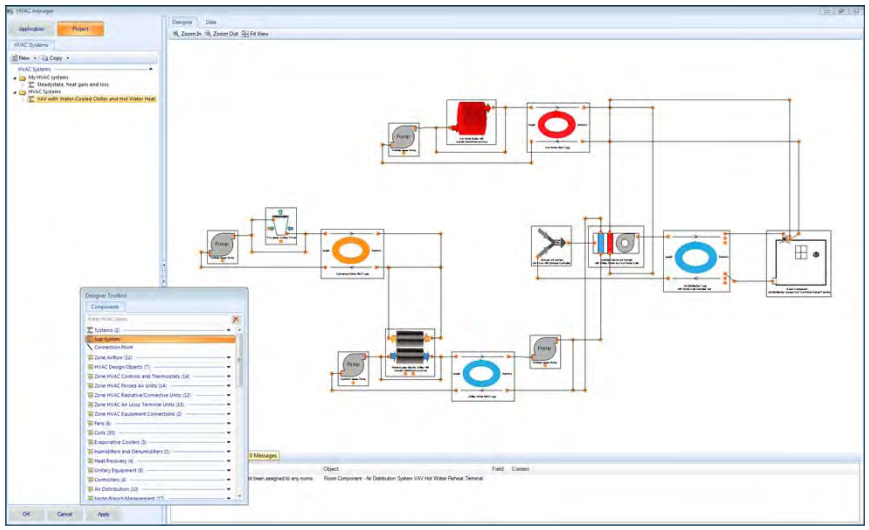
Bentley Sustaining Infrastructure

Import gbXML

User can fix missing space typing during import



HVAC Manager: Graphic Designer

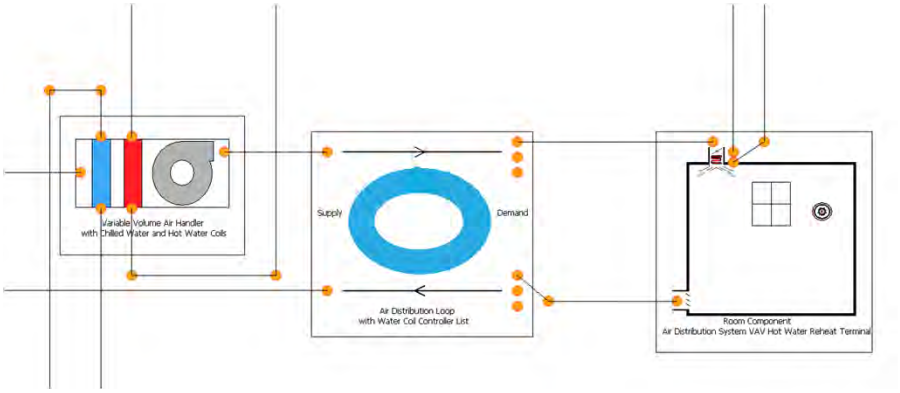


HVAC Manager: Graphic Designer

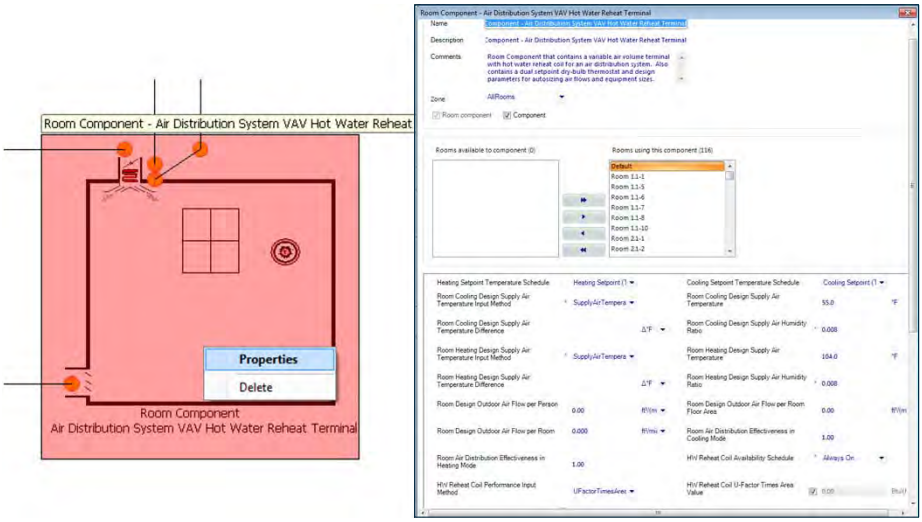
- HVAC Toolbox with preconfigured HVAC components
- Users can create new components or modify existing ones
- Drag components from the toolbox onto the palette
- Draw connections between components
- Right-click on components to change or edit properties
- Automatically creates the HVAC system from the components for simulation

HVAC Manager: Graphic Designer

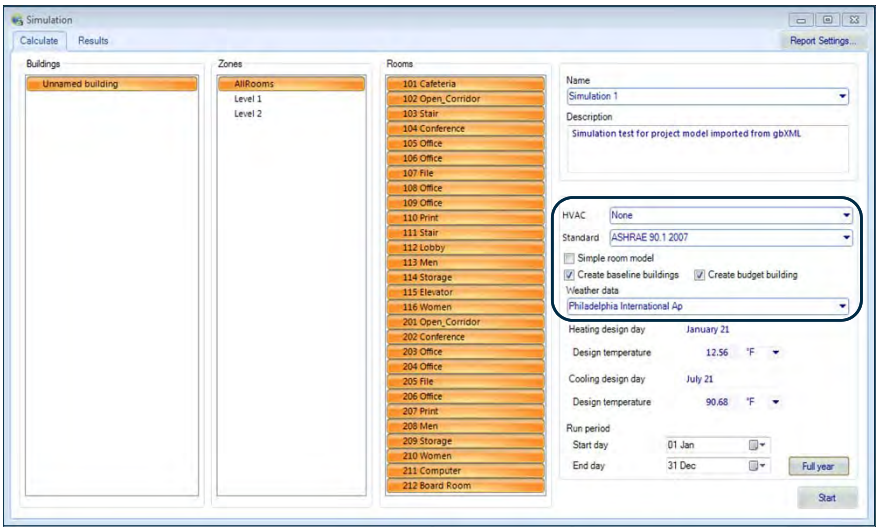
- Zoom in, out, pan
- Mouse over for more info



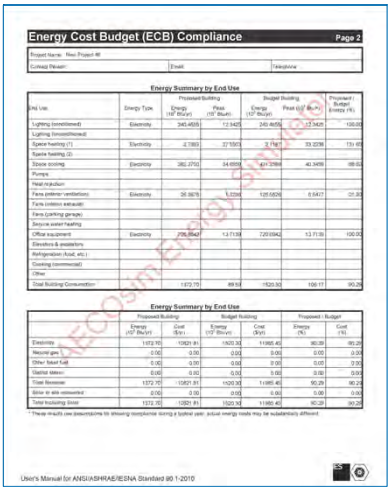
HVAC Manager: Graphic Designer

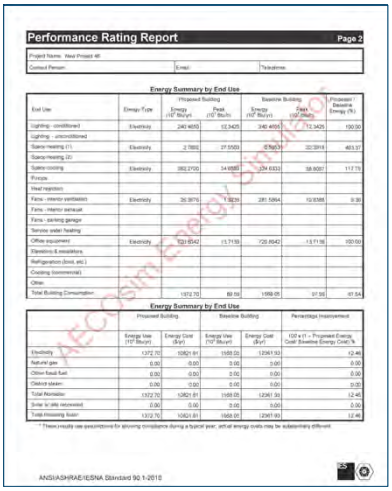


Automatically Create Baseline Buildings for Standards Compliance



90.1 Automated ECB Compliance and PRM





Summary

- AECOsim Energy Simulator V8i is one of the most powerful building performance simulation products available:
  - Built on industry-leading EnergyPlus engine (V7.2)
  - BIM platform for easy reuse of 3-D and 2-D building models
  - Rich datasets and attribution based on ASHRAE and CIBSE
  - Customize user-definable datasets to your company's standards
  - Industry standard load calculations (ASHRAE RTS, heat loss, and CIBSE)
  - ASHRAE Standard 90.1/62.1 auto-generated baseline simulations (2004, 2007, 2010)
  - Graphic display, creation and modification of HVAC systems

Summary (continued)

- Highlights for SELECTseries 3:
  - Conceptual Design modeling (10 inputs, sketch the floor plan, select HVAC system type, and simulate)
  - ASHRAE Standards 90.1-2010 and 62.1-2010 requirements and data added
  - HVAC Manager with graphic HVAC components
    - drag-and-drop, connect HVAC components
    - 31 preconfigured HVAC and SWH systems (16 graphic HVAC systems)
    - 48 preconfigured HVAC components (chiller, boiler, fan, pump, coil, room component, etc.)
- AECOsim Energy Simulator V8i SELECTseries 1 available since September 2011, SELECTseries 3 released May 2013.

Want More on AECOsim Energy Simulator?

- Bentley AECOsim Energy Simulator web site: http://www.bentley.com/en-US/Products/AECOsim+Energy+Simulator/
- YouTube Channel: http://www.youtube.com/user/EnergySimulator
- Free 30-day trial version available upon request

