INSPEC

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Dear Joan

LEEDING THE WAY

By Doug Hartman

We are pleased to announce projects that have achieved USGBC LEED certification over the past year include:

West Irving Library, City of Irving, TX (Hidell Architects)
Social Security Administration Offices, Houma, LA (abell+crozier+davisarchitects)
Foundation Management Services, Denton, TX (TGS Architects)
SHW Group Office Relocation, Plano, TX (SHW Group Architects)
Fort Hood Family Housing Community Center, Killeen, TX (SM Architects)

We are currently involved in administering 16 projects in progress (5 of which are under final review by USGBC), including a 40 story apartment tower in Houston,and build to suit office buildings for two of Dallas' major corporations.

While Inspec can assume primary responsibility for administering LEED submission, we are also available to assist, on an hourly basis, in specific tasks should a client wish to assume the role of primary administrator.
Contact Allen Cornett at acornett@inspeconline.com for more information.

INDOOR ENVIRONMENTAL QUALITY = MORE $GREEN$

by Allen Cornett

Manipulating the indoor environment to achieve desired results is nothing new. Concepts like fast food restaurant color scheme and seating material to create dining turn over, a pink football locker room for visitors and institutional green for a calming environment have been used to achieve the desired result. Another area of indoor environmental quality focuses on employee productivity.

Most Americans spend up to 90% of their time indoors and many spend most of their working hours in an office environment. Studies conducted by the U.S.Environmental Protection Agency (EPA) and others show that indoor environments sometimes can have levels of pollutants that are actually higher than levels found outside. A 1989 EPA Report concluded that improved indoor air quality can result in higher productivity and fewer lost work days. EPA estimates that poor indoor air may cost the nation tens of billions of dollars each year in lost productivity and medical care.[1]. Large paybacks can be expected from many changes in building design, operation, and maintenance that improve worker performance because worker salaries and benefits greatly exceed the costs of providing and operating buildings. Example cost-benefit analyses indicate that benefits may often exceed costs by a factor of 10 or more.[2] More than 10 years have passed since the EPA ranked indoor air pollution as one ofthe top five environmental threats to public health and one of the largest remaining health risks in the United States. According to the Centers for Disease Controland Prevention (CDC), the most common actual causes of death in the US in 2000 were tobacco (435,000), microbial agents (such as influenza and pneumonia, 75,000), and toxic agents (such as pollutants and asbestos, 55,000).[3] Also, the American College of Allergy, Asthma and Immunology in2000 noted that 50 percent of all illnesses are either caused or aggravated by poor indoor air quality (IAQ).[4]

The LEED rating systems have a number of prerequisites and credits that encourage better indoor environments. Here is a list of these prerequisites and credits with a brief description:

Minimum Indoor Air Quality Performance – Ventilated systems to meet applicable sections of ASHRAE 62.1–2007.

Environmental Tobacco Smoke (ETS) Control – Building to be non-smoking or having smoking rooms that do not allow smoke to travel to other areas of the building. Non-smoking building can have designated smoking areas 25 feet minimum from entry doors,operable windows and outdoor air intakes

Outdoor Air Delivery Monitoring – Monitor CO2 levels in a building a provide means to increase outside air when needed.

Increased Ventilation – Mechanically ventilated systems to provide 30% more outside air than required by ASHRAE 62.1-2007 or naturally ventilated systems to meet the requirements of the Carbon Trust "Good Practice Guide 237"1998.

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Construction Indoor Air Quality: During Construction –Contractor to implement measures during construction to provide a healthier work environment for construction workers and future building occupants.

Construction Indoor Air Quality: Before Occupancy – Testing or flush-out to verify acceptable levels of contaminants have not be exceeded.

Low Emitting Materials: Adhesives and Sealants – Utilize products that do not exceed Volatile Organic Compound (VOC) thresholds allowed.

Low Emitting Materials: Paints and Coatings - Utilize products that do not exceed Volatile Organic Compound (VOC) thresholds allowed.

Low Emitting Materials: Flooring Systems – Utilize carpet,carpet pad and hard surface products that meet the requirements of the Green Label, Green Label Plus or Floor Score as applicable. Additionally adhesives and finishes or coatings to meet SCAQMD Rule 1113 or 1168 as applicable.

Low Emitting Materials: Composite Wood and Agrifiber Products– Utilize products including laminating adhesives (on-site and shop applied)that contain no added urea-formaldehyde resins.

Indoor Chemical and Pollutant Source Control – Implement processes to reduce or eliminate the introduction and spreading of chemical and pollutants within a building. Measures to include entryway systems, HVAC filtration and separation of chemical or pollutant storage/use areas.

Controllability of Systems : Lighting – 90% minimum of occupants in individual workspaces to have controllability of their lighting as well as occupants of multi-occupant space to have the ability to adjust the lighting based on the groups needs.

Controllability of Systems: Thermal Comfort - 50%minimum of occupants in individual workspaces to have controllability of their HVAC as well as occupants of multi-occupant space to have the ability to adjust the HVAC based on the groups needs.

Thermal Comfort: Design – HVAC system to be designed in accordance with ASHRAE 55–2004.

Thermal Comfort:Verification – Survey occupant comfort and HVAC system to be permanently monitored.

Daylight and Views:Daylight – Provide between 25 fc.and 500 fc.of daylight to a minimum of 75% of regularly occupied spaces.

Daylight and Views: Views – Provide views to the outdoor environment to a minimum of 90% of regularly occupied spaces.

Comprehensive Ergonomic Plan – Provide information and training on work area and seating to occupants. Design features to impact a minimum of 75% of the occupants.

Utilize your LEED reference guide or your LEED accredited professional for additional information on increasing indoor quality for your office or your projects. The above list is based on the LEED 2009 for New Construction and Major Renovation rating system. Other LEED rating systems have additional prerequisites, credits and/or options of attainment available.

References

[1]United States Environmental Protection Agency: An Office Building Occupants Guide to Indoor Air Quality. http://www.epa.gov/iaq/pubs/occupgd.html#factors that affect occupant comfort and productivity

[2]Lawrence Berkeley National Laboratory Impacts of Indoor Environments on Human Performance and Productivity **http://www.iaqscience.lbl.gov/sfrb.html**

[3]CDC Fact Sheet: Actual Causes of Death in the United States, 2000. Centers for Disease Control and Prevention. Atlanta, Georgia.March 15, 2004.

[4]Abu-Shalbak, L. The impact of IAQ. Appliance.57(6) pg. 53. June 1, 2000

Kitchens, Kitchenettes and Comparable Spaces

by Mike Ranalletta

With the 2012 TAS barely eight months out of the can, there are still some things being interpreted by TDLR that I would like to share in this article. Namely, RAS Bulletin 2012-07. In July, TDLR released this Bulletin to clarify the difference between a kitchen, with cooking facilities and a break room or wet bar.

One bullet point in the bulletin defines a cooking facility in a ktichen as: Fixed or built-in range, cooktop, oven, microwave, or convection oven. This means that if a dedicated shelf with power outlet is provided for the microwave oven, the break room you've designed is now a kitchen or kitchenette. Now, wall and base cabinets must meet the requirements of Storage 804 and at least fifty percent of the storage shelves must be within the minimum and maximum reach ranges (15 inches and 48 inches). Fifty percent would be determined by measuring linear feet of shelf space (drawers are considered shelf space) provided in an elevated view of the millwork.

Below is the link to RAS bulletin 2012-07. If you are received this newsletter electronically, click on the link below. If you've received a hard copy please type the link in the address bar on your computer.

www.license.state.tx.us/ab/forms/2012bulletins/RAS 2012 - 07.pdf

Technology and Project Delivery

by Kevin Wang

Technology and architecture have walked hand in hand throughout history. Innovations in new materials and new ways to use old ones have shaped our built environment. Building technology not only affects how we build and how our buildings look, but also how we use them. Along with advancements in the process of building, we have similarly seen much progress in the way we communicate design to the builders of our designs. Advancements in CAD 20 years ago and BIM in the present have afforded architects the ability to better communicate design intent than the classical master builder of old. We are now able to build a complete project in virtual space, working out the details and coordinating with multiple trades to make the actual process as easy and as economical as possible when the contractor mobilizes his resources in the field. Giving the Architect the power to build with known materials during design leaves less to speculation and thus forces the design team to address coordination issues in a timely manner, facilitating the overall process.

As BIM has advanced in the past decade, so has specifications writing software. Add-on suites to word processing software have made pre-editing large master sections for individual projects much quicker. Macros to globally edit headers and footers and batch print files in bulk have also streamlined the process, allowing more time and attention for project-specific issues. As far as these tools have taken specifying beyond physically typing sheets of paper on typewriters, the next generation of specifying software should take us even further. Programs such as SpecLink, E-Specs, and the upcoming Altarix are database driven, as opposed to using static word processing files. This means that rather than deleting text out of a master section for use on a project, paragraphs can be simply turned on and off depending on whether they are needed for a project. The real beauty of the latest software is that text is still completely editable, so that our specifications are not confined to standard products and materials.

The ultimate goal, from a specifying perspective, is to marry both the ability for BIM files to communicate building materials, and for the smart specifying software to use that information to pre-select sections and paragraphs on a global level. While we are still just testing the waters of these potential new tools, they hold the promise of further streamlining the specifying process. As with other labor saving innovations, this would allow us to devote a much greater percentage of our time editing the content of our specifications, instead of addressing logistical and formatting items. It is certainly exciting to project where all of these advancements will ultimately take us. At least, I can see the coordination between drawings and specifications being actually integrated through a tangible process. As careful as we can be, humans are fallible. Having a step in the process to double check both the drawings and specifications should only result in better overall projects.

When I consider what all of this new technology will allow us to do in the future, it is impossible not to think about project delivery in general. As it is, architects presently produce deliverables to contractors that are essentially what has been done for hundreds of years: Two-dimensional representations of three-dimensional ideas. As detailed and precise as construction documents are in the present day, the concept is no different at its core than using a stick to scratch lines in the dirt. Shouldn't all of our new technology afford us a better way to present our designs? As others have predicted that eventually the contractor will receive a BIM file instead of hard copy drawings, could a fundamental change in the presentation of specifications be far behind? Instead of a bound set of volumes, perhaps the particular specifications for materials will be linked back through the BIM file. For instance, when the contractor studies a particular detail in the model file, the materials in the model will direct him to the relevant specification sections. That way each selected assembly of components in the model would have an associated section or sections, depending on how large an area is selected. Highlighting an entire model file would then also select the entirety of the specifications.

While it will still require the expertise of architects, designers, engineers, and specifiers to produce complete projects, more and more powerful technology should make things easier and allow the design team to focus more on design and coordination. While my prediction may not be something that we see in the immediate future, we are still continuing to explore the technology which will get us to that future while helping us to produce better work today.

2012 IBC – GET READY – MORE CHANGES COMING

By Doug Hartman

As many local municipalities begin the move to the IBC 2012, here are just a few of the more significant changes.

703.7 Marking and Identification of Fire and Smoke Partition - The size and location of identifying markings required on vertical fire assemblies in accessible above-ceiling spaces have been modified to increase the potential for such markings to be seen.

803.12 Fire Testing of HDPE and Polypropylene - Polypropylene plastics used as interior finishes (ie toilet partitions) must now be tested for flame spread hazards.

908.7 Carbon Monoxide Alarms - In new and existing buildings, carbon monoxide alarms are now required in Group R and I occupancies with fuel-burning appliances or attached garages.

1008.1.9.9 Electromagnecially Locked Egress Doors- Electromagnetically locked egress doors may now be used at locations that require panic hardware provided the operation of the hardware releases the magnetic lock by interrupting the power to the electromagnet. *Mag* locks *still not recommended from a security standpoint.*

1011.2 Floor Level Exit Signs in Group R-1Occupancies - Where general-use exit signs are required in Group

R-1 occupancies, low-level exit signs must also be provided in the means of egress serving the guest rooms.

1013.1 and 1013.8 Guards at Operable Windows - The guard requirements for operable windows having a sill height more than 72 inches above the finished grade now have the minimum window sill height at which a guard is not required increased from 24 inches to 36 inches above finished floor.

1109.6 Accessible Steam Rooms and Sauna - Saunas and steam rooms are now specifically identified as must being accessible.

1203.2 Ventilation of Attic Spaces - The minimum required ventilation area fo attics has been clarified and exceptions are now provided that either allow a reduction in the vent area or eliminate the requirement completely

1403.5 Vertical and Lateral Flame Propagation - Exterior walls on buildings of Type I, II, III, or IV construction that are taller than 40 feet in height above grade plane and contain a combustible water-resistive barrier must be tested in accordance with and comply with the acceptance criteria of NFPA 285

1607.1 Minimum Live Loads - The live loads established in IBC Section 1607 and Table 1607.1 have been modified and updated in order to coordinate with the live loads of Chapter 4 and Table 4-1 in ASCE 7-10

1609 Determination of Wind Loads - The wind design requirements of Section 1609 have been updated and coordinated with the latest wind load provisions in ASCE/SEI 7 and the wind load maps are now based on **ultimate design wind speeds** (vs **basic wind speed** from previous codes) which produce a strength level wind load similar to seismic load effects. *Even though it appears that the design wind speeds have increased from 90 to 115 mph for most of the country, the nominal design wind speed remains unchanged.*

1705 Special Inspections - Special inspections for steel, concrete and masonry construction, as well as for fire resistant joints have been updated and clarified.

2510.6 Water Resistant Barriers for Cement Plaster Applications - Detailed requirements have been provided for the installation of the two layers of weather-resistive barriers that are required behind plaster veneer exterior walls

Specifying Window Performance Class And Grade

by Steve Brown

When specifying windows (fixed, single/double hung, slider or casement), providing industry standard window performance requirements is of great importance with regard to fostering fair and equitable bidding, and in many cases, to satisfying an Owner's insurance carrier's requirements. The American Architectural Manufacturer's Association, (AAMA) and the Window and Door Manufacturer's Association, (WDMA) in association with the Canadian Standards Association (CSA) have provided a standard, AAMA/WDMA/CSA 101/I.S.2/A440, which includes requirements for specific levels of performance, and test methods for window units. Primary performance designators for units under the standard include the window's Performance Class, Performance Grade (PG), and Size Tested. In general these are the standards around which we will specify windows performance.

Window Performance Class designations and the standard's recommendations for their use include the following:

1. R: Typically for use in one- and two-family dwellings.
2. LC: Typically used in low- and mid-rise multifamily dwellings, and other buildings where larger sizes and higher load requirements are expected.
3. CW: Typically used in low- and mid-rise buildings where larger sizes, higher load requirements, limits on deflection, and heavy use are expected.
4. AW: Typically for use in high- and mid-rise buildings to meet increased loading requirements and limits on deflection and in buildings where frequent and extreme use of the fenestration products is expected.

Window Performance Grade (PG) designations are the minimum design pressures, expressed in "pounds per square foot" (psf), which establish test pressures for structural-performance testing and water-resistance testing. According to the standard, these levels of performance provide a "gateway" into one of four performance classes. Minimum performance grades and the "gateway" performance criteria are:

1. R class windows: 15 psf.
2. LC class windows: 25 psf.
3. CW class windows: 30 psf.
4. AW class windows: 40 psf.

Besides the minimum performance grade, the standard recognizes optional performance grades above the minimum, based on higher design pressures stated in increments of 5 psf to a maximum value set by the standard for each class except AW, (which is not limited by a maximum value). The higher the performance grade, the stronger the window and the better it performs. More stringent performance requirements can be specified if the industry standards are judged insufficient.
Selecting the appropriate performance grade for windows depends greatly on local conditions, (i.e. projects of the same type in different parts of the country may require different performance grades). This is of considerable importance when working on projects in "coastal zones" or "high wind speed areas" as designated by Code. It is also important to recognize that some manufacturers will test their windows to 50, 80, or 100 psf. While the performance is admirable, it is important to only specify an acceptable threshold level in order to level the playing field for all manufacturers who make comparable products.

Window Size Tested: Minimum test sizes (expressed as width by height) are part of the gateway requirements, and

increase from R to AW classes, differ among product types, and are utilized to assure testing and test results are uniform and comparable. If the unit test size for an optional performance grade is smaller than the minimum test size for gateway performance, an asterisk (*) shall be added to the primary designator, (i.e. "Class R - PG30: Size tested 30 x 70 inches* - Hung" designates a R class hung window with a minimum PG of 30 based on a test specimen smaller than the gateway test size of 42 x 60 inches). Only production sizes that are equal to or smaller than the size tested can be labeled with the standard's product designation code for a product line.

In addition to specifying window performance class and grade, resistance to water penetration should also be specified and is determined in accordance with ASTM E 547 "Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Cyclic Static Air Pressure Difference," for all performance classes with additional testing according to ASTM E 331 "Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference," required for all AW class windows. Water-resistance test pressure is 15 percent of the design pressure for all classes except AW. For AW class windows, the water-resistance test pressure is 20 percent of the design pressure, however water-penetration resistance test pressure is never less than 2.9 psf and never more than 12 psf, (for projects located in the U.S.).

Resistance to air leakage is determined according to ASTM E 283 "Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen." Requirements vary by window performance class and the project's geographic location.

KEEPING UP WITH MATERIAL MANUFACTURER CHANGES

By Doug Hartman

I give up! You just can't keep up the almost daily changes to who owns what. I am sure there are dozens more than what I have listed here, but these are fresh in my memory:

Boral Building Products has purchased Monier/Lifetime Clay and Concrete Roofing Tiles and is marketing them as Boral Roofing.

Boral Building Products has also purchased Cultured Stone from Ownens Corning and has kept the "Cultured Stone" name.

Sherwin Williams has signed a letter of agreement to purchase Consorcio Comex, S.A. de C.V (makers of Kwal Paint and Frazee Paint). Not sure if these two brands will survive or be massaged into the S-W lines.

Pecora Corp. has purchased Carlisle Coatings and Waterproofing Inc.'s (CCW's) deck coating product line.

CR Lawrence has purchased U.S. Aluminum out of bankrupcy and continues it's operations in Waxahachie. CR Lawrence has also purchased Blumcraft of Pittsburgh.

The RACO line of interior storefront and door frames was purchased by Universal Molding Company our of the same bankrupcy as US Aluminum, and continues it's operation in Houston.

Wayne Dalton is now owned by Overhead Door Company and is marketed as their "value"line of overhead doors.

Naturalite Skylights is now owned by Acralight International Skylights. The Naturalite name is no longer used.

Sharon Stairs (pre-fabricated steel stairs) is no longer in business.

Nysan Shading Systems has been renamed Hunter Douglas Contract Solar Control.

Simplex Ceilings has been purchased by Armonstrong Commercial Ceilings.

Traco Windows has been purchased by Kawneer (Alcoa). It appears that the Traco name is no longer being used and their products have been massaged into the Kawneer line.

For more information on the services and information above contact Doug Hartman.

Sincerely,

INSPEC