

Title 24 2013 Compliance Software: CBECC-Com

**“California Building Energy Code Compliance
for Commercial Buildings”**

Perform Analysis – Review Results

- Objective: Set Analysis & Reporting Options
 1. Review Analysis & Reporting Options
 2. Perform Analysis
 3. Results Screen / Compliance Report

Training Module 11: Review Analysis & Reporting Options

- ❖ Before Performing Analysis make sure the Project Data Screen has all the relevant options selected for the analysis as shown below.

The screenshot shows the 'Building Model Data' dialog box with the following fields and values:

- Project Name:** Acme Project
- Analysis Type:** Title24Compliance
- Run Title:** (empty)
- Generate Report(s):** PDF, Full (XML)
- Compliance Type:** NewComplete
- Geometry Input:** Simplified
- Owner Info:** Organization: - specify -, Contact Name: - specify -, Email: - specify -, Title: - specify -, Phone: - specify -
- Location:** St. Address: - specify -, City: - specify -, State: CA, Zip Code: 95814, Climate Zone: ClimateZone12, Weather Station: SACRAMENTO-EXECUTIVE_724830
- File Management:** Creation: 15:15, Tue, Sep 16, 2014, Last Mod: 15:15, Tue, Sep 16, 2014, Last Run: 15:15, Tue, Sep 16, 2014

Callouts highlight the following selections:

- Analysis Type Selected:** Points to the 'Analysis Type' dropdown menu.
- Report Options Selected:** Points to the 'Generate Report(s)' checkboxes for 'PDF' and 'Full (XML)'.
- Zip Code and/or Climate Zone & Weather File Specified:** Points to the 'Zip Code' and 'Climate Zone' dropdown menus.

Training Module 11: Review Analysis & Reporting Options

- ❖ Before Performing Analysis make sure the Exception Conditions Screen has all the relevant options selected as shown below.

Building Model Data

Project Data | Design Team | Exceptional Conditions | Non-Compliance Analysis

No Does your project use partial compliance, with envelope only compliance?

No Does your project use partial compliance, with no envelope compliance?

No Does your project use partial compliance, with no lighting compliance?

Yes Does your project contain roofing materials that are certified by the Cool Roof Rating Council?

No Was comparison of window area to prescriptive requirements done using display perimeter for any façade?

No Does any space in your building take credit for the general lighting exceptional allowances?

Yes Does your project contain any occupied spaces with no lighting installed?

No Is any cooling equipment modeled which will not be installed in the actual building?

No Does the rated capacity of any HVAC equipment installed for your project not match the value used in the compliance analysis?

No Is service water heating excluded from the design of this building?

No Are significant modeling approximations used in the proposed design model? If so, a separate narrative must be provided.

OK

All options must be selected

Training Module 11: Review Analysis & Reporting Options

- ❖ If user has any options selected on the Non-Compliance Analysis Screen then the Compliance Report generated after a successful analysis run will contain a watermark indicating that the report is not valid for compliance/permitting.

The screenshot shows the 'Building Model Data' dialog box with the 'Non-Compliance Analysis' tab selected. The dialog contains several sections of options:

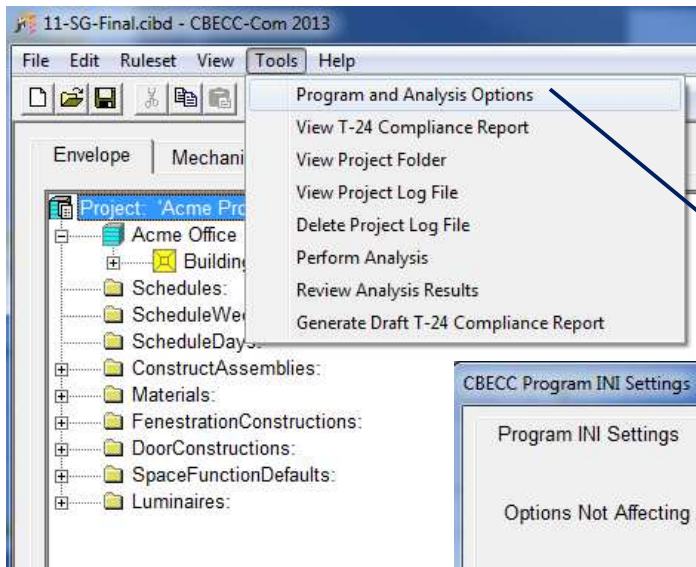
- Run Title:** An empty text input field.
- Analysis Type:** A dropdown menu set to 'Title24Compliance'.
- HVAC Autosizing/Efficiency Input*:**
 - Auto-Populate Proposed HVAC Capacities
 - Auto-Populate Proposed HVAC Efficiencies (Air-side only)
 - Design Flow/Area: 1.000 cfm/ft2
 - Design Flow/Ton: 400.0 cfm/ton
- Global Daylighting Controls*:**
 - Install Mandatory Daylighting Controls by Default
 - Disable Daylighting Controls
- EnergyPlus Reporting Variables:**
 - Reporting Interval: Hourly
 - Site
 - Daylighting
 - Thermal Zone
 - HVAC Secondary
 - HVAC Primary
 - HVAC Zone

Footnotes: * If checked, the analysis cannot be used for compliance.

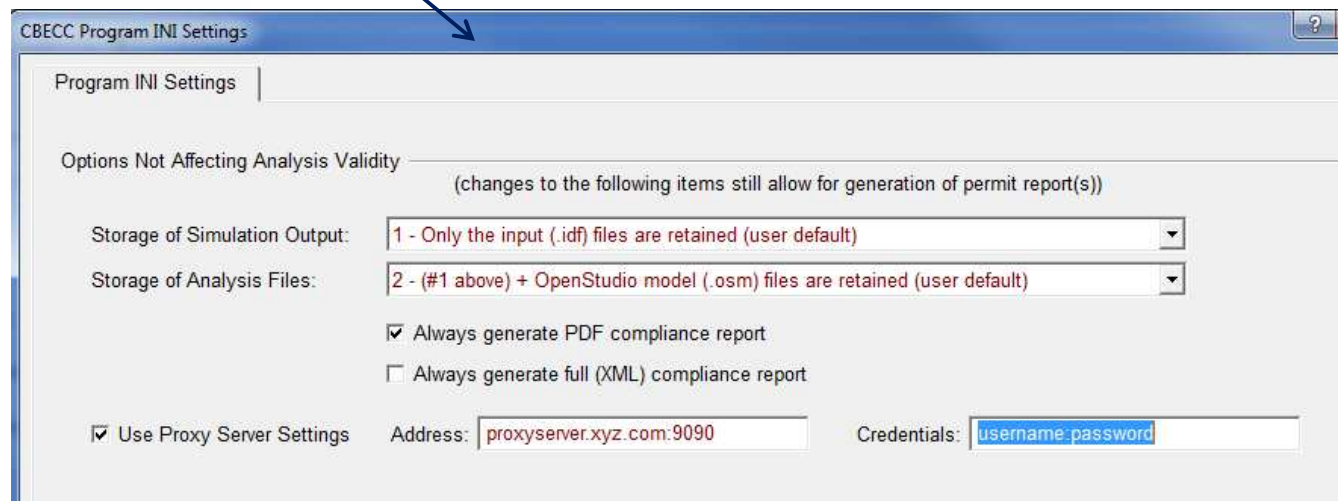
Buttons: OK

Training Module 11: Review Analysis & Reporting Options

- ❖ The **Tools** menu contains various options relating to Analysis and Reporting as shown below
- ❖ The **Compliance Report** is generated only if the computer is connected to the Internet. If you are behind a firewall you would need to specify the proxy settings in the **Program and Analysis Options**.

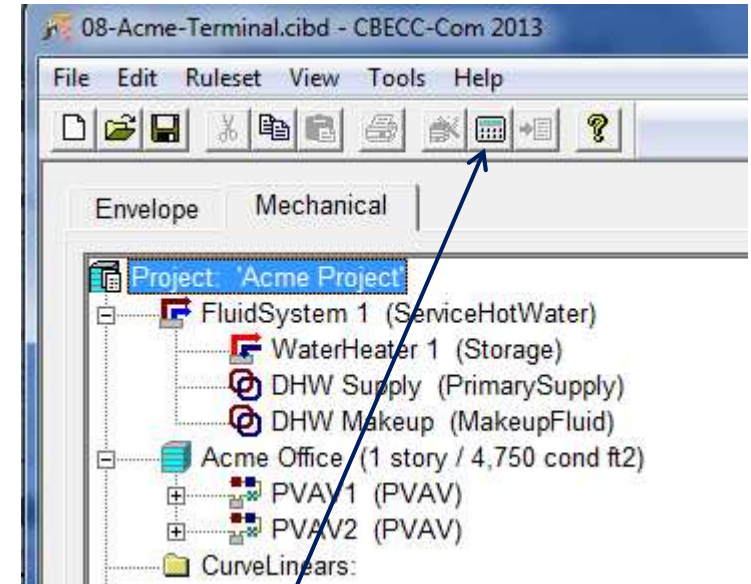
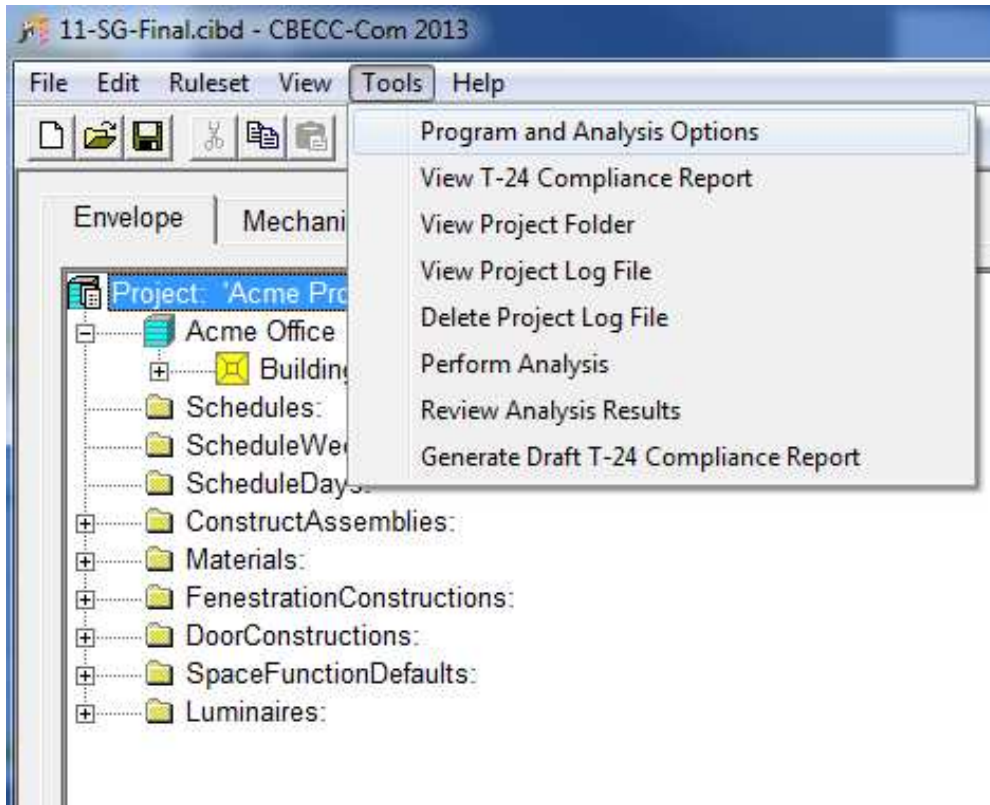


Use the Program and Analysis Option to set the Simulation Output Files storage options and to set the Proxy Server settings as shown below



Training Module 11: Perform Analysis

- ❖ To perform the compliance analysis select **Tools > Perform Analysis** from the menu bar or alternatively clicking on the “Perform Analysis” tool button.



Perform Analysis Tool

Training Module 11: Results Screen

- ❖ After completion of a successful simulation run a PDF of the compliance report will be generated* and a results screen will be displayed showing the Energy Use Summary of the various energy end uses for the Proposed and Standard Design case. The results screen also displays the Compliance Margin and whether the project passes compliance or not.

Building Model Data

Energy Use Summary

End Use	Standard Design Site (MWh)	Standard Design Site (therms)	Standard Design (kTDV/ft ² -yr)	Proposed Design Site (MWh)	Proposed Design Site (therms)	Proposed Design (kTDV/ft ² -yr)	Compliance Margin (kTDV/ft ² -yr)
Space Heating	--	767	29.9	10.5	350	54.5	-24.6
Space Cooling	7.9	--	72.6	8.5	--	75.9	-3.3
Indoor Fans	17.3	--	82.7	1.9	--	11.6	71.1
Heat Rejection	--	--	--	--	--	--	--
Pumps & Misc.	--	--	--	--	--	--	--
Domestic HW	--	169	5.8	--	156	5.4	0.4
Lighting	--	--	--	--	--	--	--
Compliance Total	25.2	936	191.0	20.9	506	147.4	43.6
Receptacle	17.5	--	94.5	17.5	--	94.5	Result: PASS
Process	--	--	--	--	--	--	
Process Ltg	--	--	--	--	--	--	
TOTAL	42.7	936	285.5	38.4	506	241.9	

Unmet Load Hours: (by thermal zone)

clg: 0 htg: 0 'Open Office North Zn'	clg: 0 htg: 0 'Open Office North Zn'
clg: 0 htg: 0 'Lobby Zn'	clg: 0 htg: 11 'Lobby Zn'
clg: 0 htg: 0 'Private Office Zn'	clg: 0 htg: 2 'Private Office Zn'
clg: 2 htg: 0 'Conference Zn'	clg: 0 htg: 0 'Conference Zn'
clg: 0 htg: 0 'RestRm Zn'	clg: 0 htg: 2 'RestRm Zn'

Done

*Note: If the computer is not connected to the internet the compliance report (PDF) will not be generated.

Training Module 11: Sample Compliance Report Front Page

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD

NRCC-PRF-01-E

Project Name: Acme Project

Calculation Date/Time:

Page 1 of 6

Compliance Scope: New Complete Building including Envelope, Lighting and HVAC **Input File Name:**

A. GENERAL INFORMATION					
01	Project Address	- specify -	21	Compliance Software	CBECC-Com 2013-3 (653)
02	City	- specify -	22	Compliance Manager Version	BEMCmpMgr 2013-3 (653)
03	Zip code	95814	23	Rule Set Filename	CA 2013 Nonresidential, Vers. 2.0 (CEC 2013 NonRes.bin)
04	Climate Zone	ClimateZone12	24	Building Type	Nonresidential
05	Building Front Orientation	0	25	Construction Type	
06	Number of Above Grade Stories	1	26	North Wall Area (ft2)	840
07	Number of Below Grade Stories	0	27	East Wall Area (FT2)	900
08	Number of Dwelling Units	0	28	South Wall Area (ft2)	840
09	Total Conditioned Floor Area (ft2)	4,750	29	West Wall Area (ft2)	900
10	Total Unconditioned Floor Area (ft2)		30	Total Exterior Wall Area (ft2)	3,480
11	Addition Conditioned Floor Area (ft2)		31	North Glazing Area (ft2) / Glazing Ratio	244 / 29%
12	Addition Unconditioned Floor Area(ft2)		32	East Glazing Area (ft2) / Glazing Ratio	292 / 32%
13	Number of Thermal Zones	6	33	South Glazing Area (ft2) / Glazing Ratio	253 / 30%
14	Number of Thermal Zones (conditioned)	6	34	West Glazing Area (ft2) / Glazing Ratio	48 / 5%
15	Number of Air Systems	2	35	Total Glazing Area (ft2) /Glazing Ratio	837 / 24%
16	Number of Zonal Systems	0	36	Roof Area (ft2)	4,750
17	Number of Terminal Units	7	37	Skylight Area (ft2) / Skylight-Roof-Ratio	0 / 0%
18			38		
19			39		
20			40		

Training Module 11: Compliance Report Results Summary Page

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD

NRCC-PRF-01-E

Project Name: Acme Project

Calculation Date/Time:

Page 2 of 6

Compliance Scope: New Complete Building including Envelope, Lighting and HVAC Input File Name:

B. COMPLIANCE RESULTS				
01	BUILDING COMPLIES			
02	Special Features are Required -TBD			
03	HERS Verification is Required - TBD			
ANNUAL TDV ENERGY USE SUMMARY (kBtu/ft2/yr)				
	04	05	06	07
Energy Component	Standard Design	Proposed Design	Compliance Margin	Percent Better than Standard*
Space Heating	29.9	54.5	-24.6	-82.3%
Space Cooling	72.6	75.9	-3.3	-4.5%
Indoor Fans	82.7	11.6	71.1	86.0%
Heat Rejection	-	-	--	-
Pumps & Misc.	-	-	--	-
Domestic Hot Water	5.8	5.4	0.4	6.9%
Lighting	-	-	--	-
COMPLIANCE TOTAL	191.0	147.4	43.6	22.8%
Receptacle	94.5	94.5		0.0%
Process	-	-		-
Process Lighting	-	-		-
TOTAL	285.5	241.9		15.3%