

House in a House

The idea presented here is to externally refurbish existing dwellings: Making already constructed houses climate responsive, with passive heating and passive cooling. The question is how this is done in a cost efficient way for winter as well as summer.



Technical Track: Systems and Buildings

MODERATOR:

Henry Vandermark

SESSION DESCRIPTION:

Getting to a 100% Renewable economy requires evidence based deployment and management of renewable technologies. Improvements in data acquisition and algorithms allow for better and more predictable performance of solar and wind resources. The session will include current available data, predictive models, a wind-farm's life-cycle impact on carbon emissions and a strategy for a resilient solar-Integrated Grid

DATE
Jun 25 2020

TIME
12:30 pm - 2:00 pm

LOCATION
Online

SPEAKERS

Ehne Zhang
Penn State University

James Hall
JH-Tech/SolarDataWarehouse

Mostafa Nazemi

Nir Krakauer
City College of New York

Rahim Khole
University of the Pacific

Reglin Schwaen
North Dakota State University



1919



2019





A place in the CLOUDS



DAYTIME PHOTOS BY DAVE WALLS / THE FORUM
RIGHT PHOTOS BY MEGHAN DUDA / SPECIAL TO THE FORUM
ILLUSTRATION BY TANIS SWIFT / [TANISSWIFT.COM](http://tanis swift.com)

Their dream in other parts of the country, they had found it impossible to find property where both the location and the price were right. They settled on an affordable one-upper, located in an older neighborhood, surrounded by the "old school" houses of their childhood.

The couple wanted something unconfined close to their backdoor. Contingent on a large grant from the neighborhood association, they found their one.

"The city raised us to believe we may elicit everything," says Duda. "But when you have a different perspective, then the entire system can change on you. That's very risky."

Right before the flood hit, they had planned to update the house with a crackling stone exterior and a marble kitchen. But after the 2008 flooding, both plans changed.

Noticing the first major flood, they knew they had to do something to protect themselves. The couple began to research flood preparedness measures, and among their many ideas, flood insurance was a clear choice.

As they decided to remove the existing studs in a flood wall, they opted to replace them with marine-grade stainless steel studs. Schwanen has developed a system in which porches traditionally extend into the ground, but now extend above ground and serve as the concrete walls.

Schwanen's original flood prepa-

rations, he had to work for Auto Owners, resulted in an understanding that it stored flood-damaged items in a political storage facility. "It was a happy place, and here we've been able to rest and stay home," Schwanen says.

The next several cities approached him, and he eventually found a new home in a rural area.

"In the meantime, there's been some debate as to who will get to use this covered, flood-prone space," he says.

"We thought it might be for us or parents, but then we decided it to be a yoga mat," Schwanen says and laughs.

"I think the original idea was to use it with the wrap-around porch, but I'm not sure if that's still the case," he says.

"It's been a great place to live in a house with no windows, but this house has the windows," he says.

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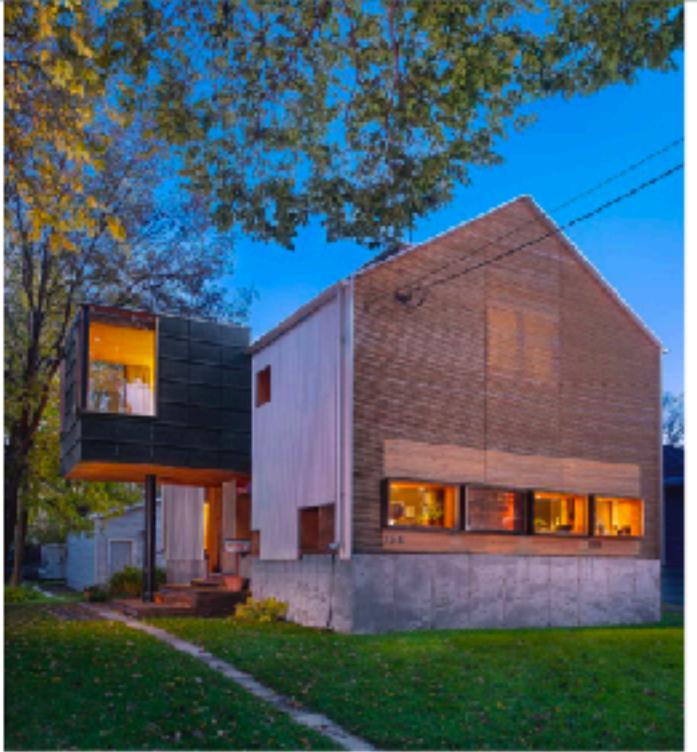
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TOUR #4 Regin Schwaen & Megan Duda's Cloud House

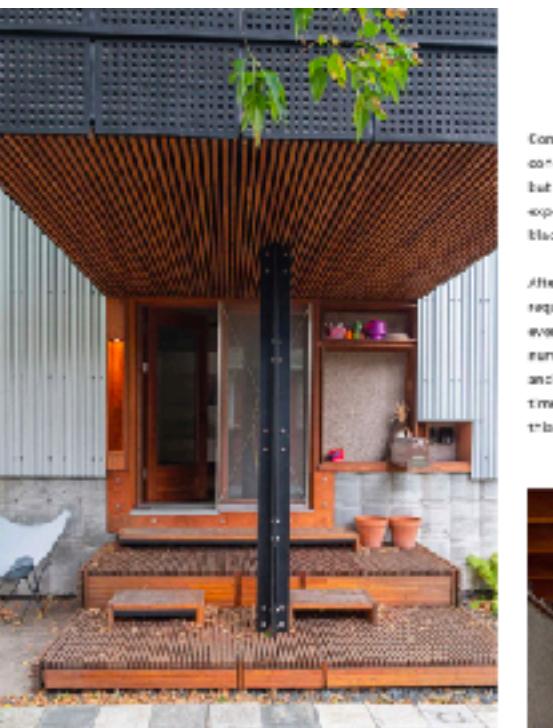
LINCOLN AVENUE SOUTH, FARGO



Our fourth and final stop took us to architect Regin Schwaen, and photographer, Megan Duda's "Cloud House", near Underwood Park in Purple彬彬 at 800 square feet, their 1910 home has since been remodeled to 1200 square feet marvel, extending to the sky with dramatic, hand-hewn flair.

THE CLOUD

Moving guests from the walkway to the front door is one of the house's most brilliant architectural features. "The Cloud", on the exterior, the cantilevered structure is supported by a single steel beam and the eaves act as an overhang to the entrance. Surrounding the structure, between lined students to complete the cedar lattice system, and the feelings were set in a rarely-seen rustic form. This unique style results in a pin-up-style concrete finish. All style aside, Schwaen's purpose behind the concept is to create a truly flood-proof home.



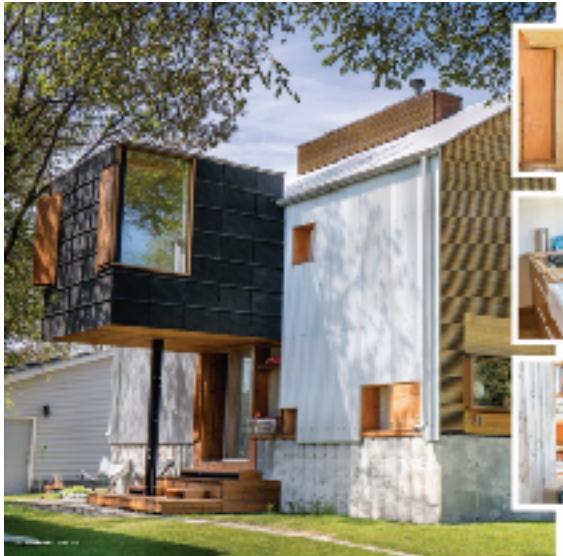
Coming up with an interesting feature to complement the corrugated metal, concrete, handmade shutters, and cedar was not easy on a limited budget, but Schwaen and Duda are creative by trade. Instead of investing in an expensive siding material to wrap "The Cloud", they repurposed simple, black rubber doormats for a bold take on texture.

After a move from Virginia in 2007, there were two things that Duda required in their home. "I grew up on the East Coast and there were trees everywhere, so I needed a yard with trees, and a street with a name - the numbers were very foreign to me. I wanted a gas range, a clawfoot bathtub, and the house had to something we could live in and renovate at the same time. This house had every single criteria, so when I walked in, I just knew this was the house we'd buy - and it was really cheap," laughed Duda.



CLOUD HOUSE - A FLOODPROOF HOME IN FARGO

© Paul H. Geiger / PHOTO BY MARY ELLEN

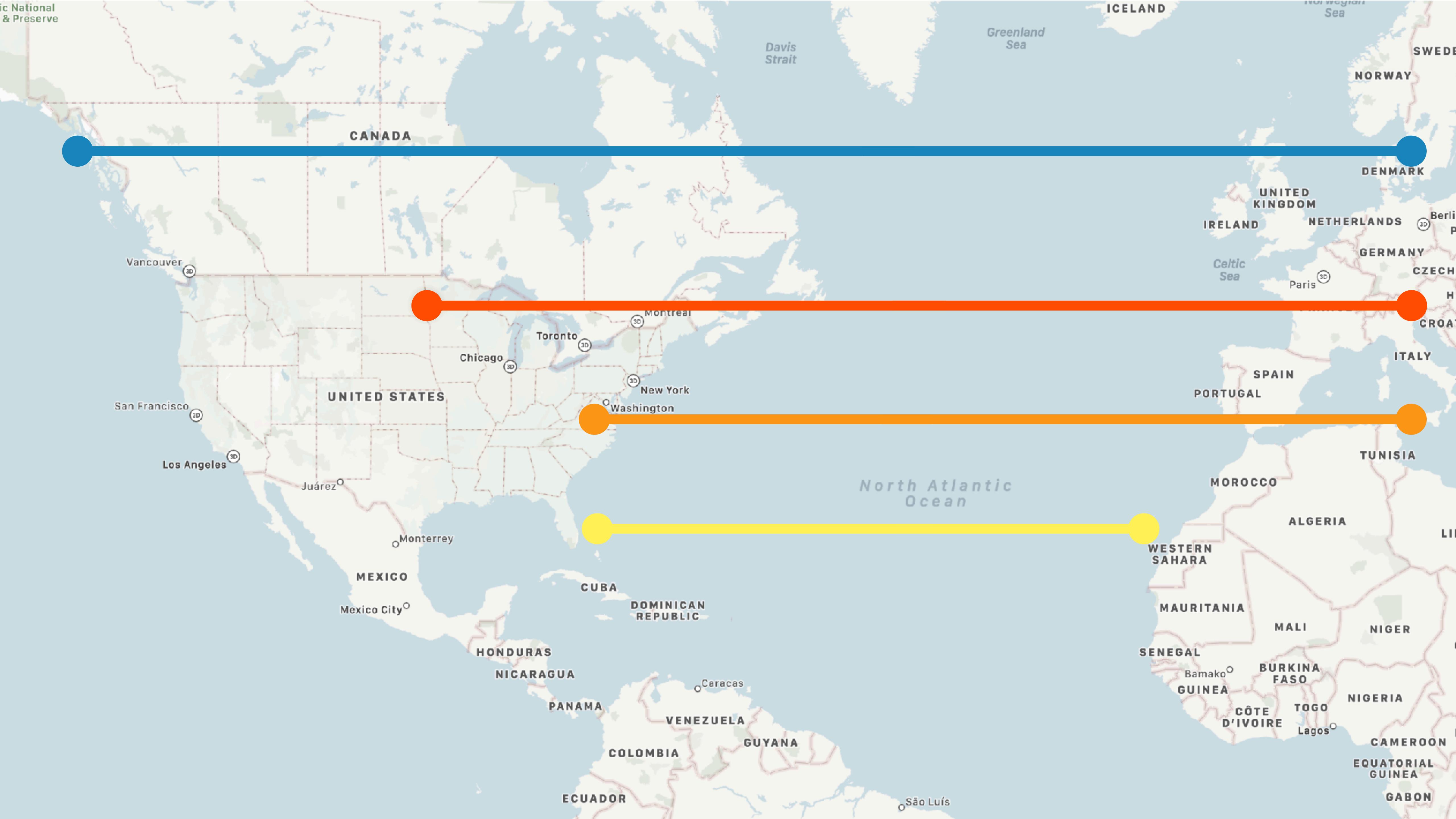


INSIDE THE HOME: ARCHITECTURE & ARTISTRY

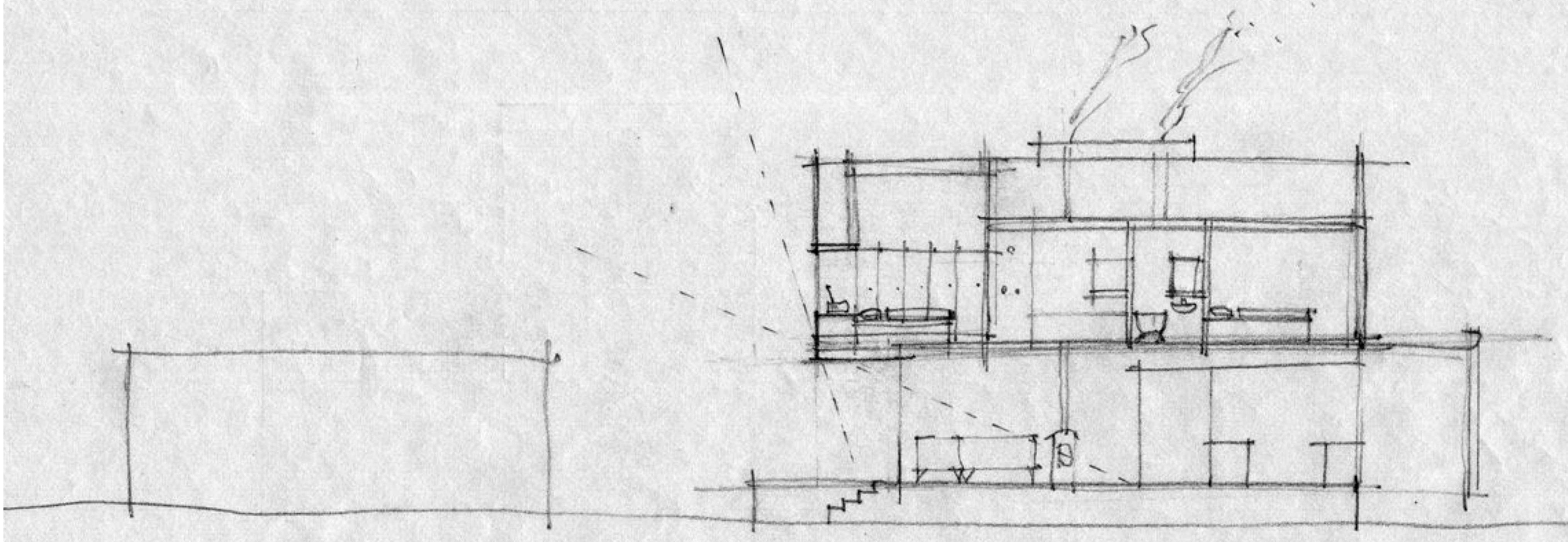
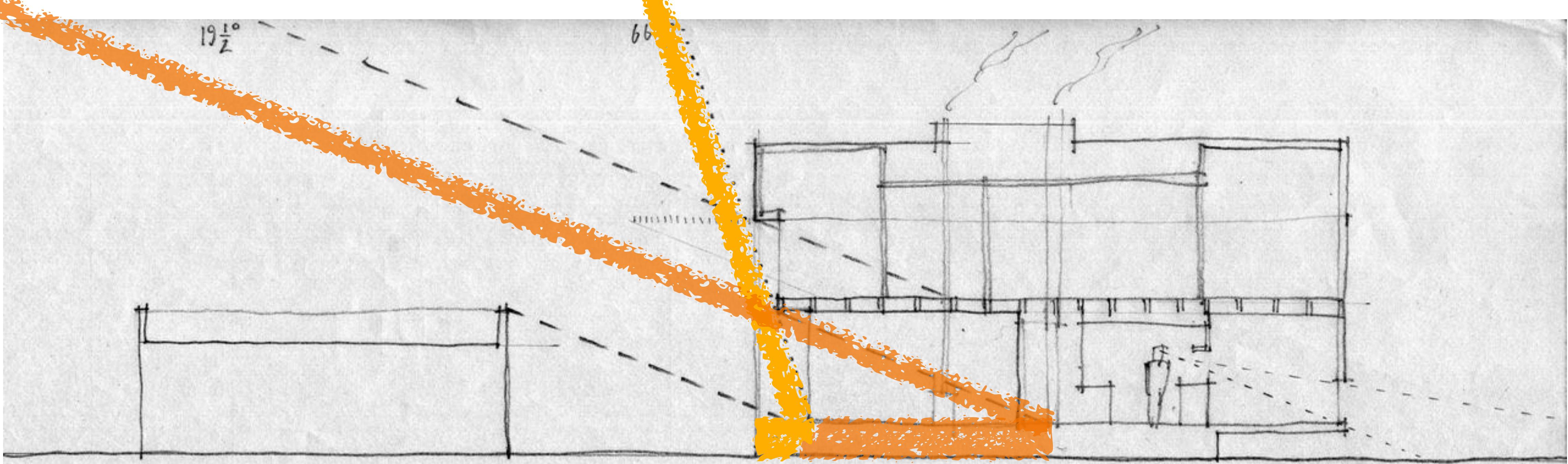
The Cloud is 1200 square feet, their family resides in easy quarters combining their own creative take on mid-century and Scandinavian design. To stay within a reasonable budget, Schwaen and Duda used varying salvaged and alternate materials throughout the home. In their main living area and library, separate windows are fashioned from safety glass that was recuperated from the airport security area. Two of the larger, triple-pane windows were simply given to them by a neighbor down the road.

Schwaen and Duda consider their remodel to be essentially, a "house within a house". The 100-year-old house is wrapped in seven-and-a-half-inches of insulation, making the new home incredibly energy efficient. Their heating bill is roughly \$500 a year, and they rarely need air conditioning.

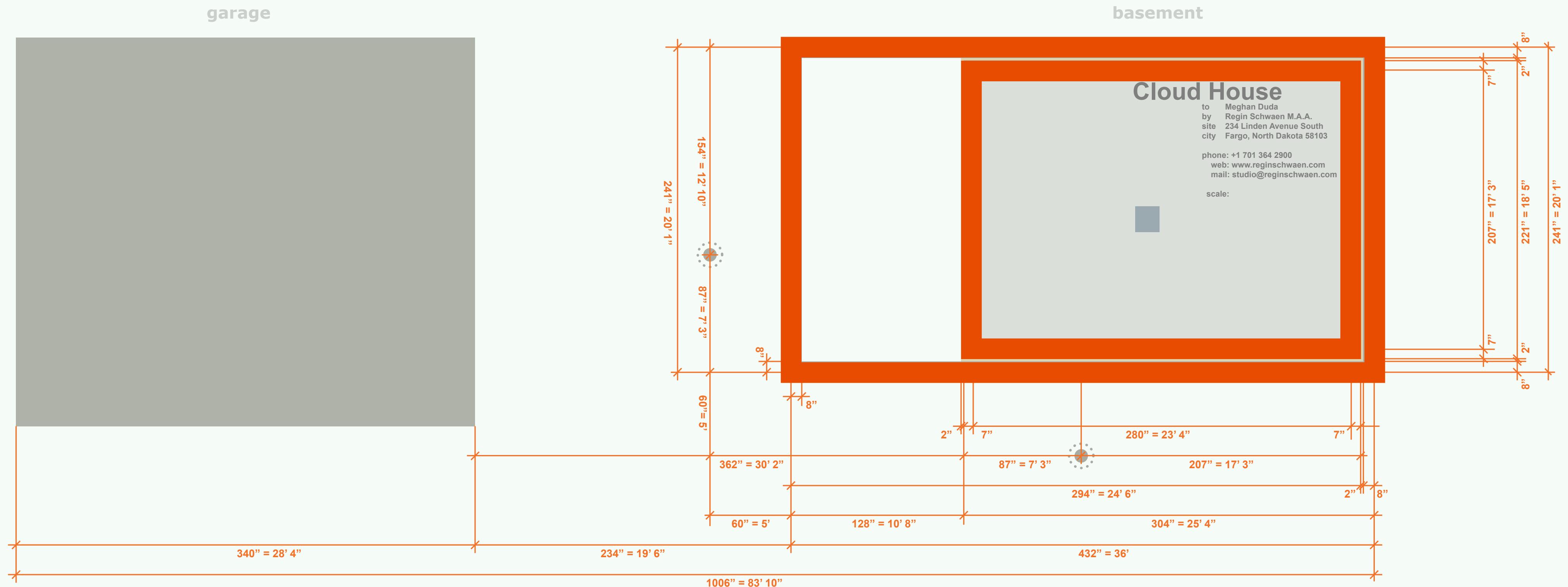




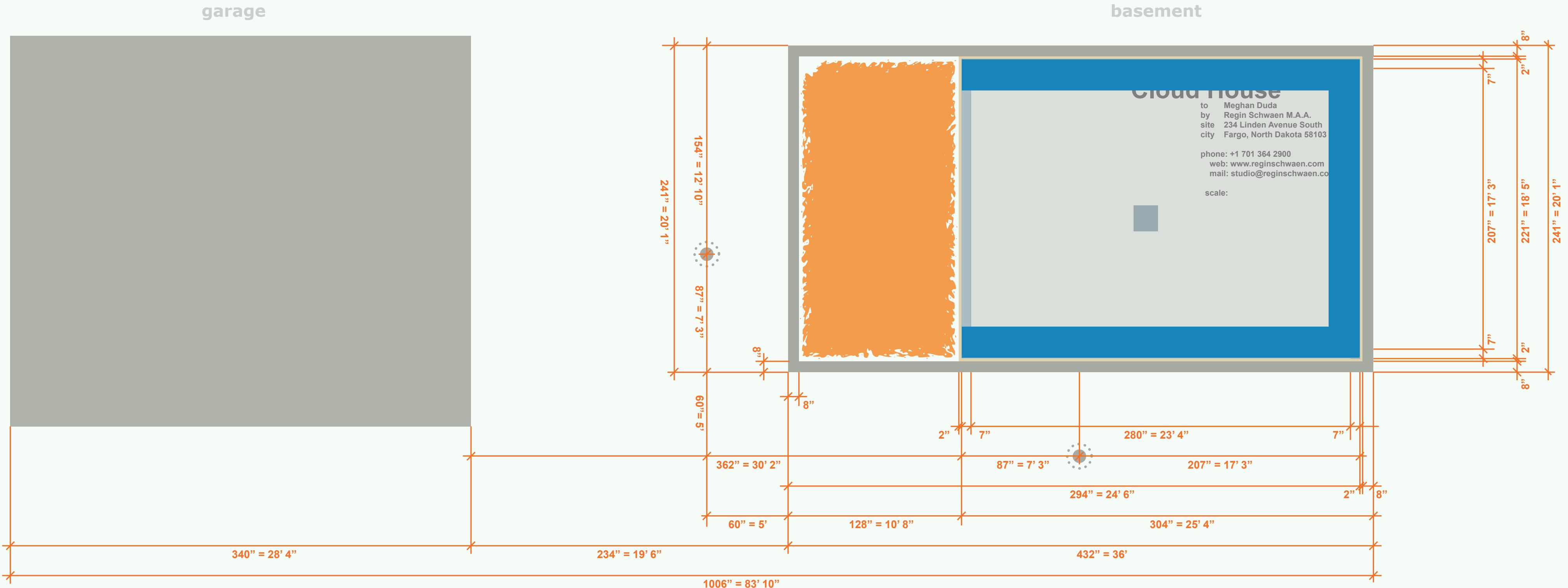




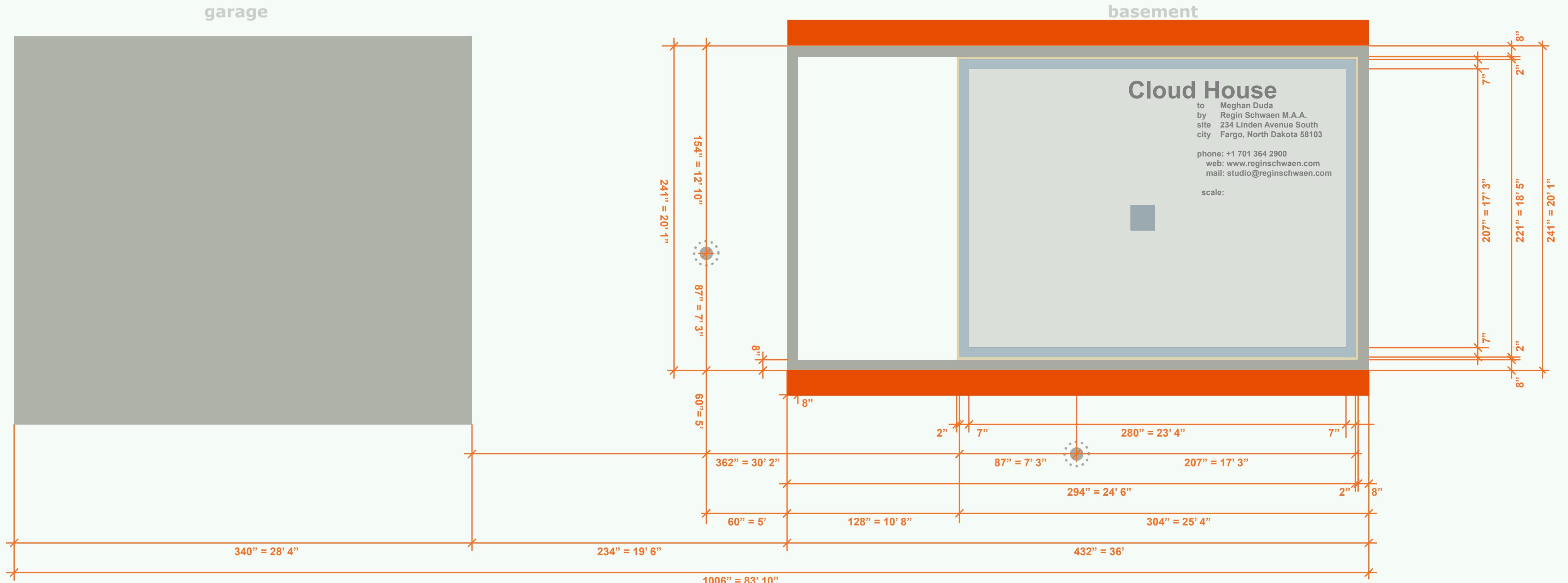
House in a House



Ventilation between existing dwelling and the new structure surrounding it.

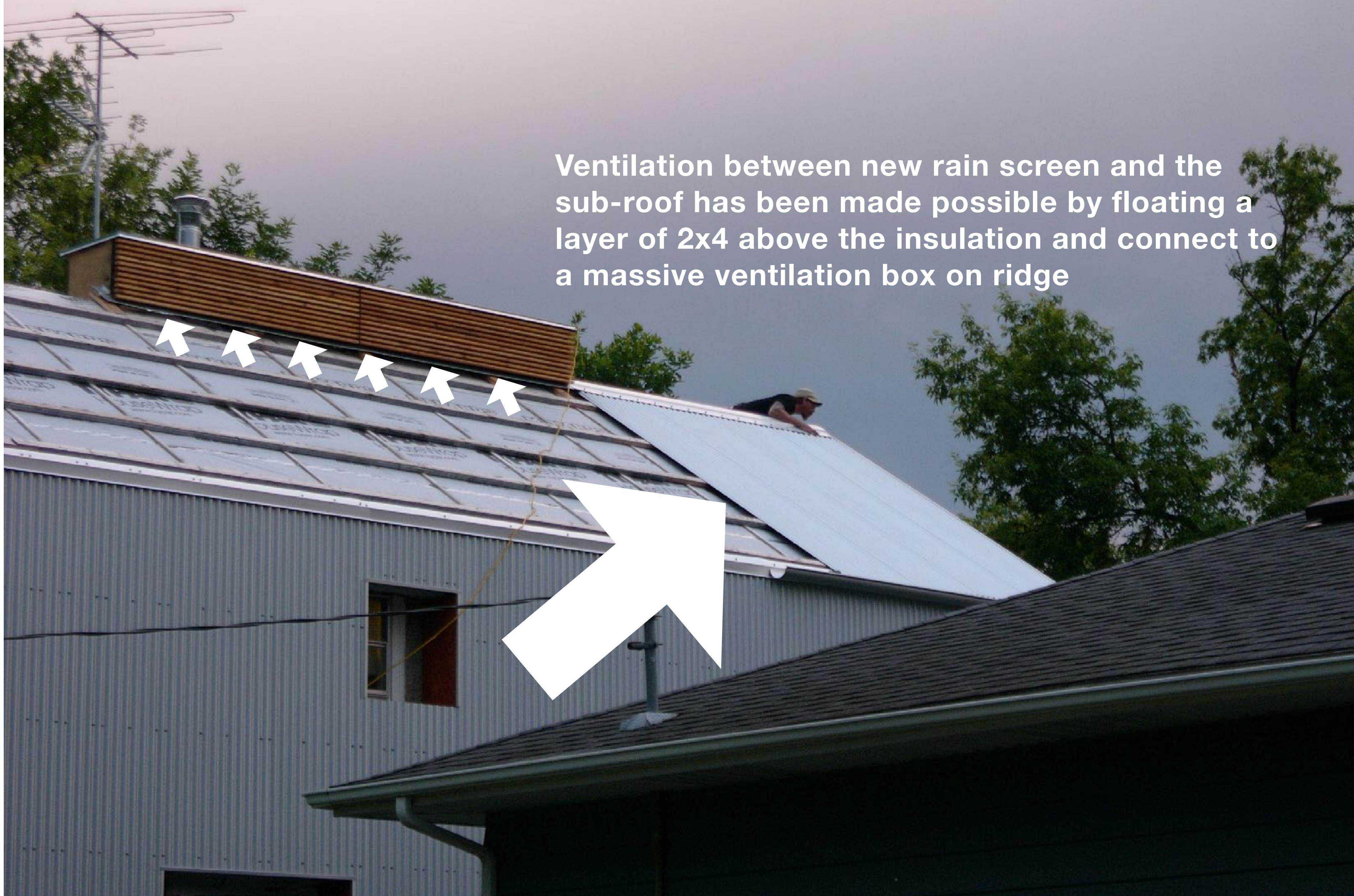


Ventilation between new rain screen and the new sub-facade / osb-board and new insulation









Ventilation between new rain screen and the sub-roof has been made possible by floating a layer of 2x4 above the insulation and connect to a massive ventilation box on ridge

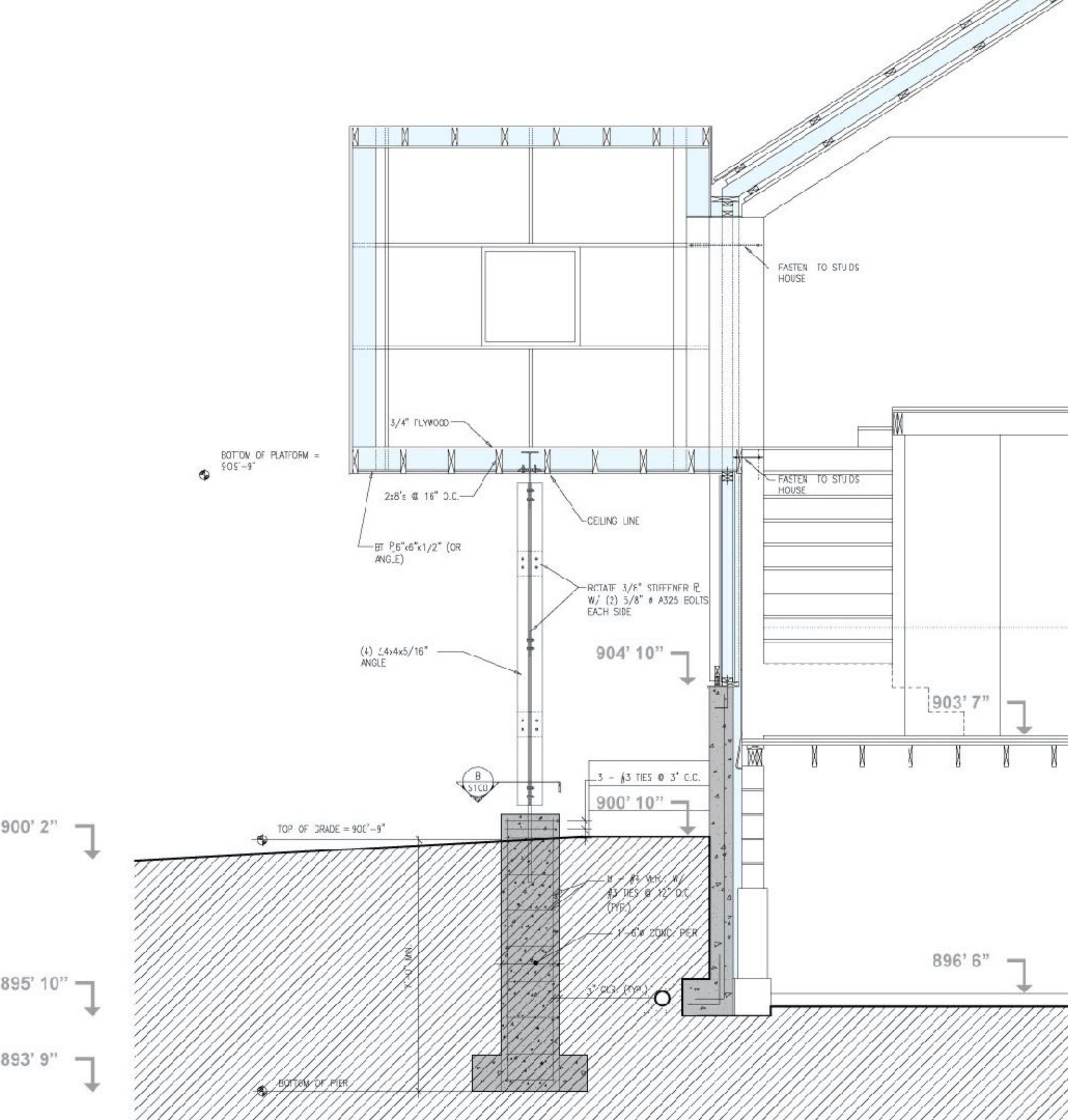
Cloud House

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scale: 1/4" = 1'

section BB
 existing house with cloud



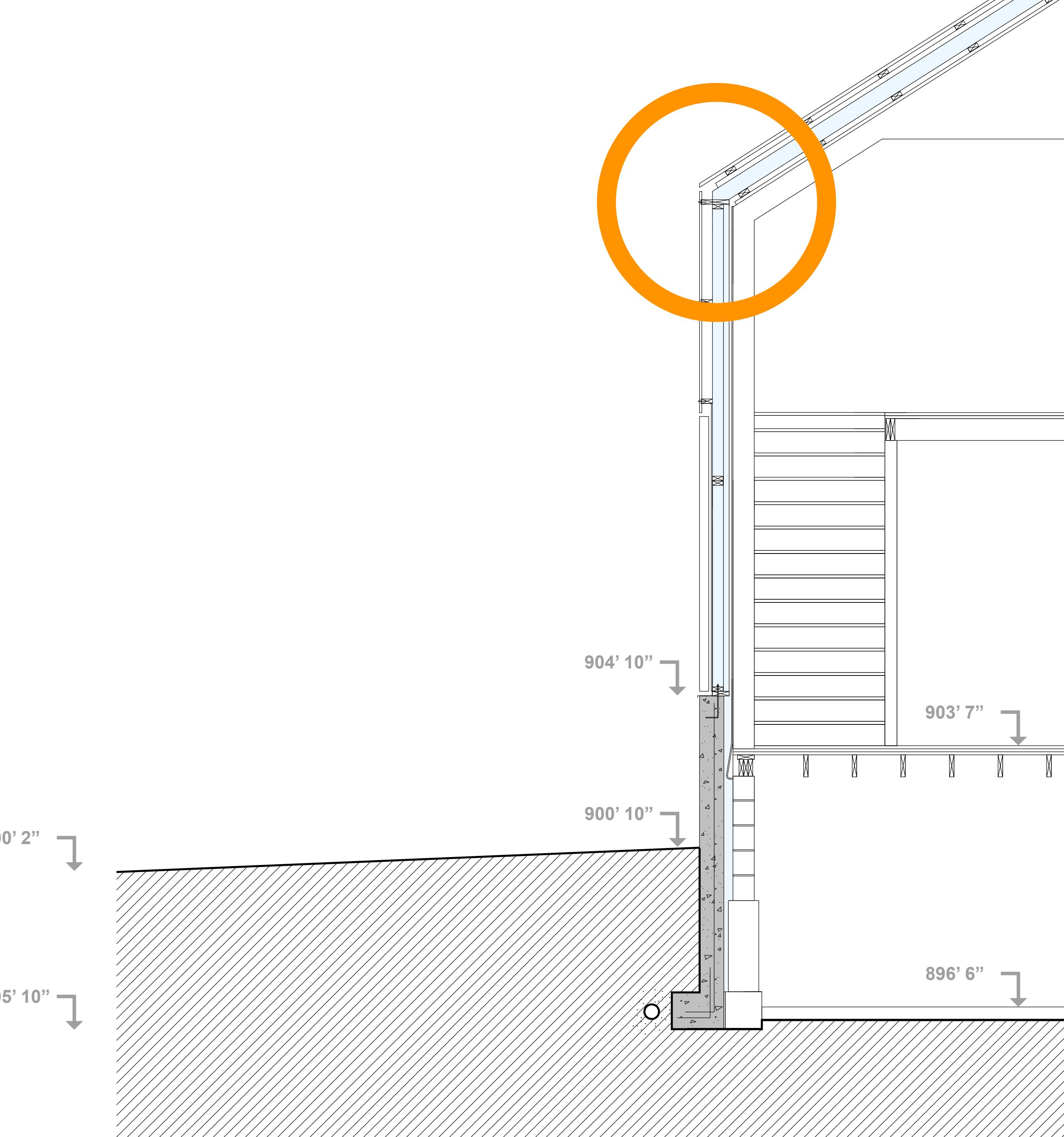
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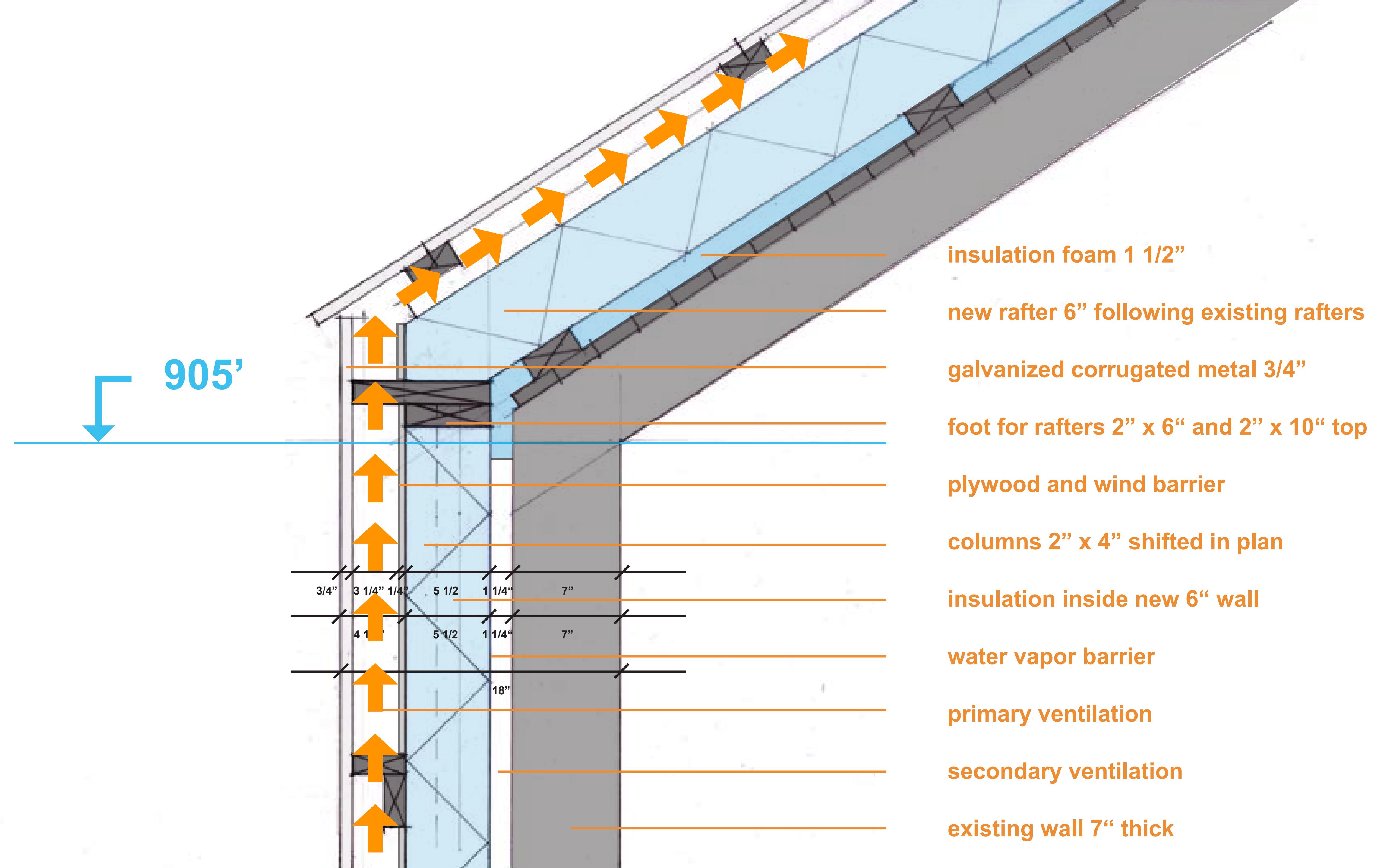
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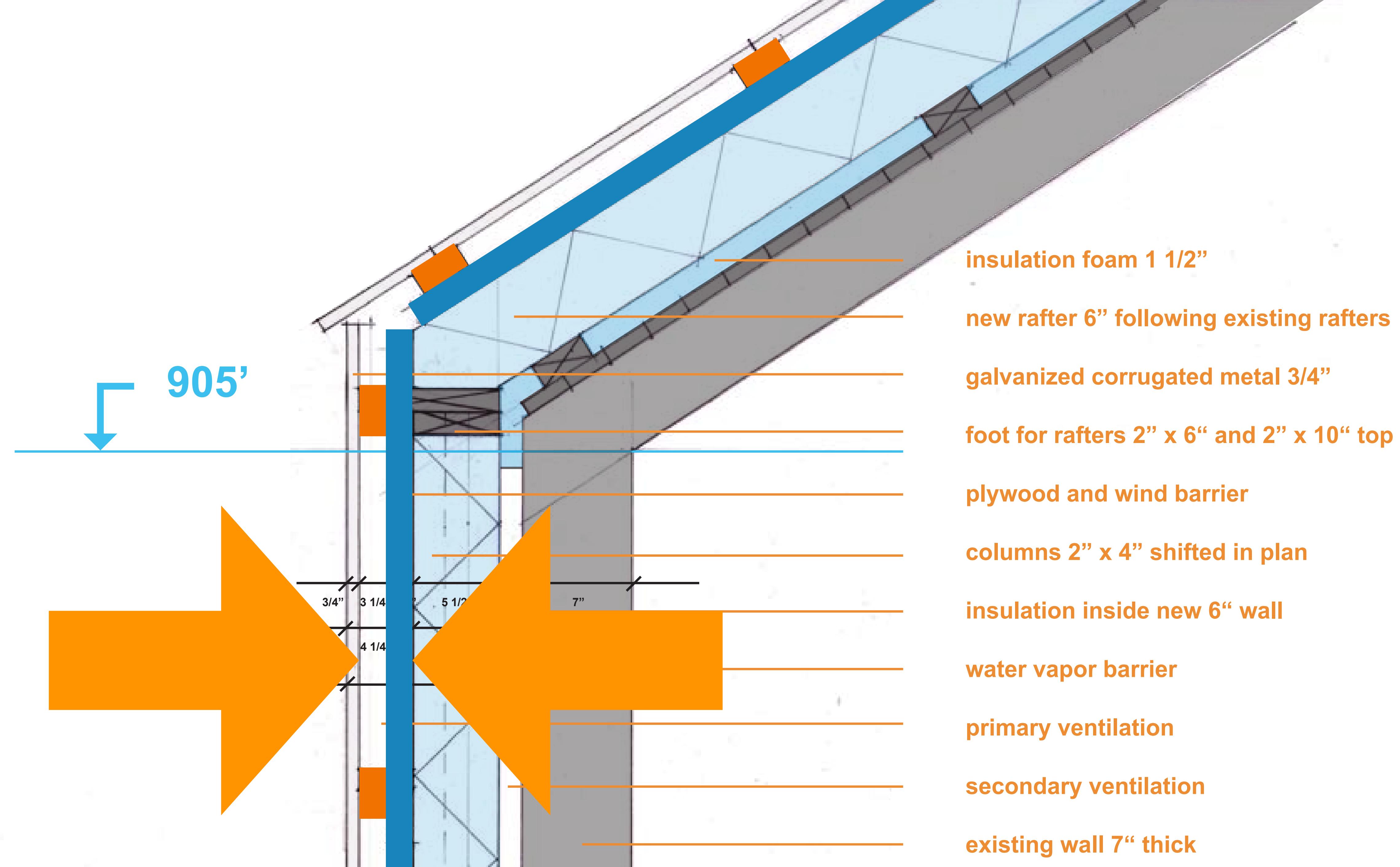
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scale: 1/4" = 1'

section AA
existing house with new structure



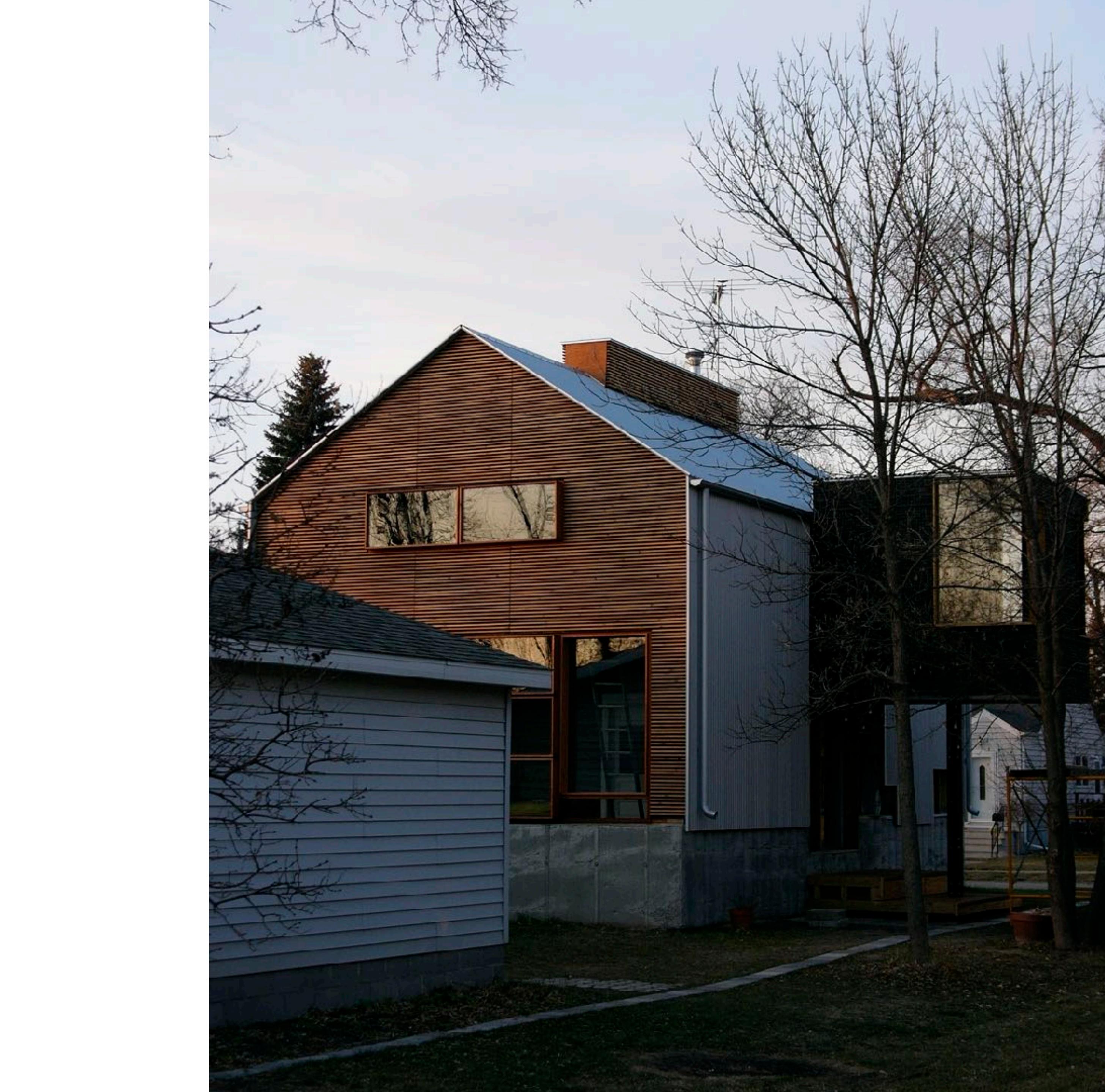


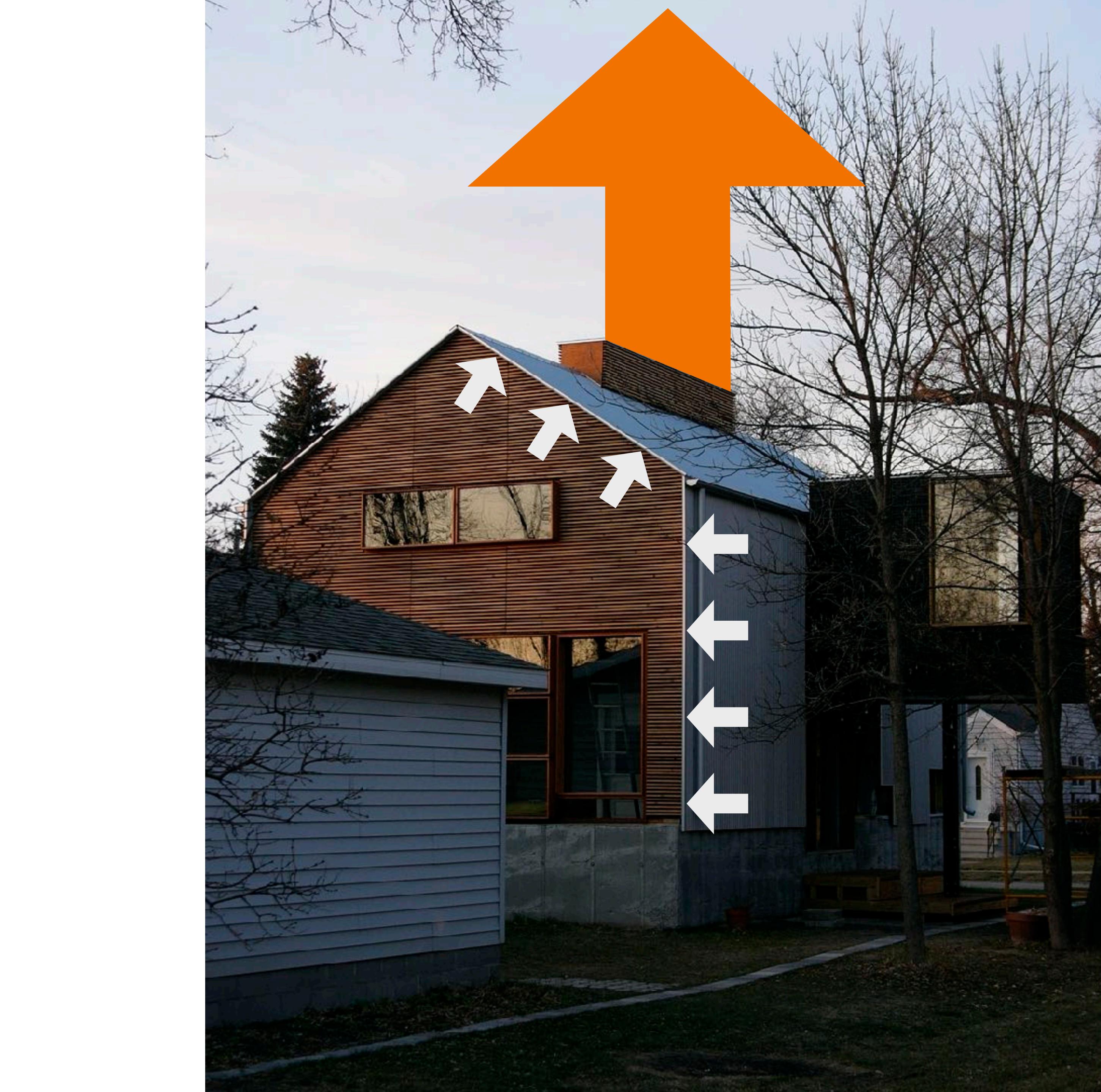


Ventilation between new rain screen and the sub-facade / osb-board and the insulation behind it has been made possible within the crisscrossing 2x4













2012

A place in the Clouds. Print: The Forum. A local newspaper in Fargo. The publication was a non-refereed publication/interview. The text by reporter Tammy Swift. Title: A place in the Clouds. Inclusive pages: Front page section B and page B3.

2014

Fieldwork: The House as a Camera. Publication: Working Out, thinking while building. Paper created in collaboration with Meghan Duda. ACSA 2014 Fall Conference, Halifax, Nova Scotia, Dalhousie University, Canada. Proceedings / volume editors: Sergio Palleroni, Ted Cavanagh, Ursula Hartig. ISBN 978-0-935502-94-7. Inclusive pages: 16 to 23.

2019

Cloud House - A Flood proof home in Fargo. Print: Design & Living Magazine. Text by professor of architecture Paul Gleye, photos by Hillary Ehlen. Inclusive pages: 77 to 81.

2019

Fargo's Urban Cabins - Plains Art Museum Progressive Architecture. Print: Midwest Nest. Edition #26. Text by Tracy Nicholson, photos by Dan Francis. Inclusive pages: 28 to 38.

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SOLAR 20/20 – ASES National Solar Conference

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