Practical Applications of HDR Photography with Radiance

Radiance Workshop 2011

Jake Wayne, PE

August 26, 2011

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Overview of High Dynamic Range (HDR) Photography Applications:

- HDR Photography for Calibration of Radiance Model
- HDR Photography – a poor man's Reflectometer?
- HDR Photography for Architectural Detail Evaluation
- HDR Photography for Aiding in Luminaire Aiming

HDR Photography for Calibration of a Radiance Model

San Francisco Old Mint

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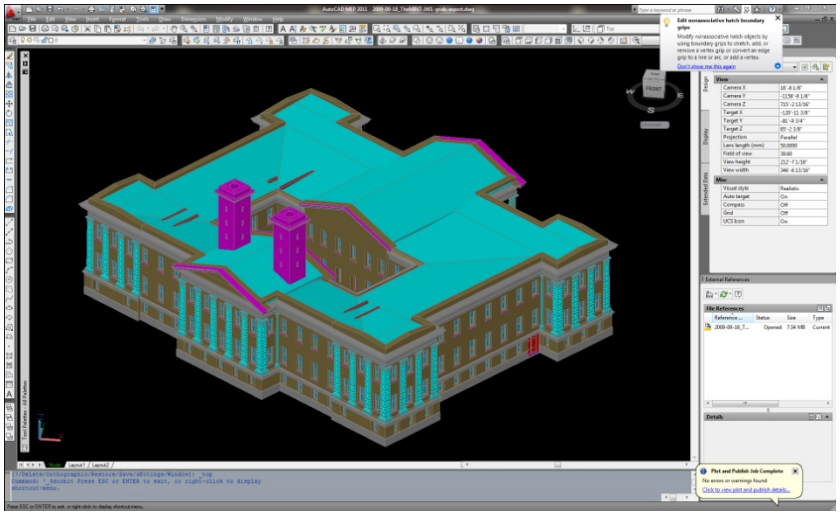
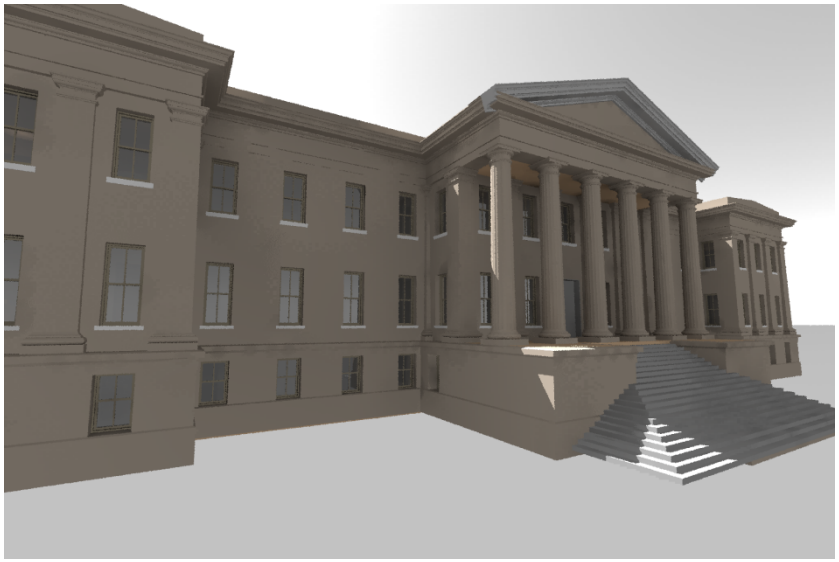
Historic Photograph of San Francisco Old Mint



Revit Model Export to CAD



Radiance Model

Section through room for Study – Southeast exposure

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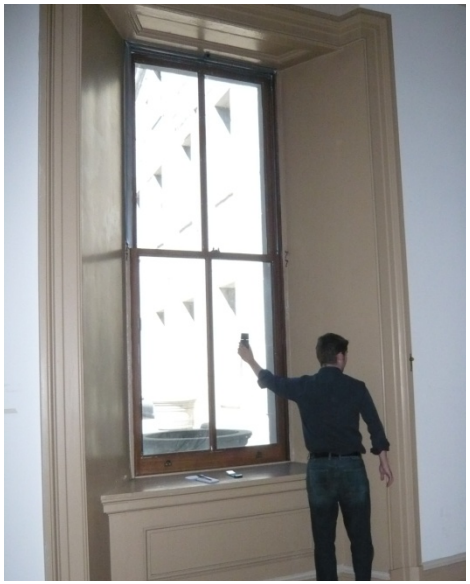

Study done on September 16

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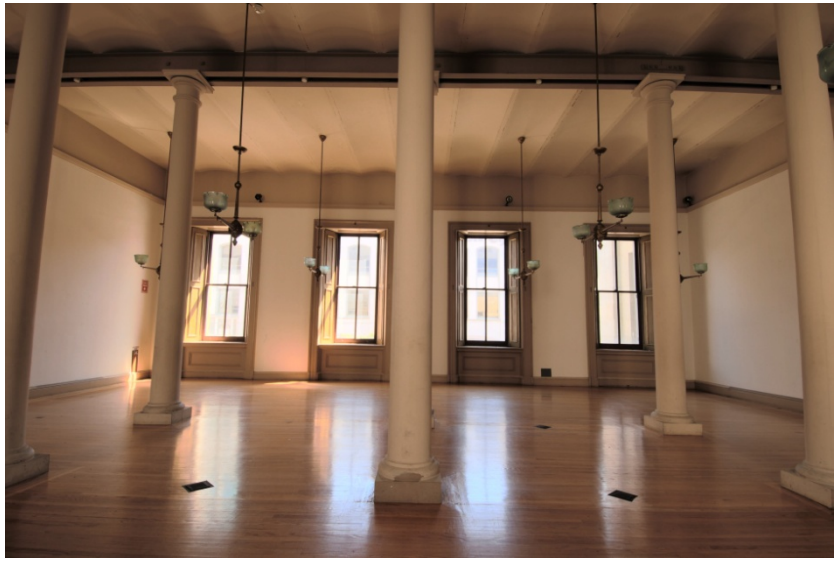

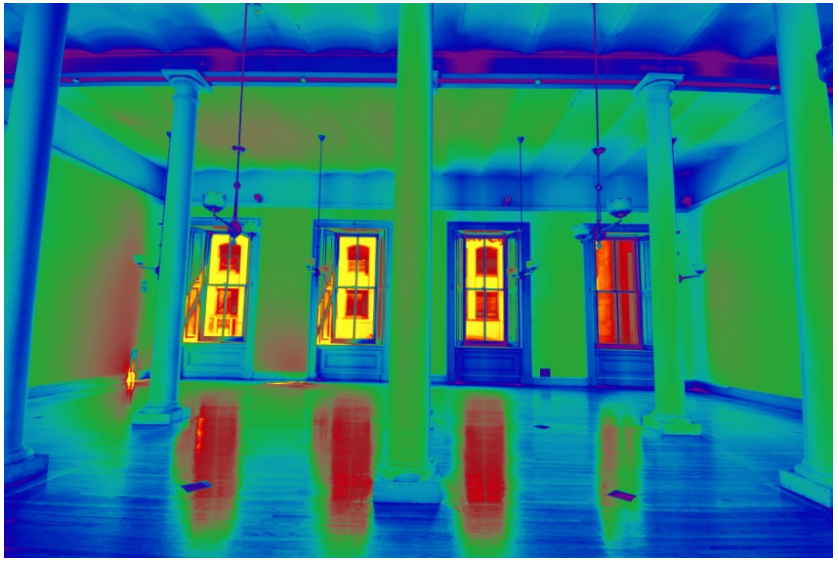

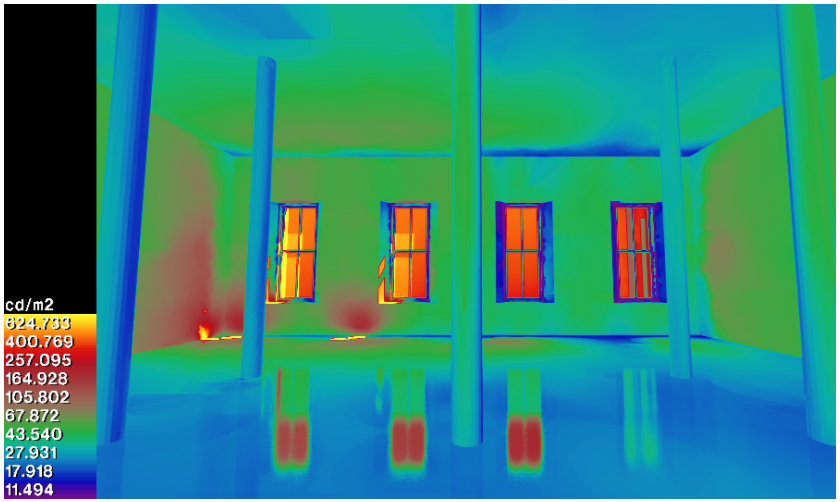
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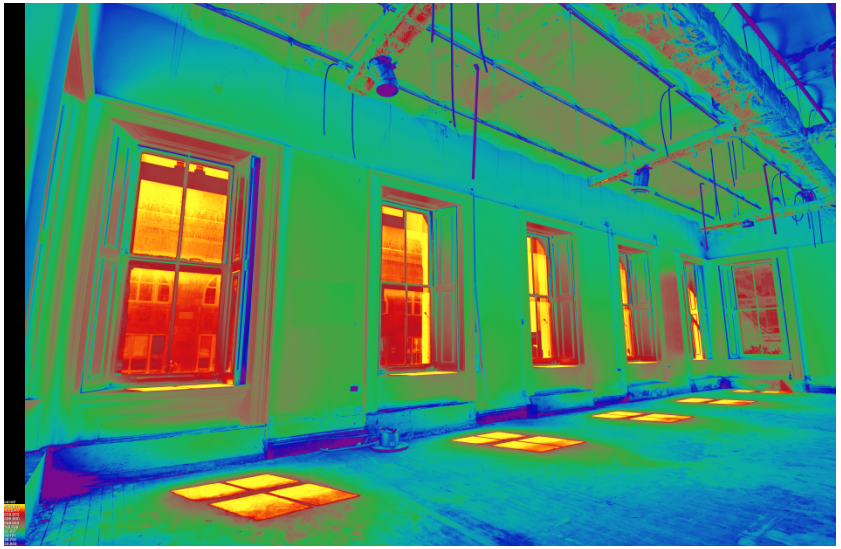

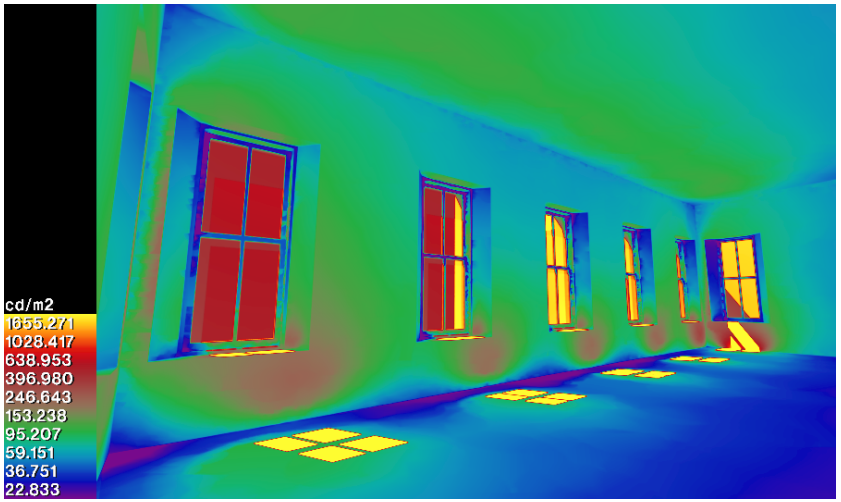
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HDR Photography
A poor man's Reflectometer?

Terrazzo Floor Material Study

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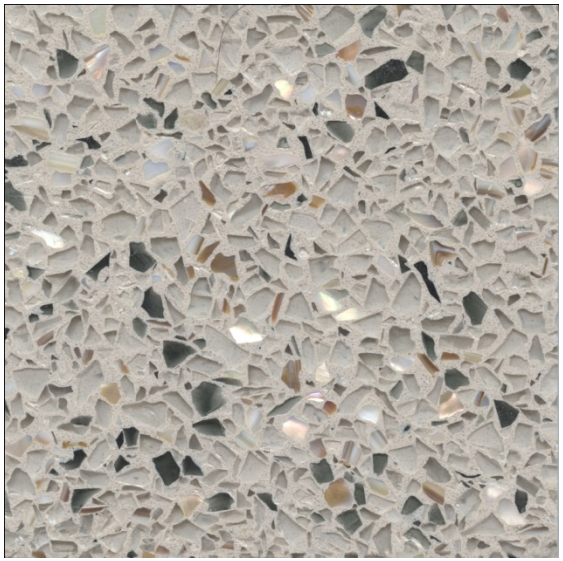
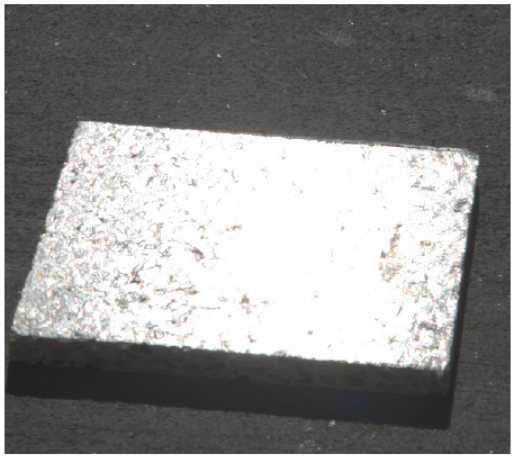
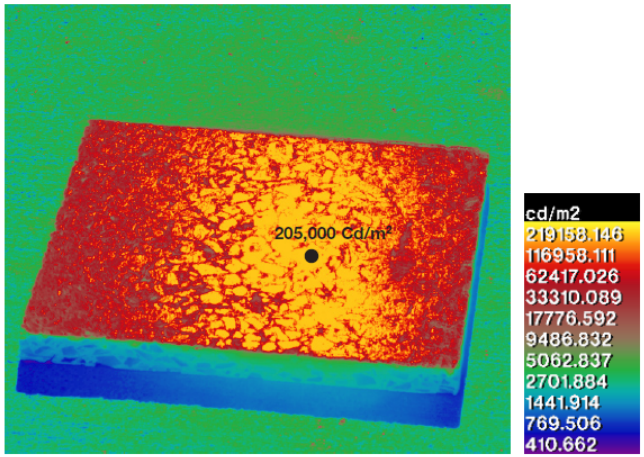
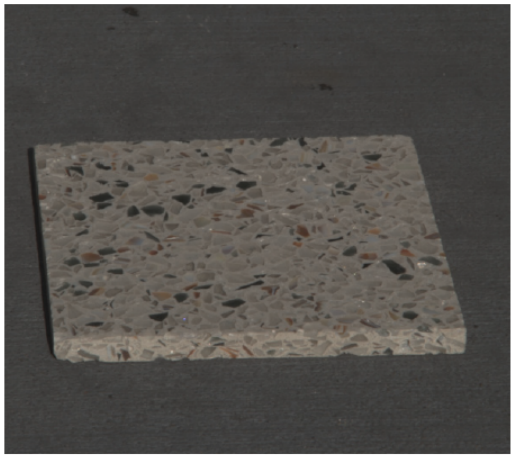




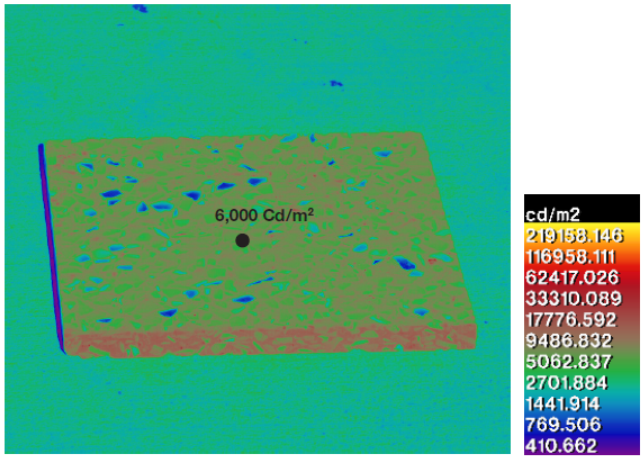
White Terrazzo Floor Material in Direct sunlight - specular reflection visible.



White Terrazzo Floor Material in Direct sunlight - pseudo-color analysis.



White Terrazzo Floor Material in Direct sunlight - no specular reflection visible.



White Terrazzo Floor Material in Direct sunlight - pseudo-color analysis.

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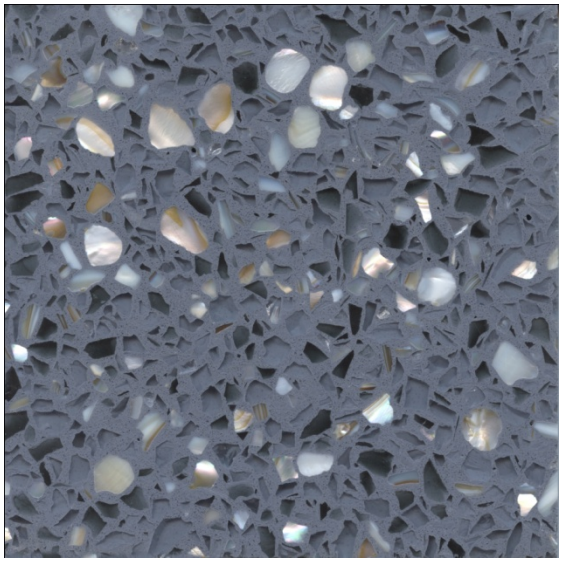
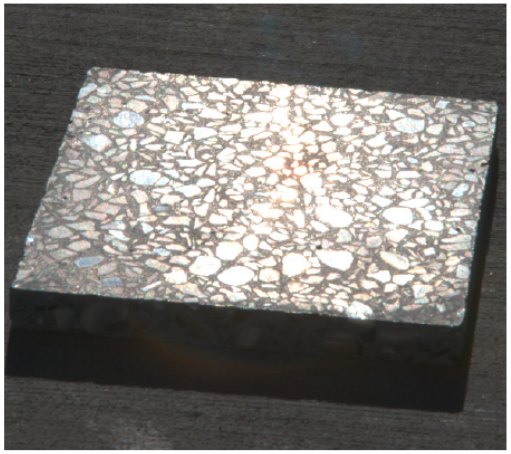
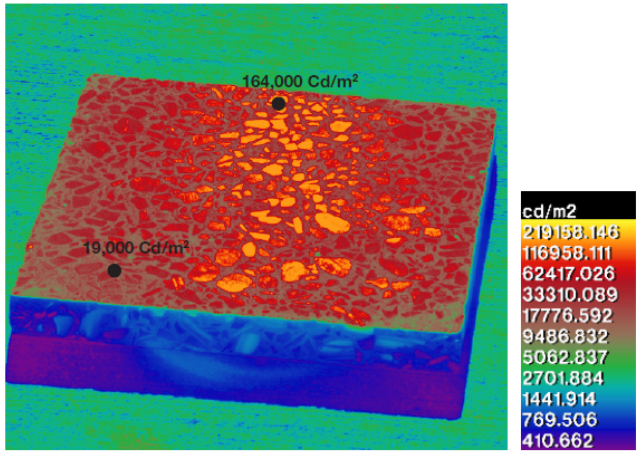


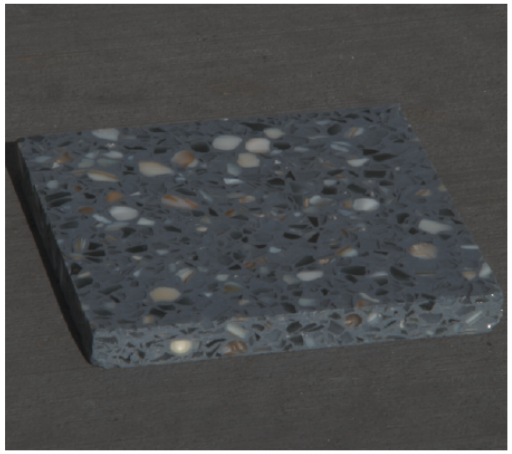
Blue Terrazzo Study



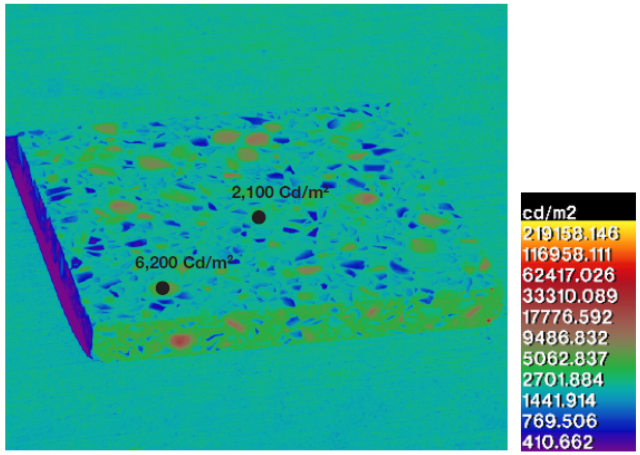
Blue Terrazzo Floor Material in Direct sunlight - specular reflection visible.



Blue Terrazzo Floor Material in Direct sunlight - pseudo-color analysis.



Blue Terrazzo Floor Material in Direct sunlight - no specular reflection visible.



Blue Terrazzo Floor Material in Direct sunlight - pseudo-color analysis.

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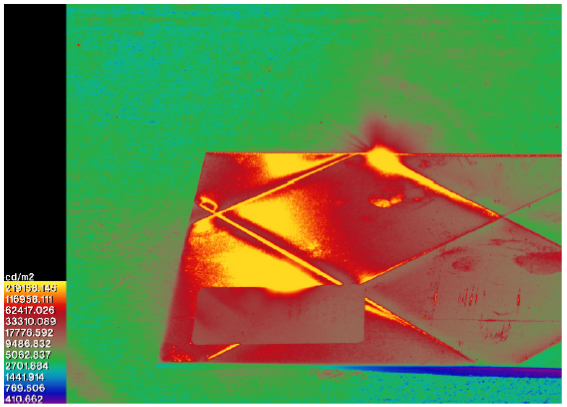
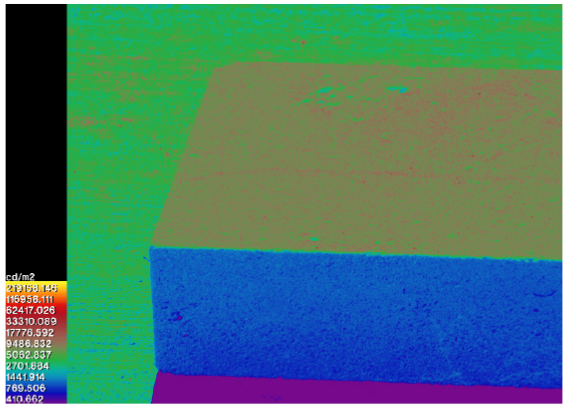
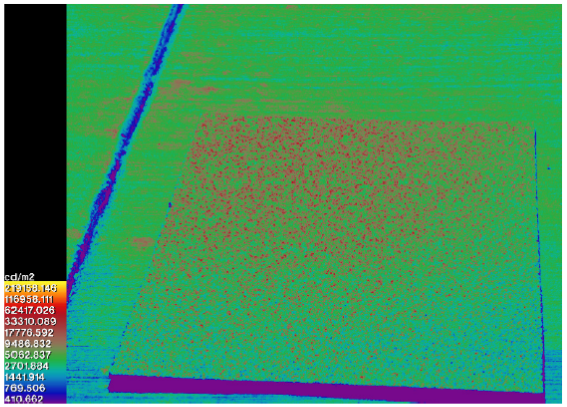


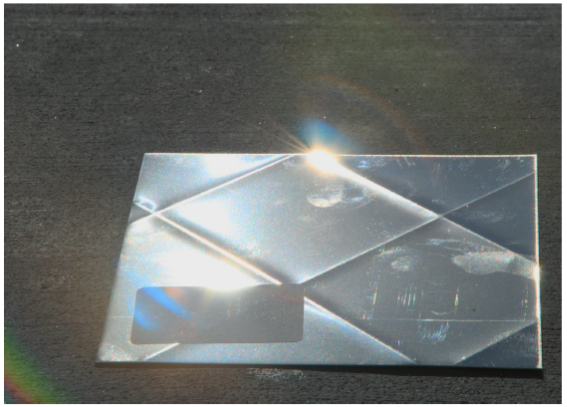
Mirror-finish Specular Material Sample



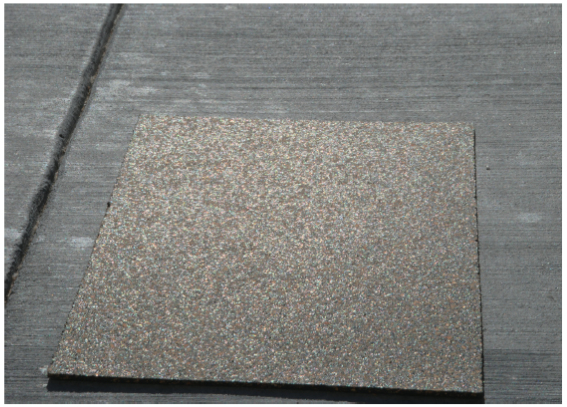
Sandstone Matte Material



Black Acoustic Tile Material


Mirror-finish Specular Material Sample


Sandstone Matte Material


Black Acoustic Tile Material

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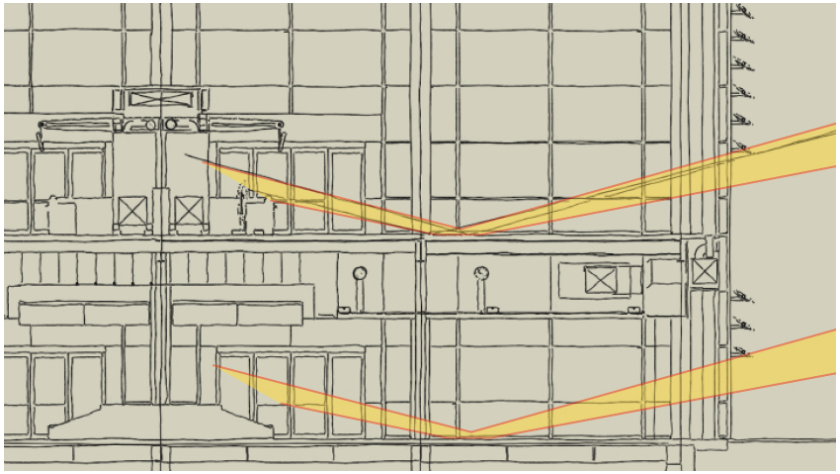

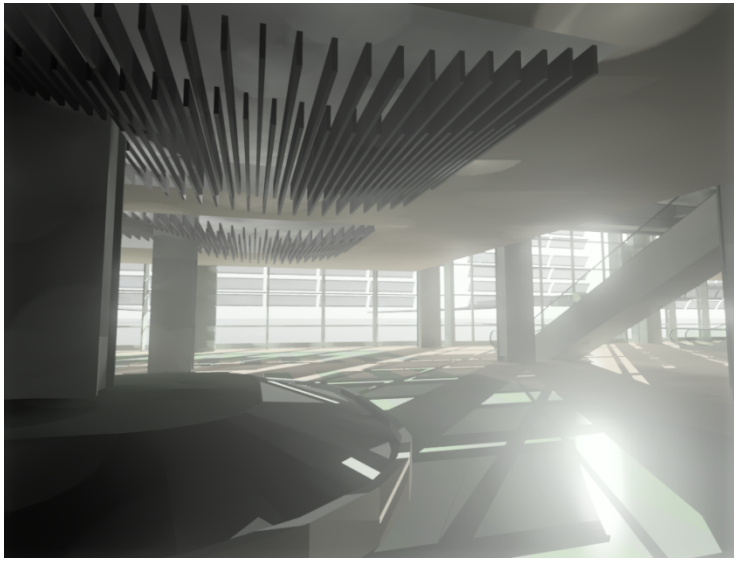

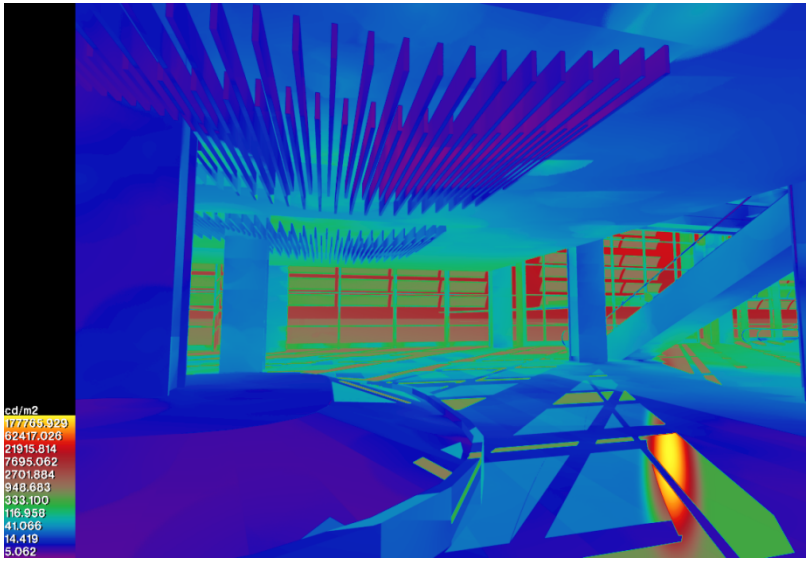
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HDR Photography for Architectural Detail Evaluation

Cove Construction Study

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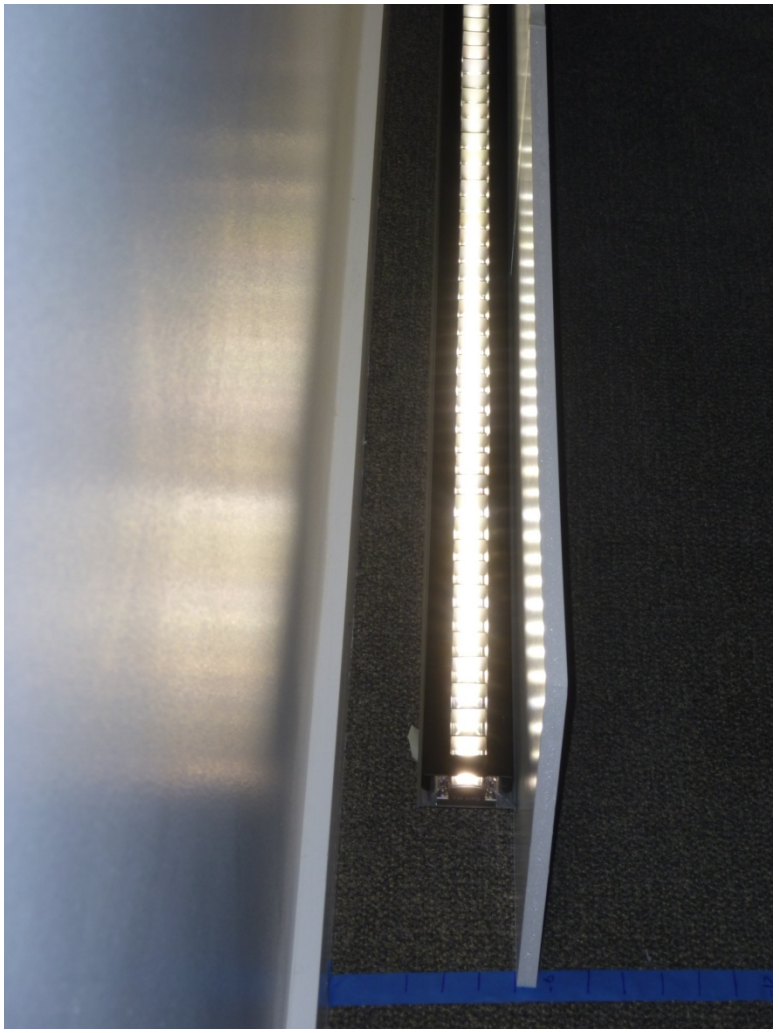

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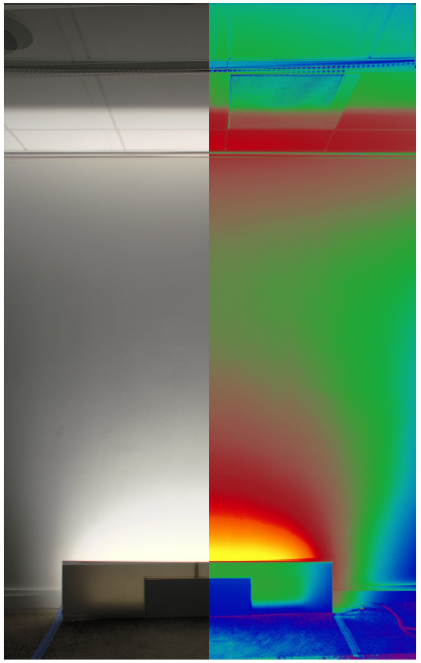
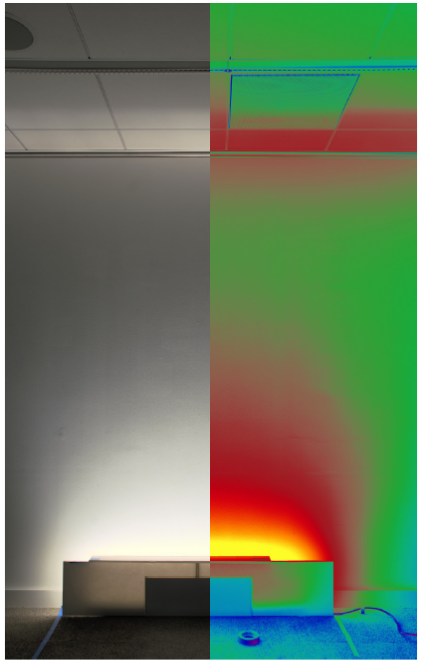
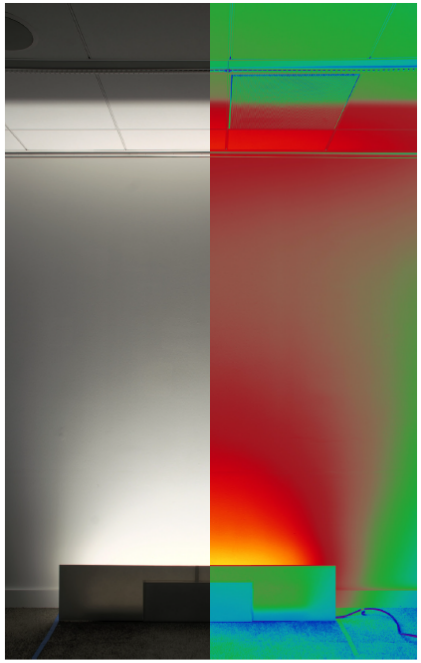


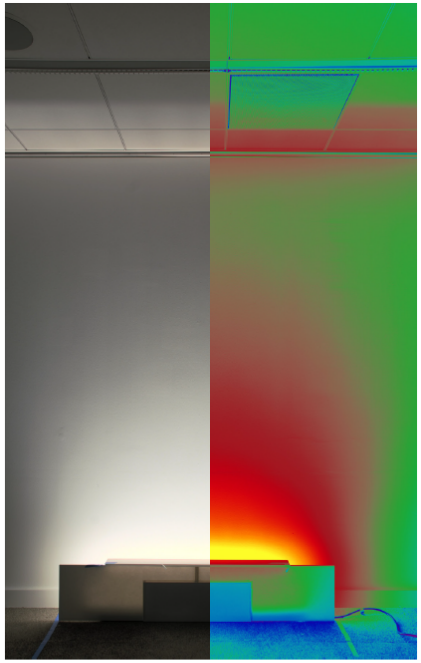
FIXTURE: ColorKinetics eW Graze Powercore
ACCESSORY: none
PLACEMENT: maximum offset from wall
COVE APERTURE: 5 inches
ARCHITECTURAL LIP: none



FIXTURE: ColorKinetics eW Graze Powercore
ACCESSORY: none
PLACEMENT: maximum offset from wall
COVE APERTURE: 5 inches
ARCHITECTURAL LIP: 2 inches



FIXTURE: ColorKinetics eW Graze Powercore
ACCESSORY: none
PLACEMENT: maximum offset from wall
COVE APERTURE: 8 inches
ARCHITECTURAL LIP: none



FIXTURE: ColorKinetics eW Graze Powercore
ACCESSORY: none
PLACEMENT: maximum offset from wall
COVE APERTURE: 8 inches
ARCHITECTURAL LIP: 2 inches

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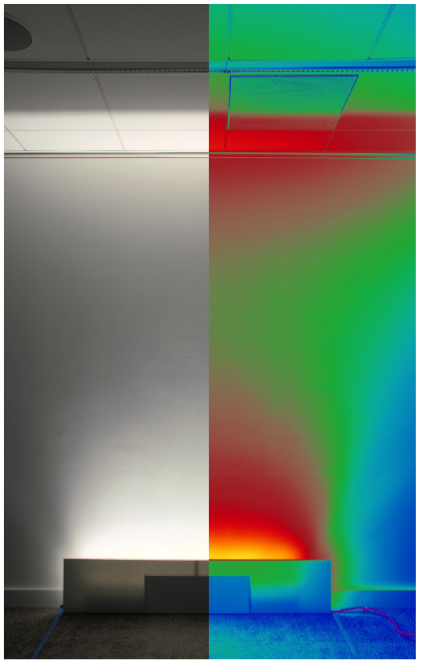
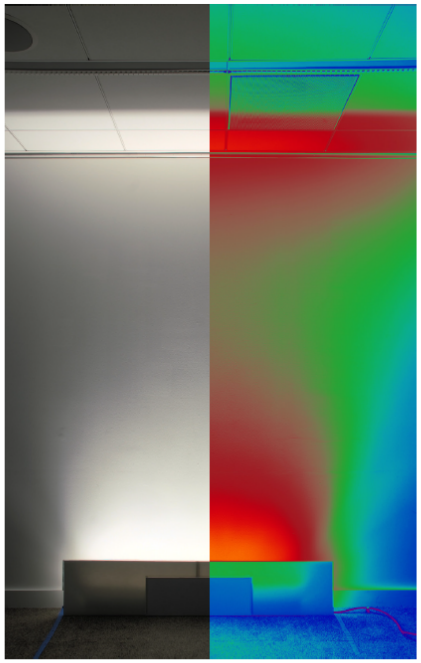
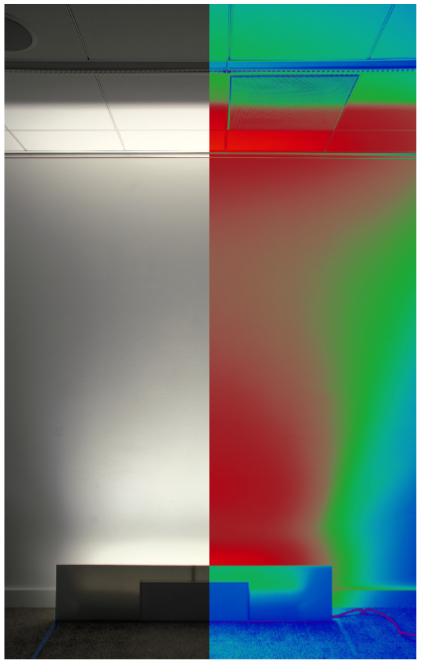


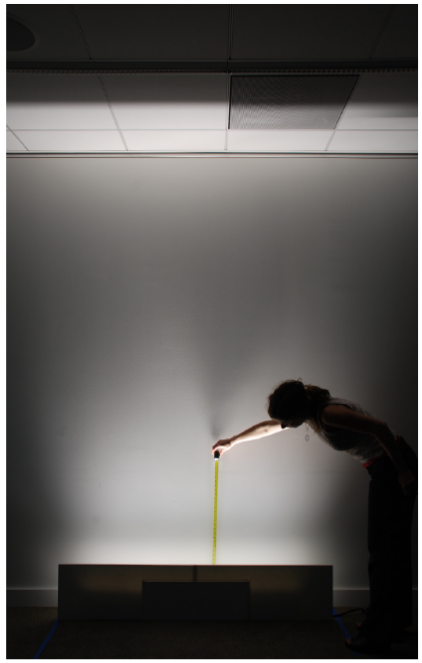
FIXTURE: ColorKinetics eW Graze Powercore
ACCESSORY: Louver
PLACEMENT: maximum offset from wall
COVE APERTURE: 4 inches
ARCHITECTURAL LIP: none



FIXTURE: ColorKinetics eW Graze Powercore
ACCESSORY: Louver
PLACEMENT: maximum offset from wall
COVE APERTURE: 5 inches
ARCHITECTURAL LIP: none



FIXTURE: ColorKinetics eW Graze Powercore
ACCESSORY: Louver
PLACEMENT: maximum offset from wall
COVE APERTURE: 8 inches
ARCHITECTURAL LIP: none



FIXTURE: ColorKinetics eW Graze Powercore
ACCESSORY: none
PLACEMENT: maximum offset from wall
COVE APERTURE: 8 inches
DESIGN NOTE: A dark band was noticeable from the louver from 4 inches to 6 inches beyond the cove aperture. This was a result of light reflecting off the white cove (foamcore) surface and the cut-off from the louver leaving a dark gap of light on the wall surface.

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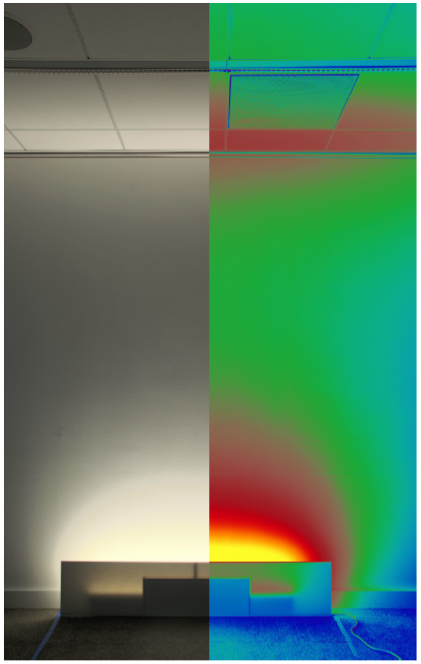
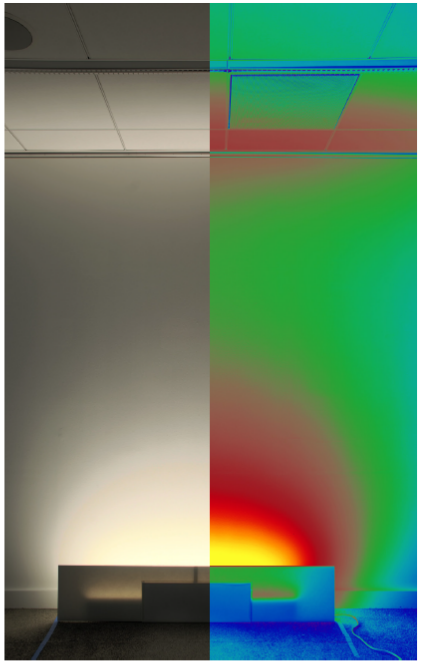
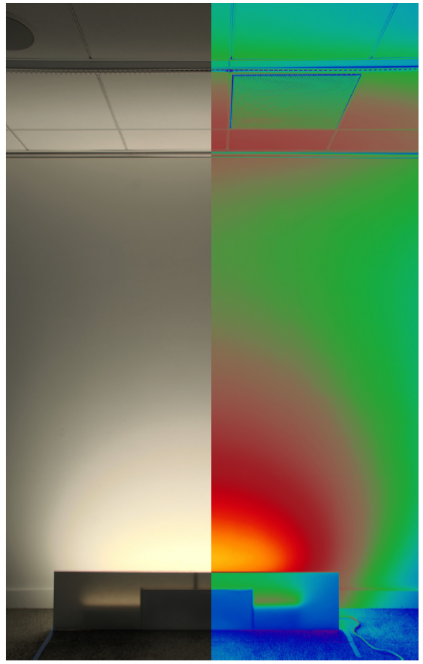


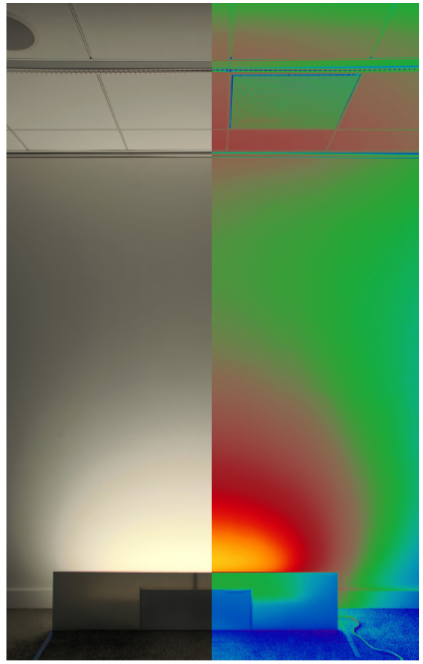
FIXTURE: Zumtobel LED Slotlight - 450 lm/ft
ACCESSORY: none
PLACEMENT: maximum offset from wall
COVE APERTURE: 5 inches
ARCHITECTURAL LIP: none



FIXTURE: Zumtobel LED Slotlight - 450 lm/ft
ACCESSORY: none
PLACEMENT: maximum offset from wall
COVE APERTURE: 8 inches
ARCHITECTURAL LIP: none



FIXTURE: Zumtobel LED Slotlight - 450 lm/ft
ACCESSORY: none
PLACEMENT: maximum offset from wall
COVE APERTURE: 12 inches
ARCHITECTURAL LIP: none



FIXTURE: Zumtobel LED Slotlight - 450 lm/ft
ACCESSORY: none
PLACEMENT: centerline of cove
COVE APERTURE: 12 inches
ARCHITECTURAL LIP: none

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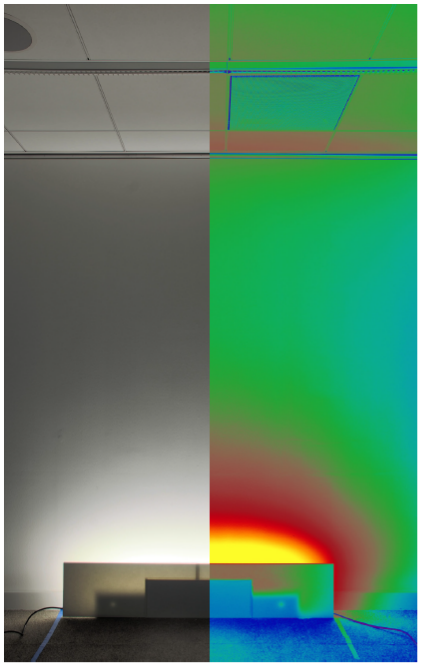
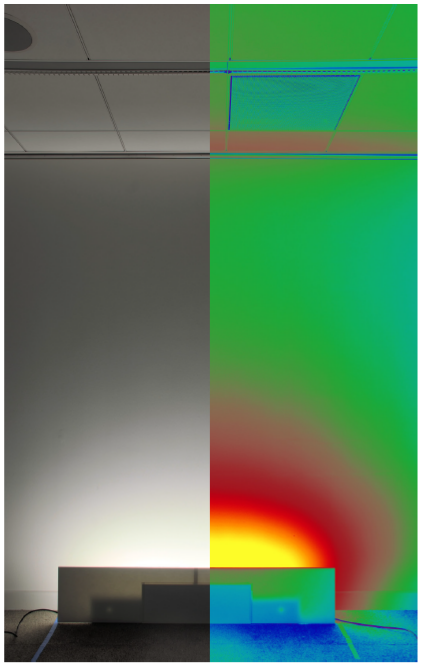
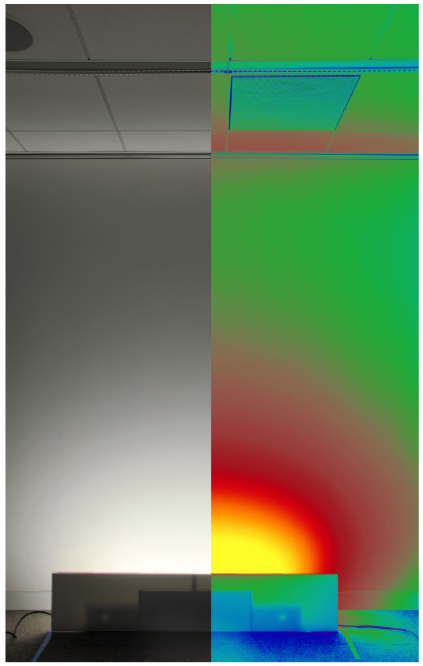


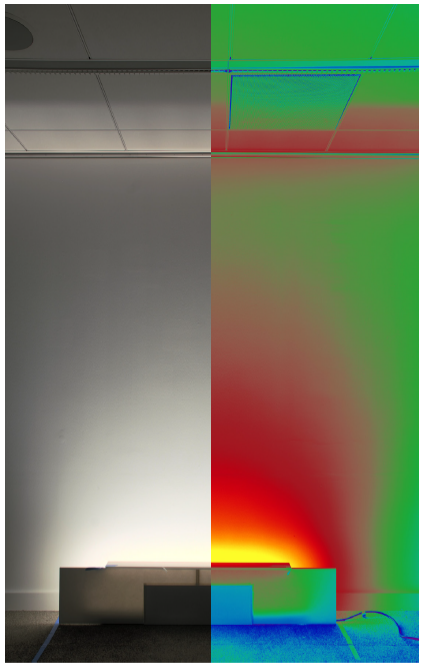
FIXTURE: Birchwood Ashley (2) 2ft T5HO fixtures
ACCESSORY: none
PLACEMENT: maximum offset from wall
COVE APERTURE: 5 inches
ARCHITECTURAL LIP: none



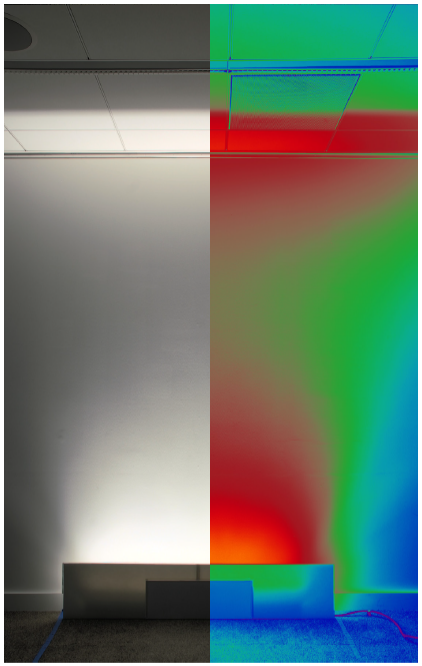
FIXTURE: Birchwood Ashley (2) 2ft T5HO fixtures
ACCESSORY: none
PLACEMENT: maximum offset from wall
COVE APERTURE: 8 inches
ARCHITECTURAL LIP: none



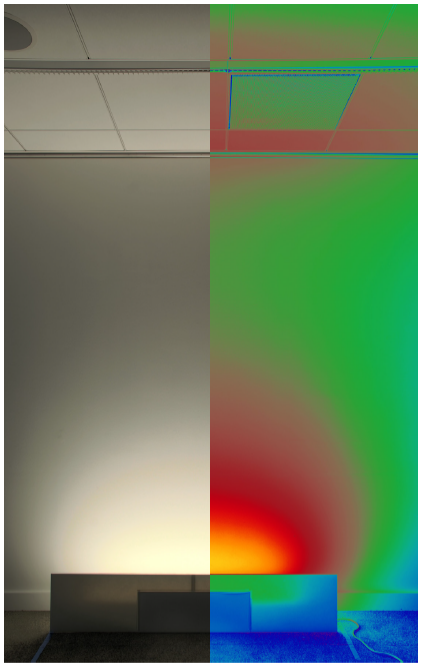
FIXTURE: Birchwood Ashley (2) 2ft T5HO fixtures
ACCESSORY: none
PLACEMENT: maximum offset from wall
COVE APERTURE: 12 inches
ARCHITECTURAL LIP: none



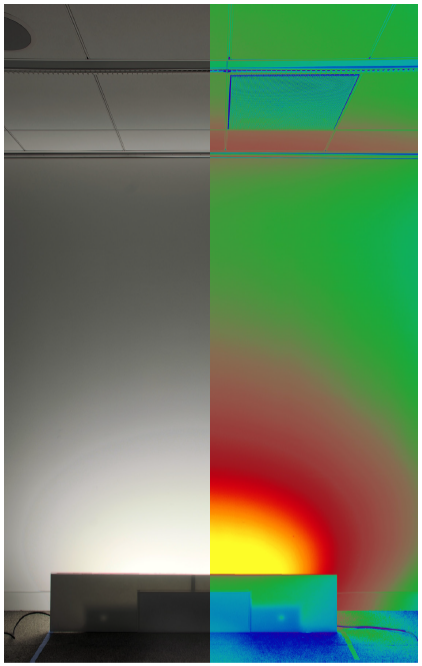
FIXTURE: ColorKinetics eW Graze Powercore
ACCESSORY: none
PLACEMENT: maximum offset from wall
COVE APERTURE: 8 inches
ARCHITECTURAL LIP: 2 inches



FIXTURE: ColorKinetics eW Graze Powercore
ACCESSORY: Louver
PLACEMENT: maximum offset from wall
COVE APERTURE: 5 inches
ARCHITECTURAL LIP: none



FIXTURE: Zumtobel LED Slotlight - 450 lm/ft
ACCESSORY: none
PLACEMENT: centerline of cove
COVE APERTURE: 12 inches
ARCHITECTURAL LIP: none



FIXTURE: Birchwood Ashley (2) 2ft T5HO fixtures
ACCESSORY: none
PLACEMENT: maximum offset from wall
COVE APERTURE: 12 inches
ARCHITECTURAL LIP: none

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HDR Photography for Aiding in Luminaire Aiming

Bridge Lighting Installation

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Center Street Bridge – Des Moines, Iowa

Deck Lighting

Arch Luminaires

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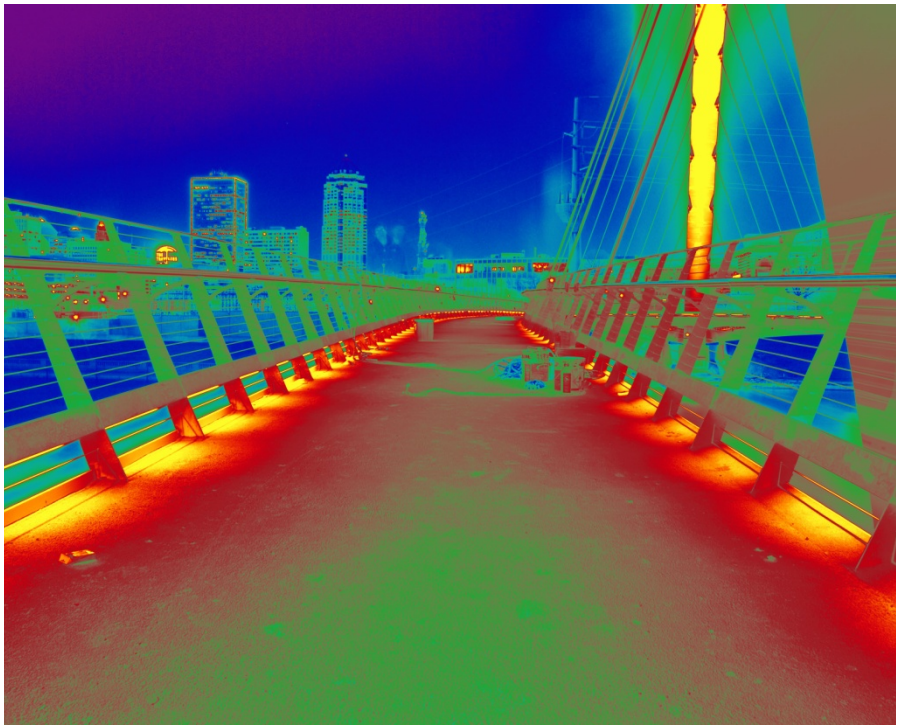

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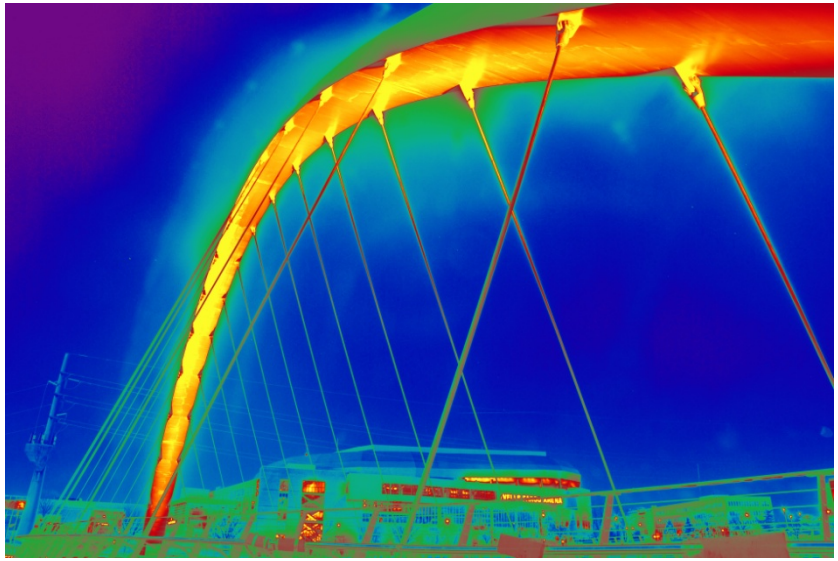

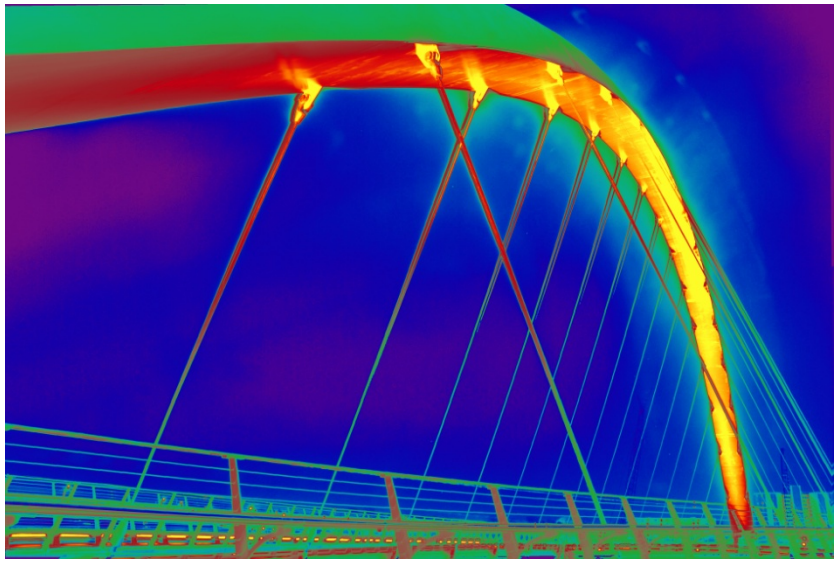

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