

Focus on Energy's

New Homes Program

Certification Process

Presented by:

Andy Kuc

Focus on Energy New Homes Project Manager

Launch REM/*Rate*

Launch REM/*Rate* to follow along later in the presentation

Certification Process

1. Complete Tracking Spreadsheet

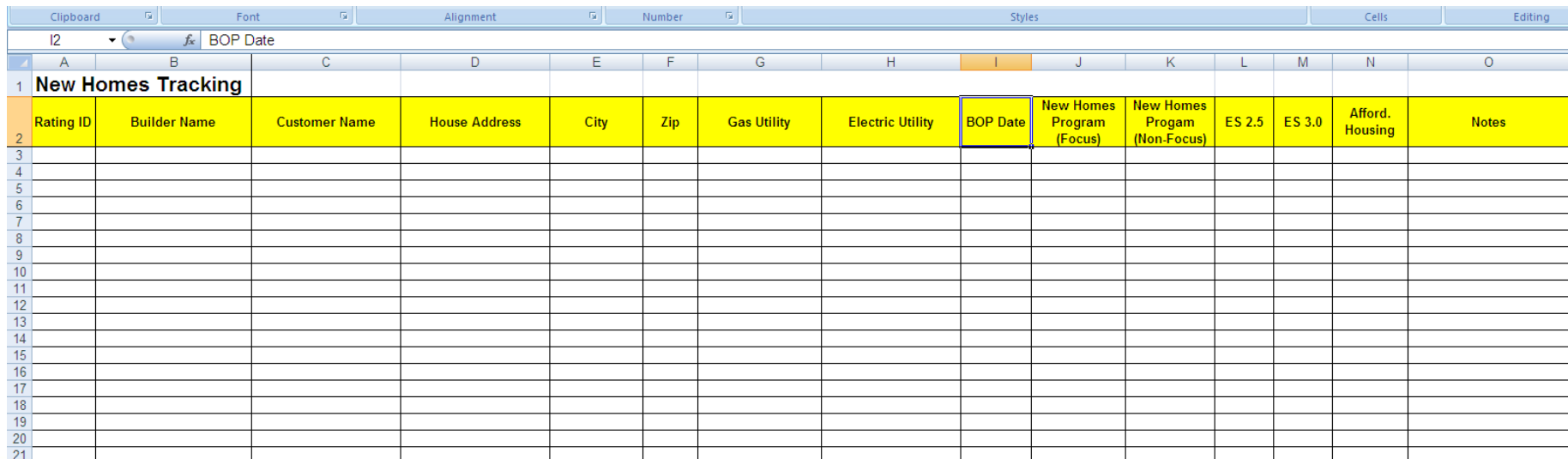
- a) Complete Based on Plans (Excel workbook)
- b) Conduct Site Visit 1 - Framing / Insulation review (Excel workbook)
- c) Conduct Site Visit 2 - Performance Testing (Excel workbook)
- d) Update the building File
 - i. Determine the Percent Better Than Code (REM/Rate Report)
 - ii. Calculate Energy Savings: kW, kWh, and Therms (REM/Rate Report)
- e) Complete excel workbook forms (Excel workbook)

2. Send Completed Project File to WECC

- a) Send the completed Excel workbook, building file(s), sketch and calcs to ratings@weccusa.org

1. Complete Tracking Spreadsheet

- Email to ratings@weccusa.org
- WECC begins to track the project



The image shows a screenshot of a Microsoft Excel spreadsheet. The title bar at the top reads "I2" and "BOP Date". The spreadsheet has a yellow header row (row 2) with the following columns: "Rating ID", "Builder Name", "Customer Name", "House Address", "City", "Zip", "Gas Utility", "Electric Utility", "BOP Date", "New Homes Program (Focus)", "New Homes Program (Non-Focus)", "ES 2.5", "ES 3.0", "Afford. Housing", and "Notes". The first row (row 1) is labeled "New Homes Tracking". The spreadsheet is otherwise empty, with rows 3 through 21 visible.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	New Homes Tracking														
2	Rating ID	Builder Name	Customer Name	House Address	City	Zip	Gas Utility	Electric Utility	BOP Date	New Homes Program (Focus)	New Homes Program (Non-Focus)	ES 2.5	ES 3.0	Afford. Housing	Notes
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															

Active Project Status

A project will remain “Active” for two years

If there is no activity on a home for two years, it will be dropped from the program

Based On Plans (BOP)

Complete the Based on Plans Form

- Confirm % better than Code value
- Review findings with the builder
- ✓ Provide suggestions

focus on energy
Partnering with Wisconsin utilities

Focus On Energy's
New Homes Program

Based On Plans Form

Building File Number: _____ BOP Date: _____

Property Information:
Home Owner(s): _____
Address: _____
City: _____ Zip Code: _____
Phone Number: _____ Email: [email](#)

Builder Information:
Company Name: _____

Consultant Information:
Company Name: _____
Consultant Name: _____
Phone Number: _____ Email: [email](#)

Utility Information:
Gas Company: _____ Electric Company: _____
Propane Company: _____ Other: _____

Certification/Program Type:

<input type="checkbox"/> Focus on Energy New Home	<input type="checkbox"/> Non Focus on Energy
<input type="checkbox"/> EPA Act Tax Credit	<input type="checkbox"/> Affordable Housing
<input type="checkbox"/> ENERGY STAR Version 2.5	<input type="checkbox"/> ENERGY STAR Version 3.0
<input type="checkbox"/> EPA Indoor Air Plus Certification	

Revision 0 Page 1 of 9

Site Visit 1

➤ Framing and Insulation Review

- ✓ Framing is reviewed for potential air bypasses
- ✓ Insulation installation is reviewed (optional)
- ✓ Verification of standards



Site Visit 2

➤ Performance Testing

- ✓ Air Tightness
 - Blower door test conducted to determine the air infiltration value
 - 0.20 CFM50 per sq. ft. of surf area

- ✓ All ventilation equipment tested
 - Meets ASHRAE 62.2 – 2007 and Program Requirements

- ✓ Verification of standards
 - Final verification that all **applicable** program standards have been met



Verify Standards

➤ All applicable program Standards are required for certification

1. **Minimum 10 percent better than code**
2. Air Tightness Requirement (Performance Tested)
3. Sealed Sump Basin
4. Sealed Plumbing Rough-in
5. Full Coverage Foundation Insulation
6. Slab-on-Grade Thermal Isolation
7. Whole House Ventilation (Performance Tested)
8. Spot Ventilation for Bathrooms with a Tub or Shower (Performance Tested)
9. Spot Ventilation for Gas Stoves and Electric Ranges
10. Space Heating and Water Heating System Design
11. Fireplace Design (Performance Tested)
12. Carbon Monoxide Detectors
13. Insulated and Air sealed Attic Access Hatch
14. Duct Testing (Performance Tested)

Update the Building File

Consultant Updates the building file based on Site Visit findings

- Verify final Percent Better Than Code value
- Confirm energy savings
 - UDC Fuel Summary Report
 - Calculate kW, kWh and Therm savings
 - Document on the Site Visit form

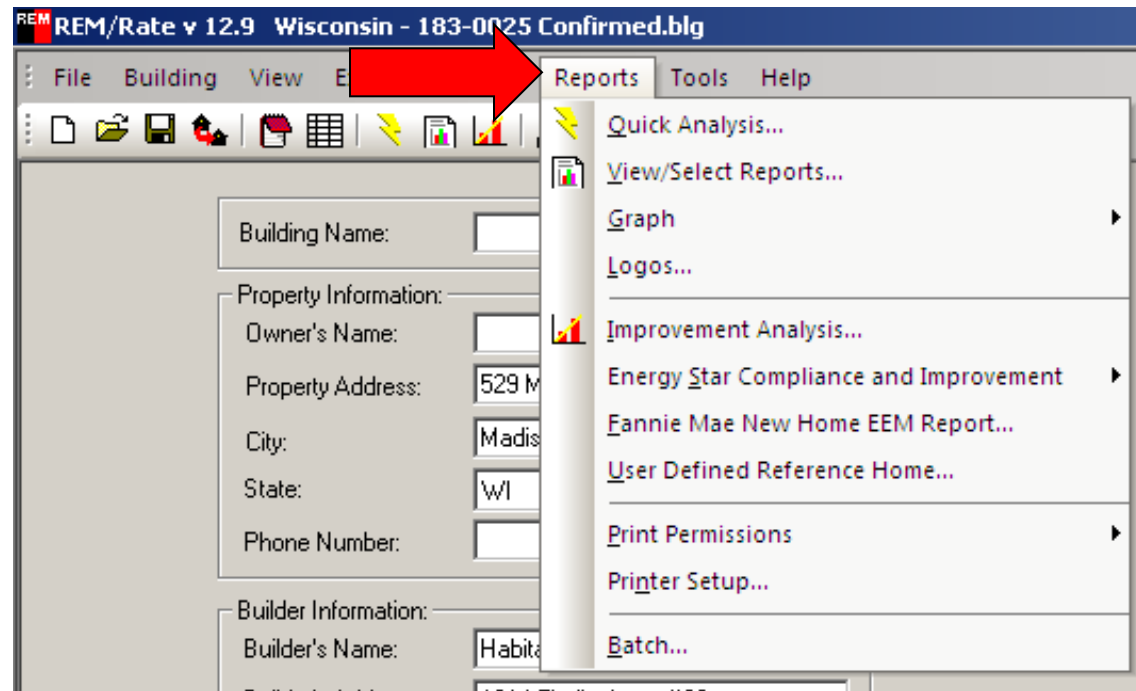


Percent Better Than Code

Verifying Performance Level

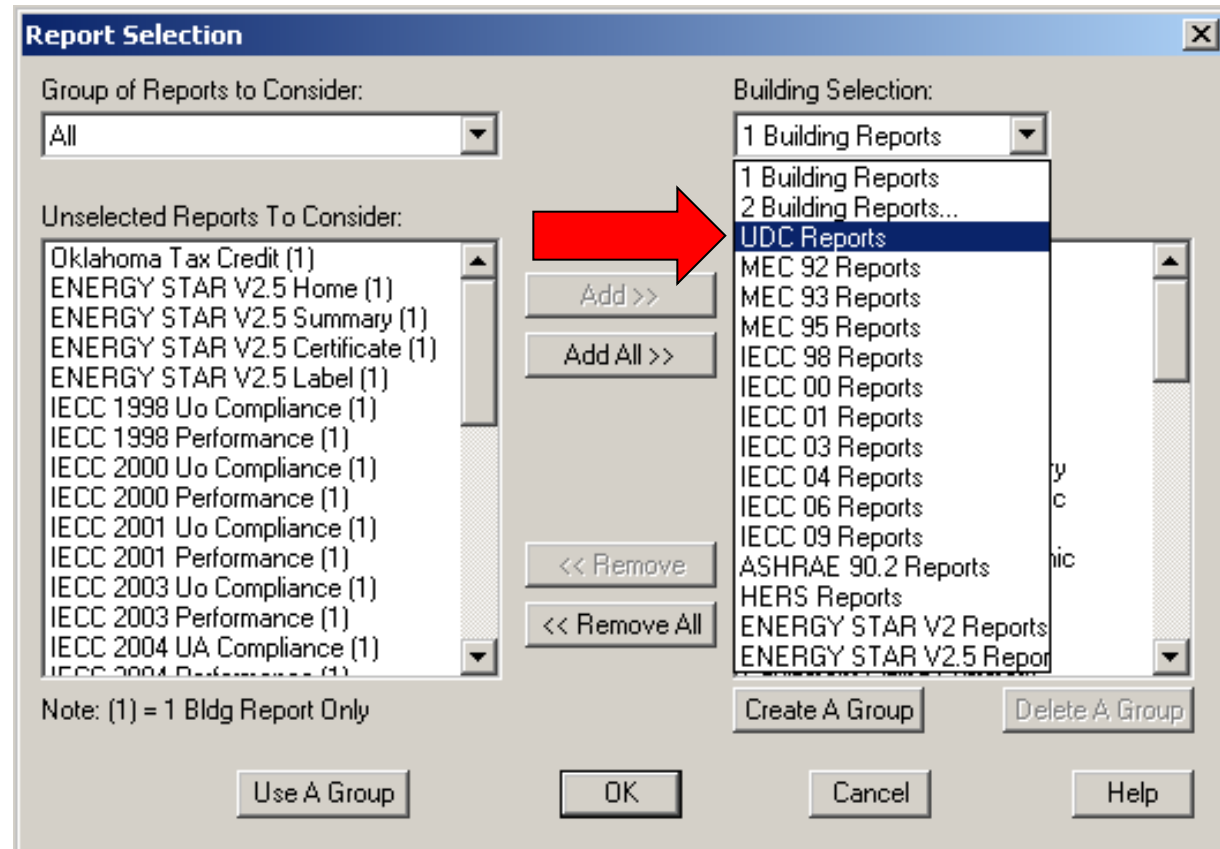
Percent Better Than Code

1. Update the REM/Rate building file
2. Under the Reports main menu select View/Select Reports...



Verifying Performance Level Percent Better Than Code

3. Under **Building Selection**, Select UDC Reports



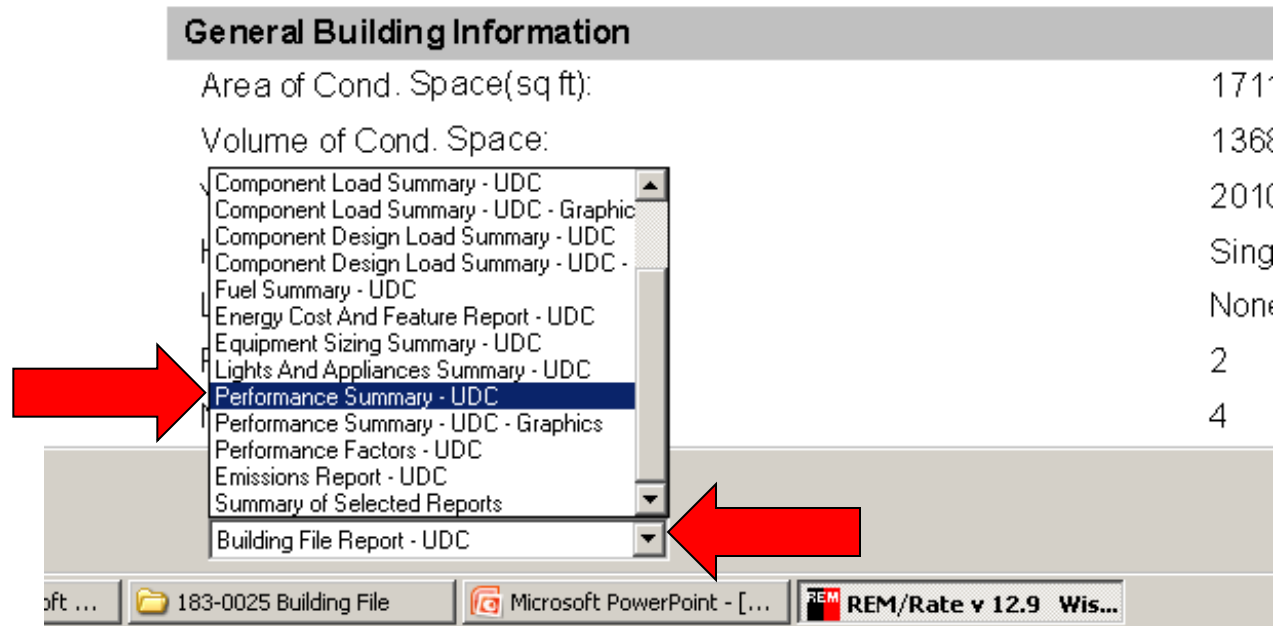
Verifying Performance Level Percent Better Than Code

4. Select Performance Summary – UDC

Development: Northport

General Building Information

Area of Cond. Space(sq ft):	1711
Volume of Cond. Space:	1368
Component Load Summary - UDC	2010
Component Load Summary - UDC - Graphic	
Component Design Load Summary - UDC	
Component Design Load Summary - UDC -	Sing
Fuel Summary - UDC	
Energy Cost And Feature Report - UDC	None
Equipment Sizing Summary - UDC	
Lights And Appliances Summary - UDC	2
Performance Summary - UDC	4
Performance Summary - UDC - Graphics	
Performance Factors - UDC	
Emissions Report - UDC	
Summary of Selected Reports	
Building File Report - UDC	



Taskbar: 183-0025 Building File | Microsoft PowerPoint - [...] | REM/Rate v 12.9 Wis...

Verifying Performance Level Percent Better Than Code

5. Print the Performance Summary – UDC Report

Preview - Performance Summary - UDC

PERFORMANCE SUMMARY - UDC

Date: January 18, 2011 Rating No.: 183-0025

Building Name: Rating Org.: Wisconsin Energy Conservation
 Owner's Name: Phone No.: 608-249-1271 X406
 Property: 529 Moose Trail Rater's Name: Andy Kuc
 Address: Madison, WI 53704 Rater's No.: 183
 Builder's Name: Habitat 4 Humanity-Dane County
 Weather Site: Madison, WI Rating Type: Site Visit
 File Name: 183-0025 Confirmed.blg Rating Date: 12/02/10

	REFERENCE	183-0025 Confirmed	DIFF	% DIFF
Annual Load (MMBtu/yr)				
Heating	45.9	40.4	5.5	11.9%
Cooling	8.1	6.8	1.3	16.6%
Water Heating	18.3	16.9	1.4	7.9%
Annual Consumption (MMBtu/yr)				
Heating	64.9	42.3	22.6	34.8%
Cooling	2.8	1.9	0.9	30.7%
Water Heating	23.5	22.2	1.3	5.4%
Lights & Appliances	20.1	19.7	0.3	1.6%
Photovoltaics	-0.0	-0.0		
Total	111.2	86.1	25.1	22.5%
Annual Energy Cost (\$/yr)				
Heating	\$ 542	\$ 346	\$ 197	36.3%
Cooling	\$ 98	\$ 68	\$ 30	30.7%
Water Heating	\$ 186	\$ 176	\$ 10	5.4%
Lights & Appliances	\$ 426	\$ 415	\$ 12	2.8%
Photovoltaics	\$ -0	\$ -0	\$	
Service Charges	\$ 239	\$ 239	\$	
Total	\$ 1492	\$ 1243	\$ 249	16.7%



Verifying Performance Level

Percent Better Than Code

6. Record this number on the Site Visit 3 Form

Code Home

	REFERENCE	183-0025 Confirmed	DIFF	% DIFF
Annual Load (MMBtu/yr)				
Heating	45.9	40.4	5.5	11.9%
Cooling	8.1	6.8	1.3	16.6%
Water Heating	18.3	16.9	1.4	7.9%
Annual Consumption (MMBtu/yr)				
Heating	64.9	42.3	22.6	34.8%
Cooling	2.8	1.9	0.9	30.7%
Water Heating	23.5	22.2	1.3	5.4%
Lights & Appliances	20.1	19.7	0.3	1.6%
Photovoltaics	-0.0	-0.0		
Total	111.2	86.1	25.1	22.5%

Percent Better Than Code

Performance and Technology Incentives

Level	Performance Incentives	Technology Options	Amount
1	10% - 19.9% More Efficient Than Code	None Required	\$200
2	20% - 29.9% More Efficient Than Code	any 2 Required	\$750
3	30% - 39.9% More Efficient Than Code	any 3 Required	\$1,000
4	40% - 100% More Efficient Than Code	any 3 Required Plus a renewable energy technology and an HRV or ERV	\$1,500

Incentive Eligibility (A):
Homes located in participating
Focus on Energy Gas and Electric
utility service territories

No	Technology Options
1	Compact Fluorescent Lamps
2	ENERGY STAR Qualified Light Fixtures
3	Energy Efficient Windows
4	R5 Exterior Insulation
5	R10 Exterior Insulation
6	Rim and Band Joist Insulation
7A	Residential Water Heaters
8A	Residential HVAC Systems
9	Renewable Energy System(s) additional financial incentives are available

Performance and Technology Incentives

Level	Performance Incentives	Technology Options	Amount
1	10% - 19.9% More Efficient Than Code	None Required	\$100
2	20% - 29.9% More Efficient Than Code	any 2 Required	\$200
3	30% - 39.9% More Efficient Than Code	any 3 Required	\$300
4	40% - 100% More Efficient Than Code	any 3 Required Plus a renewable energy technology and an HRV or ERV	\$400

Incentive Eligibility (B):

Homes located in participating Focus on Energy Electric utility service territories only, that heat with LP , Oil or other fuel

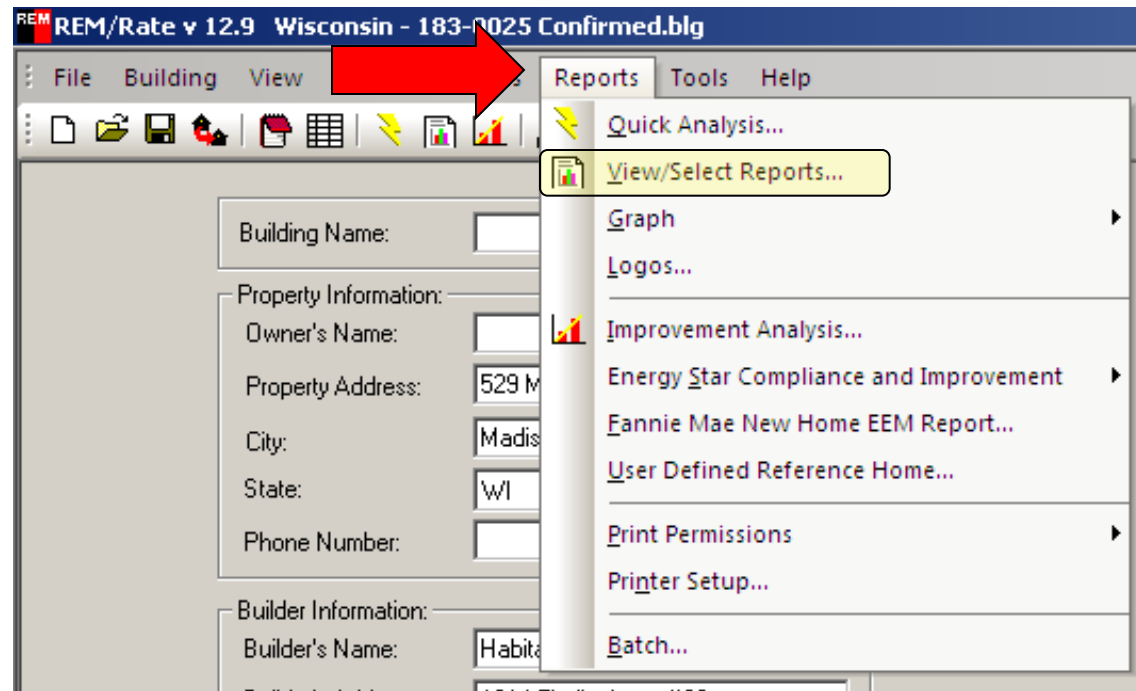
No	Technology Options
1	Compact Fluorescent Lamps
2	ENERGY STAR Qualified Light Fixtures
3	Energy Efficient Windows
4	R5 Exterior Insulation
5	R10 Exterior Insulation
6	Rim and Band Joist Insulation
7B	Residential Water Heaters
8B	Residential HVAC Systems
9	Renewable Energy System(s) additional financial incentives are available

Energy Savings

(kWh - kW - Therms)

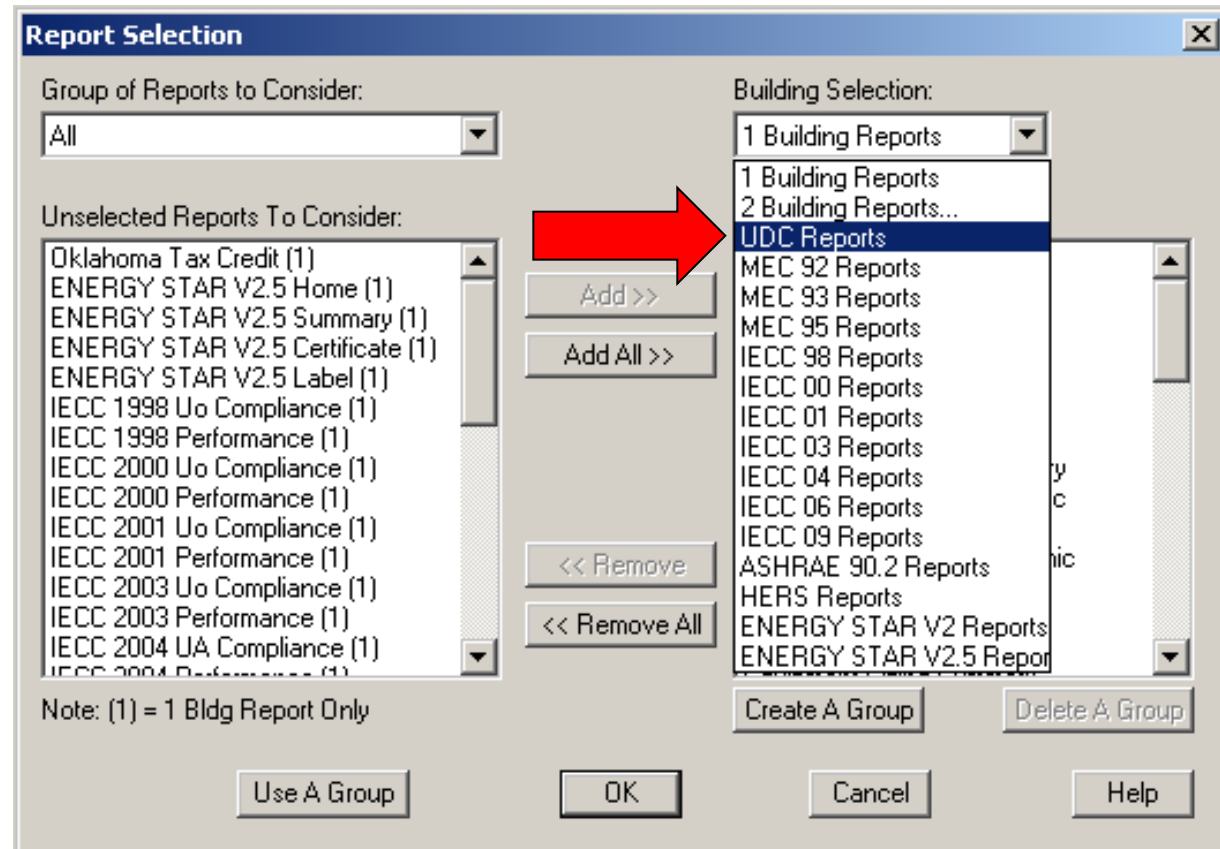
Calculating Energy Savings

1. Update the REM/Rate building file
2. Under the Reports main menu select View/Select Reports...



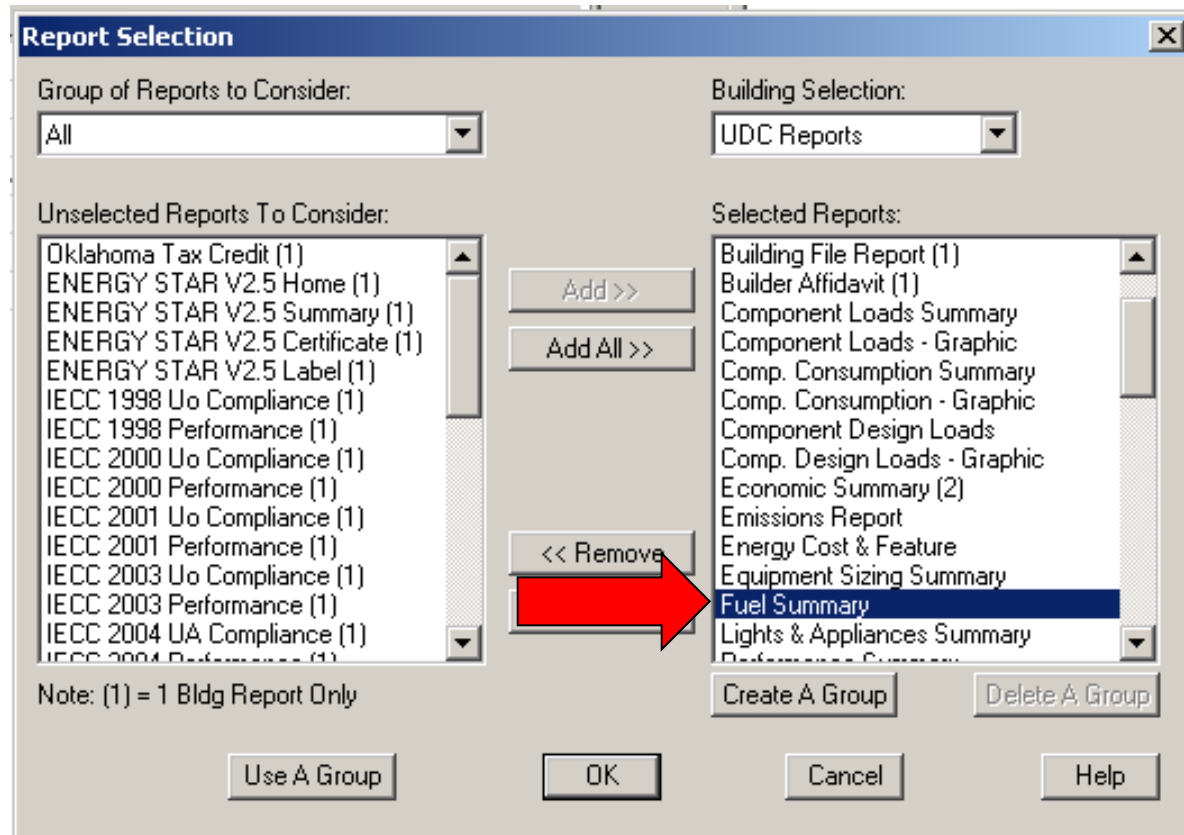
Calculating Energy Savings

3. Under **Building Selection**, Select UDC Reports



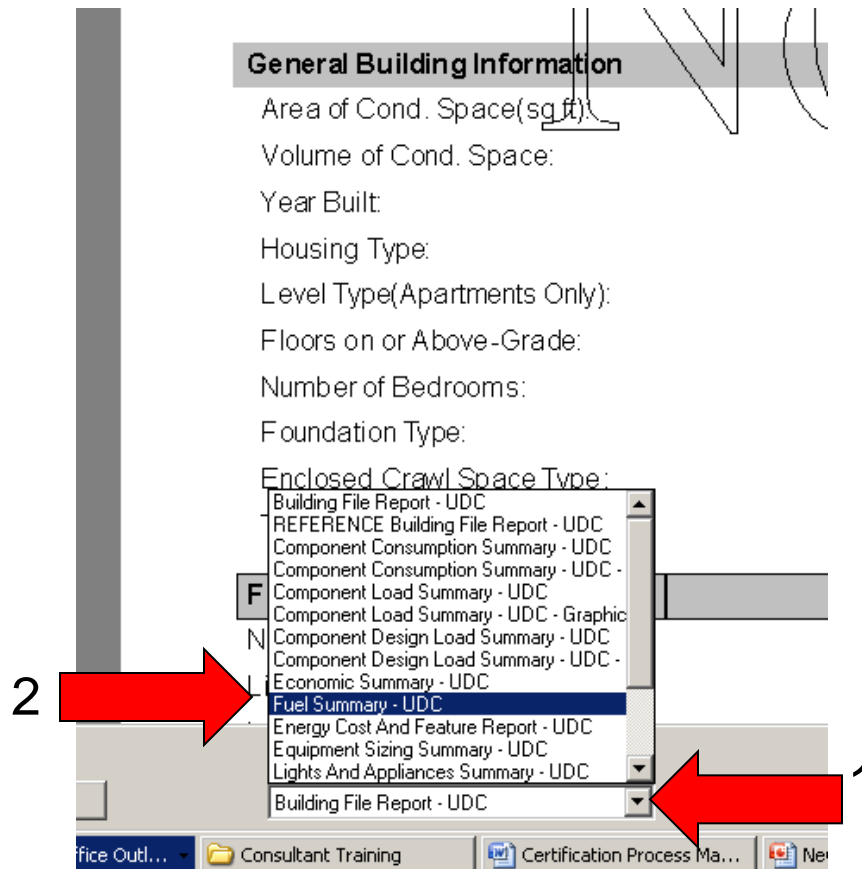
Calculating Energy Savings

4. Make sure Fuel Summary is under Selected Reports



Calculating Energy Savings

5. Select Fuel Summary from the pop up menu

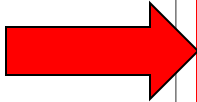


Calculating Energy Savings

6. Refer to the Annual End-Use Consumption section

FUEL SUMMARY - UDC						
Date:	January 25, 2011	Rating No.:	183-0024			
Building Name:	Hang	Rating Org.:	Wisconsin Energy Conservation			
Owner's Name:	Hang	Phone No.:	608-249-1271 X406			
Property:	525 Moose Trail	Rater's Name:	Andy Kuc			
Address:	Madison, WI 53704	Rater's No.:	183			
Builder's Name:	Habitat 4 Humanity-Dane County	Rating Type:	Confirmed Rating			
Weather Site:	UDC Design Zone 4, WI	Rating Date:	08/13/10			
File Name:	183-0024 Confirmed.blg					

	REFERENCE	183-0024 Confirmed	DIFF	% DIFF
Annual Energy Cost (\$/yr)				
Natural gas	\$ 852	\$ 649	\$ 203	23.8%
Electric	\$ 558	\$ 506	\$ 52	9.3%
Annual End-Use Cost (\$/yr)				
Heating	\$ 633	\$ 429	\$ 204	32.3%
Cooling	\$ 80	\$ 52	\$ 29	35.6%
Water Heating	\$ 184	\$ 174	\$ 10	5.5%
Lights & Appliances	\$ 513	\$ 501	\$ 12	2.3%
Photovoltaics	\$ -0	\$ -0	\$	
Service Charges	\$ 239	\$ 239	\$	
Total	\$ 1649	\$ 1394	\$ 255	15.5%
Annual End-Use Consumption				
Heating (Therms)	743	498	245	32.9%
Heating (kWh)	384	292	92	24.0%
Cooling (kWh)	664	427	237	35.6%
Water Heating (Therms)	232	219	13	5.5%
Lights & Appliances (Therms)	104	104		
Lights & Appliances (kWh)	3551	3453	98	2.8%
Annual Energy Demands (kW)				
Heating	0.1	0.1	0.0	24.0%
Cooling	1.3	1.0	0.2	18.2%
Water Heating (Winter Peak)	0.0	0.0		



Calculating Energy Savings

7. From the Annual End-Use Consumption section total the kW, kWh & Therms

Service Charges	\$	239	\$	239	\$		
Total	\$	1649	\$	1394	\$	255	15.5%
Annual End-Use Consumption							
Heating (Therms)		743		498		245	32.9%
Heating (kWh)		384		292		92	24.0%
Cooling (kWh)		664		427		237	35.6%
Water Heating (Therms)		232		219		13	5.5%
Lights & Appliances (Therms)		104		104			
Lights & Appliances (kWh)		3551		3453		98	2.8%
Annual Energy Demands (kW)							
Heating		0.1		0.1		0.0	24.0%
Cooling		1.3		1.0		0.2	18.2%
Water Heating (Winter Peak)		0.0		0.0			

183-0024 Building File | Certification Process Ma... | New Homes Program Cer... | Focus on Energy New Ho... | REM/Rate v 12.9 Wis...

Calculating Energy Savings

8. From the Annual End-Use Consumption section add the total kW, kWh & Therms as follows

(Therms)
 245
 13
 0
 = 258

(kWh)
 92
 237
 13
 = 427

(kW)
 = 0.2

	REFERENCE	183-0024 Confirmed	DIFF	% DIFF
Annual End-Use Consumption				
Heating (Therms)	743	498	245	32.9%
Heating (kWh)	384	292	92	24.0%
Cooling (kWh)	664	427	237	35.6%
Water Heating (Therms)	232	219	13	5.5%
Lights & Appliances (Therms)	104	104	0	
Lights & Appliances (kWh)	3551	3453	98	2.8%
Annual Energy Demands (kW)				
Heating	0.1	0.1	0.0	24.0%
Cooling	1.3	1.0	0.2	18.2%
Water Heating (Winter Peak)	0.0	0.0		
Water Heating (Summer Peak)	0.0	0.0		
Lights & Appliances (Winter Peak)	0.3	0.3	0.0	2.1%
Lights & Appliances (Summer Peak)	0.7	0.7	0.0	2.8%
Total Winter Peak	0.5	0.4	0.0	8.9%
Total Summer Peak	1.9	1.7	0.2	12.8%

Transfer these values to the Site Visit Form

Calculating Energy Savings

9. Enter the kW, kWh and Therm Values onto the Site Visit Form

PERFORMANCE INCENTIVES 22.5 Percent Better Than Code

Performance Levels: Savings Information Required

	kW	kWh	Therms
<input type="checkbox"/> Level 1 - 10% to 19% Better Than Code			
<input checked="" type="checkbox"/> Level 2 - 20% to 29% Better Than Code. 2 Technology options required	0.2	427	258
<input type="checkbox"/> Level 3 - 30% to 39% Better Than Code. 3 Technology options required			

(kW)
= 0.2

(kWh)
92
237
13
= 427

(Therms)
245
13
0
= 258

REM/*Rate* Updates

REM/*Rate* will be update to calculate:

- kW, kWh, & Therm totals
- Percent better than code value
- Wisconsin Report will be created with the above & what ever else we want

2. Send Completed Project File to WECC

Email the following to ratings@weccusa.org

- Updated Building file
- Completed BOP/Site Visit form
- Building sketch (scanned image or computer generated)
- BOP Calculations (scanned image or computer generated)

Certification Processing

WECC processes the Certification

- Review site visit forms and building file to confirm all info is accurate (random)
- Enter final information into Focus on Energy database
- Process incentives
- Issue builder/home owner portfolio



Andy Kuc

Focus on Energy New Homes Program Manager

608-249-1271 X 406

akuc@weccusa.org