Breezeway Wind Analysis

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**Recommended Citation**
Borgerding, Andrew; Burns, Scott F.; Griffin, Corey T.; and Deines, Ben, "Breezeway Wind Analysis" (2013).  
*Research-Based Design Initiative*. 29.  
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Introduction

The project is focused on the wind strategies for the Black Butte Ranch in central Oregon. The project is located at the edge of a lake on the high desert, with winds coming in from the west and blowing over the ranch and the Natural Bridge. The wind has been a main focus of the design process for the spa area (directly adjacent to the pool area and the main entrance to the building). The goal was to find the optimal angle without compromising the entire view of the mountains. We learned from previous research and experience that the optimal angle varies seasonally. The location allows for a framed view of the mountains and this needs to stay intact. The project is in schematic design still, which allows the client preference one of the original schemes allowing the client to view the mountains and this needs to stay intact. The project is focused on the wind strategies for the pool codes as well as a wind screen comprised of 4 x 12 wood posts. The angle at which these planks are installed has the biggest implication on how effective they will be at creating a disbursement of the wind flow, allowing for a habitable space even during a high wind event. The wind comfortability diagram shows the wind break. The other screen will act as an interface between the spa area and the surrounding pool house along with a restaurant and new pool. The results have shown that the effect the wind has on the pool area can be tolerated during the summer when the temperature is higher and the occupants are in need of air flow to promote cooling. More importantly airflow needs to be controlled for the cold winters when the temperature is lower. The wind comfortability diagram shows the wind speed in the breezeway and main entrance. One of the options was creating an opening in the roof of the breezeway. Another option is the incorporation of an opening in the roof of the breezeway to create an air escape as well as a wind screen comprised of 4 x 12 wood posts. The angle at which these planks are installed has the biggest implication on how effective they will be at creating a disbursement of the wind flow, allowing for a habitable space even during a high wind event. The wind comfortability diagram shows the wind break. The other screen will act as an interface between the spa area and the surrounding pool house along with a restaurant and new pool. The results have shown that the effect the wind has on the pool area can be tolerated during the summer when the temperature is higher and the occupants are in need of air flow to promote cooling. More importantly airflow needs to be controlled for the cold winters when the temperature is lower.

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