

Construction Management and LEED Glossary of Terms

Compliments of
zumBrunnen, Inc.



zumBrunnen

Construction Consulting
and Facility Assessment



zumBrunnen
Independent Building Consultants



▶ **Building Experts. Building Value.**

Construction Management and LEED Glossary of Terms

Compliments
Of

zumBrunnen, Inc.
Atlanta, GA

This glossary of terms was created to assist those who desire to learn more about the construction industry. We hope you enjoy this compilation of construction management and consulting-related terms, and that it helps to assist you in understanding the common terms and abbreviations used in zumBrunnen's construction monitoring reports.

John H. zumBrunnen
President

For additional terms or comments, please contact zumBrunnen

Construction Management and LEED Glossary of Terms

- A -

ACM – Additional Construction Management

ADA - The Americans with Disabilities Act which gives civil rights protection to individuals with disabilities similar to those provided to individuals on the basis of race, color, sex, national origin, age, and religion. It guarantees equal opportunity for individuals with disabilities in public accommodations, employment, transportation, State and local government services, and telecommunications.

Addendum - (Addenda) Written information adding to, clarifying or modifying the bidding documents. An addendum is issued by the Owner to the Contractor during the bidding process and as such, addenda are intended to become part of the contract documents when the construction contract is executed.

A/E - Architect/Engineer; the design professional hired by the Owner to provide design and design-related services.

Agency CM (ACM) - (CM Without Risk). A contractual form of the CM system exclusively performed in an agency relationship between the Construction Manager and Owner. ACM is the form from which other CM forms and variations are derived.

Agent - One authorized by a client (principal) to act in his/her stead or behalf and owes the client a "fiduciary duty" (Trust). Example: Construction Manager for fee but classified as an independent contractor for tax purposes. A construction manager for fee does not have any financial responsibility whereas a construction manager at-risk does have financial risk similar to a general contractor.

AIA - American Institute of Architects

Application for Payment - Contractor's written request for payment for completed portions of the work and, for materials delivered or stored and properly labeled for the respective project. (e.g., American Institute of Architects – AIA, Forms G-702 and G-703)

Arbitration (Binding) – A method by which processes for bringing about agreement or reconciliation between opponents in a dispute is designated. Arbitration involves a formal

deliberation, it being understood that the results will be binding on the contending parties.

Arbitration (Non-Binding) – A method by which processes for bringing about agreement or reconciliation between opponents in a dispute is designated. Arbitration involves a formal deliberation, it being understood that the results are not binding on the contending parties and relief in the court system is an additional remedy if desired.

Architect - An individual or firm who designs and supervises the professional design for the construction of buildings or other structures.

Architect-Engineer (A/E) - An individual or firm offering professional services as both architect and engineer.

Architect's Supplemental Instructions (ASI) A document written by the Architect containing additional instructions regarding the Contract specifications or drawings. Generally, the Architect uses an ASI when the information is not anticipated to cause a change to the Contract. If the Contractor believes these instructions are a change to the Contract, he can write a COP.

As-Built Drawings - Drawings marked up to reflect changes made during the construction process or after construction that amend the contract drawings to show the exact location, geometry, and dimensions of the constructed project. It is good practice to make as-built drawings by marking the changes as the project unfolds. As-built drawings are not the same as Record Drawings.

- B -

Bank Inspector – An independent consultant engaged by a construction lender to provide periodic site inspections, to opine on construction schedule and general compliance, and to make recommendations for contractor payment application. Inspections are made during the construction phase of a project development, expansion or renovation and are performed for the benefit of the bank. Bank Inspector scope-of-services are not the same as a Construction Monitor.

Baseline Building Performance - A term used in the LEED certification process that describes the annual

energy cost for a building design intended for use as a baseline for rating above standard design as defined by ASHRAE 90.1.

Beneficial Occupancy – The point wherein the project is substantially complete in nature to allow the Owner to utilize the project for its intended use. The mechanical systems, life safety systems, telecommunications systems and any other systems which are required to properly utilize the project are complete and in good working order. The remaining items to be completed shall be such that the correction does not cause inconvenience to the Owner or disruption to the Owner's normal operations.

Bid Bond - A written form of security executed by the bidder as principal and by a surety for the purpose of guaranteeing that the bidder will sign the contract, if awarded the contract, for the stated bid amount. The Surety is a third-party that makes a pledge to pay damages to the Owner if the bonded contractor declines an award offered by the Owner.

Bid Documents - The documents distributed to contractors by the Owner for bidding purposes. They include drawings, specifications, form of contract, general and supplementary conditions, proposal forms, and other information including addenda.

Bond - A written form of security from a surety company, on behalf of a prime contractor or subcontractor, guaranteeing execution of the contract and all supplemental agreements pertaining thereto and for the payment of all legal debts pertaining to the construction of the project. (See Bid Bond, Payment Bond, Performance Bond, Labor and Material Payment Bond, or Subcontractor Bond.)

Bonding Company - A properly licensed surety willing to execute a surety bond, or bonds, payable to the Owner, securing the performance on a contract either in whole or in part; or securing payment for labor and materials.

Budget Analysis - Budget analysis as to sufficiency of funds takes into consideration various factors. A cost-to-complete estimate must be developed and compared to the balance of funds. This analysis may include consideration for (i) contractor performance; (ii) percent completion and schedule status; (iii) status of contract buyout and contingency; (iii) potential for shared savings; and (iv) various other risk factors as deemed pertinent. This estimate typically does not include projections

for discretionary change orders, unless otherwise noted.

Building Code - The legal requirements established by the various governing agencies covering the minimum acceptable requirements for all types of construction. (See also Codes.)

Building Envelope - (1) The elements of a building which enclose conditioned spaces and intended to keep water from entering. (2) The outer structure of the building. (sometimes referred to as "Building Shell")

Building Inspector/Official - A government representative authorized to inspect construction for compliance with applicable building codes, regulations and ordinances. Courts have ruled that government agencies' building inspectors are exempt from errors and omissions liabilities.

Building Permit - A written document issued by the appropriate governmental authority permitting construction to begin on a specific project.

Budget Summary Table - A table summarizing the hard cost budget funds and committed hard cost contingency to date to determine the remaining (balance) hard cost contingency. The purpose of this table is to help provide the earliest possible notice of a budget overrun.

- C -

Certified Wood - A term used in the LEED certification process that describes the use of wood that is certified in accordance with the Forest Stewardship Council (FSC) Principles and Criteria for wood building components. This is wood that originates from sources that practice environmentally responsible forest management.

Change Order - A written document between the Owner and the Contractor signed by the Owner, Architect, and the Contractor authorizing a change in the project documents, adjustment in the contract sum and/or the contract time. Proper contract administration requires the contract terms, scope, sum and the contract time to be changed only by change order. The recommended document for this is the AIA Document G701.

Change Order Proposal (COP) - A written change document before it has been approved by the Contractor,



Architect, and Owner. A change order proposal can be issued by the Contractor, Architect, or the Owner. The change order proposal becomes a change order only after it has been approved and by the Contractor, Owner, and Architect.

Change Order Request (COR) - A written document requesting an adjustment to the contract sum or an extension of the contract time; issued by the Architect, Owner, or Contractor.

Changed Conditions - Conditions or circumstances, physical or otherwise, which surface after a contract has been signed and which alter the circumstances or conditions on which the contract is based, i.e., Concealed Conditions or Latent Conditions.

Chart of Accounts - An alpha/numeric accounting system used by the Contractor to ensure that the project expenditures are properly debited/credited in the project budget as payments are made in behalf of the project.

Claim - A formal notice sent by a Contractor to an Owner asserting the fact that the terms of the contract have changed and compensation is being sought by the Contractor from the Owner.

Clerk-of-the-Works - An individual employed by an Owner to represent him on a project at the site of the work. The clerk-of-the-work's abilities, credentials, and responsibilities vary at the discretion of the Owner.

CM - The abbreviation for Construction Management and Construction Manager (a firm that provides CM services or persons who work for a CM firm).

CM Fee Plus Reimbursables - A form of payment for CM services where the construction manager is paid a fixed or percentage fee for CM expertise, plus pre-established hourly, daily, weekly, or monthly costs for field personnel and equipment.

CM Partnering - A contractual commitment by the Owner, A/E, and CM to achieve a common goal, and doing so without a stake holder's exposure to a potential for conflict of interest in pursuit of that goal.

CM Services - The scope of services provided by a construction manager and available to owners in whole or in part. CM services are not consistent in scope or performance from one CM firm to another.

Revised September 2010

Codes - Prevailing regulations, ordinances or statutory requirements set forth by governmental agencies associated with building construction practices and owner occupancy, adopted and administered for the protection of public health, life safety and welfare. (See Building Code.)

Commissioning - The process at or near construction completion when various mechanical, electrical, and plumbing systems are tested and checked for compliance with the design, and are operating properly.

Committed HC Contingency - See "HC Contingency Committed"

Completion Schedule Analysis - See "Project Completion Graph (S-Curve)"

Constructability - The optimizing of cost, time, and quality factors with the material, equipment, construction means, methods, and techniques used on a project; accomplished by matching owner values with available construction industry practices.

Construction Budget - The target cost figure covering the construction phase of a project. It includes the cost of contracts with trade contractors, construction support items other purchased labor, material and equipment, and the construction manager's cost but not the cost of land, A/E fees, or consultant fees.

Construction Change Directive (CCD) - A construction change directive is a written order signed by the Owner and Architect directing the Contractor to make a change in the work and stating a proposed basis for any appropriate adjustment in the contract sum or the contract time. This may result in a change order if an agreement is reached between the Contractor and the Owner. But even in the absence of total agreement, the construction change directive by itself constitutes a change in the contract documents, with determination of any appropriate adjustment in contract sum or contract time being handled in accordance with specified detailed procedures at a later date.

Construction Documents - All drawings, specifications and addenda associated with a specific construction project. These documents delineate and graphically represent the physical construction requirements established by the A/E.

Construction Documents Phase - The third phase of the Architect's basic



services wherein the Architect prepares working drawings, specifications and bidding information.

Construction Document Review - One party's review of another party's construction documents for the purpose of confirming that these documents and estimates are feasible and are in accordance with the proposed loan or project appraisal.

Construction IAQ Management Plan - A term used in the LEED certification process that describes a document specific to a building project that outlines measures to minimize contamination in the building during construction and to flush the building of contaminants prior to occupancy.

Construction Management (CM) – (1) A project delivery system that uses a construction manager to facilitate the design and construction of a project by organizing and directing men, materials, and equipment to accomplish the purpose of the design. (2) A professional service that applies effective management techniques to the planning, design, and construction of a project from inception to completion for the purpose of controlling time, cost and quality, as defined by the Construction Management Association of America (CMAA).

Construction Management Contract - A written agreement wherein responsibilities for coordination and accomplishment of overall project planning, design and construction are given to a construction management firm. The building team generally consists of the Owner, Contractor, and Designer or Architect.

Construction Manager - A business organization with the expertise and resources to manage the design, contracting, and construction aspects of project delivery. Individuals who work for a CM Firm are also referred to as Construction Managers.

Construction Monitor – An independent construction consultant engaged by a member(s) of the financial team to observe and report pertaining to the current status of a construction project schedule, project budget, hard cost payment approvals, and contract administration compliance, and tracks critical action items. The Construction Monitor acts as an independent facilitator and reports all findings in an objective manner.

Construction Schedule - A graphic, tabular or CPM representation or depiction of the

construction portion of the project-delivery process, showing activities, durations, and projected completion dates.

Construction Waste Management - A term used in the LEED certification process that describes the diversion of construction and demolition debris from disposal in landfills and incinerators. This process redirects recyclable resources back to the manufacturing process and redirects reusable materials to appropriate sites.

Contingency - Line-item amounts in the project budget, or contractor's schedule of values intended to cover costs of unknown, unforeseeable, or missed cost items. Contingency may be owner-controlled or contractor-controlled.

Contingency within the GMP (GMP Contingency) – Contractor-controlled contingency; see Contingency

Contingency Graph – See Project HC Contingency Graph

Contract Administration - The contractual duties and responsibilities of the A/E, Contractor, or CM during the construction phase of a project for servicing the interactive provisions in the contract for construction.

Contract Document Phase - The final phase of design on an architectural project when construction documents are completed and bidding documents are formulated. See also "Construction Documents Phase".

Contract Documents - A term used to represent all documents (any general, supplementary, or other contract conditions, the drawings and specifications, all bidding documents, addenda issued prior to execution of the contract and post-award Change Orders, and any other items specifically stipulated as being included in the contract documents) which collectively form the contract between the Contractor and the Owner.

Contract Performance Bond - A written form of security from a surety company to the Owner, on behalf of an acceptable prime or main contractor or subcontractor, guaranteeing the completion of the work in accordance with the terms of the contract.

Contract Substantial Completion – The project contract documents will

define substantial completion, which is the contract substantial completion requirement. Contract substantial completion may or may not have additional requirements to be achieved before a project is deemed substantially complete by the Architect and Owner. Typically, substantial completion is achieved when the facility is complete enough to be used for its intended use. The Architect will issue a certificate of Substantial Completion, which is typically an AIA Document G704.

Contract Sum - The total dollar amount payable by the Owner to the Contractor for the performance of the work under the contract documents.

Contract Time - The time period set forth and established in the contract documents for completing a specific project; usually stated in working days or calendar days. The contract time can only be adjusted by valid time extensions through change order.

Contractor's Option - A written provision in the contract documents giving the Contractor the option of selecting certain specified materials, methods or systems without changes in the contract sum.

Contractor's Qualification Statement - A written statement of the Contractor's experience and qualifications submitted to the Owner during the Contractor selection process. The American Institute of Architects publishes a standard Contractor's Qualification Statement form for this purpose.

Cost Breakdown - A financial statement furnished by the Contractor delineating the portions of the contract sum allotted for the various parts of the work and used as the basis for reviewing the Contractor's applications for progress payments. See also "Schedule of Values".

Cost Codes - A numbering system given to specific kinds of work for the purpose of organizing the cost control process of a specific project.

Cost of Construction - The target cost figure covering the construction phase of a project. It includes the cost of contracts with trade contractors, construction support items other purchased labor, material and equipment, and the construction manager's cost but not the cost of land, A/E fees, or consultant fees.

Cost-of-Work - All costs incurred by the Contractor in the proper performance of the work required by the plans and specifications for a specific project. The term is more specifically defined in all GMP contracts.

Cost-Plus Contract - A form of contract usually between an Owner and Contractor, A/E design professional, or CM, under which the Contractor, A/E, or CM is reimbursed for direct and indirect costs plus a fee for services. The fee is usually stated as a stipulated sum or as a percentage of cost.

Cost Plus Fee Agreement - A written agreement under which services are provided by a Contractor, Architect, Engineer, or CM for the cost of work plus a specified fee.

Cost-To-Complete - All costs remaining to complete construction of the project to obtain a certificate of occupancy and occupy the project for its intended use. These costs can be further defined as Contract, Owner, hard or soft cost-to-complete.

Critical Path - (1) The continuous chain of activities from project-start to project-finish, whose durations cannot be exceeded if the project is to be completed on time. (2) A sequence of activities that collectively require the longest duration to complete (the duration of the sequence is the shortest possible time from the start event to the finish event). Activities on the critical path have no float time.

Critical Path Method (CPM) - A planning scheduling and control line and symbol diagram drawn to show the respective activities involved in constructing a specific project. A CPM schedule shows activity duration and inter-dependence.

CSI - Abbreviation for the Construction Specification Institute

CSI Master Format - The CSI Master Format is a system of numbers and titles for organizing construction information into a regular, standard order or sequence. By establishing a master list of titles and numbers Master Format promotes standardization and thereby facilitates the retrieval of information and improves construction communication. It provides a uniform system for organizing information in project manuals, for organizing project cost data, and for filing product information and other technical data.

- D -

Daily Construction Report - A written document and record that has two main purposes: (1) Furnish information to off-site persons concerning important details of events as they occur daily and hourly, and (2) Furnish historical documentation that might later have a legal bearing in cases of disputes. Daily reports should be as factual and impersonal as possible, free from the expression of personal opinions and feelings. Each report should be numbered to correspond with the working days established on the progress schedule. In the event of no-work days, a daily report should still be made, stating "no work today" (due to rain, strike, or other causes). The report includes a description of the weather; a record of the total number of employees, subcontractors by name, work started and completed today, equipment on the job site, job progress today, names and titles of visitors, accidents and/or safety meetings, and a remarks column for other job related information.

Date of Agreement - (1) Usually on the front page of the agreement; (2) If not on front page it may be the date opposite the signatures when the agreement was actually signed; (3) or when it was recorded; (4) or the date the agreement was actually awarded to the Contractor.

Date of Commencement of the Work - The date established in a written notice to proceed from the Owner to the Contractor.

Date of Substantial Completion - The date certified by the Architect when the work or a designated portion thereof is substantially complete. The Architect will document this date on an AIA Document G704.

Daylighting - A term used in the LEED certification process that describes the controlled admission of natural light into a space through glazing with the intent of reducing or eliminating electric lighting.

Demising Walls - The boundaries that separate your space from your neighbors' or from the public spaces.

Design-Build (D-B) - A project delivery method where a design-build contractor (contractor-led D-B), A/E design professional (design-led D-B) or CM (CM-led D-B) is directly responsible for both the total project design and construction of the project. Design-Build liability can be explicitly conveyed through the contract documents or

implicitly conveyed through the assumption of project-specific design liability, via performance specifications.

Design Development Phase – (1) The second phase of the Architect's basic services wherein the Architect prepares drawings and other presentation documents to fix and describe the size and character of the entire project as to architectural, structural, mechanical, and electrical systems; materials; and other essentials as may be appropriate; and prepares a statement of probable construction cost. (2) The term used on architectural projects to describe the transitional phase from the Schematic Phase to the Contract Document Phase during design.

Design-XCM - A variation of the extended services form of CM, where the A/E also provides the CM function.

Direct Costs - The costs directly attributed to a work-scope, such as labor, material, equipment, and subcontracts but not the cost of operations overhead and the labor, materials, equipment, and subcontracts expended in support of the undertaking. Direct Costs, Hard Costs, and Construction Costs are synonymous.

Discretionary Change Order – Owner directed change order not required for completion of the project for the projects' intended use and in accordance with the construction contract.

Division of Work - A portion of the total project reserved for contractors for bidding and performance purposes, i.e., Bid Division or Work-Scope.

- E -

Engineer - A professional individual who is licensed by the state to practice a specific engineering discipline.

Energy STAR Rating - is a government-backed program helping businesses and individuals protect the environment through superior energy efficiency. It is also a term used in the LEED certification process that describes the rating a building earns using the Energy STAR Portfolio Manager to compare building energy performance to similar buildings in similar climates. A score of 50 represents average performance.

Enhanced/Fundamental Commissioning - A term used in the LEED certification process that describes the verification that a building's energy related systems are installed, calibrated and perform according to the Owner's project requirements, basis of design and construction documents.

Escrow Account - (1) Money put into the custody of the third party by the first party for disbursement to the second party. (2) A brief temporary depository for progress payments until authorized for release according to the depositor's explicit instructions.

Estimated Cost-to-Complete - An estimate of the cost yet to be expended on a work-scope in order to complete it. The difference between the Cost to Date and the Estimated Final Cost.

Estimated Final Cost - An estimate of the final cost of a work item based on its Cost-to-Date and the estimated cost to complete it. The sum of the Cost-to-Date and the Estimated Cost-to-Complete.

Estimate of Construction Cost - A calculation of costs prepared on the basis of (1) A detailed analysis of materials and labor for all items of work, or (2) On current area, volume, or similar unit costs.

Extended Services-CM - A form of CM where other services such as design, construction, and contracting are included with ACM services provided by the construction manager.

- F -

Fast Track Construction - A method of construction management which involves a continuous design-construction operation. This usually involves a prime or main contractor starting the construction work before the plans and specifications are complete.

Feasibility Phase - The conceptual phase of a project preceding the Design Phase used to determine from various perspectives whether a project should be constructed or not.

Fee Enhancement - The awarding of an additional fee, over and above the basic fee for services, based on the performance quality of the party providing the basic service.

FF&E - (1) An abbreviation for furniture, fixtures and equipment; (2) Items classified as personal

property rather than real property; (3) An abbreviation generally associated with interior design and planning of retail stores or office facilities.

Field Order (FO) - A written order issued to a Contractor by the Owner, or Owner's Representative, i.e., A/E design professional, effecting a minor change or clarification with instructions to perform work not included in the contract for construction. The work will eventually become a Change Order. A Field Order is an expedient process used in an emergency or need situation, which in many cases does not involve an adjustment to the contract sum or an extension of the contract time. See also "Construction Change Directive."

Field Schedule - A graphic, tabular or narrative representation or depiction of the construction portion of the project-delivery process, showing field activities and durations in sequential order. A short-interval, field-based schedule that plans contractor and subcontractor activities on a month-to-month, week-to-week, or day-to-day basis from the project milestone schedule.

Field Work Order (FWO) - A written request to a subcontractor or vendor, usually from the general or main contractor, for services or materials.

Final Acceptance - The action of the Owner accepting the work from the Contractor when the Owner deems the work completed in accordance with the contract requirements. Final acceptance is confirmed by the Owner when making the final payment to the Contractor.

Final Completion - The point at which both parties to a contract declare the other has satisfactorily completed its responsibilities under the contract.

Final Design Phase - The designation used by engineers for the last portion of the design process prior to bidding.

Final Inspection - A final site review of the project by the Contractor, Owner or Owner's Authorized Representative prior to issuing the final certificate for payment.

Final Payment - The last payment from the Owner to the Contractor of the entire unpaid balance of the contract sum as adjusted by any approved change orders.

Financial and Management Control System - A manual or computerized management control system used by the project team to guide the course of a project and record its status and progress.

Fixed Fee - A set contract amount for all labor, materials, equipment and services; and contractors' overhead and profit for all work being performed for a specific scope of work.

Fixed Limit of Construction Costs - A construction cost ceiling agreed to between the Owner and Architect or Engineer for designing a specific project.

Float - A scheduling term indicating that an activity or a sequence of activities does not necessarily have to start or end on the scheduled date to maintain the schedule on the critical path. The difference between the early start and late finish of an activity, minus the activities duration.

Fundamental / Enhanced Refrigerant Management - A term used in the LEED certification process that describes the process of using non-CFC based refrigerants or refrigerants with low ozone depletion and global warming characteristics in air conditioning and refrigeration equipment to reduce ozone depletion in the earth's atmosphere.

- G -

General Conditions - A written portion of the contract documents set forth by the Owner stipulating the Contractor's minimum acceptable performance requirements including the rights, responsibilities and relationships of the parties involved in the performance of the contract. General conditions are usually included in the book of specifications but are sometimes found in the architectural drawings.

General Condition Items - Purchases, services, or materials required to facilitate construction at the site. As part of the construction budget, these are financial obligations of the Owner and the logistic responsibility of the CM.

General Conditions (of the Contract for Construction) - The part of the contract that prescribes the rights, responsibilities, and relationships of the parties signing the agreement and outlines the administration of the

contract for construction, e.g., American Institute of Architects (AIA) Document A201.

General Contractor (GC) - A properly licensed individual or company having "primary" responsibility for the work. A GC can perform work with its own contractors or can perform the project work as an independent contractor, providing services to owners through the use of subcontractors when using the general contracting system. In the latter case, the GC is referred to as "Paper Contractor".

GMP Contingency (Contingency within the GMP) – Contractor-controlled contingency.

Green Roofs – A roof system that incorporates vegetative cover on a roof membrane surface that both protects the roofing membrane and lowers the surface temperature of the roof to aid in reducing the Heat Island Effect (see this definition below) and is a method used in LEED certified buildings to garner points toward this LEED certification. Green roofs also minimize drainage run-off, which reduces the impact on local storm drainage systems.

Greenfields - A term used in the LEED certification process that describes building sites that have not been previously developed or graded and remain in a natural state.

Guaranteed Maximum Price-Construction Management (GMP-CM) - A form of the CM system where the construction manager guarantees, in addition to providing ACM services, a ceiling price to the Owner for the cost of construction.

- H -

Hard Costs - All items of expense directly incurred by or attributable to a specific project, assignment or task. Direct Costs, Hard Costs, and Construction Costs are synonymous.

Hard Cost Contingency ("HC Contingency") - Owner-controlled contingency limited to project Hard Costs; see Contingency. Direct Contingency Costs and Construction Contingency Costs are synonymous.

HC Contingency Balance – Owner-controlled contingency that has not been committed to an approved, pending, or potential project change order; unencumbered or remaining contingency.

HC Contingency Committed – Owner-controlled contingency that has been committed to an approved, pending, or potential change order; committed or encumbered contingency.

HC Contingency Graph – See Project HC Contingency Graph

Heat Island Effect – A term used in the LEED certification process that describes the thermal gradient between developed and undeveloped areas. These heat islands are typical in urban development. Urban heat islands increase overall electricity demand, as well as peak demand, which generally occurs on hot summer weekday afternoons, when offices and homes are running cooling systems, lights, and appliances. During extreme heat events, which are exacerbated by urban heat islands, the resulting demand for cooling can overload systems and require a utility to institute controlled, rolling brownouts or blackouts to avoid power outages.

- I -

Independent Contractor - One free from the influence, guidance, or control of another or others and does not owe a "fiduciary duty". e.g., an architect, engineer, prime or main contractor, construction manager at-risk.

Indirect Costs - Costs for items and activities other than those directly incorporated into the building or structure but considered necessary to complete the project. A contractor's or consultant's overhead expense; expenses indirectly incurred and not chargeable to a specific project or task. The terms indirect costs and soft costs are synonymous.

Indoor Environmental Quality – A term used in the LEED certification process that describes the measurement of the level of indoor pollutants inside buildings that affect the health and well-being of building occupants. The LEED certification process encourages the use of higher levels of outside air in building HVAC systems, the use of low volatile organic compounds in paints, stains, adhesives and coatings and the reduction of tobacco usage in buildings.

International Building Code (IBC) -The IBC is one of the family of codes and related publications published by the International Conference of Building Officials (ICBO) and other organizations, such as the International Association of Plumbing and Mechanical
Revised September 2010

Officials (IAPMO) and the National Fire Protection Association (NFPA), which have similar goals as far as code publications are concerned. The IBC is designed to be compatible with these other codes, as together they make up the enforcement tools of a jurisdiction. More and more governing authorities are accepting the IBC (with edits) as their standard, in most cases replacing the Southern Building Code or Uniform Building Code.

IRFP - The abbreviation for Initial Request for Proposal; The first request for uniform detailed information from prospective CM practitioners being screened for a project.

- J -

Job-Site Overhead - Supportive and necessary on-site construction expense, such as construction support costs, supervision, bonus labor, field personnel, and office expense.

Joint Venture Partner - A party that contracts with another similar party on a project basis to provide greater financial strength, improved services or more acceptable performance qualifications as a combined organization to design, bid, and/or constructs a specific project.

- K -

K - Used as an abbreviation for Contract or Contracts in the legal sector.

- L -

Labor and Material Payment Bond - (1) A written form of security from a surety (bonding) company to the Owner, on behalf of an acceptable prime or main contractor or subcontractor, guaranteeing payment to the Owner in the event the Contractor fails to pay for all labor, materials, equipment, or services in accordance with the contract, and (2) to pay any claims against the Owner from contractors and suppliers who have not been paid for labor, material, and equipment incorporated into the project.

LEED (Leadership in Energy and Environmental Design) - An internationally recognized green building certification system, providing third-party verification that a building or community was designed and built using strategies



aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, CO₂ emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts.

LEED-EBOM (LEED for Existing Buildings: Operations & Maintenance) - Rating system helps building owners and operators measure operations, improvements and maintenance on a consistent scale, with the goal of maximizing operational efficiency while minimizing environmental impacts. LEED for Existing Buildings addresses whole-building cleaning and maintenance issues (including chemical use), recycling programs, exterior maintenance programs, and systems upgrades. It can be applied both to existing buildings seeking LEED certification for the first time and to projects previously certified under LEED for New Construction, Schools, or Core & Shell.

Letter of Intent - A notice from an Owner to a Contractor stating that a contract will be awarded to the Contractor providing certain events occur or specific conditions are met by the Contractor. The letter can sometimes serve as a formal Notice to Proceed on the project.

Lien, Mechanic's or Material - The right to take and hold or sell an Owner's property to satisfy unpaid debts for labor, materials, equipment, or services to improve the property.

Lien Release - A written document from the Contractor to the Owner that releases the Lien, Mechanic's or Material following its satisfaction.

Lien Waiver - (1) A written document from a contractor, subcontractor, material supplier or other construction professional, having lien rights against an Owner's property, relinquishing all or part of those rights. (2) Lien waivers are generally used for processing progress payments to prime or main or subcontractors as follows: Conditional Lien Waiver, Unconditional Lien Waiver, and Final Lien Waiver.

Light Pollution - A term used in the LEED certification process that describes the light trespass from a building and site to the surrounding areas. LEED certified buildings attempt to minimize this light pollution to increase night sky access, improve visibility due to glare reduction and reduce development impact on nocturnal environments.

Liquidated Damages (LD's) – An amount of money specified in a contract to be awarded in

the event that the agreement is violated. The fixed amount (usually on a per-day basis) which a party to an agreement promises to pay to the other in case one party does not fulfill some or all portions of an agreement.

Lump Sum Contract - A written contract between the Owner and Contractor wherein the Owner agrees to pay the Contractor a specified sum of money for completing a scope of work consisting of a variety of unspecified items or work. (See also "Stipulated Sum Agreement".)

Lump Sum Fee - A fixed dollar amount which includes all costs of services including overhead and profit.

- M -

Mandated Change Order – Change orders required to complete the work as directed by governing authorities or others to accomplish a certificate of occupancy allowing the Owner to take occupancy of the Project and utilize it for its intended use.

Materials Re-use - A term used in the LEED certification process that describes the reuse of materials and products in order to reduce demand for virgin materials and to reduce waste, thereby reducing impacts associated with the extraction and processing of virgin resources.

Mediation – The action of mediation between parties to effect an agreement or reconciliation. Mediation implies deliberation that results in solutions that may or may not be accepted by the contending parties.

Mechanic's Lien - A legal claim against an Owner's property by a project participant to the value of monies earned but not paid for by the Owner or an employing contractor.

Meeting Attendance Form - A generic form used to record presence of persons attending a specific meeting.

Meeting Notes - A written report consisting of a project number, project name, meeting date and time, meeting place, meeting subject, a list of persons attending, and a list of actions taken and/or discussed during the meeting. Generally, this report is distributed to all persons attending the meeting and any other

person having an interest in the meeting.

Milestone - An activity with a duration of zero (0) and by which progress of the project is measured. A milestone is an informational marker only; it is used to delineate strategic events of signal importance to monitor progress on the construction milestone schedule. It marks a specific point in time, which point may be contractual.

Milestone Schedule - A schedule of milestones spanning from the start of construction to occupancy, used as the main measure of progress to keep the project on schedule. It is usually summary in nature.

Minor Change in Work – A minor change in work is a written order by the Architect to make a change that does not involve adjustment in the contract sum or extension of the contract time and is not inconsistent with the intent of the contract documents.

- N -

Notice of Award - A letter from an Owner to a Contractor stating that a contract has been awarded to the Contractor and a contract will be forthcoming. It may also function as a Notice to Proceed.

Notice to Proceed - A notice from an Owner directing a Contractor to begin work on a contract, subject to specific stated conditions.

- O -

OAC Meeting - Meeting of the Owner, Architect and Contractor.

Occupancy Phase - A stipulated length of time following the construction phase, during which contractors are bonded to ensure that materials, equipment, and workmanship meet the requirements of their contracts, and that supplier- and manufacturer-provided warranties and guarantees remain in force.

Occupancy Schedule - A schedule of the activities and events required to effect occupancy or the use of a facility for its intended purpose. It is used to determine if construction progress will meet the occupancy date.

On-Site Supervision - Site-based personnel with supervisory responsibilities.

Revised September 2010

Open Bid - A specific term used where any qualified bidder or estimator is given access to the prescribed project information. Open bid project information is not private.

Open Grid Pavement - A term used in the LEED certification process that describes pavement that is less than 50% impervious and contains vegetation in open cells.

Owner-Architect Agreement - A written form of contract between Architect and Client for professional architectural services.

Owner-Builder - A term used to describe an Owner who takes on the responsibilities of the general contractor to build a specific project.

Owner Contingency – Owner-controlled contingency; see Contingency

Owner-CM Agreement - Contract between construction manager and client for professional services.

Owner-Construction Agreement - Contract between Owner and Contractor for a construction project.

Owner's Representative (OR) – An "Agent" of the Owner engaged to provide project management of design and construction activities. The OR acts in the absence of and/or interest of the Owner to facilitate the chosen design and construction delivery method. Scope of services sometimes includes management of non-construction components, such as equipment procurement and low voltage performance specification; refer to RA and RE.

- P -

Payment Bond - A written form of security from a surety company to the Owner, on behalf of an acceptable prime or main contractor or subcontractor, guaranteeing payment to all persons providing labor, materials, equipment, or services in accordance with the contract.

Pending and Potential Change Orders – Unexecuted change order or items identified to have a cost or time impact to the project which may result in a change order.

Preliminary Drawings - (1) The drawings that precede the final approved drawings. (2) Usually these drawings are stamped or titled



"PRELIMINARY", or "PRELIMINARY/NOT FOR CONSTRUCTION"; and the "PRELIMINARY" is removed from the drawings upon being reviewed and approved by the Architect and/or Owner and/or code official.

Preliminary Lien Notice - A written notice given to the Owner by the subcontractors, suppliers, etc. The notice states if bills are not paid for the labor, services, equipment, or materials furnished or to be furnished, a mechanic's lien may be placed against the property even though the Owner has paid the prime contractor. The notice may explain how the Owner can protect himself against this consequence by (1) requiring the prime contractor to furnish a release by the person giving the Owner notice before making payment to the prime contractor or (2) any other method or device which is appropriate under the circumstances. Some states (known as "lien notice states") require lien notices to be filed and some do not. Failure to file a lien notice in a lien-notice state usually results in forfeiture of one's lien rights.

Pre-qualification - A screening process of prospective bidders wherein the Owner gathers background information from a contractor or construction professional for selection purposes. Qualifying considerations include competence, integrity, dependability, responsiveness, bonding rate, bonding capacity, work on hand, similar project experience, and other specific owner requirements.

Prime Contractor - (1) Any contractor having a contract directly with the Owner. (2) Usually the main (general) contractor for a specific project.

Professional Engineer - A designation reserved, usually by law, for a person or organization professional qualified and duly licensed to perform such engineering services as structural, mechanical, electrical, sanitary, civil, etc.

Professional Liability Insurance - Insurance provided for design professionals and construction managers that protect the Owner against the financial results and liability of negligent acts by the insured. Usually referred to as Errors and Omissions (E&O) insurance.

Professional Services - Services provided by a professional, in the legal sense of the word, or by an individual or firm whose competence can be measured against an established standard of care.

Program Schedule - A schedule that spans from the start of design to occupancy; includes the signal activities which control the progress of the project from start to finish.

Progress Meeting - A meeting dedicated essentially to contractor progress during the construction phase.

Progress Payment - Partial payments on a Contractor's contract amount, periodically paid by the Owner for work accomplished by the Contractor to date determined by calculating the difference between the completed work and materials stored and a predetermined schedule of values or unit costs.

Progress Schedule - A line diagram showing proposed and actual starting and completion times for the respective project activities.

Project - A word used to represent the overall scope of work being performed to complete a specific construction job.

Project Budget - The target cost of the project established by the Owner and agreed to be achievable by the team. The Project Budget usually includes the cost of construction and the CM fee, plus any other line-item costs (land, legal fees, interest, design fees, CM fees, etc.) that the Owner wishes to have included in the budget.

Project Completion Graph (S-Curve) - A Project Completion Graph, commonly referred to as an "S-Curve Graph;" The graph resembles an "S" and projects the estimated cash flow through project completion; exclusive of retainage. The graph is based on a direct relationship of cash flow to the percentage of project completion. For a typical single-phase construction project, the first and last stages of construction represented by 15-20% each of the construction schedule, makes up less than an equal amount of percentage of completion. This allows for ramping up and down of the construction process. The remaining interim period, representing 60-80% of the schedule is generally a straight line, which connects the ramping up and down sections of the schedule; this straight-line portion of the S-curve will normally pass through approximately 50% completion at approximately 50% of the construction schedule.

Project Contingency Graph - A graph projecting the use of hard cost contingency through project completion.

Each month the committed hard cost contingency is plotted as a percentage of total hard cost contingency against the project schedule. The projected hard cost contingency line provides a baseline for analysis. It is assumed for the typical project that up to 40% of the hard cost contingency will be committed during the first 30% of the project schedule; the remaining 60% is a straight-line projection to the end of the project. The 40% allows for the high-risk period during project startup: completion and outstanding governing approvals of design documents, earthwork, and foundations. Where the total cost for mandated change orders falls below the projected graph line, it may be assumed, unless otherwise noted, that sufficient funds remain to complete the project, assuming no extraordinary event(s) occurs.

Project Cost - All costs for a specific project including costs for land, professionals, construction, furnishings, fixtures, equipment, financing and any other project related costs

Project Directory - A written list of all parties connected with a specific project. The list usually includes a classification or description of the party (i.e., Owner, Architect, Attorney, General Contractor, Civil Engineer, Structural Engineer, etc.); name, address, e-mail, telephone and FAX numbers opposite their respective classifications or description. It is particularly important that the emergency or after hour telephone numbers are included. These numbers should be kept confidential if requested by the respective parties.

Project Manager - A qualified individual or firm authorized by the Owner to be directly responsible for the day-to-day management and administration, and for coordinating time, equipment, money, tasks and people for all or specified portions of a specific project.

Project Manual - An organized book setting forth the bidding requirements, conditions of the contract and the technical work specifications for a specific project that documents and augments the drawings. The Project Manual contains the General Conditions, Supplementary and Special Conditions, the Form of Contract, Addenda, Change Orders, Bidding Information and Proposal Forms as appropriate, and the Technical Specifications.

Project Meeting - A meeting dedicated essentially to contractor performance and progress payments, involving supervisors from

the Contractor's home offices and the on-site project team; sub-contractors may be included.

Project Site - The place where a structure or group of structures was, or is to be located, i.e., a construction site.

Project Team - Consists of the Architect/Engineer, Construction Manager, and Owner, represented by their Level 1, 2, and 3 Persons, plus the designated leaders of contracted constructors.

Punch List - A list prepared by the Owner or his/her Authorized Representative of items of work requiring immediate corrective or completion action by the Contractor.

Pure CM - A contractual form of the CM system exclusively performed in an agency relationship between the Construction Manager and Owner. (CM Without Risk). ACM is the form from which other CM forms and variations are derived.

- Q -

Quality Assurance (QA) - The procedure established by the Project Team to inject and extract the level of quality designated by the Owner.

Quality Control (QC) - That part of the Quality Assurance procedure that determines if specified quality is attained.

Quality Engineering - That part of the Quality Assurance procedure where the required level of quality is accurately inserted into the construction documents by the A/E.

- R -

Rapidly Renewable Materials - A term used in the LEED certification process that describes the use of materials and products in buildings that are made from plants typically harvested within a 10-year cycle or shorter to reduce the use and depletion of finite raw materials and long cycle materials.

Record Drawings - A set of contract document drawings, marked up as construction proceeds to reflect changes made during the construction process, which show the exact location, geometry, and dimensions of all elements of the constructed project as installed. It is good practice to make As-

Built Drawings by marking the changes on reproducible drawings such as mylar, vellum or sepia for the duplication purposes later.

Regional Materials - A term used in the LEED certification process that describes the use of materials and products in buildings that have been extracted, harvested, recovered or manufactured within 500 miles of a construction site to reduce the environmental impact resulting from transportation of these materials to the project site.

RFI - Request for Information. A written request, usually a form, from the Contractor addressed to the Architect requesting additional information on an issue in the contract specification or drawings. The answer to an RFI can result in a COP if either the Architect or Contractor believes there is a change in the contract terms.

RFP - Request for Proposal. 1) A request for uniform detailed information from prospective CM practitioners being screened for a project; 2) A document generated by the Architect requesting a cost proposal for a potential change to the Contract. Generally an RFP is used when no determination has been made whether or not the change will be executed.

Reimbursable Expense - Charges to the Owner covering costs for services that could not or intentionally were not quantified at the time the fee arrangement was made.

Reimbursable Expenses (or Costs) - Amounts expended for or on account of the project which, in accordance with the terms of the appropriate agreement, are to be reimbursed by the Owner.

Release of Lien - A written action properly executed by an individual or firm supplying labor, materials or professional services on a project which releases his mechanic's lien against the project property.

Renewable Energy Systems – Energy systems that include technologies designed to capture solar, wind, geothermal, water or bio-based energy to satisfy on-site electrical demand in buildings. This is component of the LEED certification process. Also referred to as “Green Power”.

Resident Architect (RA) - An architect permanently assigned at a job site who supervises the construction work for the purpose of protecting the Owner's interests during construction.

Resident Engineer (RE) (inspector) - An individual permanently assigned at a job site for the purpose of representing the Owner's interests during the construction phase, i.e., Owner's Rep.

- S -

S-Curve – See “Project Completion Graph”

Safety Report - The Occupational Safety and Health Act (OSHA) of 1970 clearly states the common goal of safe and healthful working conditions. A Safety Report is prepared following a regularly scheduled project safety inspection of the specific project.

Schedule of Values - The breakdown of a contract price into sub-items and sub-costs for identifiable construction elements, which can be evaluated by examination for contractor progress payment purposes.

Schematic Design Phase - The first phase of the A/E design professional's basic services in which he consults with the Owner to ascertain the requirements of the project and prepares schematic design studies consisting of drawings and other documents showing the scale, project components, and delineates the Owner's needs in a general way for the Owner's approval.

Scope of Work (SOW) - A written range of view or action; outlook; hence, room for the exercise of faculties or function; capacity for achievement; all in connection with a designated project.

Shared Savings - Contractor controlled contingency or buyout savings remaining after all approved contract cost-of-work has been accounted for, from which a percentage of the savings, as defined in the construction contract, is returned to the Owner.

Shop Drawings - Detailed information and/or drawings provided by material/ equipment suppliers or subcontractors demonstrating that the item provided meets the requirements of the contract documents, or how it is to be installed.

Soft Cost - Cost items in addition to the direct construction cost. Soft Costs generally include architectural and engineering, legal, permits and fees, financing fees, construction interest and operating expenses, leasing and real estate commissions,

advertising and promotion, and supervision.

Soft Cost Contingency – Owner-controlled contingency limited to project Soft Costs; see Contingency. Hard cost contingency plus the soft cost contingency generally represent the total Owner's contingency for the Project, unless specific contingency accounts are established for unique budget items the Owner wishes to track and report separate from the hard and soft cost contingency accounts.

Source and Use Budget – Budget detailing the funds for all project-related costs and how they are to be expended.

Special Conditions - (1) Amendments to the General Conditions that change standard requirements to unique requirements, appropriate for a specific project. (2) A section of the conditions of the contract, other than the General Conditions and Supplementary Conditions, which may be prepared for a particular project. (3) Specific clauses setting forth conditions or requirements peculiar to the project under consideration, and covering work or materials involved in the proposal and estimate, but not satisfactorily covered by the General Conditions.

Specifications - A detailed statement of particulars, especially statements prescribing materials and methods, and quantitative information pertaining to material, products, and equipment to be incorporated into a specific project. The most common arrangement for specifications substantially parallels the Construction Specification Institute (CSI) format.

Standard Details - A drawing or illustration sufficiently complete and detailed for use on other projects with minimum or no changes. Non-project-specific details.

Start Date - The date that an activity or project begins.

Statute of Limitations - The period of time in which legal action must be brought for an alleged damage or injury. The period commences with the discovery of the alleged damage or injury; or in construction industry cases with completion of the work or services performed. Legal advice should be obtained.

Stipulated Sum Agreement - A written agreement in which a specific dollar amount is set forth as the total payment for performing the contract. (See also "Lump Sum Contracts")

Revised September 2010

Structural Systems - The load bearing frame assembly of beams and columns on a foundation; the most common materials are wood, cement block, re-enforced concrete, or steel. Steel beams and columns are generally fabricated off-site and assembled on site. Other systems such as non-load bearing walls, floors, ceilings and roofs are generally constructed within and on the structural system.

Subcontractor - A qualified subordinate contractor who has a contract with the prime or main contractor.

Subcontractor Bond - A written document from a subcontractor given to the prime or main contractor by the subcontractor guaranteeing performance of his/her contract and payment of all labor, materials, equipment and service bills associated with the subcontract agreement.

Substantial Completion - The stage in the progress of the work when the work, or designated portion of the work, is sufficiently complete in accordance with the contract documents so that the Owner can occupy or utilize the work for its intended use. (See also "Beneficial Occupancy"). This date is normally documented by the Owner and Architect on an AIA Document G704.

Sub-surface Investigation - (1) A term used to represent an examination of soil conditions below the ground. (2) Investigations include soil borings and geotechnical laboratory tests for structural design purposes.

Superstructure The part of a building or other structure above the foundation.

Supplemental Conditions - Supplements or modifies the standard clauses of the general conditions to accommodate specific project requirements. (synonymous with Supplementary Conditions).

Surety Company or Surety - A properly licensed firm or corporation willing to execute a surety bond, or bonds, payable to the Owner, securing the performance on a contract either in whole or in part; or securing payment for labor and materials.

Sustainable Sites – A term used in the LEED certification process that establishes sustainable design objectives and integrates building location and sustainable features as a metric for decision making that encourages



development and preservation or restoration practices that limit the environmental impact of buildings on local ecosystems.

- T -

Technical Inspection - Matching technical specification criteria with visual or mechanical tests on the project site, or in a remote location or laboratory, to ascertain conformance.

Technical Review - The critique of design solutions, or criteria used for design solutions, by a party other than the one providing the solutions or criteria, to determine adequacy and suitability of purpose.

T&M - (1) An abbreviation for a contracting method called Time and Materials (2) A written agreement between the Owner and the Contractor wherein payment is based on the Contractor's actual cost for labor, equipment, materials, and services plus a fixed add-on amount to cover the Contractor's overhead and profit.

Time is of the Essence - A provision in a construction contract by the Owner that punctual completion within the time limits or periods in the contract is a vital part of the contract performance and that failure to perform on time is a breach and the injured party is entitled to damages in the amount of loss sustained. e.g., "time is of the essence in the completion of the construction contract".

Total Project Budget - All costs, hard and soft, necessary to achieve completion of a project.

Transmittal - A written document used to identify information being sent to a receiving party. The transmittal is usually the cover sheet for the information being sent and includes the name, telephone/FAX number, e-mail, and address of the sending and receiving parties. The sender may include a message or instructions in the transmittal. It is also important to include the names of other parties the information is being sent to on the transmittal form.

Travel Time - Wages paid to workmen under certain union contracts and under certain job conditions for the time spent in traveling from their place of residence to and from the job.

- U -

U. S. Green Building Council – A non-profit agency established in 1993 representing the building industry consisting of over 11,000 companies and organizations that oversees and implements the LEED certification process of the design, construction, and operation of high performance, healthful, durable, affordable, and environmentally sound commercial, institutional, and high rise residential buildings.

Underwriter's Laboratories (UL) Label - A label on a product or manufactured item showing the material is regularly tested by, and complies with the minimum standards of the Underwriter's Laboratories specification for safety and quality.

Uniform Building Code (UBC) - The Uniform Building Code is one of the family of codes and related publications published by the International Conference of Building Officials (ICBO) and other organizations, such as the International Association of Plumbing and Mechanical Officials (IAPMO) and the National Fire Protection Association (NFPA), which have similar goals as far as code publications are concerned. The Uniform Building Code is designed to be compatible with these other codes, as together they make up the enforcement tools of a jurisdiction.

Unit Prices - A predetermined price for a measurement or quantity of work to be performed within a specific contract. The designated unit price would include all labor materials, equipment or services associated with the measurement or quantity established.

- V -

Value Engineering - A technical review process whereby the design documents are reviewed in an effort to reduce the overall construction cost by implementing alternate materials, processes, and/or equipment while maintaining the original design intent and overall quality of the Project.

Verbal Quotation - A written document used by the Contractor to receive a subcontract or material cost proposal over the telephone prior to the subcontractor or supplier sending their written proposal via mail, e-mail or facsimile.

- W -

Warranty - Assurance by a providing party that the work, material, and equipment under warranty will perform as promised or as required by contract.

Warranty Phase - The time period during which a warranty is in force.

Water Efficiency - A term used in the LEED certification process that describes the procedures to minimize potable water usage in buildings through the use of improved and efficient plumbing fixtures, use of recycled water and use of water efficient landscaping materials.

Working Drawing - A drawing sufficiently complete with plan and section views, dimensions, details, and notes so that whatever is shown can be constructed and/or replicated.

Work Order (WO) - A written order (directive), signed by the Owner or his Representative, of a contractual status requiring performance by the Contractor.

- X -

XCM - An abbreviation for "Extended Services - CM"; a form of Construction Management (CM) where other services such as design, construction, and contracting are included with Additional Construction Management (ACM) services provided by the Construction Manager.

- Z -

Zoning - Restrictions of areas or regions of land within specific geographical areas based on permitted building size, character, and uses as established by governing urban authorities.

zumBrunnen Cost-to-Complete – An estimate provided to account for all committed costs and a reasonable allowance for projected future costs to complete construction of a Project. This estimate includes the following specific costs

zumBrunnen, Inc. – The nation's leading independent construction consultant providing construction monitoring, facility assessment, and capital replacement budget services to the senior living and healthcare fields, and commercial real estate industry.