



ALG Sponsor Toolkit

Table of Contents

- 3 About this Toolkit
- 4 ALG Online Audience Messaging
- 5 Promotional Materials
 - 5 ALG Online Factsheet
 - 5 Coupon Offering
 - 5 ALG Online Video
- 6 Educational Materials
 - 6 Training and Presentation Slide Decks
 - 6 *News from ALG Online*
 - 7 ALG Snapshots
 - 7 Application Modules
 - 8 ALG Connections
 - 8 Daylighting Case Studies
- 9 Other Resources

About this Toolkit

We thank you for your support of ALG Online. This premier advanced lighting resource would not be possible without the contributions of our sponsors. You are receiving these materials as part of the benefit of your sponsorship in order to help you, other employees at your company and your customers take advantage of all ALG Online has to offer. We hope that you find these materials useful.

The Sponsor Toolkit presents a brief summary of the materials and resources currently available to sponsors for promotion of ALG Online as well as integration of ALG Online into educational or training activities and programs on advanced lighting. Whether you integrate content into already existing materials, or make them available to customers and clients as they are, the resources available to ALG sponsors will enrich knowledge about advanced lighting and help further the program goals of your organization.

Promotional materials

These materials include the ALG factsheet, a short video describing the importance and value of advanced lighting and the role played by ALG Online in furthering this practice, and free subscription coupons. They can be printed and distributed as “leave behinds” or collateral at conferences, meetings, and other events and can be co-branded with sponsor logos.

Educational materials

Content from these materials can be incorporated into new and existing training programs or used as-is to support existing training efforts or as collateral for training events. Educational materials feature easy-to-print items such as presentation slide decks on aspects of advanced lighting, advanced lighting application sheets and case studies.

Accessing Sponsor Resources

The most recent electronic versions of all sponsor materials and additional instructional documents can be downloaded at any time from the ALG Sponsor Resource page at:

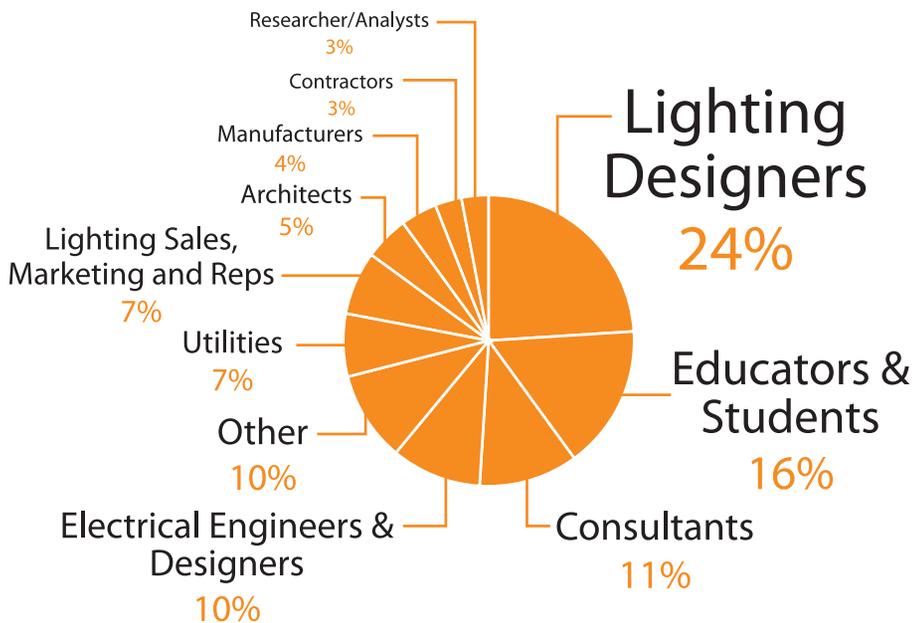
<http://algonline.org/sponsors/>

For questions and assistance, please contact us at: algonline@newbuildings.org or (360) 567-0950 ext.114

The ALG Online Audience

ALG Online covers the topic of lighting from in-depth theory to technical design guidance making it a valuable tool and resource for a broad audience of potential users. The team behind ALG Online has identified four primary audience groups that can benefit and learn from ALG in different ways. These audiences include 1) Lighting Designers & Engineers, 2) Architects & Builders, 3) Educators & Students and 4) Energy Efficiency & Facilities Managers.

The ALG Online homepage showcases four portals that speak directly to each of these audiences. While many sections of ALG Online are relevant to multiple audiences, certain topics may be more applicable to a given group. With this in mind, the portals were designed to feature selected content that will help each audience quickly access the information that is most useful to them.



Audience	Key Interest Areas	Highlighted Content
Lighting Designers & Engineers	Getting the lighting design right for clients' needs; saving time and money; utilizing best practices; staying on top of the latest products and technologies	<ul style="list-style-type: none"> • Design Considerations • Application Directory • Luminaire Directory • Sources & Auxiliaries • Lighting Controls
Architects & Builders	Easy access to product specifications; understanding impacts of daylighting on space and occupants; incorporating best practices; awareness of codes and policies	<ul style="list-style-type: none"> • Daylighting • Health & Performance • Lighting Controls • Application Directory • Policies & Programs
Educators & Students	Comprehensive understanding of advanced lighting theory and design; awareness of best practices; help designing a lighting curriculum; study guide for tests and exams	<ul style="list-style-type: none"> • Design Considerations • Light & Vision • Lighting Controls • Luminaire Directory • Daylighting
Energy Efficiency & Facilities Managers	Optimizing energy performance in new and existing buildings; understanding the impact of lighting on energy efficiency; implementing lighting best practices and retrofits	<ul style="list-style-type: none"> • Lighting Controls • Design Considerations • Policies & Programs • Luminaires & Distribution • Luminaire Directory

Promotional Materials

ALG
Advanced Lighting Guidelines

FACTSHEET

WHAT ARE ADVANCED LIGHTING GUIDELINES?

With rising demand for green building, lighting design professionals are called upon not only to deliver great lighting plans but also to incorporate the most advanced, energy-saving strategies and technologies. For nearly two decades, the *Advanced Lighting Guidelines* (ALG) has helped designers achieve both goals with instructional graphics and superior lighting design solutions for many typical building or space types.

ALG Online is your premier resource for energy-efficient lighting design, technologies and applications representing the latest and best thinking of experts in the field.

ALG Online is written and updated by expert lighting industry professionals for practicing professionals. Some introductory information is available for free; however, a low-cost subscription is required for full access to ALG Online so that this valuable tool remains as current as possible. Subscribers receive monthly feature newsletters and have complete access to ALG's eight regularly updated chapters, two continuously expanding design directories (Application and Luminaire), new case studies, and more.

WHAT CAN I FIND AT ALG ONLINE?

- Up-to-date information on energy-efficient lighting design and integration with other green building practices
- Expert guidance from the industry's top thinkers
- The latest lighting technology data and best practices, covering lamps, ballasts, luminaires and controls
- Regular editing and updates, keeping ALG Online more current than ever
- Indispensable information for designers, engineers, architects, builders, educators, students, energy efficiency professionals and more to take their knowledge to the next level

SUBSCRIPTION DETAILS

Subscribe today for full access to ALG Online.

PROFESSIONALS
\$95 for annual subscription

STUDENTS
\$60 for annual subscription

Group discounts are available to organizations with 5 or more subscribers.

For more information or to subscribe to ALG Online, visit: algonline.org

ALG Fact Sheet

This ALG Online factsheet is available as a leave-behind piece for quick reference information about ALG Online content and resources.

Enjoy a FREE one-year subscription to ALG Online!

Your one-stop resource for answers to your questions about best practices and energy efficient lighting design, technologies and applications.

ALG
Advanced Lighting Guidelines
algonline.org

To activate your subscription, visit www.algonline.org/projects/subscribe, log in and register as an individual professional. When prompted, enter coupon code: _____

*For more information, please contact ALG Online at algonline@newbuildings.org or (360) 567-0950 ext. 114

Your logo here

Coupon Offering

Sponsors receive unlimited subscriptions for all staff (for instructions on how to subscribe, visit the Sponsor Resources page at: <http://algonline.org/sponsors/>). In addition, sponsors can offer unlimited ALG subscription coupons to individuals and organizations in the sponsor service area. Please contact ALG Online at algonline@newbuildings.org or (360) 567-0950 ext. 114 for coupon codes and more details.



ALG Online video

This 5-minute ALG Online video gives a brief summary of the purpose, background, goals and content of the ALG Online website and brand. It is available for streaming in presentations or trainings.

Educational Materials

Daylighting Daylight Sources

Components of Daylight Illuminance

Direct Component $E_{d,d}$
 Externally Reflected Component $E_{d,r}$
 Internally Reflected Component $E_{d,i}$

Specular Reflected Daylight

Components of daylight illuminance at a given point within a space include:

- Direct component
- Externally reflected component
- Internally reflected component

Specular surfaces can be used to aim or focus the beam sunlight.

Transmission through **lenses, prismatic and translucent materials and reflection off matte surfaces** can be used to diffuse the sunlight and distribute it broadly.

Your logo here

Lighting Controls Strategies - Automated Photocell Controls: Commissioning

Commissioning of any photo-controls should occur only once the space is completely occupiable (with furniture in place)

A change in the material reflectance under the photo-sensor may require a re-commissioning of the system for proper performance.

Photo-sensors should be placed in areas with a representative amount of daylight and electric light illumination for the zone that they will control.

The Effect of Surface Reflectances on Photo-sensors

12/05/08: EL = 4.75	12/28/08: EL = 4.77
12/09/08: EL = 4.94	01/01/09: EL = 5.77
01/04/09: EL = 6.34	01/05/09: EL = 6.97 (+47%)

View from photosensor downward onto shelves and aisle floor at shopping a center.

Training and Presentation Slide Decks

These presentation slides can be used to present information about advanced lighting content. This material can be integrated into existing sponsor training programs. Presentations are available on three topics:

- Daylighting
- Energy Efficient Lighting Design
- Lighting Controls

The presentation material can be co-branded as a stand-alone resource or for integration with additional sponsor training and customer outreach materials. Presentation slides are available electronically.

ALG Advanced Lighting Guidelines

News from ALG Online

You are receiving this email as part of your interest in ALG Online. Each month, this newsletter provides energy-efficient lighting design news and events, and provides a glimpse into ALG Online's valuable content.

February 2012

About ALG	Application Directory	Site Map	Lighting Designers & Engineers	Architects & Builders	Educators & Students	Energy Efficiency & Facilities Managers
-----------	-----------------------	----------	--------------------------------	-----------------------	----------------------	---

Retrofitting with LEDs is a seductive idea. It promises a convenient way to upgrade lighting for energy savings with relatively minimal input. But it's not as simple as that. To do it well—and with the results you want—takes some careful planning. This month, in the second of our two-part series on LEDs, we sit down with ALG contributing author and lighting design expert, Nancy Clanton, to get her thoughts on how to retrofit the right way. Also, check out our Featured Chapter section for a list of product selection resources to help you choose the best LED products to meet your lighting and energy goals.

Author Spotlight
 Nancy Clanton on Lighting the Future (and retrofitting the right way)

ALG Online had the recent pleasure of speaking with one of the lighting industry's brightest stars, Nancy Clanton of Clanton & Associates. Her thoughts were illuminating to say the least. Also an ALG Online contributing author, Clanton shared her expertise on the value and potential of solid state lighting but also important things to consider when retrofitting with LEDs.

Among those considerations are looking beyond simple light bulb replacements to account for overall power quality. If the power factor of replacements isn't equal to existing lamps, issues like flicker and inconsistency of color can become a challenge—much like we've seen with CFLs. For more, read our [interview](#) (PDF) with the expert lighting designer.

[Subscribe now](#) for full access to more wisdom from ALG Online's expert authors.

Featured Chapter
 Choosing the Right LEDs

As we've said before, LED technology continues to advance rapidly in efficacy, color and dimming capabilities, and more. This makes it

News from ALG Online

News from ALG Online is a monthly electronic newsletter featuring selected content and highlighting the most up-to-date information on lighting technologies, theory, design applications, case studies, and more.

Sponsors receive ALG Online News each month, but can also access the newsletter archive any time from the Sponsor Resource page. Newsletters and their content can be forwarded to sponsor outreach lists. Sponsors may also repurpose any content from these newsletters for integration into educational or training programs.

HOME | LIGHT & VISION | HELPING PEOPLE TO SEE | AVOIDING GLARE

ALG
Advanced Lighting Guidelines
algonline.org

VISIBILITY

Avoiding Glare

"Glare," like "noise" is a term that is difficult to define, but we know it when we see it. It refers to unwanted light in the same way that noise is unwanted sound.

Glare produced by lighting has been classified into two types—as "discomfort glare" and as (more severe) "disability glare." Both of these have consequences in terms of task performance, as described in the Health & Performance section. Both types of glare are caused by a source being much brighter than the background against which it is viewed, and are affected by the size, shape and position of the source, as well as by its brightness.

Glare is usually avoided by restricting the angles at which a light source can emit light, so that the light does not shine into people's eyes from normal directions of view. Glare can also be avoided by providing a brighter background against which to view the source (as with indirect lighting of offices). Simply reducing the brightness (luminance) of all the sources is often not very effective in reducing glare, because this also reduces the luminance of the background against which the glare source is seen and, as the eye adapts to the new lower light level, each source is still just as bright as it was before.

People's sensitivity to glare varies very widely—one person's "glare" or "sparkle" can be another person's glare. So in "owned" spaces (those in which people feel empowered to control their lighting) it is important to provide people with a means of reducing glare. This can be done by dimming or re-aiming luminaires, or by providing additional background light.

Disability Glare
Disability glare is caused by the cornea and lens of the eye scattering light inside the eye. This produces a "veiling luminance" across the retinal image that reduces its luminance contrast



Figure 5. Helping People to See
Disability glare from two floodlights makes it difficult to see who or what is in the situation.
Photo courtesy of Peter R. Boyce.

ALG Snapshots

Sometimes, examples are best. Printable snapshots of selected subscriber-only content are available for incorporation into training programs and distribution at presentations, events and more. They are available for co-branding.

Advanced Lighting For Retail

BIG BOX APPLICATIONS

ALG
Advanced Lighting Guidelines
algonline.org

This lighting application module for Big Box retail is part of the ALG Online Application Directory, which provides comprehensive designs of lighting and controls based on specific building types or space types.

Some of the best examples of sustainable design have come from the Big Box Retailers. With current building configurations, daylight is becoming the primary daytime lighting source. Customers and staff thoroughly enjoy the brighter stores, and in many cases management enjoys increased sales. As a result, electric lighting levels can be greatly reduced during the day, allowing huge peak load energy reductions. The electric lighting design should support and convey the price-conscious aesthetic of the Big Box market.

To maximize daylighting potential, toplighting strategies can be applied throughout most big box retail stores, taking advantage of typically single story buildings. The general merchandise areas are illuminated with a uniform layout of low glare tubular skylights. With a one to one spacing to mounting height ratio, the merchandise is uniformly lighted with quality daylight. Providing uniform illumination is important when trying to incorporate a controls strategy that attempts to conserve energy by lowering electric light levels in response to the availability of daylight.

Application Modules

These Applications Modules serve as quick-reference design guides featuring lighting layout and controls integration for a variety of specific building and space types, including retail and office.

Your logo here

ABOUT NEW BUILDINGS INSTITUTE
AGC is one of the design guides offered by the Institute. It is a free resource to help you understand the benefits of green building and how to achieve them. AGC is a leading organization working to improve the energy performance of commercial buildings. The organization works collaboratively with commercial building owners, architects, engineers, interior designers, and building systems integrators to provide the most up-to-date information about green building and energy efficiency.

LIGHTING CONTROLS BEST PRACTICES

Open Office

In an open office format, lighting controls can be programmed to take advantage of natural light by dimming or shutting down completely when sensors detect natural light entering the space. Also, lights in an open office may be wired to vacancy sensors that switch off lights in unoccupied segments or systems may simply be put on timers to utilize existing daylight.

Control Templates For Open Office
The following control templates provide several options that can be used for various office building space types to help achieve the savings.

WORKSTATION SPECIFIC

- Occupancy sensor (workstation specific luminaire mounted PIR that controls the downlight component plus zone connected sensor that controls the uplight components by zone)
- Demand response capable
- Workstation dimming (user dimming control of overhead downlight component)

• All general lighting wired for demand response with a demand response sensor

• Occupancy sensor dim downlight component of general luminaires when workstations are vacant

• Downlight component of general or task luminaires can be dimmed by occupants using workstation mounted controls

• Photometers closely reduce or cut off the use of electric lighting as natural light enters the space

• Manual override switches allow the user to turn on each zone of light separately

• Vacancy sensors switch each zone of lights off when the space is vacant

Lighting levels in ambient daylight

Strategy

Luminaires Oriented Perpendicular to Shelves

LIGHTING POWER DENSITY
LPD: 0.91 W/SF

DAYLIGHTING
The general merchandise is located centrally within the Big Box store, away from perimeter windows. Toplighting can easily provide the ambient light for this area. Skylights with an open-to-structure ceiling or tubular daylighting devices (TDD) with a dropped ceiling would be effective choices.

LUMINAIRES
A
Pendant mounted linear fluorescent direct/indirect luminaires illuminate the aisles with ambient light and provide vertical illuminance on all of products on the gondolas. By running the luminaire rows perpendicular to

Controls
Luminaires Oriented Perpendicular to Shelves

LIGHTING POWER DENSITY
LPD: 0.91 W/SF

DAYLIGHT DIMMING
Dimming ballasts and photo sensors dim luminaires near skylights and windows when sufficient daylight is available. The gradual dimming control avoids a sudden change in light output that may be noticeable to customers. Demand reduction can also

LUMINAIRE SCHEDULE FOR RETAIL BIG BOX APPLICATIONS

GENERAL MERCHANDISE

- Pendant mounted 12 linear T8/20
- Recessed luminaire with 30-watt profile, with 40-watt cable
- 5-foot indirect distribution
- High white reflector finish, 20-gauge steel
- Maximum luminaires efficiency: 85%
- 10 ft (4-watt T8) linear luminaire (100/120) Low Mercury
- 100-200K-400K
- 10-15 ft
- High efficiency, open-vented rapid start
- 5 ft (5-watt) 100W to 15W
- Ballast factor: 1.0
- Approximate luminaire life: 27k
- Mean Lamp Lumens per Watt: 65

General Merchandise

Luminaires Oriented Perpendicular to Shelves

LIGHTING POWER DENSITY
LPD: 0.91 W/SF

CONCEPT
Lighting Concepts for the General Merchandise area

- High levels of uniform lighting emphasize a value priced merchandise attitude in a pleasing high quality lighted atmosphere.
- The lighting system provides direct/indirect uniform light throughout the store, illuminating the free standing gondolas.
- The store has high open truss ceiling with skylights and with merchandise displayed on 8'-0" height gondolas.

CRITERIA

- Horizontal illuminance, color temperature, and color rendering on merchandise displays should be a high priority.
- Horizontal illuminance: 45-75fc
- Uniformity: 5:1 maximum
- Lamp color temperature: 3500K - 4100K
- Color Rendering Index: 80 or greater

Refer to IESNA RP-2, Lighting for Merchandise Areas and IESNA Lighting Handbook Chapter 10 for more detailed information.

Lighting levels in ambient daylight

Lighting levels in ambient daylight

Lighting levels in ambient daylight

Your logo here

Your logo here

ALG
Advanced Lighting Guidelines
April 2012

ALG CONNECTIONS

Estimates of Energy Savings Potential from Lighting Controls

Researchers have been quantifying energy savings from lighting controls in commercial buildings for more than 30 years. However, each study differs in its goals, methods, and coverage, so results vary widely and have been difficult to compare. To leverage the value of the entire literature collection and better assess the energy savings potential of different lighting controls strategies, Lawrence Berkeley National Laboratory conducted a meta-analysis of lighting energy savings identified in the literature. Published in the IESNA Journal Leukos (January 2012), the paper synthesizes the results from 240 savings estimates included in 88 papers and case studies, categorized into daylighting strategies, occupancy strategies, personal tuning, and institutional tuning.

Beginning with an overall average of savings estimates by control strategy, the authors added successive analytical filters to identify potential biases introduced to the estimates by different analytical approaches. These filters screened out savings from non-controls lighting technology and savings reported in something not equivalent to lighting energy. In addition, because simulations were found to significantly overestimate the average savings obtainable from daylighting in actual buildings, the final filter removed any savings data that were not from actual installations – either lab or field. Table 1 shows the final estimates of average lighting energy savings potential by control strategy.

TABLE 1.
Best Estimates of Average Lighting Energy Savings Potential From Lighting Controls

CONTROL STRATEGY	EXAMPLES	AVERAGE SAVINGS
Institutional Tuning	High-end trim dimming (ballast tuning), task tuning, lumen maintenance, provision of controls for areas/groups of occupants	36%
Personal Tuning	Dimmers, wireless switches, bi-level switches, computer based controls (for personal offices, workstation-specific lighting, classrooms)	31%
Daylighting	Photosensors	28%
Occupancy	Occupancy sensors, time clocks, EMS	24%
Multiple Strategies	Any combination of the above	38%

For more information:
Williams, A., B. Atkinson, K. Garbey, E. Page, and F. Rubenstein (2012). Lighting controls in commercial buildings. Leukos 8(1): 161-180. http://www.ies.org/leukos/complete/1_2012.pdf

ALG CONNECTIONS | ESTIMATES OF ENERGY SAVINGS POTENTIAL FROM LIGHTING CONTROLS | APRIL 2012

ALG Connections

ALG Connections brings timely research, conference reviews, industry trends and technology updates directly to ALG Online subscribers and readers of ALG Online news. These items are available for co-branding.

ALG
Advanced Lighting Guidelines
algonline.org

Open Office: Toplighting

Project Information
Project: Kemore City Hall
Location: Wisconsin ALG
Commissioned by: WSP Flack + Kurtz
Completed: 2010
Location: Kenosha, WI

The best toplighting opportunities are present where open office areas occur in single story structures or on the top floor with direct access to rooftop skylights.

- Key concepts in successfully toplighting for open office areas include:
 - Design and specify apertures that provide for effective sunlight and daylight diffusion. This can be accomplished with diffusing laminated glass, prismatic, white acrylic, fibreglass panels, diffusing polycarbonates, or tubular daylighting devices.
 - Ensure proper sizing and placement of apertures to assure effective light distribution under the most common sky conditions (clear or overcast).
 - Provide illumination at key vertical surfaces, including perimeter walls.
 - Provide high reflectance values to avoid excessive contrast, especially at the ceiling plane.

Daylighting Case Studies

Daylighting case studies are available for sponsor use in trainings, newsletters, customer offerings, etc. ALG Online's high quality daylighting case studies provide detailed summaries of how daylighting strategies have been successfully incorporated into both new buildings and renovation projects or retrofits.

Daylighting Strategy

- Diffuse ambient daylight distributed across entire open office area sufficient to meet general lighting requirements during more than 50% of occupied hours.
- Complete control of direct beam sunlight to avoid glare and overheating.
- Views to the exterior for all occupants.
- Diffuse skylights of upper floor open office area illuminate the center of the office floor plate.
- Laminated glass skylights with light diffusing inner layer. Skylights sized to 4% of floor area (including perimeter daylight zone). Daylighting studies helped identify these values.
- High reflectance interior surfaces in the upper volume of the office.
- Automated photo-responsive dimming to off, with manual override for general lighting.
- Operable windows for daylight, views, and natural ventilation.
- High efficiency accent lighting at corridor for visual sparkle and focus.

ALG Online is one of the design guides offered by New Buildings Institute (NBI) through its Advanced Buildings® suite of tools and resources. NBI is a nonprofit organization working to improve the energy performance of commercial buildings. The organization works collaboratively with commercial building market players - governments, utilities, energy efficiency advocates and building professionals - to remove barriers to achieving the building performance and design goals, to improve building, public policies and programs that improve energy efficiency. NBI works nationally with offices located in White Plains, Seattle and Vancouver, Washington. Visit us for more information about the Buildings Institute at www.newbuildings.org, ALG Online at algonline.org and Advanced Buildings at advancedbuildings.net.

ALG Online is one of the design guides offered by New Buildings Institute (NBI) through its Advanced Buildings® suite of tools and resources. NBI is a nonprofit organization working to improve the energy performance of commercial buildings. The organization works collaboratively with commercial building market players - governments, utilities, energy efficiency advocates and building professionals - to remove barriers to achieving the building performance and design goals, to improve building, public policies and programs that improve energy efficiency. NBI works nationally with offices located in White Plains, Seattle and Vancouver, Washington. Visit us for more information about the Buildings Institute at www.newbuildings.org, ALG Online at algonline.org and Advanced Buildings at advancedbuildings.net.

Open Office: Toplighting

Your logo here

Other Resources

ALG Online is one of the design guides offered by New Buildings Institute (NBI) through its Advanced Buildings suite of tools and resources. Sponsors of ALG Online have access to several Advanced Buildings tools including:

- The **Daylighting Pattern Guide** (<http://patternguide.advancedbuildings.net/>), an interactive tool that uses a combination of real-world built examples and computer simulation for the design of proven daylighting strategies in a variety of building types.
- The **Daylighting Guide for Office Interiors** (<http://www.advancedbuildings.com/files/advancebuildings/DaylightingGuideOfficeInteriors.pdf>), which helps designers understand and consider the best use of space and finishes to maximize illumination with daylight.
- The **Core Performance Guide** (<http://www.advancedbuildings.net/core-performance>) is a direct, simplified approach to achieve predictable energy savings in small- to medium-sized buildings without the need for modeling. When applied through an integrated design process, Core Performance measures result in buildings that are 30% more energy efficient than model building standards.

For more information about the Advanced Buildings suite of tools, visit advancedbuildings.net

About New Buildings Institute

ALG Online is one of the design guides offered by New Buildings Institute (NBI) through its Advanced Buildings® suite of tools and resources. NBI is a nonprofit organization working to improve the energy performance of commercial buildings. The organization works collaboratively with commercial building market players—governments, utilities, energy efficiency advocates and building professionals—to remove barriers to energy efficiency, including promoting advanced design practices, improved technologies, public policies and programs that improve energy efficiency.

NBI works nationally with offices located in White Salmon, Seattle and Vancouver, Washington. Visit us for more information about New Buildings Institute at newbuildings.org, ALG Online at algonline.org and Advanced Buildings at advancedbuildings.net.