

- ABSORPTION COEFFICIENT:** A measure of the rate of decrease in intensity of a beam of photons or particles in its passage through a particular substance. (CS-9/60)
- ABSORPTION CURVE:** A graph in which the intensity of the transmitted radiation is plotted as a function of thickness of the material traversed. (CS-9/60)
- ABSORBED DOSE:** Amount of energy imparted to matter by ionizing particles per unit of mass irradiated material at the place of interest. Expressed in "rads". (CS-9/60)
- ACCELERATOR:** A device for imparting large kinetic energy to charged particles, such as electrons, protons, deuterons and helium ions. Common types of accelerators are the cyclotron, tetatron, linear accelerator and Van de Graaff Electrostatic Accelerator. (CS-9/60)
- ACTIVE DEPOSIT:** Any radioactive material deposited on a surface. (CS-9/60)
- ALPHA PARTICLE:** A positively charged particle emitted from a nucleus and composed of two protons and two neutrons. It is identical in all measured properties with the nucleus of a helium atom. (CS-9/60)
- ALPHA RAY:** A ray consisting of positively charged particles permitted during certain radioactive transformations. (CS-9/60)
- ALUMINUM EQUIVALENT:** Thickness of aluminum that will afford the same protection under specified conditions as the material in question. (CS-9/60)
- ANGSTROM:** Unit of measurement of light waves. It is .0000001 of a centimeter. (CS-9/60).
- ASSAY:** The determination of kind and quantity of radioactive materials present by physical or chemical measurements. (CS-9/60)
- ATOM:** Smallest particle of an element which is capable of entering into a chemical reaction. (CS-9/60)
- ATOMIC ENERGY:** All forms of energy released in the course of nuclear fission or nuclear transformation (nuclear energy). (CS-9/60)
- ATOMIC MASS UNIT:** The standard unit of weight for nuclear particles--It is 1/16th of the weight of the predominate oxygen isotope  $O_{16}$ . It is equal to  $1.6603 \times 10^{-24}$  to the minus 24 power of a gram. (CS-9/60)
- ATTENUATION:** The decrease in the dose rate of radiation in passing through a material. (CS-9/60)
- BARN:** A unit of area used in expressing a nuclear cross section. 1 Barn =  $10^{-24} \text{cm}^2$ . Cross sections per atom are customarily measured in barns. (CS-9/60)
- BEAM:** A unidirectional or approximately unidirectional flow of electromagnetic radiation or of particles. (CS-9/60)
- BETA RAYS:** Particular ionizing radiation consisting of electrons or positrons traveling at high speed. (CS-9/60)
- BODY BURDEN:** The amount of radioactive material in the body at the time of interest. (CS-9/60)
- BY-PRODUCT MATERIAL:** Any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing special nuclear material. (CS-9/60)
- COLLIMATOR:** A device for confining the elements of a beam within an assigned solid angle. (CS-9/60)
- CONCRETE EQUIVALENT:** The thickness of concrete based on a density of  $2.35 \text{g/cm}^3$  ( $147 \text{lb./ft.}^3$ ). Affording the same attenuation, under specified conditions, as the material in question. (CS-9/60)
- CONTAMINATION:** Radioactivity induced by the deposit of proximity of radioactive material or other materials. (CS-9/60)
- COUNTER:** A device for counting ionizing events. The term may refer to a complete instrument or loosely to the detector. (CS-9/60)
- COSMIC RAYS:** High energy particles originating in space. (CS-9/60)
- CRITICAL ORGAN:** That part of the body that is most susceptible to radiation damage under the specific conditions considered. (CS-9/60)
- CURIE:** A measurement of radioactive decay. The quantity of material undergoing  $3.7 \times 10^{10}$  to the 10th power disintegrations per second. This is equivalent to the rate of disintegration of 1 gram of pure radium. (CS-9/60)
- CYCLOTRON:** One of the particle accelerators used in research. A device for accelerating charged particles to high energies. (CS-9/60)
- DECONTAMINATION:** The removal of undesired dispersed radioactive material from personnel, instruments, rooms, equipment, etc. In the case of physical objects, this may involve thorough washing, often with chemical solutions; and in the case of fluids such as air, it may involve filtering and washing. (CS-9/60)
- DIRECT RADIATION:** All radiation coming within X-ray tubes, tube housing or other radiation apparatus or sources, except the useful beam. (CS-9/60)

**INHERENT FILTER:** Filtration introduced by the wall of x-ray tube and any permanent tube enclosure. (CS-9/60)

**INTENSITY OF RADIATION:** Energy flowing through unit area perpendicular to the beam per unit time, expressed in ergs per square centimeter per second or in watts per square centimeter. (CS-9/60)

**INSTALLATION:** The area of radiation hazard under the administrative control of the person or organization possessing the source of radiation. (CS-9/60)

**ION:** A charged atom or molecularly bound group of atoms, also a free electron or other charged subatomic particle. (An ion pair consists of a positive ion and a negative ion (usually an electron) having charges of the same magnitude and formed from a neutral atom or molecule by the action of radiation. (CS-9/60)

**IONIZATION:** The process whereby a neutral atom or molecule is split into positive and negative ions. (CS-9/60)

**IONIZATION BY COLLISION:** Ionization produced when ions already formed are accelerated as by an electric field to velocities high enough to produce more ions by collisions with neutral atoms or molecules. (CS-9/60)

**IONIZATION CHAMBER:** A container with electrodes on which suitable voltages are impressed for collecting only ions formed in the gas in the chamber by the ionizing event. (CS-9/60)

**IONIZING RADIATION:** Electromagnetic radiation (consisting of photons) or particular radiation (consisting of electrons, neutrons, protons, etc.) usually of high energy, but in any case capable of ionizing air, directly or indirectly. (CS-9/60)

**ISOTHERMAL SPHERE:** An area of equal temperature, better expressed by the term homothermal. (CS-9/60)

**ISOTOPE:** The product of a nucleus to which has been added or removed neutron. Having the same number of protons, the product will retain the chemical characteristics of the original element but will have a different atomic mass number or weight. (CS-9/60)

**ISOTOPE, RADIOACTIVE:** By common usage, any radioactive nuclide produced in a reactor or in a particle accelerator. Correctly, it should include all the natural radioactive nuclides also. (CS-9/60)

**KILOCURIE:** One thousand curies. (CS-9/60)

**KILO ELECTRON VOLT:** One thousand electron volts. (CS-9/60)

**KILOVOLT:** A unit of electrical potential equal to 1000 volts. The term is also used to characterize the radiation emitted by x-ray tubes operating at this potential. (CS-9/60)

**LEAKAGE (direct) RADIATION:** All radiation coming from within the tube housing, except the useful beam. (CS-9/60)

**LEAD EQUIVALENT:** The thickness of lead affording the same attenuation, under specified conditions, as the material in question. (CS-9/60)

**LINEAR ACCELERATOR:** A device for accelerating particles employing alternate electrodes and gaps arranged in a straight line, so proportioned that when their potentials are varied in the proper amplitudes and frequency, particles passing through them receive successive increments of energy. (CS-9/60)

**MASS:** Term used to describe weight or volume. (Mass thickness is the weight per unit surface area of a barrier expressed in pounds per sq. ft.) (CS-9/60)

**MAXIMUM PERMISSIBLE DOSE:** A dose of radiation that, in the light of present knowledge is not expected to cause appreciable bodily injury to a person at any time during his lifetime. (CS-9/60)

**MEGACURIE:** One million curies--a unit of radiation measurement. (CS-9/60)

**MESON:** A nuclear particle having several forms of approximately 1/6th the mass of the proton. (CS-9/60)

**MEV:** Term meaning a potential of one million electron volts. (CS-9/60)

**MILLIROENTGEN:** A submultiple of the roentgen equal to one-thousandth (1/1000) of a roentgen. (CS-9/60)

**MONITORING:** Periodic or continuous determination of the dose rate in an occupied area (Area monitoring) or of the dose received by a person (Personnel monitoring). (CS-9/60)

**n UNIT:** That quantity of neutron radiation measured in a VICTOREEN condenser "r" meter that will produce the same amount of ionization as 1 roentgen of x-radiation. (CS-9/60)

**NEUTRON:** One of the nuclear particles having an atomic mass unit of 1.00893. The particle is electrically neutral. (CS-9/60)

**NEUTRINO:** A nearly weightless particle of the nucleus and without an electric charge. (CS-9/60)

**NUCLEON:** A constituent particle of the atomic nucleus; therefore, according to present theory, a proton or a neutron. (CS-9/60)

- RADIOACTIVE MATERIAL:** Any material--solid, liquid or gas, that emits radiation spontaneously. (CS-9/60)
- RADIOISOTOPE:** An isotope that is radioactive. (CS-9/60)
- RECOMBINATION:** The return of an ionized atom or molecule to the neutral state. (CS-9/60)
- RELATIVE BIOLOGICAL EFFECTIVENESS:** The biological effectiveness of one type and energy of radiation, relative to that of lightly filtered x-rays generated at potentials of 200 to 300 kilovolts, for the particular biological system and biological effect, and for the conditions under which the radiation is received. (CS-9/60)
- REM:** Is the quantity of any radiation such that the energy imparted to a biological system (cell, tissue, organ or organism) per gram of living matter by the ionizing particles present in the region of interest, has the same biological effectiveness as an absorbed dose of 1 rad from lightly filtered x-rays generated at potentials of 200 to 300 kilovolts. A dose in rems is equal to the dose in rads multiplied by the appropriate RBE. (CS-9/60)
- REP: (ROENTGEN--EQUIVALENT--PHYSICAL):** Has been used extensively for the specification of permissible doses of ionizing radiations other than x-rays or gamma rays. The most widely accepted definition is that it is a unit of "absorbed dose" with a magnitude of 93 ergs/g, and the "rad"--100 ergs/g is negligible in the estimation or permissible doses. (CS-9/60)
- RESTRICTED MEANING OF DOSE:** "Air Dose", "Tissue Dose" or "Absorbed Dose" according to radiological usage, refers to exposure to radiation of a certain dosage rate for a certain length of time. The dose does not involve the size of the beam, or in other words, the area of the surface or tissue volume exposed to radiation. Accordingly, for the same dosage rate and time exposure, the dose is the same whether one finger only, or the entire body is exposed to radiation. (CS-9/60)
- ROENTGEN:** A highly technical unit of measurement of the energy absorbed by tissue as related to the ionization produced in air by X or Gamma Rays. The dose unit is the roentgen and its technical definition is "Quantity of X or Gamma radiation such that the associated particular emission per 0.001293 gram of air produces, in air, ions carrying 1 electrostatic unit of quantity of electricity of either sign". A dosage of 400 roentgens is considered as being the "median" level dosage which will cause 5% fatalities from the radiation effects of an atomic bomb. (CS-9/60)
- ROENTGEN METER:** Any ionization instrument calibrated to read in roentgens. (CS-9/60)
- ROENTGEN RAYS:** Are x-rays usually produced by bombarding a (metallic) target with high speed electrons in a suitable device. (CS-9/60)
- SATURATION:** Condition is an ionization chamber when the applied voltage is sufficiently high to collect all the ions formed from the absorption of radiation, but insufficient to produce ionization by collision. (CS-9/60)
- SCATTERED RADIATION:** Radiation which, during passage through a substance has been deviated in direction. It may also have been modified by an increase in wave length. It is one form of secondary radiation. (CS-9/60)
- SEALED SOURCE:** A quantity of radioactive material so enclosed as to prevent the escape of any radioactive material, but at the same time permitting radiation to come out for use. (CS-9/60)
- SECONDARY PROTECTIVE BARRIER:** Barriers that reduce the stray radiation to the permissible dosage rate. (CS-9/60)
- SECONDARY RADIATION:** Radiation emitted by any matter irradiated with x-rays. (CS-9/60)
- SHIELDING:** Interposing a substance which will nullify the effects of radiation. (CS-9/60)
- SOURCE MATERIAL:**
- A. Uranium, thorium or any other material which is determined by the AEC to be source material.
  - B. Ores containing one or more of the foregoing materials, in such concentration as the AEC may by regulation determine from time to time. (CS-9/60)
- STRAY RADIATION:** Radiation not serving any useful purpose. It includes direct and secondary radiation from irradiated objects. (CS-9/60)
- SURVEY:** A critical examination of the radiation near a source by or under the supervision of a qualified expert. (CS-9/60)
- SURVEY METER:** A device for detecting radiation fields or for measuring exposure or exposure rate. (CS-9/60)
- THERAPEUTIC-TYPE PROTECTIVE TUBE HOUSING:** Tube housing in which the direct radiation is reduced to at most one "r" per hour at a distance of one meter from the tube target when the tube is operating continuously at its maximum rated current for the maximum voltage. (CS-9/60)
- TOTAL FILTER:** Sum of the "inherent" and the "added" filters. (CS-9/60)

**ASPECTS:** As used in this specification, the four basic steps for conversion of a designed attribute into specification text: requirement, criteria, test, and evaluation. (CERL)

**ASSEMBLIES:** Subsystems are composed of assemblies. In the mechanical core subsystem mentioned above, each of the wall panels, stacked one on top of the other, forms an assembly. (PA)

**ASSEMBLY:** Any one of the collection of parts from which a subsystem is constructed, e.g., a wall panel assembly. See SUBSYSTEM. (CERL)

**ASSEMBLY, COMPONENT OR UNIT:** Levels of organization lower than a subsystem. (CRC)

**ASSEMBLY:** A combination of several products to produce a functional unit such as a wall, a door with hardware and frame, a floor. (CRMHRA)

**ATTRIBUTE:** As used in this specification, one of a list of qualities or properties that a subsystem or component must have to function according to the owner's/user's needs. (CERL)

**ATTRIBUTE:** The qualities to be specified: 1) Requirement, 2) Criterion, 3) Test Method, 4) Evaluation. (Steps in actual specifying.) (CRC)

**BOX:** Takes various forms—component, assembly, or complete subsystems—but always the structural element is a prefabricated three-dimensional space-enclosing unit of small, intermediate, or large size. (ENR)

**BUILDING:** 1. The planning, designing and constructing of structures to house specified activities; 2. A structure so planned, designed, and constructed. Determining building requirements, designing the building and preparing plans, specifications and procurement documents are not generally thought of as being a part of the process called building. Instead, they are thought of as activities which precede building. From the viewpoint of an owner or client, however, the building process begins with these activities. It is from the owner's/user's viewpoint that building is considered in this study, hence the expansion, for many, of the term "building" to include these activities (indicated by the words "planning" and "designing" in the glossary definition). (CERL)

**BUILDING COMPONENTS:** A group of parts which form a portion of a building subsystem, e.g., a door, its frame and hardware as part of the Interior Space Division Subsystem. (WSBSP)

**BUILDING PERFORMANCE:** A measure of the aggregate benefits derived from the operation and utilization of a building.

The concept of building performance includes three related but distinct areas of concern: functional performance, product performance, and cost performance.

In this study the functional performance of buildings is defined as the user's satisfaction with the physical environment, the spatial environment, and the flexibility of the building.

Product performance, in turn, shall refer to the satisfaction of standard performance measures of the physical components in a building: its structural shell, services and contents (e.g., lumens of light, acoustic repressions, etc.).

Finally, cost performance shall pertain to the satisfaction of criteria for cost control in building operation, maintenance, and repair. (Where operation costs are defined as the cost of energy consumed by energy-conversion systems. For example, expenditures of fuel oil, coal, or electrical power are operation costs.)

It follows from these definitions that the evaluation of overall "Building Performance" entails three separate measurements of the deviation of functional, product, and cost performance from normative functional, product and cost standards. (CERL)

**BUILDING PROCESS:** The process which embraces every stage from the conception to the total satisfaction of the user requirements in a completed building. (WSBSP)

**BUILDING PROJECT:** Any collection of the building types planned for construction during fiscal years 1973 through 1977. (CERL)

**BUILDING SUBSYSTEM PERFORMANCE REQUIREMENTS:** A set of statements of the essential characteristics that a building subsystem must provide in order to satisfy the user requirements. (WSBSP)

**BUILDING SYSTEM:** A group of integrated subsystems which satisfy the functional requirements of a building. (BRAB)

**BUILDING SYSTEM:** A scheme for building which is distinguished by certain characteristics of the process and of the product remaining essentially unchanged for each new building constructed. (CERL)

**BUILDING SYSTEM:** A set of coordinated subsystems, suitable for many building types, that perform the major functions of a building. (CERL)

**COMPONENT:** Any one of the collection of parts from which an assembly is constructed, e.g., a window component. See ASSEMBLY. (CERL)

**COMPONENTS OR PRODUCTS:** The basic unit of construction (material or an item of equipment); the usual level of prescriptive specification. (CERL)

**COMPONENT:** A part of a building, may be a product, assembly or system. (CRMHRA)

**COMPONENT:** A component is an individual element which may be partially fabricated by the builder or purchased from a number of specialized manufacturers and shipped to the site for assembly. Generally, components are thought of as trusses, rafters, wall and partition panels, preglazed windows, floor panels and gable ends in unfinished condition. (NABM)

**COMPONENT:** An element of a subsystem, e.g. a door can be a component of an interior partition subsystem. (NAUFAC)

**COMPONENTS:** Assemblies are made up of components such as the plumbing roughing in the mechanical core panel. (PA)

**COMPONENTIZED BUILDING:** This term refers to a form of construction in which factory-assembled components are shipped to a site for further assembly into a building or house. (NABM)

**CONTRACT DOCUMENTS:** The total set of documents. (CRC)

**CRITERIA:** A quantification of desired performance. (CERL)

**CONVENTIONAL BUILDING:** 1. Building accomplished primarily in the manner of a craft process; 2. A structure built in this way. (CERL)

**DETERMINANT:** Broad, nontechnical statements of needs. (CRC)

**DIMENSIONAL (OR MODULAR) COORDINATION:** Reduction of the sizes of all building components and buildings to multiples of one basic unit. (ENR)

**DIMENSIONAL COORDINATION:** The organization of dimensions to enable subsystems, components and parts to be used together without modification. (NAUFAC)

**DIMENSIONAL STANDARDIZATION:** The establishment of rules dealing with the size and shape of components and subsystems, to ensure the dimensional compatibility of related items. (BRAB)

**DISPOSABLES (ABANDONABLE):** Temporary buildings, stapled paperboard with fiberglass overlay, having low acquisition and erection costs. Not designed for relocation and reuse, e.g., Craf/Tech Corp. (Not a "Relocatable" by DOD definition.) (NAUFAC)

**DOUBLEWIDE MOBILE:** A doublewide mobile is, in effect, two mobile homes joined together to form a housing unit, usually 28 feet wide. The doublewide is similar in appearance to sectional/modular housing, but may have furniture and decorative appointments usually associated with mobile products. Half sections are shipped separately to the site for joining and positioning on a semi-permanent foundation. The wheeled chassis on which the units are trailed to the site may be left intact or may be removed. Doublewides are usually financed as chattel property, taxed as vehicles or personal property, and are not necessarily in compliance with local building codes. (NABM)

**EARLY BID (PRE-BID):** The first bid received; usually for subsystems or site work which is based upon pre-bid schematic subsystem drawings and performance specifications. (WSBSP)

**ENGINEERED SYSTEM:** A building subsystem composed of components provided by more than one manufacturer, and coordinated by an independent designer rather than by the manufacturers. Such as a Heating-Ventilation Air Conditioning (HVAC) system. (WSBSP)

**FAST-TRACK:** An accelerated scheduling technique for design and construction characterized by the overlapping of activities traditionally performed in linear sequence. (WSBSP)

**FUNCTIONAL STANDARDIZATION:** The establishment of rules dealing with the performances of and purposes to be served by components and subsystems, to ensure the functional compatibility of related items and the performance of a given item. (BRAB)

**GENERIC TYPE:** A classification of building subsystems which are similar with regard to coordination with other subsystems. (NAUFAC)

**HARDWARE:** The parts, components, assemblies, and subsystems of which a building is constructed. (CERL)

**INDUSTRIALIZED BUILDING:** Industrialized building is a concept that integrates building components, subsystems and assembly procedures, and is characterized by a high degree of standardization.

It is based on a highly controlled design and construction process that mechanizes muscle and brain power through machinery and computers. It is implemented by manufacturing processes away from or within the project site. (BDC)

**LIFE SPAN:** 1. The period between the manufacture of a system or component and the time at which its annual owning cost exceeds the annual owning cost of a replacement. 2. The period between the manufacture of a system or component and the time at which it can no longer meet the needs of its user. 3. The shortest of the above two periods. (WSBSP)

**MECHANICAL CORE:** A mechanical core is a factory-assembled, three-dimensional section of a building which includes installed mechanical elements containing all mechanical, electrical, plumbing, heating and cooling elements and related systems. Mechanical cores may contain the kitchen, with its range, cabinets, counters and sinks, and the bath and associated fixtures. Ranging in size from 8 by 10 feet to 12 by 20 feet, cores are shipped to the site and erected on a previously prepared foundation, or stacked for multi-story structures. The remainder of the structure surrounding them may be of component, panel or conventional type. Use of mechanical cores substantially reduces the need for the scarce, expensive skilled trades on the erection site. (Also called Utility Core or Wet Core.) (NABM)

**MOBILE HOME:** A factory-assembled non-permanent structure usually 8 to 14 feet wide and 32 or more feet long, built on a wheeled chassis for hauling to a location is termed a mobile home. As a vehicle, it need not comply with the prevailing building code and normally it is financed as chattel property and taxed as a vehicle or as personal property. (NABM)

**MODULAR:** 1. Having commensurable dimensions. 2. Capable of arrangement with exact fit, in more than one sequence or direction. 3. Characterized by the use of structurally independent, interchangeable assemblies. (WSBSP)

**MODULAR BUILDING:** 1. A building system or partial building system characterized by the fact that its buildings are composed of prefabricated, box-like units which are connected together to form the building; 2. Building to dimensional standards. (CERL)

**MODULAR HOUSING:** Factory-produced boxes or cubes fabricated and assembled in the plant for shipment to the erection site constitute modular housing. On site, the module may be connected to other modules or to other systems for a structurally complete building. Certain forms of modular housing are complete on delivery as to exterior and interior finish, plumbing and wiring and mechanical systems. (NABM)

**MODULAR HOUSE OR BUILDING:** A modular house or building is a permanent structure consisting of one or more modules assembled in a factory in accordance with a building code, and qualified to be financed and taxed as real property when placed on a permanent foundation. May be called sectional. (NABM)

**MODULAR (SECTIONAL) BOX:** This is a modular house minus a factory-installed roof system. Roof types may include trussed rafters, precut rafters and joists shipped from the factory as part of the total package, or purchased separately. The elimination of the factory-installed roof reduces the over-all shipping height thus allowing increased ceiling height. Steeper pitched roof systems applied on site to the increased ceiling height of the modular box produce houses which look like conventional construction. (NABM)

**MODULAR (SECTIONAL) STACK-ON:** The stack-on sectional concept refers to modules, one of which is mounted on the foundation and the second of which rests atop the first and is equipped with a roof assembly. Stacking is usually limited to two stories except when steel framed or concrete modules are involved, but the variety of configurations makes this type of housing most aesthetically acceptable and most suitable for multi-family dwellings. (NABM)

**MODULE:** A module is a factory-assembled three-dimensional section of a building to be shipped to site and joined with one or more sections to form a building or house to meet the same construction, health and life safety requirements as for conventional on-site building. (Not to be confused with the more general architectural definition of a module—a uniform dimensional increment used in design). (NABM)

**MODULE:** In architecture, module usually refers to a three-dimensional unit with specific dimensions. In system building, module is used more specifically to designate three-dimensional repetitive design and production units such as classrooms or paired dwellings with common stairs. (PA)

**NON-PERMANENT CONSTRUCTION:** Buildings produced for short term use and placed upon temporary foundations where they will not need to meet local building codes, are termed non-permanent construction. (NABM)

**NON-RECOVERABLE:** A shelter not designed to provide relocatability features or one where the cost of recovery of facility approximates 50% or more of initial procurement cost. (Not a relocatable.) (NAUFAC)

**NON-SYSTEM:** Those section stage bid portions of a complete building which interface with but are not included in the prebid subsystems contracts. (WSBSP)

**PREASSEMBLED BUILDING:** A completed building, except for the foundation, delivered to the site ready for attachment to the foundation and utilities. (CERL)

**PRE-BID SCHEMATIC SUBSYSTEM DRAWINGS:** The drawings prepared by the architect for pre-bidding which indicate the scope, size, quantities and location of each particular subsystem. (WSBSP)

**PRECOORDINATION:** The process of insuring, prior to fabrication, that various components and subsystems are functionally and dimensionally compatible. (BRAB)

**PRE-CUT HOUSE:** In a pre-cut house, supporting parts-studs and rafters-are cut to fit other items and are assembled on the site. (WP)

**PRE-ENGINEERED BUILDING:** 1. A building designed to satisfy a standard set of engineering requirements instead of the requirements of a particular customer. 2. A gable roof, clear span, metal building. (CERL)

**PRE-ENGINEERED SHELTERS:** This is the true generic term, i.e., any shelter which is factory-produced for a specific purpose and is factory assembled either as component parts or as a complete shelter to minimize field erection. (NAUFAC)

**PREFABRICATION:** Factory assembly of structural, mechanical, or electrical components or complete and fully equipped structures, such as mobile homes. (ENR)

**PREFABRICATION:** Prefabrication in building is the offsite fabrication of components or assemblies. It is not new, and can be part of craft building as well as industrialized system building. (PA)

**PREFABRICATION:** The on-site or off-site advance fabrication of building systems and components traditionally fabricated in place during installation. (WSBSP)

**PREFABRICATED BUILDING:** 1. A collection of fabricated parts from which a building can be assembled. 2. The building assembled from such parts. (CERL)

**PREFABRICATED HOUSE:** One whose parts were designed for quick assembly at the home site. The parts are made and put together as a package at the factory.

Outside walls with windows and doors already in place, roof and floor systems are examples. (WP)

**PRODUCT:** Single item, such as brick, plaster, plywood, steel beam. May have elements which combine on the job-site such as concrete. (CRMHRA)

**PRODUCT:** A material, component or system manufactured off the construction site. (WSBSP)

**PROGRAM:** A single building or grouping of several building projects into a single bid package as part of an overall organized systems project. (WSBSP)

**PROJECT:** The total project (to include in-system and out-of-system elements). (CRC)

**PROPRIETARY BUILDING SYSTEM:** A building system or partial building system procurable only from a single source. (CERL)

**PSEUDO-RELOCATABLE (RIGID FRAME):** Not specifically designed to be dismantled and relocated, but could be with considerable effort and loss of parts. (Not a "Relocatable" by DOD definition.) (NAUFAC)

**RATIONALIZED BUILDING:** The designation for conventional building with adaptation of some of the principles and techniques of system building. In Europe, rationalized building inspired by system building is replacing conventional building almost completely in housing construction, narrowing down the margin of cost savings through system building. (PA)

**RATIONALIZED TRADITIONAL SYSTEM:** One that depends primarily on conventional skilled trades, but which incorporates mechanization and prefabricated components. (ENR)

**RECOVERABLE (RETRIEVABLE):** Any shelter which is either specifically designed for dismantling and relocation with no expected damage, or capable of being dismantled but with an average of 15% to 20% damage to its parts. (NAUFAC)

**RELOCATABLE:** Designed for the specific purpose of being readily erected, disassembled, stored and re-used.

- A) NOT SELF-CONTAINED- Includes all essential components except interior furnishings. Does include walls and ceilings. Floors sometimes finished. (e.g., PAN-ELFAB).
- B) SELF-CONTAINED- Includes all essential components, including floor, ceiling, walls; lighting and electrical systems, environmental control connections, etc. Also includes all integral interior furnishings. (Structure is functionally complete when packaged.)
  - 1. Non-Mobile- Container type.
  - 2. Mobile- Equipped with wheels, skids, or other devices so it can be towed. (e.g., trailers and vans.)

(NAUFAC)

**SYSTEM MANUAL:** A complete description of a building system including the rules which define how the parts of a system go together. The manual is a continually evolving definitive documentation of the building system. (NAUFAC)

**SOFTWARE:** The rules and procedures for utilizing the hardware to form a completed building. (CERL)

**SUBSYSTEM:** A group of components that perform a specified function, e.g., a heating/ventilating/air-conditioning subsystem made up of components such as an air-moving device, ductwork, diffusers, and controls. (BRAB)

**SUBSYSTEM:** A coordinated, pre-engineered assemblage of components, forming a package that can be readily manufactured, shipped to, and installed in a total system (the building). (CERL)

**SUBSYSTEM:** The building process may be thought of as constructing larger parts from smaller parts, then still larger parts from these parts and continuing this procedure until the building is complete; a building subsystem is any one of the larger parts, e.g., the structural subsystem. (CERL)

**SUBSYSTEM:** The major components of the system. (CRC)

**SUBSYSTEMS:** A combination of parts or components which are designed, produced, installed and intended to achieve a coordinated, integrated and efficient functional assembly. These subsystems are not necessarily based on trade divisions. (DOD)

**SUBSYSTEM:** A group of factory or site-assembled components erected or installed in combination with each other to perform a specified task. (ENR)

**SUBSYSTEM:** A dependent system performing one independent function, e.g., HVAC subsystem. (NAUFAC)

**SUBSYSTEM:** Part of a building system, defined for a specific function, and comprising components and materials needed to fulfill that function; e.g., structural, HVAC, ceiling-lighting subsystems. (WSBSP)

**SUBSYSTEM CONTRACTOR:** Any of the contractors who design, produce and install components called for in the subsystem performance specifications. (WSBSP)

**TEST:** The evaluative techniques for insuring component or subsystem conformance with the criteria; testing may be performed in the prototype stage, during manufacture, at the site during or after installation, and after project completion, or at any combination of times; testing may also be performed by the design professional, owner, testing consultant, public agencies, or the manufacturer. (CERL)

**UNITARY OR UNITIZED CONSTRUCTION:** A type of system building in which three-dimensional units (usually boxes) form assemblies, or in its most sophisticated form, complete subsystems. This type of construction was used in the early stages of system building in the Soviet Union after World War II. It has been increasingly replaced by large panel systems, but was revived with Habitat 67 and shows promise by using lighter materials than regular concrete. (PA)

**USER REQUIREMENTS:** Those conditions the user of a building considers necessary or desirable as environment and support for his activities, without particular reference to how such conditions are to be physically produced. (WSBSP)



**ALUM:** A flocculating agent. Potassium and ammonium alum are the most common types used in the treatment of pool water. Aluminum sulphate is often used with gravity sand filters. (NSPI)

**ANTHRACILT:** Filter media of anthracite coal (trade name). (NSPI)

**BACKWASH CYCLE:** The period starting with the cleaning operation of the filter which ends when the filter has been cleaned or serviced. (NSPI)

**BACKWASH PIPING:** The pipe extending from the backwash outlet of the filter to a terminus at the point of disposal. (Often referred as waste piping). (NSPI)

**BACKWASH RATE:** The rate of application of water through a filter during the cleaning cycle expressed in gallons per minute of total flow. (NSPI)

**BACKWASH RATE (SPECIFIC):** The rate of application of water through a filter during the cleaning cycle expressed in gallons per minute per square foot of effective area. (NSPI)

**BODY COAT:** Filter aid deposited after precoat on a diatomite filter. (NSPI)

**BODY FEED:** The continuous addition of controlled amounts of filter aid during the operation of a diatomite filter to maintain a permeable filter cake. If added as a slurry, this is often referred to as **SLURRY FEED**. (NSPI)

**BROMIDE:** A chemical compound containing bromine. Either potassium or sodium bromide when used with a suitable activating agent such as a hypochlorite will release elemental bromine in a pool water to serve as a germicide or algaecide. (NSPI)

**BROMINE:** A chemical element (Br<sub>2</sub>) normally existing as a liquid. Elemental bromine may be applied directly to pool water to serve as a germicide or algaecide. As one of the halogen group, bromine is generically related to iodine and chlorine. (NSPI)

**CHEMICAL FEEDER:** A device to feed a treating material at a controllable rate: (germicide, algaecide, alum, acid and alkali, etc.). Included in this category are proportioning pumps, injector type feeders and pot-type feeders operating from a pressure differential, as well as dry-type feeders. (NSPI)

**CHLORINATOR:** A device to feed, control and regulate the flow, and to measure the amount of chlorine gas introduced into the water being treated. (NSPI)

**CHLORINE:** A chemical element normally existing as a gas. Chlorine hydrolyzes in the pool water to form hypochlorous acid (HOCl), an unusually active germicide and algaecide. As one of the halogen group, chlorine is generically related to bromine and iodine. (See also Hypochlorite, Calcium; Hypochlorite, Sodium). (NSPI)

**CHLORINE CARRIER:** A chemical compound containing chlorine, capable of yielding hypochlorous acid (HOCl), when added to the pool water. (See Hypochlorite, Calcium; Hypochlorite, Sodium). (NSPI)

**CHLORINE, LIQUID:** Dry chlorine gas, liquified under pressure, and shipped in steel cylinders. (See also Chlorine). (NSPI)

**CHLORINE RESIDUAL:** This term refers to available chlorine residual, and may exist as both combined available chlorine and free available chlorine. Combined chlorine residual is that portion of the available chlorine which has reacted with ammonia and other nitrogenous materials present in a pool water to form chloramines. Free chlorine residual is that remaining after the chlorine demand of the nitrogen-containing compounds has been satisfied. Free available chlorine is the more effective germicide and algaecide. (NSPI)

**CORROSION:** The loss of material due to chemical change. (NSPI)

**CORROSION RESISTANT MATERIAL:** A material with exceptional resistance to the corrosion factors to which it is subjected. (NSPI)

**CROSS CONNECTION:** An unprotected connection between a domestic water system and any pool or other nonpotable water whereby backflow to the domestic water system could occur. (NSPI)

**DIATOMITE:** A filter aid consisting of fossilized plankton sometimes called **DIATOMACEOUS EARTH**. (NSPI)

**DIVING AREA:** That area of a pool designed for diving. (Note: Diving Areas are defined in detail in various standards and regulations such as NSPI, Public and Residential Pool Standards, AAU, FINA, etc.). (NSPI)

**DIVING BOARD:** A board especially designed to produce diver spring-action when properly installed on an anchor (base) and fulcrum. (Often referred to as springboard). (NSPI)

**DIVING PLATFORM:** Usually used for the standard 5-meter and 10-meter official diving platform. (NSPI)

**DIVING TOWER:** This term is usually used for the 3-meter (10 ft.) diving board support. (NSPI)

**SWIMMING AREA:** That area of a pool in excess of 3 feet in depth which is devoted to swimming. (NSPI)

**TURNOVER RATE:** The period of time, usually hours, required to circulate a volume of water equal to the pool capacity. (NSPI)

**UNDERDRAIN:** The distribution system at the bottom of the filter which collects the water uniformly during the filter cycle, and which distributes the backwash water uniformly during the cleaning operation. (Normally applies to sand filters). (NSPI)

**UNDERWATER LIGHTS:** A light designed to illuminate a pool from beneath the water surface.

**Wet Niche:** A watertight and water-cooled unit submerged and placed in a niche in the pool wall.

**Dry Niche:** A normal weatherproof fixture placed in an opening behind the pool wall which illuminates the pool through a watertight window in the pool wall. (NSPI)

**VACUUM FITTING:** The fitting, usually in the wall of the pool just below the water level, to which is attached the hose for the underwater vacuum cleaner. (NSPI)

**VELOCITY:** The measurement of the rate of movement of liquids, expressed in feet per second. (NSPI)

**VENTURI TUBE:** A tube, which has a constricted throat, which causes a differential pressure and can be used to operate feeding devices, instruments and to measure flow. (NSPI)

**WADING AREA:** The area less than 3 feet in depth devoted to activity of nonswimmers. (NSPI)

**WALL SLOPE:** The inclination from vertical in a pool wall, expressed in degrees or in feet (or inches) of horizontal distance in a given depth in feet (or inches). (NSPI)

**ABSORBENT:** The less volatile of the two working fluids in an absorption cooling device. (HUD/DOE)

**ABSORBER:** The surface in a collector that absorbs solar radiation and converts it to heat energy; generally a matte black metallic surface is best. (HUD/DOE)

**ABSORPTION CHILLER:** Air conditioning device which uses heat at 190 degrees Fahrenheit or higher to generate cooling; it may be powered by solar-heated water. (HUD/DOE)

**ABSORPTIVITY:** The ratio of the energy absorbed by a surface to the energy absorbed by a black body at the same temperature. (HUD/DOE)

**ACTIVE SOLAR ENERGY SYSTEMS:** In contrast to passive solar energy approaches, an active solar energy system utilizes outside energy to operate the system and to transfer the collected solar energy from the collector to storage and distribute it throughout the living unit. Active systems can provide space heating and cooling and domestic hot water. (HUD/DOE)

**AIRLOCK ENTRY:** A vestibule enclosed with two airtight doors; it reduces heat loss by limiting the movement of heated air. (HUD/DOE)

**AIR-TYPE COLLECTOR:** A collector that uses air for heat transfer. (HUD/DOE)

**ALTITUDE:** The angular distance from the horizon to the sun. (HUD/DOE)

**AMBIENT TEMPERATURE:** The natural temperature surrounding an object; it usually refers to outdoor temperature. (HUD/DOE)

**ATRIUM:** A closed interior court to which other rooms open; it is often used for passive solar collection. (HUD/DOE)

**AUXILIARY ENERGY:** Auxiliary heat plus the energy required to operate pumps, blowers, or other devices. (HUD/DOE)

**AUXILIARY HEAT:** The heat provided by a conventional heating system for periods of cloudiness or intense cold, when a solar heating system cannot provide enough heat. (HUD/DOE)

**AZIMUTH:** The angular distance from true south to the point on the horizon directly below the sun. (HUD/DOE)

**BACKUP ENERGY SYSTEM:** A backup energy system using conventional fuels should be provided for heating and domestic hot water. This system should be capable of providing all of the energy demand during any period when

the solar energy system is not operating. Components and subsystems may be used as parts of both systems where the component or subsystem is a recognized, acceptable product in the conventional building industry. (HUD/DOE)

**BERM:** See "Earth Berm". (HUD/DOE)

**BRITISH THERMAL UNIT (BTU):** A unit of heat; the quantity needed to raise the temperature of one pound of water one degree Fahrenheit. (HUD/DOE)

**BUILDING ENVELOPE:** The elements (walls, roof, floors) of a building which enclose conditioned spaces. (HUD/DOE)

**CLERESTORY:** A window located high in a wall near the eaves, used for light, heat gain and ventilation. (HUD/DOE)

**COEFFICIENT OF HEAT TRANSMISSION:** The rate of heat transmission measured per degree of temperature difference per hour, through a square foot of wall or other building surface. It is usually called the U-value. (HUD/DOE)

**COLLECTION:** The process of trapping solar radiation and converting it to heat. (HUD/DOE)

**COLLECTOR:** A device which collects solar radiation and converts it to heat. (HUD/DOE)

**COLLECTOR APERTURE:** The glazed opening in a collector which admits solar radiation. (HUD/DOE)

**COLLECTOR EFFICIENCY:** The ratio of the heat energy extracted from a collector to the solar energy striking it. (HUD/DOE)

**COLLECTOR TILT:** The angle between the horizontal plane and the solar collector plane, designed to maximize the collection of solar radiation. (HUD/DOE)

**COMFORT ZONE:** The range of temperature and humidity in which most people feel comfortable. (HUD/DOE)

**CONCENTRATING COLLECTOR:** A collector with a lens or a reflector that concentrates the sun's rays on a relatively small absorber surface. (HUD/DOE)

**CONDUCTION:** The flow of heat between a hotter material and a colder material that are in direct physical contact. (HUD/DOE)

**CONDUCTIVITY:** The property of a material indicating the quantity of heat that will flow through one foot of a material for each degree of temperature difference. (HUD/DOE)

**CONVECTION, FORCED:** Commonly, the transfer of heat by the forced flow of air or water. (HUD/DOE)

**HEAT EXCHANGER:** A device which transfers heat from one fluid to another. (HUD/DOE)

**HEAT GAIN:** As applied to heating or cooling load, that amount of heat gained by a space from all sources (including people, lights, machines, sunshine, and all other radiant energy). (HUD/DOE)

**HEAT PUMP:** An electrically operated machine for heating and cooling; when heating, it transfers heat from one medium at a lower temperature (called the heat source) to a medium at a higher temperature (called the heat sink), thereby cooling the source (outside air) and warming the sink (the house); when cooling, the heat pump functions much like an air conditioner--taking unwanted heat from the heat source (a building) and dumping it to the heat sink (the outside). (HUD/DOE)

**HEAT SINK:** A medium (water, earth, or air) capable of accepting heat. (HUD/DOE)

**HEAT SOURCE:** A medium (water, earth or air) from which heat is extracted. (HUD/DOE)

**HEAT TRANSFER:** Conduction, convection or radiation, or a combination of these. (HUD/DOE)

**HEATING LOAD:** The rate of heat flow required to maintain indoor comfort; measured in BTU per hour. (HUD/DOE)

**HEATING SEASON:** The period from early fall to late spring during which heat is needed to keep a house comfortable. (HUD/DOE)

**HELIOSTAT:** An instrument consisting of a mirror mounted on an axis moved by clockwork; the heliostat reflects sunbeams in one direction, usually to a central absorber located in a tower. (HUD/DOE)

**HYBRID SOLAR ENERGY SYSTEM:** A hybrid system is one incorporating a major passive aspect, where at least one of the significant thermal energy flows is by natural means and at least one is by forced means. (HUD/DOE)

**HYDRONIC SYSTEM:** A conventional heating system which circulates hot water, usually 160 degrees Fahrenheit to 180 degrees Fahrenheit, through baseboard finned pipes or radiators. (HUD/DOE)

**INDIRECT GAIN SOLAR:** A type of passive solar heating system in which the storage is interposed between the collecting and the distributing surfaces (e.g., Trombe wall, water wall, or roof pond). (HUD/DOE)

**INFILTRATION:** The uncontrolled movement of outdoor air into a building through leaks, cracks, windows and doors. (HUD/DOE)

**INFRARED RADIATION:** The invisible rays just beyond the red of the visible spectrum;

their wavelengths are longer than those of the spectrum colors (0.7 to 400 microns), and they have a penetrating heating effect.

**INSOLATION:** The amount of solar radiation (direct, diffuse, or reflected) striking a surface exposed to the sky; measured in BTU per square foot per hour (or in watts per square meter). (HUD/DOE)

**INSULATION:** A material which increases resistance to heat flow. (HUD/DOE)

**ISOLATED SOLAR GAIN:** A type of passive solar heating system in which heat is collected in one area to be used in another (e.g., greenhouse or attic collector). (HUD/DOE)

**KILOWATT:** A measure of power or heat flow rate; it equals 3,413 BTU per hour. (HUD/DOE)

**KILOWATT HOUR (kWh):** The amount of energy equivalent to one kilowatt of power being used for one hour; 3,413 BTU. (HUD/DOE)

**LANGLEY:** A measure of solar radiation; it equals one calorie per square centimeter, or 3.69 BTU per square foot. (HUD/DOE)

**LATENT HEAT:** The change in heat content that occurs with a change in phase and without change in temperature; the heat stored in the material during melting or vaporization. Latent heat is recovered by freezing a liquid or by condensing a gas. (HUD/DOE)

**LIFE-CYCLE COST ANALYSIS:** The accounting of capital, interest, and operating costs over the useful life of the solar system compared to those costs without the solar system. (HUD/DOE)

**LIQUID-TYPE COLLECTOR:** A collector that uses a liquid as the heat transfer fluid. (HUD/DOE)

**MICROCLIMATE:** The variation in regional climate at a specific site; caused by topography, vegetation, soil, water conditions and construction. (HUD/DOE)

**MOVEABLE INSULATION:** A device which reduces heat loss at night or during cloud periods and permits heat gain in sunny periods (e.g., BeadwallR, insulated draperies, automatic shutters); it may also be used to reduce heat gains in summer. (HUD/DOE)

**NOCTURNAL COOLING:** A method of cooling through radiation of heat from warm surfaces to a clear night sky. (HUD/DOE)

**NONPOTABLE:** Water that is not suitable for drinking or cooling purposes. (HUD/DOE)

**NONRENEWABLE ENERGY SOURCE:** A mineral energy source which is in limited supply, such as fossil (gas, oil and coal) and nuclear fuels. (HUD/DOE)

- SOLAR RADIATION:** Energy radiated from the sun in the electromagnetic spectrum; visible light and infrared light are used by solar energy systems. (HUD/DOE)
- SOLAR THERMAL ELECTRIC POWER:** The indirect conversion of solar energy into electricity by solar collectors, a heat engine, and electrical generators. (HUD/DOE)
- SOLARIUM:** A living space enclosed by glazing; a greenhouse. (HUD/DOE)
- SPECIFIC HEAT CAPACITY:** The quantity of heat needed to change the temperature of one pound of a material by one degree Fahrenheit (or one kilogram of a material by one degree Centigrade). (HUD/DOE)
- STACK EFFECT:** The rising of heated air over a dark surface by natural convection to create a draft; used to provide summer ventilation in some passive houses. (HUD/DOE)
- STAGNATION:** A high temperature condition obtained in a solar collector when the sun is shining and no fluid is flowing through the collector; temperatures range from 250 degrees Fahrenheit to 400 degrees Fahrenheit, depending on collector design. Any condition under which a collector is losing as much heat as it gains. (HUD/DOE)
- STORAGE:** The device or medium that absorbs collected solar heat and stores it for later use. (HUD/DOE)
- STORAGE CAPACITY:** The quantity of heat that can be contained in a storage device. (HUD/DOE)
- SUNSPACE:** A living space enclosed by glazing; a solarium or greenhouse. (HUD/DOE)
- SUN-TEMPERING:** Sun-tempering is a method that involves a significant daytime solar gain and an effective distribution system but generally lacks a storage system. (HUD/DOE)
- THERM:** A quantity of heat equal to 100,000 BTU; approximately 100 cubic feet of natural gas. (HUD/DOE)
- THERMAL LAG:** In an indirect gain system, the time delay for heat to move from the outer collecting surface to the inner radiating surface. (HUD/DOE)
- THERMAL MASS:** The heat capacity of a building material (brick, concrete, adobe, or water containers). (HUD/DOE)
- THERMAL RADIATION:** See "Infrared radiation". (HUD/DOE)
- THERMAL RESISTANCE (R-VALUE):** The tendency of a material to retard the flow of heat; the reciprocal of the coefficient of heat transmission). (HUD/DOE)
- THERMOSIPHONING:** Heat transfer through a fluid (such as air or liquid) by currents resulting from the natural fall of heavier, cool fluid and rise of lighter, warm fluid. (HUD/DOE)
- TILT ANGLE:** See "Collector tilt". (HUD/DOE)
- TRACKING:** For a collector, a device which causes the panel to follow the sun. (HUD/DOE)
- TRANSFER MEDIUM:** The substance that carries heat from the solar collector to storage or from storage to the living areas. (HUD/DOE)
- TRICKLE-TYPE COLLECTOR:** A collector in which the heat transfer fluid flows in open channels on the absorber. (HUD/DOE)
- TROMBE WALL:** Masonry, typically 8 to 16 inches thick, blackened and exposed to the sun behind glazing; a passive solar heating system in which a masonry wall collects, stores and distributes heat. (HUD/DOE)
- U-VALUE:** See "Coefficient of heat transmission". (HUD/DOE)
- VAPOR BARRIER:** A waterproof liner used to prevent passage of moisture through the building structure; Vapor barriers in walls and ceilings should be located on the heated side of the building. (HUD/DOE)
- WET-BULB TEMPERATURE:** The lowest temperature attainable by evaporating water in the air; a measure of humidity. (HUD/DOE)
- ZONED HEATING:** The control of the temperature in a room or a group of rooms independently of other rooms. (HUD/DOE)

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- DRAIN:** An outlet at the deep point of a vessel or trough through which passes waste water which is to be wasted. (NSPI)
- EFFLUENT:** The outflow of water from a filter or other device. (NSPI)
- ELECTROLYSIS:** Decomposition of metal due to flow of electrical current. (NSPI)
- FACE PIPING:** The piping with all valves and fittings which is used to connect the filter system together as a unit. This includes all valves and piping necessary for the filter plant to perform the functions of filtering or backwashing, either by the plant as a whole or any unit operating singly. (NSPI)
- FEET OF HEAD:** A basic measurement of pressure or resistance in a hydraulic system which is equivalent to the height of a column of water which would cause the same resistance. (100 ft. of head is the equivalent of 43 psi). The "Total Dynamic Head" is the sum of all the resistance in a complete system when in operation. The principal factors of "head" are vertical distances and resistance due to friction of the flow against the walls of the pipe or vessel. "Friction Head" is the head loss due to friction only. (NSPI)
- POOL FLOOR:** That portion of the pool interior which is horizontal, or which is inclined 45° or less from the horizontal. (NSPI)
- POOL HEATER:** Water heater designed to heat swimming pools. Pool heaters are divided into the following types: (a) Direct-type in which pool water is contained in tubes and heated directly by flame or products of combustion. (b) Indirect-type in which pool water is contained in tubes which are immersed in a heat medium such as hot water or steam. (NSPI)
- POTABLE WATER:** Any water, such as an approved domestic water supply, which is bacteriologically safe and otherwise suitable for drinking. (NSPI)
- ppm:** An abbreviation of the term "parts per million" (parts per million gallons of water by weight). (NSPI)
- PRECOAT:** The initial coating of filter aid on the septum of a diatomaceous earth filter. (NSPI)
- PRECOAT FEEDER:** A device used to feed a calculated amount of filter aid at the start of a diatomite filter cycle - following the cleaning operation. (NSPI)
- PRESSURE DIFFERENTIAL:** The difference in pressure between two parts of a hydraulic system. (Influent and effluent of a filter, suction and discharge of a pump, the up and down-stream sides of a Venturi or orifice plate). (NSPI)
- PUMP STRAINER:** A device usually placed on the suction side of a pump which contains a removable strainer basket designed to trap debris in the water-flow with a minimum of flow restriction. (Sometimes referred to as a "Hair and Lint Trap".) (NSPI)
- QUATERNARY AMMONIUM COMPOUNDS:** Soluble cationic compounds which lower the surface tension of water and also possess algacidal and germicidal properties. (NSPI)
- RATE OF FLOW (GPM):** The measurement of the volume of flow per unit of time expressed in gallons per minute. (NSPI)
- RATE OF FLOW INDICATOR:** A device to indicate the flow in a pipe line. (Sometimes referred to as a rate-of-flow "meter".) (NSPI)
- RECIRCULATING SYSTEM:** The entire system including the suction piping, pump, strainer, filter, face piping and return piping. (NSPI)
- RETURN PIPING:** That part of the pool piping from the filter effluent to the pool. (NSPI)
- SERVICE FACTOR, (MOTORS):** A factor indicating the degree to which an electric motor can be operated over a specific horsepower without danger of overload failure. (NSPI)
- SKIMMER WEIR:** The horizontal surface over which the water flows to the circulating system. (Usually self-adjusting for water level changes). (NSPI)
- SLUICE CLEANING:** A method of cleaning filter septums or elements, usually consisting of a series of hydraulic jets about which the elements rotate during the cleaning cycle, or a set of hydraulic jets which rotate about a fixed set of elements. (NSPI)
- SODA ASH: (Na<sub>2</sub>CO<sub>3</sub>)** A dry chemical used frequently to increase pH and alkalinity in pool water. (NSPI)
- SPIN CLEANING:** A method of cleaning filter septums by virtue of rapidly rotating the elements within the filter tank containing water. Cleaning in this manner is accomplished by erosion and agitation. (NSPI)
- SUCTION PIPING:** That part of the pool piping between the pool and the suction side of the pump, usually consisting of the Main Suction, Vacuum Cleaner Suction, and/or Skimmer Suction. (NSPI)
- SURFACE SKIMMER:** A device designed to continuously remove surface film and water and return it through the filter as part of the recirculation system, usually incorporating a self-adjusting weir, a lock of the pump. (Sometimes referred to as a Recirculating Overflow, or a mechanical or automatic skimmer.) (NSPI)





**RELOCATABLE BUILDING:** A relocatable building is a factory-assembled permanent structure designed to be moved from one permanent foundation to another as need dictates. (NABM)

**RELOCATABILITY:** The ability to economically dismantle, transport to a new location, and re-erect a facility. (DOD)

**REQUIREMENT:** The qualitative statement of desired performance for the environment. (CERL)

**SECTION:** The text heading for each major element. (CRC)

**SECTIONAL (MODULAR) HOUSING:** This type of modular housing refers to units fabricated in half-house sections. Widths may vary from 10 to 14 feet, and length from 38 to 56 feet, and even greater length where permitted by highway regulations. Roof pitch is usually 3 inches in 12 to stay within shipping height limits, since most units are shipped on special flatbed trailers or transporters.

The most common shape is rectangular with 3-to-1 or 5-to-1 proportions, and units are usually shipped completely finished. (NABM)

**SERVICE SANDWICH:** The space in the horizontal plane between the top of the roof deck and the bottom of the Ceiling-Lighting Subsystem in which the Structural, HVAC, Ceiling-Lighting and Fire Sprinkler Subsystems are compatibly contained. (WSBSP)

**STANDARDIZED SUBSYSTEM:** Subsystems designed and fabricated in accordance with predetermined functional and dimensional standards established by the participating Federal and non-Federal builders. (BRAB)

**SYSTEM:** A combination of several assemblies to produce a self-contained functioning whole such as a structural system, a heating system. (CRMHRA)

**SYSTEM:** An entity comprising fully coordinated and interrelated subsystems. (CRC)

**SYSTEM:** A working totality formed of often diverse but integrated parts, subject to a common plan or serving a common purpose. (WSBSP)

**SYSTEMS (OR INDUSTRIALIZED) BUILDING:** The integration of planning, design, programming, manufacturing, site operations, scheduling, financing and management into a disciplined method of mechanized production. (ENR)

**SYSTEMS APPROACH:** Viewing a problem as a set of interrelated interdependent parts, working together for the overall objective of the whole Systems Approach, as it applied to construction (Systems Building) identifies the parts and establishes in a disciplined manner the interrelationship between the parts which include--but are not necessarily limited to--planning, design, construction, operation, maintenance, and replacement of the facility. (BRAB)

**SYSTEMS APPROACH:** A strategy for applying systems building which considers building to be divisible into a set of interrelated elements that can be individually shaped and then connected together to provide the best building system, within existing constraints, for a given purpose. (CERL)

**SYSTEMS APPROACH:** The viewing of a problem as a system, stressing the interrelation of problem elements and the relation of the problem to its larger context. (WSBSP)

**SYSTEMS BUILDING:** The designing or selecting of a building system and the using of it to construct a building project. (CERL)

**SYSTEMS BUILDING:** The approach to construction that is essentially a concept of viewing a problem as a set of interrelated interdependent parts, working together for the overall objective of the whole. (SBN)

**SYSTEMS BUILDING:** Identifies the parts which include, but are not limited to, planning, design, construction, operation, maintenance, and replacement of a facility. (SBN)

**SYSTEMS BUILDING:** Comprises the development of the tangible elements that make up the system's hardware; the manufacture of these elements and their delivery to the project in an orderly fashion; and the integration of these elements into a finished building. Systems building also includes the organization and management required to assemble the land, financing, manpower, and design support that is the project's software. (SBN)

**SYSTEMS BUILDING:** Identifies the parts which include, but are not limited to planning, design, construction, operation, maintenance, and replacement of a facility. (SBN)

**SYSTEMS BUILDING:** The application of the systems approach to construction, normally resulting in the organization of programming, planning, design, manufacturing, construction, and evaluation of buildings under single, or highly coordinated, management into an efficient total process. (WSBSP)

- OPEN BUILDING SYSTEM:** 1. A building system permitting ready interchangeability of various components, assemblies, and subsystems available on the open market; 2. A building system not having the areas of planning, designing and constructing under a single management control. (CERL)
- OPEN-PANEL CONSTRUCTION:** Open-panel construction refers to an industrialized building technique in which roof, roof trusses, wall and floor panels are shipped to the site without final exterior or interior finishing. Wiring, plumbing, and related mechanical work is usually omitted and is done at the site. Where wiring and plumbing are included, the work is clearly visible for on-site inspection. The items of open-panel construction are usually shipped flat and loaded in the proper order for quick assembly on the foundation. (NABM)
- OPEN SYSTEM:** One in which the components are interchangeable with those of other systems. (ENR)
- OPEN SYSTEMS:** Building systems in which components, assemblies, or subsystems of different make available in the open market can be used to form a complete system. This requires a high degree of modular coordination and unification of building codes. (PA)
- OPTIMIZE:** 1. To maximize desirable characteristics and or minimize undesirable characteristics. 2. To establish functional and economic balance among the performance characteristics of two or more subsystems. (WSBSP)
- OUT-OF-SYSTEMS OR NON-SYSTEMS:** All that is not part of a subsystem or the building system. (CERL)
- PANEL OR SLAB:** Panels are of precast or cast-in-place reinforced concrete with other components cast into the slab in varying degrees of complexity. Design may be load-bearing, cross wall or core-bearing. (ENR)
- PANELIZED CONSTRUCTION:** Panelized construction describes either closed-panel or open-panel techniques in manufactured housing. Generally, it refers to either fully finished or partly finished wall and floor panels, roof panels and trusses shipped flat to the site. (NABM)
- PARTS:** Major topics in the contract documents. (CRC)
- PARTS:** Components consist of parts such as pipe sections or fittings of the plumbing roughing. A part may be defined as the least complex fabricated item having its own identity. (PA)
- PARTIAL BUILDING SYSTEM:** 1. A building system which addresses only a portion of a building; 2. A building system which does not address all three areas; planning, designing and constructing. (CERL)
- PARTIAL BUILDING SYSTEM:** The combination of several essential, but not all, subsystems is referred to as an incomplete or partial building system. SCSD, which comprises five subsystems, is a good example of a partial building system. (PA)
- PARTICIPANTS:** The owners, architects, consultants, general, sub and subsystem contractors who were involved in the programs of the building systems project. (WSBSP)
- PERFORMANCE OR COMPONENTIZED:** Components result from performance specifications that also decree full compatibility of the subsystems. This system allows rearrangement of interior space. (ENR)
- PERMANENT CONSTRUCTION:** A building produced in accordance with prevailing building codes and placed on a permanent foundation is considered permanent construction. It is taxed as real property and qualifies for financing under a mortgage loan. (NABM)
- PERFORMANCE CRITERIA:** The set of detailed statements of verifiable requirements that must be met to fulfill user needs. (CERL)
- PERFORMANCE SPECIFICATION:** A specification based on performance criteria and compliance tests for a specific subsystem or component organized in a manner permitting manufacturers or contractors to bid on existing or innovative components. (WSBSP)
- PERFORMANCE REQUIREMENT:** Standards, usually based on user needs, which define the limitations or parameters of a specific component. (WSBSP)
- PERFORMANCE SPECIFICATIONS:** The translation of user needs into design criteria for specific building components. Performance specifications may be submitted to industry who can respond with an existing product which meets the criteria or with a new product. (NAUFAC)
- PERFORMANCE STANDARD:** A performance requirement adopted by a group of manufacturers or contractors, or established by a public agency, for a product. (WSBSP)
- PLANNING GRID:** A pattern generated by two or more intersecting sets of parallel lines, serving as a dimensional framework for the organization of a building plan. (WSBSP)
- POST AND BEAM (FRAME):** Usually consists of prefabricated columns and beams with panels of either structural or nonstructural function. Components can be light enough for installation by men. (ENR)

**INDUSTRIALIZED BUILDING SYSTEMS:** Can be either of two types: OPEN or CLOSED.

**OPEN SYSTEM:** One in which the components are dimensionally coordinated and performance oriented, therefore, can be interchanged with those of other systems.

**CLOSED SYSTEM:** One in which the components are peculiar to that system, and cannot be combined with those of another system. (BDC)

**INDUSTRIALIZED BUILDING:** 1. Building accomplished primarily in the manner of an industrialized process; 2. A structure built in this way.

Admittedly, the meaning of this term varies with each person's interpretation of "primarily" and of "in the manner of an industrialized process." Since virtually all building in the United States is to some extent industrialized, the possible variation in interpretation is quite large. No doubt this accounts for the fact that "industrialized building" is redefined in nearly every study or article in which it appears. Nevertheless, the above definition should provide a level of meaning, though imprecise, sufficient to understand the content in those portions of the text in which it appears. Further insight into the nature of industrialized building is provided in Chapter 2. (CERL)

**INDUSTRIALIZED BUILDING:** Factory fabrication and assembly of systems or subsystems which are transported to the job site and erected. (DOD)

**INDUSTRIALIZED BUILDING:** Factory or on the job fabrication and assembly of systems or subsystems or modules, which are transported to the job site or built on the site and erected. (NAUFAC)

**INDUSTRIALIZED BUILDING:** Programmed and systemized building using a highly mechanized flow line production throughout the entire operation. This contrasts with the traditional craft process of building with current U.S. practices, which may be described as a partially mechanized craft operation.

Prefabrication is not a prerequisite to industrialized building, even though it usually plays an important role in it. For example, reinforced concrete floor slabs can be cast in place using an assembly of reinforcing steel fabric combined with radiant heating piping and a pre-wired electric harness that are fabricated on the ground and hoisted into place. Prefabrication per se does not necessarily mean industrialization: for instance, the precast concrete panels currently produced in the U.S. fall under the heading of partially mechanized craft process.

Industrialized building encompasses both system building and prefabricated building. The two differ in their response to the needs of consumers and manufacturers. In system building, an architect designs individual buildings or projects within the framework of the system discipline. This has evolved from combining traditional site building with prefabrication of assemblies using industrial organization and mechanization, and responds to varied consumer performance requirements.

With prefabricated building, sectionalized "packages" are predesigned like any other industrially made product. These buildings evolved from the industrial concept of mass fabricating a product intended to respond to consumer needs as interpreted by the manufacturer. (PA)

**INDUSTRIALIZED BUILDING SYSTEM:** The services and products required in a building system utilizing industrialized building. (CERL)

**INDUSTRIALIZED HOUSING:** This term embraces all forms and concepts of residential, commercial and institutional housing manufactured by duplicative precision techniques applied to a wide range of materials in assembly line operations.

Industrialization encompasses all categories of concepts, systems, sub-systems and processes, including portable manufacturing facilities which may be established temporarily on the job for a single project only. (NABM)

**IN-SYSTEM:** All of the parts that make up a subsystem or the building system. (CERL)

**INTERCHANGEABILITY:** The ability of a component to be removed and relocated elsewhere in the same or different building without modification. (WSBSP)

**INTERFACE:** The common boundary or area of connection between two or more building elements, including relationship of physical fit and performance characteristics. (CRC)

**INTERFACE:** A common boundary between two modules, components, parts and/or subsystems. The end of one subsystem or sub-activity and the beginning of another. (NAUFAC)

**INTERFACE:** 1. A common boundary between two systems or components. 2. A boundary detail designed to maintain a specified relation between adjacent systems or components. (WSBSP)

**LIFE CYCLE COST:** Total owning cost during life span, not including depreciation calculated for buildings on a 25 year functional life. (WSBSP)

**BUILDING SYSTEM:** A combination of several systems to produce a completely functioning building. (CRMHRA)

**BUILDING SYSTEMS:** An entire facility made up of subsystems that have a positive interfacing relationship with each other, and is designed for an effective combination of production, installation, and performance. (DOD)

**BUILDING SYSTEM:** The method by which a variety of structural and mechanical units are assembled, erected and installed to produce structures that will function for a specified use or combination of uses. (ENR)

**BUILDING SYSTEM;** In system building, the term building system is used for an entity comprised of subsystems that are fully coordinated and interrelated. Coordination, in system building, means a positive interface relationship, whereas, in conventional construction, "noninterference" is usually considered as satisfactory coordination. In contrast to conventional building, these subsystems are not necessarily based on work sections or trade divisions, but are designed or arranged for the most efficient combination of performance and production (including installation).

A typical example is the Mechanical Core Subsystem, used extensively in European system-built housing. It consists of a factory-produced wall panel (1) usually forming the separation between kitchen and bathroom. The subsystem fulfills the following functions:

- structure (loadbearing)
- separation (visual privacy and sound resistance)
- plumbing distribution (waste, supply, vent)
- electric distribution (light and communication)
- gas distribution (cooking)
- finish (integral, or base for tile or paint)

The panel is factory made, since it is the most efficient way of producing it, and site work is reduced to merely connecting piping and hanging fixtures. In respect to performance, this subsystem responds to all criteria set forth by client and code. (PA)

**BUILDING SYSTEM:** The hardware portion of a systems building-can consist of totally integrated elements, such as a modular house or a pre-engineered metal building, or an aggregation of separate functional elements (structural, mechanical, electrical, and interior and exterior architectural). Integrated-element systems, are the closest to a single-responsibility project, in which one company contracts to supply all tangible parts of the structure (possibly excepting the foundation) and may even act as the developer. (SBN)

**BUILDING SYSTEM:** A set of building parts conceived as a whole and manufactured to be assembled with ease and without adjustment or waste. (WSBSP)

**BUILDING SYSTEM (CLOSED):** A group of integrated subsystems designed and manufactured to meet specific criteria, subsystems cannot be interchanged without modification. (NAUFAC)

**BUILDING SYSTEM (OPEN):** A group of interchangeable, compatible building subsystems that are coordinated dimensionally, which accommodate all the functional requirements of a building. (NAUFAC)

**BUILDING TYPE:** A category of buildings constructed to house a specific activity or set of activities. (CERL)

**CLOSED BUILDING SYSTEM:** A building system having a fixed combination of components, assemblies and subsystems. 2. A building system having the areas of planning, designing and constructing under a single management control. (CERL)

**CLOSED-PANEL CONSTRUCTION:** This term describes factory-assembled roofs, wall or floor panels closed in on two sides, and which may enclose factory-installed wiring, plumbing, insulation. The panels are not open for visual inspection of equipment or structure at the site. Panel size may range from room width to full house length. (NABM)

**CLOSED SYSTEM:** One in which the components are peculiar to that system and cannot be combined with those of another system. (ENR)

**CLOSED SYSTEMS:** Building systems in which assemblies or subsystems of a specific type, not available in the open market, are used to form a complete system.

Many construction systems fall in between the open and closed classifications. Certain mechanical equipment, such as elevators, can usually be used in more than one closed system. It is reported from Denmark that one stair subsystem is used by all Danish closed building systems. (PA)

**COMPATIBILITY OR INTERFACE:** The common boundary or area of connection between two or more subsystems, including both the physical fit and the overlap of performance characteristics. (CERL)

**COMPATIBILITY:** The state of functional, dimensional, economic, and aesthetic coordination between two or more building subsystems or components. See INTERFACE. (WSBSP)

**COMPONENT:** A group of parts which form a portion of a subsystem; e.g., a door and its frame and hardware as part of a partitioning subsystem. (BRAB)

**TRACER CHEMISTRY:** The use of radioactive isotopes in chemical compounds or other materials so that the material can be traced through radioactivity. (CS-9/60)

**USE FACTOR:** The fraction of the workload during which the useful beam is pointed in the direction under consideration. (CS-9/60)

**USEFUL BEAM:** That part of the primary radiation that passes through the aperture, cone or other collimator. (CS-9/60)

**WORK LOAD:** The working activity of a machine measured in milliamperes minutes per week. (CS-9/60)

**X-RAY APPARATUS:** Any source of x-rays and its high voltage supply. (CS-9/60)

**X-RAY INSTALLATION:** The area of radiation hazard under the administrative control of the person or organization possessing an x-ray source. (CS-9/60)

**X-RAYS (X-Radiation):** Electromagnetic ionizing radiation. In radiology, X-rays are often classified according to the voltage at which they are produced. The following classification according to voltage range is generally understood:

**Low Voltage X-Rays:** Voltage range up to 140 KV

**High Voltage X-Rays:** Voltage range 140 to 150 KV

**Super Voltage X-Rays:** Voltage range 150 KV to 3 MV

**Mulimillion Volt X-Rays:** Voltage higher than 3 MV. (CS-9/60)

**NUCLIDE:** A species of atom characterized by the constitution of its nucleus. (CS-9/60)

**OCCUPANCY FACTOR:** The factor by which the work load should be multiplied to correct for the degree or type of occupancy of the area in question. (CS-9/60)

**OCCUPIED AREA:** An area, that may be occupied by persons, of radiation sensitive materials. (CS-9/60)

**OCCUPIED SPACE:** Space which may be occupied by personnel during time that apparatus is in operation. (CS-9/60)

**PERMISSIBLE DOSAGE RATE:** The maximum total dose to which any part of the body of a person shall be permitted to be exposed continuously or intermittently in a given time. It shall be 0.300r per week. (CS-9/60)

**PERSONNEL METER:** A device to be worn or carried by a person for the purpose of detecting or measuring radiation received by him. (CS-9/60)

**PERSONNEL MONITORING:** The systematic periodic check of the radiation dose each person receives during his working hours. (CS-9/60)

**PHOTONS:** A unit postulated in the quantum theory. It concerns the propagation of electromagnetic energy. (CS-9/60)

**POCKET CHAMBER:** A condenser ionization chamber designed to be worn in the pocket and used for monitoring. An auxiliary charging and reading device is necessary. (CS-9/60)

**POCKET DOSIMETER:** A pocket ionization chamber containing its own electrometer. An auxiliary charging device is usually necessary. (CS-9/60)

**POSITRON:** A particle identical to an electron but having a positive charge instead of a negative common to the electron. Beta (positive) radiation is composed of positrons. (CS-9/60)

**PRIMARY RADIATION:** Radiation coming directly from the target of the x-ray tube or apparatus. Except for the useful beam, the bulk of this radiation is absorbed in the tube housing. (CS-9/60)

**PRIMARY PROTECTIVE BARRIERS:** Barriers that reduce the useful beam to the permissible dosage rate or to the required degree. (CS-9/60)

**PROTECTIVE BARRIER:** Barrier of attenuating material used to reduce radiation hazards. (CS-9/60)

**PROTECTION SURVEY:** Evaluation of the radiation hazards in an installation. It customarily includes a physical survey of the arrangement and use of equipment, and measurements of the dose rates of radiation under expected conditions of use. (CS-9/60)

**PROTECTION TUBE HOUSING:** An x-ray tube enclosure that provides radiation protection. (CS-9/60)

**PROTON:** One of the nucleus, a nuclear particle. The nucleus of the hydrogen 1 atom. It carries a positive charge of 1. Its atomic mass unit is 1.00758. The number of protons in the nucleus determines the chemical characteristics of an element and also gives the elements its atomic number. (CS-9/60)

**QUALIFIED EXPERT:** A person suited by training and experience to perform dependable radiation surveys, to oversee radiation monitoring, to estimate the degree of radiation hazard, and to advise regarding radiation protection. These men are normally physicists certified by the American Board of Radiology and Field of certification. (CS-9/60)

**QUALITY OF X-RAYS:** The term quality refers in a general way to the penetrating power of an x-ray beam.

Soft X-Rays are x-rays of low penetrating power.

Hard X-Rays are x-rays of high penetrating power. (CS-9/60)

**QUANTITY OF RADIATION:** Is the time integral of intensity. It is the total energy that has passed through unit area perpendicular to the beam and is expressed in ergs per square centimeter or watts--seconds per square centimeter. (CS-9/60)

**RAD:** Is the unit of absorbed dose and is 100 ergs/g. One millirad (1 mrad) is one thousandth of one rad. (CS-9/60)

**RADIATION:** Energy propagated through space. It is gamma rays and x-rays, alpha and beta particles, high speed electrons, neutrons, protons and other nuclear particles, but not sound or radio waves, or visible, infrared or ultraviolet light. (CS-9/60)

**RADIOACTIVITY:** The characteristics of emitting radiation. (CS-9/60)

**RADIATION FIELD:** Region in which energy is being propagated. (CS-9/60)

**RADIATION HAZARD:** Hazard that exists in any region to which a person has access while x-ray apparatus is in operation and the dosage rate is greater than the permissible dosage rate. (CS-9/60)

**RADIATION MACHINE:** Any device that produces radiation when the associated control devices are operated. (CS-9/60)

**DOSE:** The radiation delivered to a specified volume or to the whole body. The unit is the Roentgen. (CS-9/60)

**DOSE METER:** An instrument that measures radiation dose. (CS-9/60)

**DOSE RATE:** The radiation dose delivered per unit time. (CS-9/60)

**DIAGNOSTIC-TYPE PROTECTIVE TUBE HOUSING:** Tube housings in which the direct radiation is reduced to at most 0.0r per hour at a distance of 1 meter from the tube target when the tube is operating continuously at its maximum rated current for the maximum rated voltage. (CS-9/60)

**ELECTRON:** One of the atomic particles carrying an electric charge of 1 and orbiting about the atomic nucleus. Its negative charge equals the positive charge of the proton and establishes electrical balance in the atom. (CS-9/60)

**ELECTRON VOLT:** The kinetic energy a particle acquires if it carries 1 electronic charge and falls freely through a potential of 1 volt. (CS-9/60)

**ELECTROMETER:** An instrument for measuring the difference in electric potential between two points. (CS-9/60)

**ELECTROMETER TUBE:** An electronic tube specially designed and constructed to measure very small electric potentials. (CS-9/60)

**ELECTROSCOPE:** An instrument for detecting the presence of an electric charge on a body. (CS-9/60)

**EXCESSIVE RADIATION DOSE:** A dose of radiation in excess of the maximum permissible dose. (CS-9/60)

**EXPOSURE:** The total quantity of radiation at a given point, measurable in air. The measurement of exposure is made at a given point in the radiation field without the presence of a scattering body. (CS-9/60)

**EXPOSURE RATE:** The amount of radiation (exposure) delivered at a given point per unit time. (CS-9/60)

**FILM BADGE:** Appropriately packaged x-ray-sensitive film for detecting radiation received by persons. It is usually dental-film size, and worn or carried on the person. Films used in dosimetry are not standard x-ray or dental films. They are special films designed specifically for the purpose. (CS-9/60)

**FILTER:** Material placed in the useful beam to absorb preferentially the less penetrating radiations. (Added Filter: Filter added to the inherent filter). (CS-9/60)

**FISSION:** The breaking apart or "splitting" of the nucleus into two parts through the

action of collision with another particle, in particular a neutron. (CS-9/60)

**FISSIONABLE MATERIAL:** Elements which contain nuclei subject to fission under particle bombardment. Plutonium, thorium, uranium 238, 235, are typical. (CS-9/60)

**FUSION:** The combining of nuclear particles through thermal effect. (CS-9/60)

**FULLY PROTECTIVE TUBE HOUSING:** Tube housing in which the direct radiation is reduced to at most 6.25 mr per hour at contact with the tube housing when the tube is continuously operated at its maximum rated current for the maximum rated voltage. (CS-9/60)

**GAMMA RADIATION:** The emission of electromagnetic waves of shorter length than the x-rays used in medicine and of higher intensity. Due to the immense quantity emitted and their power to penetrate materials even at a distance, this is the most damaging type of radiation. (CS-9/60)

**GEIGER-MULLER COUNTER:** (GM Counter)-- A radiation detection instrument based on the ionization of gas. (CS-9/60)

**HALF-LIFE:** The time required for the radiation of a radioactive substance to decrease by one-half.

**HALF-VALUE LAYER (HV6):** The thickness of attenuating material necessary to reduce the dose rate of any X-ray beam to one-half of its original value. (CS-9/60)

**HARMFUL EFFECT:** Any body injury, disease, or impairment, except where such condition is transitory, infrequent or of short duration and does not endanger persons so affected. (CS-9/60)

**HEAVY PARTICLE RADIATION:** Particulate ionizing radiation consisting of atomic nuclei of any mass traveling at high speed. (Protons, deuterons, helium nuclei, etc.) Alpha rays constitute a special kind of heavy particle radiation. (CS-9/60)

**HOT:** A colloquial term meaning highly radioactive. (CS-9/60)

**HOT LABORATORY:** A laboratory designed for handling of radioactive materials where the strengths of radioactive sources are so high (50 millicuries and up) that special precautions in handling are necessary. (CS-9/60)

**INFRARED RADIATION:** Invisible radiation of a thermal nature whose wave is just beyond the red segment of the visible spectrum. (CS-9/60)



- PASSIVE SOLAR ENERGY SYSTEMS AND CONCEPTS:** Passive solar heating applications generally involve energy collection through south-facing glazed areas; energy storage in the building mass or in special storage elements; energy distribution by natural means such as convection, conduction, or radiation with only minimal use of low-power fans or pumps; and a method controlling both high and low temperatures and energy flows. Passive cooling applications usually include methods of shading collector areas from exposure to the summer sun and provisions to induce ventilation to reduce internal temperatures and humidity. (HUD/DOE)
- PAYBACK:** The time needed to recover the investment in a solar energy system. (HUD/DOE)
- PEAK LOAD:** The maximum instantaneous demand for electrical power which determines the generating capacity required by a public utility. (HUD/DOE)
- PERCENT POSSIBLE SUNSHINE:** The amount of radiation available compared to the amount which would be present if there were no cloud cover; usually measured on a monthly basis. (HUD/DOE)
- PHASE-CHANGE:** See "Latent Heat". (HUD/DOE)
- PHOTOVOLTAIC CELL:** A device without any moving parts that converts light directly into electricity by the excitement of electrons. (HUD/DOE)
- POTABLE:** Water that is suitable for drinking or cooling purposes, meeting the requirements of appropriate health officials. (HUD/DOE)
- PREHEAT:** The use of solar energy to partially heat a substance, such as domestic potable water, prior to heating it to a higher desired temperature with auxiliary fuel. (HUD/DOE)
- PYRANOMETER:** An instrument for measuring direct and diffuse solar radiation. (HUD/DOE)
- PYRHELIOMETER:** An instrument that measures the intensity of the direct radiation from the sun; the diffuse component is not measured. (HUD/DOE)
- RADIATION:** The process by which energy flows from one body to another when the bodies are separated by a space, even when a vacuum exists between them. (HUD/DOE)
- REFRIGERANT:** Fluid, such as Freon<sup>R</sup>, that is used in heating or cooling devices, such as heat pumps, air conditioners, or solar collectors. (HUD/DOE)
- RENEWABLE ENERGY SOURCE:** Solar energy and certain forms derived from it, such as wind, biomass and hydro. (HUD/DOE)
- RERADIATION:** The emission of previously absorbed radiation. (HUD/DOE)
- RETROFIT:** To modify an existing building by adding a solar heating system or insulation. (HUD/DOE)
- ROCK BIN OR ROCK BED:** A heat storage container filled with rocks or pebbles, used in air solar heating/cooling systems. (HUD/DOE)
- R-VALUE:** See "Thermal Resistance". (HUD/DOE)
- SEASONAL EFFICIENCY:** The ratio of the solar energy collected and used to the solar energy striking the collector; measured over an entire heating season. (HUD/DOE)
- SELECTIVE SURFACE:** A surface that is a good absorber of sunlight but a poor emitter of thermal radiation; used as a coating for absorbers to increase collector efficiency. (HUD/DOE)
- SENSIBLE HEAT:** Heat which, when gained or lost, results in a change in temperature. (HUD/DOE)
- SHADING COEFFICIENT:** The ratio of the amount of sunlight transmitted through a window under specific conditions to the amount of sunlight transmitted through a single layer of common window glass under the same conditions. (HUD/DOE)
- SOLAR ACCESS OR SOLAR RIGHTS:** The ability to receive direct sunlight which has passed over land located to the south; the protection of solar access is a legal issue. (HUD/DOE)
- SOLAR CELL:** See "Photovoltaic cell". (HUD/DOE)
- SOLAR COLLECTOR:** A device which collects solar radiation and converts it to heat. (HUD/DOE)
- SOLAR CONSTANT:** The average intensity of solar radiation reaching the earth outside the atmosphere; 429.2 BTU per square foot per hour (or 1,354 watts per square meter). (HUD/DOE)
- SOLAR FRACTION:** The percentage of a building's seasonal heating requirement provided by a solar system. (HUD/DOE)
- SOLAR FURNACE:** A solar concentrator used to produce very high temperatures; also a trade name for a modular air heating system, usually ground-mounted, with rock storage. (HUD/DOE)
- SOLAR GAIN:** The part of a building's heating load, or an additional cooling load, which is provided by solar radiation striking the building or passing into the building through windows. (HUD/DOE)
- SOLAR NOON:** The time of day when the sun is due south; halfway between sunrise and sunset. (HUD/DOE)

- CONVECTION, NATURAL:** The motion of a gas or liquid, caused by temperature or density difference, by which heat is transported. (HUD/DOE)
- COOLING POND:** A large body of water that loses heat from its surface, largely by evaporation but also by convection and radiation. (HUD/DOE)
- COOLING TOWER:** A device for cooling water by evaporation. (HUD/DOE)
- COVER PLATE:** A layer of glass or transparent plastic placed above the absorber plate in a flat-plate collector to reduce heat losses. (HUD/DOE)
- DAMPER:** A control which permits, prevents, or controls the passage of air through a duct. (HUD/DOE)
- DEGREE-DAY:** A unit of measurement for outside temperature; it is the difference between a fixed temperature (usually 65 degrees Fahrenheit (18 degrees Centigrade) and the average temperature for the day. (HUD/DOE)
- DESIGN HEATING LOAD:** The total heat loss from a building under the most severe winter conditions likely to occur. (HUD/DOE)
- DESIGN OUTSIDE TEMPERATURE:** The lowest outdoor temperature expected during a heating season. (HUD/DOE)
- DIFFUSE RADIATION:** Indirect scattered sunlight which casts no shadow. (HUD/DOE)
- DIRECT RADIATION:** Sunlight which casts shadows, also called beam radiation. (HUD/DOE)
- DIRECT SOLAR GAIN:** A type of passive solar heating system in which solar radiation passes through the south-facing living space before being stored in the thermal mass for long-term heating. (HUD/DOE)
- DISTRIBUTION:** The movement of collected heat to the living areas from collectors or storage. (HUD/DOE)
- DIURNAL TEMPERATURE RANGE:** The variation in outdoor temperature between day and night. (HUD/DOE)
- DOUBLE-GLAZED:** Covered by two layers of glazing material (commonly, glass or plastic.) (HUD/DOE)
- DOUBLE-WALLED HEAT EXCHANGER:** A heat exchanger which separates the collector fluid from the potable water by two surfaces; it is required if the collector fluid is nonpotable. (HUD/DOE)
- DRAINBACK:** A type of liquid heating system which is designed to drain into a tank when the pump is off. (HUD/DOE)
- DRAINDOWN:** A type of liquid heating system which protects collectors from freezing by automatically draining when the pump is turned off. (HUD/DOE)
- EARTH BERM:** A mound of dirt that abuts a building wall to stabilize interior temperature or to deflect the wind. (HUD/DOE)
- EMISSIVITY:** The ratio of the energy radiated by a body to the energy radiated by a black body at the same temperature. (HUD/DOE)
- ENERGY AUDIT:** An accounting of the forms of energy used during a designated period, such as monthly. (HUD/DOE)
- EUTECTIC SALTS:** A mixture of two or more pure materials which melts at a constant temperature; a material which stores large amounts of latent heat. (HUD/DOE)
- EVAPORATIVE SALTS:** A mixture of two or more pure materials which melts at a constant temperature; a material which stores large amounts of latent heat. (HUD/DOE)
- FAN COIL:** A unit consisting of a fan and a heat exchanger which transfers heat from liquid to air (or vice versa); usually located in a duct. (HUD/DOE)
- FLAT-PLATE COLLECTOR:** A solar collection device in which sunlight is converted to heat on a flat surface; air or liquid flows through the collector to remove the heat. (HUD/DOE)
- FLYWHEEL EFFECT:** The damping of interior temperature fluctuations by massive construction. (See Diurnal). (HUD/DOE)
- FORCED-AIR HEAT:** A conventional heating distribution system which uses a blower to circulate heated air. (HUD/DOE)
- GALVANIC CORROSION:** The deterioration of tanks, pipes, or pumps, which occurs when a conducting liquid permits electrical contact between two different metals, causing the more active metal to corrode. (HUD/DOE)
- GLAUBER'S SALTS:** A term for sodium sulfate decahydrate, which melts at 90 degrees Fahrenheit; a component of eutectic salts. (HUD/DOE)
- GLAZING:** A material which is translucent or transparent to solar radiation. (HUD/DOE)
- GREENHOUSE:** In passive solar design, an attached glazed area from which heat is withdrawn to the living space during the day. (HUD/DOE)
- HEAT CAPACITY (SPECIFIC HEAT):** The quantity of heat required to raise the temperature of a given mass of a substance one degree Fahrenheit. (HUD/DOE)