

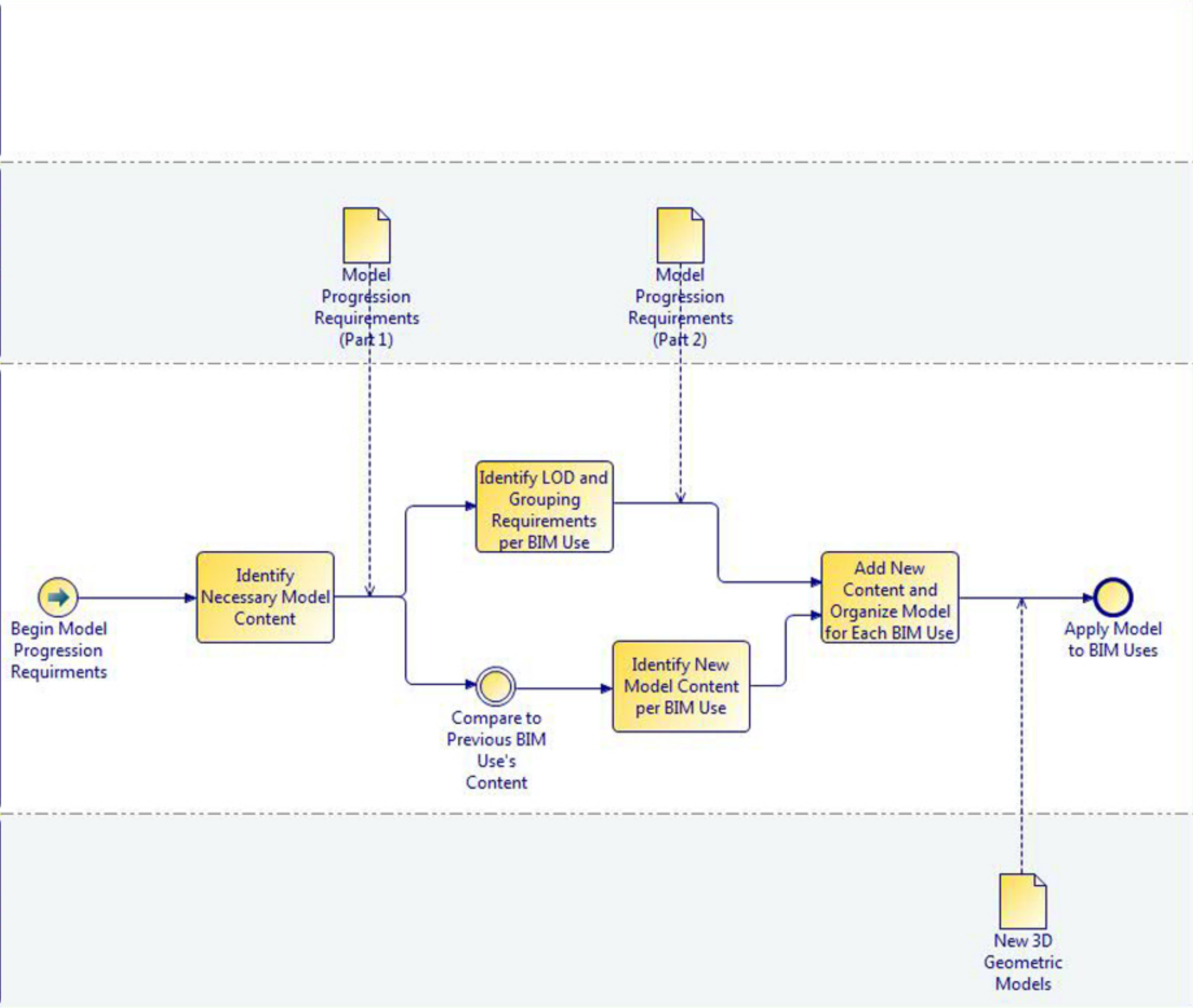
Appendix C: Model Progression Requirements

Model Progression Requirements

Identify Model Content (Part 1)	Identify Model Content Requirements (Part 2)							
Model Content	Use 1:		Use 2:		Use 3:		Use 4:	
Foundations	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Basement Construction	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Superstructure	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Exterior Closure	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Roofing	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Interior Construction	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Staircases	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Interior Finishes	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Conveying Systems	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Plumbing	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
HVAC	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Fire Protection	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Electrical	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Equipment	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Furnishings	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Special Construction	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Building Sitework	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Construction Systems and Equipment	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Temporary Safety and Security	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Temporary Facilities & Weather Protect.	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Construction Activity Space	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Project Information	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping
Facilty Spaces	LOD	Grouping	LOD	Grouping	LOD	Grouping	LOD	Grouping

Organize 3D Model per Model Progression Requirements

- External Info
- Enterprise Info
- Process
- BIM Info Ex.



Model Progression Requirements - Detroit Integrated Transportation Campus

Identify Model Content (Part 1)	Identify Model Content Requirements (Part 2)					
Model Content	Use 1: 3D Design Coordination		Use 2: 4D Milestone Model		Use 3: 4D Detailed CPM Model	
	LOD	Grouping	LOD	Grouping	LOD	Grouping
Foundations						
Standard Foundations	N/A	N/A	Modeled as Activity Space - Foundations	All Foundations as one Activity	Modeled as Activity Space - Foundations	Divide by Sequence
Slab on Grade	Slab Assembly - One Element	Slabs By Type	Slab Assembly - One Element	Group with 2nd Floor Slab	Slab Assembly - One Element	Divide by Pour
Basement Construction	LOD	Grouping	LOD	Grouping	LOD	Grouping
Basement Walls	N/A	N/A	N/A	N/A	N/A	N/A
Superstructure	LOD	Grouping	LOD	Grouping	LOD	Grouping
Floor Construction	Slab Assembly - One Element Structural Steel - Size and Length No Connections	Slabs Divided By Type Structural Steel Divided by piece	Slab Assembly - One Element Beams & Columns - Size and Length No Connections	Group with Slab on Grade; Structural Steel - Group with All Structural Steel	Slab Assembly - One Element Structural Steel - Size and Length No Connections	Slabs - Divide by Pour; Structural Steel - Group with Roof Steel by Sequence
Roof Construction	Slab Assembly - One Element Structural Steel - Size and Length No Connections	Slabs Divided By Type Structural Steel Divided by piece	Slab Assembly - One Element Beams & Columns - Size and Length No Connections	Whole Roof - Group Together; Structural Steel - Group with All Structural Steel	Slab Assembly - One Element Structural Steel - Size and Length No Connections	Slabs - Divide by Pour; Structural Steel - Group with Floor Steel by Sequence
Exterior Closure	LOD	Grouping	LOD	Grouping	LOD	Grouping
Exterior Walls	Wall Assembly - One Element	Divided by Type and Span	Wall Assembly - One Element	Whole Exterior Façade - Group Together	Wall Assembly - One Element	Divide by Sequence
Exterior Windows	Unitary Window - One Element Curtain Wall Window - One Element	Unitary Windows Individually Curtain Wall Windows Divided by Span	Unitary Window - One Element Curtain Wall Window - One Element	Group with Exterior Façade	Unitary Window - One Element Curtain Wall Window - One Element	Group with Doors ; Group Unitary Windows by Sequence and Divide Curtain Wall Windows by Sequence
Exterior Doors	Door Assembly	Each Door Assembly Grouped as One Doors Diveded Individually	Door Assembly	Group with Exterior Façade	Door Assembly	Group with Windows; Group by Sequence
Roofing	LOD	Grouping	LOD	Grouping	LOD	Grouping
Roof Coverings	N/A	N/A	N/A	N/A	Included in Roof Slab Assembly; Represent Activity by Color in 4D	Divide by Sequence
Roof Openings	Opening In Slab	Individually	N/A	N/A	Included in Slab Assemblies	See Slab Grouping
Interior Construction	LOD	Grouping	LOD	Grouping	LOD	Grouping
Partitions	Wall Assembly - One Element	Divided by Type and Span	Wall Assembly - One Element	Group with Interior Work Divided by Floor	Wall Assembly - One Element; Represent Different Wall Activities by Color in 4D	Group and Divide by Sequence
Interior Doors	Door Assembly	Each Door Assembly Grouped as One Doors Diveded Individually	Door Assembly	Group with Interior Work Divided by Floor	Door Assembly	Group by Sequence
Staircases	LOD	Grouping	LOD	Grouping	LOD	Grouping
Stair Construction	Stair Structure and Railings	Structure Individually Railings Individually	Stair Structure	Group with All Structural Steel	Stair Structure	Stair Structures Individually
C30 - Interior Finishes	LOD	Grouping	LOD	Grouping	LOD	Grouping
Wall Finishes	Within Wall Assembly	Grouped with Wall	Included in Wall Assembly	Group with Interior Work Divided by Floor	Included in Wall Assembly; Represent Activity by Color in 4D	Group and Divide by Sequence
Floor Finishes	Within Floor Assembly	Grouped with Floor	Included in Floor Assembly	Group with Interior Work Divided by Floor	Included in Floor Assembly; Represent Activity by Color in 4D	Divide by Sequence
Ceiling Finishes	Within Ceiling Assembly	Grouped with Ceiling	Included in Ceiling Assembly	Group with Interior Work Divided by Floor	Included in Ceiling Assembly; Represent Activity by Color in 4D	Group and Divide by Sequence
Conveying Systems	LOD	Grouping	LOD	Grouping	LOD	Grouping
Elevators	Elevator Shaft Only	Individually	Elevator Shaft Only	Group with Structural Steel	Elevator Shaft Only	N/A
Plumbing	LOD	Grouping	LOD	Grouping	LOD	Grouping
Plumbing Fixtures	Assembly	Individually	Model as Activity Space - Interior Work	Group with Interior Work Divided by Floor	Model as Activity Space - Millwork	See Activity Space - Millwork
Water Distribution	N/A	N/A	Model as Activity Space - Interior Work	Group with Interior Work Divided by Floor	Model as Activity Space - MEP Rough-In	See Activity Space - MEP Rough-In

Model Progression Requirements - Detroit Integrated Transportation Campus

Identify Model Content (Part 1)	Identify Model Content Requirements (Part 2)					
Model Content	Use 1: 3D Design Coordination		Use 2: 4D Milestone Model		Use 3: 4D Detailed CPM Model	
Sanitary Waste	N/A	N/A	Model as Activity Space - Interior Work	Group with Interior Work Divided by Floor	Model as Activity Space - MEP Rough-In	See Activity Space - MEP Rough-In
Rain Water Drainage	N/A	N/A	Model as Activity Space - Interior Work	Group with Interior Work Divided by Floor	Model as Activity Space - MEP Rough-In	See Activity Space - MEP Rough-In
HVAC	LOD	Grouping	LOD	Grouping	LOD	Grouping
Heat Generating Systems	N/A	N/A	N/A	N/A	HVAC Rooftop Units	Group with Cooling Systems
Cooling Generating Systems	N/A	N/A	N/A	N/A	HVAC Rooftop Units	Group with Heat Generating Systems
Distribution Systems	N/A	N/A	Model as Activity Space - Interior Work	Group with Interior Work Divided by Floor	Model as Activity Space - Ductwork Mains	See Activity Space - Ductwork Mains
Terminal & Package Units	N/A	N/A	Model as Activity Space - Interior Work	Group with Interior Work Divided by Floor	Model as Activity Space - MEP Rough-In	See Activity Space - MEP Rough-In
Controls & Instruments	N/A	N/A	Model as Activity Space - Interior Work	Group with Interior Work Divided by Floor	Model as Activity Space - Light Fixtures and GRD's	See Activity Space - Light Fixtures and GRD's
Testing & Balancing	N/A	N/A	Model as Activity Space - MEP Testing & Balancing	Group as One	Model as Activity Space - MEP Testing and Balancing	See Activity Space - MEP Testing and Balancing
Fire Protection	LOD	Grouping	LOD	Grouping	LOD	Grouping
Sprinkler System	N/A	N/A	Model as Activity Space - Interior Work	Group with Interior Work Divided by Floor	Model as Activity Space - MEP Rough-In	See Activity Space - MEP Rough-In
Electrical	LOD	Grouping	LOD	Grouping	LOD	Grouping
Electrical Service & Distribution	N/A	N/A	Model as Activity Space - Interior Work	Group with Interior Work Divided by Floor	Model as Activity Space - MEP Rough-In	Model as Activity Space - MEP Rough-In
Lighting & Branch Wiring	N/A	N/A	Model as Activity Space - Interior Work	Group with Interior Work Divided by Floor	Model as Activity Space - Light Fixtures and GRD's	See Activity Space - Light Fixtures and GRD's
Equipment	LOD	Grouping	LOD	Grouping	LOD	Grouping
Institutional Equipment	N/A	N/A	N/A	N/A	N/A	N/A
Furnishings	LOD	Grouping	LOD	Grouping	LOD	Grouping
Fixed Furnishings & Millwork	Assembly by Unit	Individually	Model as Activity Space - Interior Work	Group with Interior Work Divided by Floor	Model as Activity Space - Millwork	See Activity Space - Millwork
Special Construction	LOD	Grouping	LOD	Grouping	LOD	Grouping
Vertical and Horizontal Sun Screens	Support and Screens, No Connections	Individually	N/A	N/A	N/A	N/A
Building Sitework	LOD	Grouping	LOD	Grouping	LOD	Grouping
Site Demolition	N/A	N/A	Building Site - One Element	Group With Site Earthwork	Building Site - One Element; Represent Activity by Color in 4D	All Site Demolition
Site Earthwork	N/A	N/A	Building Site - One Element	Group With Site Demolition	Building Site - One Element; Represent Activity by Color in 4D	All Site Earthwork
Underground Utilities	N/A	N/A	N/A	N/A	Model as Activity Space - Underground Utilities	See Activity Space - Underground Utilities
Landscaping	N/A	N/A	N/A	N/A	Building Site - One Element; Represent Activity by Color in 4D	All Site Landscaping
Construction Systems and Equipment	LOD	Grouping	LOD	Grouping	LOD	Grouping
Cranes	N/A	N/A	N/A	N/A	Model a Crane at each lifting location	One crane location grouped with each Steel Sequence
Scaffolding	N/A	N/A	N/A	N/A	Model as simple scaffolding at brick location	Group with Brick Façade; Divide by Sequence
Site Dumpsters	N/A	N/A	N/A	N/A	N/A	N/A
Site Vehicles	N/A	N/A	N/A	N/A	Model generic vehicles in parking space	Not associated with any construction activity
Temporary Safety and Security	LOD	Grouping	LOD	Grouping	LOD	Grouping

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Identify Model Content (Part 1)	Identify Model Content Requirements (Part 2)					
Model Content	Use 1: 3D Design Coordination		Use 2: 4D Milestone Model		Use 3: 4D Detailed CPM Model	
Site Fence	N/A	N/A	N/A	N/A	Model as Generic Site Fence	Group with Site Earthwork
Temporary Facilities & Weather Protect.	LOD	Grouping	LOD	Grouping	LOD	Grouping
Site Trailors	N/A	N/A	N/A	N/A	Model Generic Trailors in Trailor Space	Associated with Site Mobilization Activity
Portable Toilets	N/A	N/A	N/A	N/A	N/A	N/A
Construction Activity Space	LOD	Grouping	LOD	Grouping	LOD	Grouping
Underground Utilities	N/A	N/A	N/A	N/A	x	Divide by Sequence
Ductwork Mains	N/A	N/A	Rectangular Masses	Group with Interior Work Divided by Floor	x	Divide by Sequence
MEP Testing & Balancing	N/A	N/A	Rectangular Masses	Whole Building	x	Divide by Sequence
MEP Rough-In	N/A	N/A	Rectangular Masses	Group with Interior Work Divided by Floor	x	Divide by Sequence
Light Fixtures and GRD's	N/A	N/A	Rectangular Masses	Group with Interior Work Divided by Floor	x	Divide by Sequence
Millwork	N/A	N/A	Rectangular Masses	Group with Interior Work Divided by Floor	x	Divide by Sequence
Foundation Excavation	N/A	N/A	N/A	N/A	x	Divide by Sequence
Interior Work	N/A	N/A	Rectangular Masses	Divided by Floor	N/A	N/A
Project Information	LOD	Grouping	LOD	Grouping	LOD	Grouping
Schedule	N/A	N/A	Executive level Master Summary Controll Schedule	Divided by Activity	Detailed Integrated Schedule	Divide by Activity
Facility Room Designations	Room Name, Number, and SF	By Space Type	N/A	N/A	N/A	N/A
Facilty Spaces	LOD	Grouping	LOD	Grouping	LOD	Grouping
Rooms & Cooridors	Designation and Boundaries	By Space Type	N/A	N/A	N/A	N/A