Key Definitions

Airfield — The area of land designated for takeoff, landing and maintenance of aircraft.

As-Built Model — A 3D Model prepared by the builder and field-verified, accurate representation of the infrastructure.

As-Managed Model — A Conformed Design Model is transferred from the builder to the Airport and converted into an As-Managed Model during project closeout. The As-Managed Model functions as the updated and verified virtual representation of the Airport's facilities and fixed assets. Whenever any changes are made to the infrastructure during maintenance and operations, they are also captured in this model to represent the central verified source of information.

Attribute — Also known as parameters, these store and communicate information about all elements in a model. They can be used to define and modify elements, as well as to communicate model information in tags and schedules.

BIM Execution Plan (BIMx Plan) — A comprehensive document, which outlines the protocols and procedures that the design and construction team must follow to ensure successful utilization of BIM and VDC practices.

BIM Integration Team (BIT) — A multi-disciplinary group of SFO personnel to enable the central management of BIM deliverables, BIM-related data and other digital assets across the enterprise. The primary function and role of this "task force" is to serve SFO stakeholders and AEC project teams to develop standards and processes for data collection and validation and maintain the virtual representation of SFO buildings and assets.

BIM Use — The process of using the embedded information and parametric capabilities of a Building Information Model during an infrastructure's life cycle to achieve one or more specific objectives.

Builder — An individual or an organization that builds, develops and constructs buildings and infrastructure. The Airport considers everyone involved in the construction team, including the General Contractor and Trade Partner as a builder.

Building Components — The smallest subset of a building system is a building component, which can be an object (e.g., doors, windows, mechanical or electrical fixtures) or an assembly of objects (e.g., walls, roofs, air handling units) and is installed with consideration to site conditions and its relationship with other building components and systems.

Building Envelope — The physical separator between the conditioned and unconditioned environment of a building, including resistance to air, water, heat, light and noise transfer.

Building Information Model (BIM) — A digital representation of the infrastructure that consists of model elements that represent spaces/rooms, systems and components that comprise the facility. The model elements represent physical geometry and attributes (also called properties) that describe functional and performance characteristics of modeled components and systems that are installed in the facility.

Building Systems — Supporting, enclosing and functional systems, subsystems and components that make up a building or structure.

Computerized Maintenance Management System (CMMS) — A software platform that maintains a database of information about an organization's maintenance operations. Preventive maintenance work orders can be requested and generated from a CMMS platform. SFO currently uses Mainsaver© as the CMMS of choice.

Conformed Design Model — A 3D Model prepared by designers and includes all the information that is released by the design team throughout the course of the bidding and construction processes. This is commonly known as the Record Model.

Construction Operations Building Information Exchange (COBie) — A data exchange file format for system-to-system exchange of space and asset information. COBie is part of the United States National Building Information Model Standard (NBIMS-US V3).

Data Authoring — The process of creating design-construction and infrastructure management data in Building Information Models.

Data Transfer File Formats — Specific file format that project teams must deliver to the Airport to facilitate data transfer between systems.

Data Verification — The process of checking Building Information Model features such as file names, object names, geometry and attributes, for compliance with the Airport's standards or acceptance criteria. Data verification allows stakeholders to build trust in the data and to make it useful for queries by computer applications.

Data View Definition (DVD) — A filtered view of the Element Attribute Dictionary that helps project team members input data relevant to their scope of work at specific project milestones.

Design — The process of thinking, planning and conceptualizing an idea into a usable set of drawings and specifications that is buildable and responds to the original intention of the designer.

Design Model — The Building Information Model used by designers to develop a project through all phases of design. Each discipline has their own model. These models are maintained by the designers through construction and ultimately become the Conformed Design Model for that discipline.

Discipline — A functional area (such as structural, mechanical, electrical or architectural), or an area of expertise (such as architecture, structural engineering or construction).

DWG — A drawing file format supported by AutoCAD® and other Computer-Aided Design and Drafting (CADD) applications.

Element Attribute Dictionary (EAD) — A specification outlining names for model elements and element attributes that satisfy the Airport's business needs in managing its infrastructure across their entire life cycle. It also specifies patterns for element names and an enumerated list of values for elements and attributes that must be validated.

Element/Object — An element or an object is a unique model geometry with data that represents a building component or system in a Building Information Model.

Equipment — A manufactured unit, fixture and piece of equipment furnished, installed or provided under a specific project. An equipment can be a fixed and/or facility asset.

Fabrication Model — A model created by trade partners that is used for creating shop drawings and ultimately reflects the most detail of the components being installed. This model can later serve as the As-Built Model.

Facility — A building built for a specific use or purpose.

Facility Asset — Mechanical, electrical, plumbing and fire protection equipment, interior furniture and fixtures etc., that are maintained and managed by the Airport stakeholders in their respective target systems.

Federated Model — A combination of all distinct discipline and trade models from the project team to create a single representation of the facility. This model is primarily used for coordination and may also be referred to as a 'Merged Model'

Field Verified — Model data and geometry that has been physically verified in the field by a member of the project team.

Fixed Asset — The City and County of San Francisco and the Airport Commission defines Fixed Assets as long-lived tangible assets obtained or controlled as a result of past transactions, events or circumstances. Fixed Assets have more than a year (365 days) of useful life and meet certain value thresholds.

Industry Foundation Classes (IFC) — A platform-neutral, open file format specification that is not controlled by a single vendor or group of vendors. The .ifc file extension is used to transfer model geometry and data and is exportable from most Building Information Modeling authoring software.

Infrastructure — Site and air-fields, civil, underground, utilities and campus buildings.

Layout Points — Layout points are the physical or virtual markings used by trades to layout components in the field.

Model Content Author (MCA) — The project team or team member responsible for a specific model element.

Model Progression Specification — A high level overview that outlines what model element is to be input by which project team member for a specific scope of work.

Model—A virtual representation of the infrastructure composed by various 3D authoring programs such as AutoCAD or Revit®. This includes models for each phase such as design model, construction model, fabrication model, etc.

Parameter See definition for "attribute."

Parametric Modeling — The creation of building information models based on a set of rules or algorithms that operate through the manipulation of parameters. The model is created by an internal logic rather than through manual maneuvers.

Project Parameter — Parameters which are specific to a particular project in Revit.

Revit Family—A Revit family is a group of elements with a common set of properties, called parameters (or attributes) and a related graphical representation. Different elements belonging to a family may have different values for some or all of their parameters, but the set of parameters (their names and meanings) is the same.

Revit Family Type—Variations within a Revit family are called family types or types. Each type in the family has a related graphical representation and an identical set of parameters. These are called the family type parameters. Examples include CSI Masterformat number, manufacturer or model number. These are uniformly applied parameters for the same type of element.

Revit Instance — Instances are individual model elements that are placed in a model and have specific locations in the building. Examples of instance parameters include location, serial number, drawing tag etc.

Robotic Total Station—Advanced survey tool used to layout and collect point data to and from a model.

RVT—A model file extension whose format is native to Autodesk® Revit.

Scope of Work—The division of work to be performed under a contract or subcontract in the completion of a project, typically broken out into specific tasks with deadlines.

SFO — Designated airport code for San Francisco International Airport. This term is used interchangeably with "the Airport" throughout the SFO BIM Guide.

Shared Parameter — Parameter definitions that can be used in multiple Revit families or projects. The definition is stored as a separate .txt file and can be shared between projects.

Target System — A database or software platform used by an Airport stakeholder group to support specific business objectives. Mainsaver (an example of CMMS - Computerized Maintenance Management System) is a target system used by the Airport's Facility Scheduling group. A goal of the Airport's BIM Implementation Program is to enable the standardized transfer of infrastructure information developed by project teams to Airport's target systems.

Trade Partners — Builders who are typically sub-contracted by a general contractor and specialize in a particular aspect of the construction trade such as drywall, mechanical, plumbing, concrete etc.

Vendors — A person, company or a manufacturer that provides a product for sale.

Virtual Design and Construction (VDC) — CIFE Methodology used in the management of integrated multi-disciplinary performance models of the Airport's facility and fixed assets, including existing, planned and current infrastructure in development, as well as concurrent and collaborative work processes and organization of the planning - design - construction - operations team in order to support explicit business objectives.

VDC Workflows — VDC workflows mirror the way in which projects are delivered at the Airport. In this framework, "VDC workflows" are the concurrent and collaborative methods that the entire team has agreed to follow. It begins with the Airport's stakeholder engagement process, partnering and collaborative systems and incorporates decision-making protocols, knowledge networks, value stream mapping, pull planning, short-term interval planning and so forth.


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