Appendix B: Model Progression Specification

Delivery Method: Design-Build

In-House Projects Handover → *Capital Projects Handover*

	Existing Conditions Modeling, Cost Estimation, Phase Planning, Programming, Site Analysis, Design Reviews, Design Authoring, Energy Analysis, Structural Analysis, Lighting Analysis, Mechanical Analysis, LEED Evaluation, Code Validation						3D Coordination, Site Utilization Planning, Digital Fabrication, 3D Control and Planning		Record Model		Suggested BIM Use
	DESIGN						**BUILD**		**CONSTRUCTION CLOSEOUT**		Lifecycle Phases
Elements/System	**Classification**			**Schematic Design**		**Design Development**		**Construction Documents**		**Construction**		**Commissioning / As-Builts**		
	OmniClass Table 21-Elements	**MasterFormat / OmniClass Table 22 - Work Results**	**OmniClass Table 23-Products**	**LOD**	**MCA**	**LOD**	**MCA**	**LOD**	**MCA**	**LOD**	**MCA**	**LOD**	**MCA**	
Substructure	**21-01 00 00**													
Foundations	21-01 10	03 - Concrete, 31 - Earthwork	23-13 00 00: Structural & Exterior Enclosure Products, 23-39 00 00: Utility and Transportation Products	200	SE	300	SE	300	SE	300	SE	300	SE	
Subgrade Enclosures	21-01 20	03 00 00				200	SE	300	SE	300	SE	300	SE	
Slabs on Grade	21-01 40	03-Concrete, 07-Thermal & Moisture Protection, 31-Earthwork		200	SE	300	SE	300	SE	300	SE	300	SE	
Water and Gas Mitigation	21-01 60	31 - Earthwork, 33 - Utilities												
Substructure Related Activities	21-01 90	31 - Earthwork				200	SE	300	SE	300	SE	300	SE	
Shell	**21-02 00 00**													
Superstructure	21-02 10	03-Concrete, 04-Masonry, 05-Metal, 06-Wood, Plastics & Composites, 07-Thermal & Moisture Protection	23-13 00 00: Structural and Exterior Enclosure Products, 23-17 00 00: Openings, Passages	200	SE	300	SE	300	SE	300	SE	300	SE	
Exterior Vertical Enclosures	21-02 20	04-Masonry, 08-Openings, 09-Finishes, 10-Specialties	23-13 00 00: Structural and Exterior	200	ARCH	300	ARCH	300	ARCH	400	ARCH	500	ARCH	
Exterior Horizontal Enclosures	21-02 30	07-Thermal & Moisture Protection, 08-Openings	23-13 00 00: Structural and Exterior	200	ARCH	300	ARCH	300	ARCH	300	ARCH	300	ARCH	
Interiors	**21-03 00 00**													
Interior Construction	21-03 10	08 - Openings, 09-Finishes, 10 - Specialties	23-15 00 00: Interior & Finish Products	200	ARCH	300	ARCH	300	ARCH	300	ARCH	500	ARCH	
Interior Finishes	21-03 20	09 - Finishes	23-15 00 00: Interior and Finish			200	ARCH	300	ARCH	400	ARCH	500	ARCH	
Services	**21-04 00 00**													
Conveying	21-04 10	14 - Conveying, 41 - Material Processing & Handling, 34 - Transportation	23-23 00 00: Conveying Systems and Material Handling	100	ARCH	200	ARCH	300	ARCH	300	ARCH	300	ARCH	
Plumbing	21-04 20	22 - Plumbing	23-31 00 00: Plumbing Specific	100	PLUM	200	PLUM	400	PLUM	400	PLUM	500	PLUM	
HVAC	21-04 30	23 - HVAC	23-33 00 00: HVAC Specific Products	100	MECH	200	MECH	400	MECH	400	MECH	500	MECH	
Fire Protection	21-04 40	21 - Fire Supression	23-29 00 00: Facility and Occupant	100	FIRE	200	FIRE	400	FIRE	400	FIRE	500	FIRE	
Electrical	21-04 50	26 - Electrical	23-35 00 00: Electrical and Lighting	100	ELEC	200	ELEC	400	ELEC	400	ELEC	500	ELEC	
Communication	21-04 60	27 - Communications	23-37 00 00: Information and			200	LV	400	LV	400	LV	500	LV	
Electronic Safety and Security	21-04 70	28 - Electronic Safety & Security	23-29 00 00: Facility and Occupant			200	SEC	400	SEC	400	SEC	500	SEC	
Integrated Automation	21-04 80	25 - Integrated Automation				200	CONT	400	CONT	400	CONT	500	CONT	
Equipment and Furnishings	**21-05 00 00**													
Equipment	21-05 10 00	11 - Equipment	23-21 00 00: Furnishings, Fixtures and Equipment Products			200	ARCH	300	ARCH	300	ARCH	300	ARCH	
Furnishings	21-05 20	12 - Furnishings				200	ARCH	300	ARCH	300	ARCH	300	ARCH	
Special Construction & Demo	**21-06 00 00**													
Special Construction	21-06 10	13 - Special Construction	N/A			200	ARCH	300	ARCH	300	ARCH	300	ARCH	
Facility Remediation	21-06 20 00	02 - Existing Conditions	N/A											
Demolition	21-06 30 00	02 - Existing Conditions	N/A	200	ARCH	300	ARCH	300	ARCH	300	ARCH	300	ARCH	
Sitework	**21-07 00 00**													
Site Preparations	21-07 10 00	02-Existing Conditions, 31-Earthwork	23-11 00 00: Site Products											
Site Improvements	21-07 20	32 - Exterior Improvements		100	CE	200	CE	300	CE	300	CE	300	CE	
Liquid and Gas Site Utilities	21-07 30	33 - Utilities	23-39 00 00: Utility & Transportation			200	CE	300	CE	300	CE	300	CE	
Electrical Site Improvements	21-07 40	26 - Electrical, 33 - Utilities	23-35 00 00 : Electrical and Lighting											
Site Communications	21-07 50	33 - Utilities				200	CE	300	CE	300	CE	300	CE	
Miscellaneous Site Construction	21-07 90	31 - Earthwork	N/A			200	CE	300	CE	300	CE	300	CE	

Notes:

1. The LOD and MCA values are rough assignments and are to be revised & confirmed by the Contractor per SFO contract requirements for a BIM Execution Plan.
2. The BIM use by phases are suggested values and are to be updated by Contractor per SFO contract requirements for a BIM Execution Plan.
3. The classification codes for OmniClass Table 22 (MasterFormat) are to be updated by Contractor to reflect project requirements.

OmniClass Table 21- Elements is based on the 2010 CSC/CSI UniFormat™

OmniClass Table 22 - Work Results is based in part on CSC/CSI MasterFormat™, 2011 Update

OmniClass Table 23 - Products, classifies products (materials, assemblies, and systems) intended for potential or actual use in any construction project. A single product will have a single location in this Table, whereas Table 22 - Work Results (or MasterFormat) may have more than one heading that references the same product in a number of locations, depending on its use within the facility.

Instructions:

1. Save As this document and review the fields. Note that this document currently shows the minimum requirements from SFO. Any changes must be called out and explained
2. Remove Lines of scope that are not applicable to your project
3. Expand the rows using the "+" signs on the left side of the chart. This will reveal the 3rd level of omniclass assets.
4. Enter the LOD for each phase as it applies to your project.
5. Highlight any LOD numbers that differ from the level 2 specification of that category.
6. Submit this specification as part of the review of your BIM Execution Plan.
7. Do not modify the graphic layout of this document. If necessary, you may make an additional MPS if required by your project team.

Level of Development (LOD) Definitions	
100	The Model Element may be graphically represented in the Model with a symbol or other generic representation, but does not satisfy the requirements for LOD 200. Information related to the Model Element (i.e., cost per square foot, tonnage of HVAC, etc.) can be derived from other Model Elements.
200	The Model Element is graphically represented within the Model as a generic system, object, or assembly with approximate quantities, size, shape, location, and orientation. Non-graphic information may also be attached to the Model Element.
300	The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of quantity, size, shape, location, and orientation. Non-graphic information may also be attached to the Model Element.
400	The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of size, shape, location, quantity, and orientation with detailing, fabrication, assembly, and installation information. Non-graphic information may also be attached to the Model Element.
500	The Model Element is a field verified representation in terms of size, shape, location, quantity, and orientation. Non-graphic information may also be attached to the Model Elements.

Model Content Author (MCA) Definitions	
ARCH	Architect
CE	Civil Engineer
ELEC	Electrical Engineer / Subcontractor
FIRE	Fire Protection Engineer / Subcontractor
LV	Low Voltage Engineer / Subcontractor
MECH	Mechanical Engineer / Subcontractor
PLUM	Plumbing Engineer / Subcontractor
SE	Structural Engineer / Subcontractor
SUB	Subcontractor

Note: In cells with two model content authors, the stakeholder highlighted in **bold** and underline is the primary model content author followed by the model content (data) supplier.
example: **ARCH**/SUB; Architect is the primary model content author and Subcontractor is the model data supplier

Refer 'Data View Definition' (Example) for minimum attributes required by phase and author