TT 2021-09-07 BCIT Building Science Lab A.Herbert, M.McWilliam, & S.St-Amour editedBR

Alex Herbert, Mary McWilliam, & Shaun St-Amour, Back to School at the BCIT Building Science Lab: 2021-09-07

Today's video at British Columbia Institute of Technology's High-Performance Building lab at the Zero Energy Building Learning Centre features a detailed look at PH Wall Mock-ups, demonstrating how to:

1. Keep bulk water away from our buildings;
2. Ensure we create continuous air barriers;
3. Place the vapour control layer in the correct position based on the local climate zone; and
4. Install an adequate amount of insulation based on the energy model.

We'll also review the four major connections of your air barrier system:

1. Foundation to Wall;
2. Wall to Window;
3. Wall to Roof;
4. Electrical and Plumbing Penetrations.

Summary of the Links and Product references in the chat:

09:04 AM Shannon Pendleton Welcome to BCIT everyone! https://www.bcit.ca/; https://commons.bcit.ca/energy/research/high-performance-building-lab/ https://commons.bcit.ca/zeroenergybuildings/leep-walls-series/

09:07 AM Shannon Pendleton https://commons.bcit.ca/zeroenergybuildings/ LEEP Local Energy Efficiency Programs; Connect with tonight's presenters on LinkedIn: Shaun St. Amour, https://www.linkedin.com/in/shaun-st-amour-a497841/; Mary McWilliam, https://www.linkedin.com/in/mary-mcwilliam-a27b5036/

09:19 AM Barbara in Oz Will the BCIT course include instruction on CLT buildings? Also, I'd like to put a flat roof on my CLT home so I can grow plants across it below my PV panels. A green roof maintains lower temperatures in the summer, thereby keeping PV panels within their optimum operational temperatures https://www.abc.net.au/news/2021-08-24/nsw-green-roofs-make-solar-panels-more-efficient/100400552

09:31 AM AJay- Oculus NZ Yay hemp for the win! We're trying to get the hemp building industry off the ground (pun intended) in New Zealand- anyone who is interested in getting in touch can message me on LinkedIn: https://www.linkedin.com/in/ajaymorris/

09:42 AM Mark Wille Did I hear the word #discord? https://discord.com/channels/732363622923370587/863200537252200459

09:45 AM AJay- Oculus NZ Barbara Hemp Fibre has just started to be manufactured in NZ- Hemp Farm NZ is a good place to start. https://hempfarm.co.nz/

09:47 AM Aperture Workshop US supplier Shaun mentioned: https://www.hempitecture.com/

09:52 AM Shannon Pendleton https://www.buildersforclimateaction.org/ ; https://www.chrismagwood.ca/embodied-carbon.html

10:01 AM Mark Wille WALL ASSEMBLY Every WED at 11 tmrw. check out this IG link for the zoom... https://www.instagram.com/tv/CTiZGwWgCGY/?utm_source=ig_web_copy_link

10:06 AM Shannon Pendleton You bet Todd stand by :) Shaun St. Amour, https://www.linkedin.com/in/shaun-st-amour-a497841/; Mary McWilliam, https://www.linkedin.com/in/mary-mcwilliam-a27b5036/

10:18 AM Mark Wille Links to the videos of BCIT are on my LinkedIn post. https://www.linkedin.com/posts/mark-build-small-casitas-wille_net-zero-energy-ready-walls-leep-video-activity-6841118622778322944-t3sw

10:22 AM Dylan Ingui How to get into the server:

1. Go to discord.com and hit "download for ___".
2. After that open the downloaded file and this should install the discord application.
3. Open the discord app and it will ask you to login but create an account (unless if you already have one then skip to step 5) so do this and be sure to verify the email/phone number you attached.
4. If you signed up correctly you should be able to login and it should bring you to a new screen.
5. Click this link https://discord.gg/kcFbDkpcv4

How to join voice chat (make sure you're in the server first):

1. Scroll on the list of channels you see in the left side (#rules #announcements #events etc.) until you see a voice channel named "After Hour"
2. Click the after hour voice chat and you should be good to go!
3. If you want to be an even better server member then go to the roles channel and get yourself some roles and to top it off change your nickname so we know who you are (if you need help with any of that there's a channel named #tutorial and that has a video teaching you how to use Discord).

10:22 AM Dylan Ingui (Those are different but if you need to contact me my email is dylan@passivehouseaccelerator.com)

10:33 AM Shannon Pendleton Here is a link to the Wall Assemblies, PH Accelerator Sept 2 2021 LEEP WALL Details Comparison.docx. (Editor's note: this document was downloadable only during the live Zoom presentation. All information in the document was incorporated into the chat text, below.)

10:36 AM Shannon Pendleton For those who would like the wall assembly layers from tonight's presentation feel free to connect with me on LinkedIn to request https://www.linkedin.com/in/shannon-pendleton-a473921/

10:44 AM Shannon Pendleton https://commons.bcit.ca/zeroenergybuildings/passive-house-series/; Zero Energy Buildings for a Complex World. Passive House Series of Videos! check out episode 4 (CLT framing); episode 5 (5 critical layers) https://passivehouseaccelerator.com/construction-tech-tuesday

11:01 AM Dylan Ingui Dylan@passivehouseaccelerator.com; https://discord.gg/kcFbDkpcv4; https://www.youtube.com/c/PassiveHouseAccelerator

Abbreviations, Slang, and Technical Terms used in the chat:

AB – Air Barrier

WRB / wrb – Wind Resistant Barrier

GhG – Greenhouse Gas

MURB - Multi-unit Residential Building • Aka: Multifamily Residential (MR), Multi-dwelling Unit (MDU) • Multiple separate dwelling units are contained within one building or a complex of buildings • Separate living units with a shared wall • Anything from a townhouse to an apartment

o.c. – 'on-center' / 'on-centre' refers to a given dimension is measured from the center / centre of one framing member to the center / centre of the next.

lmk – let me know

bc - because

OSB / osb – Oriented Strand Board

CDX plywood - CDX plywood is faced with class C & D veneers – i.e. likely to have many knotholes & deformities; X stands for exposure. CDX is sufficiently sturdy and dimensionally stable for use in roofing and foundations, but it cannot withstand prolonged exposure to water.

Thx – thanks

TY - Thank you

Pls - Please

Discord – Invite-only Webserver application hosting PH Accelerator attendee discussions: discord.com

WUFI – This is an abbreviation for the German phrase 'Wärme-und Feuchtetransport instationär'. English translation: 'Heat and moisture transport'. A WUFI analysis calculates the transfer of heat and moisture within building components.

The chat: (Note: time signatures are Australian Eastern Standard Time)

09:02 AM John Beurle – Australia Cool intro

09:02 AM Ben Larsen Very NCIS

09:03 AM Roz Shakiba Hi

09:04 AM Shannon Pendleton Welcome to BCIT everyone! https://www.bcit.ca/; https://commons.bcit.ca/energy/research/high-performance-building-lab/

09:07 AM Shannon Pendleton https://commons.bcit.ca/zeroenergybuildings/; LEEP Local Energy Efficiency Programs; Connect with tonight's presenters on LinkedIn: Shaun St. Amour, https://www.linkedin.com/in/shaun-st-amour-a497841/; Mary McWilliam, https://www.linkedin.com/in/mary-mcwilliam-a27b5036/

09:07 AM ZEBx I believe that Matt Risinger visited this lab …

09:09 AM Shannon Pendleton PHavorite walls :) :) :). Pheel PHree to add your questions to the chat for after the presentation.

09:13 AM Shannon Pendleton Walls in order of Embodied Carbon from High to Low

09:13 AM Shannon Pendleton **Wall Assembly #1 Split-Wall: Low Permeable Exterior Insulation as Air and Water Barrier**

Performance

R-Value R 37, whole wall effective R-value (with 23% framing factor)

Drying Assembly will dry to interior only with impermeable exterior insulation. Note – there is no interior vapour barrier.

Carbon 216* kgCO2/m^2 embodied carbon emissions (*pre-2021 low-GhG blowing agent regulation)

Assembly Materials

- 1/2" Gypsum board
- Framing, conventional, 38x140mm (2"x6") @ 406mm (16") o.c.
- Owens Corning R24 EcoTouch Pink Fiberglas Insulation, R24 batt (fiberglass) - THERMAL BARRIER
- Plywood, 13mm (1/2")
- Owens Corning Foamular XPS Insulation 100mm (4") - WATER RESISTIVE BARRIER + AIR BARRIER +

THERMAL BARRIER + VAPOUR BARRIER

- Owens Corning joint sealing tape to make WRB/AB - WATER RESISTIVE BARRIER + AIR BARRIER
- 3/4" X 3" pressure-treated strapping + 6" screws
- 7.5" Hardi Panel, including painted trim + basic flashings - WATER SHEDDING SURFACE
- Polyurethane spray foam insulation at framing interfaces (between floor joists for air sealing) – THERMAL BARRIER

09:13 AM ZEBx (Part 3) Are these walls typical of both house construction and wood-framed MURB construction?

09:14 AM Shannon Pendleton Thx ZEBx :)

09:14 AM ZEBx Typical …. Maybe the right word is applicable.

09:14 AM Shannon Pendleton **Wall Assembly #2 Split-Wall: Vapour Permeable Exterior Insulation with Airtight Sheathing Membrane**

Performance

R-Value R 34, whole wall effective R-value (with 23% framing factor)

Drying Assembly will dry to exterior with permeable exterior insulation, but drying could be improved with use of Smart Vapour Barrier to also allow drying to interior.

Carbon 31 $kgCO2/m^2$ embodied carbon emissions

Assembly Materials

- 1/2" Gypsum board
- Vapour barrier, 6 mil polyethylene - VAPOUR BARRIER (OPTIONAL SECONDARY AIR BARRIER)
- Framing, conventional, 38x140mm (2"x6") @ 406mm (16”) o.c.
- Rockwool Comfortbatt Insulation, R24 batt (fiberglass) - THERMAL BARRIER
- Plywood, 13mm (1/2")
- Tyvek HomeWrap as WRB and AB (includes taping seams) - WATER RESISTIVE BARRIER + AIR BARRIER
- Tyvek joint sealing tape to complete AB/WRB – AIR BARRIER
- Rockwool Comfortboard 110 Insulation mineral wool board 8 lb. 100mm (4") - THERMAL BARRIER
- 3/4" X 3" pressure-treated strapping + 6" screws
- 7.5" Hardi Panel, including painted trim + basic flashings - WATER SHEDDING SURFACE
- Polyurethane spray foam insulation at framing interfaces (between floor joists for air sealing) R24 at 12” cavity height - THERMAL BARRIER

09:17 AM Shannon Pendleton **Wall Assembly #3 Split-Wall: Low Permeable Exterior Insulation with Airtight Sheathing Membrane**

Performance

R-Value R 35, whole wall effective R-value (with 23% framing factor)

Drying Assembly will dry to interior only with impermeable exterior insulation. Note – there is no interior vapour barrier.

Carbon 27 $kgCO2/m^2$ embodied carbon emissions

Assembly Materials

- 1/2" Gypsum board
- Framing, conventional, 38x140mm (2"x6") @ 406mm (16”) o.c.
- Owens Corning R24 EcoTouch Pink Fiberglas Insulation, R24 batt (fiberglass) – THERMAL BARRIER
- Plywood, 13mm (1/2")
- Tyvek HomeWrap as WRB and AB (includes taping seams) – WATER RESISTIVE BARRIER + AIR BARRIER
- Mesh Drain Mat

- 4" EPS – THERMAL BARRIER + VAPOUR BARRIER
- 3/4" X 3" pressure-treated strapping + 6" screws
- 7.5" Hardi Panel, including painted trim + basic flashings - WATER SHEDDING SURFACE
- Owens Corning R24 EcoTouch Pink Fiberglas Insulation, R24 batt (fiberglass) at framing interfaces (between floor joists for air sealing) – THERMAL BARRIER

09:18 AM Shannon Pendleton Grooves = Drainage Plane

09:19 AM Barbara in Oz Will the BCIT course include instruction on CLT buildings? Also, I'd like to put a flat roof on my CLT home so I can grow plants across it below my PV panels. A green roof maintains lower temperatures in the summer, thereby keeping PV panels within their optimum operational temperatures (https://www.abc.net.au/news/2021-08-24/nsw-green-roofs-make-solar-panels-more-efficient/100400552).

09:21 AM Shannon Pendleton **Wall Assembly #4 Double Stud Wall: Interior and Exterior Air Barrier with Optional Service Wall**

Performance
R-Value R 34, whole wall effective R-value (with 23% framing factor)
Drying Assembly will dry to exterior with permeable loose fill insulation, but drying could be improved with use of Smart Vapour Barrier to also allow drying to interior.
Carbon 13 kgCO2/m2 embodied carbon emissions

Assembly Materials
- 1/2" Gypsum board
- AB / Vapour barrier, 10 mil polyethylene – AIR BARRIER + VAPOUR BARRIER
- Framing, double stud wall, 305mm (10 or 12") (Maintain existing footprint)
- Soprema's SopraCellulose Insulation, R36 dense-pack cellulose (10" double stud wall only)
- Plywood, 13mm (1/2") – THERMAL BARRIER
- Tyvek HomeWrap as WRB and AB (includes taping seams) – WATER RESISTIVE BARRIER + AIR BARRIER
- 3/4" x 1.5" pressure-treated strapping + fasteners
- 7.5" Hardi Panel, including painted trim + basic flashings - WATER SHEDDING SURFACE
- Polyurethane spray foam insulation at framing interfaces between floor joists for air sealing) – THERMAL BARRIER

09:21 AM Shannon Pendleton GREAT CAMERA WORK MARY!!!

09:22 AM Shannon Pendleton Thanks Melvin ~ Can you expand your chat window and lmk if it's still cropped?

09:25 AM Reid Rowlands 2 air barriers - vapour closed poly?????

09:25 AM Aperture Workshop I thought we abolished poly vapor barrier a long time ago?

09:26 AM Shannon Pendleton PHriends ~ I'll share the wall assembly layers another way after the presentation :) It's come to my attention they are being cropped thx!

09:26 AM Ben Larsen It should be. It's always a mistake to use 6 mil poly.

09:27 AM Harvey Minuk Qis there an issue for the placement of the window within the wall assembly?

09:27 AM Roberto (ZEBx) Why is poly a mistake? Is it bc it's vapour impermeable?

09:27 AM Shannon Pendleton **Wall Assembly #5 (aka #1.1) Split-Wall: Vapour Permeable Exterior Insulation with Airtight Sheathing Membrane – Low-Embodied Carbon Variation**

Performance

Effective R-Value	R 35, whole wall effective R-value (with 23% framing factor)
Durability	Air barrier durable – exterior
Drying	Assembly will dry to interior or exterior with permeable exterior insulation and interior Smart Vapour Barrier.
Carbon	-1 kgCO2/m^2 embodied carbon emissions

Assembly Materials

- 1/2" Gypsum board
- Smart vapour retarder, SIGA Majrex - VAPOUR BARRIER (OPTIONAL SECONDARY AIR BARRIER)
- Framing, conventional, 38x140mm (2"x6") @ 406mm (16”) o.c.
- NATURE HEMP INSULATION Hemp Insulation, R20 batt (5.5” batt) – THERMAL BARRIER
- Plywood, 13mm (1/2")
- SONOCLIMATE ECO4 Woodfiber Insulation board (6" total) – THERMAL BARRIER
- SIGA Majvest as Water Resistant Barrier (WRB/AB) (includes taping seams) – WATER RESISTIVE BARRIER + AIR BARRIER
- 3/4" X 3" pressure-treated strapping + 6" screws
- cedar siding, including basic flashings – WATER SHEDDING SURFACE

09:28 AM Harvey Minuk	Q: what is the perm of Shaun's hair cut?
09:29 AM Reid Rowlands	Too funny
09:29 AM Shannon Pendleton	Great Question Harvey I want to know how much it $$$:)
09:29 AM Aperture Workshop	Can wood fiber replace sheathing entirely if the wrb is at the outside of the wood fiber?
09:29 AM Barbara in Oz	Who makes hemp insulation?
09:29 AM Harvey Minuk	Shannon, I am BAAAAACK
09:30 AM Melvin Lau	Shaun - summer indoor temp of 25C (not 19-21C for indoor summer!) no need for extra operational costs to wear a sweater inside during the summer!
09:30 AM Ben Larsen	Embodied energy should be considered as well. Wood fiber is very energy intensive to produce. Carbon is low but energy is high.
09:30 AM Reid Rowlands	Do Canadians not like liquid flashing?
09:31 AM AJay- Oculus NZ	Yay hemp for the win! We're trying to get the hemp building industry off the ground (pun intended) in New Zealand- anyone who is interested in getting in touch can message me on LinkedIn: https://www.linkedin.com/in/ajaymorris/
09:31 AM Mark Wille (Gutex from #475 aka @shaun.)	@aperture some wood fiber insulation can have a built in wrb. It depends.
09:31 AM Michael Ingui	such a great place! Fantastic presentation as well!
09:32 AM Ben Larsen	Every vapor barrier is an air barrier. Not every air barrier is a vapor barrier.
09:32 AM Mark Wille	Thank YOU Alex and Mary for opening the local BCIT to the International AEC Community. Bless Your Hearts.
09:33 AM Barbara in Oz	@Ben Larsen - Any idea what the embodied energy of hemp fibre insulation is?
09:33 AM Ben Larsen	I believe it’s much lower, however the jury is still out on that.
09:34 AM Barbara in Oz	Cheers,
09:35 AM Harvey Minuk	fab presentation

09:35 AM Peter H. Molenaar | CPHT PHab presentation

09:35 AM Mark Wille @Harvey you mean #PHab

09:35 AM Harvey Minuk Stand Corrected

09:35 AM Kevin Brown @Barbara - this hemp is also a bit of a “monstrous hybrid” - there’s some polyester in it to serve as a binder. I am keen on that answer too…

09:36 AM Barbara in Oz @Kevin, Ahhh - not a big fan of polyester. I'd like to avoid all petrochemical products in my house.

09:37 AM Kevin Brown Please comment on the the embodied carbon of cellulose vs the hemp.

09:37 AM Harvey Minuk #ThinkPassiveHouse

09:37 AM Ben Larsen Instead of a 6 mil poly, you could use a variable permeability vapor retarder membrane. (Such as membrain or intello)

09:38 AM S Lindsay Klein Will the videos become available to us?

09:38 AM Mark Wille Natural Resources Canada... Much Respect. We need other communities to copy this incredible model and bring mock-ups to all projects and schools. #MoreOfThis

09:38 AM Ben Larsen Mock-ups rule!

09:38 AM Aperture Workshop Would it be clearer if we consistently used the term “water vapor barrier” instead of “vapor barrier”?

09:39 AM Mark Wille @aperture managing water in All of its forms is important.

09:40 AM Brian Perth WA Thanks guys. Awesome as always, Gotta run to work now. See you next week.

09:40 AM Harvey Minuk what about using Vapour Control Layer? as a term

09:41 AM Brad in Tiny ON is there a cold climate wall you have? these look too thin for the rest of Canada

09:41 AM Aperture Workshop @Harvey - Oh yeah I like that better!

09:41 AM Harvey Minuk Is it possible to ask the Harvey Question here?

09:42 AM Mark Wille Did I hear the word #discord? https://discord.com/channels/732363622923370587/863200537252200459

09:43 AM Reid Rowlands Any chance they did a cost analysis between the walls

09:44 AM AJay- Oculus NZ I have to shoot to another meeting but thanks so much for this, so great to see those mock-ups.

09:44 AM Harvey Minuk Reid that is the Harvey Question!

09:45 AM Kevin Brown @Barabara - there’s gotta be more hemp sources in Oz…

09:45 AM Ben Larsen I am of the opinion that fiberglass batt should not be used as stud cavity insulation. Because… it only works if air cannot flow through it. (Which it always does… we’ve all seen black batt pulled from an aged wall.) Dense pack cellulose is far better on many different levels.

09:45 AM AJay- Oculus NZ Barbara Hemp Fibre has just started to be manufactured in NZ- Hemp Farm NZ is a good place to start. https://hempfarm.co.nz/

09:45 AM Mark Wille great question @barbara … I am working on a natural/hemp roundtable.... stay tuned on the PHA for more

09:46 AM Ben Larsen Yes. Hemp is carbon negative.

09:46 AM AJay- Oculus NZ Tell 'em I sent you ;)

09:46 AM Harvey Minuk will there ever be a hemp comfortboard type of application?

09:46 AM Ben Larsen There is hempcrete.

09:47 AM Mark Wille yes @harvey... many

09:47 AM Harvey Minuk but hempcrete is not carbon negative?

09:47 AM Paul T | BluPath | Philly How did you calculate the carbon content? Which program, and how accessible was the data for each material?

09:47 AM Aperture Workshop US supplier Shaun mentioned: https://www.hempitecture.com/

09:47 AM eric rehm (he/him/his) What non-foam continuous external insulation >= R5 should I be looking at besides Steico and Gutex?

09:48 AM Kevin Brown That wall, only with cellulose instead of hemp, was used to build the first certified Passive House in Alberta, as well as a certified PH+, plus 2 others, one of which is undergoing PH certification review. First one designed in 2012…

09:48 AM Harvey Minuk #HugTheHemp

09:49 AM Mark Wille @leighton we need some video bud

09:49 AM Shannon Pendleton Laura & Paul up next :); PHollowed by eric rehm

09:50 AM Mark Wille well said @alex

09:50 AM Kevin Brown Anyone want to comment on the internal vapour barrier immediately under the drywall?

09:51 AM Ben Larsen Another bombshell… OSB is a vapor barrier… but CDX plywood has at least some vapor variability

09:52 AM Harvey Minuk Gotta Jump. Thanks for Back to School. Who is the Rodney Dangerfield on this presentation? ;-)

09:52 AM Shannon Pendleton https://www.buildersforclimateaction.org/; https://www.chrismagwood.ca/embodied-carbon.html

09:53 AM Kevin Brown Yes, Ben. With a thick wall system, exterior sheathing can be an issue, not modelling very well with condensation… Interested to hear comments from presenters…I am working in Alberta (-32C design temp), which makes a difference…

09:53 AM Mark Wille @chrismagwood will be on BS live. I will work to get him on PHACT

09:54 AM Shannon Pendleton Goodnight Harvey!

09:59 AM Kylie - Sydney AU thank you!

09:59 AM Jonathan Holmes Great job guys !

09:59 AM Max Thank you all from Sydney.

10:00 AM Ben Larsen Thanks and great work on those mock-ups!

10:00 AM Kevin Brown Thanks for that - wonderful journey continues!

10:00 AM Ben Larsen Gotta jet! Next time guys!

10:00 AM Max quick question, can we get cpd points for this session?

10:01 AM Mark Wille WALL ASSEMBLY Every WED at 11 tmrw. check out this IG link for the zoom... https://www.instagram.com/tv/CTiZGwWgCGY/?utm_source=ig_web_copy_link

10:01 AM Reid Rowlands I have to say, I missed these Tuesday night tech sessions. Glad we are back on line. I have to say good bye for now. Look forward to seeing some of you PHIUS-con next month

10:01 AM Shannon Pendleton Hi Max thx for asking ~ great question I'll check.

10:02 AM Mark Wille TY @reid we are pleased to be back

10:02 AM Shannon Pendleton Have a great nite Reid! Great to have you back :)

10:03 AM Mark Wille @shannon is a kid in the bcit candy store with jingle in her pocket

10:04 AM Kevin Brown That's totally sweet!

10:05 AM Todd Usher Can someone share the linked in profiles again for the presenters? Thanks!

10:06 AM Shannon Pendleton You bet Todd stand by :) Shaun St. Amour, https://www.linkedin.com/in/shaun-st-amour-a497841/; Mary McWilliam, https://www.linkedin.com/in/mary-mcwilliam-a27b5036/

10:06 Kevin Brown Let me know when you develop that product! A wood fibre is likely going to be the way to go in that area… A frontier indeed! Dead on Mark!

10:09 Kevin Brown Shaun, that wood fibre insulation (green) at 1-1/2" thick is rated for structure the same as 7/16" ply/osb sheathing.

10:10 AM eric rehm (he/him/his) sorry. Spouse with flat tire.

10:10 AM Shannon Pendleton No worries Eric glad you're there to help!

10:13 AM Shannon Pendleton THAT"S RIGHT ~ Too bad Harvey's gone --- they show you the $$$$. Can't wait for that manual

10:15 AM Shannon Pendleton Great point Mark!

10:16 AM Mark Wille @dylan can you put up some links to #discord as well as steps people can take to join and then find PHA on the site please.

10:16 AM Kevin Brown Thanks very much to all. Excellent as always!

10:18 AM Mark Wille Links to the videos of BCIT are on my LinkedIn post. https://www.linkedin.com/posts/mark-build-small-casitas-wille_net-zero-energy-ready-walls-leep-video-activity-6841118622778322944-t3sw

10:20 AM Mark Wille Thank You @dylan and see you all on #discord

10:22 AM Dylan Ingui How to get into the server:

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2. After that open the downloaded file and this should install the discord application.
3. Open the discord app and it will ask you to login but create an account (unless if you already have one then skip to step 5) so do this and be sure to verify the email/phone number you attached.
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10:22 AM Dylan Ingui (Those are different but if you need to contact me my email is dylan@passivehouseaccelerator.com)

10:22 AM Patricia interior air barrier unit 5?

10:22 AM Amar Bennadji Great stuff guys. It's about 1:30am in the UK and I stayed to see you today and most days. But good night for now! Take care

10:24 AM Eric Rehm I did want to ask a question: any other non-foam alternatives to Steico or Gutex fir continuous exterior insulation. I can't talk but would / can hear your comments.

10:24 AM Mark Wille We Need an INyyy or OUTyyy Night on window placement. Please send PHA your ideas and window companies and installers to have this talk with the AEC community. Great call @shannon. #sydney will love it.

10:25 AM Mark Wille @todd please fire away with Questions on this.

10:26 AM Mark Wille The Uvalue of the incredible windows used for Passive House really require the area around the frame to assist the value not drive it down to a regular window.

10:26 AM Norm in Pennsylvania amen Shaun!

10:27 AM Rich Has anyone talked about those gunz that Mr St Amour is rocking?

10:27 AM Paul T | BluPath | Philly G'Night all - see you next time. You are dropping pearls of wisdom all over the place. I'm trying to pick up as many as I can.

10:27 AM Shannon Pendleton Goodnight Amar!

10:28 AM Rich PGG=Pretty Good Gunz

10:28 AM Mark Wille Just you @rich … did you get your tickets

10:28 AM Ivan Lee Minimizing thermal bridging along the perimeter of the window has a significant impact on the thermal performance of the building envelope because there can be miles/km of perimeter length for a building

10:28 AM Rich Yes and I want to know where the beach is too :)

10:30 AM Mark Wille @dylan I am ready for #discord PHollow up to #PHACT. TY for the additional walls!

10:32 AM George Nickel Thanks ! Great presentation, good night.

10:33 AM Shannon Pendleton Here is a link to the Wall Assemblies, PH Accelerator Sept 2 2021 LEEP WALL Details Comparison.docx. (Editor's note: this document was downloadable only during the live Zoom presentation. All information in the document was incorporated into the chat text, above.)

10:34 AM Shannon Pendleton Pls lmk if you have any difficulty accessing the file :)

10:36 AM Angela Horner-Xerri nicely said!

10:36 AM Rich If in doubt get a WUFI analysis done.

10:36 AM Shannon Pendleton For those who would like the wall assembly layers from tonight's presentation feel free to connect with me on LinkedIn to request https://www.linkedin.com/in/shannon-pendleton-a473921/

10:38 AM Mark Wille	Model and Mock-ups AGAIN AND AGAIN #MoreOfThis
10:40 AM Shannon Pendleton	Please remember to save the chat!
10:41 AM Angela Horner-Xerri	how do you save the chat? [….] found it
10:44 AM Shannon Pendleton	https://commons.bcit.ca/zeroenergybuildings/passive-house-series/; Zero Energy Buildings for a Complex World. Passive House Series of Videos! check out episode 4 (CLT framing); episode 5 (5 critical layers) https://passivehouseaccelerator.com/construction-tech-tuesday
10:48 AM Rich	Oh god it's like herding cats :)
10:48 AM Barbara in Oz	YES!!
10:48 AM Angela Horner-Xerri	lol1
10:48 AM Rich	Best one yet!!!
10:48 AM Angela Horner-Xerri	thank you!
10:48 AM Phong Nguyen Thien Hoang	thank you
10:48 AM Roz Shakiba	Thanks
10:52 AM Mary McWilliam	Thanks everyone for having us! BCIT team are signing off!
10:54 AM Mark Wille	going to discord
11:01 AM Dylan Ingui	Dylan@passivehouseaccelerator.com; https://discord.gg/kcFbDkpcv4; https://www.youtube.com/c/PassiveHouseAccelerator.
11:08 AM michael ingui	see you all later –