

daylight modeling.

daylighting terminology.

daylight

light produced by solar radiation. Daylight includes direct sunlight, and sunlight diffused by the atmosphere and various reflected cloud types.

daylight availability

the luminous flux dictated by the sun and/or sky at a specific location, time, date, & sky condition.

daylight factor

a measure of daylight illuminance at a point on a given plane expressed as a ratio of the illuminance on that plane at that point to the simultaneous exterior illuminance on a horizontal plane from the whole of an unobstructed sky of assumed or known luminance distribution. Direct sunlight is excluded from both interior and exterior values of illuminance.

clerestory

upper part of an interior wall, containing openings for daylighting of interiors.

lightshelf

an exterior horizontal shelf positioned (usually above eye level) to reflect daylight onto the ceiling and to shield direct glare from the sky.

overhang

a horizontal building projection, usually above a window, for the purpose of shading

skylight

A relatively horizontal glazed roof aperture for the admission of daylight.



Top: Interior view of the model from Boora Architects used for the daylight model study of Central Intermediate School.

Bottom: Photo of actual space during latter stages of construction.

Photos: LDL

Some types of buildings change purposes a lot during their lives, but schools typically stay schools the entire time. So building design decisions may impact the performance of generations of students and teachers. Boora Architects of Portland, Oregon understands how important it is to design sustainable, efficient schools. Heinz Rudolf of Boora has used daylighting services at the LDL dating back to the North Clackamas, Oregon school analysis, and recently

he brought the Central Intermediate School in Independence, Oregon for analysis by our daylight specialists.

Heinz is a firm believer in analytical design. "The only way to see what is really happening is a daylit space under various seasonal conditions is to model it. I believe that every important daylighted room should be modeled." Using the direct-beam heliodon and overcast sky at the Seattle BetterBricks Daylighting Lab, Boora learned how their spaces actually react to the natural environment with sunlight. "If we don't do modeling on our spaces, we're just guessing," said Mr. Rudolf.

Boora finds the daylighting services from the BetterBricks Daylighting Lab immensely valuable during design. "Having this expertise avail-

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*Heinz Rudolf
Boora Architects*

able saved us a great deal of time and expense. "We can count on the predictions of how the space will perform. There is always a place for improvement in a design."

A growing body of research into learning behavior shows a positive correlation between daylight and student learning. This makes it even more important to integrate daylight and electric light into the design of our schools.

If you would like to download a tutorial on the daylight modeling process, go to www.lightingdesignlab.com/daylighting/daylighting_studio_newtips.htm for our modeling tips and model study checklist. For more information on integrating daylight with electric light visit www.BetterBricks.com.

If you would like to discuss conducting a daylight model study at the Lighting Design Lab, either email daylighting@lightingdesignlab.com or call 206-325-9711 x36 and ask for Kevin or Chris.