



## Glossary of Terms

### **Albedo**

The ratio of reflected light to the total amount falling on a surface. A high albedo indicates high reflectance properties.

### **ASHRAE**

American Society of Heating, Refrigeration and Air Conditioning Engineers

### **Base Building**

Also referred to as "core and shell" building, includes overall building elements which are completed prior to construction of tenant finishes; including structure, enclosures (walls, glass and roof), the vertical core (consisting of elevators, stairs, bathrooms, shafts and risers) and central mechanical and electrical systems.

### **Biodegradable**

A material which can be decomposed when discarded by the normal action of bacteria and fungi. Typical examples are paper and wood products, natural fibers, starches.

### **BTU**

(British Thermal Units)

A unit of measurement equivalent to the amount of heat energy required to raise the temperature of one pound of water one degree Fahrenheit.

### **Building Commissioning**

A systematic process that begins in the design phase of a new or remodeled building, and includes testing and fine-tuning of the HVAC, electrical, plumbing and other systems to assure proper functioning and adherence to design criteria. Commissioning also includes preparation of the systems operations manuals, and instruction of the building maintenance personnel.

### **Building Envelope**

The elements of a building (e.g. walls, roofs, floors) enclosing conditioned spaces through which thermal energy may be transferred.

## **Building Load**

That energy expended for running of building systems.

## **Chlorofluorocarbons (CFCs)**

Synthetic chemicals manufactured from hydrocarbons and chlorine, fluorine, or bromine that are used in refrigeration, air conditioning, packaging, insulation, and as solvents and aerosol propellants. Because CFCs drift into the upper atmosphere, where their chlorine components destroy the earth's protective ozone layer, they were completely banned in 1997.

## **Clerestory**

A glass "window" at the top of an interior building wall, specifically intended to transmit daylight from the exterior to the interior.

## **Curtain Wall**

Any exterior wall which is supported by or "hung" from the building structure. Typically, the term curtain wall is used to describe a metal and glass wall system.

## **Daylighting**

The use of controlled natural lighting methods indoors through top lighting (skylights), side lighting (windows) and/or uplighting (reflection)

## **Demand**

The rate at which energy is consumed by a piece of equipment or a building as a whole or the maximum amount of energy required for a specific length of time which may be greater than the amount of energy required at other times.

## **Direct Digital Monitoring(and Control)**

Sensing and control of the building operating conditions with computer microprocessors and digital communications.

## **DOE- 2**

A public domain computer program for energy analysis developed by Lawrence Berkeley National Laboratory. Well suited for large commercial buildings, the program calculates a building's energy use and lifecycle costs based on its location, construction, operation,

and HVAC systems. It is useful in evaluating building system design, energy budgets, and life-cycle costs and benefits, and can explore trade-offs between design alternatives. It includes four main calculation sections: loads, systems, plants, and economics.

### **Formaldehyde**

A gas used widely in production of adhesives, plastics, preservatives, and fabric treatments and commonly emitted by indoor materials that are made with its compounds.

### **Fossil fuels**

Coals, gas or coal fuels derived from ancient vegetation. Fossil fuels were formed several million years ago and are generally considered non-renewable energy sources.

### **Fuel Cell**

A technology that uses an electromagnetic process to convert energy into electrical power. Often powered by natural gas, fuel cell power is cleaner than grid-connected power sources. In addition, hot water is produced as a by-product that can be utilized as a thermal resource for the building.

### **Fungi**

Parasitic lower plants (including mold and mildew) lacking chlorophyll and needing organic material and moisture to germinate and grow

### **Graywater**

Wastewater that does not contain sewage or fecal contamination and can be reused for irrigation after simple filtration.

### **"Hat Truss" Design**

A structural steel truss located at the top of the building to provide a rigid frame for resisting lateral wind loads and reducing building movement (sway).

### **Humidity, relative (RH)**

The ratio of the amount of water vapor actually present in the air to the greatest amount possible at the same temperature

### **Hydrogenated Chlorofluorocarbons (HCFCs)**

Substitute refrigerants and solvents which do not have as much potential to destroy atmospheric ozone if released into the environment as of CFCs . Most are less efficient as refrigerants than CFCs and some are quite toxic.

## **HVAC System**

The equipment, distribution network and terminals that provide either, collectively or individually the processes of heating, ventilation or air-conditioning to a building.

## **IAQ (Indoor Air Quality)**

According to the U.S. EPA and National Institutes of Occupational Safety and Health, the definition includes: 1) introduction and distribution of adequate ventilation air; 2) control of airborne contaminants; and 3) maintenance of acceptable temperature and relative humidity. According to ASHRAE Standard 62-1989 indoor air quality is defined as " air in which there are no known contaminants at harmful concentrations as determined by cognizant authorities and with which a substantial majority (80% or more) of the people exposed do not express dissatisfaction.

## **Integrated Pest Management**

A coordinated approach to pest control that is intended to prevent unacceptable levels of pests by the most cost-effective means with the least possible hazard to building occupants, workers, and the environment.

## **ISO 14000**

Set of generic standards developed by the International Organization for Standardization (ISO) created to give business management a structure for measuring environmental impacts. The standards include a broad range of environmental disciplines, including basic environmental management systems (EMS), auditing, environmental performance evaluations (EPE), labeling, life-cycle assessment (LCA), and environmental aspects in product standards (EAPS).

## **Life Cycle Cost**

The amortized annual cost of a product, including capital costs, installation costs, operating costs, maintenance costs, and disposal costs discounted over the lifetime of the product.

## **Light Shelf**

A horizontal device positioned (usually above eye level) to reflect daylight onto the ceiling and to shield direct sunlight from the area immediately adjacent to the window.

## **Load**

Indicates a rate of flow of energy for either a heating or cooling requirement or a total of both (expressed in terms of BTU per hour, BTU per month or BTU per year)

### **Low-E (Emissivity) Glass**

Glass with a selective optical coating that blocks transmission of infrared light while allowing transmission of the remaining available light spectrum, to reduce solar heating loads and cooling energy while maintaining visible daylight. The use of Low-E Glass results in spaces that are warmer in the winter and cooler in the summer.

### **Luminaire**

A complete electric lighting unit, including housing, lamp and focusing and/or diffusing elements; informally referred to as a fixture.

### **Material Safety Data Sheets (MSDS)**

A legal requirement for all potentially hazardous products, the data sheet indicates the risks from using and disposing of the product and recommends safe practices. The sheet may also indicate the chemical contents of the product.

### **Occupancy Sensor**

A device that detects the presence or absence of people within an area and causes any combination of lighting, equipment or appliances to be adjusted accordingly.

### **Off Gassing or Out Gassing**

The release of gases or vapors from solid materials. It is a form of evaporation or a slow chemical change which will produce indoor air pollution for prolonged periods after installation of a material.

### **Operations & Maintenance**

Operations refers to how equipment or systems are run, e.g., when a system should be turned on, temperature ranges, set points for boiler pressures and temperatures, thermostat set points, etc. Maintenance refers to servicing or repair of equipment and systems. "Preventive maintenance" performed on a periodic basis to ensure optimum life and performance is designed to prevent breakdown and unanticipated loss of production or performance. "Corrective" or "unscheduled" maintenance refers to repairs on a system to bring it back "on-line." "Predictive" maintenance is performed on equipment monitored for signs of wear or degradation, e.g., through thermography, oil analysis, vibration analysis, maintenance history evaluation.

**Outdoor or Outside Air**

Air taken from the exterior of the building that has not been previously circulated through the building.

**Ozone Depletion**

The loss of atmospheric ozone, which is the very high altitude layer that protects the earth from destructive ultraviolet radiation.

**Payback Period**

The amount of time it takes the savings resulting from the modification to "pay back" the costs involved. A "simple" payback does not consider the time value of money. A "discounted" payback period does.

**Peak Load**

Maximum predicted load over a given segment of time for any system.

**Photovoltaic**

Generation of electricity from the energy of sunlight, using photocells.

**Photovoltaic Panels**

These devices use semiconductor material to directly convert sunlight into electricity. Power is produced when sunlight strikes the semiconductor material and creates an electric current. BPCA GG

**Post-Consumer Recycled Content**

A reclaimed waste product that has already served a purpose to the consumer, such as a used newspaper, and has been diverted or separated from the waste stream for recycling and reprocessing back into a new consumer product.

**Post-industrial Recycled Content**

Material that is the byproduct of the industrial production process.

**R-value**

A measure of the thermal resistance of material.

### **"Radiance" Program**

Public domain lighting simulation software developed at Lawrence Berkeley Labs, for "analysis and visualization of lighting in design." It is used by architects and engineers to predict illumination, visual quality, and appearance of innovative design spaces. A PC version named ADELIN uses Radiance and can interface with CAD software.

### **Recycled Material**

Material that would be otherwise destined for disposal but is diverted or separated from the waste stream, reintroduced as material feedstock, and processed into marketed end products.

### **Renewable**

A renewable product that can be grown or naturally replenished or cleansed at a rate that exceeds human depletion of the resource.

### **Renewable Energy**

Energy resources such as wind power or solar energy that can keep producing indefinitely.

### **Return Air**

Air that has circulated through a building as supply air and has been returned and has been returned to the HVAC systems for additional conditioning or release from the building.

### **Reuse**

The recovery of material to be used again for a similar application without reprocessing.

### **Supply Air**

The total quantity of air supplied to a space of a building for thermal conditioning and ventilation. Typically, supply air consists of a mixture of return air and outdoor air that is appropriately filtered and conditioned.

### **Sustainable**

The condition of being able to meet the needs of present generations without compromising those needs for future generations. Achieving a balance among extraction

and renewal and environmental inputs and outputs, as to cause no overall net environmental burden or deficit. To be truly sustainable, a human community must not decrease biodiversity, must not consume resources faster than they are renewed, must recycle and reuse virtually all materials and must rely primarily on the resources of its own region.

### **Sustainability**

The practice of conservation and environmental protection which assures the availability of resources for future generations.

### **Task Lighting**

Lighting that provides illumination for specific visual functions, and is directed to a specific surface or area.

### **Thermal Breaks**

An insulating barrier which provides a separation between construction elements that are exposed to the outside. A thermal break is used especially to reduce the conductive transfer of curtain wall and window frame elements and their resulting energy loss to the outside. A thermal break also minimizes the the possibility of condensation on surfaces of exterior framing.

### **Transmissivity**

The capacity of a material to transmit radiant energy.

### **Urban Heat Island Effect**

The additional heating of air over city as the result of the replacement of vegetated surfaces with those composed of asphalt, concrete, rooftops and other man-made materials. These materials store much of the sun's energy, producing a dome of elevated air temperatures up to 10 degrees greater over city compared to air temperatures over adjacent rural areas. Light colored rooftops and lighter colored pavement can help to dissipate heat by reflecting sunlight, and tree planting can further help modify the city's temperature through shading and evapotranspiration.

### **Vairable Air Volume (VAV)**

A method of modulating the amount of heating or cooling effect that is delivered to a building by the HVAC system. The flow of air is modulated rather than the temperature. VAV systems typically consist of VAV boxes that throttle supply air-flow to individual zones, some mechanism to control supply-fan flow to match box demand, and the interconnecting ductwork and components.

## **Variable Speed Drives**

Motor drives for fans and pumps whose speed can be increased or decreased by modulating the frequency of the electrical input, thereby reducing electrical demand at part-load conditions.

## **Volatile Organic Compounds (VOC)**

Chemicals that contain carbon molecules and are volatile enough to evaporate from materials surfaces into indoor air at normal room temperatures (referred to as off-gassing). Examples of building materials that may contain VOCs include, but are not limited to, solvents, paints, adhesives, carpeting, and particleboard. Signs and symptoms of VOC exposure may include eye and upper respiratory irritation, nasal congestion, headache and dizziness.

Sources:

Lessons Learned 4 Times Square  
attery Park City Authority Green Guidelines