



Flixo Course – Model Thermal Bridges for High Performance Buildings

Monday, May 13 – Tuesday, May 14, 2019

Boston

"Shifting our office to Flixo has been hugely successful. Being able to execute more projects in less time and reduce errors has improved our workflow immeasurably. The flexibility of Flixo has also meant that moving through design iterations is much simpler which helps us to deliver better details and more accurate simulation results to our clients."

- Ed May, BLDGtyp

"Great course! The Flixo training provided by Rolf and Chris gave me and other staff at NK Architects the hands-on base to prepare meaningful Thermal Bridge analyses. By integrating guided use of Flixo software with the standards required for Passive House certification, I am prepared to perform a key analysis function for high-performance building design."

- Joe Giampietro, NK Architects

"Thanks for a great Flixo class! Even though I'd used it a few times already, the class definitely added a ton of useful info & techniques. It may still be some time before I've fully recovered from my past experiences with other software, but I might almost enjoy doing thermal bridge models now!"

- Cramer Silkworth, Baukraft Engineering

"What a great course! Chris did a great job instructing us. It was very well done and covered so much material in a very short time, while providing us with great resources."

-Lyndsie White, Cornerstone Architecture

- Flixo allows you to directly import DXF files to reduce input time.
- Flixo allows you to import and quickly modify THERM models
- Flixo allows you to immediately alter dimensions and materials to create and evaluate variations of your details.
- Flixo allows you to quickly make and customize your reports.

Summary:

In this 2-day course, participants will explore thermal bridge modeling using Flixo to be able to understand the impact of design details on the energy performance of High Performance Buildings/ Passive House Buildings. We will first cover the concepts and protocols for thermal bridge modeling. Then, participants will have the opportunity to model several common thermal bridge types using Flixo, with guidance from the instructors. By the end of the course, participants will have completed at least five thermal bridge models. All participants should arrive with the 30-day free Flixo Trial software (version 8) pre-loaded on their computer. For first time users/purchasers of Flixo, you are eligible to include a 1-yr Flixo Energy Plus license & usb dongle to your registration (a \$444 value) for \$190. **Course limited to first 20 registered.**

Course Topics:

- 1) Identifying Thermal Bridges
 - a. Types of Thermal Bridges
 - b. Visual examples of common details
 - c. Discussion of techniques to reduce psi values.
 - d. Determining which thermal bridges need to be modeled
 - e. Qualitative and quantitative assessment

- 2) Thermal Bridge Protocols
 - a. Overview of modeling and psi value calculation process.
 - b. Standard boundary conditions
 - c. Material properties
 - d. Geometry requirements
 - e. Reference points
 - f. Calculation and use of equivalent U-values within models.
 - g. Entering psi-values in WUFI Passive and PHPP

- 3) Flixo Walk-through

- 4) In class demonstrations of modeling for several important thermal bridge types
 - a. Exterior and interior wall corners
 - b. Rim joists
 - c. Roof eaves
 - d. Foundations (slabs and footings)
 - e. Parapets
 - f. Windows (sill, header, jamb)
 - g. Special cases: Unheated and heated basements

- 5) Tips and Tricks for Projects with Numerous Thermal Bridges

- 6) Flixo Practice
 - a. Individual/small-team modeling projects using selected details from real projects.

Intended Audience: Architects, engineers, energy modelers, Passive House consultants, designers and other building professionals who want to build on their skills of thermal bridge modeling.

Competency: Intermediate, Professional

Prerequisites: Some familiarity with thermal bridges

Costs:

Early Bird Registration (before April 22) without Flixo License: \$760

Early Bird Registration (before April 22) with 1-yr Flixo Energy Plus & Dongle: \$950

Regular Registration (after Nov 26) without Flixo License: \$915

Regular Registration (after Nov 26) with 1-yr Flixo Energy Plus & USB Dongle: \$1105

NAPHN member discount without Flixo License: \$840

NAPHN member discount with 1-yr Flixo Energy Plus & Dongle: \$1030

Note: The discounted 1-yr license & dongle is only available to first-time users/purchasers of Flixo and is dependent on full completion & participation in the course. USB dongles with license will be provided on the first day of the course.

Continuing Education: 16 Passive House Institute (PHI) CPD credits will be given for attendance to the course

Location: Studio for High-Performance Design + Construction 151r Adams Street Newton, MA, 02458

Course Times: 9:00am – 12:00pm & 1:30pm - 4:30pm

Course Requirements: Laptop with Flixo 8 demo. Flixo demo works on PCs with Windows installed or Macs with Windows installed (via Bootcamp, not other Virtual Machines). The paid version of Flixo supports virtual machines on both Windows and Mac.

Registration Link: www.eventdex.com/flixoboston2019

More information: www.certiphiers.com/training-calendar/ **Contact:** Tad Everhart tad@certiphiers.com

Cancellation Policy: If you cancel your registration more than three weeks from the scheduled course, you will receive 100% of your course fee. If you cancel between one and three weeks of the scheduled course, you will receive 50% of the course fee. If you cancel within a week of the scheduled course, you will forfeit your course fee.

Instructor Bios

Rolf Jacobson



Rolf is a Research Fellow for the Center for Sustainable Building Research at the University of Minnesota as well as a CPHC. He learned how to model and calculate thermal bridge heat loss while studying Passive House enclosures for his Masters of Science thesis in Norway. As part of the thesis, he developed a comparison of typical thermal bridge details for 8 different Passive House enclosure types. Since 2011 Rolf has provided thermal bridge modeling for a variety of commercial and residential projects including certified Passive Houses.

Chris Petit



Chris is a CPHD & Trainer with Regenerative Design LLC and a Certifier with CertiPHlers Cooperative. He has provided design support and energy modeling services since 2008. Through CertiPHlers, Chris has certified Passive House projects in the US and Canada. In addition to his work with CertiPHlers, Chris teaches sustainable design, energy modeling, and renewable energy. He holds a MS in Architecture from the University of Minnesota.