Perimeter vs. Wallgraze Lighting:
Understanding Design & Application

Perimeter

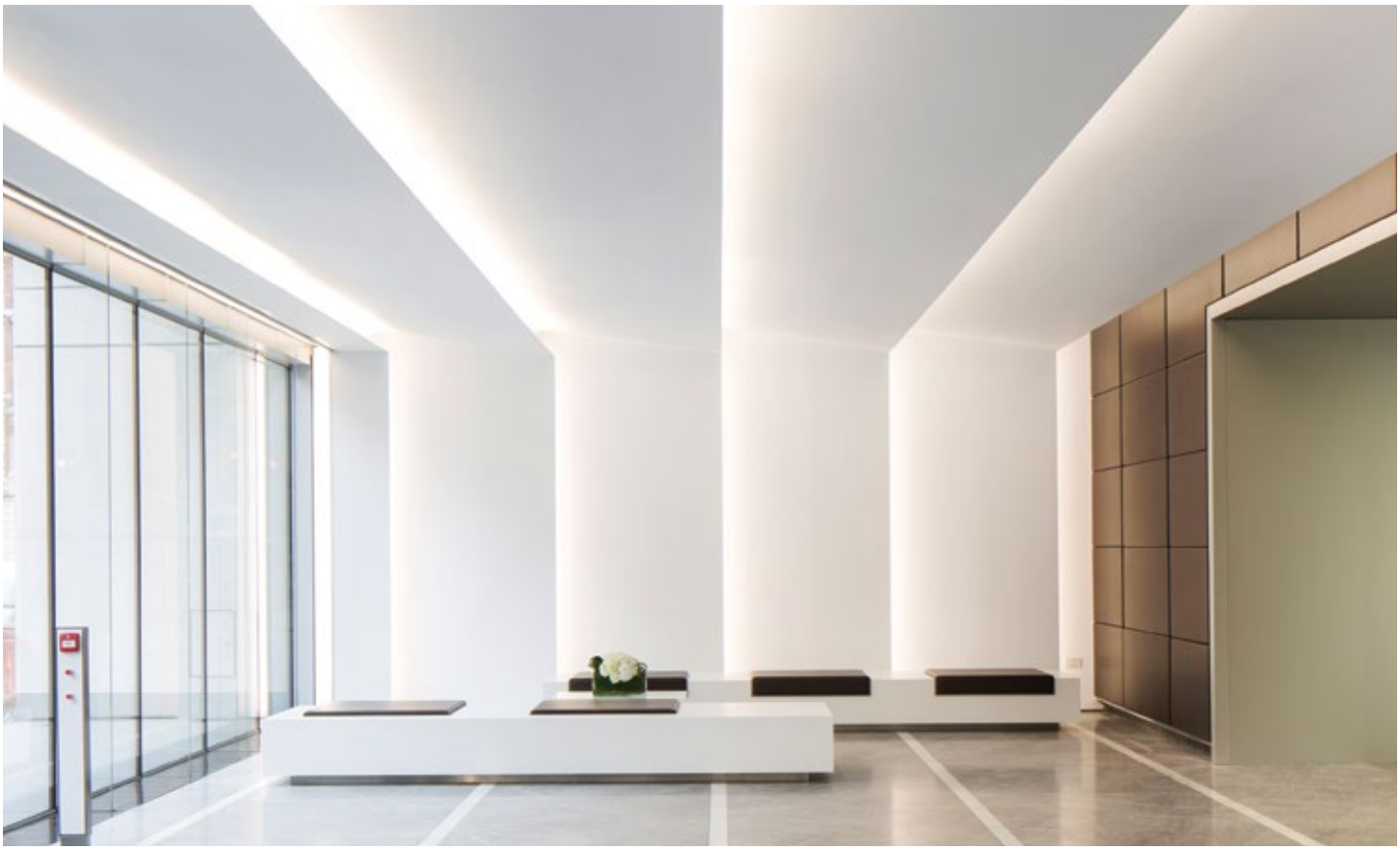
Wallgraze

Executive Summary

Architectural lighting transforms spaces, highlights materials, and shapes user experience. Two commonly used lighting techniques—**perimeter and wallgraze lighting**—serve distinct but complementary purposes. Perimeter lighting provides ambient illumination and defines spatial boundaries, while wallgraze emphasizes texture and architectural features. This Whitegoods Paper examines the differences, applications, and integration strategies of these two systems to guide architects, designers, and builders in creating visually compelling environments.

1. The Role of Architectural Lighting

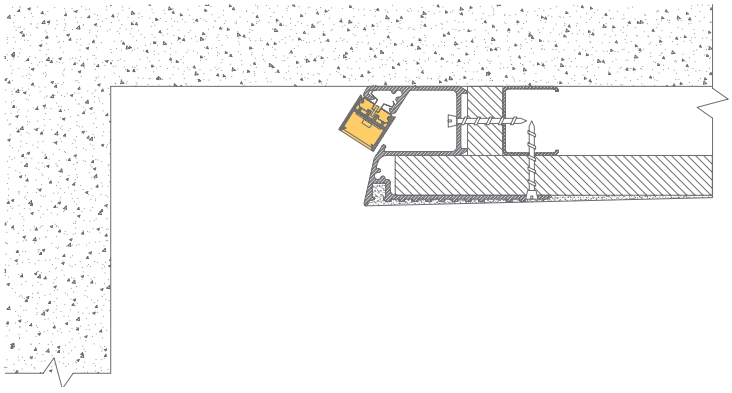
- Lighting defines space perception, materiality, and atmosphere.
- Linear LED technology allows precise control, energy efficiency, and integration into modern interiors.
- Layered lighting—combining ambient, accent, and feature lights—enhances depth, visual comfort, and design flexibility.



2. Perimeter Lighting

Definition & Purpose

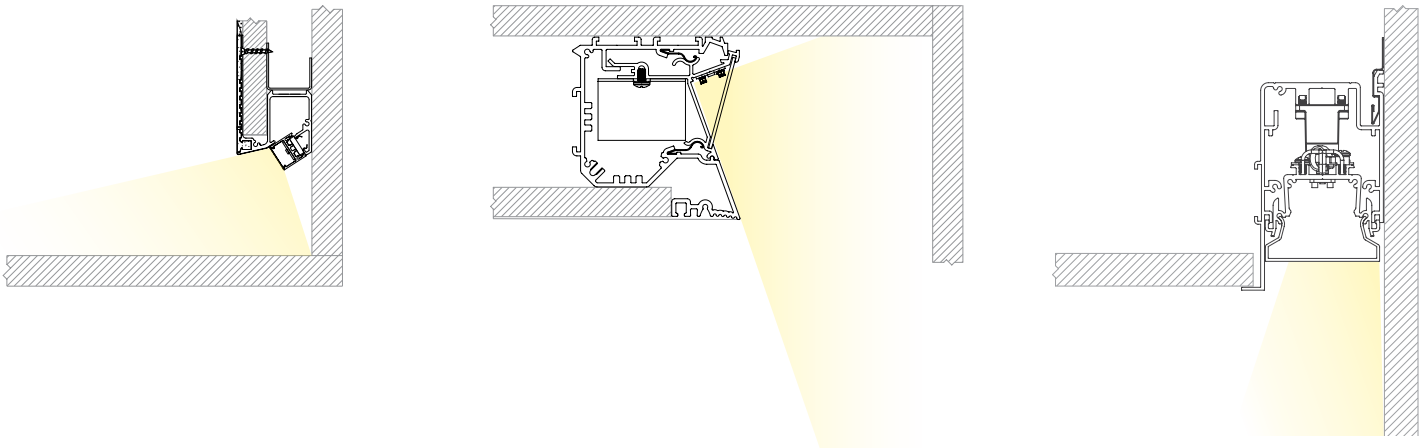
Perimeter lighting provides **continuous illumination on vertical surfaces** using a recessed linear luminaire in the ceiling to define spatial boundaries, enhance ambient light and stretch visual space.



Perimeter Lighting

Optical Characteristics

- **Beam spread:** asymmetric beam for even illumination of the wall
- **Mounting:** recessed in the ceiling at the top of the wall
- **Effect:** soft, even light from the top of the wall, using the wall to bounce light into the space



Perimeter Lighting

Applications

- Offices, lobbies, corridors, conference rooms and feature walls
- Spaces requiring ambient or mood lighting without harsh shadows or glare

Design Considerations

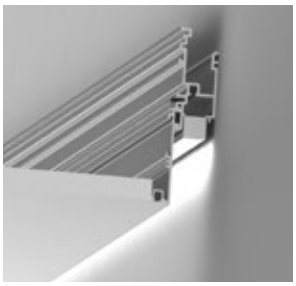
- Reduces glare and maintains visual comfort while uniformly illuminating the perimeter of the space
- Choose a product that allows the finished wall to continue past the finished ceiling
- Choose a reflective wall surface to reflect light into the adjacent space

Perimeter Lighting

click images for more information

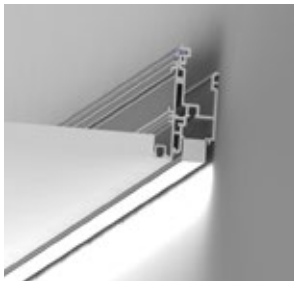
V Cove

20 Linear
Mini Z Cove



20 Linear Perimeter
Regressed

Z Cove



20 Linear Perimeter
Flush

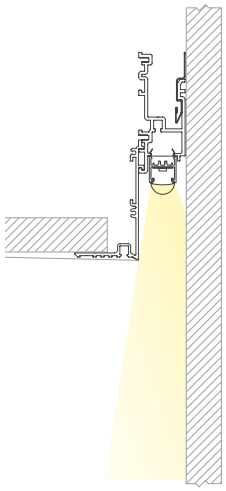
ProTools 60 Linear
Perimeter Recessed

3. Wallgraze Lighting

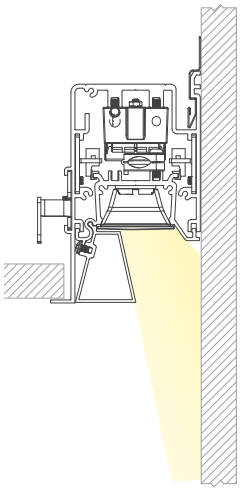
Definition & Purpose
Wallgraze lighting is designed to **accentuate vertical surfaces**, emphasizing texture, depth, and architectural detail.

Optical Characteristics

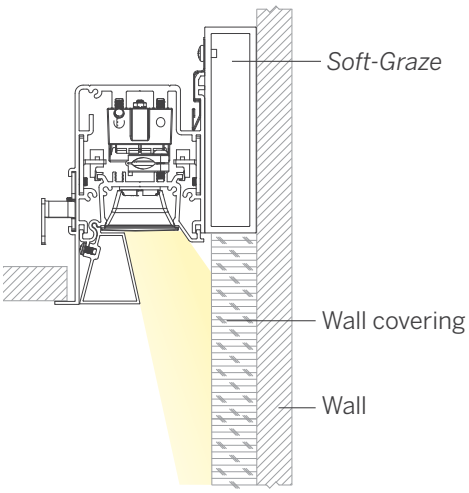
- **Beam spread:** narrow, directional distribution with kick reflector to direct light that grazes the wall from above the ceiling line to the floor, and minimizes room-side light
- **Mounting:** recessed in the ceiling at the top of the wall
- **Effect:** draws attention to feature walls by creating shadows that highlight relief and surface variations, as well as expanding the apparent volume of the space by illuminating vertical surfaces; utilize '*soft-graze*' to ensure the beam grazes the front of the wall
- **Wayfinding:** increased light levels (5x surrounding light levels) draws the eye to the surface being illuminated



20 Linear Perimeter Wallgraze



ProTools 60 Linear Wallgraze Recessed



ProTools 60 Linear Wallgraze Recessed with *Soft-Graze*

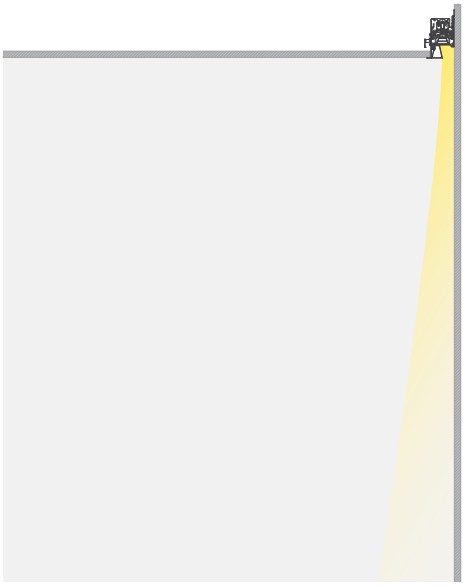
Wallgraze Lighting

Applications

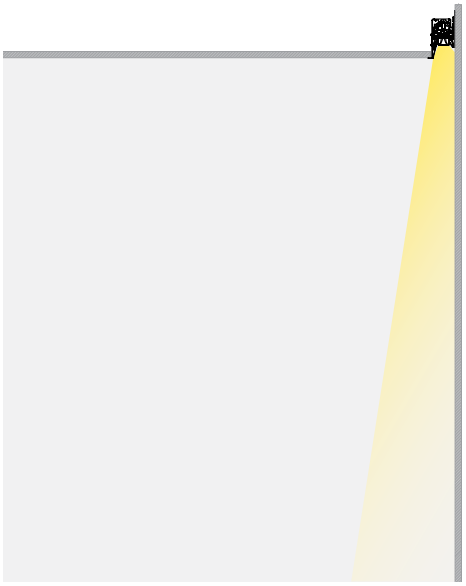
- Illumination of walls featuring special materials and graphics
- Expanding the apparent volume of a space
- Establish wayfinding routes
- Designed asymmetry to a space creates visual interest

Design Considerations

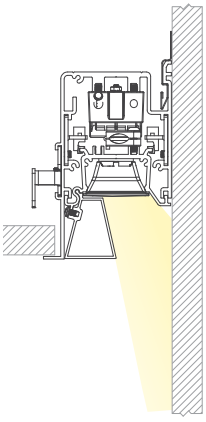
- Grazing highlights material imperfections; smooth walls may show flaws
- Integration with linear LED systems for dimming and color tuning
- Choose a product that allows the finished wall to continue past the ceiling plane and does not show hardware at the ceiling plane
- Utilize '*soft-graze*' to ensure the beam grazes the front of the wall
- Shielding required to control glare and minimize sight lines to the light source



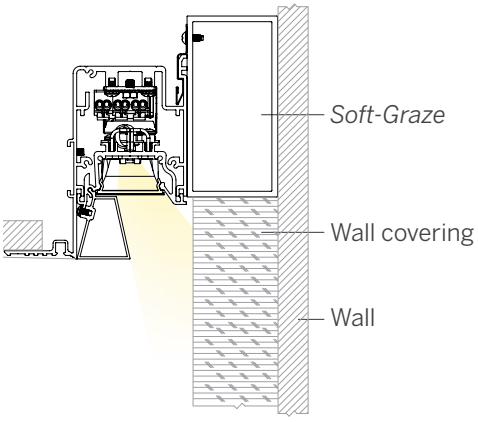
ceiling height up to 40 ft



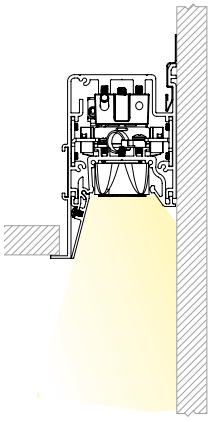
ceiling height 20 ft or more



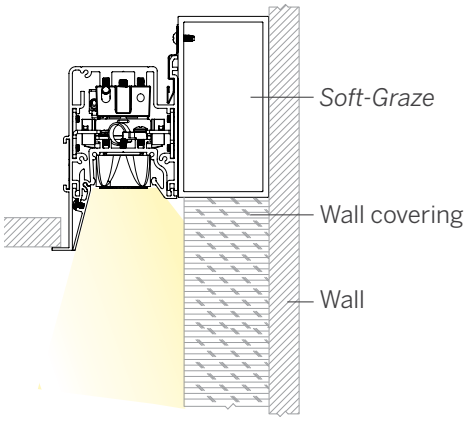
Protools 60 Linear Wallgraze



Protools 60 Linear Wallgraze with *Soft-Graze*

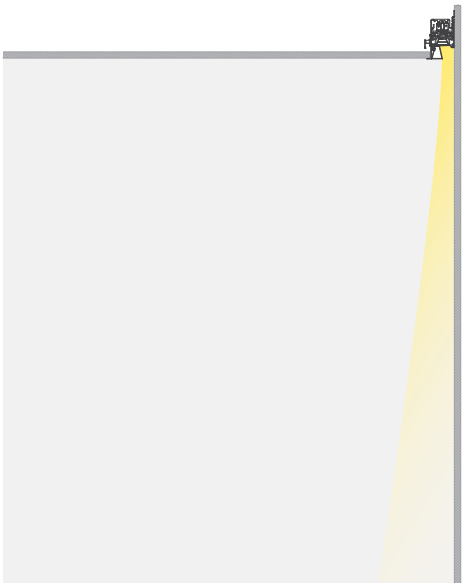


Protools 60 Linear Perimeter Wallgraze

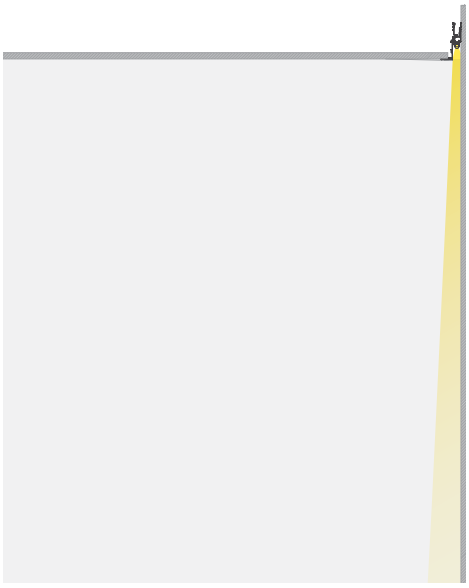


Protools 60 Linear Perimeter Wallgraze with *Soft-Graze*

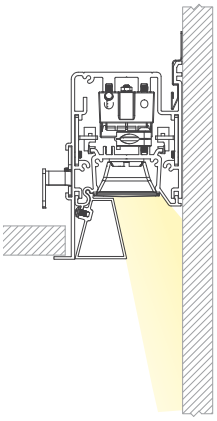
Wallgraze Lighting



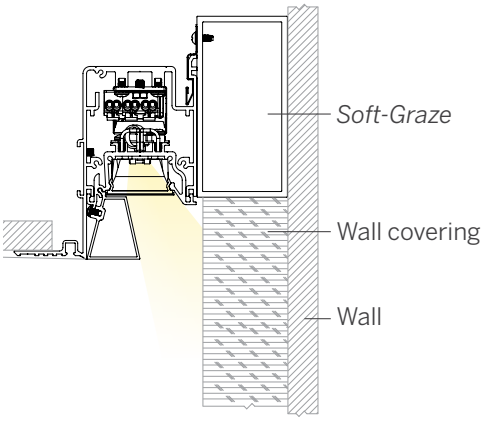
ceiling height up to 40 ft



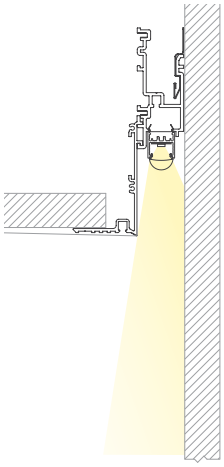
ceiling height up to 15 ft



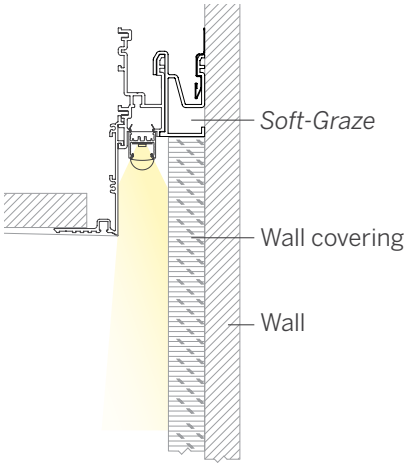
Protools 60 Linear
Wallgraze



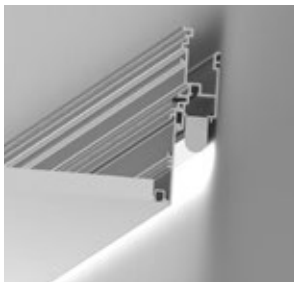
Protools 60 Linear
Wallgraze
with *Soft-Graze*



20 Linear Perimeter
Regressed and Wallgraze



20 Linear Perimeter
Regressed and Wallgraze
with *Soft-Graze*



20 Linear Perimeter Regressed and Wallgraze

ProTools 60 Linear Perimeter Recessed

ProTools 60 Linear Wallgraze Recessed

4. Comparative Analysis: Perimeter vs. Wallgraze

Feature	Perimeter Lighting	Wallgraze
Light Performance	Illuminates the wall while using the wall as a secondary reflector to bounce light into the space	Delivers a narrow sheet of light down the wall with minimal direct or redirected light into the adjacent space
Beam Type	Asymmetric, diffuse	Narrow beam, directional
Mounting	Recessed along perimeter	Recessed along perimeter
Purpose	Ambient illumination, define space	Highlight texture, accent features
Visual Effect	Smooth, uniform glow	Shadows, depth, contrast
Glare Control	Very low brightness	No glare
Integration	All ceiling and wall types	All ceiling and wall types

5. Integration Strategies

- **Optical Characteristics:** Perimeter and Wallgraze systems hide the source of light so the wall is the focal point, not the luminaire
- **Layered Approach:** Combine perimeter and wallgraze lighting for depth, mood, and material emphasis
- **Spatial Planning:** Perimeter lighting enhances ambient environment; Wallgraze highlights feature walls
- **Control Options:** Dimming, tunable white, networking for individual as well as general control
- **Applications Examples:**
  - **Museum exhibit:** perimeter lighting provides ambient fill; wallgraze highlights textured artwork
  - **Residential great room:** perimeter LED for ceiling glow; wallgraze on textured stone wall

6. Technical Considerations & Best Practices

- **Energy Efficiency:** Use LED linear systems with high efficacy and low maintenance
- **Visual Comfort:** Avoid hotspots, glare, and uneven illumination using a product with beam control and shielding
- **Continuous systems:** select products that allow continuous mounting options, as well as custom lengths, for wall-to-wall applications and corners
- **Maintenance:** Choose modular systems that allow for maintenance, as well as future upgrades, without causing damage to the ceiling or walls
- **Specifications:** Consider high color rendering light such as CRI ≥90, and a color temperature that compliments the color pallet and mood of the space: CCT 2700K–4000K

7. Conclusion

Architectural lighting transforms space, highlights materials, and shapes user experience. Perimeter lighting enhances ambient illumination and defines space, while wallgraze brings texture and feature emphasis. Designers should evaluate materiality, architectural goals, and user experience when specifying these systems, leveraging modern linear LED technology to create visually dynamic, comfortable, and energy-efficient environments.

page 1

project: **1899 Wynkoop**
location: **Denver, CO**
specifier: **Interior Architects-Denver**
photography: **Steve Barrett, The MH Companies**

page 1

project: **Language & Laughter Preschool**
location: **Brooklyn, NY**
specifier: **O'Neill McVoy Architects**
photography: **Nicholas Calcott**

page 2

project: **95 Wigmore Street**
location: **London, UK**
architect: **ORMS**
lighting design: **Mindsye**
photography: **Andy Spain**

page 3

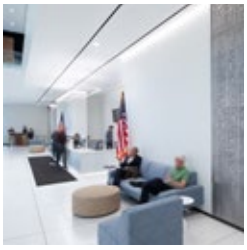
project: **Palmgren House**
location: **Stockholm, Sweden**
architect: **John Pawson**
photography: **Gilbert McCarragher**

page 4

project: **Four Seasons New Orleans Luxury Hotel & Residences**
location: **New Orleans, Louisiana**
lighting design: **HLB**
photography: **Andy Caulfield**

page 5

project: **Farmer Mac**
location: **Washington, DC**
specifier: **Sarah Richter Design**
architect: **OTJ Architects**
photography: **Trent Bell**



page 7

project: **IDA Headquarters**
location: **Washington, DC**
architect: **KGD Architecture**
lighting design: **CM Kling + Associates**
photography: **Kristopher Ilich**

page 9

project: **Warner Building**
location: **Washington, DC**
architect: **STUDIOS Architecture**
lighting design: **MCLA**
photography: **Barry Harley**

page 12

project: **Confidential Health Association**
location: **Washington, DC**
lighting design: **Sarah Richter Design**
architect: **OTJ Architects**
photography: **Trent Bell**

page 14

project: **Zuckerman Spaeder**
location: **Washington, DC**
lighting design: **Sarah Richter Design**
photography: **Halkin Mason**

page 16

project: **Sadler West Addition**
location: **College of William & Mary, Williamsburg, VA**
architect: **Grimm + Parker Architects**
photography: **Halkin | Mason Photography**

Whitegoods developed the widest range of architectural cove, perimeter and wallgraze lighting systems. Starting with the Edgeless Cove, designed as the very first knife-edge detail with integral lighting source, to the versions that now offer the highest efficiencies and smallest footprint. All designed to fully integrate into the architecture and of course they all hold true to our constant principles.

- Reduction of detail
- Seamless architectural integration
- Logical, modular systems and families of products
- Ease of specification, installation and maintenance

This is Whitegoods