

### LEEP 2.0: What's coming next for builders and renovators?

CHBA Net Zero Council Webinar

September 27, 2017

- 1. LEEP 2.0 delivery overview
- 2. BC LEEP highlights
- 3. Proposed roll-out for new, retrofit, and MURBs
- 4. LEEP technology costing spreadsheet
- 5. Upcoming Events:
  - LEEP Retrofit workshops LEEP Gas Mechanicals Technology Forums

James Glouchkow & Patric Langevin Office of Energy Research and Development, Innovation and Energy Technology Sector







## 1. The LEEP 2.0 Delivery Model

### LEEP is a builder driven innovation accelerator.

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# Change from a builder perspective...

What change to try next? Why? What are trades, cost and schedule impacts? .. ?



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## **Builders use LEEP to:**

- **reduce their time and risk** in finding and trying innovations that can help them build higher ٠ performance homes better, faster and more affordably.
- find federal research results that inform their technology decision making.
- **pool their buying power** regionally to make it worthwhile for manufacturers to address the builder group's issues. Builders in LEEP groups typically represent 50% of local production.



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"LEEP assists with bringing innovation into the market in a well thought out and responsive way."

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# **LEEP 2.0 Delivery Model**

Start

**Builder Planning Workshop:** where technologies are selected



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~ 3 months later

Completed within ~ 16 months

Ongoing – web search: NRCan LFFP

**LEEP Technology Forums:** enabling 'apples to apples' comparison



**Builder Technology Trials:** unlocking market change & inform NRCan



**New LEEP Tech Guides:** following each market's field trial learnings







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## **Responsive to regional builder needs**

Content and presenters change according to market interest.



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## Feedback on Recent LEEP Technology Forums:

#### **Builders wrote:**

"This ...has opened my eyes to many new ways of getting more energy efficient."

"Once again I'd like to say how informative the LEEP Forum was, probably the best seminar I've ever attended! Great job done by all who organized and presented."

"I think the forum was a huge success and I can confidently say it was the most practical and educational event I've attended as a builder. Keep up the good work."

32 Field Trial homes (13 in Prince George, 19 in Kelowna) with 8 builders in the field trial group moving forward with first-time attempts to build net-zero energy ready houses.

#### **BC** Provincial & Utility Partners have requested:

Expanding the LEEP initiative to more markets in BC (in both location and for other types of buildings).

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# 2. BC LEEP highlights



The Voice of the Residential Construction Industry in BC

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# **40 BC LEEP Field Trials Homes**



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#### All field trial builders are:

- trying new technologies they selected through **IFFP**
- building homes that range in performance from ENERGY STAR<sup>®</sup> to Net Zero Energy
- Using Energy Advisor services
- Evaluating design heating and cooling loads using CSA F280-12 for the first time

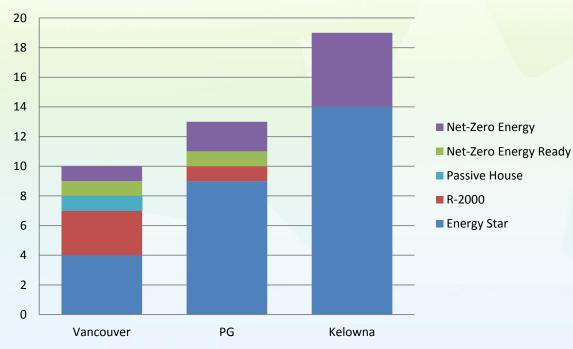
#### Also of interest:

- Most builders are participating in programs for the first times (including some reaching for NZER)
- Energy Advisors being trained to support NZER & NZE builds
- Province and utilities providing new training on how to size heating and cooling systems using materials developed through LEEP





# **LEEP BC Field Trial Trends**



### **Builder Intent by Market**



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# **LEEP BC Field Trial Trends**

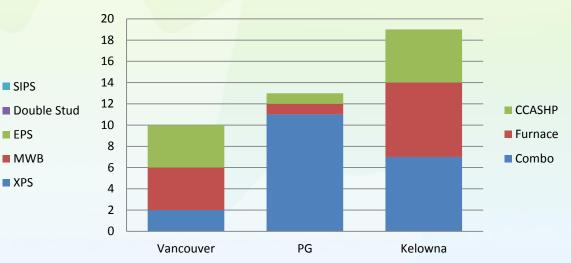
SIPS

EPS

MWB

XPS

Wall Types by Market



**Mechanicals by Market** 

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Kelowna



Vancouver

Canada

20

18 16

14

12

10

8

6

4

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## **Design Heating and Cooling Loads**

Some builders had been quoted on systems that were 2 to 4x the required size!

Design heating load (Icon Homes Example)

- Using BCBC spec and 'rule of thumb'
- Using BCBC spec and CSA F280-12 analysis
- Including one upgrade option for the envelope, windows and air tightness, and CSA F280-12 analysis



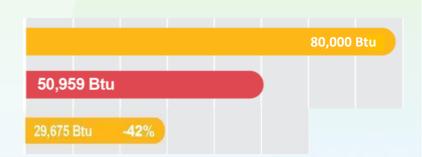


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Courtesy of the Icon Homes





# **Two Northern BC Case Studies:**

1. Shay Bulmer – Northern Homecraft Ltd., Vanderhoof, BC

2. Sam Zirnhelt – Zirnhelt Timber Frames, Williams Lake, BC





Canadian Home Builders Association NORTHERN BC



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# **Both builders...**

- Have been building homes for many years
- Had not participated in any programs previously (R-2000, ENERGY STAR<sup>®</sup> etc)
- Participated in the Prince George LEEP Technology Forum last November. (Shay was also at the builder planning meeting that set the tech focus for the Forum.)
- Found some technologies they wanted to deploy in builds they were already planning.
- Signed the one page letter of intent to build a high performance field trial home deploying these technologies (13 Northern BC builders signed by the end of the Forum.)
- Went back to their customers and found ways to build towards...

### **CHBA Net Zero Ready**

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Northern Homecraft Ltd.



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#### Northern Homecraft Ltd.



#### Striving to be the first CHBA Net Zero Ready labelled home for CHBA Northern BC!

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**Zirnhelt Timber Frames Esk'Etmec First Nation Health and Wellness Centre** 



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### **Zirnhelt Timber Frames Esk'Etmec First Nation Health and Wellness Centre**



Striving to be the first CHBA Net Zero Ready building on First Nation Lands & one of the first CHBA Net Zero Ready commercial buildings!

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# **Design Considerations**

### ... & how we used LEEP to help us address each one

Element	Northern Homecraft Ltd.	Zirnhelt Timber Frames
Energy Advisor	$\checkmark$	$\checkmark$
NZ Energy Advisor Support	$\checkmark$	$\checkmark$
HL/HG Calculation	$\checkmark$	$\checkmark$
Mechanical Design	$\checkmark$	$\checkmark$
Envelope Upgrades	$\checkmark$	$\checkmark$
Mechanical Upgrades	$\checkmark$	
Renewable Energy Systems	Solar Ready	Solar Ready
Anticipated Energy Performance	Net Zero Ready	Net Zero Ready

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#### **LEEP VIDEO 1701 AGASSIZ - NATHAN STONE**

CLIENT: BC HOUSING - KAREN KARAKOULAS **BC HOUSING - CARLY HUNTER** 

PRODUCER: TNE - KYLE KOCH **TNF - CARRIE RICHES** 

VERSION: V16 - FINAL DATE: SEPT 10, 2017

FORMAT: 3840x2160 23.98 RUNNING TIME: 3:12

DOWNLOAD LINKS: h264 1920x1080 h264 3840x2160 ProRes422HO 1920x1080 ProRes422HO 3840x2160



Agassiz **British Columbia** 

3900 ft<sup>2</sup> Residence BC Energy Step Code: 3 Climate Zone: 4 Air Tightness ACH @50Pa: 1.9 Energy Rating: 63 GJ/year Certified ENERGY STAR®

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### Look for Sam and Shay in upcoming Highlights!

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## 3. Proposed roll-out for new, retrofit, and MURBs

Tentative subject to funding approvals

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### **LEEP for New Housing**

**LEEP for New Housing:** ٠ Expanded delivery with 2 new regional deliveries beginning every year. (Order of regional delivery may change.)

OCAL ENERGY EFFICIENCY PARTNERSHIPS Canadian Regional LEEP for New Housing Roll-out

PANELIZED CONSTRUCTION

Year 1

Year 2

Year 3

Year 4

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Year 9

Year 10

### **LEEP for Retrofit Housing**

**LEEP for Retrofit Housing:** New initiative that will start by developing a new model and then have new regional deliveries every year. (Order of regional delivery may change.)

OCAL ENERGY EFFICIENCY PARTNERSHIPS Canadian Regional LEEP for Retrofit Housing Roll-out

Year 0 Year 1 Year 7 Year 8 Year 2 Vear 5 Year f PRE-PILOT PILOT REGION



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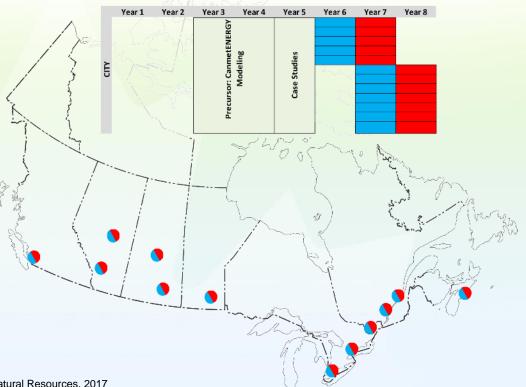


### **LEEP for Commercial Buildings**

**LEEP for Commercial Buildings:** New initiative with delivery starting later in cycle once LEEP for Retrofit has been established and CanmetENERGY has developed base materials. It will likely focus on new Multi Unit Residential Buildings (MURBs).

OCAL ENERGY EFFICIENCY PARTNERSHIPS

Canadian Regional LEEP for Comercial Buildings Roll-out



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## 4. LEEP technology costing spreadsheet

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### **LEEP Costing Spreadsheet Vision**

### To enable builders to:

- Cost technology innovations that LEEP builders have incorporated in their homes.
- Customize this spreadsheet to their own specific conditions so that it is relevant to the homes they build.
- Use costing to help select high performance housing technologies.

To enable industry to have a common costing framework for new innovative technologies that they can develop and share as they see fit.

### CHBA has requested a copy of the worksheet that they can share with those that are interested through the NZ Council.

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4	Vision																														
	This tool has been developed to enable builders to: - Cost technology innovations that LEEP builders have incorporated in their homes; - Customize this spreadsheet to their own specific conditions so that it is relevant to the home they build; and - Use costing to help select high performance housing technologies. Additionally, this tool will enable industry to have a common costing framework for new innovative technologies that they																														
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6 ABOVE GRADE WALLS PERIMETER HEIGHT (R) (R) AREA (sq.k.)	no user input is required.			
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19 ROOF AREA(sq.k.)				
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#### CONVENTIONAL FRAMING

Windows, DG, vinyl, high SHGC, low-e, argon, Insulating spacers - casement

23 Concrete cast-in-place foundation wall, 203mm (8"), excluding footings

25 Framing, conventional, 38x89mm (2"x4") @ 406mm (16") o.c.

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21 22 FOUNDATION

4	CONVENTIONAL TRAINING							
5	Framing, conventional, 38×140mm (2″×6″) ⊚ 406mm (16″) o.c.	sfwall	3,751.24	0.63	2,365	0.53	1,990	4,355
6	Plywood, 13mm (1/2")	sf applied	3,421.68	0.57	1,950	0.36	1,230	3,180
7	Insulation, R24 batt (fiberglass)	sf applied	3,421.68	1.12	3,830	0.28	960	4,790
8	Vapour barrier, 6 mil polyethylene	sf w all	3,421.68	0.11	370	0.28	960	1,330
9	Water Resistant Barrier (WRB) (includes taping seams)	sf applied	3,421.68	0.13	445	0.29	990	1,435
10	Strapping, 1×4 @ 16" o. c.	sfwall	3,421.68	0.10	340	0.50	1,710	2,050
11	1/2" Gypsum board	sfwall	3,421.68	0.35	1,200	0.41	1,405	2,605
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15	DOUBLE GLAZED WINDOWS							

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#### INSTRUCTIONS [DOES NOT PRINT]

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STEP 1: If you want to change the sample set of specifications below, click on each individual cell you want to change.

STEP 2: Click on the arrow to activate the dropdown menu of options. Scroll through the menu to find and select your preferred option.

STEP 3: OPTIONAL: To create a customized specification, go to the "STEP 3-LOCAL COSTS" worksheet and add your new specification to the list of options. Return to STEP 1 to find and select your customized specification.

STEP 4: To add additional components, click on a blank call in the SPECIFICATION column. Follow Step 2 to select your preferred option. You must also retrieve the relevant quantity from the "STEP1-GEOMETRY OF HOME" worksheet which can be done by entering the amount manually, OR by automating the retrieval function (to automate, select the quantity cell, and begin with an equal sign (=), then find and click on the cell that you want to use on the "STEP1-GEOMETRY OF HOME" worksheet). Confirm that the value is correct.

STEP 5: Verify that the quantities have been entered correctly.

LOCAL COSTS" worksheet.

NOTE: Unit costs are automatically retrieved from the "STEP 3

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STEP 4 UPGRADE COMPARISON

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325

325

- - - **F** OVERVIEW Ready

27 Vapour barrier, 6 mil polyethylene

24 Exterior dampproofing

26 Insulation, R12 batt

STEP 1 GEOMETRY OF HOME STEP 2 BASE CASE SPECIFICATIONS STEP 3 BUILDER COSTS & SPECS

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ABOVE GRADE WALL XPS R24 ABOVE ... (+)

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5 Framing, conventional, 38×184mm (2"×8") @ 406mm (16") o.c.	sfwall	0.87	0.53	on all of the othe	er worksheet	and builder selected s in this series. It is	s critical that you													
6 Framing, conventional, 38x140mm (2"x6") @ 406mm (16") o.c.	sfwall	0.63	0.53	verify and upda	te the costs	and specifications ain relevant comparis	to match your													
7 Framing, conventional, 38x83mm (2"x4") @ 406mm (16") o. c.	sfwall	0.46	0.53	To update:		and the varie of a light for the light for t														
8 Framing, advanced, 38x140mm (2"x6") @ 610mm (24*) o.c	sfwall	0.60	0.39	1. To change the	description (	of an existing specific	ation, click on the													
9 Framing, double stud wall, 305mm (10 or 12") (expand footprint)	sfwall	0.80	0.90	cell and edit th	e text (in B	LACK). NOTE, if ade a prior selection	you change the													
10 Framing, double stud wall, 305mm (10 or 12") (Maintain existing footprint)	sfwall	0.64	0.90	STEP 4 workshe	et), you mus	t re-select your new	description from													
11 Framing, interior basement, 38x89mm (2*x4*) @ 610mm (24*) o.c.	sfwall	0.24		the dropdown me																
12         Framing, interior basement, 38×140mm (2"x6") ⊚ 610mm (24") o.c.           13         Strapping, 1x4 @ 16" o.c.	sfwall sfwall	0.36	0.51	<ol><li>To change th cost. Costs are an</li></ol>	e costs (in B utomatically u	LUE), click on the ce pdated in the other w	ell and enter your orksheets.													
13 Strapping, IX4 @ 16 o.c. 14 Floor framing, conventional, 38x235 (2"x10") @ 610mm (24") o.c.	sr waii sf floor	0.00	0.00	3. To add a spec	cification, clic	k on a blank cell unde	er the appropriate													
15	211001	0.00	0.00	category and er	nter your de	scription, units of m	easurement and													
16 DRYWALL																				
17 1/2" Gypsum board	sfwall	0.35	0.41																	
18																				
19 SHEATHING																				
20 Oriented Strand Board (OSB), 12mm (7/16")	sf applied	0.26	0.36																	
21 Plywood, 13mm (1/2")	sf applied	0.57	0.36																	
22 23 WATER, VAPOUR AND AIR CONTROL LAYERS	-																			
23 WATER, VAPOUR AND AIR CONTROL LATERS 24 Water Resistant Barrier (WRB) (includes taping seams)	sf applied	0.13	0.29																	
24 water Resistant Darrier (WRD) (includes taping seams) 25 Water Resistant Barrier (WRB) self sealing vapour permeable	sf applied	1.18																		
28 Vapour barrier, 6 mil polyethylene	sfwall	0.11	0.28																	
27 Selective vapor retarder, membrane material	sfwall	0.22	0.28																	
28																				
29 INSULATION																				
30 Insulation, spray foam, 38mm (2"), R6/inch	sf applied	1.64	0.86																	
31 Insulation, spray foam 2pd urethane, 5.5" thickness (R-33)	sf applied	1.93	1.72																	
32 Insulation, spray foam, 2pound urethane, 7.5" thickness (R-45)	sf applied	2.37	2.58																	
33 Insulation, R12 batt	sf applied	0.36	0.28																	
34         Insulation, R14 batt (fiberglass)           35         Insulation, R14 batt (mineral wool)	sf applied sf applied	0.35																		
36 Insulation, R20 batt (fiberglass)	sf applied	0.03	0.28																	
37 Insulation, R22 batt (fiberglass)	sfapplied	0.71	0.28																	
38 Insulation, R24 batt (fiberglass)	sf applied	1.12																		
39 Insulation, R28 batt (fiberglass)	sf applied	0.95	0.28																	
OVERVIEW STEP 1 GEOMETRY OF HOME STEP 2 BASE CASE SP	ECILICATION	IC STER		COSTS & SPECS	CTED	4 UPGRADE CON			RADE WALL	VDS P24	ABOVE	A .	•	[						
-	CONCATION	J STEP	5 BOILDER	00010 0007200	JIEP	- OF GIVADE COI	ANDON	ABOVE OF	CADE WALL	- XF3 N24	ABOVE			L				-	Π	
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1	ENERGY EFFICIENT TEC	CHNOLO	OGY COS	ST COMPAR	TOR SP	READSHEI	ET																
2	BASE TECHNOLOGY: CONVENTIONAL FRAMING INNOVATIVE TECHNOLOGY: R-30 EXTRUDED POLYSTYRENE (XPS) WALL HOME MODEL, LOCATION, BUILDER: 3370 sq. ft. Walkout, located in Abbotsford, BC, built by BC Lower Mainland LEEP																						
4 5 6	SPECIFICATION	UNITS	QTY.	MATERIAL UNIT COST (\$)	& EQUIP. COST (\$)	LABO UNIT CUST (\$)	OUR COST (\$)	TOTAL COST (\$)															
7	BASE TECHNOLOGY: CONVENTIONAL FRAMING																						
8	Framing, conventional, 38x140mm (2"x6") @ 406mm (16") o.c.	sf w all	3,751.24	0.63	2,365	0.53	1,990	4,355	INS	TRUCTIONS													
9	Plywood, 13mm (1/2")	sf applied	3,421.68	0.57	1,950	0.36	1,230	3,180		neral Notes													
10	Insulation, R24 batt (fiberglass)	sf applied	3,421.68	1.12	3,830	0.28	960	4,790	inpu	its from dropdown me	in BLUE TEXT cells re enus OR by manual er update; no user input is	ntry. All other va	select alues										
11	Vapour barrier, 6 mil polyethylene	sfwall	3,421.68	0.11	370	0.28	960	1,330	Imp	ortant: Costs will vary	substantially for each	technology base	ed on										
12	Water Resistant Barrier (WRB) (includes taping seams)	sf applied	3,421.68	0.13	445	0.29	990	1,435	fact	ors. Builders must	cation, trades capac update technology de relevant to their practic	escriptions, line it	items										
13	Strapping, 1×4 @ 16" o.c.	sf w all	3,421.68	0.10	340	0.50	1,710	2,050	thei	r regions. See disclai	imers on OVERVIEW t	tab.											
14	1/2" Gypsum board	sfwall	3,421.68	0.35	1,200	0.41	1,405	2,605		p-by-Step Instruction													
15		-		-	0	-	0	0	Cas	e in cell F2.	ovative system to be o												
16	TOTAL				\$ 10,500		\$ 9,245	\$ 19,745	thos	se found in the "S'	BASE CASE SYSTEM TEP 2 BASE CASE nt of the home.	A specifications m SPECIFICATIO	match ONS"										
17	INNOVATIVE TECHNOLOGY: R-30 EXTRUDED POLYSTYRENE (XPS) WALL Step 3: To define the INNOVATIVE SYSTEM specifications, click on each individual cell you wint to change.																						
	Framing, conventional, 38x140mm (2"x6") @ 406mm (16") o.c.	sf w all	3,751.24	0.63	2,365	0.53	1,990	4,355	activ	p 4: Click on the an vate the dropdown m ect your preferred opti	row on the right han nenu. Scroll through t	d side of the or the menu to find	ell to d and										
	Insulation, XPS Type 3, rigid, 25mm (3")	sf applied	3,421.68	2.10	7,185	0.89	3,045	10,230	Stei	p 5: OPTIONAL: To o	reate a new customize COSTS & SPECS'' wo	ed specification, g	go to										
20	Oriented Strand Board (OSB), 12mm (7/16'')	sf applied	3,421.68	0.26	890	0.36	1,230	2,120	new	specification to the	list of options with yo t your customized spec	our costs. Retu											
21	Insulation, R22 batt (fiberglass)	sf applied	3,421.68	0.71	2,430	0.28	960	3,390	Ster	p 6: To add additions	al components, click o column. Follow Ste	on a blank cell ir	in the your										
22	1/2" Gypsum board	sf w all	3,421.68	0.35	1,200	0.41	1,405	2,605	pref	ferred option. You m "STEP1 GEOMETRY	ust also retrieve the r ' OF HOME" workshee	relevant quantity et which can be	from done										
23	Strapping, 1x4 @ 16" o.o.	sf w all	3,421.68	0.10	340	0.50	1,710	2,050	fund	ction (to automate, s	manually, OR by aut elect the quantity cell and click on the cell the	II, and begin with	th an										
24		-		-	0	-	0	0	the	"STEP1 GEOMETRY ue is correct.	OF HOME" workshe	et). Confirm that	at the										
25		-		-	0	-	0	0			antities have been ente cost impact of an In		-										
26	TOTAL				\$ 14,410		\$ 10,340	\$ 24,750	898	inst a Base Case T ST IMPACT" cell.	echnology for your h	ome in the "INI	ITIAL										
27 28 29 30 31 22							IST IMPACT																

 • ...
 STEP 2 BASE CASE SPECIFICATIONS

 STEP 3 BUILDER COSTS & SPECS

 STEP 4 UPGRADE COMPARISON

 ABOVE GRADE WALL XPS R24

 ABOVE GRADE WALL XPS R30

 ABOVE GRADE WALL XPS R30
 </td

### **5. Upcoming Events: LEEP Retrofit workshops LEEP Gas Mechanicals Technology Forums**

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Canada



# **LEEP Retrofit workshops**

### **Objective:**

**Reduce renovator time and risk** in identifying, refining, and selecting innovations that can improve the energy performance of the homes you fully renovate (with or without an addition) by at least 40% all the way to Net Zero Ready.

Retrofit LEEP responds to CHBA's request to: "...expand (LEEP) to include energy retrofit technologies." Canadian Home Builders Association, 2016

**Preparing Renovators** for Increased Home **Energy Performance** Net Zero Net Zero Ready (~80% better) ~40% better 1980's home

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# **Retrofit LEEP Planning Steps**

November 2017

#### 1. Renovator Planning Meeting #1

- Define gaps, barriers and benefits of preferred envelope systems
- Prioritize envelope systems
- **Define technical challenges**
- Identify those who can address the technical challenges and supply preferred envelope systems.



#### April 2018

#### 2a - Industry response to renovator envelope system requirements

- Assess manufacturer/supply chain response
- Select manufacturer/supply chain to present preferred systems at LEEP Forums

#### **2b** - Assess and prioritize requirements for mechanical systems

Define challenges on priority approaches



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June-July 2018 (...or wait until fall?)

#### 3. LEEP Renovators Technology Forum(s)

 Selected manufacturer/supply chain respond to renovator planning groups' defined challenges for envelope and/or mechanical systems







Canada

# **Next Steps:**

- Renovator Planning Meeting #1 November 21<sup>st</sup> in London, ON
- London Home Building Association (LHBA) is prime delivery partner.
- LHBA and CHBA actively recruiting renovators for first meeting from London and surrounding HBAs.
- Technical materials and content under development.
- Facilitation for planning meeting #1, under development.

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Image courtesy of: Stuart Fix - Renu





## **LEEP Gas Mechanicals Forums**

### One day forums coming this fall and winter

Partners: CGA, Atco Gas, SaskENERGY, Enbridge, Union Gas,

CHBA, LHBA, BILD, GOHBA, HHHBA, BILD-Calgary, CHBA-Edmonton, SRHBA, RRHBA

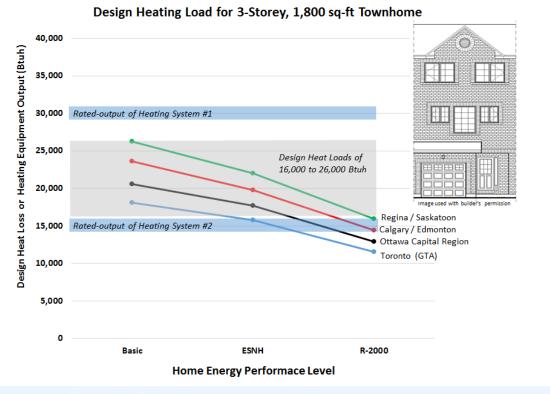
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Canada



### Many of today's homes need smaller heating systems



These singles have similar low design space heating loads



Image used with builder's permission



Image used with builder's permission

Design space heating loads can be far less yet for back-to-backs and stacked towns

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### Mechanicals challenges for the low load home market

- Builders individually and through the CHBA's Technical Research Committee (TRC) have ٠ identified the need for more appropriately sized systems.
- Through LEEP we have seen equipment being quoted that is 2 to 4x the calculated Design ٠ Heating Load!
- The Canadian Gas Association and 5 member utilities (FortisBC, Atco, SaskEnergy, Enbridge ٠ and Union Gas) have contracted the LEEP team to address the sizing issue raised at TRC.
- The Forums will also address needs such as: improving air distribution in tall homes; window ٠ selection and impact on air conditioner sizing; and cost effective energy efficient solutions.

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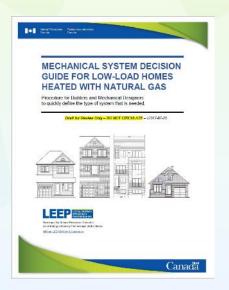
## **LEEP Gas Mechanicals Technology Forums**

At these one day forums, participants will:

1) Interact with an expert panel to review today's **HVAC** challenges



2) Learn to use a new 12 step decision guide to find the types of mechanical systems you want for the homes you build



3) Learn about and compare costed best practice HVAC systems for a case study home from 4 utility selected manufacturers.



Systems shown are those selected by Union Gas for presentations in London and Hamilton



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## **LEEP Gas Mechanicals Technology Forums**

## Delivered in partnership with local HBAs.

### December 12, 2017:

London see sample agenda  $\rightarrow$ 

#### Winter/Spring 2018:

GTA BILD – Date TBD Hamilton – Date TBD Ottawa – Date TBD Calgary – Date TBD Edmonton – Date TBD Regina – Date TBD Saskatoon – Date TBD



#### You're invited to attend this technical forum to:

- Learn how to avoid call backs related to heating and cooling comfort for homes with low design heating loads.
- Learn a new procedure to quickly define the type of mechanical equipment (furnace or combo based system) and distribution approach that best suits your next low load homes.
- Compare 4 competitive manufacturer approaches to the same Case Study Home challenge – for an energy efficient, costed, best practice HVAC system.

#### P Gas Mechanicals Technology Forum

CAL ENERGY Date: ICIENCY Location: December 12, 2017 (8:00 am - 4 p.m.) Best Western Stonebridge Inn, 6675 Burtwistle Lane, London, Ontario

Register at <a href="https://leepforumlondon.eventbrite.ca">https://leepforumlondon.eventbrite.ca</a> or call (519) 686-0343 if you have questions. This event is administered by London's HBA on behalf of SW Ontario HBAs.

Cost: \$60/40 + HST & includes lunch (\$40 per additional employee or student)

This Forum has been developed in response to builder demand for heating and cooling systems that better address homes with design space heating loads of 30,000 btu or less. It will help you find solutions in a time saving way.

Home building practices are changing with more housing that is either attached, tall, open concept, and/or energy efficient. CHBA's Technical Research Committee has identified that the industry needs mechanical solutions for these homes.

This Forum has been developed by Natural Resources Canada's LEEP team with support from the Canadian Gas Association. It brings together experts and pre-vetted manufacturers to present their recommended solutions for your review.

Developed for Southwestern Ontario and supported by:





#### **REGISTRATION** (8:00 - 8:30 am) Welcome (8:30 am) Peder Madsen, President, LHBA Today's logistics James Glouchkow, NRCan LEEP Interactive Panel discussion: Industry Panel: HVAC challenges for homes with low design Doug Tarry, Andy Oding, loads Dara Bowser Learn a new procedure to guickly define the type of mechanical equipment and Facilitator: distribution system that best suits your next Terry Strack, Strack & Associates low load home project. BREAK Review case study home duct design and Dara Bowser, Bowsertech installation practices ENERGY STAR® for New Homes Update Andy Oding, Building Knowledge Mechanical solution for case study home Philippe Verhas, Dettson (furnace-based)

#### LUNCH

How to shortlist combo systems using CSA P.9-11 test results Mechanical solution for case study home

(combo-based)

Luigi Pulice, Ecosmart

Ramzi Handal, iFLOW

Dara Bowser, Bowsertech

BREAK

Mechanical solution for case study home (combo-based) Steve Bagshaw, NTI

Mechanical solution for case study home (combo-based)

WRAP-UP (by 4 pm)

Manufacturers will remain available for further discussions until 4:30 pm.







# **Questions?**



James.Glouchkow@Canada.ca

Patric.Langevin@Canada.ca

Shay Bulmer, Northern Homecraft Inc.: <a href="mailto:theguys@northernhomecraft.com">theguys@northernhomecraft.com</a> Sam Zirnhelt, Zirnhelt Timber Frames: info@ztframes.com

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