



LIONSGATE STUDIOS

Yonkers, NY

SITE CHALLENGE

The 90 Warburton sound stage building is part of the Lionsgate Studios property in Yonkers, NY. The studio will be home to episodic and motion picture productions beginning in 2024.

This is the second project we've handled in the development. In 2021 our company completed a previous studio roof a few blocks away. Once production began in the first studio, the recording engineers identified a serious problem that needed to be solved in the design and construction of this project.

The location of the first studio building is adjacent to the Yonkers train station. With over 100 trains passing daily, exterior sound levels were very high and were able to be picked up by the microphones during recording.



To keep the unwanted exterior environmental noise outside where it belongs a plan was established with the assistance of ROCKWOOL, a key manufacturing partner for this project. ROCKWOOL has a solid reputation as a manufacturer of stone wool insulation products with sound absorbing properties.

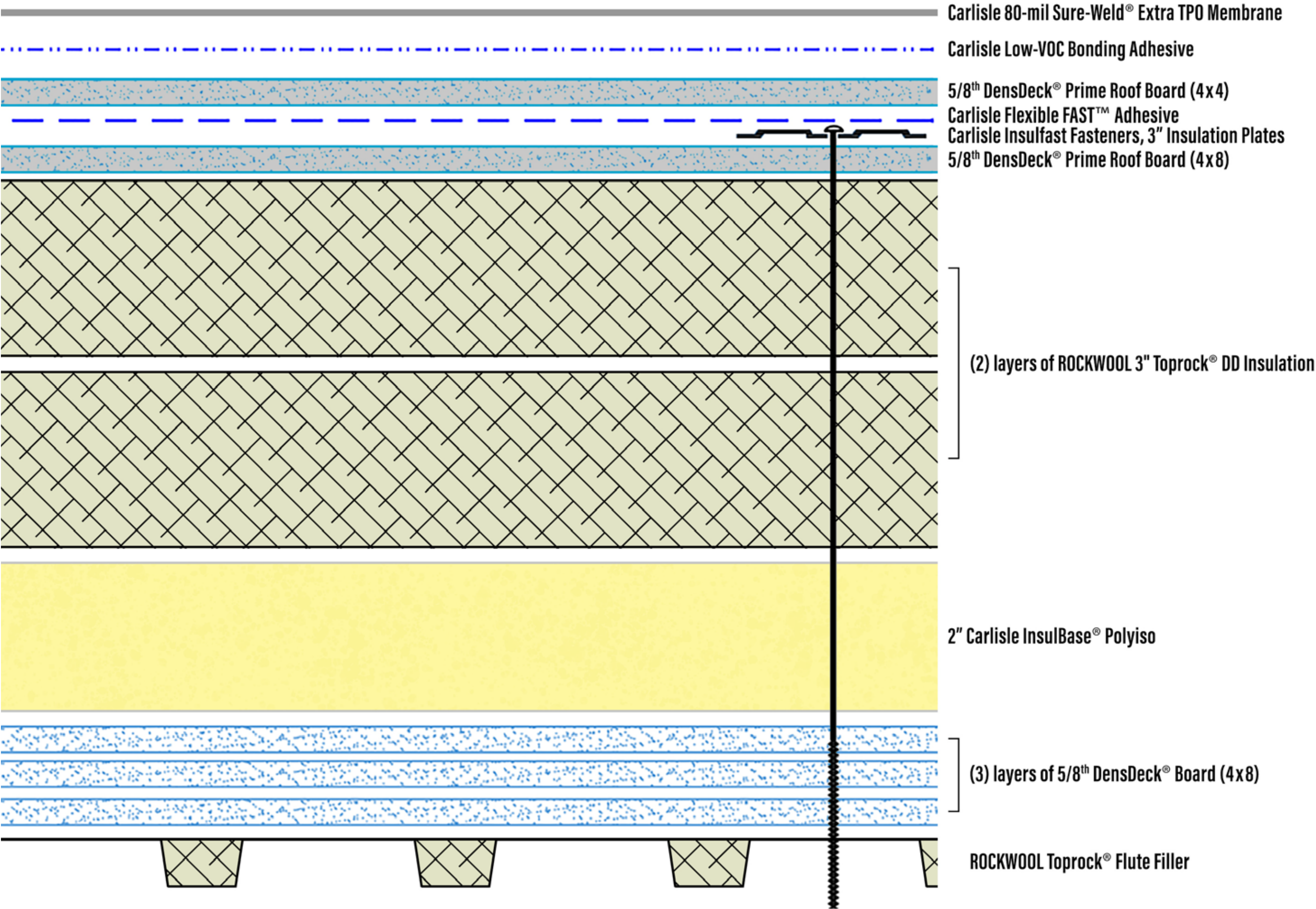
Add [Mass Absorption & Decouple

LIONSGATE STUDIOS



THE ROOF ASSEMBLY

Measuring over ten and a half inches deep, the full assembly is an assembly of roofing products. Together they provide the sound blocking properties required to reduce outside inside sound transmission. All of the material for the project were sourced through Beacon Building Products, a Carlisle distributor, and covered by a Carlisle 20-year warranty.





LOADING MATERIALS

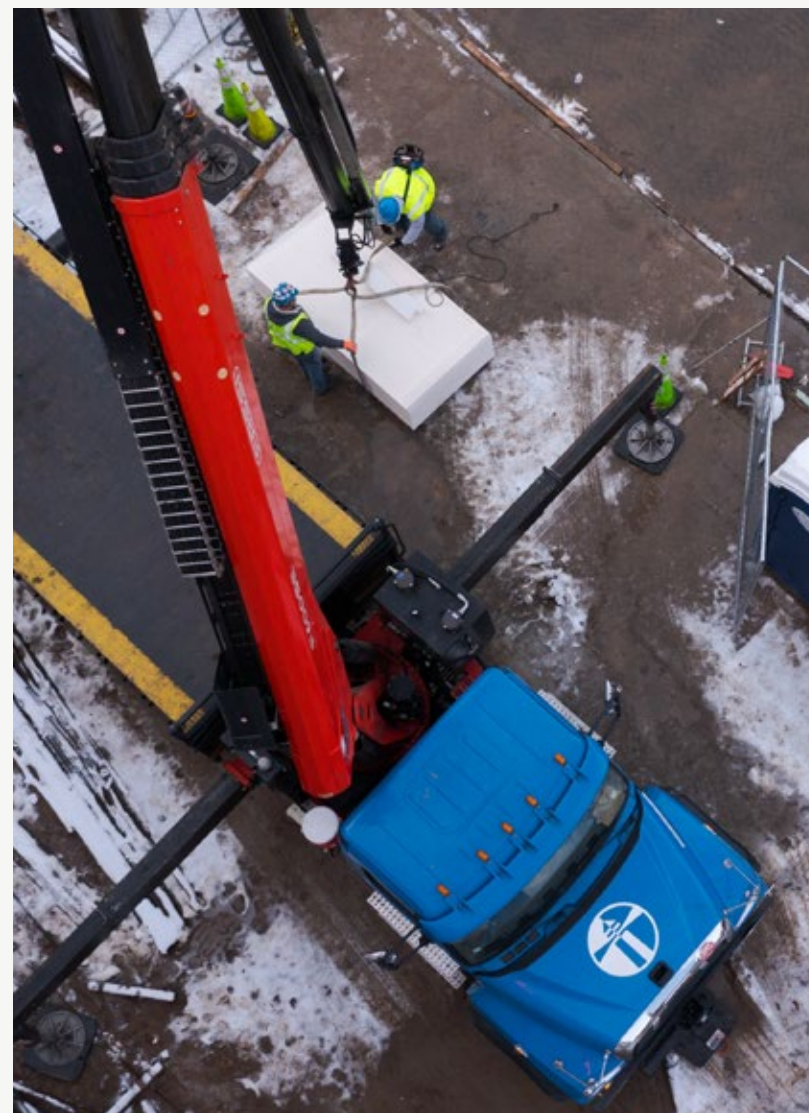
This isn't your typical single-ply polyiso roof. Lionsgate required a unique plan to accommodate the loading for the large amount of materials required in this roof assembly.

**16 truckloads
for 300 squares of roof**

With a complex adhered hybrid assembly like this, it can be a real challenge to have everything show up on time and in the proper sequence so that the roof could be loaded properly, and work could commence without delay. Coordination with multiple manufacturers was absolutely critical.

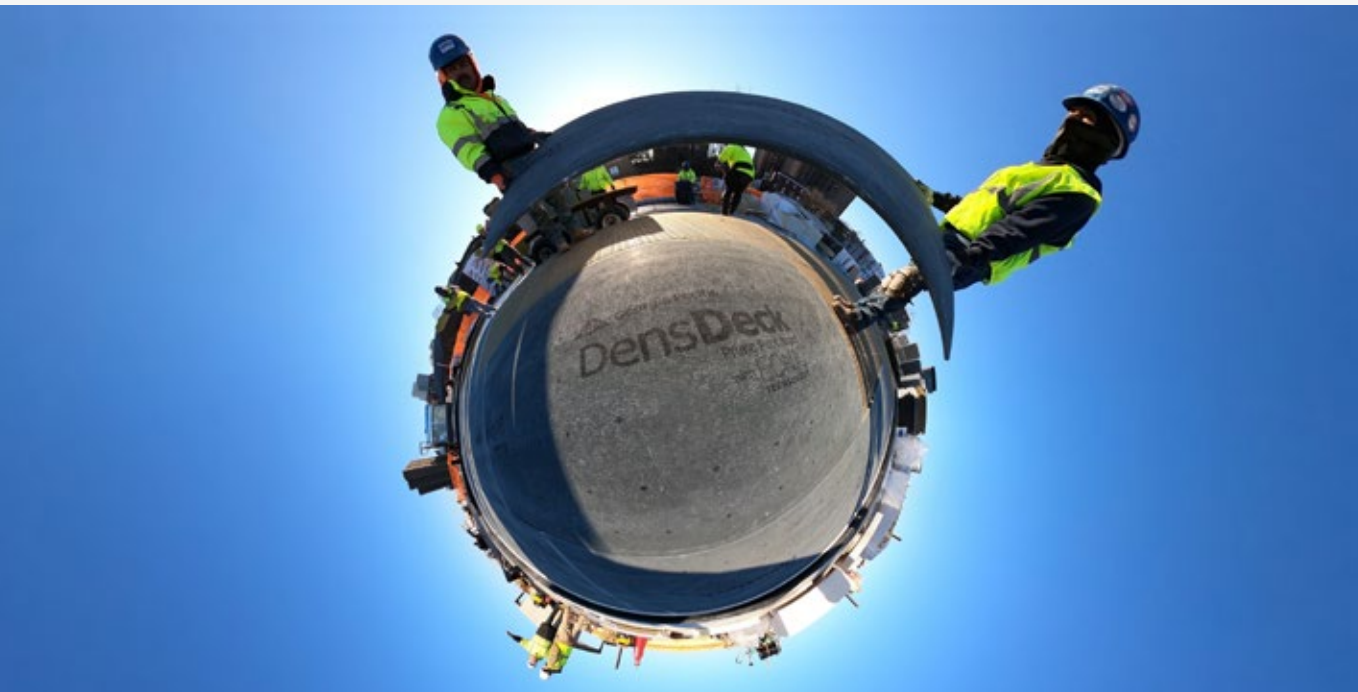
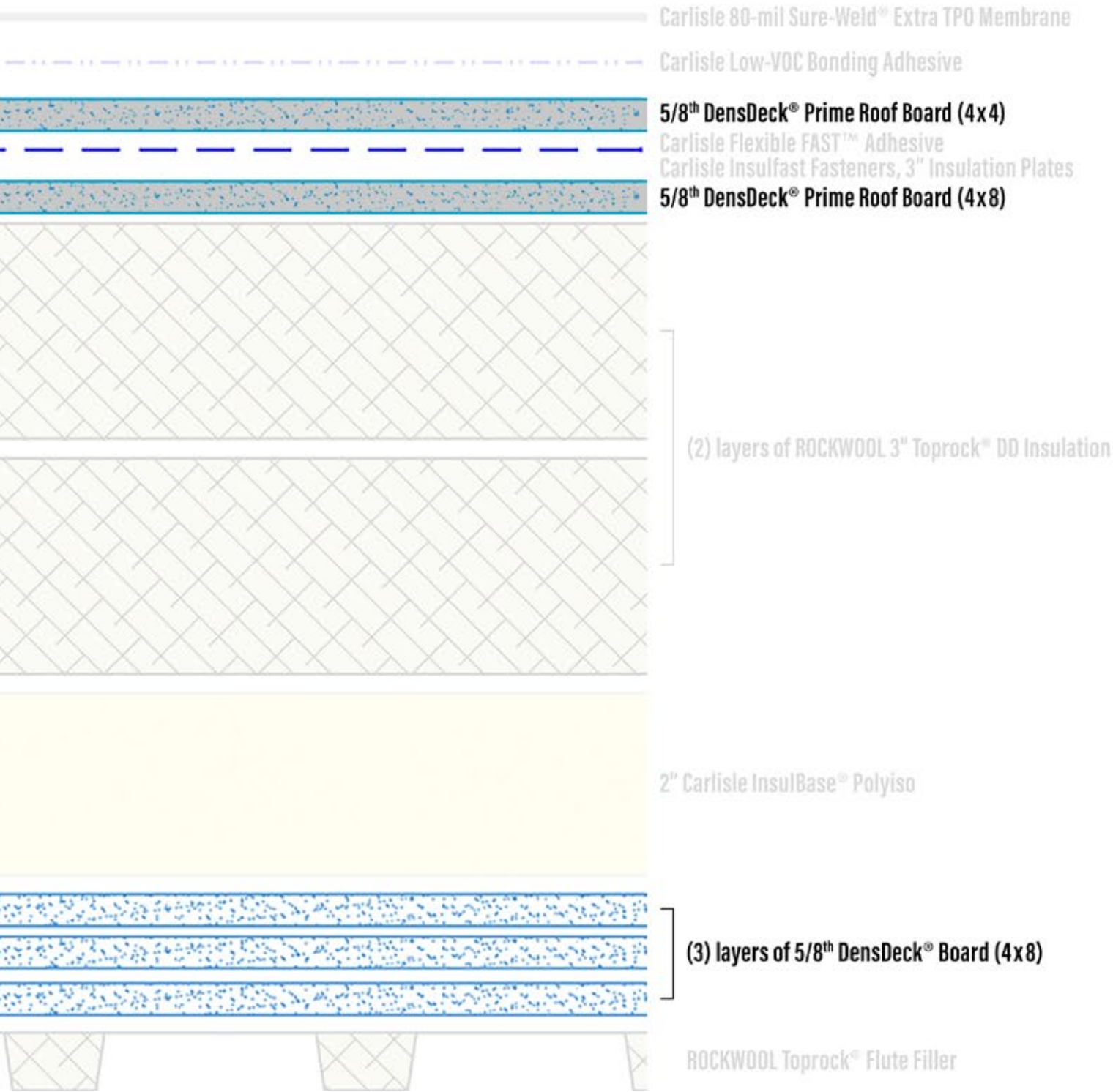
Adding to the complexity the location is on a busy urban street requiring additional safety planning and execution.

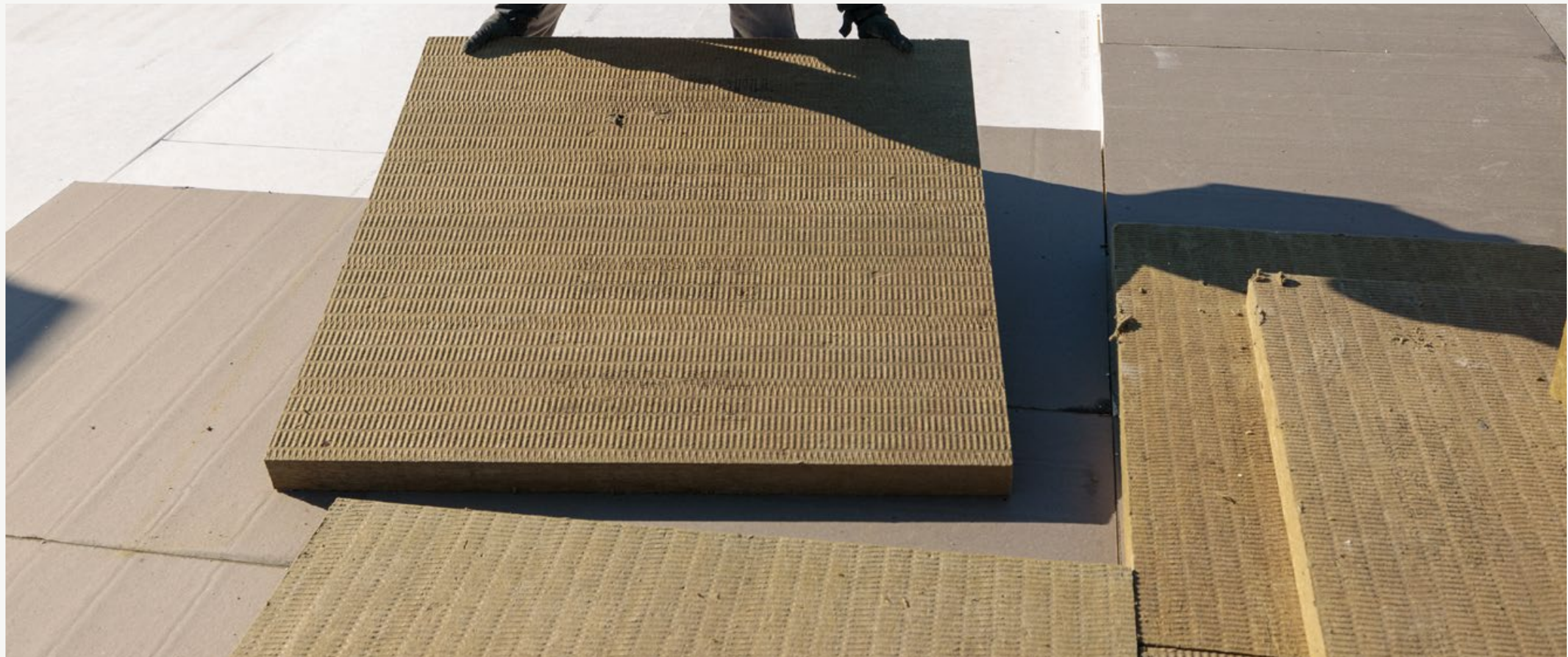
Beacon Building Products did an excellent job of coordinating deliveries and lifting the materials to the rooftop.



ADDING MASS

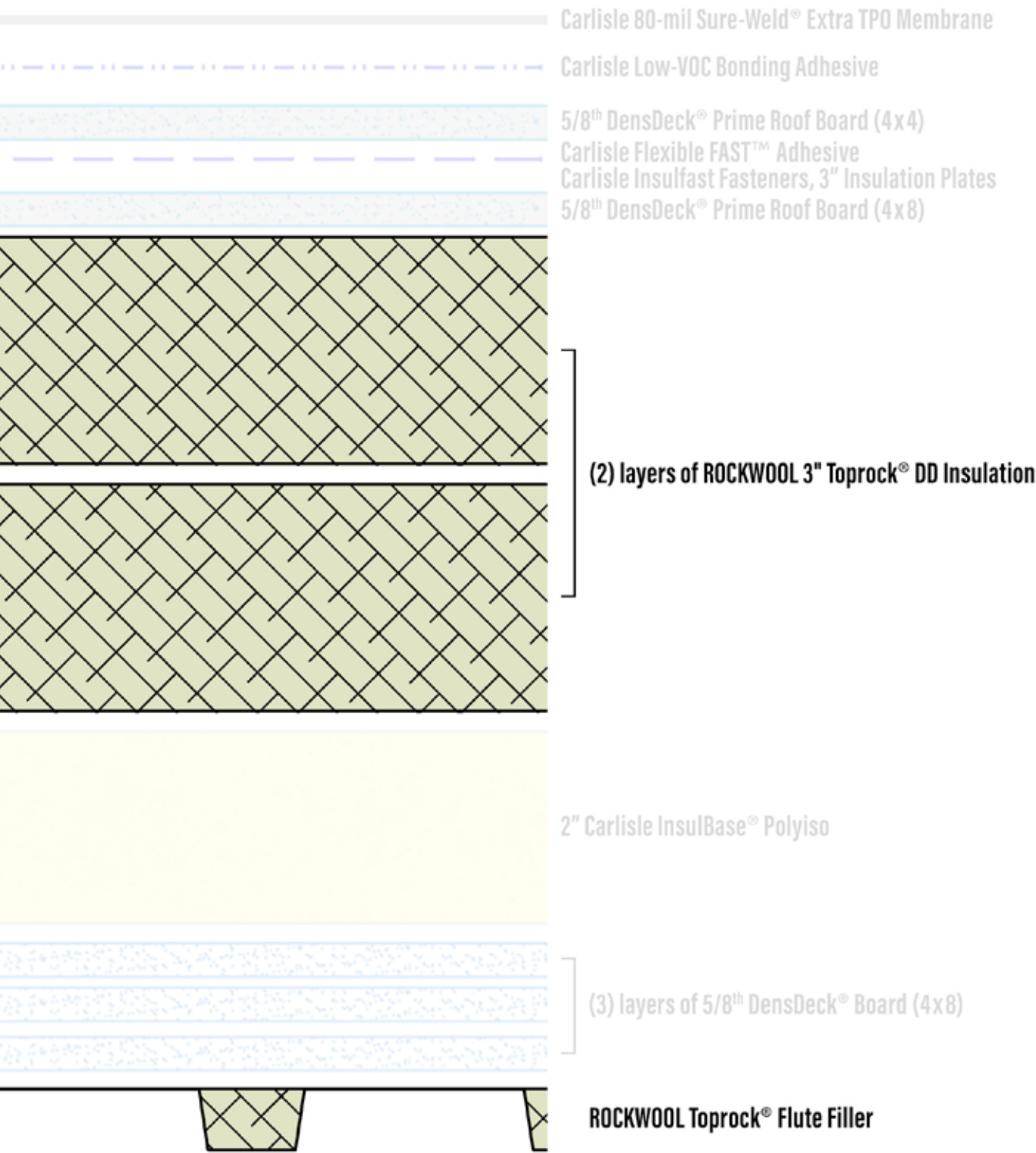
The roof assembly included Georgia Pacific's DensDeck products. Directly over the roof deck, three layers of DensDeck Roof Board not only provide additional mass but also serve as a thermal barrier. Two layers of DensDeck Prime board protect the assembly as a double coverboard - both attached and adhered.





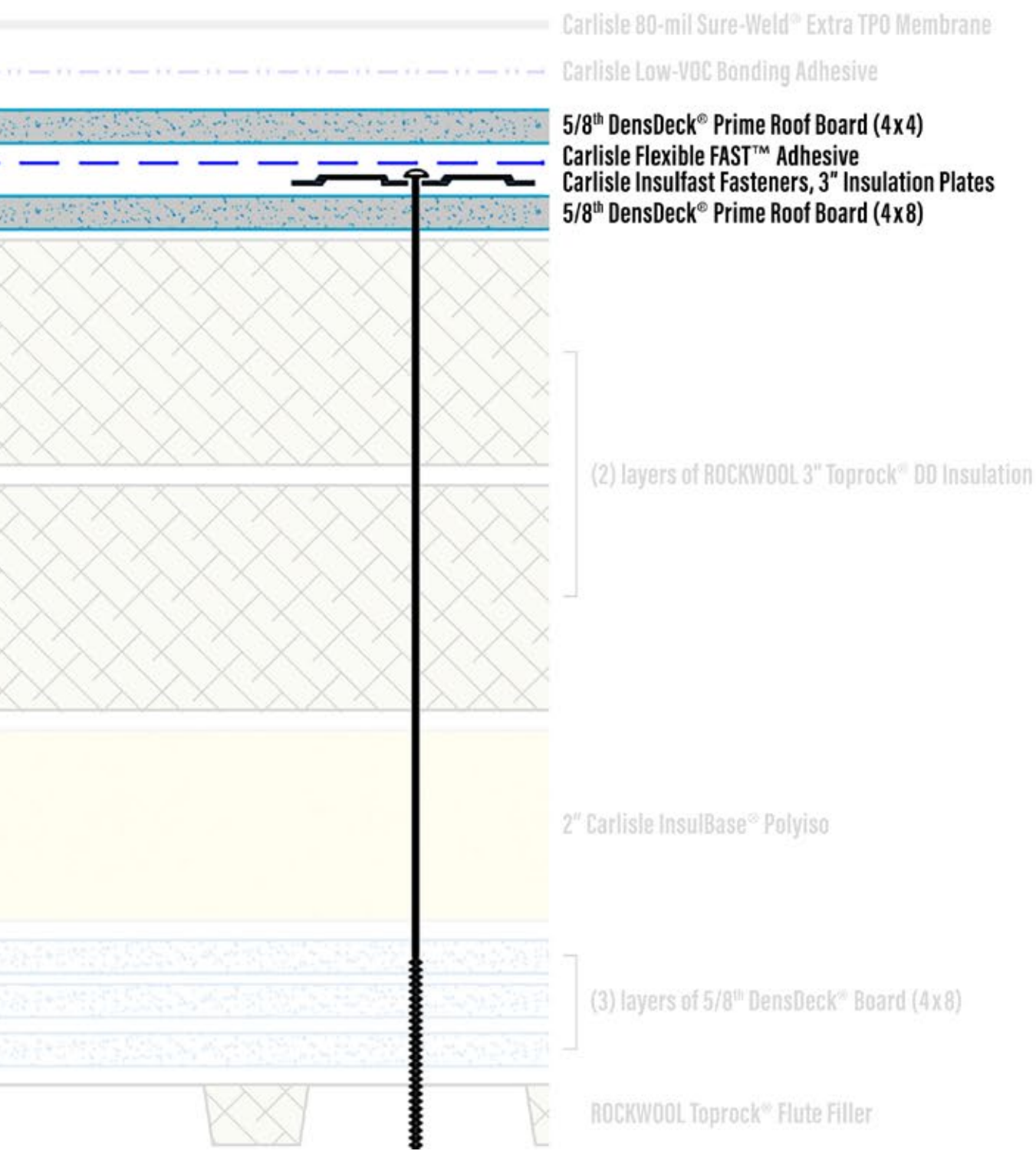
ADDING SOUND ABSORPTION

ROCKWOOL Toprock DD and Toprock Flute Filler provided sound absorption in addition to non-combustible thermal resistance. Toprock DD products were installed in three layers: as a loose laid rigid flute filler, and two additional insulating sound layers in the heart of the assembly.



DECOUPLING

The PARS - Partially Adhered Roof System is separated into two sections between the top two layers of DensDeck Prime. The layers of the lower section are fastened using 12 inch Carlisle Insulfast fasteners with 3" insulation plates. The upper layer of DensDeck Prime is adhered using Carlisle Flexible FAST Adhesive which provides the decoupling - reducing sound transmission through the assembly



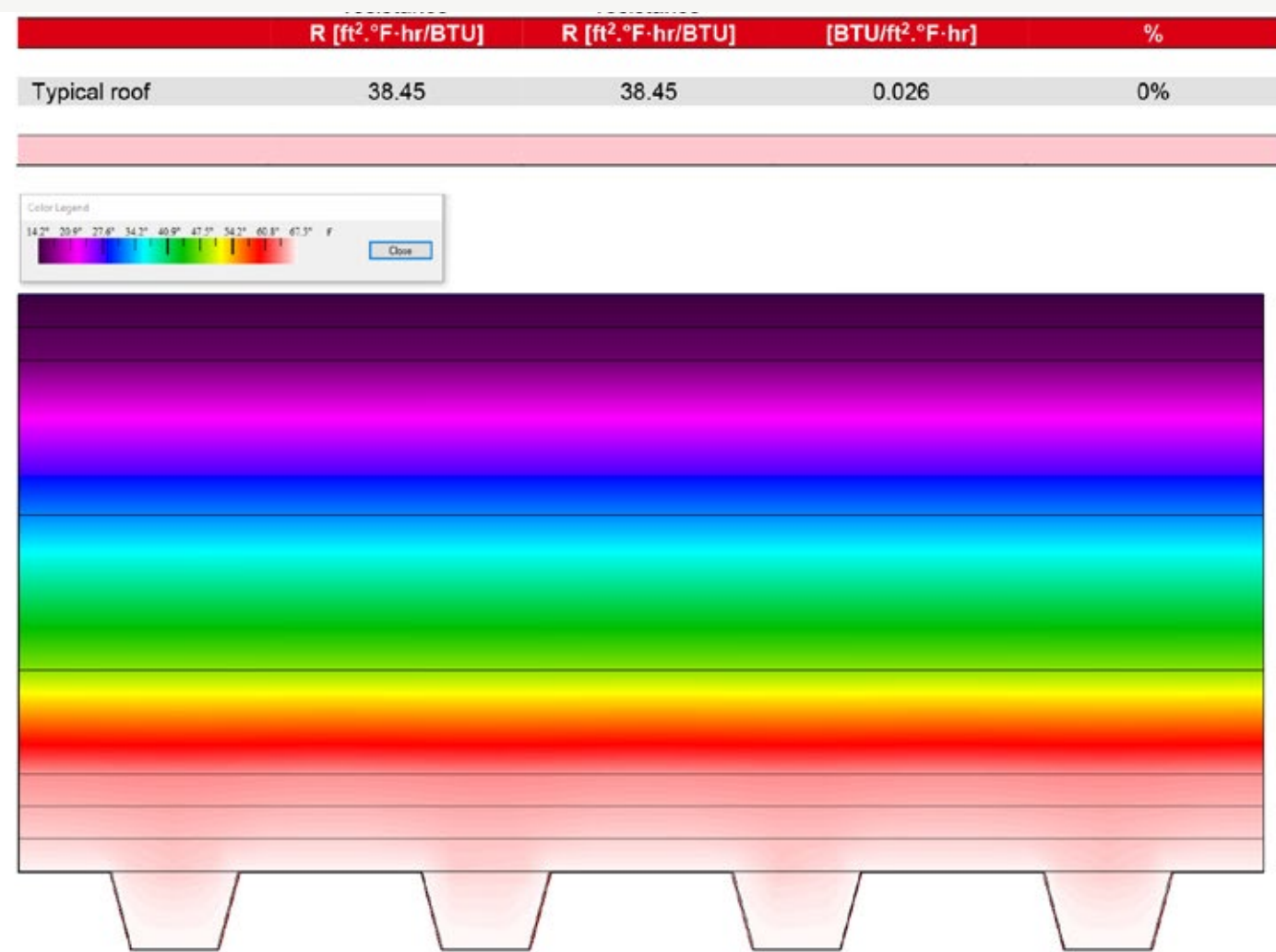
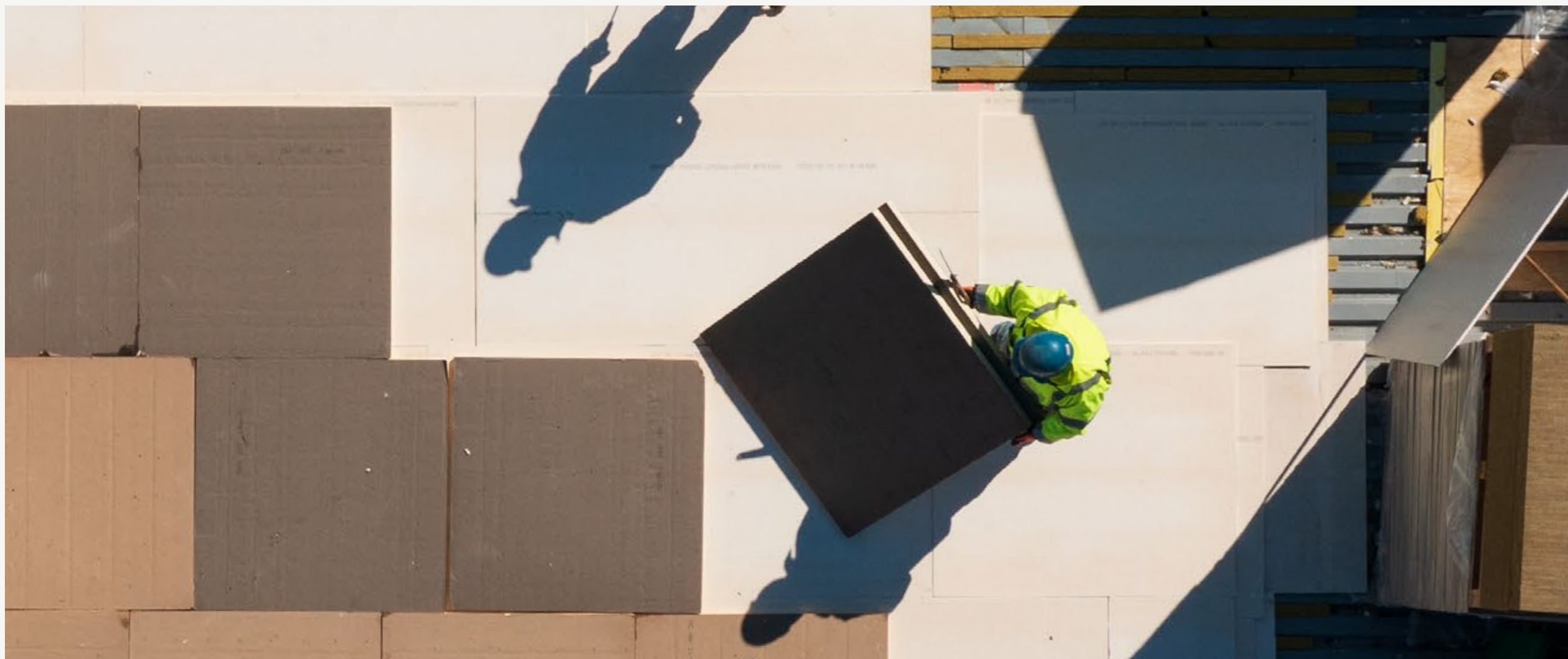
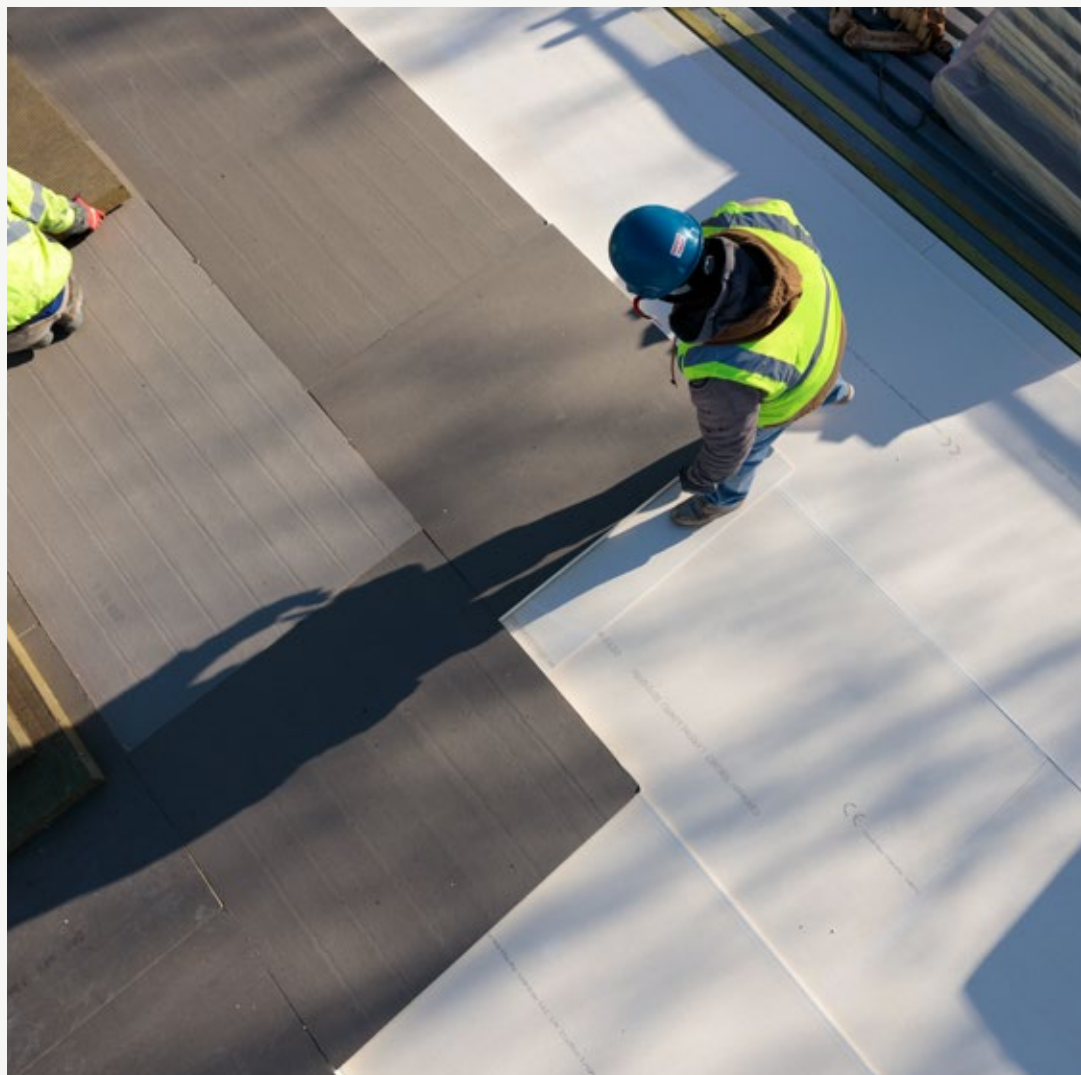


Figure 1: Temperature gradient in infrared colors through a cross-section of the roof, as modelled in THERM



R - VALUE

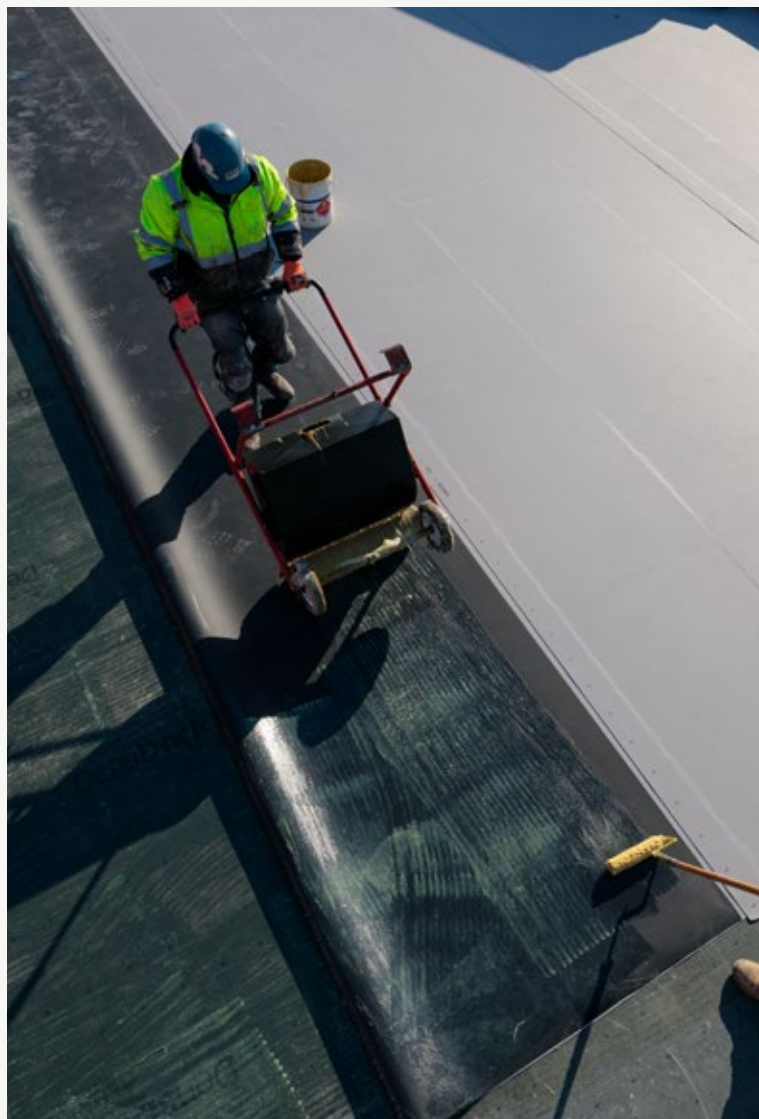
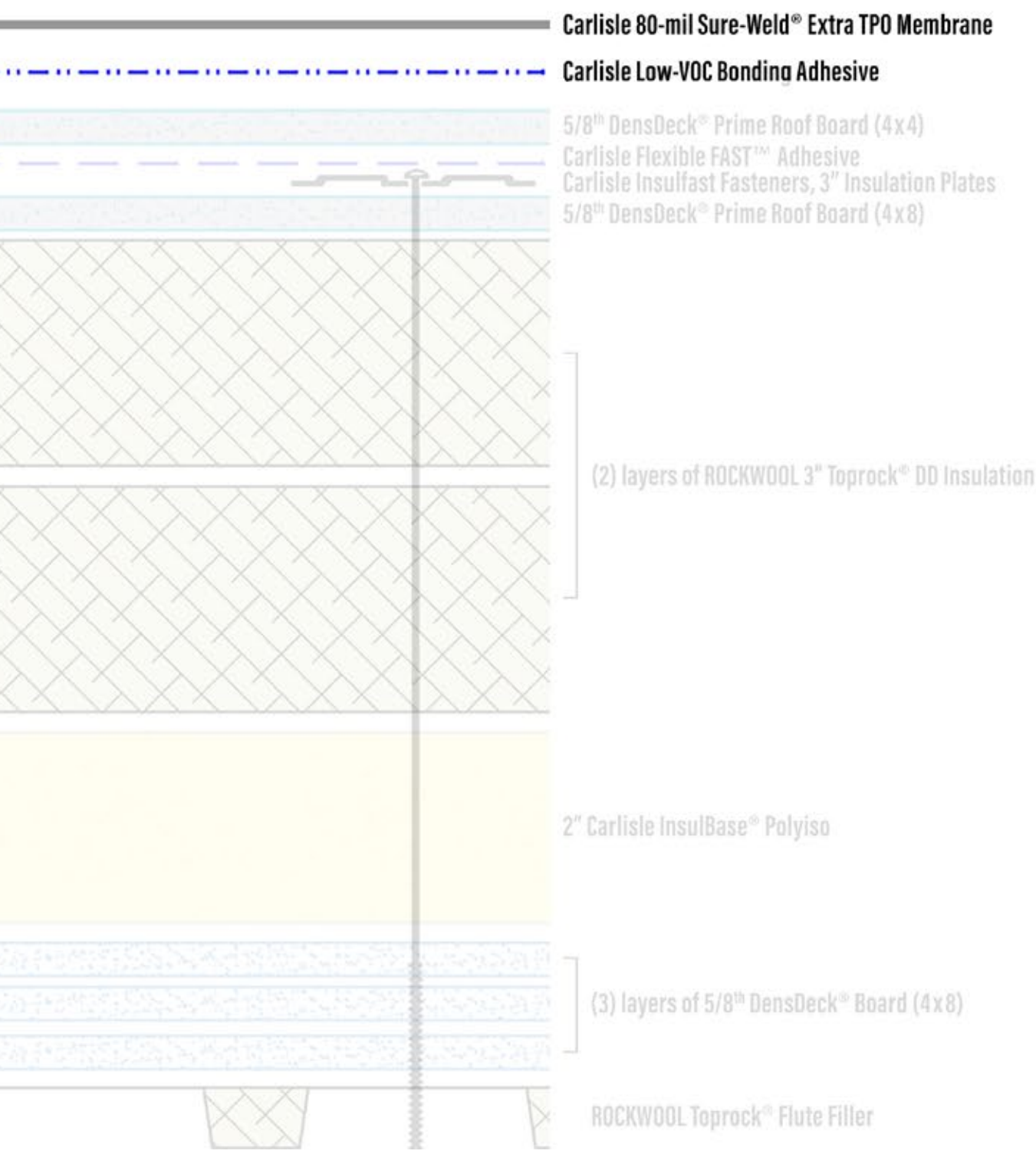
To increase the overall R-Value of the assembly a layer of 2 inch Carlisle InsulBase was added.

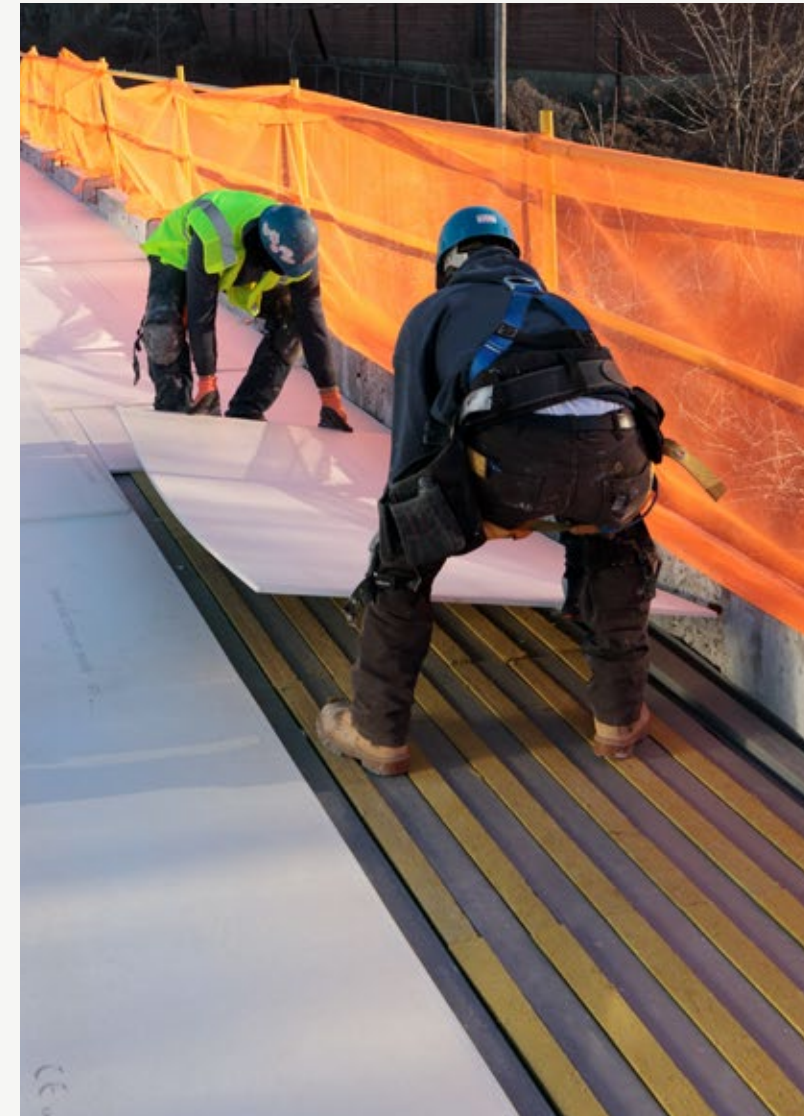
The ROCKWOOL Building Science team evaluated the performance of the innovative hybrid roof system using THERM, and estimated a total R-value of 38.



MEMBRANE

The assembly is capped with gray Carlisle 80-mil Sure-Weld Extra TPO fully adhered with Carlisle Low-VOC Bonding Adhesive. The extra thickness gained by going 80-mil vs. the typical 60-mil TPO increased the durability and weathering resistance of the membrane by as much as 42%. With as complex of an assembly as this one, going with 80-mil was a clear decision.





S A F E T Y

Our company is built on a culture of safety. The safety of our crews is paramount. Safety was the first component that went into this project even before materials were ordered.

2800 MAN HOURS WITHOUT INCIDENT

- Site Specific Safety Plan
- Safety railing and orange fencing on all sides
- Traffic barriers to seperate workers from street traffic
- Daily on-site safety huddles
- Posted safety information and emergency contacts

This project presented unique safety challenges to the crew on-site. We were confident in our planning and preparation to address any issues before they resulted in an incident. On Lionsgate we fulfilled our goal to keep our team safe and able to go home to family and loved ones at the end of each work day.

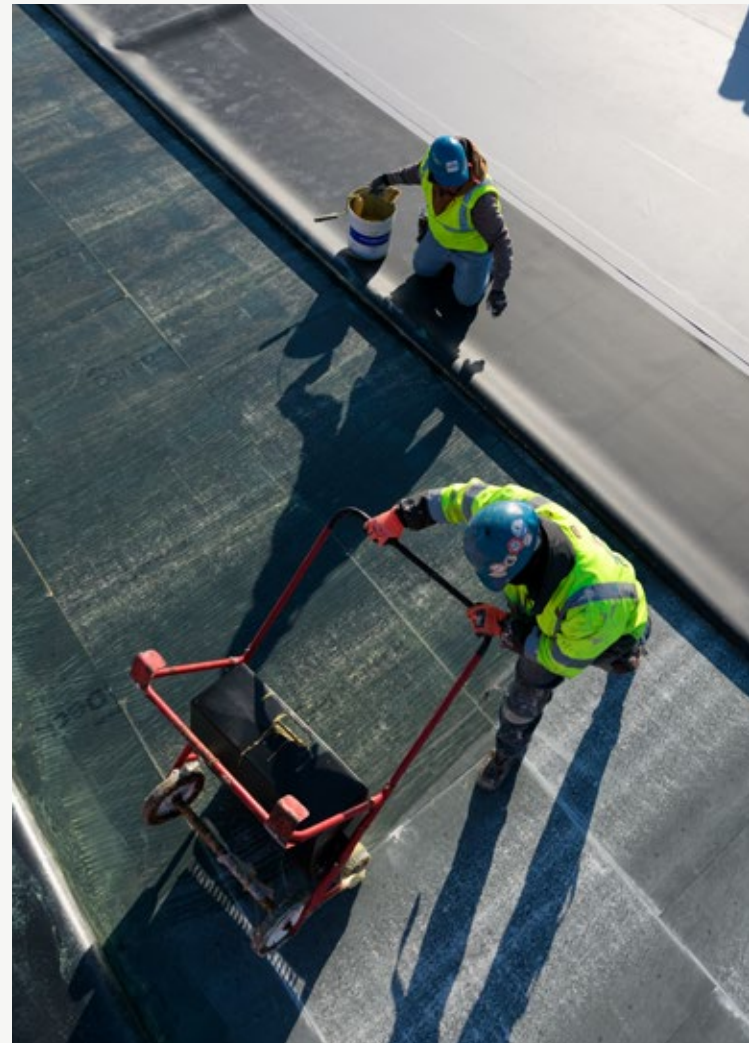
TEAMWORK

In the first studio built, minimizing exterior sound transmission required an under-deck solution inside the building envelope to remediate the condition, after the original roof was completed.

On this project we mobilized a team of manufacturers to solve the sound problem in the roof assembly itself before installation. The team delivered the client a strong, durable roof with a robust STC 55, that will keep exterior noise outside, and protect the building envelope.

Our crew was able to draw on experience installing all the individual components to complete the innovative assembly. When you watch a Lionsgate film recorded in Yonkers you'll only hear the sounds that were meant to be heard inside the studio thanks to this roof system.

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- InsulBase® Polyiso
- Insulfast Fasteners, 3" Insulation Plates
- Low-VOC Bonding Adhesive
- Flexible FAST™ Adhesive
- 80-mil Sure-Weld® Extra TPO
- 20-Year System Warranty



- Acoustic assembly modeling and testing
- Toprock® DD
- Toprock® Flute Filler



- DensDeck® Roof Board
- DensDeck® Prime Roof Board



- Materials coordination
- Delivery and loading