



TECH NOTES

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INSULATING THE RIGHT WAY: PRECAST SOLUTIONS

AEM Architects of Reading, PA., worked closely with High Concrete Group LLC, in the development, design, construction and completion of the Tilden Elementary Center for the Hamburg (PA) Area School District. This school features architectural precast panels with a continuous core of 3" Dow Styrofoam Square Edge Insulation. By producing the completed wall panels at High's Denver PA Plant, the construction cycle was drastically reduced and costs controlled. The owner gained another significant advantage, however – a continuously insulated building envelope where thermal shorts were eliminated, and moisture issues controlled. The use of High's proprietary CarbonCast technology enables the Dow insulation to span from panel edge to panel edge without thermal bridging penetrations. The result is a true R-15 wall that can also take advantage of the thermal mass of the concrete. If this structure were stick built with steel studs in a conventional manner, the owner would have only realized an R-7.1 wall system. In choosing this design and construction method, AEM Architects and the Hamburg School District have made the greatest impact possible on sustainability and reducing the carbon footprint of the building permanently - by simply choosing to insulate correctly.

Recognizing the benefits of Dow extruded polystyrene, AEM Architects takes additional steps to ensure that their clients receive the highest sustainable value on their roof applications also. Understanding that conventionally built roofing systems that utilize polyisocyanurate insulation have inherent moisture problems (which all but ensures that they will need to be completely replaced on average every 17 years), AEM Architects design TPO roofing systems on a base of

Dow Deckmate Plus extruded polystyrene. Deckmate Plus is hydrophobic, does not lose R value over time and can be reused if the membrane fails. AEM thinks out of the box and provides roofs that do not need to be considered throw away! Sustainable thinking at its best.



Notice the insulation spanning edge to edge?
That's the key to a well-insulated structure.
No thermal shorts = low energy consumption.



The steel frame is erected, then the insulated precast panels are craned into place and clipped to the steel.

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Setting the panel in place.



Ensuring proper alignment.



Structural beams are cast into the walls to support the precast floor planks.



Supplemental support for wall panels while they are set.



Completed wall section.



Various wall sections coming together.