

# State of Utah Version of AIA<sup>®</sup> Document G202<sup>™</sup> – 2013

## *Project Building Information Modeling Protocol Form VBS Project Edition*



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES  
**Division of Facilities Construction and Management**

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# State of Utah Version of Document G202™ – 2013

## *Project Building Information Modeling Protocol Form*

State of Utah VBS Project Edition

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#### ARTICLE 1 GENERAL PROVISIONS

§ 1.1 This document establishes the Modeling protocols for the Project.

§ 1.2 Terms in this document shall have the same meaning as those in AIA Document E203–2013 State of Utah VBS Project Edition.

#### ARTICLE 2 LEVEL OF DEVELOPMENT

§ 2.1 The Level of Development (LOD) descriptions, included in Section 2.2 through Section 2.6 below, identify the specific minimum content requirements and associated Authorized Uses for each Model Element at five progressively detailed levels of completeness. The Parties shall utilize the five LOD descriptions in completing the Model Element Table at Section 3.3.

##### § 2.2 LOD 100

§ 2.2.1 Model Element Content Requirements. 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.

##### § 2.2.2 Authorized Uses

§ 2.2.2.1 Analysis. The Model Element may be analyzed based on volume, area and orientation by application of generalized performance criteria assigned to other Model Elements.

§ 2.2.2.2 Cost Estimating. The Model Element may be used to develop a cost estimate based on current area, volume or similar conceptual estimating techniques (e.g., square feet of floor area, condominium unit, hospital bed, etc.).

§ 2.2.2.3 Schedule. The Model Element may be used for Project phasing and determination of overall Project duration.

##### § 2.3 LOD 200

§ 2.3.1 Model Element Content Requirements. 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.

##### § 2.3.2 Authorized Uses

§ 2.3.2.1 Analysis. The Model Element may be analyzed for performance of selected systems by application of generalized performance criteria assigned to the representative Model Elements.



This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with a Project specific AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, which the Parties will incorporate into their agreement for the Project, and a Project specific AIA Document G201™–2013, Project Digital Data Protocol Form.

§ 2.3.2.2 **Cost Estimating.** The Model Element may be used to develop cost estimates based on the approximate data provided and quantitative estimating techniques (e.g., volume and quantity of elements or type of system selected).

§ 2.3.2.3 **Schedule.** The Model Element may be used to show ordered, time-scaled appearance of major elements and systems.

§ 2.3.2.4 **Coordination.** The Model Element may be used for general coordination with other Model Elements in terms of its size, location and clearance to other Model Elements.

#### § 2.4 LOD 300

§ 2.4.1 **Model Element Content Requirements.** The Model Element is graphically represented within the Model as a non-proprietary system, object or assembly in terms of quantity, size, shape, location, and orientation. Non-graphic information may also be attached to the Model Element.

#### § 2.4.2 Authorized Uses

§ 2.4.2.1 **Analysis.** The Model Element may be analyzed for performance of selected systems by application of specific performance criteria assigned to the representative Model Element.

§ 2.4.2.2 **Cost Estimating.** The Model Element may be used to develop cost estimates suitable for procurement based on the specific data provided.

§ 2.4.2.3 **Schedule.** The Model Element may be used to show ordered, time-scaled appearance of detailed elements and systems.

§ 2.4.2.4 **Coordination.** The Model Element may be used for specific coordination with other Model Elements in terms of its size, location and clearance to other Model Elements including general operation issues.

#### § 2.5 LOD 400

§ 2.5.1 **Model Element Content Requirements.** 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.

#### § 2.5.2 Authorized Uses

§ 2.5.2.1 **Analysis.** The Model Element may be analyzed for performance of systems by application of actual performance criteria assigned to the Model Element.

§ 2.5.2.2 **Cost Estimating.** Costs are based on the actual cost of the Model Element at buyout.

§ 2.5.2.3 **Schedule.** The Model may be used to show ordered, time-scaled appearance of detailed specific elements and systems including construction means and methods.

§ 2.5.2.4 **Coordination.** The Model Element may be used for coordination with other Model Elements in terms of its size, location and clearance to other Model Elements, including fabrication, installation and detailed operation issues.

#### § 2.6 LOD 500

§ 2.6.1 **Model Element Content Requirements.** 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.

### ARTICLE 3 MODEL ELEMENTS

#### § 3.1 Reliance on Model Elements

§ 3.1.1 At any particular Project milestone, a Project Participant may rely on the accuracy and completeness of a Model Element only to the extent consistent with the minimum data required for the Model Element's LOD for that Project milestone as identified below in the Model Element Table, even if the content of a specific Model Element includes data that exceeds the minimum data required for the identified LOD.

### § 3.1.2 Coordination and Model Refinement

Where conflicts are found in the Model, regardless of the phase of the Project or LOD, the Project Participant that identifies the conflict shall promptly notify the Model Element Authors and the Project Participant identified in AIA Document E203–2013, State of Utah VBS Project Edition, Section 3.7 as being responsible for Model management. Upon such notification, the Model Element Author(s) shall act promptly to evaluate, mitigate and resolve the conflict in accordance with the processes established.



§ 3.3 Model Element Table <i>Identify (1) the LOD required for each Model Element at each Project milestone, (2) the Model Element Author, and (3) references to any applicable notes found in Section 3.4.</i>  <i>Insert abbreviations for each MEA identified in the table below, such as "A – Architect," or "C – Contractor."</i>  <i>NOTE: LODs must be adapted for the unique characteristics of each Project.</i>	Schematic Design			Design Development			Construction Documents			Record Drawings									Notes <i>(See Sec. 3.4)</i>	
	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes		
<b>Model Elements Utilizing CSI UniFormat™</b>																				
<b>B2020 Exterior Windows</b>	100	A/E		200	A/E		300	A/E	B5	300	A/E	X1								
<b>B2050 Exterior Doors and Grilles</b>	100	A/E		200	A/E		300	A/E	B5	300	A/E	X1								
<b>B2070 Exterior Louvers and Vents</b>	100	A/E		200	A/E		300	A/E	B5	300	A/E	X1								
<b>B2080 Exterior Wall Appurtenances</b>	100	A/E		200	A/E		300	A/E	B5	300	A/E	X1								
<b>B30 EXTERIOR HORIZONTAL ENCLOSURES</b>																				
<b>B3010 Roofing</b>	NM			100	A/E		100	A/E		100	A/E	X1								
<b>B3020 Roof Appurtenances</b>	NM			200	A/E		300	A/E	B2	300	A/E	X1								
<b>B3060 Horizontal Openings</b>	NM			200	A/E		300	A/E		300	A/E	X1								
<b>B3080 Overhead Exterior Enclosures</b>	NM			200	A/E		300	A/E		300	A/E	X1								
<b>C INTERIORS</b>																				
<b>C10 INTERIOR CONSTRUCTION</b>																				
<b>C1010 Interior Partitions</b>	100	A/E		200	A/E		300	A/E	C1	300	A/E	X1								
<b>C1020 Interior Windows</b>	100	A/E		200	A/E		300	A/E		300	A/E	X1								
<b>C1030 Interior Doors</b>	100	A/E		200	A/E		300	A/E		300	A/E	X1								
<b>C1070 Suspended Ceiling Construction</b>	NM			100	A/E		200	A/E		200	A/E	X1								
<b>C1090 Interior Specialties</b>	NM			100	A/E		100	A/E		100	A/E	X1								
<b>C20 INTERIOR FINISHES</b>																				
<b>C2010 Wall Finishes</b>	NM			100	A/E		100	A/E		100	A/E	X1								
<b>C2030 Flooring</b>	NM			100	A/E		100	A/E		100	A/E	X1								
<b>C2040 Stair Finishes</b>	NM			100	A/E		100	A/E		100	A/E	X1								
<b>C2050 Ceiling Finishes</b>	NM			100	A/E		200	A/E		200	A/E	X1								
<b>D SERVICES</b>																				
<b>D10 CONVEYING</b>																				
<b>D1010 Vertical Conveying Systems</b>	100	A/E		200	A/E		200	A/E		200	A/E	X1								
<b>D1030 Horizontal Conveying</b>	100	A/E		200	A/E		200	A/E		200	A/E	X1								
<b>D1050 Material Handling</b>	100	A/E		200	A/E		200	A/E		200	A/E	X1								
<b>D1080 Operable Access Systems</b>	100	A/E		200	A/E		200	A/E		200	A/E	X1								
<b>D20 PLUMBING</b>																				
<b>D2010 Domestic Water Distribution</b>	NM			200	A/E		200	A/E		200	A/E	X1								D9
<b>D2020 Sanitary Drainage</b>	NM			200	A/E		200	A/E		200	A/E	X1								D9
<b>D2030 Building Support Plumbing Systems</b>	NM			200	A/E		200	A/E		200	A/E	X1								D9
<b>D2050 General Service Compressed-Air</b>	NM			200	A/E		200	A/E		200	A/E	X1								D9
<b>D2060 Process Support Plumbing Systems</b>	NM			200	A/E		200	A/E		200	A/E	X1								D9
<b>D30 HEATING, VENTILATION, AND AIR CONDITIONING (HVAC)</b>																				

§ 3.3 Model Element Table <i>Identify (1) the LOD required for each Model Element at each Project milestone, (2) the Model Element Author, and (3) references to any applicable notes found in Section 3.4.</i>  <i>Insert abbreviations for each MEA identified in the table below, such as "A – Architect," or "C – Contractor."</i>  <i>NOTE: LODs must be adapted for the unique characteristics of each Project.</i>	Schematic Design			Design Development			Construction Documents			Record Drawings									Notes <i>(See Sec. 3.4)</i>	
	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes		
<b>Model Elements Utilizing CSI UniFormat™</b>																				
<b>D3010 Facility Fuel Systems</b>	NM			200	A/E		200	A/E		200	A/E	X1								D9
<b>D3020 Heating Systems</b>	NM			200	A/E		200	A/E		200	A/E	X1								D7,D9
<b>D3030 Cooling Systems</b>	NM			200	A/E		200	A/E		200	A/E	X1								D7,D9
<b>D3050 Facility HVAC Distribution Systems</b>	NM			200	A/E		200	A/E		200	A/E	X1								D7,D9
<b>D3060 Ventilation</b>	NM			200	A/E		200	A/E		200	A/E	X1								D7,D9
<b>D3070 Special Purpose HVAC Systems</b>																				D7,D9
<b>D40 FIRE PROTECTION</b>																				
<b>D4010 Fire Suppression</b>																				
D4010.10 Water-Based Fire-Suppression	NM			NM			NM			NM										
D4010.90 Fire Suppression Supplementary Components	NM			100	A/E		200	A/E		200	A/E	X1								D11
<b>D4030 Fire Protection Specialties</b>																				
<b>D50 ELECTRICAL</b>																				
<b>D5010 Facility Power Generation</b>	NM			200	A/E		300	A/E		300	A/E	X1								
<b>D5020 Electrical Service and Distribution</b>																				D1,D3,D6
<b>D5030 General Purpose Electrical Power</b>	NM			200	A/E		300	A/E		300	A/E	X1								D1,D3,D6
<b>D5040 Lighting</b>	NM			200	A/E		300	A/E		300	A/E	X1								D2,D3,D6
<b>D5080 Miscellaneous Electrical Systems</b>	NM			200	A/E		300	A/E		300	A/E	X1								
<b>D60 COMMUNICATIONS</b>																				
<b>D6010 Data Communications</b>	NM			200	A/E		300	A/E		300	A/E	X1								D2,D4,D5, D6
<b>D6020 Voice Communications</b>	NM			200	A/E		300	A/E		300	A/E	X1								D2,D4,D5, D6
<b>D6030 Audio-Video Communication</b>	NM			200	A/E		300	A/E		300	A/E	X1								D2,D4,D5, D6
<b>D6060 Distributed Communications and Monitoring</b>	NM			200	A/E		300	A/E		300	A/E	X1								D2,D4,D5, D6
<b>D70 ELECTRONIC SAFETY AND SECURITY</b>																				
<b>D7010 Access Control and Intrusion Detection</b>	NM			100	A/E		100	A/E		100	A/E	X1, X2								
<b>D7030 Electronic Surveillance</b>	NM			100	A/E		100	A/E		100	A/E	X1, X2								
<b>D7050 Detection and Alarm</b>	NM			100	A/E		100	A/E		100	A/E	X1, X2								
<b>E EQUIPMENT AND FURNISHINGS</b>																				
<b>E10 EQUIPMENT</b>																				
<b>E1010 Vehicle and Pedestrian Equipment</b>	NM			200	A/E		200/	A/E	E2,E3	200/	A/E	X1								

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	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes		
<b>Model Elements Utilizing CSI UniFormat™</b>							300			300										
<b>E1030 Commercial Equipment</b>	NM			200	A/E		200/ 300	A/E	E2,E3	200/ 300	A/E	X1								
<b>E1040 Institutional Equipment</b>	NM			200	A/E		200/ 300	A/E	E2,E3	200/ 300	A/E	X1								
<b>E1070 Entertainment and Recreational Equipment</b>	NM			200	A/E		200/ 300	A/E	E2,E3	200/ 300	A/E	X1								
<b>E1090 Other Equipment</b>	NM			200	A/E		200/ 300	A/E	E2,E3	200/ 300	A/E	X1								
<b>E20 FURNISHINGS</b>																				
<b>E2010 Fixed Furnishings</b>	100	A/E		200	A/E		200/ 300	A/E	E2,E3	200/ 300	A/E	X1								
<b>E2050 Movable Furnishings</b>	100	A/E		100	A/E		100	A/E		100	A/E	X1								
<b>F SPECIAL CONSTRUCTION AND DEMOLITION</b>																				
<b>F10 SPECIAL CONSTRUCTION</b>																				
<b>F1010 Integrated Construction</b>																				
<b>F1020 Special Structures</b>																				
<b>F1030 Special Function Construction</b>																				
<b>F1050 Special Facility Components</b>																				
<b>F1060 Athletic and Recreational Special Construction</b>																				
<b>F1080 Special Instrumentation</b>																				
<b>F20 FACILITY REMEDIATION</b>																				
<b>F2010 Hazardous Materials Remediation</b>																				
<b>F30 DEMOLITION</b>																				
<b>F3010 Structure Demolition</b>																				
<b>F3030 Selective Demolition</b>																				
<b>F3050 Structure Moving</b>																				
<b>G SITEWORK</b>																				
<b>G10 SITE PREPARATION</b>																				
<b>G1010 Site Clearing</b>	NM			200	A/E		300	A/E		300	A/E	X1								
<b>G1020 Site Elements Demolition</b>	NM			200	A/E		300	A/E		300	A/E	X1								

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	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes	LOD	MEA	Notes		
<b>Model Elements Utilizing CSI UniFormat™</b>																				
<b>G1030 Site Element Relocations</b>	NM			200	A/E		300	A/E		300	A/E	X1								
<b>G1050 Site Remediation</b>																				
<b>G1070 Site Earthwork</b>	NM			200	A/E		300	A/E		300	A/E	X1								
<b>G20 SITE IMPROVEMENTS</b>																				
<b>G2010 Roadways</b>	100	A/E		200	A/E		300	A/E		300	A/E	X1								
<b>G2020 Parking Lots</b>	100	A/E		200	A/E		300	A/E		300	A/E	X1								
<b>G2030 Pedestrian Plazas and Walkways</b>	100	A/E		200	A/E		300	A/E		300	A/E	X1								
<b>G2060 Site Development</b>	100	A/E		200	A/E		300	A/E		300	A/E	X1								
<b>G2080 Landscaping</b>	NM			100	A/E		100	A/E		100	A/E	X1								
<b>G30 LIQUID AND GAS SITE UTILITIES</b>																				
<b>G3010 Water Utilities</b>	NM			200	A/E		300	A/E		300	A/E	X1								
<b>G3020 Sanitary Sewerage Utilities</b>	NM			200	A/E		300	A/E		300	A/E	X1								
<b>G3030 Storm Drainage Utilities</b>	NM			200	A/E		300	A/E		300	A/E	X1								
<b>G3050 Site Energy Distribution</b>	NM			200	A/E		300	A/E		300	A/E	X1								
<b>G3060 Site Fuel Distribution</b>	NM			200	A/E		300	A/E		300	A/E	X1								
<b>G40 ELECTRICAL SITE IMPROVEMENTS</b>																				
<b>G4010 Site Electric Distribution Systems</b>	NM			200	A/E		300	A/E		300	A/E	X1								D1
<b>G4050 Site Lighting</b>	NM			200	A/E		300	A/E		300	A/E	X1								
<b>G50 SITE COMMUNICATIONS</b>																				
<b>G5010 Site Communications Systems</b>	NM			200	A/E		300	A/E		300	A/E	X1								D1
<b>G90 MISCELLANEOUS SITE CONSTRUCTION</b>																				
<b>G9010 Tunnels</b>																				

### § 3.4 Model Element Table Notes

Notes:

*(List by number shown on table.)*

NM - Not modeled for this project milestone.

[B1] Roof or floor system modeling will not include edge-of-slab angles or bent plates, decking, blocking, bridging, strapping, and tie, gusset or connection plates.

[B2] Framing for openings in roof or floor systems smaller than a square 12 inches by 12 inches will not be modeled.

[B3] The overall profile of open-web joists and joist girders shall be modeled. The size, configuration and layout of individual members comprising joists and joist girders will not be modeled.

[B4] Structural steel or concrete used to support roof top equipment shall be modeled.

- [B5] Structural steel supporting or bracing exterior walls shall be modeled. Shear tabs and tie, gusset or connection plates will not be modeled. Metal or wood stud bracing will not be modeled.
- [C1] Structural Steel bracing for non-full height masonry partitions shall be modeled. Shear tabs and tie, gusset or connection plates will not be modeled. Bracing for metal stud or wood framed non-full height partitions is not modeled.
- [C2] Non-moveable required framing elements shall be modeled (e.g. king studs, bracing, outside corners or other framing that may conflict with other construction.)
- [D1] Underground conduits are not required to be modeled, with the exception of main electrical and telecommunications service underground exterior wall penetrations.
- [D2] Underground or in-slab conduits are not required to be modeled.
- [D3] Above grade service and distribution conduits shall be modeled, or banks of conduit may be modeled as a service/distribution conduit zone. Above grade raceway 2.5 inches in diameter or greater shall be modeled.
- [D4] Electrical rooms, and other panels not located in electrical rooms including voice/data, a/v and security, shall have branch conduit zones modeled 10' beyond the walls of the electrical room or panel location, where it is believed 6 or more conduits will run. The branch conduit zones shall have sufficient capacity for anticipated conduits. At a minimum, conduit zones shall be equal to the width of the panel served by two times its depth.
- [D5] Cable tray shall be modeled.
- [D6] Conduit run modeling shown by engineer represents one possible route. The contractor is not required to follow that specific route, unless noted otherwise. The contractor is responsible to determine actual routing based on field verification, and the means and methods the contractor chooses.
- [D7] Model element shall include appropriate clearance and work zone(s)
- [D8] Fire Protection shall be modeled by the design team or by a Design-Build Vendor procured at the completion of Design Development
- [D9] Piping greater than 1 inch diameter shall be modeled. Insulation, if required or specified must be a part of the model element.
- [D10] Panels modeled to Level 300.
- [D11] Modeling requirement limited to Standpipes.
- [E1] User agency shall identify model information, if any, that can be obtained from vendor(s).
- [E2] LOD 300 for equipment that is included in the Construction Contract. LOD 200 for equipment that is Not In Contract (NIC).
- [E3] Project teams shall meet and discuss what, if any, equipment is to be included in the model.
- [X1] Record Drawing Modeling shall be consistent with the Design Agreement requirements. There is no anticipation or expectation of Field Verification or the provision of model information of greater development than that required at the completion of Construction Documents.
- [X2] CM shall provide A/E with model content for incorporation into model database
- [X3] User shall provide A/E with model content for incorporation into model database.