2005 BIMFORUM 2019 BIM FORUM 2022

2024

LEVEL OF DEVELOPMENT

LOD SPECIFICATION

PART I

BIM FORUM

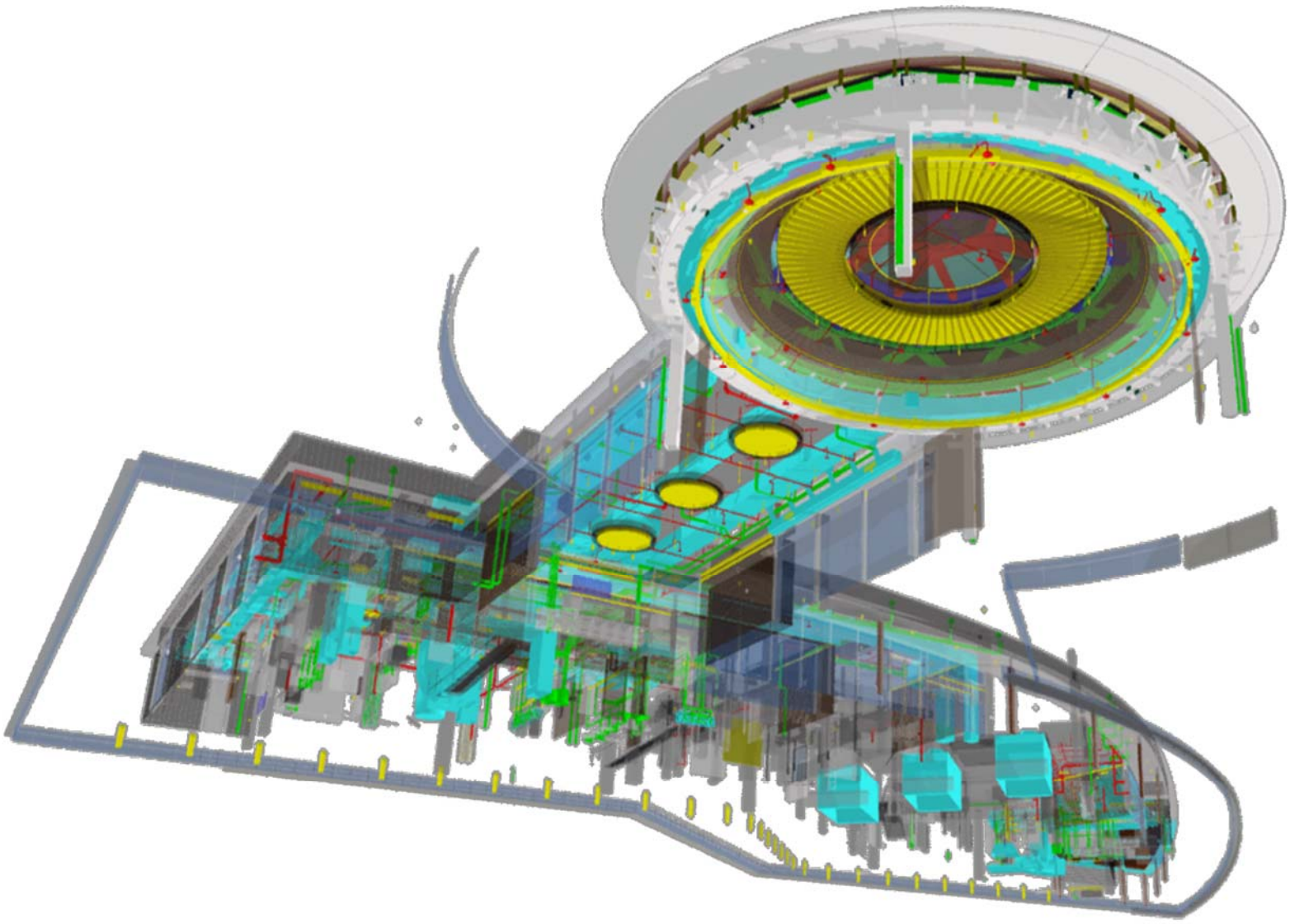

Image Source: DPR Construction

Collaborating Organizations

AIA Contract Documents

American Institute of Steel Construction

American Society of Landscape Architects

BIM Forum Ecuador

buildingSMART Ecuador

buildingSMART USA

Design-Build Institute of America

National Institute of Building Sciences

US Institute of Building Documentation

2024 LOD Specification

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Spanish Translation

Carlos Vera /BIMForum Ecuador

Héctor Santacruz /BIMForum Ecuador

Sponsors

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American Institute of Steel Construction

EXECUTIVE SUMMARY

For a detailed guide on the use of this Specification see *User Guide* below.

The Level of Development (LOD) Specification is a reference tool intended to improve the quality of communication among users of Building Information Models (BIMs) about the characteristics of elements in models. The *LOD Specification* expands upon the LOD schema developed by AIA Contract Documents for its *E201 2022 BIM Exhibit for Sharing Models with Project Participants*[1] by providing definitions and illustrations of BIM elements of different building systems at different stages of their development and use in design, construction and operation.

Building Information Modeling presents information about a construction project or structure in the form of three-dimensional graphical representations of elements (e.g., doors, beams, etc.), which can be further associated with information about other characteristics of those elements. It is possible for the graphical representation of an element, taken alone, to suggest that greater accuracy or intention can be attributed to the element than is in fact the case. The AIA's LOD Schema was developed to provide a more systematic way of conveying the extent of reliance that may be placed on an element. Many participants in the design and construction process felt, however, that the industry would benefit from a more detailed treatment of the AIA's brief narrative definitions.

Discussions within the BIMForum led to the creation of a multi-disciplinary task force to develop and maintain the *LOD Specification*. The *LOD Specification* is an organized collection of interpretations of the AIA's LOD definitions describing input and information requirements and providing graphical examples of the different levels of development of a broad variety of building element classes.

The *LOD Specification* does not prescribe the necessary levels of development for specific phases in the design and construction process. That determination is left to each project team. It is believed, however, that the availability of more precise definitions will reduce the risks of miscommunication among members of project teams when the expectations for different stages in the design and construction process are established, through easier identification of what each member of the team is expected to deliver and greater predictability of the level of effort that is required to create each member's deliverables.

The *LOD Specification* is organized by CSI Uniformat 2010 and Omniclass[2], with the subclasses expanded to Level 4 (and in a few cases to Level 5) to provide detail and clarity to the element definitions. Breakdown indices are also provided per Uniclass 2015[3], a UK initiative that is gaining international acceptance. See BIMForum LOD Spec Part II, tab 3, for a Uniclass-to-Omniclass/Uniformat cross-reference table.

The *LOD Specification* does not prescribe who the author of a particular component at a given LOD should be, as that will vary from one project or firm to another. However, the document does provide a concise schematic means through the spreadsheet in Part II for a project team to identify model element authors, again in the interest of improving communication among model users. In addition, the *LOD Specification* Working Group has been working with software developers to provide a means within the software of tagging individual elements within a model with their current LOD level.

The *LOD Specification* is intended as a reference standard, but is also intended to evolve as the use of BIM develops. The Specification is updated annually, and previous versions are maintained on the BIMForum website (www.bimforum.org/lod). Users are invited to provide comments and recommendations for consideration in future editions. These should be sent by email to LOD@BIMForum.org.

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[1] AIA Contract Document *E201 2022 BIM Exhibit for Sharing Models with Project Participants where Model Versions may be enumerated as a Contract Document* is part of a series of digital practice documents AIA Contract Documents published in July 2022. Additional documents in the series include *E201 2022 BIM Exhibit for Sharing Models with Project Participants (does not support use as a contract), E401-2022 BIM Exhibit for Sharing Models Solely Within the Design Team, E402-2022 BIM Exhibit for Sharing Models Solely Within the Construction Team, G203-2022 BIM Execution Plan, G204-2022 Model Element Table, and G205-2022 Abbreviated Model Element Table.* For general information on the documents and executable versions visit https://www.aiacontracts.com.

[2] UniFormat™ and Omniclass Numbers and Titles used in this publication are from UniFormat™, published by CSI and Construction Specifications Canada (CSC), and are used with permission from CSI. For a more in-depth explanation of UniFormat™ and its use in the construction industry visit http://www.csinet.org or contact CSI, 110 South Union Street, Suite 100, Alexandria, VA 22314. (800) 689-2900.

[3] Uniclass 2015 © NBS Enterprises Ltd

ACKNOWLEDGEMENTS

Many thanks to all the individuals and organizations who reviewed and contributed to this work, and to the following industry association representatives and co-chairs of the major discipline subgroups who made this document possible:

LOD SPEC WORKING GROUP

The widespread industry adoption of the *BIMForum LOD Spec* is primarily due to the broad range of built-environment industry knowledge, perspectives, and expertise that generates and maintains it. The component-specific interpretations of the fundamental LOD definitions contained in the Spec are not developed solely by experts in that system, but through a collaborative, consensus-based approach bringing to bear design, construction, and operations expertise from all disciplines.

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Graphics

Annotated graphics were provided by the following organizations. Graphics not annotated were provided by BIMForum

1 Kone US
2 American Society of Landscape Architects (ASLA)

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In addition, we'd like to thank the many contributors from all sectors of the industry who helped make this specification possible, including:

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UNIFORMAT # / OMNICLASS # / UNICLASS # SECTION TITLE

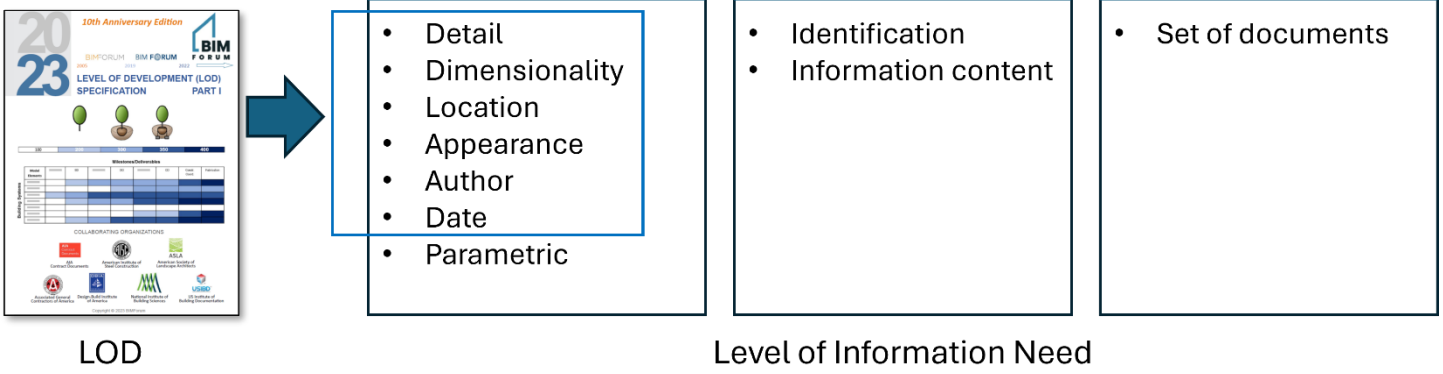
Post feedback/comments to https://form.jotform.com/233625210758051

DEFINITIONS AND NOTES

Level of Information Need

It is important to note that **Level of Information Need** and **Level of Development (LOD) are not interchangeable,** but rather are **complementary**.

Level of Information Need is an ISO Standard, detailed in the newly released ISO 7817-1:2024, that specifies the quality, quantity, and granularity of geometric, alphanumeric, and documentation information to be included in an information deliverable. While Level of Information Need calls for definition of geometry it provides no guidance on how to do so. LOD defines the detail, dimensionality, location, appearance, author, and date of geometric information within the larger framework of Level of Information Need.



LOD Specification Part I is a dictionary that defines LODs as applied to specific model elements. The definitions address the detail, dimensionality, location, and appearance of model elements.

LOD Specification Part II is a framework that enables concise definition of geometric models at the element level in terms of LOD, element author, and date. Models can be defined for any deliverable (milestones, information exchanges, special uses, etc.) at any phase of a project. The framework also provides for user-defined aspects such as parametric functionality.

The LOD schema does not address alphanumeric information but focuses purely on geometric for several reasons:

1. There is no consistent tie between geometric and alphanumeric information, e.g. complete specifications for a fire extinguisher cabinet can be linked with a model element of any LOD, including an LOD 100 symbol.
2. When a large amount of alphanumeric information is linked to a model, the usual practice is to house this information in a linked database rather than embedding it in the model elements themselves.
3. Requirements for alphanumeric information vary widely between projects, facilities, and owners.
4. There exist well-known standard protocols for addressing alphanumeric information, including ISO 16739-1:2018 *Construction Operations Building Information Exchange* (COBie), and buildingSMART's ISO 19650-compliant *Information Delivery Specification* (IDS). The most effective way of specifying both geometric and alphanumeric information requirements for a BIM is to couple one of these protocols with the *LOD Specification*.

Fundamental LOD Definitions[4]

Level of development vs. Level of Detail

LOD is sometimes interpreted as Level of *Detail* rather than Level of *Development*. This Specification uses the concept of Level of *Development*. There are important differences.

[4] The definitions for LOD 100, 200, 300, 400, and 500 included in this Specification represent the updated language that appears in AIA Contract Document E201-2022, BIM Exhibit for Sharing Models with Project

Level of *Detail* is essentially how *much* detail is included in the model element. Level of *Development* is the *degree to which the element's geometry has been thought through* – the degree to which project team members may rely on the information when using the model.

It is important to note that the international terminology regarding Level of Development and Level of Detail varies. Some countries refer to the Level of Development concept defined within this specification as the Level of Detail and use different numbering systems.

LOD Requirements are Cumulative. For a given element requirements for each LOD (except LOD 500 – see below) include the requirements for all lower LODs.

Where an LOD is not defined for an element refer to the Fundamental Definitions

LOD 100

AIA Contract Documents Definition: *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 (e.g., cost per square foot, tonnage of HVAC, etc.) can be derived from other Model Elements.*

BIMForum Expansion: LOD 100 elements are not necessarily geometric representations. Examples are information attached to other model elements: symbols showing the existence of a component but not its shape, size, or precise location; or space reservation volumes. In essence, if information about an element can be derived from the model but the element is not at LOD 200 it is said to be at LOD 100. Any information derived from LOD 100 elements must be considered approximate.

LOD 200

AIA Contract Documents Definition: *The Model Element is generically and graphically represented within the Model with approximate quantity, size, shape, location, and orientation.*

BIMForum Expansion: LOD 200 elements are generic placeholders but are recognizable as the components they represent (e.g. a pump, a light fixture, a beam, etc.). Any information derived from LOD 200 elements must be considered approximate.

LOD 300

AIA Contract Documents Definition: *The Model Element, as designed, is graphically represented within the Model such that its quantity, size, shape, location, and orientation can be measured.*

BIMForum Expansion. LOD 300 elements are sufficiently developed to fully convey the design intent for the represented item. Note that while neither the LOD definitions nor this Specification specify who models the element, designers rarely generate model elements higher than 300. See interpretation of LOD 350 below.

LOD 350

AIA Contract Documents Definition: *The Model Element, as designed, is graphically represented within the Model such that its quantity, size, shape, location, orientation, and interfaces with adjacent or dependent Model Elements can be measured.*

BIMForum Expansion. LOD 350 is intended to define requirements for model elements that are sufficiently developed to support construction-level coordination. This LOD usually requires craft knowledge, thus the caveat in the LOD 300 interpretation above that designers rarely generate elements at LODs higher than 300. It should be remembered, though, that neither the LOD definitions nor this Specification specify who models the element – if a design team has craft knowledge available they might choose to develop elements to LOD 350 or higher.

LOD 400

AIA Contract Documents Definition: *The Model Element is graphically represented within the Model with detail sufficient for fabrication, assembly, and installation.*

BIMForum Expansion. LOD 400 describes a model element developed to the level of shop drawings – in most cases, if a project's specifications call for shop drawings of an item, the project team might model the item at LOD 400. Thus most models contain few LOD 400 elements.

LOD 500

AIA Contract Documents Definition: *The Model Element is a graphic representation of an existing or as-constructed condition developed through a combination of observation, field verification, or interpolation. The level of accuracy shall be noted or attached to the Model Element.*

BIMForum Expansion. LOD 500 does not indicate a higher level than LOD 400, rather it indicates that the element's geometry is determined through observation of an existing item rather than design of a future item. The LOD 500 definition requires that the model element's accuracy be specified – BIMForum recommends USIBD's *Level of Accuracy (LOA) Specification* for this purpose.

Defined Terms

The definitions below are not necessarily the dictionary definition of the term. Rather they describe specialized use of the term in this Specification. **These terms are shown in bold face** when used in the body of this document.

Accurate. Conforming exactly with the intended dimension.

Many Landscape Architecture elements are subject to growth, erosion, and other similar natural processes, and therefore application of the term "accurate" to these elements differs somewhat from its application to manufactured or constructed elements. For the purposes of this Specification "accurate" for these natural elements denotes a sufficient level of exactness to communicate design intent, but does not necessarily imply exact dimensions.

Actual. The dimension needed for construction-level coordination. E.g., in defining an opening in a precast wall the precast plant must know the real dimensions of the rough opening.

Nominal. The dimension that is available at the design phase. E.g., the dimensions of the opening that is automatically generated by the model authoring tool when a door is placed in a wall. Note that these dimensions will usually differ from the rough opening dimensions.

Element envelope. The exterior surfaces of the element. This term is used at both LOD 200 and 300 – at 200 the surfaces may be approximate but must encompass the extents of the element, at 300 they must be **accurate**.

Penetration Elements. Elements that are used to reinforce or otherwise augment a point where one element passes through another, e.g., a pipe sleeve in a concrete wall. Penetration elements are addressed under the penetrating element – e.g., pipe sleeves are addressed in the sections on piping.

General Notes

Appurtenances. This heading is used by Uniformat to indicate items that may or may not be attached to other elements under the same parent heading (e.g., waterproofing, insulation) – as such each Supplementary Components section will include a wide range of elements. In most cases these elements are not modeled. If it is deemed necessary to model any of the elements this can be addressed in the Part II template by either adding one or more child lines or using the notes function.

Supplementary Components. Similar to Appurtenances.

Narrative descriptions supersede graphics. In the *Element Geometry* section, if there is a conflict between the narrative description and the associated graphic, the narrative controls.

Membranes. Generally these are not modeled. Rather, they are described through notes or other non-graphic means.

Uniformat Levels 4 and 5. This Specification adheres to the rules set down in CSI's *Uniformat 2010* publication

- Level 4. E.g. A1010.**10**. Level 4 items defined in *Uniformat 2010* are not changed. However, level 4 items have been added where necessary as an additional subdivision of the parent level 3 definition. These items are tagged with the note "BIMForum addition".
- Level 5. E.g. A1010.10.**10**. All level 5 items in this Specification are BIMForum additions (the *Uniformat 2010* publication's breakdown ends at level 4, and includes no level 5 items).

UPDATES OF THIS DOCUMENT

While this document is intended as a reference that can be cited in agreements such as contracts and BIM execution plans, it is recognized that the use of BIM in the building industry is evolving. To accommodate this evolution this document will be updated periodically in clearly identifiable versions. A project can adopt a specific version and then has the option to remain with that version or update if a new version is published. Initially the target update frequency is annually, but that may change in the future. In addition, interim updates may be issued if needed.

REVISION HISTORY

12/31/2024	Level of Development Specification 2024
11/25/2024	Level Of Development Specification 2024 Draft for Public Comment
2/28/2024	Level of Development Specification 2023
12/31/2023	Level Of Development Specification 2023 Draft for Public Comment
12/31/2022	Supplement to 2021 LOD Specification
12/29/2021	Level Of Development Specification 2021
10/24/2021	Level Of Development Specification 2021 Draft for Public Comment
12/31/2020	Level Of Development Specification 2020
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09/04/2018	Level Of Development Specification 2018
07/16/2018	Level Of Development Specification 2018 Draft for Public Comment
11/07/2017	Level Of Development Specification 2017
08/25/2017	Level Of Development Specification 2017 Draft for Public Comment
10/17/2016	Level Of Development Specification 2016
08/25/2016	Level Of Development Specification 2016 Draft for Public Comment
10/30/2015	Level Of Development Specification 2015
4/30/2015	Level Of Development Specification 2015 Draft For Public Comment
12/30/2014	Level Of Development Specification 2014
8/22/2013	Level Of Development Specification 2013
4/24/2013	Initial Draft for Public Review

Specific Changes to 2024 Edition

In addition to the changes listed below there have been some changes to individual line items. All changes from the previous version of this Spec are marked with a change bar in the left margin.

Part I

Uniformat	**Omniclass**	**Uniclass**		
G2030.10.10	21-07 20 30 10 10		Decks and Pedestal Systems	Added
G2060.30	21-07 20 60 30		Retaining Walls	Added

Part II

Attribute tables have been dropped from the Part II workbook. See *Level of Information Need* above.

Uniformat / Omniclass / Uniclass

PART I – ELEMENT GEOMETRY

A / 21-01 / Ss 20 05 SUBSTRUCTURE

Associated Masterformat Sections: 01 82 00

A10 / 21-01 10 / Ss 20 05 15 Foundations

Associated Masterformat Sections: 01 82 13

100	See Fundamental LOD Definitions	
200	Inclusions • **Element envelope**	

A1010 / 21-01 10 10 / Ss 20 05 Standard Foundations

Includes: Formwork, concrete, unit masonry and reinforcement. Includes Standard Foundation Supplementary Components as appropriate. May Include: Related Activities: Excavation, dewatering, excavation support systems, backfill and compaction, and soil treatment.

Associated Masterformat Sections: 01 82 13

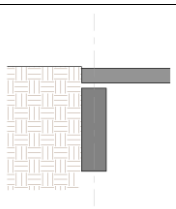
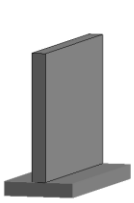
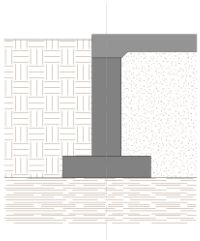
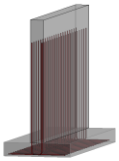
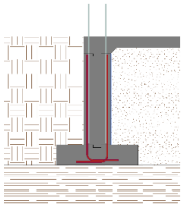
100	See A10	
200	See A10	
300	Inclusions • Openings with any dimension greater than 6” (15 cm) or as noted • Surface slopes • Area of Influence	

A1010.10 / 21-01 10 10 10 / Ss 20 05 15 Wall Foundations

Associated Masterformat Sections: 03 30 00 / 03 40 00 / 04 20 00 / 06 14 00

100	See A10	

Uniformat / Omniclass / Uniclass

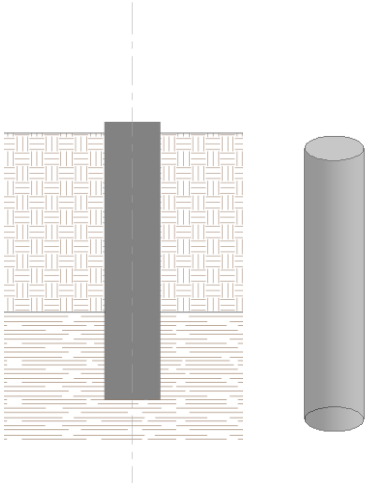
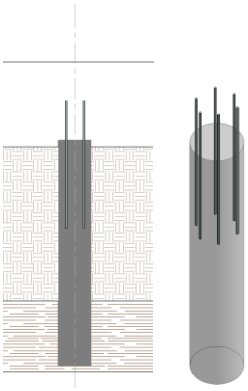
200	See A10.	
300	Inclusions ● Openings with any dimension greater than 6” (15 cm) or as noted ● Surface slopes ● Footings ● Area of influence	 
350	Inclusions ● All penetrations, modeled at rough opening dimensions ● Expansion joints ● Chamfer ● Dowels ● Embeds ● Lintels ● Keyways	 
400	Inclusions ● Reinforcement including hooks and lap splices ● Post-tensioning tendons ● Coursing for unit masonry ● Pour Joints	

A1010.30 / 21-01 10 10 30 / Ss 20 05 15
Column Foundations

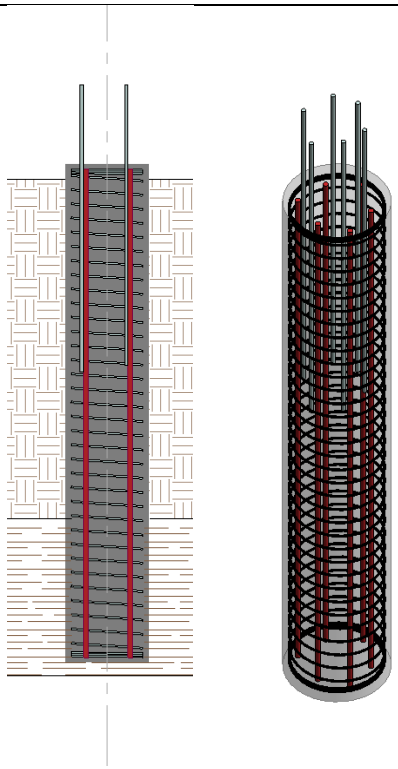
Associated Masterformat Sections: 03 30 00

100	See A10	
200	See A10	

Uniformat / Omniclass / Uniclass

300	Inclusions ● Design specified bearing depth ● Top of Pier ● Size of pier ● Area of influence	
350	Inclusions ● Dowels ● Couplers	

Uniformat / Omniclass / Uniclass

400	Inclusions ● Depth to bearing stratum ● Penetration into bearing stratum ● Reinforcement including hooks and lap splices	

A1010.90 / 21-01 10 10 90 / Ss 20 05 15
Standard Foundation Supplementary Components TBD

See General Notes: Supplementary Components

A1020 / 21-01 10 20 / Ss 20 05
Special Foundations

Includes: Drilling, casing, bell bottom, excavation, dewatering, removal of excavated, materials, reinforcing, and concrete. Drilled Piers, Driven Piles, Mat Foundation, elevator pits.

Associated Masterformat Sections: 31 60 00

100	See A10	
200	See A10	
300	See A1010	
350	See A1010.10	
400	See A1010.10	

Uniformat / Omniclass / Uniclass

A1020.10 / 21-01 10 20 10 / Ss 20 05 65 24
Driven Piles TBD

Includes: Piles, pile driving, pile cut off, pile testing.

A1020.10.10 / 21-01 10 20 10 10 / --
Helical Piles, Helical Piers

Associated Masterformat Sections: N/A

100	See A10	
200		
300	Inclusions • Length • Largest outside diameter • Area of influence	
350	Inclusions • Connection detail at top of pier	
400	Inclusions: • True shape of pier	

Uniformat / Omniclass / Uniclass

A1020.20 / 21-01 10 20 20 / Ss 37 50 80
Caissons TBD

A1020.30 / 21-01 10 20 30 / ss 20 05 15
Special Foundation Walls TBD

A1020.40 / 21-01 10 20 40 / Pr 20 29 03
Foundation Anchors TBD

A1020.50 / 21-01 10 20 50 / Ss 20 05 90
Underpinning TBD

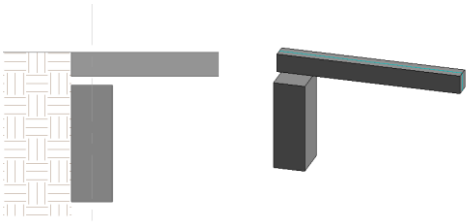
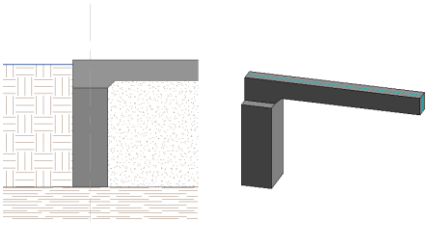
A1020.60 / 21-01 10 20 60 / Ss 20 05 15 72
Raft Foundations TBD

A1020.70 / 21-01 10 20 70 / Ss 20 05 65
Pile Caps TBD

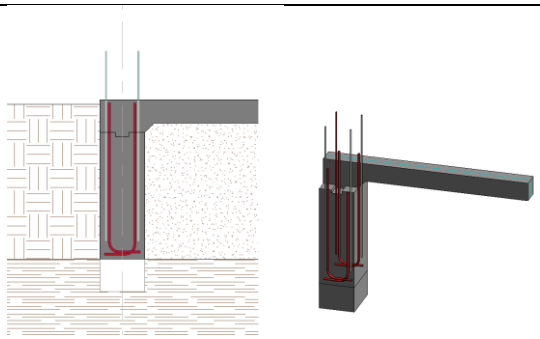
A1020.80 / 21-01 10 20 80 / Ss 20 05 15 71
Grade Beams

Includes: Formwork, reinforcement, and concrete.

Associated Masterformat Sections: 03 30 00

100	See A10	
200	See A10	
300	See A1010	

Uniformat / Omniclass / Uniclass

350	Inclusions: • All penetrations, modeled at rough opening dimensions • Expansion joints • Chamfer • Dowels • Embeds • Keyway • Void boxes	
400	See A1010.10	

A20 / 21-01 20 / Ss 20 05 15
Subgrade Enclosures

Associated Masterformat Sections: 01 82 16

100	Inclusions • Solid mass model representing overall subgrade volume or schematic wall elements that are not distinguishable by type or material.	

A2010 / 21-01 20 10 / Ss 20 60
Walls for Subgrade Enclosures

Includes: Perimeter walls enclosing building space below grade. Includes formwork, reinforcing, concrete and unit masonry. Includes Subgrade Enclosure Wall Supplementary Components as appropriate. May Include: Related Activities: Excavation, dewatering, excavation support systems, backfill and compaction, and soil treatment.

Associated Masterformat Sections: 01 82 16

100	See B20	
200	See B2010.20	
300	See B2010.20	
350	See B2010.20.50	
400	See B2010.20.50	

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A2010.10 / 21-01 20 10 10 / Ss 20 60
Subgrade Enclosure Wall Construction TBD

A2010.20 / 21-01 20 10 20 / Ss 20 60
Subgrade Enclosure Wall Interior Skin TBD

A2010.90 / 21-01 20 10 90 / Ss 20 60
Subgrade Enclosure Wall Supplementary Components

See General Notes: Supplementary Components

A40 / 21-01 40 / Pr 20 85 14 16
Slabs-on-Grade

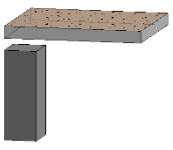
Associated Masterformat Sections: 01 82 00

100	N/A	
200	Inclusions • Generic slab with approximate thickness.	

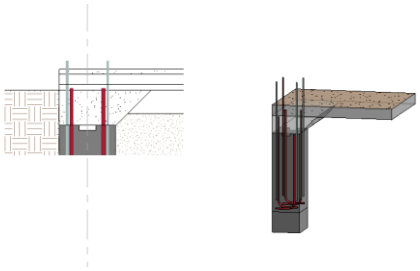
A4010 / 21-01 40 10 / Pr 20 85 14 16
Standard Slabs-on-Grade

Includes: Slab construction supported continuously by earth or compacted fill. Includes fine grading, subbase layer, mud slab, insulation, vapor retarder, waterproofing, formwork, expansion joints, control joints, reinforcement, concrete, and finishing includes: Slabs-On-Grade Supplementary Components as appropriate. May Include: Related Activities: Excavation, dewatering, excavation support systems, backfill and compaction, and soil treatment.

Associated Masterformat Sections: 03 30 00

100	See A40	
200	See A40	

Uniformat / Omniclass / Uniclass

300	Inclusions: ● Overall size, thickness, and geometry of the slab ● Openings with any dimension greater than 6” (15 cm) or as noted ● Slab depressions ● Edge turn downs ● Surface slopes ● Area of influence	
350	Element modeling to include: ● All penetrations, modeled to rough opening dimensions. ● Control joints ● Expansion joints ● Void boxes ● Anchor elements ● Dowels ● Post-tension anchor points.	
400	Inclusions: ● Pour joints ● Reinforcement ● Post tensioning components	

A4020 / 21-01 40 20 / Pr 20 85 14 16
Structural Slabs-on-Grade

Includes: Self-supporting slab construction not supported continuously by earth or compacted fill. Includes formwork, accessories, reinforcement, concrete, and finishing. Includes Slabs-On-Grade Supplementary Components as appropriate. May Include: Related Activities: Excavation, dewatering, excavation support systems, backfill and compaction, and soil treatment.

Associated Masterformat Sections: 03 30 00

All	See A4010	

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A4030 / 21-01 40 30 / --
Slab Trenches TBD

A4040 / 21-01 40 40 / Ss 37 16 90 63
Pits and Bases TBD

A4090 / 21-01 40 90 / --
Slab-On-Grade Supplementary Components
See General Notes: Supplementary Components

A60 / 21-01 60 / --
Water and Gas Mitigation TBD

A6010 / 21-01 60 10 / Ss 50 35 8 85
Building Subdrainage TBD

A6020 / 21-01 60 20 / Ss 15 10 33 34
Off-Gassing Mitigation TBD

A90 / 21-01 90 / --
Substructure Related Activities TBD

A9010 / 21-01 90 10 / Ss 15 10 30 25
Substructure Excavation TBD

A9020 / 21-01 90 20 / Ss 15 10 76 21
Construction Dewatering TBD

A9030 / 21-01 90 30 / TE 20 50 65
Excavation Support TBD

A9040 / 21-01 90 40 / Ss 15 10 35
Soil Treatment TBD

Uniformat / Omniclass / Uniclass

B / 21-02 / -- SHELL

Associated Masterformat Sections: 01 83 00

B10 / 21-02 10 / -- Superstructure

Associated Masterformat Sections: 01 83 13

B1010 / 21-02 10 10 / Ss 30 12 Floor Construction

Associated Masterformat Sections: 01 83 13

100	Inclusions • Abstraction of element indicating approximate location	
200	Inclusions • **Element envelope** of individual members	

B1010.10 / 21-02 10 10 10 / Ss 30 12 33 Floor Structural Frame

Includes: Structural elements required for support of floor construction within basements and above grade. Includes columns, girders, beams, trusses, joists. Includes cast-in-place concrete, precast concrete, unit masonry, metal framed, and wood framed systems. Includes framed and sleeved openings for services. Includes Floor Construction Supplementary Components as appropriate.

Specific structural systems within this section are listed as follows:

Concrete	*B1010.10.10*
Precast Structural Inverted T Beam	*B1010.10.11*
Concrete Structural Column	*B1010.10.12*
Masonry	*B1010.10.20*
Steel Framing Columns	*B1010.10.30*
Steel Framing Beams	*B1010.10.40*
Steel Framing Bracing Rods	*B1010.10.50*
Steel Joists	*B1010.10.60*
Cold-Formed Metal Framing	*B1010.10.70*
Wood Floor Trusses	*B1010.10.80*

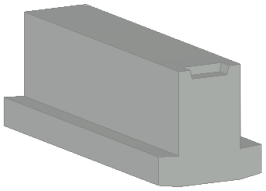
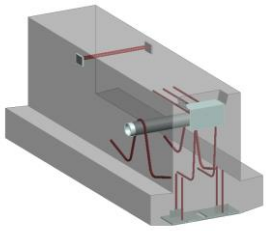
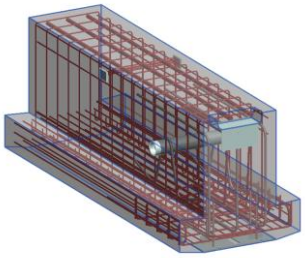
Associated Masterformat Sections: 03 30 00 / 03 40 00 / 04 20 00 / 05 10 00 / 05 20 00 05 21 23 / 05 42 00 / 05 44 00 / 06 11 00 / 06 13 00 / 06 13 26 / 06 17 33 / 06 17 36 06 17 53 / 06 18 13 / 06 18 16 / 06 50 00

B1010.10.10 / 21-02 10 10 10 10 / Ss 30 12 85 18 Floor Structural Frame (Concrete)

Associated Masterformat Sections: 03 30 00 / 03 40 00

100	See B1010	
200	See B1010	

Uniformat / Omniclass / Uniclass

300	Inclusions: • **Element envelope** • Openings with any dimension greater than 6” (15 cm) or as noted • Slopes	
350	Inclusions • All penetrations, modeled to rough opening dimensions. • Control joints • Expansion joints • Anchor elements • Embeds • Dowels • Post-tension anchor points. • Critical structural zones such as zones that cannot be penetrated or cut • Lifting points	
400	Inclusions: • All reinforcement including shear reinforcement and stud rails • Pour joints • Chamfer • Camber	

B1010.10.11 / 21-02 10 10 10 11 / Ss 20 20 75 15
Structural Beam, Concrete, Precast or Cast-in-Place

Includes: Structural elements required for support of floor construction within basements and above grade. Includes columns, girders, beams, trusses, joists. Includes cast-in-place concrete, precast concrete, unit masonry, metal framed, and wood framed systems. Includes framed and sleeved openings for services.Includes Floor Construction Supplementary Components as appropriate.

Associated Masterformat Sections: 03 30 00 / 03 40 00 / 04 20 00 / 05 10 00 / 05 20 00
05 21 23 / 05 42 00 / 05 44 00 / 06 11 00 / 06 13 00 / 06 13 26 / 06 17 33 / 06 17 36
06 17 53 / 06 18 13 / 06 18 16 / 06 50 00

100	See B1010	
200	See B1010	

Uniformat / Omniclass / Uniclass

300	Inclusions: • **Element envelope** of structural elements • Openings with any dimension greater than 6” (15 cm) or as noted • Slopes	
350	Inclusions • All penetrations, modeled to rough opening dimensions. • Anchor elements • Embeds • Dowels • Post-tension anchor points. • Critical structural zones such as zones that cannot be penetrated or cut • Lifting points	
400	Inclusions: • All reinforcement • Chamfer • Camber	

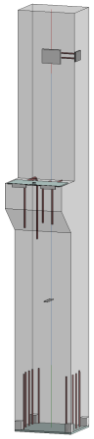
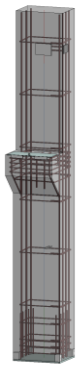
B1010.10.12 / 21-02 10 10 10 12 / Ss 20 30 75 15
Structural Column, Concrete, Precast or Cast-inPlace

Includes: Structural elements required for support of floor construction within basements and above grade. Includes columns, girders, beams, trusses, joists. Includes cast-in-place concrete, precast concrete, unit masonry, metal framed, and wood framed systems. Includes framed and sleeved openings for services. Includes Floor Construction Supplementary Components as appropriate.

Associated Masterformat Sections: 03 30 00 / 03 40 00 / 04 20 00 / 05 10 00 / 05 20 00
05 21 23 / 05 42 00 / 05 44 00 / 06 11 00 / 06 13 00 / 06 13 26 / 06 17 33 / 06 17 36
06 17 53 / 06 18 13 / 06 18 16 / 06 50 00

100	See B1010	
200	See B1010	

Uniformat / Omniclass / Uniclass

300	Inclusions: • Overall Geometry • Openings with any dimension greater than 6” (15 cm) or as noted • Slopes	
350	Inclusions • All penetrations, modeled to rough opening dimensions. • Anchor elements • Embeds • Dowels • Post-tension anchor points. • Critical structural zones such as zones that cannot be penetrated or cut • Lifting points	
400	Inclusions: • All reinforcement • Chamfer • Camber	

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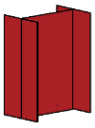
B1010.10.20 / 21-02 10 10 10 20 / Ss 25 13 50
Floor Structural Frame, Masonry

Associated Masterformat Sections: 04 20 00

100	See B1010	
200	See B1010	
300	Inclusions: • **Element envelope** • Openings with any dimension greater than 6” (15 cm) or as noted • Slopes	
350	Inclusions • All penetrations, modeled to rough opening dimensions. • Anchor elements • Exposed embeds • Lintels • Dowels • Critical structural zones such as zones that cannot be penetrated or cut • Expansion joints • Lifting points • Grouted cells, e.g., bond beams	
400	Inclusions: • Coursing • Reinforcement	

B1010.10.30 21-02 10 10 10 30
Floor Structural Frame, Steel Framing Columns

Associated Masterformat Sections: 05 10 00

100	See B1010	
200	See B1010	
300	Inclusions: • Specific section type and size	

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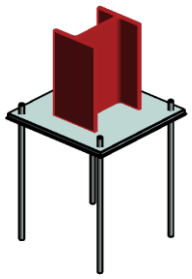
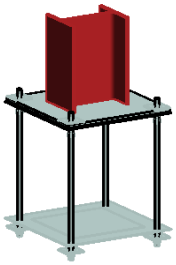
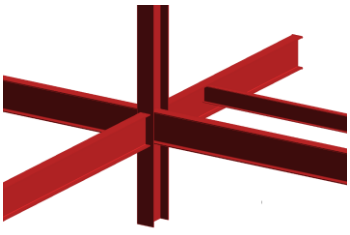
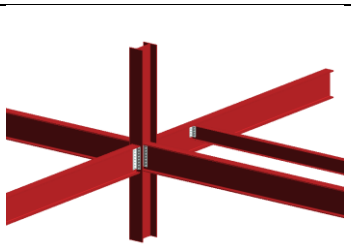
350	Inclusions: • Member connections such as, base plates and gusset plates, anchor rods • Connection details with correct and reliable dimensions • Steel structure reinforcement and stiffeners (e.g. for penetrations) • Cap plates	
400	Inclusions: • Welds • Coping of members • Washers, nuts, etc.	

B1010.10.40 / 21-02 10 10 10 40 / Ss 20 20 75 80
Floor Structural Frame, Steel Framing Beams

Associated Masterformat Sections: 05 10 00 / 05 20 00 / 05 21 23

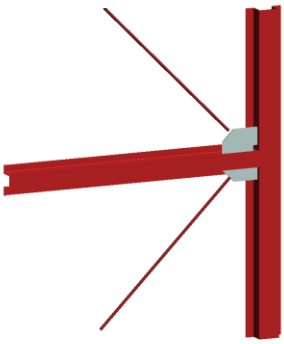
100	• See B1010	
200	• See B1010	
300	Inclusions: • Specific section type and size • **Nominal** size and shape of penetrations of any size • Slopes	

Uniformat / Omniclass / Uniclass

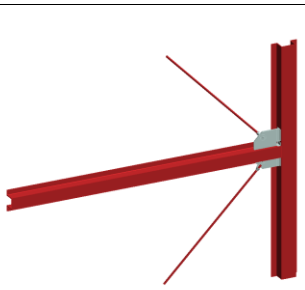
350	Inclusions: • Member connections such as, base plates and gusset plates, anchor rods • **Actual** size of penetrations • Reinforcement of penetrations • Stiffeners • Connection details • Cap plates	
400	Inclusions • Welds • Coping of members • Bent plates, cap pates, etc. • Bolts, washers, nuts, etc. • All assembly elements	

B1010.10.50 / 21-02 10 10 10 50 / Pr 20 85 84 88
Floor Structural Frame, Steel Framing Bracing

Associated Masterformat Sections: 05 10 00

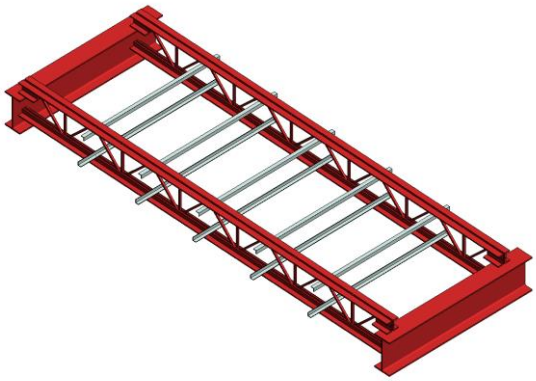
100	See B1010	
200	See B1010	
300	Inclusions • Type of brace (e.g., cable, rod, section, etc.)	
350	Inclusions • Connection details • **Actual** location of member connections • Main elements of typical connections such as base plates, gusset plates, anchor rods, etc. • miscellaneous steel members with correct size, shape, orientation and material	

Uniformat / Omniclass / Uniclass

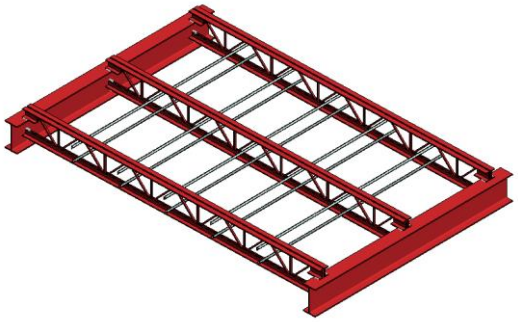
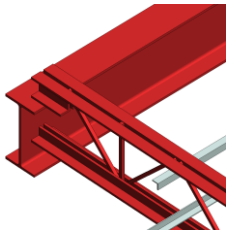
400	Inclusions • Welds • Clevis • Bolts, washers, nuts, etc. • All assembly elements	

B1010.10.60 / 21-02 10 10 10 60 / Pr 20 85 90 11
Floor Structural Frame, Steel Joists

Associated Masterformat Sections: 05 10 00 / 05 20 00 / 05 21 23

100	See B1010	
200	See B1010	
300	Inclusions • ~~Element envelope~~chords • Volume of space occupied by web • Spacing and end elevations • Joist seat depth	
350	Inclusions • **Actual** final chord and web members with **accurate** panel points • Joist bridging and lateral braces. • Any miscellaneous steel pertaining to the joist • Joist seat width • Erection details for installation • Joist layout in coordination with metal deck fasteners • Non-standard joist seat depths and\or sloping joist seat	

Uniformat / Omniclass / Uniclass

400	Inclusions • Welds • Connection plates • Anchorage	 

B1010.10.70 / 21-02 10 10 10 70 / Ss 20 10 75 45
Floor Structural Framing (Cold Formed Metal Framing)

Associated Masterformat Sections: 05 10 00 / 05 42 00 / 05 44 00

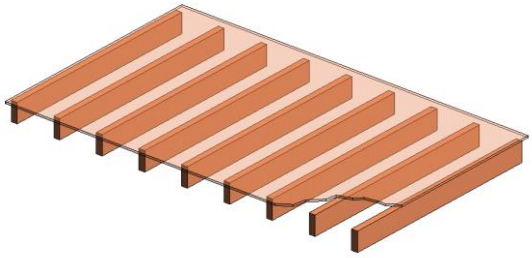
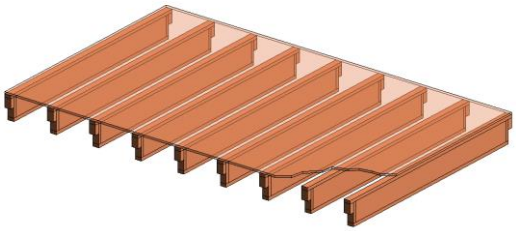
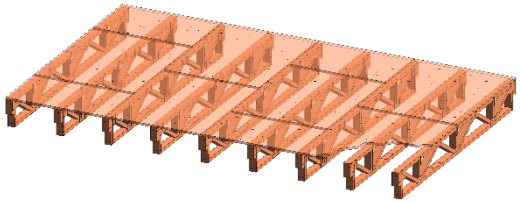
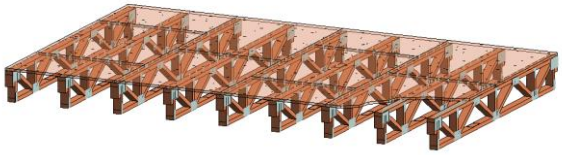
100	See B1010	
200	See B1010	
300	Inclusions: • Specific section type and size • **Nominal** size and shape of penetrations of any size	
350	Inclusions • Members at any interface with wall edges (top, bottom, sides) or opening through wall • Bridging or straps	
400	Inclusions • Welds • Connections • Any part required for complete installation	

B1010.10.80 / 21-02 10 10 10 80 / Pr 20 85 90 81
Floor Structural Frame (Wood Floor Trusses)

Associated Masterformat Sections: 06 11 00 / 06 13 26 / 06 17 53

100	See B1010	

Uniformat / Omniclass / Uniclass

200	See B1010	
300	Inclusions • ~~**Element envelope**~~chords • Volume of space occupied by web • Spacing and end elevations • Joist seat depth	
350	Inclusions • **Actual** final chord and web members with **accurate** panel points • Joist bridging and lateral braces. • Joist seat width • Erection details for installation • Non-standard joist seat depths and\or sloping joist seat	
400	Inclusions • Connection plates • Anchorage • Elements required for proper installation	

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B1010.20 / 21-02 10 10 20 / Ss 30 12
Floor Decks, Slabs, and Toppings

Includes: Structural slab, deck, and sheathing floor construction at intermediate floors of basement construction and above grade. Includes cast-in-place concrete, precast concrete, cementitious decks and toppings, metal decking, wood sheathing, and wood decking. Includes framed and sleeved penetrations for services and housekeeping pads for equipment. Includes Floor Construction Supplementary Components as appropriate.

Specific structural systems within this section are listed as follows:

Wood Floor Deck	B1010.20.10
Metal Floor Deck	B1010.20.20
Composite Floor Deck	B1010.20.30
Concrete	B1010.20.40

Associated Masterformat Sections: 03 30 00 / 03 40 00 / 03 50 00 / 05 30 00 / 05 34 00
05 35 00 / 06 12 00 / 06 15 00 / 06 16 00 / 06 18 00 / 06 53 00 / 06 73 00

100	Inclusions • Abstraction of element indicating approximate location	
200	Inclusions • Overall **Element envelope**	

B1010.20.10 / 21-02 10 10 20 10 / Ss 30 12 85 90
Floor Decks, Slabs, and Toppings (Wood Floor Deck)

Associated Masterformat Sections: 06 12 00 / 06 15 00 / 06 16 00 / 06 18 00

100	See B1010.20	
200	See B1010.20	
300	Inclusions: • Slopes and elevation changes (e.g., depressions) • Openings with any dimension greater than 6” (15 cm) or as noted • changes of material • Edge location	
350	Inclusions: • Openings at rough opening dimensions • Opening support framing	
400	Inclusions: • Fasteners	

B1010.20.20 / 21-02 10 10 20 20 / Ss 30 12 85 40
Floor Decks, Slabs, and Toppings (Metal Floor Deck)

Associated Masterformat Sections: 05 30 00 / 05 34 00 / 05 35 00

100	See B1010	
200	See B1010	

Uniformat / Omniclass / Uniclass

300	Inclusions: • Slopes and elevation changes (e.g., depressions) • Drainage low points • Openings with any dimension greater than 6” (15 cm) or as noted • changes of material • Edge location defined • Framing members	
350	Inclusions: • Splices and end laps • Embeds and structural connection points • **Actual** deck profile and flute locations per manufacturer • All miscellaneous framing including braces, kickers, etc. • Openings at rough opening dimensions	
400	Element modeling to include: • Framing accessories and fasteners • Welds	

B1010.20.30 / 21-02 10 10 20 30 / Ss 30 12 85 16
Floor Decks, Slabs, and Toppings (Composite Floor Deck)

Associated Masterformat Sections: 06 73 00

100	See B1010	
200	See B1010	
300	Inclusions: • Slopes and elevation changes (e.g., depressions) • Drainage low points • Openings with any dimension greater than 6” (15 cm) or as noted • changes of material • Edge location defined • Framing members	
350	Inclusions: • Splices and end laps • Embeds and structural connection points • **Actual** deck profile and flute locations per manufacturer • All miscellaneous framing including braces, kickers, etc. • Openings at rough opening dimensions	

Uniformat / Omniclass / Uniclass

400	Inclusions: • Framing accessories and fasteners • Welds	

B1010.20.40 / 21-02 10 10 20 40 / Ss 30 12 85 18
Floor Decks, Slabs, and Toppings (Concrete)

Associated Masterformat Sections: 03 30 00 / 03 40 00 / 03 50 00

100	See B1010	
200	See B1010	
300	Inclusions: • Slopes and elevation changes (e.g., depressions) • Drainage low points • Openings with any dimension greater than 6” (15 cm) or as noted • Changes of material • Edge locations • Framing members	
350	Inclusions • Chamfer • Expansion Joints • Embeds and anchor rods • Locations of post-tension tendons • Openings with any dimension greater than 6” (15 cm) or as noted • Shear reinforcement and stud rails	
400	Inclusions • Reinforcement	

B1010.20.41 / 21-02 10 10 20 50 / Pr 20 85 08 66
Precast Structural Double Tee (Concrete)

Includes: Structural elements required for support of floor construction within basements and above grade. Includes columns, girders, beams, trusses, joists. Includes cast-in-place concrete, precast concrete, unit masonry, metal framed, and wood framed systems. Includes framed and sleeved openings for services. Includes Floor Construction Supplementary Components as appropriate

Associated Masterformat Sections: 03 30 00 / 03 40 00 / 04 20 00 / 05 10 00 / 05 20 00
05 21 23 / 05 42 00 / 05 44 00 / 06 11 00 / 06 13 00 / 06 13 26 / 06 17 33 / 06 17 36
06 17 53 / 06 18 13 / 06 18 16 / 06 50 00

100	Inclusions • Conceptual depth	

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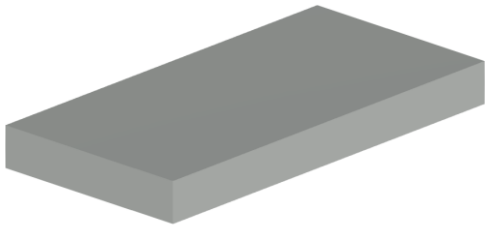
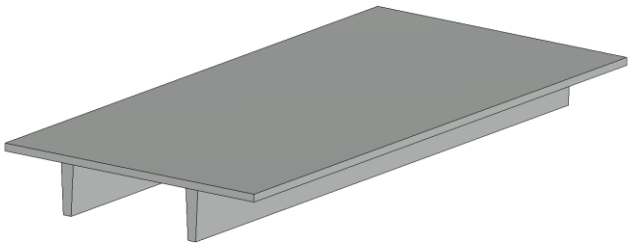
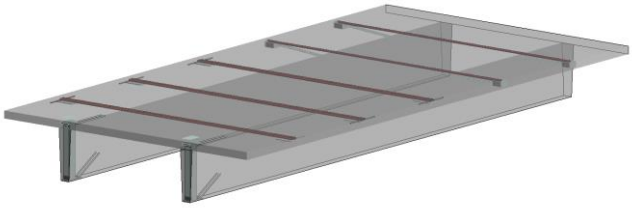
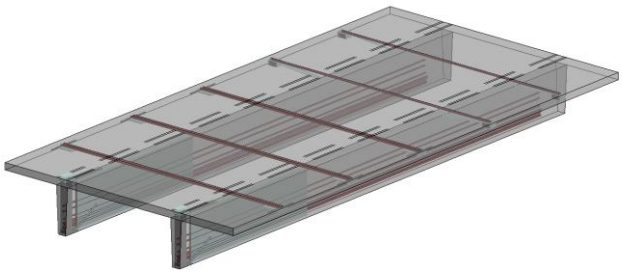
200	Inclusions • **Element envelope**	
300	Inclusions • Main concrete structural members • Surface slopes	
350	Inclusions • Lifting points • Expansion Joints • Embeds and anchor rods • Locations of post-tension tendons • Openings with any dimension greater than 6” (15 cm) or as noted • Shear reinforcement and stud rails	
400	Inclusions • Chamfer • Reinforcement	

Uniformat / Omniclass / Uniclass

B1010.30 / 21-02 10 10 30 / Ss 30 12 85
Balcony Floor Construction TBD

B1010.40 / 21-02 10 10 40 / Ss 30 12 85
Mezzanine Floor Construction TBD

B1010.50 / 21-02 10 10 50 / Ss 35 10 85
Ramps

100	• N/A	
200	Inclusions • **Element envelope**	
300	Inclusions • Major ramp support elements • Changes of materials • Surface slope • Handrails if applicable	
350	Inclusions • Secondary support elements • Connection points etc.). • Elements needed for installation	
400	Inclusions • Elements needed for fabrication	

B1010.90 / 21-02 10 10 90 / Ss 30 12
Floor Construction Supplementary Components

See General Notes: Supplementary Components

B1020 / 21-02 10 20 / Ss 30 10
Roof Construction

Associated Masterformat Sections: 01 81 13

Note: This classification refers to roofs modeled as single composite objects (excluding structural frame). If individual layers are to be modeled see:

B1020.10	21-02 10 20 10	Roof Structural Frame
B1020.20	21-02 10 20 20	Roof Decks, Slabs, and Sheathing
B3010	21-02 30 10	Roofing

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B1020.10 / 21-02 10 20 10 / Ss 30 10 30
Roof Structural Frame

Description: Structural elements required for support of floor construction within basements and above grade. Includes columns, girders, beams, trusses, joists. Includes cast-in-place concrete, precast concrete, unit masonry, metal framed, and wood framed systems. Includes framed and sleeved openings for services. Includes Floor Construction Supplementary Components as appropriate.

Associated Masterformat Sections: 03 30 00 / 03 40 00 / 04 20 00 / 05 10 00 / 05 20 00 / 05 21 23 / 05 42 00 / 05 44 00 06 11 00 / 06 13 00 / 06 13 26 / 06 17 33 / 06 17 3606 17 53 / 06 18 13 / 06 18 16 / 06 50 00

See B1010.10

B1020.20 / 21-02 10 20 20 / Ss 30 12 85
Roof Decks, Slabs, and Sheathing

Includes: Structural roof deck, slab, and sheathing construction. Includes cast-in-place concrete, precast concrete, cementitious decks and toppings, metal decking, wood sheathing, wood decking, timber decking and expansion control. Includes framed and sleeved penetrations for services and housekeeping pads for equipment. Includes Roof Construction Supplementary Components as appropriate.

Associated Masterformat Sections: 03 30 00 / 03 40 00 / 03 50 00 / 03 52 00 / 05 30 00 05 34 00 / 05 35 00 / 06 12 00 / 06 15 00 / 06 16 00 / 06 18 00 / 06 53 00 / 06 73 00

100	Inclusions • Conceptual depth	
200	Inclusions: • **Element envelope**	
300	Inclusions • Surface slopes • Openings with any dimension greater than 6” (15 cm) or as noted • Curbs and equipment pads	
350	Inclusions • Corrugation • Connection points to above-roof structures	

B1020.30 / 21-02 10 20 30 / Ss 25 50 45 10
Canopy Construction

Includes: Structural frame and decks, slabs, and sheathing for canopy construction.

Associated Masterformat Sections: 03 30 00 / 03 40 00 / 05 10 00 / 05 19 19 / 05 20 00 / 06 11 00 / 06 12 00 / 06 13 00 / 06 15 00 / 06 16 00 / 06 17 00 / 06 18 00 / 06 50 00 / 06 73 00

See B1010.20

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B1020.90 / 21-02 10 20 90 / Ss 30 10
Roof Construction Supplementary Components

Includes: Vapor retarders, air barriers, insulation, fireproofing, firestopping, and expansion control to be included with roof construction elements above as appropriate

See General Notes: Supplementary Components

B1080 / 21-02 10 80 / Ss 35
Stairs

Includes: Stairs, fire escapes, metal walkways, and ladders.

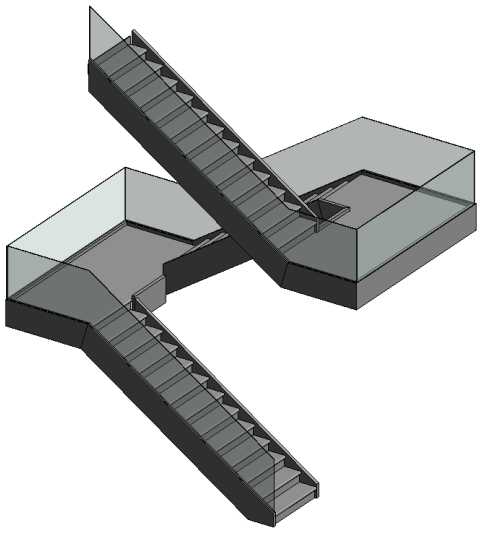
Associated Masterformat Sections: 01 84 16

100	Inclusions: • Approximate location	

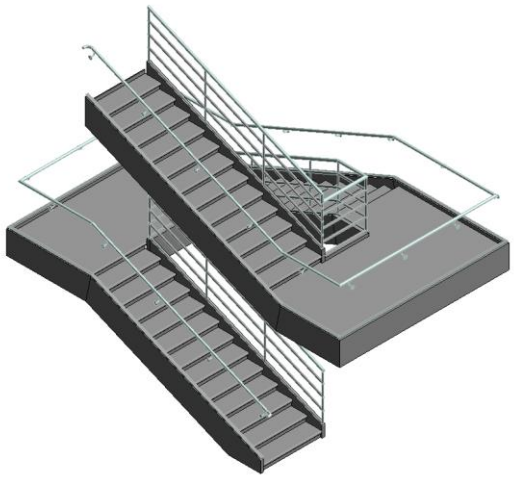
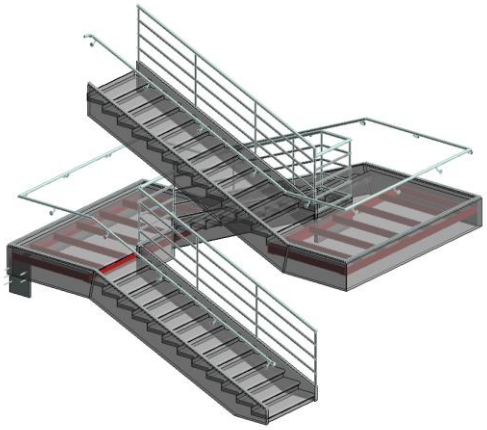
B1080.10 / 21-02 10 80 10 / Ss 35 10
Stair Construction

Includes: Structural framing for exterior and interior stairs including treads, risers, and landings. Includes fire escapes and ladders.

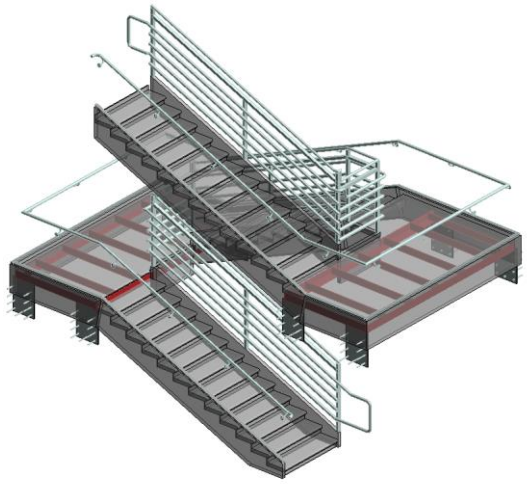
Associated Masterformat Sections: 03 11 23 / 03 30 00 / 03 41 23 / 03 48 19 / 05 51 00
05 55 00 / 05 71 00 / 06 43 00

100	See B1080	
200	Inclusions: • Reliable number and arrangement of landings and flights	

Uniformat / Omniclass / Uniclass

300	Inclusions: • Overall geometry of landings and flights • Number of risers and treads • Tread width • Riser height • Stringers • Railing • Nosing geometry	
350	Inclusions: • Railing support locations • Openings in structural elements • Secondary support elements (hangers, brackets, etc.).	

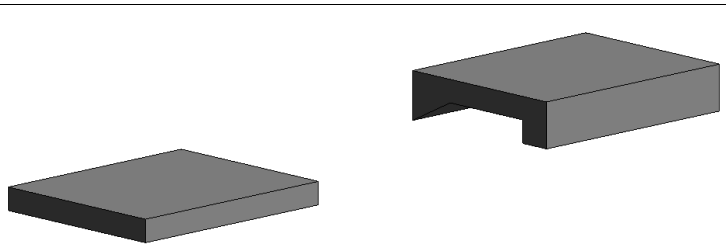
Uniformat / Omniclass / Uniclass

400	Inclusions: • Elements necessary for fabrication and installation	

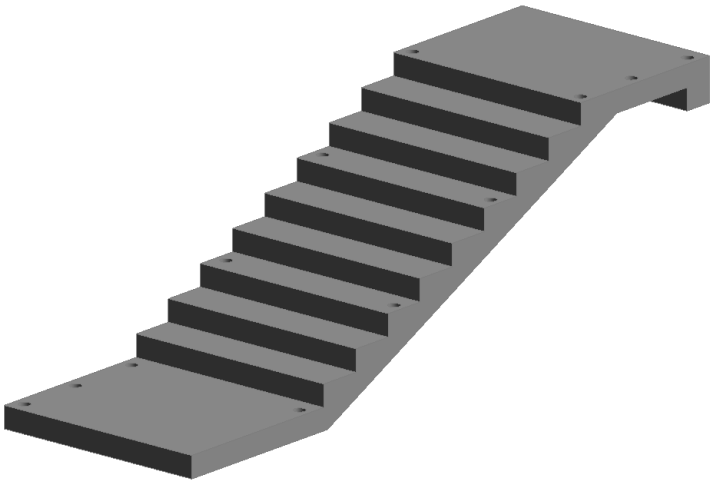
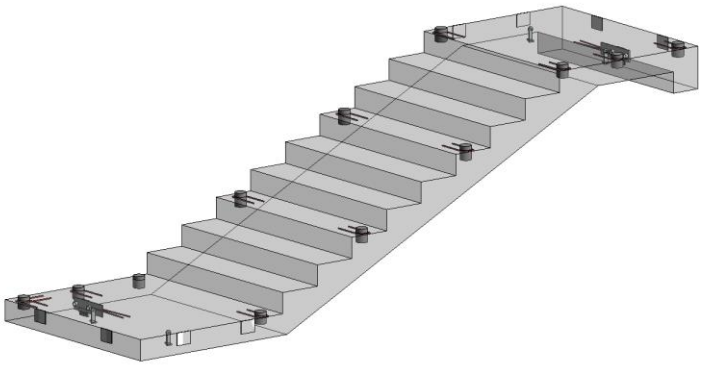
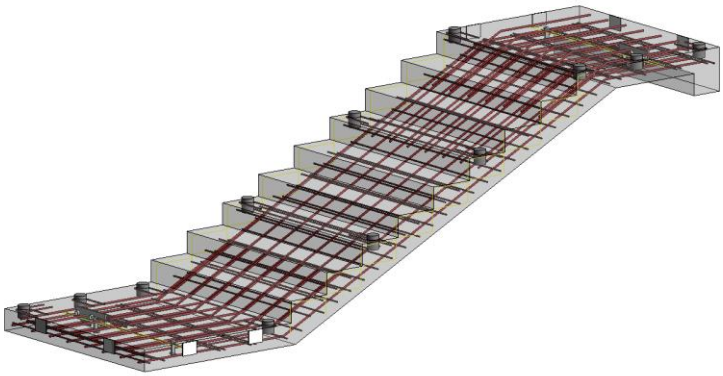
B1080.20 / 21-02 10 80 10 / Ss 35 10
Precast Structural Stairs (Concrete)

Includes: Structural framing for exterior and interior stairs including treads, risers, and landings. Includes fire escapes and ladders.

Associated Masterformat Sections: 03 11 23 / 03 30 00 / 03 41 23 / 03 48 19 / 05 51 00
05 55 00 / 05 71 00 / 06 43 00

100	See B1080	
200	Inclusions: • Reliable number and arrangement of landings and flights	

Uniformat / Omniclass / Uniclass

300	Inclusions: • Overall geometry of landings and flights • Number of risers and treads • Tread width • Riser height • Stringers • Railing • Nosing geometry	
350	Inclusions: • Railing support locations • Openings in structural elements • Embeds • Secondary support elements (hangers, brackets, etc.). • Post-tension profiles and tendon locations • Joint locations • Attachment points for Lifting devices • All penetrations modeled to rough opening dimensions. • Any permanent forming or shoring components	
400	Inclusions: • Elements necessary for fabrication and installation • Chamfer	

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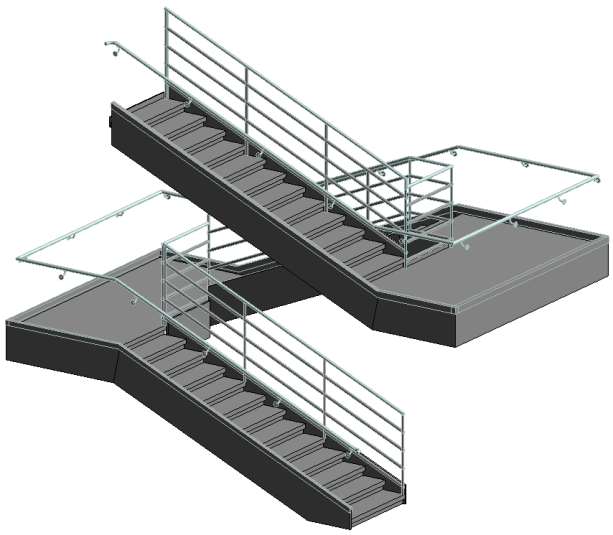
B1080.30 / 21-02 10 80 30 / Ss 30 25 10 35
Stair Soffits TBD

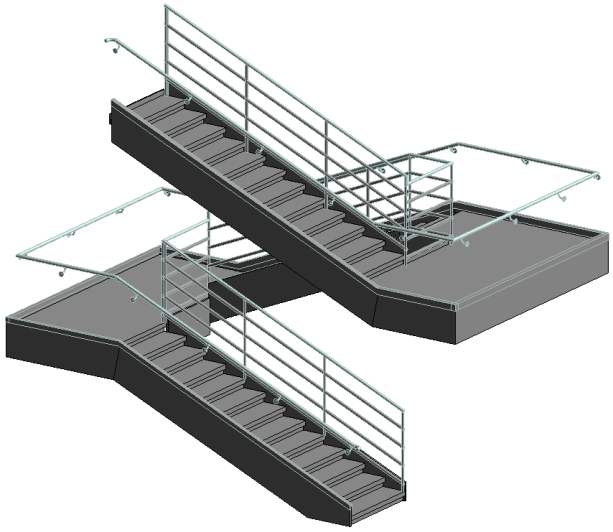
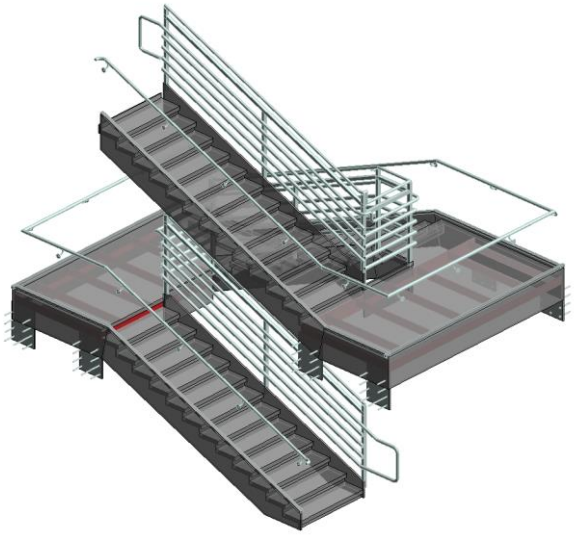
B1080.50 / 21-02 10 80 50 / Ss 25 15 60 35
Stair Railings

Associated Masterformat Sections: 05 15 00 / 05 52 00 / 05 73 00 / 06 43 16 / 06 63 00
06 81 00

100	N/A	
200	Inclusions: **Element envelope**	

300	Inclusions
	• Individual members
	  ○ handrails and guardrails
	  ○ Posts, balusters, panels
		

Uniformat / Omniclass / Uniclass

350	Inclusions • Attachment points	
400	Inclusions • Elements necessary for fabrication and installation	

B1080.60 / 21-02 10 80 60 / Ss 35 10 30 40
Fire Escapes

Associated Masterformat Sections: 05 51 23

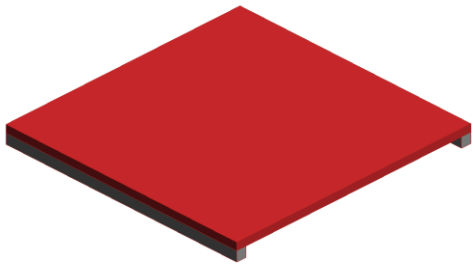
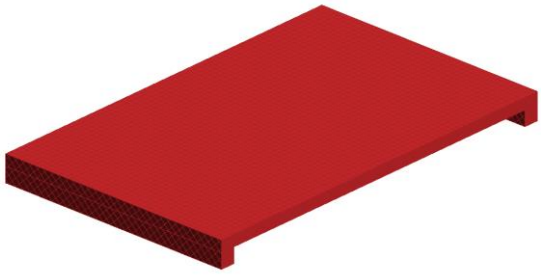
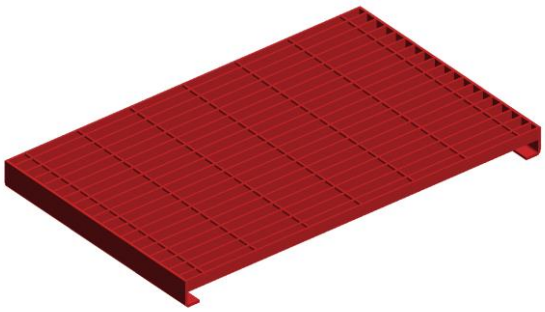
All	B1080.10	

Uniformat / Omniclass / Uniclass

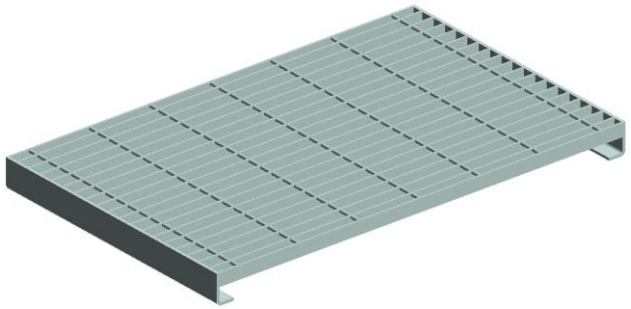
B1080.70 / 21-02 10 80 70 / Ss 35 10 30 95
Metal Walkways

Includes: Catwalks and gratings over horizontal openings

Associated Masterformat Sections: 05 51 36 / 05 51 36.13 / 05 53 00

100	See B1080	
200	Inclusions: • Deck **element envelope** • Railing **element envelope**	
300	Element modeling to include: • Overall geometry. • Thickness • Grid element size indicated • Span is indicated • Railing – see B1080.50	
350	Inclusions • Panel layout and grating deck edges. • Openings with any dimension greater than 6” (15 cm) or as noted • Indication of span direction • Configuration of grating elements • Railing – see B1080.50	

Uniformat / Omniclass / Uniclass

400	Inclusions: • Elements necessary for fabrication and installation	

B1080.80 / 21-02 10 80 80 / Ss 35 10 30
Ladders

Associated Masterformat Sections: 05 51 33 / 05 51 33.13 / 05 51 33.16 / 05 51 33.23

All	See B1080.50	

B20 / 21-02 20 / EF 25 10
Exterior Vertical Enclosures

Associated Masterformat Sections: 01 83 16

100	Inclusions: • Solid mass model representing overall building volume; or, schematic wall elements that are not distinguishable by type or material.	

B2010 / 21-02 20 10 / EF 25 10
Exterior Walls

Includes: Exterior Wall Supplementary Components as appropriate. Includes Exterior Wall Opening Supplementary Components as appropriate. Includes: Solid wall construction that is composite in nature; in other words, multiple layers of materials to form an overall assembly.

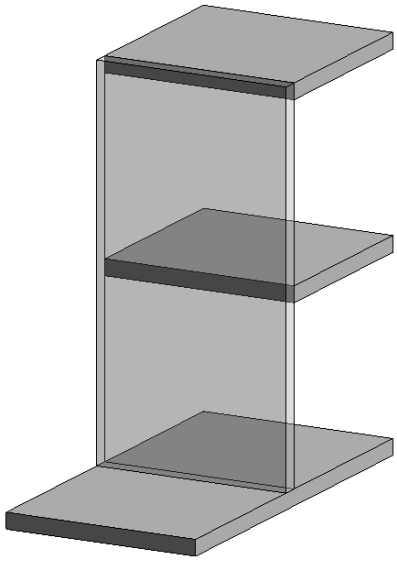
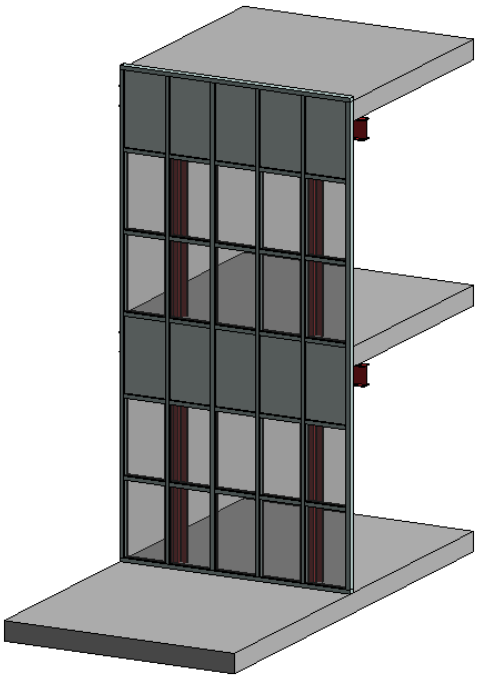
Associated Masterformat Sections: 01 83 16

Note: This classification refers to walls modeled as single composite elements. If individual layers are to be modeled refer to:

B2010.10	21-02 20 10 10	Exterior Wall Veneer
B2010.20	21-02 20 10 20	Exterior Wall Construction

	See B20	

Uniformat / Omniclass / Uniclass

200	Inclusions: • Approximate overall wall thickness represented by a single element.	
300	Inclusions: • Single model element separated by type of material with overall thickness and shape • Openings with any dimension greater than 6” (15 cm) or as noted, at **nominal** dimensions	
350	Inclusions: • Single element showing all layers such that they can be measured • All penetrations modeled to rough opening dimensions.	

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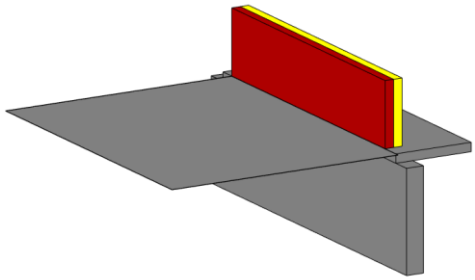
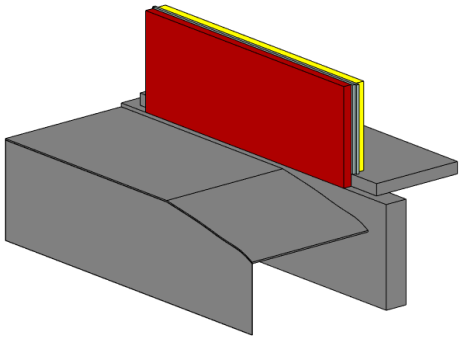
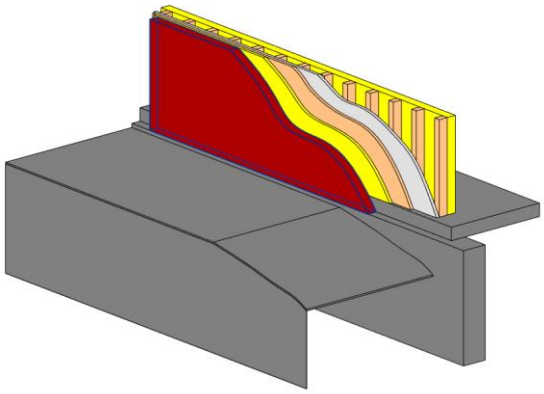
B2010.10 / 21-02 20 10 10 / EF 25 10
Exterior Wall Veneer

Includes: Nonstructural outside face elements of exterior walls. Includes precast concrete, unit masonry, EIFS, manufactured siding, and stucco Includes water repellents, coatings, and painting.

Associated Masterformat Sections: 03 40 00 / 04 20 00 / 04 26 13 / 04 42 00 / 04 43 13
04 70 00 / 05 19 13 / 06 20 13 / 06 61 00 / 07 19 00 / 07 24 00 / 07 42 00 / 07 44 00
07 46 00 / 09 24 00 / 09 24 23 / 09 90 00

100	N/A	
200	Inclusions: • Approximate overall wall thickness represented by a single assembly.	
300	Inclusions: • Model elements separated by type of material • Openings with any dimension greater than 6” (15 cm) or as noted • Window and door openings at **nominal** dimensions	

Uniformat / Omniclass / Uniclass

350	Inclusions: • Single element showing all layers such that they can be measured • All penetrations modeled to rough opening dimensions. • Precast concrete panels are individually modeled. Connection points are indicated. • Connection to interfacing systems	

B2010.20 / 21-02 20 10 20 / EF 25 10
Exterior Wall Construction

Includes: Exterior wall construction including backup systems for wall veneer. May be vertical load bearing. Includes cast-in-place concrete walls, precast concrete walls, unit masonry walls, metal framed wall systems, and wood framed wall systems.

Associated Masterformat Sections: 03 30 00 / 03 40 00 / 04 20 00 / 05 41 00 / 06 11 00
06 12 00 / 06 16 00

100	N/A	
200	Inclusions • Approximate thickness of layer represented by a single element.	
300	Inclusions: • Single model element with overall thickness and shape • Openings with any dimension greater than 6” (15 cm) or as noted at **nominal** dimensions	

B2010.20.10 / 21-02 20 10 20 10 / Ss 25 11 90
Exterior Wall Construction (Wood)

Includes: Exterior Wall Supplementary Components as appropriate. Includes Exterior Wall Opening Supplementary Components as appropriate. Includes: Solid wall construction that is composite in nature; in other words, multiple layers of materials to form an overall assembly.

Associated Masterformat Sections: 01 83 16

100	N/A	

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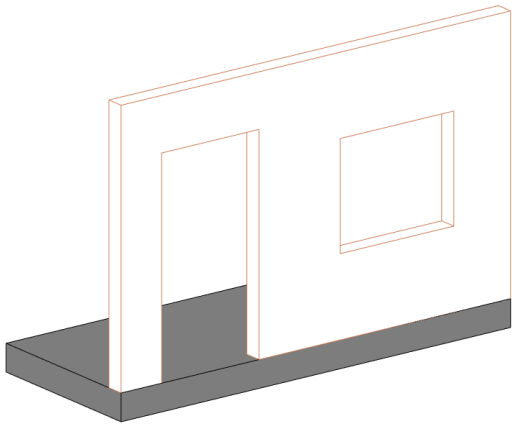
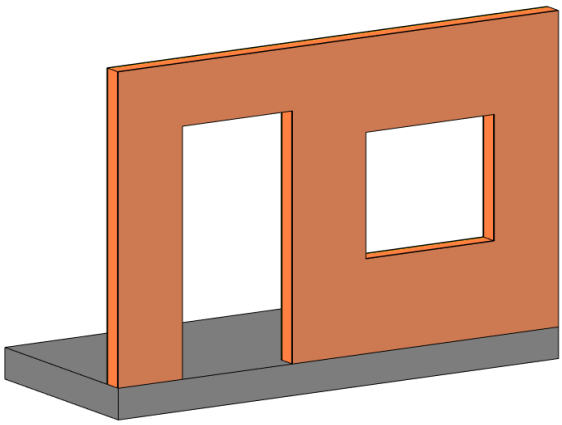
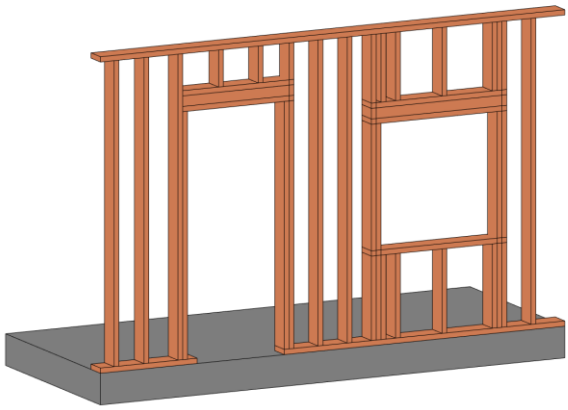
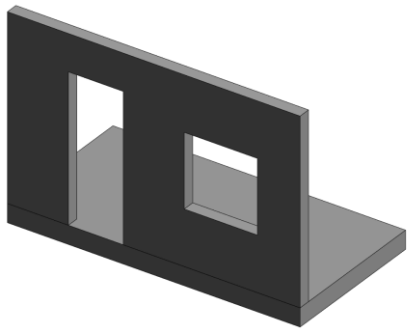
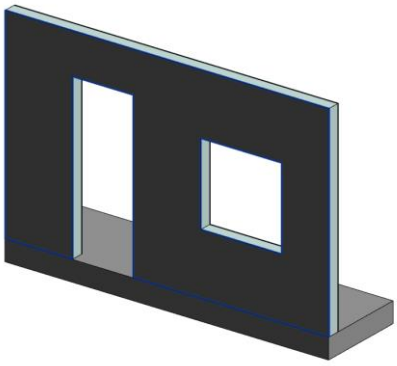
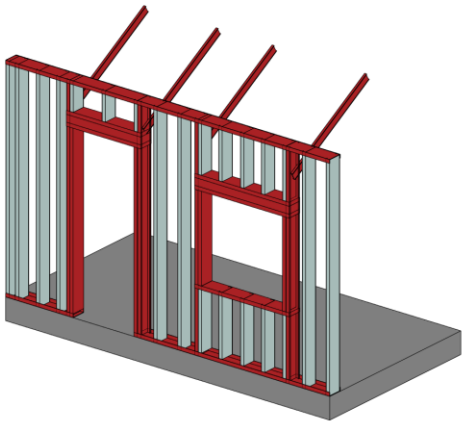
200	See B2010.20	
300	See B2010.20	
350	Inclusions: • All studs • Backing and blocking • Shear panels • All penetrations modeled at rough-opening dimensions. • Cladding and sheathing	

Uniformat / Omniclass / Uniclass

B2010.20.20 / 21-02 20 10 20 20 / Ss 25 10 32 45
Exterior Wall Construction (Cold-Form Metal Framing)

See B2010.20.10

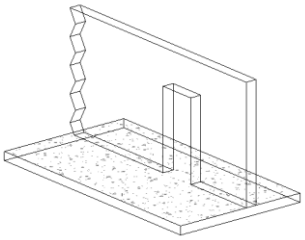
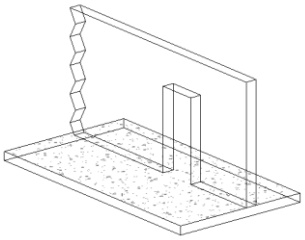
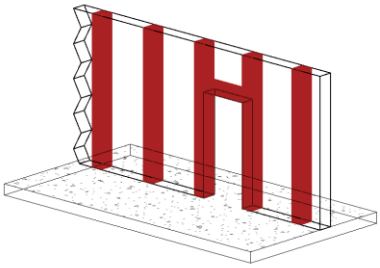
100	N/A	
200	See B2010.20	
300	See B2010.20	
350	Inclusions: • All studs • Backing and blocking • Shear panels • All penetrations modeled at rough-opening dimensions. • Cladding and sheathing	

Uniformat / Omniclass / Uniclass

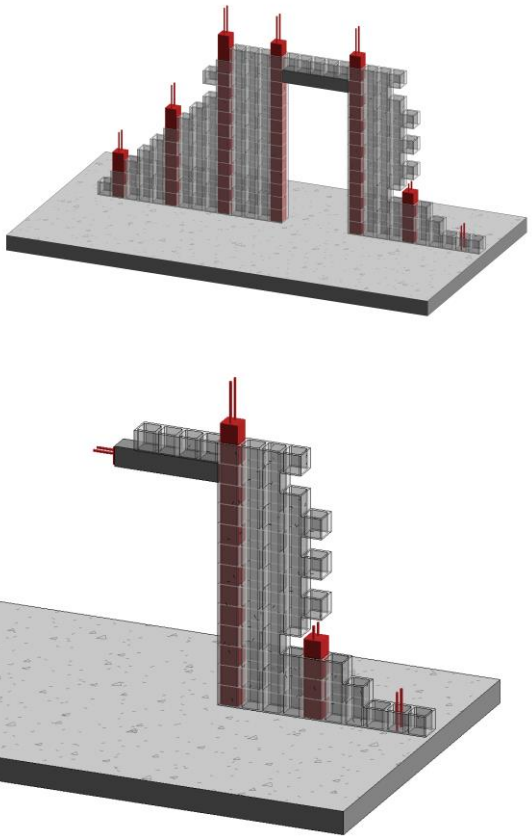
B2010.20.30 / 21-02 20 10 20 30 / Ss 25 13 50
Exterior Wall Construction (Masonry)

Includes: Exterior Wall Supplementary Components as appropriate. Includes Exterior Wall Opening Supplementary Components as appropriate. Includes: Solid wall construction that is composite in nature; in other words, multiple layers of materials to form an overall assembly.

Associated Masterformat Sections: 01 83 16

100	N/A	
200	See B2010.20	
300	See B2010.20	
350	Inclusions • All penetrations, modeled to rough opening dimensions. • Anchor elements • Exposed embeds • Lintels • Dowels • Critical structural zones such as zones that cannot be penetrated or cut • Expansion joints • Bond beams	

Uniformat / Omniclass / Uniclass

400	Inclusions: • Waterproofing • Coursing • Reinforcement	

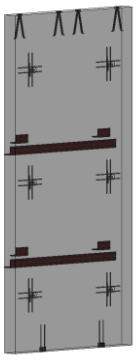
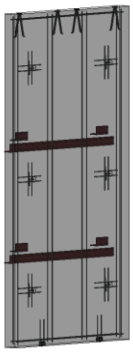
B2010.20.40 / 21-02 20 10 20 40 / Ss 25 16 65
Precast Wall Construction (Concrete)

Includes: Exterior wall construction including backup systems for wall veneer. May be vertical load bearing. Includes cast-in-place concrete walls, precast concrete walls, unit masonry walls, metal framed wall systems, and wood framed wall systems.

Associated Masterformat Sections: 03 30 00 / 03 40 00 / 04 20 00 / 05 41 00 / 06 11 00
06 12 00 / 06 16 00

100	N/A	
200	See B2010.20	
300	See B2010.20	

Uniformat / Omniclass / Uniclass

350	Inclusions: • Post-tension profiles and strand locations • Expansion Joints • Control joints • Lifting devices • Embeds • All penetrations are modeled at **actual** rough-opening dimensions. • Any permanent forming or shoring components • Dowels	
400	Inclusions: • Reinforcement including hooks and lap splices • Post-tensioning tendons • Pour Joints	

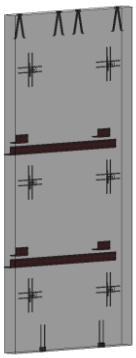
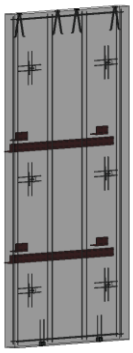
B2010.20.50 / 21-02 20 10 20 50 /
Exterior Wall Construction (Cast-in Place Concrete)

Includes: Exterior Wall Supplementary Components as appropriate. Includes Exterior Wall Opening Supplementary Components as appropriate. Includes: Solid wall construction that is composite in nature; in other words, multiple layers of materials to form an overall assembly.

Associated Masterformat Sections:

100	N/A	
200	See B2010.20	
300	See B2010.20	

Uniformat / Omniclass / Uniclass

350	Inclusions: • Penetrations at rough opening dimensions. • Pour joints • Control joints • Expansion joints • Anchor elements • Embeds • Dowels • Post tension anchor points	
400	Inclusions: • Reinforcement including hooks and lap splices • Post-tensioning tendons • Pour Joints	

B2010.30 / 21-02 20 10 30 / Ss 25 45
Exterior Wall Interior Skin

Includes: Materials to provide finish or protective covering on inside of face of exterior walls. May include insulation and vapor retarder.

Associated Masterformat Sections: 09 20 00

100	N/A	
200	Inclusions: • approximate thickness of layer	
300	Inclusions: • Single model element separated by type of material with overall thickness and shape • Openings with any dimension greater than 6” (15 cm) or as noted, at **nominal** dimensions	
350	Inclusions: • Single element showing all layers such that they can be measured • All penetrations modeled to rough opening dimensions. • Connection to interfacing systems • Studs , tracks, kickers	

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400	Inclusions: • Individual masonry units • Reinforcement • Wall board • Insulation	

B2010.40 / 21-02 20 10 40 / Ss 25 12
Fabricated Exterior Wall Assemblies TBD

Includes: Manufactured or fabricated assemblies that include exterior veneer and wall construction within one fabricated assembly and may also include interior skin. Includes Exterior Wall Supplementary Components as appropriate.

Associated Masterformat Sections: 04 25 00 / 07 42 63 / 07 44 63 / 08 44 00 / 08 45 00

B2010.50 / 21-02 20 10 50 / Ss 25 15 60 5
Parapets

Includes: Exterior wall construction above plane of roof.

Associated Masterformat Sections: 03 30 00 / 03 40 00 / 04 20 00 / 05 41 00 / 06 11 00
06 12 00 / 06 16 00

See B2010, B2010.10, B2010.20, and B2010.30

B2010.60 / 21-02 20 10 60 / EF 25 10
Equipment Screens

Includes: Exterior wall construction to screen equipment from public view.

Associated Masterformat Sections: 03 40 00 / 04 20 00 / 08 92 00

100	N/A	
200	Inclusions • Location of face	
300	Inclusions • Support structure elements • Doors • ladders	
350	Inclusions • connections	

B2010.80 / 21-02 20 10 80 / Ss 25 60
Exterior Wall Supplementary Components

See General Notes: Supplementary Components

Uniformat / Omniclass / Uniclass

B2010.90 / 21-02 20 10 90 / Ss 25 38
Exterior Wall Opening Supplementary Components

See General Notes: Supplementary Components

B2020 / 21-02 20 20 / Ss 25 30 95 26
Exterior Windows

Includes: Fixed or operable windows used singly and in multiples located in the exterior vertical enclosure. Includes Exterior Window Supplementary Components as appropriate. Includes windows units with louver blinds integrally set between glass panels. Includes metal, wood, plastic, and composite window units. May Include: Wall Opening Supplementary Components as appropriate.

Associated Masterformat Sections: 01 83 16 / 08 50 00

100	N/A	
200	Inclusions: • Generic window object	

B2020.10 / 21-02 20 20 10 / Ss 25 30 95 26
Exterior Operating Windows

Includes: Window screens and storm windows.

Associated Masterformat Sections: 08 50 00 / 08 51 66 / 08 52 66 / 08 53 66 / 08 54 66
08 51 69 / 08 52 69 / 08 53 69 / 08 54 69

100	N/A	
200	See B2020	
300	Inclusions: • Specific type and size • Direction of opening	
350	Inclusions: • Attachment elements of window to structure	
400	Inclusions: • Detailed frame extrusion profiles • Fasteners	

B2020.20 / 21-02 20 20 20 / Ss 25 30 95 26
Exterior Fixed Windows

Associated Masterformat Sections: 08 50 00

All	See B2020.10	

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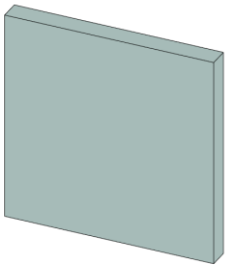
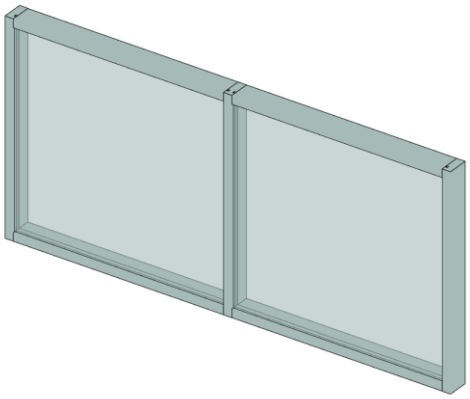
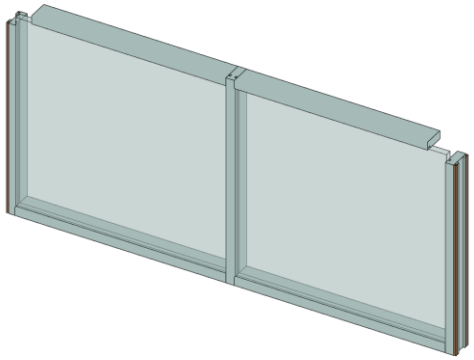
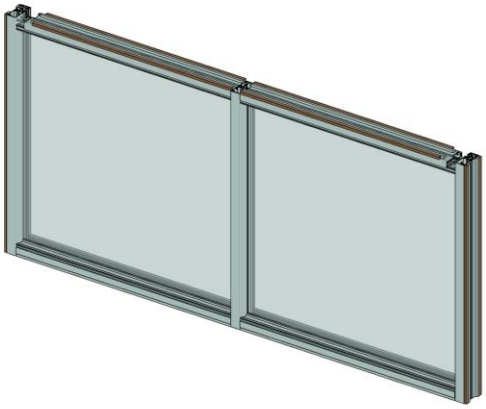
B2020.30 / 21-02 20 20 30 / --
Exterior Window Wall

B2020.30 / 21-02 20 20 30 / Ss 25 30 95 96
Exterior Window Wall

Associated Masterformat Sections: 08 43 00

100	See B20	
200	Inclusions • Area of wall • Thickness of wall	
300	Inclusions • Mullion width and depth • Panel elements showing thickness • Operable components	

Uniformat / Omniclass / Uniclass

350	Inclusions • Anchorage points	
400	Inclusions • mullion extrusion profiles. • sealants, • end dams, • flashings	

B2020.50 / 21-02 20 20 50 / Ss 25 30 95 26
Exterior Special Function Windows

Includes: Exterior windows with special characteristics for a special function.

Associated Masterformat Sections: 08 56 00 / 08 55 00 / 08 88 39 / 08 56 19 / 08 56 46 08 56 49 / 08 88 49 / 08 56 53 / 08 88 53 / 08 88 56 / 08 56 63 / 08 56 73 / 08 75 00 08 80 00

All	See B2020.10	

Uniformat / Omniclass / Uniclass

B2050 / 21-02 20 50 / Ss 25 30 20
Exterior Doors and Grilles

Includes: Doors, grilles, and gates located in the exterior vertical enclosure. Includes screen and storm door assemblies. Includes Exterior Door Supplementary Components as appropriate. May Include: Wall Opening Supplementary Components as appropriate.

Associated Masterformat Sections: 01 83 16

100	N/A	
200	Inclusions • Generic object	

B2050.10 / 21-02 20 50 10 / Ss 25 30 20 25
Exterior Entrance Doors

Includes: Exterior personnel door assemblies at main entrances. Includes automatic, revolving, balanced, and other special operating entrance doors, and sliding storefront wall systems.

Associated Masterformat Sections: 08 32 00 / 08 42 00 / 08 42 26 / 08 42 29 / 08 42 33
08 42 36 / 08 43 29

100	N/A	
200	See B2050	
300	Inclusions • Specific door panels and frames (if applicable). • Operation • If clearances are to be modeled indicate in a note • Panic bars if applicable	
350	Inclusions • Grillwork if applicable • jambs • Thresholds • Operation and mechanism **element envelopes** • Connections and interfaces • hardware	
400	Inclusions TBD	

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B2050.20 / 21-02 20 50 20 / Ss 25 30 20 25
Exterior Utility Doors

Includes: Exterior personnel door assemblies other than at main entrances.

Associated Masterformat Sections: 08 10 00

See B2050.10

B2050.30 / 21-02 20 50 30 / Ss 25 30 20 25
Exterior Oversize Doors

Includes: Large exterior door assemblies to allow for passage of large objects involving various operating methods. Includes Exterior Door Supplementary Components as appropriate including operators and drive mechanisms.

Associated Masterformat Sections: 08 33 00 / 08 36 00 / 08 36 13 / 08 36 16 / 08 36 19
08 36 23 / 08 34 16

100	N/A	
200	See B2050	
300	Inclusions • Specific door panels and frames (if applicable). • Operation • If clearances are to be modeled indicate in a note • Indication of hardware set	
350	Inclusions • jambs • Thresholds • Operation and mechanism **element envelopes** • Connections and interfaces • Hardware	
400	Inclusions TBD	

B2050.40 / 21-02 20 50 40 / Ss 25 30 20 25
Exterior Special Function Doors

Includes: Exterior door assemblies for a variety of special functions and applications involving a variety of operating methods. Includes Exterior Door Supplementary Components as appropriate including controls and operators.

Associated Masterformat Sections: 08 30 00 / 08 34 13 / 08 34 19 / 08 34 46 / 08 34 49
08 34 53 / 08 34 63 / 08 34 73 / 08 38 00 / 08 39 00 / 08 88 49 / 08 88 53 / 08 88 56

All	See B2050.10	

B2050.60 / 21-02 20 50 60 / Ss 25 50 35
Exterior Grilles

Includes: Exterior devices of open construction to provide moveable barrier to provide access through wall or other divider.

Associated Masterformat Sections: 08 33 00 / 08 35 16

All	See B2050.10	

Uniformat / Omniclass / Uniclass

B2050.70 / 21-02 20 50 70 / Ss 25 32 35
Exterior Gates

Includes: Exterior devices of solid or open construction to provide moveable barrier to provide access through wall or other divider.

Associated Masterformat Sections: 08 34 56

All	See B2050.10	

B2050.90 / 21-02 20 50 90 / Ss 25 38 20
Exterior Door Supplementary Components

Includes frames, hardware, glazing and louvers that are part of door to be included with exterior door elements above as appropriate.

Associated Masterformat Sections: 08 10 00 / 08 30 00 / 08 71 00 / 08 80 00 / 08 91 26

See General Notes: Supplementary Components

B2070 / 21-02 20 70 / Ss 25 50 45 45
Exterior Louvers and Vents

Includes: Exterior louvers which are not an integral part of mechanical equipment, including louvers connected to ducts.

Associated Masterformat Sections: 08 90 00

100	Inclusions • symbol	
200	Inclusions • Generic model element	
300	Inclusions • **element envelope**	
350	Inclusions • vanes	

B2070.10 / 21-02 20 70 10 / Ss 25 50 45 45
Exterior Louvers

Associated Masterformat Sections: 01 83 16 / 08 91 00

All	See B2070	

B2070.50 / 21-02 20 70 50 / Ss 30 30 73
Exterior Vents

Associated Masterformat Sections: 08 95 00

All	See B2070	

Uniformat / Omniclass / Uniclass

B2080 / 21-02 20 80 / --
Exterior Wall Appurtenances

Includes: Exterior enclosures, grilles and screens of wood, metal, plastic, and other materials for a variety of purposes including screening of equipment.

Associated Masterformat Sections:

See General Notes: Appurtenances

B2080.10 / 21-02 20 80 10 / Ss 25 50 75
Exterior Fixed Grilles and Screens

Includes: Exterior enclosures, grilles and screens of wood, metal, plastic, and other materials for a variety of purposes including screening of equipment.

Associated Masterformat Sections: 05 70 00 / 06 49 00 / 06 60 00 / 06 80 00 / 10 82 13

All	See B2080	

B2080.30 / 21-02 20 80 30 / Ss 25 50
Exterior Opening Protection Devices

Includes: Manufactured items such as louvers, fins, shutters, demountable panels, awnings, and sun screens to provide sun control, privacy, security, insulation, and storm protection on exterior of windows, skylights, and entrances. Includes fixed and moveable, manually and electrically operated, and automatically controlled devices.

Associated Masterformat Sections: 10 71 00 / 10 71 13 / 10 71 16 / 10 73 13

All	See B2080	

B2080.50 / 21-02 20 80 50 / Ss 25 15 60 35
Exterior Balcony Walls and Railings

Includes: Complete balcony wall and railing assemblies. Includes cast-in-place concrete,

Associated Masterformat Sections: 03 30 00 / 03 40 00 / 04 20 00 / 05 41 00 / 06 11 00
06 16 00 / 05 52 00 / 05 73 00 / 06 43 16 / 06 63 00 / 06 81 00

Walls:

All	See B2010	

Railings:

All	See B1080.50	

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B2080.70 / 21-02 20 80 70 / Pr 25 71 14 16
Exterior Fabrications

Includes: Exterior fabrications of a variety of materials formed to various profiles for a variety of purposes including column covers, decorative metal, ornamental woodwork, and plaster fabrications.

Associated Masterformat Sections: 03 49 00 / 05 50 00 / 05 58 13 / 05 70 00 / 06 44 00
06 60 00 / 06 61 00 / 06 80 00 / 09 27 00

See Fundamental LOD Definitions

B2080.80 / 21-02 20 80 80 / Ss 45 10 10 10
Bird Control Devices

Includes: Mechanical, electrical, physical, and chemical repellant systems, and protective devices.

Associated Masterformat Sections: 10 81 13

See Fundamental LOD Definitions

B2090 / 21-02 20 90 / Ss 25 60
Exterior Wall Specialties

Includes: Complete fabrication of metal, wood, and fiberglass, including accessories and appurtenances. For example, clocks, below-grade egress assemblies, and window wells.

Associated Masterformat Sections: 07 77 00 / 10 74 00 / 10 74 13 / 10 74 43 / 10 74 46

See Fundamental LOD Definitions

B30 / 21-02 30 / --
Exterior Horizontal Enclosures

Associated Masterformat Sections: 01 83 16

100	Inclusions: • Solid mass model representing overall building volume; or, schematic wall elements that are not distinguishable by type or material.	

B3010 / 21-02 30 10 / Ss 30 10
Roofing

Associated Masterformat Sections: 01 83 19

100	See B30	

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200	Inclusions • **Element envelope** at average thickness	
300	Inclusions • Surface slopes • Intended location of roof drains • Openings with any dimension greater than 6” (15 cm) or as noted	
350	Inclusions • All penetrations at **actual** rough-opening dimensions. • Flashing	

B3010.10 / 21-02 30 10 10 / Ss 30 10
Steep Slope Roofing

Includes: Lapped roofing shingles, shakes and roofing tiles, including fastening and flashing products and methods. Includes Roofing Supplementary Components as appropriate.

Associated Masterformat Sections: 01 83 19 / 07 30 00 / 07 31 00 / 07 32 00 / 07 41 00
07 61 00 / 07 63 00

All	See B3010	

B3010.50 / 21-02 30 10 50 / Ss 30 10
Low-Slope Roofing

Includes: Membrane roofing of various types and protected membrane roofing, including fastening and flashing products. Includes Roofing Supplementary Components as appropriate.

Associated Masterformat Sections: 01 83 19 / 07 50 00 / 07 55 00 / 07 55 63 / 07 76 00

Includes green roof systems. Masterformat : Vegetated Low-Slope Roofing 07 55 63

100	See B3010	
200	Inclusions: • Schematic layout with size, shape, and location	
300	Inclusions: • Overall thickness of entire system • Module dimensions (if applicable)	
350	Inclusions: • Details to include connections/placement to adjacent elements • Protective slip sheet, tray, soil, other membranes (if applicable)	

Uniformat / Omniclass / Uniclass

B3010.70 / 21-02 30 10 70 / Ss 30 10
Canopy Roofing

Includes: Roofing of various types over canopies. Includes Roofing Supplementary Components as appropriate.

Associated Masterformat Sections:

All	See B3010	

B3010.90 / 21-02 30 10 90 / --
Roofing Supplementary Components

Includes: substrate boards, vapor retarder, air barriers, deck insulation, flashing and sheet metal, and expansion joints to be included with roofing elements above as appropriate.

Associated Masterformat Sections: 07 22 00 / 07 26 00 / 07 27 00 / 07 62 00 / 07 65 00
07 71 13 / 07 71 16 / 07 71 19 / 07 71 29 / 09 28 00

See General Notes: Supplementary Components

B3020 / 21-02 30 20 / --
Roof Appurtenances

Includes: Roof specialties and accessories installed on or in roofing or traffic bearing horizontal enclosure systems. Includes components for the management of rainwater, but excludes mechanical and structural items.

Associated Masterformat Sections:

See General Notes: Appurtenances

B3020.10 / 21-02 30 20 10 / --
Roof Accessories

Includes: Ladders, curbs, vents, walkways, and snow guards.

Associated Masterformat Sections: 05 51 33 / 07 72 00 / 07 72 13 / 07 72 23 / 07 72 26
07 72 46 / 07 72 53

100	See Fundamental LOD Definitions	
200	See Fundamental LOD Definitions	
300	See Fundamental LOD Definitions	
350	Inclusions • Attachment points	
400	See Fundamental LOD Definitions	

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B3020.30 / 21-02 30 20 30 / --
Roof Specialties

Includes: Cupolas, spires, steeples, and weathervanes.

Associated Masterformat Sections: 10 74 00 / 10 74 23 / 10 74 26 / 10 74 29 / 10 74 33

See Fundamental LOD Definitions

B3020.70 / 21-02 30 20 70 / Ss 50 30 02
Rainwater Management

Includes: Components to manage rain water from roofing and traffic bearing horizontal enclosures. Includes: Conductor heads, gutters, downspouts, scuppers, and splash blocks.

Associated Masterformat Sections: 07 71 23 / 07 71 33 / 03 48 16

See Fundamental LOD Definitions

B3040 / 21-02 30 40 / Ss 30 12 20
Traffic Bearing Horizontal Enclosures

Includes: Horizontal enclosures that are also traffic bearing. Includes Horizontal Enclosure Supplementary Components as appropriate.

Associated Masterformat Sections: 01 83 16

See Fundamental LOD Definitions

B3040.10 / 21-02 30 40 10 / Ss 30 42 30 30
Traffic Bearing Coatings

Includes: Surface applied waterproofing exposed to weather and suitable for pedestrian or vehicular traffic.

Associated Masterformat Sections: 07 18 00

B3040.30 / 21-02 30 40 30 / Ss 32 80 79
Horizontal Waterproofing Membrane

Includes: Substrate board, deck insulation, vapor retarder, sheet metal flashing and trim, flexible flashing, and expansion joints.

Associated Masterformat Sections: 07 10 00

See General Notes – Membranes

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B3040.50 / 21-02 30 40 50 / Ss 30 14
Wear Surfaces

Includes: Wearing surfaces on top of horizontal waterproofing membrane that are suitable for pedestrian or vehicular traffic.

Associated Masterformat Sections: 07 76 00 / 32 13 00 / 32 14 00

See General Notes – Membranes

B3040.90 / 21-02 30 40 90 / --
Horizontal Enclosure Supplementary Components

Includes: Substrate board, deck insulation, vapor retarder, sheet metal flashing and trim, flexible flashing, and expansion joints to be included with horizontal enclosure elements above as appropriate.

Associated Masterformat Sections: 07 20 00 / 07 26 00 / 07 62 00 / 07 65 00 / 07 71 13
07 71 16 / 07 71 19 / 07 71 29 / 09 28 00

See Fundamental LOD Definitions

B3060 / 21-02 30 60 / --
Horizontal Openings

Includes: Openings in horizontal enclosures including roofing and traffic bearing horizontal enclosures. Includes Horizontal Opening Supplementary Components as appropriate.

B3060.10 / 21-02 30 60 10 / Ss 30 30 72
Roof Windows and Skylights

Includes: Operable and non-operable roof windows. Includes: Skylights without framing with plastic and glass glazing. Includes: Skylights with framing.

Associated Masterformat Sections: 01 83 16 / 08 60 00 / 08 61 00 / 08 62 00 / 08 63 00
08 64 00 / 08 67 00

All	See B2020.10	

B3060.50 / 21-02 30 60 50 / Ss 30 30
Vents and Hatches

Includes: Other roof openings such as roof hatches, smoke vents, and gravity roof ventilators.

Associated Masterformat Sections: 07 72 33 / 07 72 36

All	See B2070	

Uniformat / Omniclass / Uniclass

B3060.90 / 21-02 30 60 90 / --
Horizontal Opening Supplementary Components

Includes: Frames, hardware, glazing, flashing, and joint sealants to be included with horizontal opening elements above as appropriate.

Associated Masterformat Sections: 08 75 00 / 08 80 00 / 07 60 00 / 07 92 00

See General Notes: Supplementary Components

B3080 / 21-02 30 80 / --
Overhead Exterior Enclosures

Includes: Exposed to weather construction under horizontal enclosure construction. Includes suspension and support systems, insulation, vapor retarders, and air barriers.

Associated Masterformat Sections: 01 83 16

100	N/A	
200	Inclusions: • Overall scope • thickness/depth of system.	

B3080.10 / 21-02 30 80 10 / Ss 30 25 10 26
Exterior Ceilings

Associated Masterformat Sections: 07 42 00 / 07 44 00 / 09 20 00 / 09 54 00 / 09 56 00
09 90 00

100	N/A	
200	See B3080	
300	Inclusions: • Overall assembly • Structural backing. • Location of expansion or control joints indicated, but not modeled.	
350	Inclusions: • Face material. • Structural backing members including bracing/lateral framing/kickers. • Expansion or control joints at **accurate** width.	
400	Inclusions • Connections	

B3080.20 / 21-02 30 80 20 / Ss 30 25 10 28
Exterior Soffits

Associated Masterformat Sections: 07 42 93 / 07 44 00 / 08 95 13 / 09 20 00 / 09 54 00
09 56 00 / 09 90 00

All	See C1070	

Uniformat / Omniclass / Uniclass

B3080.30 / 21-02 30 80 30 / --
Exterior Bulkheads

Associated Masterformat Sections: 07 42 00 / 07 44 00 / 09 20 00 / 09 54 00 / 09 56 00
09 90 00

See B2010

All	See B2010	

Uniformat / Omniclass / Uniclass

C / 21-03 / --
INTERIORS

C10 / 21-03 10 / --
Interior Construction

Associated Masterformat Sections: 01 84 13

C1010 / 21-03 10 10 / Ss 25 10 30
Interior Partitions

Includes: Enclosures and partitions which are fixed and secured in place. Includes walls of concrete; and unit masonry; and wood and metal stud partitions with associated wall surfaces. Includes partitions of an open nature, such as wire mesh partitions. Partitions may be load bearing or non-load bearing. Includes Interior Partition Supplementary Components as appropriate.

Associated Masterformat Sections: 10 22 00 / 01 84 13

C1010.10 / 21-03 10 10 10 / Ss 25 10 30
Interior Fixed Partitions

Associated Masterformat Sections: 03 30 00 / 03 40 00 / 04 20 00 / 05 41 00 / 06 11 00 / 09 20 00 / 10 22 13

100	N/A	
200	Inclusions • Approximate overall wall thickness represented by a single element. • full vs. partial height not differentiated	
300	Inclusions • Composite model element at overall thickness • Measurable individual layers (e.g. GWB, studs) • locations, heights (full vs. partial height), • Openings with any dimension greater than 6” (15 cm) or as noted, at **nominal** dimensions	

C1010.10.10 / 21-03 10 10 10 10 / Ss 25 13 50 56
Interior Wall (Masonry)

100	N/A	

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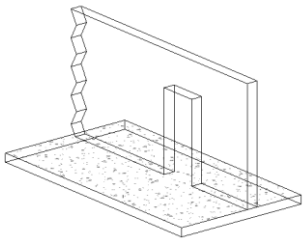
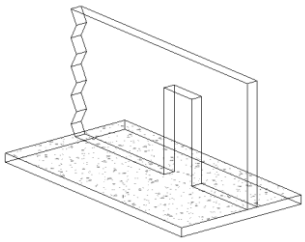
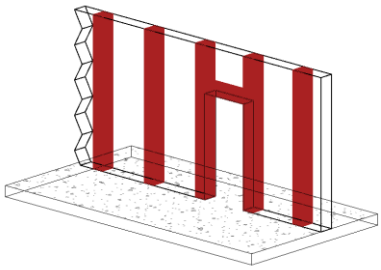
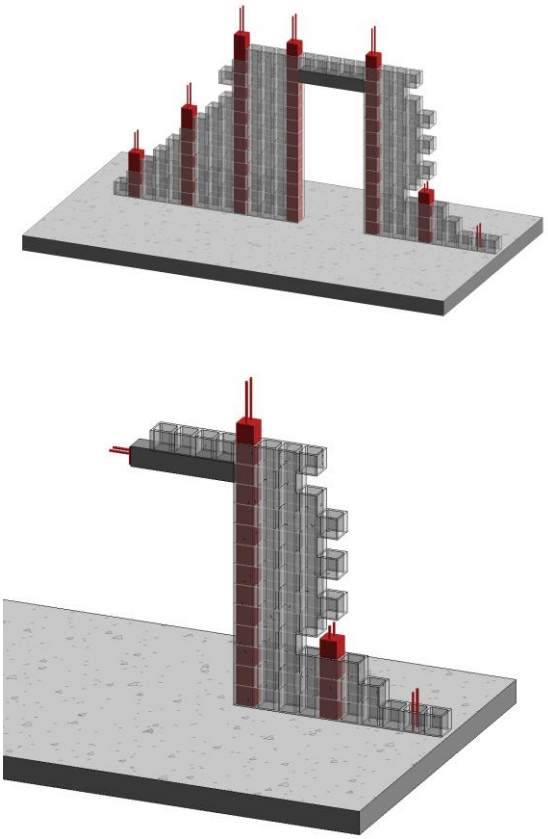
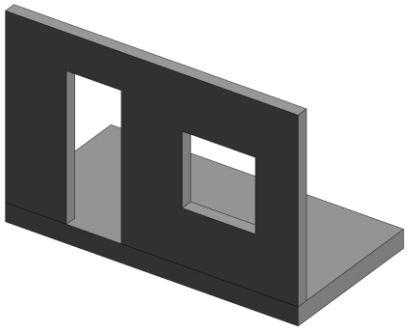
200	See C1010.10	
300	See C1010.10	
350	Inclusions • All penetrations at **actual** rough-opening dimensions. • Any regions that would impact coordination with other systems such as: • Bond Beams & Lintels • Jams	

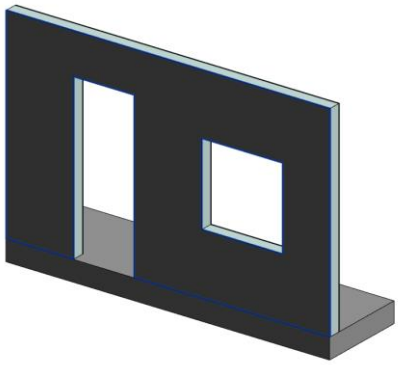
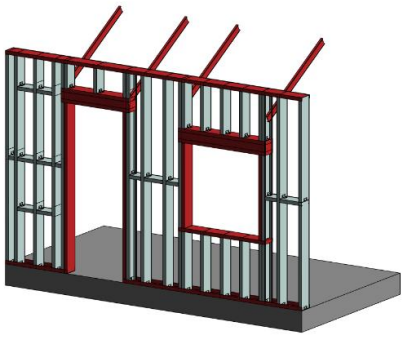
Uniformat / Omniclass / Uniclass

400	Inclusions • Individual masonry units • Reinforcement • dowels • Grouting	

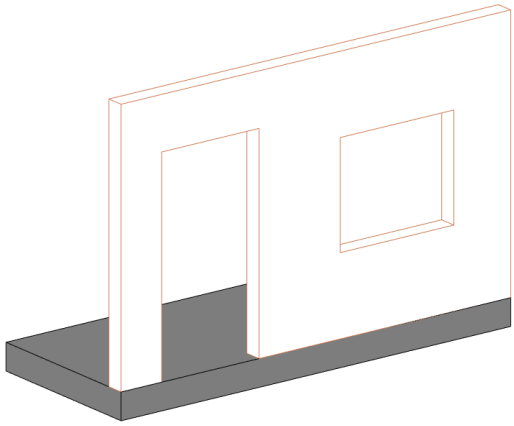
C1010.10.20 / 21-03 10 10 10 20 / Ss 25 10 32 45
Interior Wall (Cold-Form Metal Framing)

100	N/A	
200	See C1010.10	

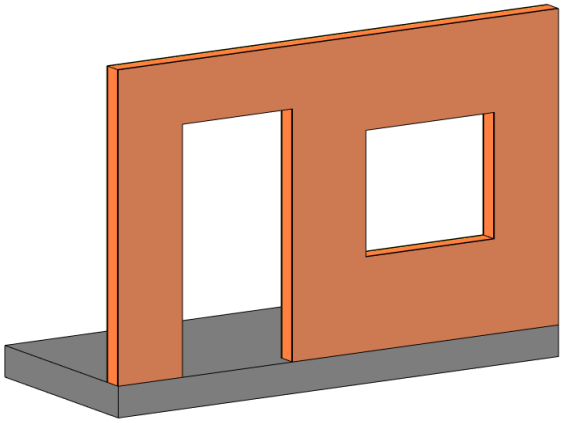
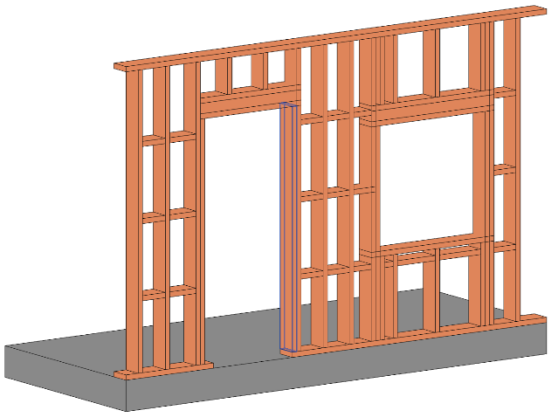
Uniformat / Omniclass / Uniclass

300	See C1010.10	
350	Inclusions • All studs • Backing and blocking • Elements necessary for detailed interface coordination with other systems. • All penetrations at **actual** rough-opening dimensions. • Diagonal bracing	

C1010.10.30 / 21-03 10 10 10 30 / Ss 25 10 32 90
Interior Wall (Wood)

100	N/A	
200	See C1010.10	

Uniformat / Omniclass / Uniclass

300	See C1010.10	
350	Inclusions • All studs • Backing and blocking • Elements necessary for detailed interface coordination with other systems. • All penetrations at **actual** rough-opening dimensions. • Diagonal bracing	
400	Inclusions • sufficient detail to support prefabrication • Openings and penetrations through studs • Connections	

C1010.20 / 21-03 10 10 20 / Ss 25 10 30
Interior Glazed Partitions

Includes: Partitions primarily composed of glazed elements that may be fabricated or field constructed. Includes Interior Partition Supplementary Components as appropriate.

Associated Masterformat Sections: 08 43 00

100	N/A	
200	See C1010.10	

Uniformat / Omniclass / Uniclass

300	Inclusions • Specified location and orientation of face of glass. • **Nominal** face dimensions and thickness of glazing. • Type of glazing • ~~Structural support systems.~~Spacing, location, size and orientation of mullions. • Operable components	
350	Inclusions • **Actual** anchorage layouts and types. • Connection points between glass and supporting structure • **Actual** panel dimensions (including seating). • Structural support systems.	
400	Inclusions • **Actual** mullion extrusion profiles.	

C1010.40 / 21-03 10 10 40 / Ss 25 12 65 75
Interior Demountable Partitions

Associated Masterformat Sections: 10 22 19 / 01 84 13 / 10 22 19.13 / 10 22 19.23 / 10 22 19.33
10 22 19.43 / 10 22 19.53

100	See C10	
200	Inclusions • Overall wall thickness represented by a single element. • Indication that it is a demountable partition (Uniformat number, name, etc.)	
300	Inclusions • **Element envelopes** of individual panels • Space reservation for support system • Building system connection locations • Operable components	
350	Inclusions: • Attachment points to support system	
400	Inclusions • See Fundamental LOD Definitions	

C1010.50 / 21-03 10 10 50 / Ss 25 12 70
Interior Operable Partitions

Includes: Track-supported, operable panels and partitions, top hung and floor supported, and manually and power operated. Includes auditorium partitions and dividers. Includes overhead supports.

Associated Masterformat Sections: 01 84 13 / 01 84 13 / 10 22 33 / 10 22 36 / 10 22 39
10 22 43

100	See C10	
200	Inclusions • Overall wall thickness represented by a single element. • Indication that it is an operable partition (Uniformat number, name, etc.)	

Uniformat / Omniclass / Uniclass

300	Inclusions • **Element envelopes** of individual panels • Space reservation for support system, storage pocket, operating mechanisms • Clearances for operability • Building system connection locations	
350	Inclusions: • Attachment points to support system •	
400	Inclusions • See Fundamental LOD Definitions	

C1010.70 / 21-03 10 10 70 / Ss 25 50 75
Interior Screens

Portable and open dividers.

Associated Masterformat Sections: 10 22 23 / 10 82 23

All	See C1010.40	

C1010.90 / 21-03 10 10 90 / --
Interior Partitions Supplementary Components

Sound isolation components, firestopping, and expansion control to be included with interior partition elements above as appropriate.

Associated Masterformat Sections: 13 48 00 / 09 81 00 / 07 84 00 / 07 95 00

See General Notes: Supplementary Components

C1020 / 21-03 10 20 / Ss 25 30 95 41
Interior Windows

Includes: Interior fixed or operable windows used singly and in multiples. Includes Interior Window Supplementary Components as appropriate. Includes metal, wood, plastic, and composite window units.

Associated Masterformat Sections: 08 50 00 / 01 84 13

100	See C10	
200	Inclusions • Generic window objects	

C1020.10 / 21-03 10 20 10 / Ss 25 30 95 41
Interior Operating Windows

Includes: Interior fixed or operable windows used singly and in multiples. Includes Interior Window Supplementary Components as appropriate. Includes metal, wood, plastic, and composite window units.

Associated Masterformat Sections: 08 50 00

100	N/A	
200	See C1020	

Uniformat / Omniclass / Uniclass

300	Inclusions: • Type and size of glazing and framing • Direction of operation	
350	Inclusions: • Attachment elements of window to structure	
400	Inclusions: • Detailed frame extrusion profiles • Fasteners	

C1020.20 / 21-03 10 20 20 / Ss 25 30 95 41
Interior Fixed Windows

Includes: Interior fixed or operable windows used singly and in multiples. Includes Interior Window Supplementary Components as appropriate. Includes metal, wood, plastic, and composite window units.

Associated Masterformat Sections: 08 50 00

All	See C1020.10	

C1020.50 / 21-03 10 20 50 / Ss 25 30 95 41
Interior Special Function Windows

Includes interior windows with special characteristics for a special function.

Associated Masterformat Sections: 08 56 00 / 08 56 19 / 08 56 46 / 08 56 49 / 08 88 49 / 08 56 53 / 08 88 53 / 08 88 56 / 08 56 63 / 08 56 73

All	See C1020.10	

C1020.90 / 21-03 10 20 90 / Ss 25 30 95 41
Interior Window Supplementary Components

Includes: Frames, sills, operating hardware, glazing to be included with interior window elements above as appropriate.

Associated Masterformat Sections: 08 75 00 / 08 80 00

See General Notes: Supplementary Components

C1030 / 21-03 10 30 / Ss 25 30 20 25
Interior Doors

Includes: Interior door assemblies. Includes metal doors and frames, wood doors and frames, plastic doors, and composite doors. Includes Interior Door Supplementary Components as appropriate.

Associated Masterformat Sections: 08 10 00 / 01 84 13

All	See B2050.10	

Uniformat / Omniclass / Uniclass

C1030.10 / 21-03 10 30 10 / Ss 25 30 20 25
Interior Swinging Doors

Includes: Interior door assemblies. Includes metal doors and frames, wood doors and frames, plastic doors, and composite doors. Includes Interior Door Supplementary Components as appropriate.

Associated Masterformat Sections: 08 10 00

All	See B2050.10	

C1030.20 / 21-03 10 30 20 / Ss 25 30 20 25
Interior Entrance Doors

Includes: Exterior personnel door assemblies at interior main entrances. Includes automatic, revolving, balanced, and other special operating entrance doors, and sliding storefront wall systems. Includes Interior Door Supplementary Components as appropriate when not part of storefront system.

Associated Masterformat Sections: 08 42 00 / 08 42 26 / 08 42 29 / 08 42 33 / 08 42 36
08 43 29

All	See 2050.10	

C1030.25 / 21-03 10 30 25 / Ss 25 30 20 77
Interior Sliding Doors

Associated Masterformat Sections: 08 11 73 / 08 32 00

100	N/A	
200	See B2050	
300	Inclusions: • Envelope of operation • jambs	
350	Inclusions • ~~jambs~~ Operation and mechanism **element envelopes** • Track • Building system connection locations	
400	Inclusions • Thresholds	

C1030.30 / 21-03 10 30 30 / Ss 25 30 20 78
Interior Folding Doors

Associated Masterformat Sections: 08 35 13

All	See C1030.25	

Uniformat / Omniclass / Uniclass

C1030.40 / 21-03 10 30 40 / Ss 25 30 20 74
Interior Coiling Doors

Associated Masterformat Sections: 08 33 00 / 08 33 13

100	N/A	
200	See C2050.10	
300	Inclusions • **Element envelope** • Space reservation for support system, storage pocket, operating mechanisms • Clearances for operability	
350	Inclusions: • Attachment points for support system • Support system • Storage pocket • Building system connection locations • Operating mechanism **element envelope**	
400	Inclusions • connections and interfaces • brackets, supports, • sealants, • thresholds.	

C1030.50
Interior Panel Doors

Includes: Interior large opening doors constructed of panels that move.

Associated Masterformat Sections: 08 36 00 / 08 36 13 / 08 36 16 / 08 36 19 / 08 36 23

All	See C1030.40	

C1030.70 / 21-03 10 30 70 / Ss 25 30 20 25
Interior Special Function Doors

Includes: Interior door assemblies for a variety of special functions and applications involving a variety of operating methods. Includes Interior Door Supplementary Components as appropriate.

Associated Masterformat Sections: 08 30 00. / 08 34 13 / 08 34 19 / 08 34 33 / 08 34 36
08 34 46 / 08 34 49 / 08 88 49 / 08 34 53 / 08 42 33.13 / 08 88 53 / 08 88 56 / 08 34 59
08 34 63 / 08 34 73 / 08 38 00 / 08 39 00

All	See C1030.40	

C1030.80 / 21-03 10 30 80 / Ss 25 30 20 35
Interior Access Doors and Panels

Includes: Doors and panels in walls, ceilings, and floors to provide access to concealed spaces. Includes frames and hardware.

Associated Masterformat Sections: 08 31 00

All	See B2050	

Uniformat / Omniclass / Uniclass

C1030.90 / 21-03 10 30 90 / Ss 25 30 20 25
Interior Door Supplementary Components

Includes: Frames, hardware, glazing, and louvers that are part of door to be included with interior door elements above as appropriate.

Associated Masterformat Sections: 08 10 00 / 08 30 00 / 08 71 00 / 08 80 00 / 08 91 26

See General Notes: Supplementary Components

C1040 / 21-03 10 40 / --
Interior Grilles and Gates

Includes: Interior operable grilles and gates Includes frames and hardware.

C1040.10 / 21-03 10 40 10 / Ss 25 50 35
Interior Grilles

Associated Masterformat Sections: 08 11 74 / 08 33 00 / 08 35 16

All	See B2050.10	

C1040.50 / 21-03 10 40 50 / Ss 25 32 35
Interior Gates

Includes: Interior devices of solid or open construction, usually hinged, to provide moveable barrier for access through partition or other divider. Includes hardware, accessories, and finishing.

Associated Masterformat Sections: 08 34 56 / 10 22 16

All	See B2050.10	

C1060 / 21-03 10 60 / Ss 30 20 70
Raised Floor Construction

Associated Masterformat Sections: 01 84 13 / 01 84 13 / 01 84 13 / 01 84 13 / 01 84 13
01 84 13 / 01 84 13 / 01 84 13 / 01 84 13

C1060.10 / 21-03 10 60 10 / Ss 30 20 70 70
Access Flooring

Includes: Free-standing, elevated accessible floor assembly forming an underfloor cavity that may be used for utility or other purposes.

Associated Masterformat Sections: 09 69 00

100	N/A	
200	Inclusions: • Floor level	

Uniformat / Omniclass / Uniclass

300	Inclusions • Floor element • Access panels	
350	Inclusions: • Locations of vertical supports	

C1060.30 / 21-03 10 60 30 / Ss 30 12 64
Platform/Stage Floors

Includes: Fixed construction of raised floor for platforms or stages.

All	See B1010	

C1070 / 21-03 10 70 / --
Suspended Ceiling Construction

Includes: Ceiling Suspension Components.

Associated Masterformat Sections: 01 84 13 / 01 84 13

100	N/A	
200	Inclusions: **Element envelope**	

C1070.10 / 21-03 10 70 10 / Ss 30 25 22 1
Acoustical Suspended Ceilings

Includes: Suspended tiles and panels with specific characteristics for acoustical purposes.

Associated Masterformat Sections: 09 51 00 / 09 81 00

100	See C1070	
200	Inclusions: • Element Envelope • Changes in ceiling system indicated	
300	Inclusions: • System thickness. • ~~Changes in ceiling system indicated~~ • expansion or control joint locations indicated • Ceiling grid shown.	
350	Inclusions: • Insulation • Openings with any dimension greater than 6” (15 cm) or as noted • Framing and bracing elements	
400	Inclusions: • Ceiling suspension grid elements • Individual tiles	

Uniformat / Omniclass / Uniclass

C1070.20 / 21-03 10 70 20 / Ss 30 25 10 10
Suspended Plaster and Gypsum Board Ceilings

Includes: Suspended assemblies with plaster and gypsum board surfaces.

Associated Masterformat Sections: 09 20 00 / 09 22 26 / 09 81 00

100	See C1070	
200	See C1070	
300	Inclusions: • Overall system thickness including framing. • Bulkheads/soffits • Openings with any dimension greater than 6” (15 cm) or as noted	
350	Inclusions • Framing and bracing elements. • Insulation • expansion or control joint locations indicated • Openings with any dimension greater than 6” (15 cm) or as noted	
400	Inclusions: • All assembly components	

C1070.50 / 21-03 10 70 50 / Ss 30 25 22
Specialty Suspended Ceilings

Includes: Suspended specialty ceiling panels, units, and materials manufactured as finished

Associated Masterformat Sections: 09 54 00 / 09 56 00

All	See C1070.10 or C1070.20	

C1070.70 / 21-03 10 70 70 / Ss 30 25 22
Special Function Suspended Ceilings

Includes: Suspended ceiling assemblies with an additional special function including integrated ceiling assemblies.

Associated Masterformat Sections: 09 57 00 / 09 57 53 / 09 58 00

All	See C1070.10 or C1070.20	See

C1070.90 / 21-03 10 70 90 / Ss 30 25 22
Ceiling Suspension Components

Includes: Hangers and framing to suspend ceiling and sound isolation components to be included with suspended ceiling construction elements above as appropriate.

Associated Masterformat Sections: 13 48 00

All	See C1070.10 or C1070.20	See

Uniformat / Omniclass / Uniclass

C1090 / 21-03 10 90 / --
Interior Specialties

C1090.10 / 21-03 10 90 10 / Ss 25 15 60 35
Interior Railings and Handrails

Includes: Complete interior railing assemblies of various types including glazed railings.

Associated Masterformat Sections: 01 84 00 / 01 84 00 / 01 84 00 / 01 84 00 / 05 52 00
05 73 00 / 06 43 16 / 06 63 00 / 06 81 00

All	See B1080.50	

C1090.15 / 21-03 10 90 15 / Ss 25 50 45 45
Interior Louvers

Includes: Interior louvers, and other items for ventilation which are not an integral part of the mechanical system. Includes operable and stationary louvers.

Associated Masterformat Sections: 08 91 00 / 01 84 00

100	N/A	
200	Inclusions • Generic model element	
300	Inclusions • **element envelope**	
350	Inclusions • vanes	

C1090.20 / 21-03 10 90 20 / Ss 40 25 26
Information Specialties

Includes: Visual display units, display cases, directories, interior signage, telephone specialties, and informational kiosks.

Associated Masterformat Sections: 10 10 00 / 10 11 00 / 10 11 13 / 10 11 16 / 10 11 23
10 11 33 / 10 11 36 / 10 11 39 / 10 11 43 / 10 11 46 / 10 12 00 / 10 13 00 / 10 14 00 10 17 00 / 10 18 00

C1090.25 / 21-03 10 90 25 / Ss 25 12 60 60
Compartments and Cubicles

Includes: Manufactured compartments and cubicles for specific purposes. Includes toilet compartments, shower stalls, etc.

Associated Masterformat Sections: 10 21 00 / 10 21 13 / 10 21 16 / 10 21 23 / 10 28 19

Uniformat / Omniclass / Uniclass

C1090.30 / 21-03 10 90 30 / Ss 25 12 65
Service Walls

Includes: Wall assemblies and wall-mounted units incorporating services.

Associated Masterformat Sections: 10 25 00 / 10 25 13 / 10 25 16

All	See C1010.10	

C1090.35 / 21-03 10 90 35 / Pr 35 90 43
Wall and Door Protection

Includes: Manufactured protective devices for walls and doors. Includes corner guards, bumper guards, and protective wall covering.

Associated Masterformat Sections: 10 26 00 / 10 26 13 / 10 26 16 / 10 26 23 / 10 26 33

C1090.40 / 21-03 10 90 40 / Pr 40 20 76
Toilet, Bath and Laundry Accessories

Includes: Manufactured items for use in conjunction with toilets, baths, and laundries.

Associated Masterformat Sections: 10 28 00 / 10 28 13 / 10 28 16 / 10 28 23

C1090.45 / 21-03 10 90 45 / Ss 70 80 33
Interior Gas Lighting

Associated Masterformat Sections: 10 84 16

C1090.50 / 21-03 10 90 50 / Pr 70 60 82
Fireplaces and Stoves

Includes: Masonry fireplaces and manufactured and fabricated fireplaces, stoves, chimneys, dampers, and specialties for use in construction of fireplaces and stove units.

Associated Masterformat Sections: 10 30 00 / 04 50 00 / 04 57 00 / 10 31 00 / 10 31 13
10 32 00 / 10 35 00

C1090.60 / 21-03 10 90 60 / Ss 75 50
Safety Specialties

Includes: Accessories that provide emergency aid.

Associated Masterformat Sections: 10 40 00 / 10 41 00 / 10 43 00

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C1090.70 / 21-03 10 90 70 / Pr 40 30 78
Storage Specialties

Includes: Lockers, postal specialties, storage specialties, and wardrobe and closet specialties.

Associated Masterformat Sections: 10 50 00 / 10 51 00 / 10 51 53 / 10 55 00 / 10 55 23 / 10 55 91 / 10 56 00 / 10 56 29 / 10 56 33 / 10 57 00 / 10 57 13 / 10 57 33

C1090.90 / 21-03 10 90 90 / Ss 40
Other Interior Specialties

Includes: Pest control devices, flags and banners, security mirrors and domes, and scales.

Associated Masterformat Sections: 10 80 00 / 10 81 00 / 10 81 16 / 10 81 19 / 10 83 00 / 08 83 00 / 10 86 00 / 10 88 00

C20 / 21-03 20 / Ss 25 45
Interior Finishes

Associated Masterformat Sections: 01 84 19

100	N/A	
200	Inclusions • Area defined	
300	Inclusions • Thickness if greater than ¼” (6 mm) or as noted	
350	Inclusions: • Measurable individual layers (e.g. grout and tile for mudset tile)	

C2010 / 21-03 20 10 / Ss 25 45
Wall Finishes

Includes: Wall finishes applied over solid substrates. Includes Wall Finish Supplementary Components as appropriate.

Associated Masterformat Sections: 09 70 00 / 01 84 19 / 01 84 19 / 01 84 19 / 01 84 19 / 01 84

C2010.10 / 21-03 20 10 10 / Ss 25 45 88
Tile Wall Finish

Includes: Manufactured surfacing units of impervious, vitreous, semi-vitreous, and non-vitreous materials; glazed, unglazed, conductive, and textured surfaces.

Associated Masterformat Sections: 09 30 00

All	See C20	

Uniformat / Omniclass / Uniclass

C2010.20 / 21-03 20 10 20 / Ss 25 25
Wall Paneling

Includes: Covering or cladding of interior walls with paneling. Includes associated furring, fastening, and trim.

Associated Masterformat Sections: 06 42 00 / 06 25 00 / 06 26 00 / 06 64 00 / 06 83 00

All	See C20	

C2010.30 / 21-03 20 10 30 / Ss 25 45 74
Wall Coverings

Includes: Wall coverings applied over solid substrates. Includes vinyl-coated fabric, vinyl and cork wall coverings; wall papers; and flexible wood sheets.

Associated Masterformat Sections: 09 72 00 / 09 74 00

All	See C20	

C2010.35 / 21-03 20 10 35 / Ss 25 45 74
Wall Carpeting

Includes: Wall carpet materials and accessories.

Associated Masterformat Sections: 09 73 00

All	See C20	

C2010.50 / 21-03 20 10 50 / Ss 25 20 85
Stone Facing

Includes: Natural stone applied as an interior veneer surface.

Associated Masterformat Sections: 09 75 00

All	See C20	

C2010.60 / 21-03 20 10 60 / Ss 25 45
Special Wall Surfacing

Includes: Manufactured decorative interior wall surface products including plastic blocks.

Associated Masterformat Sections: 09 77 00 / 09 77 13 / 09 77 23 / 09 76 00

All	See C20	

Uniformat / Omniclass / Uniclass

C2010.70 / 21-03 20 10 70 / Ss 40 90 60
Wall Painting and Coating

Includes: Interior painting and coating with transparent and opaque finishes. Includes stains, varnishes, lacquers, primers, fillers, paint removers, and waxes, and preparation of surfaces.

Associated Masterformat Sections: 09 90 00

All	See C20	

C2010.80 / 21-03 20 10 80 / Ss 25 45 02
Acoustical Wall Treatment

Includes: Sound absorbing, reflecting, and diffusing wall units, and accessories.

Associated Masterformat Sections: 09 83 13 / 09 84 00 / 09 84 33

All	See C20	

C2010.90 / 21-03 20 10 90 / Ss 25 45
Wall Finish Supplementary Components

Includes: Furring to be included with wall finish elements above as appropriate.

Associated Masterformat Sections: 06 10 00 / 09 22 13

See General Notes: Supplementary Components

All	See C20	

C2020 / 21-03 20 20 / Ss 25 25 45
Interior Fabrications

Includes: Interior fabrications of a variety of materials formed to various profiles for a variety of purposes including column covers.

Associated Masterformat Sections: 03 49 00 / 05 50 00 / 05 58 13 / 05 70 00 / 06 44 00 / 06 60 00 / 06 61 00 / 06 80 00 / 09 27 00

For drywall fabrications see C1010.10

For all others See Fundamental LOD Definitions

C2030 / 21-03 20 30 / Ss 30 42
Flooring

Includes: Flooring Supplementary Components as appropriate.

Associated Masterformat Sections: 09 60 00 / 01 84 19

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C2030.10 / 21-03 20 30 10 / Ss 30 42
Flooring Treatment

Includes: Coatings and surfacings for finished floor, applied to provide a specific performance characteristic.

Associated Masterformat Sections: 09 61 00 / 09 61 13

All	See C20	

C2030.20 / 21-03 20 30 20 / Ss 30 42 32 40
Tile Flooring

Includes: Manufactured surfacing units of impervious, vitreous, semi-vitreous, and non-vitreous materials; glazed, unglazed, conductive, abrasive, and textured surfaces. Includes wall base units.

Associated Masterformat Sections: 09 30 00

All	See C20	

C2030.30 / 21-03 20 30 30 / Ss 30 42
Specialty Flooring

Includes: Heavy duty and other specialty flooring. Includes asphaltic plank, laminate, bamboo, leather, cork, acoustic, synthetic turf, metal, structural glass, chemical-resistant, acid resistant, conductive, and static control flooring.

Associated Masterformat Sections: 09 62 00 / 09 35 00 / 09 63 13.35 / 09 62 35 / 09 33 00 / 09 65 33 / 09 66 33 / 09 61 36 / 09 65 36

All	See C20	

C2030.40 / 21-03 20 30 40 / Ss 30 42 50
Masonry Flooring

Includes: Fired clay unit masonry, cat stone, and stone flooring. Includes wall base.

Associated Masterformat Sections: 09 63 00 / 09 63 13 / 09 63 40 / 09 63 43

All	See C20	

C2030.45 / 21-03 20 30 45 / Ss 30 20 90
Wood Flooring

Includes: Strip, parquet, block, and composition wood flooring.

Associated Masterformat Sections: 09 64 00

All	See C20	

Uniformat / Omniclass / Uniclass

C2030.50 / 21-03 20 30 50 / Ss 30 42 72 72
Resilient Flooring

Includes: Resilient tile and sheet flooring. Includes integral and applied wall bases.

Associated Masterformat Sections: 09 65 00

All	See C20	

C2030.60 / 21-03 20 30 60 / Ss 30 42 90 90
Terrazzo Flooring

Includes: Cast-in-place, sand-cushion, monolithic, bonded and adhesively- bonded portland cement terrazzo; poured-in-place epoxy, polyester, and resinous matrix terrazzo; and precast terrazzo. Includes integral or precast wall bases, accessories, and finish sealers.

Associated Masterformat Sections: 09 66 00 / 09 66 13 / 09 66 16 / 09 66 23

All	See C20	

C2030.70 / 21-03 20 30 70 / Ss 30 42 54 75
Fluid-Applied Flooring

Includes: Flooring applied in a viscous state.

Associated Masterformat Sections: 09 67 00 / 09 67 13 / 09 67 16 / 09 67 19 / 09 67 23 / 09 67 26

All	See C20	

C2030.75 / 21-03 20 30 75 / Ss 30 42 72
Carpeting

Includes: Floor carpet materials including cushions, accessories, and wall base.

Associated Masterformat Sections: 09 68 00 / 09 68 13 / 09 68 16

All	See C20	

C2030.80 / 21-03 20 30 80 / Ss 30 20 95 15
Athletic Flooring

Includes: Flooring for athletic purposes.

Associated Masterformat Sections: 09 64 66 / 09 65 66 / 09 67 66

All	See C20	

Uniformat / Omniclass / Uniclass

C2030.85 / 21-03 20 30 85 / Ss 30 60 30 26
Entrance Flooring

Includes: Special floor surfaces at entrances.

Associated Masterformat Sections: 12 48 13 / 12 48 16 / 12 48 19 / 12 48 23 / 12 48 26

All	See C20	

C2030.90 / 21-03 20 30 90 / Pr 35 90 31
Floor Supplementary Components

Includes: Furring, underlayment, and sound and vibration control to be included with flooring elements above as appropriate.

Associated Masterformat Sections: 06 10 00 / 06 16 26 / 09 60 13 / 09 62 48

See General Notes: Supplementary Components

C2040 / 21-03 20 40 / Ss 35 40
Stair Finishes

Includes: Stair tread, riser, and landing finish of various materials.

Associated Masterformat Sections: 01 84 19

C2040.20 / 21-03 20 40 20 / Ss 35 40
Tile Stair Finish

All	See C20	

C2040.40 / 21-03 20 40 40 / Ss 35 40
Masonry Stair Finish

All	See C20	

C2040.45 / 21-03 20 40 45 / Ss 35 40
Wood Stair Finish

All	See C20	

C2040.50 / 21-03 20 40 50 / Ss 35 40
Resilient Stair Finish

All	See C20	

Uniformat / Omniclass / Uniclass

C2040.60 / 21-03 20 40 60 / Ss 35 40
Terrazzo Stair Finish

All	See C20	

C2040.75 / 21-03 20 40 75 / Ss 35 40 82
Carpeted Stair Finish

All	See C20	

C2050 / 21-03 20 50 / Ss 30 47
Ceiling Finishes

Includes: Finishes applied to interior ceiling substrates. Ceiling finishes may be applied to suspended ceiling construction. Includes Ceiling Finish Supplementary Components as appropriate.

All	See C20	

C2050.10 / 21-03 20 50 10 / Ss 30 25 10
Plaster and Gypsum Board Finish

All	See C20	

C2050.20 / 21-03 20 50 20 / Ss 30 25 10
Ceiling Paneling

All	See C20	

C2050.70 / 21-03 20 50 70 / Ss 40 90 60
Ceiling Painting and Coating

All	See C20	

C2050.80 / 21-03 20 50 80 / Ss 30 25 22 1
Acoustical Ceiling Treatment

All	See C20	

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C2050.90 / 21-03 20 50 90 / Ss 30 47
Ceiling Finish Supplementary Components

See General Notes: Supplementary Components

Uniformat / Omniclass / Uniclass

D / 21-04 00 00 / -- SERVICES

Associated Masterformat Sections: 01 86 00

D10 / 21-04 10 / Ss 80 20 Conveying

Associated Masterformat Sections: 01 85 00 / 14 00 00

100	Inclusions: • Schematic model elements. • indication of entry and exit points	

D1010 / 21-04 10 10 / Ss 80 50 Vertical Conveying Systems

D1010.10 / 21-04 10 10 10 / Ss 80 50 60 26 Elevators

Includes: Passenger and freight elevators of all types, including cars, enclosures, controls, safety equipment, hoist way equipment, and elevator machinery. Includes associated metal fabrications including pit ladders.

Associated Masterformat Sections: 01 85 00 / 14 20 00 / 14 21 13 / 14 21 23 / 14 21 33
14 21 43 / 14 24 13 / 14 24 23 / 14 24 33 / 14 24 43 / 14 26 00 / 14 27 00 / 14 28 00

100	See D10	 1

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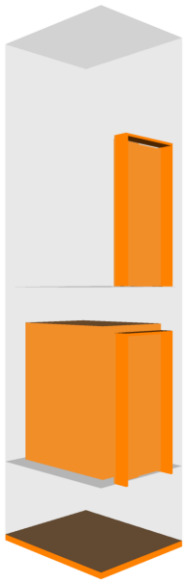
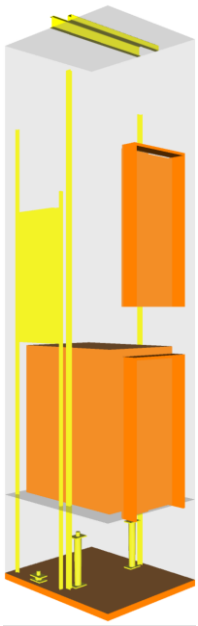
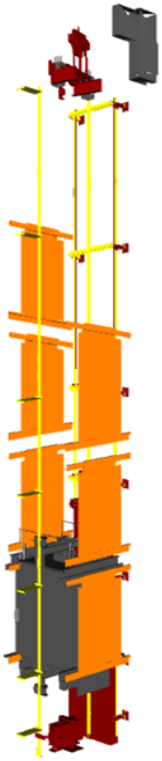
200	Inclusions • Assumed envelope of shaft • Pit • Location and **nominal** size of all stops and doors • Specify conveyance type (e.g., hydraulic vs. traction elevator) • Specify what is being conveyed (e.g., people vs. freight) • Location of elevator machine	 1
300	Inclusions • Pathway envelope of moving parts (e.g., cab, counterweight), including required clearances • system elements(e.g., tracks) • Pits, control rooms, machine rooms, and associated equipment if applicable. • Major structural support elements (e.g., elevator beam).	 1

Uniformat / Omniclass / Uniclass

350	Inclusions: • Connections: mechanical and/or electrical services. • connection points between elevator components and building structure • Sizing adjusted to the **actual** manufacturer specifications. • Guiding tracks/rails • Service/access zones	 1
400	Inclusions • All connections, supports, framing, and other supplementary components.	 1

Uniformat / Omniclass / Uniclass

D1010.20 / 21-04 10 10 20 / Ss 80 50 60
Lifts

Includes: Vertical or inclined lifts and related equipment for a variety of purposes. Sidewalk lifts include doors.

Associated Masterformat Sections: 01 85 00 / 14 40 00 / 14 41 00 / 14 42 00 / 14 43 00
14 43 13 / 14 43 16 / 14 44 00 / 14 45 00

See D1010.10

D1010.30 / 21-04 10 10 30 / Ss 80 20 62 28
Escalators

Includes: Passenger conveying systems composed of moving treads installed in inclined position including associated components, hardware, controls, safety equipment, and related items.

Associated Masterformat Sections: 01 85 00 / 14 31 00

100	See D10	
200	Inclusions: • **Element envelope**	
300	Inclusions • Balustrade • Clear Egress Zones	
350	Inclusions: • Connections to services (e.g., mechanical, electrical). • Connection points between components and building structure • Modeled at **actual** manufacturer dimensions. • Guiding tracks/rails • Service/access zones	

D1010.50 / 21-04 10 10 50 / Ss 80 50 60 50
Dumbwaiters

Includes: Packaged and field assembled, motorized and hand- operated dumbwaiters including associated components for book lifts, cart lifts, and other applications. Systems include associated components, hardware, controls, and safety equipment.

Associated Masterformat Sections: 01 85 00 / 14 10 00

[See D1010.10]

D1010.60 / 21-04 10 10 60 / Ss 80 20 62
Moving Ramps

Includes: Passenger conveying systems composed of moving belts installed in inclined position including associated components, hardware, controls, safety equipment, and related items.

Associated Masterformat Sections: 01 85 00 / 14 33 00

Uniformat / Omniclass / Uniclass

D1030 / 21-04 10 30 / Ss 80 20 62
Horizontal Conveying

Associated Masterformat Sections: 01 85 00

100	[See D10]	
200	Inclusions: • Element Envelope • Specify conveyance type • Specify what is being conveyed	
300	Inclusions: • Specific system elements modeled by type, including all path of travel zones. Including: • Envelope of travel path and clearance zones	
350	Inclusions: • Service/access zones • Modeled at **actual** manufacturer dimensions. • Fixing points of truss	

D1030.10 / 21-04 10 30 10 / Ss 80 20 62 53
Moving Walks

Includes: Passenger conveying systems composed of moving belts installed in horizontal position including associated components, hardware, controls, safety equipment, and related items.

Associated Masterformat Sections: 01 85 00 / 14 32 00

[See D1030]

D1030.30 / 21-04 10 30 30 / Ss 80 80
Turntables

Includes: Structural turntables for various applications.

Associated Masterformat Sections: 01 85 00 / 14 70 00 / 14 71 00 / 14 71 11 / 14 72 00 14 72 25 / 14 73 00 / 14 73 59 / 14 74 00 / 14 74 61

[See D1030]

D1030.50 / 21-04 10 30 50 / Ss 80 90 05 60
Passenger Loading Bridges

Includes: Operating bridges for loading and unloading of passengers to and from aircraft and ships.

Associated Masterformat Sections: 01 85 00 / 34 77 13

[see D1030]

Uniformat / Omniclass / Uniclass

D1030.70 / 21-04 10 30 70 / Ss 80 20 62
People Movers

Includes: Single rail vehicles suspended from or straddle the guideway. Includes associated track, equipment, controls, and accessories. Includes: Steep cable railways in which ascending cars counterbalance descending cars. Includes associated track, cable. Includes: Steep slope transportation system utilizing moving cable. Includes associated cable, support structures, equipment, controls, and accessories.

Associated Masterformat Sections: 01 85 00 / 34 12 00 / 34 13 00 / 34 14 00

[see D1030]

D1050 / 21-04 10 50 / Ss 80 20 10
Material Handling

Associated Masterformat Sections: 01 85 00

100	See D10	
200	Inclusions: • Generic representation of the material handling system envelope, including critical path of travel zones • Specify conveyance type • Specify what is being conveyed	
300	Inclusions: • Specific system elements modeled by type, including all path of travel zones. Including: • Clear Egress Zones • Structural Clearance zones • Material path clearance zones	
350	Inclusions: • Sizing adjusted to the **actual** manufacturer specifications. • Fixing points of truss • Service/access zones	
400	Inclusions: • All connections, supports, framing, and other supplementary components.	

D1050.10 / 21-04 10 50 10 / Ss 80 30 15
Cranes

Includes: Hoisting towers, cranes, crane rails, and related accessories.

Associated Masterformat Sections: 41 22 13

100	See D10	

Uniformat / Omniclass / Uniclass

200	Inclusions: • Element envelope • Envelope of zone of operation	
300	Inclusions: • Specific system elements • Structural support elements. • Connection points to building structure • Guiding tracks and rails	
350	Inclusions: • Sizing adjusted to the **actual** manufacturer dimensions. • Service and access zones • Connections to mechanical or electrical services	

D1050.20 / 21-04 10 50 20 / Ss 80 30 40
Hoists

Includes: Manual and motor operated hoists and related accessories.

Associated Masterformat Sections: 41 22 23

[See D1050.10]

D1050.30 / 21-04 10 50 30 / Ss 80 30 20
Derricks

Includes: Manual and motor operated derricks and related accessories.

Associated Masterformat Sections: 41 22 33

[See D1050.10]

D1050.40 / 21-04 10 50 40 / Ss 80 20
Conveyors

Includes: Automatic guided vehicles, conveyors, diverters, and chutes. Includes controls and accessories.

Associated Masterformat Sections: 41 21 00

[See D1050.10]

D1050.50 / 21-04 10 50 50 / Ss 80 20 06
Baggage Handling Equipment

Includes: Operating equipment for handling, scanning, and weighing of baggage at terminals. Includes controls and accessories.

Associated Masterformat Sections: 34 77 16

[see D5010.10]

Uniformat / Omniclass / Uniclass

D1050.60 / 21-04 10 50 60 / Ss 37 14
Chutes

Includes: Chutes which support the operation of the building or structure.

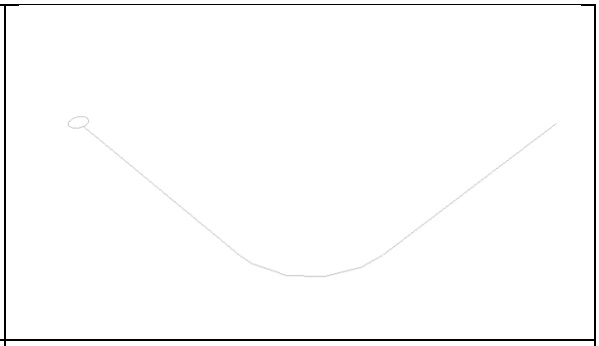
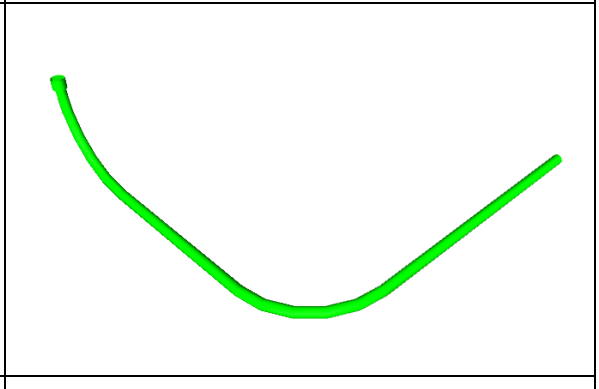
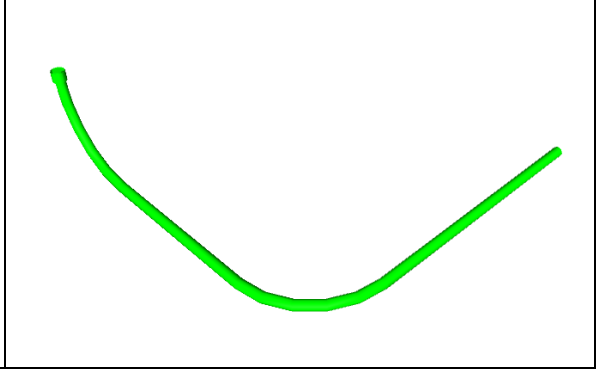
Associated Masterformat Sections: 14 91 00 / 14 91 13 / 14 91 23 / 14 91 33 / 14 91 82

[see D5010.10]

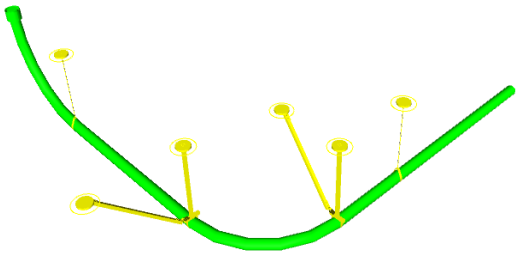
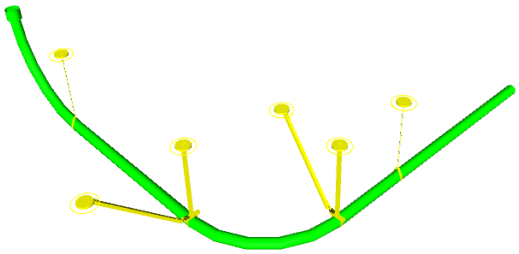
D1050.70 / 21-04 10 50 70 / Ss 80 20 65
Pneumatic Tube Systems

Includes: Pneumatically operated tube system for the delivery of small items within a facility. Includes controls and accessories.

Associated Masterformat Sections: 14 92 00

100	Inclusions: • Diagrammatic elements or quantitative call outs; • Conceptual and/or schematic flow diagrams;	
200	Inclusions: • Generic elements; • layout with approximate size, shape, and location of equipment and tubing; • locations of switching stations and terminals	
300	Inclusions: • design-specified elements; • Specified size, shape, spacing, and location of equipment and tubing; • switching stations and terminals modeled	

Uniformat / Omniclass / Uniclass

350	Inclusions: • **actual** size, shape, spacing, and location/connections of equipment and tubing; • **actual** size, shape, spacing, and clearances of all hangers, supports, vibration and seismic control • floor and wall penetrations. • Service/access zones.	
400	Inclusions: • Supplementary components required for fabrication and field installation	

D1080 / 21-04 10 80 / Ss 80 30 25
Operable Access Systems

Associated Masterformat Sections:

See Fundamental LOD Definitions

D1080.10 / 21-04 10 80 10 / Ss 80 30 25 0
Suspended Scaffolding

Includes: Suspended scaffolding when part of the completed project.

Associated Masterformat Sections: 14 81 00

See Fundamental LOD Definitions

D1080.20 / 21-04 10 80 20 / Ss 80 30 25
Rope Climbers

Includes: Powered rope climbers to access exterior façade.

Associated Masterformat Sections: 14 82 00

See Fundamental LOD Definitions

Uniformat / Omniclass / Uniclass

D1080.30 / 21-04 10 80 30 / Ss 80 30 25 0
Elevating Platforms

Includes: Fixed elevating platforms to provide a movable elevated working platform for people and materials.

Associated Masterformat Sections: 14 83 00

See Fundamental LOD Definitions

D1080.40 / 21-04 10 80 40 / Ss 80 30 25
Powered Scaffolding

Includes: Powered scaffolding when part of the completed project.

Associated Masterformat Sections: 14 84 00 / 14 84 13

See Fundamental LOD Definitions

D1080.50 / 21-04 10 80 50 / Ss 80 30 25
Building Envelope Access

Associated Masterformat Sections: 11 24 23

See Fundamental LOD Definitions

D20 / 21-04 20 / --
Plumbing

Associated Masterformat Sections: 01 86 16 / 22 00 00

100	Inclusions: • Diagrammatic or schematic elements;	

D2010 / 21-04 20 10 / Ss 55 70 38
Domestic Water Distribution

Includes: Facility domestic water distribution system. Include Domestic Water Distribution Supplementary Components as appropriate.

Associated Masterformat Sections: 01 86 16 / 22 11 00

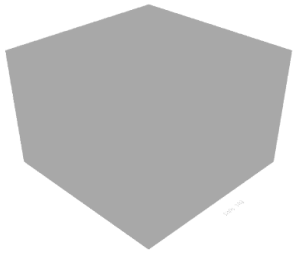
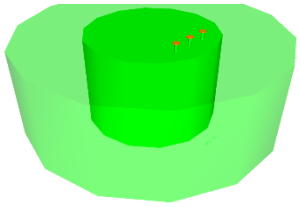
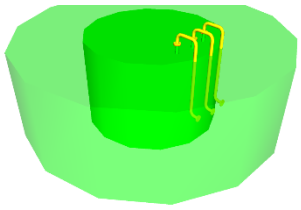
100	See D20	
200	Inclusions: • Elements with approximate size, shape, and location	

Uniformat / Omniclass / Uniclass

D2010.10 / 21-04 20 10 10 / Ss 55 15 65
Facility Potable-Water Storage Tanks

Includes: Tanks for storage of potable water serving a facility and located within, on, under, or closely associated with a structure.

Associated Masterformat Sections: 22 12 00

100	See D20	
200	Inclusions: • Approximate size, shape, and location	
300	Inclusions: • Design-specified size, shape, spacing, and location • Access/code clearance requirements • Approximate allowances for clearances required for all specified anchors, supports, vibration and seismic control that are utilized in the layout of tanks(s) are modeled or accommodated by model checking software;	
350	Inclusions: • **Actual** element size and shape, spacing, and location of connections • **Actual** size and shape, spacing, and clearances required for all specified anchors, supports, vibration and seismic control that are utilized in the layout of tanks(s) are modeled or accommodated by model checking software. • Location of instrumentation	

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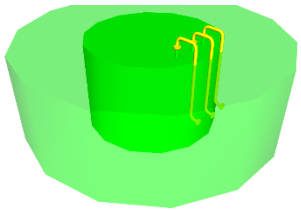
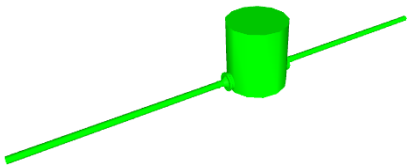
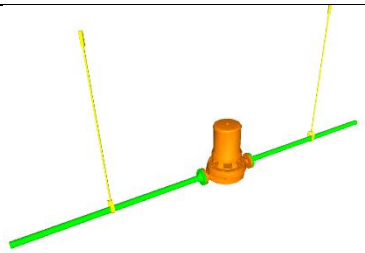
400	Inclusions: • Supplementary components required for fabrication and field installation.	

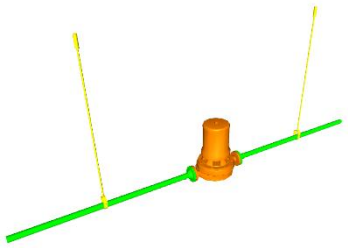
D2010.20 / 21-04 20 10 20 / Ss 55 70 38
Domestic Water Equipment

Includes: Equipment for domestic water distribution system. Includes: Equipment for the softening of domestic water. Includes: Equipment for the filtering of domestic water. Includes: Equipment to heat domestic water. Includes electric and fuel-fired equipment. Includes: Equipment to heat domestic water by means of heat exchange.

Associated Masterformat Sections: 22 11 23 / 22 31 00 / 22 32 00 / 22 33 00 / 22 34 00
22 35 00

100	See D20	
200	Inclusions: • Approximate size, shape, and location	
300	Inclusions: • Design-specified size, shape, spacing, and location • Allowances for clearances required for all specified anchors, supports, vibration and seismic control that are utilized in the layout of equipment; • Access/code clearance requirements modeled.	
350	Inclusions: • **Actual** size, shape, spacing, and location/connections • **Actual** size, shape, spacing, and clearances required for all specified anchors, supports, vibration and seismic control • **Actual** access/code clearance requirements modeled.	

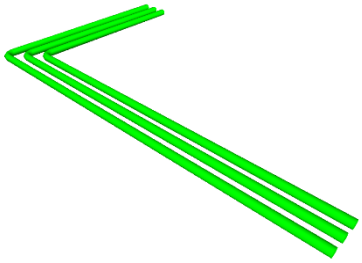
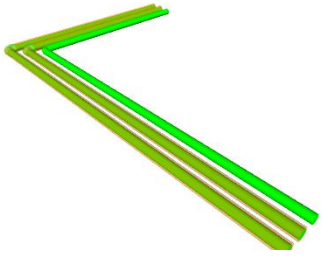
Uniformat / Omniclass / Uniclass

400	See D2010.10	

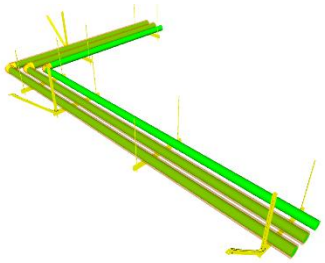
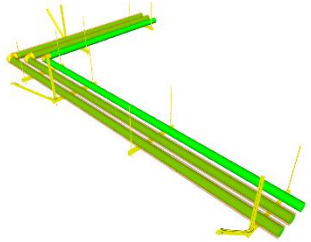
D2010.40 / 21-04 20 10 40 / Ss 55 70 38
Domestic Water Piping

Includes: Piping, valves, and specialties associated with domestic water distribution located within, under, or closely associated with a structure. Includes circulating pumps. May Include: Water service from the structure to the utility water service line.

Associated Masterformat Sections: 22 11 16 / 22 11 19

100	Inclusions: • Diagrammatic elements; • Conceptual and/or schematic flow diagrams;	
200	Inclusions: • Size, shape, and location of mains and risers;	
300	Inclusions: • Design-specified size, shape, spacing, and location of pipe, valves, fittings, and insulation for risers, mains, and branches; • Allowances for clearances required for all specified hangers, supports, vibration and seismic control Access/code clearance requirements modeled.	

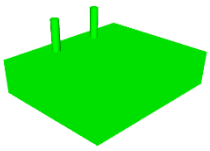
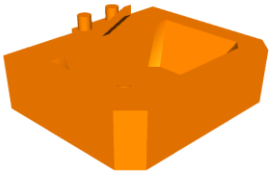
Uniformat / Omniclass / Uniclass

350	Inclusions: • **Actual** construction elements; • **Actual** size, shape, spacing, and location of pipe, valves, fittings, and insulation for risers, mains, and branches; • **Actual** size, shape, spacing, and clearances required for all hangers, supports, vibration and seismic control; • **Actual** floor and wall **penetration elements**. • **Actual** access/code clearance requirements.	
400	See D2010.10	

D2010.60 / 21-04 20 10 60 / Ss 40 15 75
Plumbing Fixtures

Includes: Terminal devices on the domestic water plumbing system. Includes rough-in piping, trim, fittings, and connection to vent piping.

Associated Masterformat Sections: 22 40 00 / 22 41 00 / 22 41 13 / 22 41 16 / 22 41 19
22 41 23 / 22 41 26 / 22 41 36 / 22 41 39 / 22 42 00 / 22 42 13 / 22 42 16 / 22 42 19
22 42 23 / 22 42 26 / 22 42 29 / 22 42 33 / 22 42 36 / 22 42 39 / 22 42 43 / 22 43 00
22 43 13 / 22 43 16 / 22 43 19 / 22 43 23 / 22 43 39 / 22 43 43 / 22 45 00 / 22 45 13
22 45 16 / 22 45 26 / 22 45 29 / 22 45 33 / 22 45 36 / 22 46 00 / 22 46 13 / 22 46 16
22 46 39 / 22 46 43 / 22 46 53 / 22 47 00 / 22 47 13 / 22 47 23

100	See D20	
200	Inclusions: • Element envelope •	
300	Inclusions: • Modeled as design-specified size, shape, spacing, and location; • Approximate allowances for clearances required for all specified supports that are to be utilized in the layout of all fixtures; • Access/code clearance requirements modeled.	

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350	Inclusions: • Modeled as **actual** construction elements size, shape, spacing, and location/connections of fixtures/carriers; • **Actual** size, shape, spacing, and clearances required for all supports **Actual** access/code clearance requirements modeled.	
400	See D2010.10	

D2010.90 / 21-04 20 10 90 / Ss 55 70
Domestic Water Distribution Supplementary Components

Includes: Common work results for plumbing, plumbing insulation, and instrumentation. Includes: expansion fittings, meters, gages, valves, hangers, supports, heat tracing, vibration and seismic controls.

Associated Masterformat Sections: 05 45 13 / 22 05 00 / 22 05 16 / 22 05 19 / 22 05 23
22 05 29 / 22 05 33 / 22 05 48 / 22 05 53 / 22 07 00 / 22 09 00

See General Notes: Supplementary Components

D2020 / 21-04 20 20 / Ss 50 30 4
Sanitary Drainage

Includes: Facility sanitary sewerage system located within, under, or closely associated with a structure. Include Sanitary Drainage Supplementary Components as appropriate.

Associated Masterformat Sections: 01 86 16 / 22 13 00

100	See D20	
200	See D2010	

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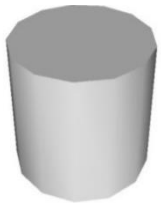
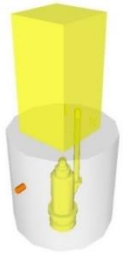
D2020.10 / 21-04 20 20 10 / Ss 50 30 04
Sanitary Sewerage Equipment

Includes: Interceptor, separator, pumps, and septic tanks that are part of facility sanitary sewerage system.

Associated Masterformat Sections: 22 13 23 / 22 13 26 / 22 13 29 / 22 13 33 / 22 13 36
22 13 43 / 22 13 53

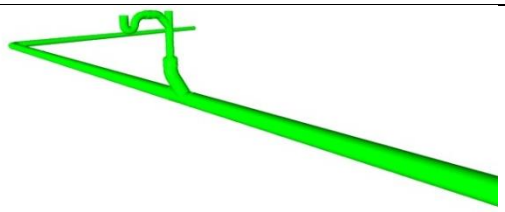
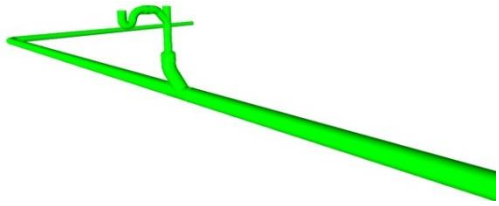
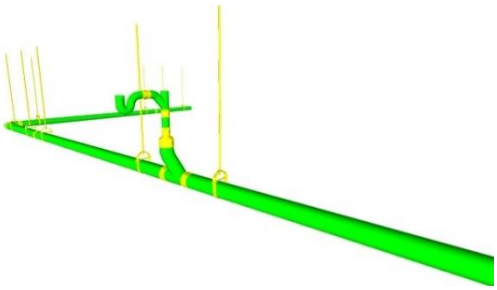
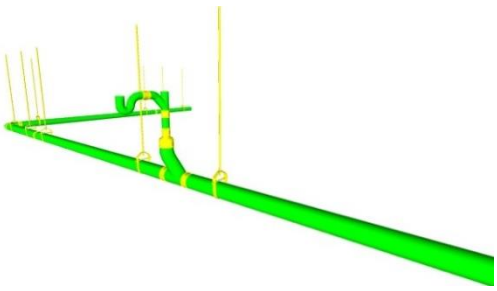
100	See D20	
200	Inclusions: • Schematic layout with approximate size, shape, and location.	
300	Inclusions: • design specified size, shape, spacing, and location of equipment. • Approximate allowances for clearances required for all specified anchors, supports, vibration and seismic control that are utilized in the layout of equipment are modeled. • Access/code clearance requirements modeled.	
350	Inclusions: • **Actual** size, shape, spacing, and clearances required for all specified anchors, supports, vibration and seismic control that are utilized in the layout of equipment. • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation	

Uniformat / Omniclass / Uniclass

D2020.30 / 21-04 20 20 30 / Ss 50 30 04
Sanitary Sewerage Piping

Includes: Sanitary waste and vent piping system within and under structures. May Include: Sanitary piping from the structure to the utility sanitary sewer.

Associated Masterformat Sections: 22 13 13 / 22 13 16 / 22 13 19 / 22 05 73 / 22 05 76

100	See D20	
200	Inclusions: • Schematic layout with approximate size, shape, and location of mains and risers.	
300	Inclusions: • design-specified size, shape, spacing, location, and slope of pipe, valves, fittings, and insulation for risers, mains, and branches. • Approximate allowances for clearances required for all specified hangers, supports, vibration and seismic control that are to be utilized in the layout of all risers, mains, and branches. • Access/code clearance requirements modeled	
350	Inclusions: • **Actual** construction elements. • **Actual** size, shape, spacing, location, connections, and slope of pipe, valves, fittings, and insulation for risers, mains, and branches. • **Actual** size, shape, spacing, and clearances required for all hangers, supports, vibration and seismic control that are utilized in the layout of all risers, mains, and branches. • **Actual** floor and wall **penetration elements**. • **Actual** access/code clearance requirements modeled	
400	See D2020.10	

Uniformat / Omniclass / Uniclass

D2020.90 / 21-04 20 20 90 / Ss 50 30 04
Sanitary Drainage Supplementary Components

Includes: Common work results for plumbing, plumbing insulation, and instrumentation and control for plumbing to be included with sanitary drainage elements above as appropriate. Includes expansion fittings, meters, gages, valves, hangers, supports, heat tracing, vibration and seismic controls.

Associated Masterformat Sections: 05 45 13 / 22 05 00 / 22 05 16 / 22 05 19 / 22 05 23
22 05 29 / 22 05 33 / 22 05 48 / 22 05 53 / 22 07 00 / 22 09 00

See General Notes: Supplementary Components

D2030 / 21-04 20 30 / --
Building Support Plumbing Systems

Includes: Facility storm water drainage and gray water systems. Include Building Support Plumbing System Supplementary Components as appropriate.

Associated Masterformat Sections: 01 86 16 / 22 14 00

100	See D20	
200	See D2010	

D2030.10 / 21-04 20 30 10 / Ss 50 35 80
Stormwater Drainage Equipment

Includes: Drainage pumps, and sump pumps that are part of stormwater drainage system.

Associated Masterformat Sections: 22 14 29 / 22 14 33 / 22 14 36 / 22 14 53

100	Inclusions: • Diagrammatic or schematic model elements. • Conceptual and/or schematic layout;	
200	Inclusions: • Schematic layout with approximate size, shape, and location of equipment. • Approximate access/code clearance requirements.	
300	Inclusions: • design-specified size, shape, spacing, and location. • Approximate allowances for clearances required for all specified anchors, supports, vibration and seismic control that are utilized in the layout of equipment. • Access/code clearance requirements modeled.	

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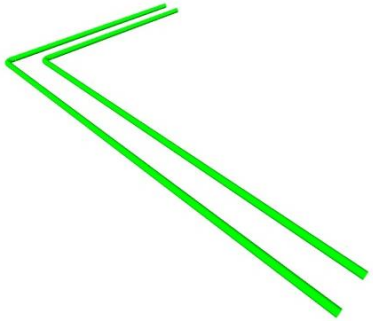
350	Inclusions: • **actual** construction elements size, shape, spacing, and location/connections of equipment, • **Actual** size, shape, spacing, and clearances required for all specified anchors, supports, vibration and seismic control that are utilized in the layout of equipment. • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

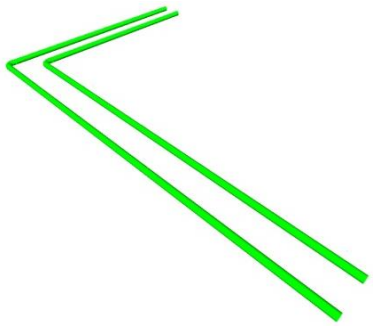
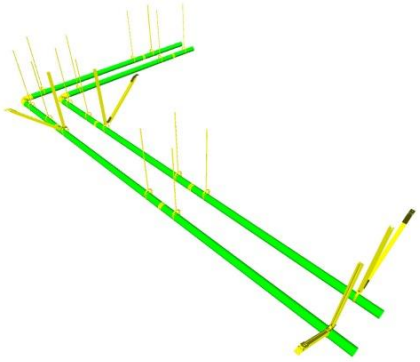
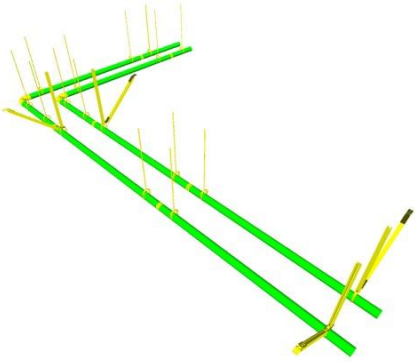
D2030.20 / 21-04 20 30 20 / Ss 50 35 80
Stormwater Drainage Piping

Includes: Storm drainage piping system within, under, or closely associated with a structure. Includes storm drains for areas closely associated with a structure such as courtyards, plazas, and loading dock areas. May Include: Storm drainage piping from the structure to the utility storm drain.

Associated Masterformat Sections: 22 05 73 / 22 05 76 / 22 14 13 / 22 14 16 / 22 14 23

100	See D20	
200	Inclusions: • Schematic layout with approximate size, shape, and location of mains and risers.	

Uniformat / Omniclass / Uniclass

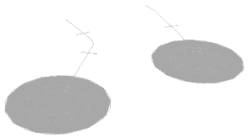
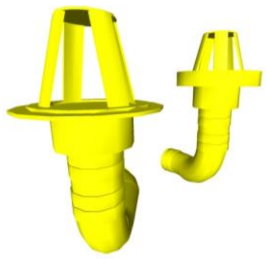
300	Inclusions: • design-specified size, shape, spacing, location, and slope of pipe, valves, fittings, and insulation for risers, mains, and branches. • Approximate allowances for clearances required for all specified hangers, supports, vibration and seismic control that are to be utilized in the layout of all risers, mains, and branches. • Access/code clearance requirements modeled.	
350	Inclusions: • **actual** size, shape, spacing, location, connections, and slope of pipe, valves, fittings, and insulation for risers, mains, and branches. • **Actual** size and shape, spacing, and clearances required for all hangers, supports, vibration and seismic control that are utilized in the layout of all risers, mains, and branches. • **Actual** access/code clearance requirements modeled. • **Actual** floor and wall **penetration elements**.	
400	See D2030.10	

Uniformat / Omniclass / Uniclass

D2030.30 / 21-04 20 30 30 / Ss 50 35 80
Facility Stormwater Drains

Includes: Various types of drains to collect storm water.

Associated Masterformat Sections: 22 14 26

100	See D20	
200	Inclusions: • Schematic layout with approximate size, shape, and location.	
300	Inclusions: • design-specified size, shape, spacing, and location of components. • Approximate allowances for clearances required for all specified hangers, supports, vibration and seismic control that are to be utilized in the layout of all components. • Access/code clearance requirements modeled.	
350	Inclusions: • **actual** construction elements size, shape, spacing, and location/connections of components. • **Actual** size, shape, spacing, and clearances required for all hangers, supports, vibration and seismic control that are utilized in the layout of all components. • **Actual** access/code clearance requirements modeled.	

Uniformat / Omniclass / Uniclass

400	See D2030.10	

D2030.60 / 21-04 20 30 60 / Ss 55 70 97 35
Gray Water Systems

Includes: Systems to collect, treat, and distribute gray water for other uses such as irrigation.

Associated Masterformat Sections: 22 13 63

[See D2030.20]

D2030.90 / 21-04 20 30 90 / --
Building Support Plumbing System Supplementary Components

Includes: Common work results for plumbing, plumbing insulation, and instrumentation and control for plumbing to be included with building support plumbing system elements above as appropriate. Includes expansion fittings, meters, gages, valves, hangers, supports, heat tracing, vibration and seismic controls.

Associated Masterformat Sections: 05 45 13 / 22 05 00 / 22 05 16 / 22 05 19 / 22 05 23
22 05 29 / 22 05 33 / 22 05 48 / 22 05 53 / 22 07 00 / 22 09 00

See General Notes: Supplementary Components

D2050 / 21-04 20 50 / Ss 55 20 15
General Service Compressed-Air

Includes: Compressed air system serving general service requirements

Associated Masterformat Sections: 01 86 16 / 22 15 00 / 22 15 13 / 22 15 16 / 22 15 19

[See D2060.10 – Compressed-Air Systems]

D2060 / 21-04 20 60 / Ss 55 60
Process Support Plumbing Systems

Includes: Process Support Plumbing System Supplementary Components as appropriate.

Associated Masterformat Sections:

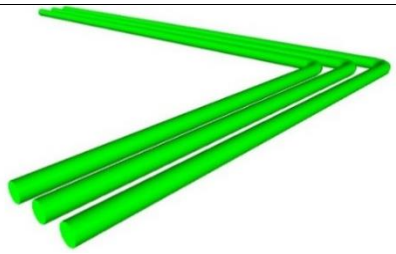
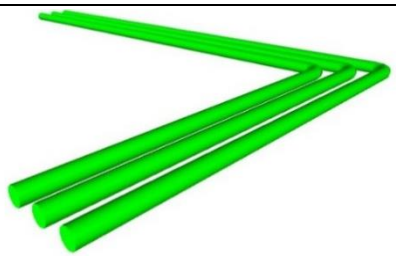
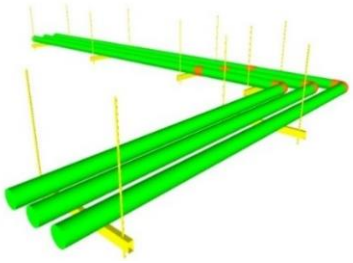
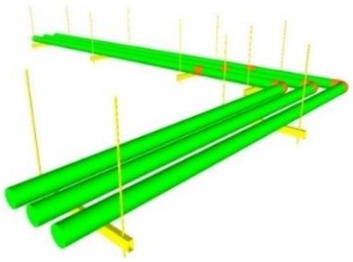
100	See D20	

Uniformat / Omniclass / Uniclass

200	Inclusions: • Schematic layout with approximate size, shape, and location of mains and risers.	

D2060.10 / 21-04 20 60 10 / Ss 55 20 15
Compressed-Air Systems

Associated Masterformat Sections: 01 86 16 / 22 61 00 / 22 61 13 / 22 61 19

100	See D20	
200	See D2060	
300	Inclusions: • design-specified size, shape, spacing, location, and slope of equipment/pipe, valves, fittings, and insulation for risers, mains, and branches. • Approximate allowances for clearances required for all specified hangers, supports, vibration and seismic control that are to be utilized in the layout of all risers, mains, and branches. • Access/code clearance requirements modeled.	
350	Inclusions: • **actual** size, shape, spacing, location, connections, and slope of equipment/pipe, valves, fittings, and insulation for risers, mains, and branches. • **Actual** size, shape, spacing, and clearances required for all hangers, supports, vibration and seismic control that are utilized in the layout of all risers, mains, and branches. • **Actual** access/code clearance requirements modeled. • **Actual** floor and wall **penetration elements**.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

Uniformat / Omniclass / Uniclass

D2060.20 / 21-04 20 60 20 / Ss 55 20 94
Vacuum Systems

Includes: Vacuum systems for laboratory and healthcare purposes.
Associated Masterformat Sections: 01 86 16 / 22 62 00 / 22 62 13 / 22 62 19 / 22 62 23
[See D2060.10]

D2060.30 / 21-04 20 60 30 / Ss 55 20 34
Gas Systems

Includes: Gas systems for laboratory and healthcare purposes.
Associated Masterformat Sections: 01 86 16 / 22 63 00 / 22 63 13 / 22 63 19
[See D2060.10]

D2060.40 / 21-04 20 60 40 / Ss 50 20
Chemical-Waste Systems

Includes: Chemical-waste systems for laboratory and healthcare purposes.
Associated Masterformat Sections: 01 86 16 / 22 66 00 / 22 66 53 / 22 66 70 / 22 66 83
[See D2060.10]

Uniformat / Omniclass / Uniclass

D2060.50 / 21-04 20 60 50 / Ss 55 70
Processed Water Systems

Includes: Processed water systems for laboratory and healthcare purposes.

Associated Masterformat Sections: 01 86 16 / 22 67 00 / 22 67 13 / 22 67 19

[See D2060.10]

D2060.90 / 21-04 20 60 90 / Ss 55 60
Process Support Plumbing System Supplementary Components

Includes expansion fittings, meters, gages, valves, hangers, supports, heat tracing, vibration and seismic controls. Includes: Common work results for plumbing, plumbing insulation, and instrumentation and controls to be included with process support plumbing systems elements above as appropriate.

Associated Masterformat Sections: 05 45 13 / 05 45 23 / 22 05 00 / 22 05 23 / 22 05 29 / 22 05 33 / 22 05 48 / 22 05 53 / 22 07 00 / 22 09 00

See General Notes: Supplementary Components

D30 / 21-04 30 / Ss 60
Heating, Ventilation, and Air Conditioning (HVAC)

Associated Masterformat Sections: 01 86 19 / 23 00 00

100	Inclusions: • Diagrammatic or schematic model elements. • conceptual and/or schematic layout/flow diagram;	

D3010 / 21-04 30 10 / Ss 55 50
Facility Fuel Systems

Includes: Fuel-oil, gasoline, natural-gas, and liquefied-petroleum fuel systems associated with a structure.

Associated Masterformat Sections: 01 86 19 / 23 10 00

100	See D30	
200	Inclusions: • Schematic layout with approximate size, shape, and location of element(s); • Approximate access/code clearance requirements modeled.	

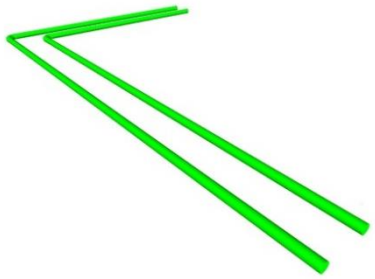
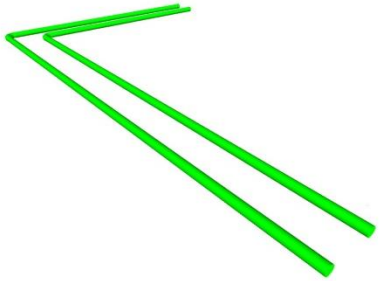
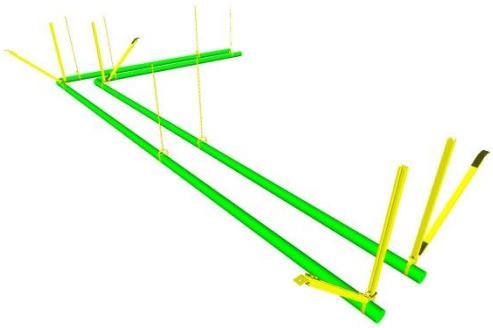
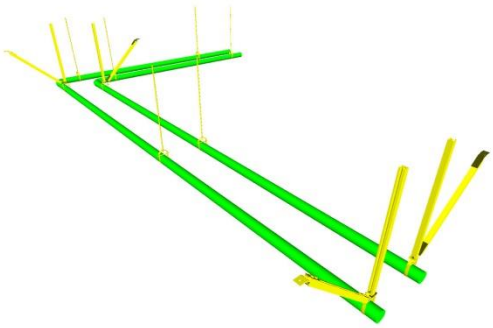
D3010.10 / 21-04 30 10 10 / Ss 55 50 46
Fuel Piping

Includes: Fuel piping, valves, piping specialties, and other components within, under, or closely associated with a structure.

Associated Masterformat Sections: 23 11 00

100	See D30	

Uniformat / Omniclass / Uniclass

200	See D3010	
300	Inclusions: • design-specified size, shape, spacing, and location of pipe, valves, fittings, and insulation for risers, mains, and branches. • Approximate allowances for clearances required for all specified hangers, supports, vibration and seismic control that are to be utilized in the layout of all risers, mains, and branches. • Access/code clearance requirements modeled.	
350	Inclusions: • **actual** size, shape, spacing, and location/connections of pipe, valves, fittings, and insulation for risers, mains, and branches. • **Actual** size, shape, spacing, and clearances required for all hangers, supports, vibration and seismic control that are utilized in the layout of all risers, mains, and branches. • **Actual** access/code clearance requirements. • **Actual** floor and wall **penetration elements** modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation	

Uniformat / Omniclass / Uniclass

D3010.30 / 21-04 30 10 30 / Ss 55 50
Fuel Pumps

Includes: Fuel pumps within or closely associated with a structure.

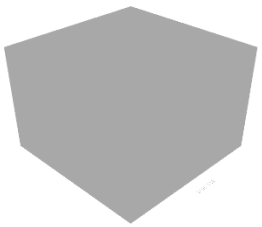
Associated Masterformat Sections: 23 12 00 / 23 12 13 / 23 12 16

100	See D30	
200	See D3010	
300	Inclusions: • design-specified size, shape, spacing, and location of equipment. • Approximate allowances for clearances required for all specified anchors, supports, vibration and seismic control that are utilized in the layout of equipment. • Access/code clearance requirements modeled.	
350	Inclusions: • Modeled as **actual** size, shape, spacing, and location/connections of equipment. • **Actual** size, shape, spacing, and clearances required for all specified anchors, supports, vibration and seismic control that are utilized in the layout of equipment. • **Actual** access/code clearance requirements modeled.	
400	See D3010.10	

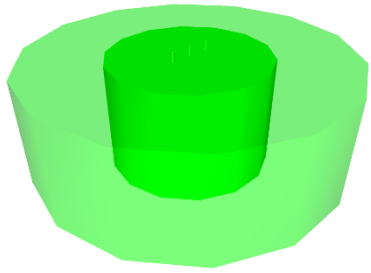
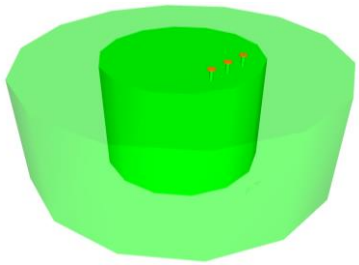
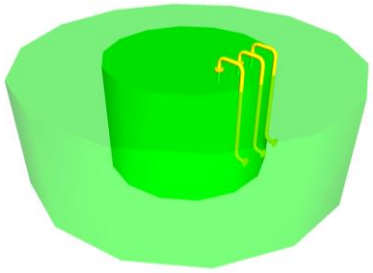
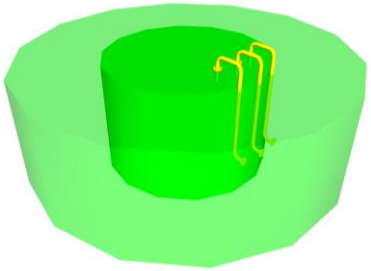
D3010.50 / 21-04 30 10 50 / Ss 55 10 75 0
Fuel Storage Tanks

Includes: Fuel tanks under or closely associated with a structure.

Associated Masterformat Sections: 23 13 00

100	See D30	

Uniformat / Omniclass / Uniclass

200	See D3010	
300	Inclusions: • design-specified size, shape, spacing, and location of tank(s). • approximate allowances for spacing and clearances required for all specified anchors, supports, vibration and seismic control that are utilized in the layout. • access/code clearance requirements modeled.	
350	Inclusions: • **actual** size, shape, spacing, and location/connections of tank(s). • **actual** size, shape, spacing, and clearances required for all specified anchors, supports, vibration and seismic control that are utilized in the layout **actual** access/code clearance requirements modeled.	
400	See D3010.10	

D3020 / 21-04 30 20 / Ss 60 40 37
Heating Systems

Includes: Associated ductwork, piping, valves, and specialties. Includes: Heating System Supplementary Components as appropriate.

Associated Masterformat Sections: 01 86 19

100	See D30	

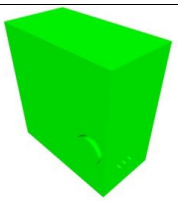
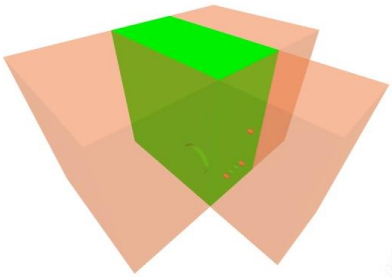
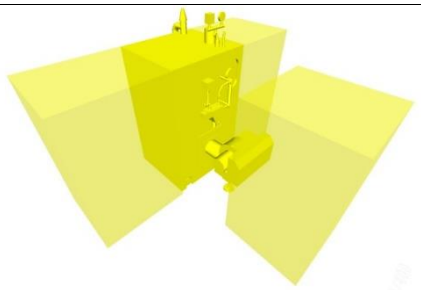
Uniformat / Omniclass / Uniclass

200	Inclusions: • Schematic layout with approximate size, shape, and location of element(s).	

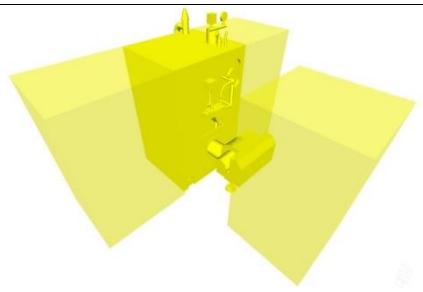
D3020.10 / 21-04 30 20 10 / Ss 60 40 37
Heat Generation

Includes: Boilers, furnaces, solar, geothermal, and biomass heat generation, fuel fired heaters, and heat exchangers. Includes: Fuel-fired boilers and generators for hot water and steam systems. Includes breechings, chimneys, and stacks. Includes: Electric boilers and generators for hot water and steam systems. Includes: Equipment to remove oxygen and other dissolved gases in boiler feed. Includes: Fuel-fired and electric furnaces. Includes: Equipment powered by solar energy. Includes: Fuel-fired radiant and unit heaters. Includes: Equipment used to transfer heat from one medium to another.

Associated Masterformat Sections: 23 51 00 / 23 52 00 / 23 52 13 / 23 53 00 / 23 53 13 / 23 53 16 / 23 54 00 / 23 56 00 / 23 56 13 / 23 56 16 / 23 55 00 / 23 57 00

100	See D30	
200	See D3020	
300	Inclusions: • design-specified size, shape, spacing, and location of equipment. • Approximate allowances for clearances required for all specified anchors, supports, vibration and seismic control that are utilized in the layout of equipment. • Access/code clearance requirements modeled.	
350	Inclusions: • **actual** size, shape, spacing, and location/connections of equipment, • **Actual** size, shape, spacing, and clearances required for all specified anchors, supports, vibration and seismic control that are utilized in the layout of equipment. • **Actual** access/code clearance requirements modeled.	

Uniformat / Omniclass / Uniclass

400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

D3020.30 / 21-04 30 20 30 / Ss 60 40 37
Thermal Heat Storage

Includes: Equipment to store thermal energy for use in heating and with charging or discharging this energy at a controllable rate.

Associated Masterformat Sections: 23 71 13

[See D3020.10]

D3020.70 / 21-04 30 20 70 / Ss 60 40 37
Decentralized Heating Equipment

Includes: Heating equipment that serves a portion of a HVAC system. Includes: Convection units may provide heating and cooling. Includes: Electric cables or panels and hydronic piping used for radiant heating for space heating.

Associated Masterformat Sections: 23 80 00 / 23 82 00 / 23 82 13 / 23 82 14 / 23 82 16 / 23 82 19 / 23 82 23 / 23 82 26 / 23 82 29 / 23 82 33 / 23 82 36 / 23 82 39 / 23 83 00

[See D3020.10]

D3020.90 / 21-04 30 20 90 / Ss 60 40 37
Heating System Supplementary Components

Includes: Common work results for HVAC, insulation, and instrumentation and control to be included in heating system elements above as appropriate.

Associated Masterformat Sections: 05 45 13 / 23 05 00 / 23 05 19 / 23 05 23 / 23 05 29 / 23 05 48 / 23 05 53 / 23 05 63 / 23 05 66 / 23 05 93 / 23 07 00 / 23 09 00

See General Notes: Supplementary Components

D3030 / 21-04 30 30 / Ss 60 40 17
Cooling Systems

Includes: Associated ductwork, piping, valves, and specialties. Includes: Cooling System Supplementary Components as appropriate.

Associated Masterformat Sections: 01 86 19

100	See D30	
200	Inclusions:	

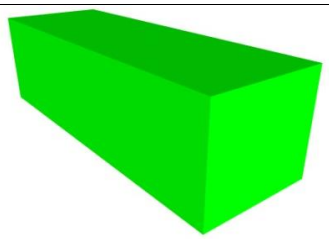
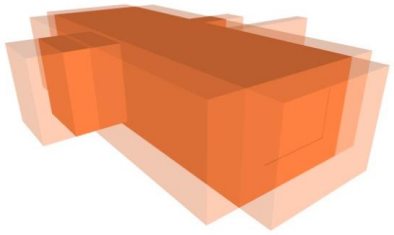
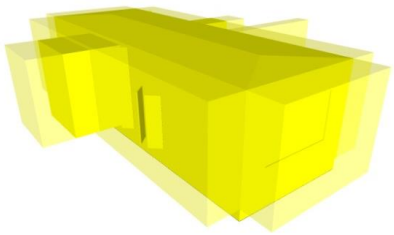
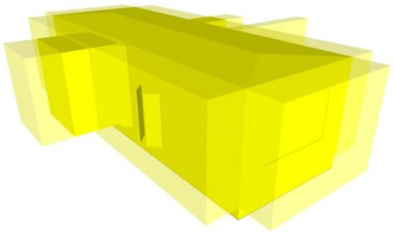
Uniformat / Omniclass / Uniclass

	• Schematic layout with approximate size, shape, and location of element(s).	

D3030.10 / 21-04 30 30 10 / Ss 60 40 17 0
Central Cooling

Includes: Refrigerant compressors, condensers, packaged compressor and condenser units, water chillers, and cooling towers. Includes: Various type of compressors used in refrigeration process. Includes: Condensing units used to reject heat from the refrigeration process. Includes: Compressor in combination with condensing units used to reject heat from the refrigeration process. Includes: Various types of chillers used for building space cooling. Includes: Factory- and field-fabricated cooling towers and liquid coolers. Includes piping and specialties. chemical water treatment. vibration and seismic controls. and integral controls not a part of the condenser water distribution systems.

Associated Masterformat Sections: 23 60 00 / 23 61 00 / 23 62 00 / 23 63 00 / 23 64 00 / 23 65 00

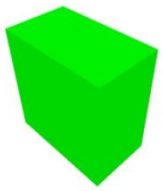
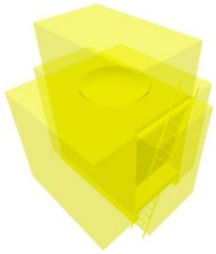
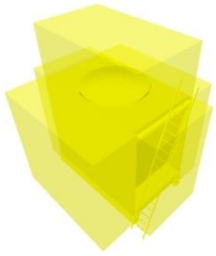
100	See D30	
200	See D3030	
300	Inclusions: • s design-specified size, shape, spacing, and location of equipment. • Approximate allowances for clearances required for all specified anchors, supports, vibration and seismic control that are utilized in the layout of equipment. • Access/code clearance requirements modeled.	
350	Inclusions: • **actual** size, shape, spacing, and location/connections of equipment. • **Actual** size, shape, spacing, and clearances required for all specified anchors, supports, vibration and seismic control that are utilized in the layout of equipment. • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

Uniformat / Omniclass / Uniclass

D3030.30 / 21-04 30 30 30 / Ss 65 80 45 25
Evaporative Air-Cooling

Includes: Equipment used to reject heat from the refrigeration process by evaporation.

Associated Masterformat Sections: 23 76 00

100	See D3030.10	
200	See D3030.10	
300	See D3030.10	
350	See D3030.10	
400	See D3030.10	

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D3030.50 / 21-04 30 30 50 / Ss 60 40 17
Thermal Cooling Storage

Includes: Equipment to store thermal energy for use in cooling and with charging or discharging this energy at a controllable rate.

Associated Masterformat Sections: 23 71 00 / 23 71 16 / 23 71 19

[See D3030.10]

D3030.70 / 21-04 30 30 70 / Ss 60 40 17
Decentralized Cooling

Includes: Cooling equipment that serves a portion of a HVAC system. Note: Convection units may provide heating and cooling.

Associated Masterformat Sections: 23 80 00 / 23 81 13 / 23 81 16 / 23 81 19 / 23 81 23 / 23 81 26 / 23 81 43 / 23 81 46 / 23 82 00 / 23 82 13 / 23 82 14 / 23 82 16 / 23 82 19 / 23 82 23 / 23 82 26

[See D3030.10]

D3030.90 / 21-04 30 30 90 / Ss 60 40 17
Cooling System Supplementary Components

Includes expansion fittings, meters, gages, valves, hangers, supports, heat tracing, vibration and seismic controls. Includes: Common work results for HVAC, insulation, and instrumentation and control to be included in cooling system elements above as appropriate.

Associated Masterformat Sections: 05 45 13 / 23 05 00 / 23 05 19 / 23 05 23 / 23 05 29 / 23 05 48 / 23 05 53 / 23 05 63 / 23 05 66 / 23 05 93 / 23 07 00 / 23 09 00

See General Notes: Supplementary Components

D3050 / 21-04 30 50 / Ss 60 40 84
Facility HVAC Distribution Systems

Includes: Facility Distribution Systems Supplementary Components as appropriate.

Associated Masterformat Sections:

100	See D30	
200	Inclusions: • Schematic layout with approximate size, shape, and location of element(s).	

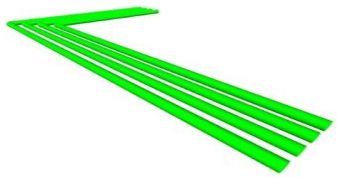
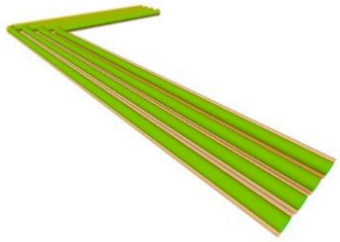
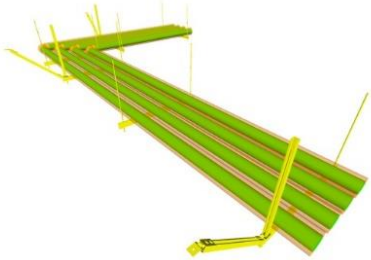
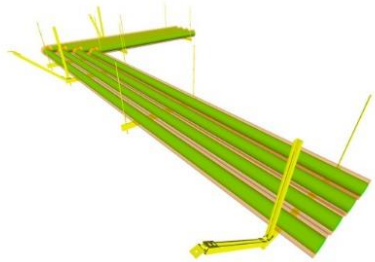
D3050.10 / 21-04 30 50 10 / Ss 60 40 84 0
Facility Hydronic Distribution

Includes: Piping systems and equipment for distribution of heating hot water and cooling chilled water. Includes piping systems, pumps, tanks, supports and anchors, vibration and seismic controls, identification, and piping and equipment insulation.

Associated Masterformat Sections: 01 86 19 / 23 21 13 / 23 21 23 / 23 25 00

100	See D30	

Uniformat / Omniclass / Uniclass

200	See D3050	
300	Inclusions: • design-specified size, shape, spacing, location, and slope of pipe, valves, fittings, and insulation for risers, mains, and branches. • Approximate allowances for clearances required for all specified hangers, supports, vibration and seismic control that are to be utilized in the layout of all risers, mains, and branches. • Access/code clearance requirements modeled.	
350	Inclusions: • **actual** size, shape, spacing, location, connections, and slope of pipe, valves, fittings, and insulation for risers, mains, and branches. • **Actual** size, shape, spacing, and clearances required for all hangers, supports, vibration and seismic control that are utilized in the layout of all risers, mains, and branches. • **Actual** floor and wall **penetration elements**. • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

Uniformat / Omniclass / Uniclass

D3050.30 / 21-04 30 50 30 / Ss 55 40
Facility Steam Distribution

Includes: Piping systems and equipment for distribution of steam and condensate return. Includes piping systems, pumps, tanks, supports and anchors, vibration and seismic controls, identification, and piping and equipment insulation.

Associated Masterformat Sections: 01 86 19 / 23 22 13 / 23 22 23 / 23 25 19

[See D3050.10]

D3050.50 / 21-04 30 50 50 / Ss 65 80 0 0
HVAC Air Distribution

Includes: Systems for distribution of air including supply systems, return systems, and general exhaust systems. Does not include special exhaust systems such as kitchen hood, paint booth, and fume hood exhaust systems. Includes: Air-handling units consisting of fans, coils, dampers, control devices, and other accessories. Includes: Ducts, duct accessories, fans, terminal units, and air inlets and outlets. Includes: Devices of a variety of types to clean distribution air. Includes: Equipment that adds or removes moisture from a medium in order to control the humidity.

Associated Masterformat Sections: 01 86 19 / 23 73 00 / 23 74 00 / 23 75 00 / 23 30 00 / 23 34 00 / 23 31 00 / 23 32 00 / 23 33 00 / 23 36 00 / 23 37 00 / 23 40 00 / 23 41 00 / 23 42 00 / 23 43 00 / 23 84 00

100	See D30	
200	See D3050	
300	Inclusions: • design-specified size, shape, spacing, and location of duct, dampers, fittings, and insulation for risers, mains, and branches. • Approximate allowances for clearances required for all specified hangers, supports, vibration and seismic control that are to be utilized in the layout of all risers, mains, and branches. • Access/code clearance requirements modeled.	
350	Inclusions: • **actual** size, shape, spacing, and location/connections of duct, dampers, fittings, and insulation for risers, mains, and branches. • **Actual** size, shape, spacing, and clearances required for all hangers, supports, vibration and seismic control that are utilized in the layout of all risers, mains, and branches. • **Actual** floor and wall **penetration elements**. • **Actual** access/code clearance requirements modeled.	
400	See D3050.10	

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D3050.90 / 21-04 30 50 90 / Ss 60 40 84
Facility Distribution Systems Supplementary Components

Includes expansion fittings, meters, gages, valves, hangers, supports, heat tracing, vibration and seismic controls. Includes: Common work results for HVAC, insulation, and instrumentation and control to be included in distribution system elements above as appropriate.

Associated Masterformat Sections: 05 45 13 / 23 05 00 / 23 05 16 / 23 05 19 / 23 05 23 / 23 05 29 / 23 05 33 / 23 05 48 / 23 05 53 / 23 05 63 / 23 05 66 / 23 05 93 / 23 07 00 / 23 09 00

See General Notes: Supplementary Components

D3060 / 21-04 30 60 / Ss 65 40 0 0
Ventilation

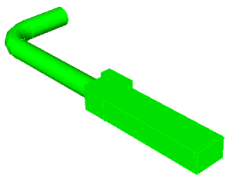
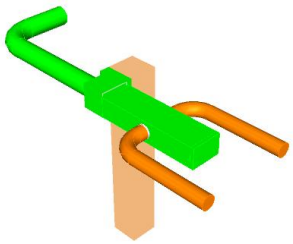
Includes: Supply air, return air, exhaust air, outside air, and air cleaning systems. Includes Ventilation Supplementary Components as appropriate.

Associated Masterformat Sections: 01 86 19

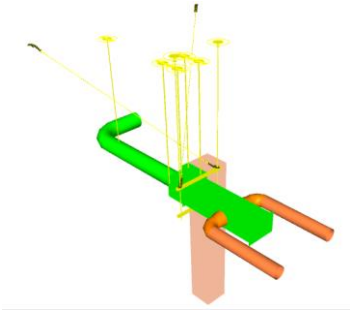
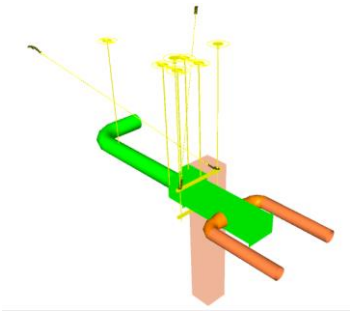
100	See D30	
200	Inclusions: • Schematic layout with approximate size, shape, and location of mains and risers.	

D3060.10 / 21-04 30 60 10 / Ss 65 40 33 51
Supply Air

Associated Masterformat Sections: 23 34 00 / 23 31 00 / 23 32 00 / 23 33 00 / 23 36 00 / 23 37 00

100	See D30	
200	See D3060	
300	Inclusions: • design-specified size, shape, spacing, and location of duct, dampers, fittings, and insulation for risers, mains, and branches. • Approximate specified allowances for clearances required for all hangers, supports, vibration and seismic control that are to be utilized in the layout of all risers, mains, and branches. • Access/code clearance requirements modeled.	

Uniformat / Omniclass / Uniclass

350	Inclusions: • **actual** size, shape, spacing, and location/connections of duct, dampers, fittings, and insulation for risers, mains, and branches. • **Actual** size, shape, spacing, and clearances required for all hangers, supports, vibration and seismic control that are utilized in the layout of all risers, mains, and branches. • **Actual** floor and wall **penetration elements**. • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

D3060.20 / 21-04 30 60 20 / Ss 65 40
Return Air

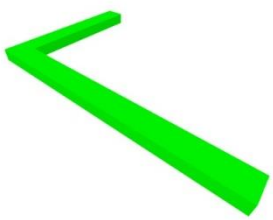
Associated Masterformat Sections: 23 34 00 / 23 31 00 / 23 32 00 / 23 33 00 / 23 37 00

[See D3060.10]

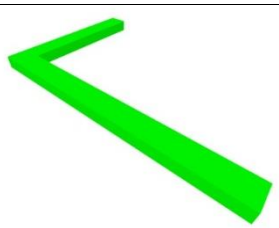
D3060.30 / 21-04 30 60 30 / Ss 65 40
Exhaust Air

Includes: Special systems for exhausting air such as kitchen hood, paint booth, and fume hood exhaust systems.

Associated Masterformat Sections: 23 35 00 / 23 35 13.13 / 23 35 16 / 23 38 00 / 23 38 13 / 23 38 16 / 23 34 00 / 23 31 00 / 23 32 00 / 23 33 00 / 23 37 00

100	See D30	
200	See D3060	

Uniformat / Omniclass / Uniclass

300	Inclusions: • design-specified size, shape, spacing, location, duct slope (if required), dampers, fittings, insulation for risers, mains, and branches. • Approximate specified allowances for clearances required for all hangers, supports, vibration and seismic control that are to be utilized in the layout of all risers, mains, and branches. • Access/code clearance requirements modeled.	
350	Inclusions: • **actual** size, shape, spacing, location, and slope (if required)/connections of duct, dampers, fittings, and insulation for risers, mains, and branches. • **Actual** size, shape, spacing, and clearances required for all hangers, supports, vibration and seismic control that are utilized in the layout of all risers, mains, and branches. • **Actual** floor and wall **penetration elements**. • **Actual** access/code clearance requirements modeled.	
400	See D3060.10	

D3060.40 / 21-04 30 60 40 / Ss 65 40 33 51
Outside Air

Associated Masterformat Sections: 23 34 00 / 23 31 00 / 23 32 00 / 23 33 00 / 23 36 00 / 23 37 00

[See D3060.10]

D3060.60 / 21-04 30 60 60 / Pr 60 60 36
Air-to-Air Energy Recovery

Includes: Air-to-air energy recovery units.

Associated Masterformat Sections: 23 72 00

[See D3060.10]

Uniformat / Omniclass / Uniclass

D3060.70 / 21-04 30 60 70 / Pr 65 57 02
HVAC Air Cleaning

Associated Masterformat Sections: 23 40 00

[See D3060.10]

D3060.90 / 21-04 30 60 90 / Ss 65 40
Ventilation Supplementary Components

Includes expansion fittings, meters, gages, valves, hangers, supports, heat tracing, vibration and seismic controls. Includes: Common work results for HVAC, insulation, and instrumentation and control to be included in ventilation elements above as appropriate.

Associated Masterformat Sections: 05 45 13 / 23 05 00 / 23 05 29 / 23 05 48 / 23 05 53 / 23 05 63 / 23 05 66 / 23 05 93 / 23 07 00 / 23 09 00

See General Notes: Supplementary Components

D3070 / 21-04 30 70 / Ss 60
Special Purpose HVAC Systems

Associated Masterformat Sections:

100	See D30	
200	Inclusions: • Schematic layout with approximate size, shape, and location of components.	

D3070.10 / 21-04 30 70 10 / Ss 60 30 60
Snow Melting

Includes: Electric cables and hydronic piping used for snow and ice control.

Associated Masterformat Sections: 23 83 13 / 23 83 16

100	See D30	
200	See D3070	
300	Inclusions: • design-specified size, shape, spacing, and location of supplementary components. • approximate allowances for clearances required for all specified hangers, supports, vibration and seismic control that are to be utilized in the layout of all supplementary components. • access/code clearance requirements.	
350	Inclusions: • Modeled as **actual** size, shape, spacing, and location/connections of supplementary components. • **Actual** size, shape, spacing, and clearances required for all hangers, supports, vibration and seismic control that are utilized in the layout of all supplementary components. • **Actual** access/code clearance requirements.	

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400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

D40 / 21-04 40 / Ss 55 30
Fire Protection

100	Inclusions: • Diagrammatic or schematic model elements. • Conceptual and/or schematic layout/flow diagram.	

D4010 / 21-04 40 10 / Ss 55 30
Fire Suppression

Includes: Fire Suppression Supplementary Components as appropriate.

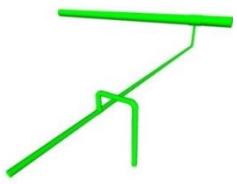
Associated Masterformat Sections: 01 86 13 / 21 00 00

100	See D40	
200	Inclusions: • Schematic layout with approximate size, shape, and location of mains and risers.	

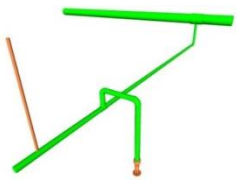
D4010.10 / 21-04 40 10 10 / Ss 55 30 98
Water-Based Fire-Suppression

Includes: Systems that use water for fire extinguishing and suppression. Includes piping, fittings, and specialties; hoses, valves, cabinets; fire pumps, accessories, and controls. Includes: Piping, fittings, valves, hangers, supports, other specialties, and sprinklers for fire protection systems. Includes limited area sprinkler systems, fire pumps, accessories, and controls.

Associated Masterformat Sections: 01 86 13 / 21 10 00 / 21 11 00 / 21 12 00 / 21 13 00 / 21 13 13 / 21 13 16 / 21 13 19 / 21 13 23 / 21 13 26 / 21 13 29 / 21 13 36 / 21 13 39 / 21 30 00 / 21 40 00

100	See D40	
200	See D4010	

Uniformat / Omniclass / Uniclass

300	Inclusions: • design-specified size, shape, spacing, and location of pipe/slope (if required)/valves/fittings/insulation for risers, mains, and branches/standpipes. • Approximate allowances for clearances required for all specified hangers, supports, vibration and seismic control that are to be utilized in the layout of all risers, mains, and branches/standpipes. • Access/code clearance requirements modeled.	
350	Inclusions: • **actual** size, shape, spacing, and location/ slope (if required)/connections of pipe, valves, fittings, and insulation for risers, mains, and branches/standpipes. • **Actual** size, shape, spacing, and clearances required for all hangers, supports, vibration and seismic control that are utilized in the layout of all risers, mains, and branches/standpipes. • **Actual** floor and wall **penetration elements**. • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

D4010.50 / 21-04 40 10 50 / Ss 55 30
Fire-Extinguishing

Includes: Systems that use other than water for fire extinguishing and suppression. Includes piping, fittings, and specialties; valves, accessories, and controls.

Associated Masterformat Sections: 21 20 00 / 21 21 00 / 21 22 00 / 21 23 00 / 21 24 00

[See D4010.10]

D4010.90 / 21-04 40 10 90 / Ss 55 30
Fire Suppression Supplementary Components

Includes: Expansion fittings and loops, meters and gages, general-duty valves, hanger and supports, heat tracing, vibration and seismic controls, identification, insulation, and instrumentation and control to be included in fire protection elements above as appropriate.

Associated Masterformat Sections: 05 45 13 / 21 05 00 / 21 05 16 / 21 05 19 / 21 05 23 / 21 05 29 / 21 05 33 / 21 05 48 / 21 05 53 / 21 07 00 / 21 09 00

See General Notes: Supplementary Components

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D4030 / 21-04 40 30 / Ss 55 30
Fire Protection Specialties

Includes: Firefighting devices and storage cabinets except devices connected to a fire suppression system.

Associated Masterformat Sections: 10 44 00

100	See D40	
200	Inclusions: • Schematic layout with approximate size, shape, and location of components.	

D4030.10 / 21-04 40 30 10 / Pr 80 77 28 28
Fire Protection Cabinets

Associated Masterformat Sections: 10 44 13

100	See D40	
200	See D4030	
300	Inclusions: • design-specified size, shape, spacing, and location of components. • Approximate allowances for clearances required for all specified hangers, supports, vibration and seismic control that are to be utilized in the layout of all components. • Access/code clearance requirements modeled.	
350	Inclusions: • **actual** size, shape, spacing, and location/connections of components. • **Actual** size, shape, spacing, and clearances required for all hangers, supports, vibration and seismic control that are utilized in the layout of all components. • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

D4030.30 / 21-04 40 30 30 / Ss 55 30 65
Fire Extinguishers

Associated Masterformat Sections: 10 44 16

[See D4030.10]

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D4030.50 / 21-04 40 30 50 / TE 70 20 20 10
Breathing Air Replenishment Systems

Associated Masterformat Sections: 10 44 33

[See D4030.10]

D4030.70 / 21-04 40 30 70 / Ss 55 30 65 65
Fire Extinguisher Accessories

Associated Masterformat Sections: 10 44 43

[See D4030.10]

D50 / 21-04 50 / --
Electrical

Associated Masterformat Sections: 26 00 00 / 01 86 26

100	Inclusions: • Diagrammatic or schematic model elements: • conceptual and/or schematic layout;	

D5010 / 21-04 50 10 / --
Facility Power Generation

Includes: Power Generation Supplementary Components as appropriate.

Associated Masterformat Sections: 01 86 26

100	See D50	
200	Inclusions: • Schematic layout with approximate size, shape, and location of equipment;	

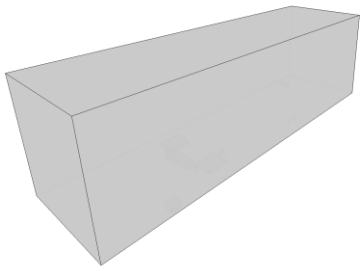
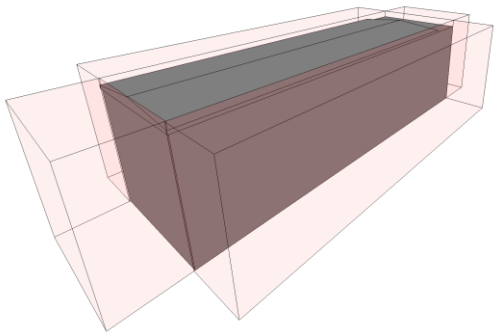
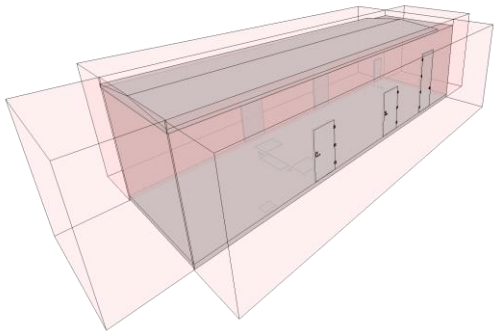
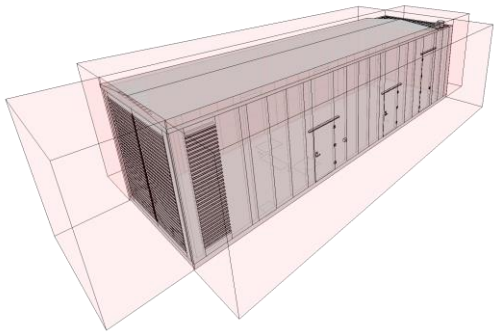
D5010.10 / 21-04 50 10 10 / Ss 70 10 30
Packaged Generator Assemblies

Includes: Generator, frequency changers, and rotary converters and uninterruptible power units.

Associated Masterformat Sections: 26 32 00 / 26 32 13 / 26 32 16 / 26 32 19 / 26 32 23 / 26 32 26 / 26 32 29 / 26 32 33

100	See D50	

Uniformat / Omniclass / Uniclass

200	See D5010	
300	Inclusions: • Design-specified size, shape, spacing, and location of equipment and associated components. • Approximate allowances for clearances required for all specified supports and seismic control. • Access/code clearance requirements modeled.	
350	Inclusions: • **Actual** size, shape, spacing, location of equipment, and associated components. • **Actual** size, shape, spacing, location for supports, and seismic control. • **Actual** size, shape, and location/connections of equipment and support structure/pads. • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

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D5010.20 / 21-04 50 10 20 / Pr 60 70 06
Battery Equipment

Includes: Batteries, battery racks, battery chargers, static power converters, uninterruptible power supplies, and accessories.

Associated Masterformat Sections: 26 33 00 / 26 33 13 / 26 33 16 / 26 33 19 / 26 33 23 / 26 33 33 / 26 33 43 / 26 33 46 / 26 33 53

[See D5010.10]

D5010.30 / 21-04 50 10 30 / Ss 70 10 70 35
Photovoltaic Collectors

Includes: Solar cells to convert sunlight to electricity.

Associated Masterformat Sections: 26 31 00

[See D5010.10]

D5010.40 / 21-04 50 10 40 / Pr 60 70 65 30
Fuel Cells

Includes: Fuel cell electricity generating equipment.

Associated Masterformat Sections: 48 18 00

[See D5010.10]

D5010.60 / 21-04 50 10 60 / Pr 65 72 43
Power Filtering and Conditioning

D5010.70 / 21-04 50 10 70 / Ss 70 30
Transfer Switches

Includes: Switches that transfer from one source of electricity to another.

Associated Masterformat Sections: 26 36 00

[See D5010.10]

D5010.90 / 21-04 50 10 90 / Ss 70 10 30 72
Facility Power Generation Supplementary Components

See General Notes: Supplementary Components

D5020 / 21-04 50 20 / Ss 70 30
Electrical Service and Distribution

Includes: Electrical Service and Distribution Supplementary Components as appropriate.

100	See D50	

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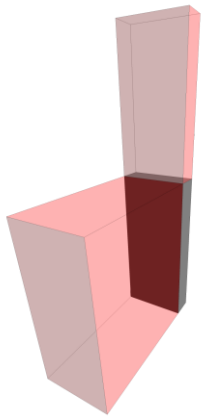
200	Inclusions: • Schematic layout with approximate size, shape, and location of equipment;	
300	Inclusions: • Design-specified size, shape, spacing, and location of equipment and associated components; • Approximate allowances for clearances required for all specified supports and seismic control; • Access/code clearance requirements modeled.	

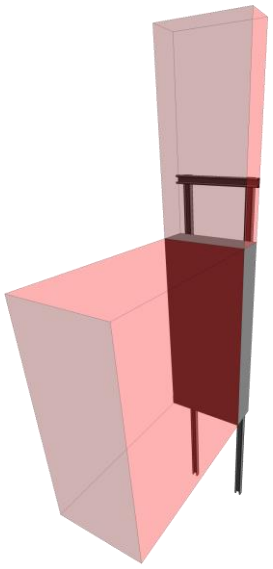
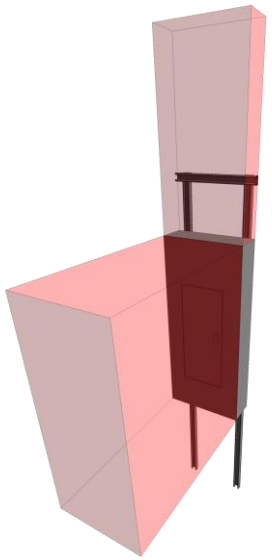
D5020.10 / 21-04 50 20 10 / Ss 70 30 45 45
Electrical Service

Includes: Meters, substations, transformers, switchgear, switchboards, and protective devices where electrical power enters structure.

Associated Masterformat Sections: 26 21 00 / 26 16 00 / 26 11 00 / 26 12 00 / 26 22 00 / 26 13 00 / 22 23 00 / 26 18 00 / 22 28 00

100	See D50	
200	See D5020	
300	Inclusions: • Design-specified size, shape, spacing, location of equipment, and associated components. • approximate allowances for clearances required for all specified supports and seismic control. • access/code clearance requirements modeled.	

Uniformat / Omniclass / Uniclass

350	Inclusions: • **Actual** size, shape, spacing, location of equipment, and associated components. • **Actual** size, shape, spacing, location for supports and seismic control • **Actual** size, shape, and location/connections of equipment and support structure/pads. • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

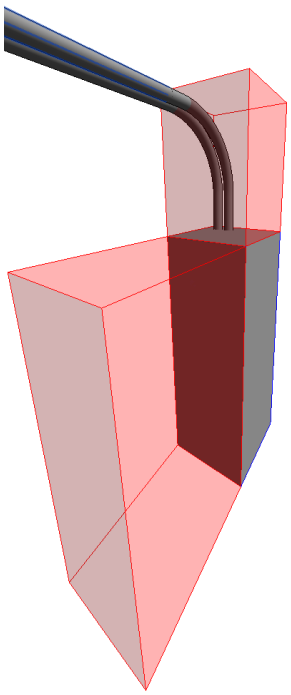
D5020.30 / 21-04 50 20 30 / Ss 70 30 45 45
Power Distribution

Includes: Bus assemblies, distribution equipment, and electrical wiring system to distribute electrical power to switchboards, panelboards, and motor control centers.

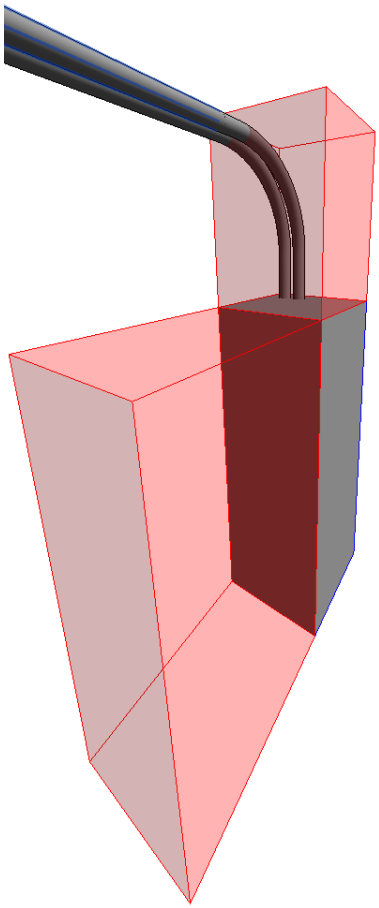
Associated Masterformat Sections: 26 20 00 / 26 24 00 / 26 24 13 / 26 24 16 / 26 24 19 / 26 25 00 / 26 27 00 / 26 27 16 / 26 05 33 / 26 05 43 / 26 05 36 / 26 05 13

100	See D50	

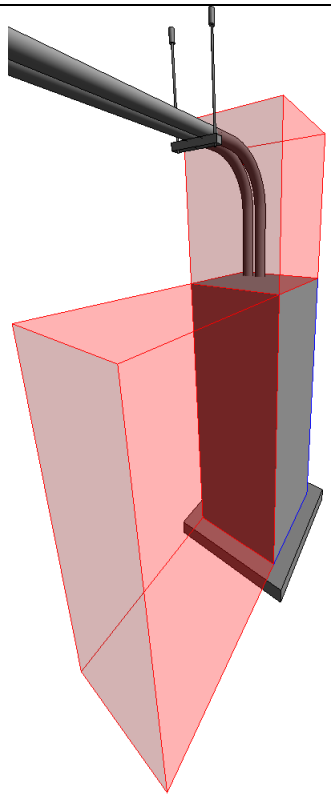
Uniformat / Omniclass / Uniclass

200	See D5020	

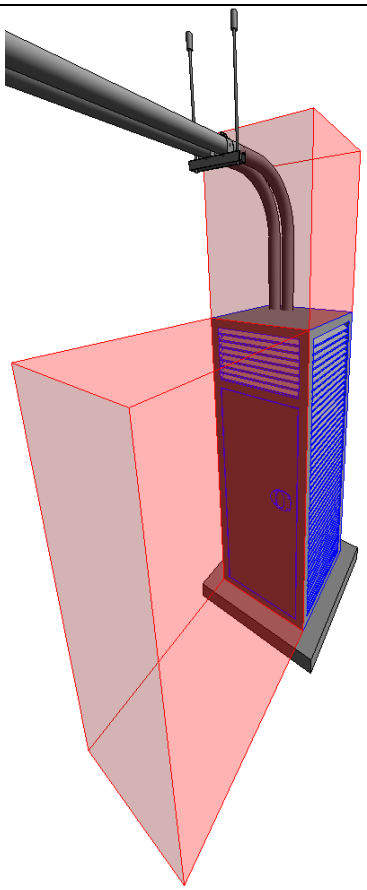
Uniformat / Omniclass / Uniclass

300	Inclusions: • Design-specified size, shape, spacing, location of raceways, boxes, enclosures, and equipment. • Approximate allowances for spacing and clearances required for all specified hangers, supports and seismic control. • Access/code clearance requirements modeled.	

Uniformat / Omniclass / Uniclass

350	Inclusions: • **Actual** size, shape, spacing, and location of raceways, boxes, and enclosures. • **Actual** size, shape, spacing, and location for supports and seismic control. • **Actual** size, shape, and location/connections of equipment and support structure/pads. • **Actual** floor and wall **penetration elements** are modeled. • **Actual** access/code clearance requirements modeled.	

Uniformat / Omniclass / Uniclass

400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

D5020.70 / 21-04 50 20 70 / Ss 70 30 45 45
Facility Grounding

Includes: Raceways, wiring and devices for grounding and bonding an electrical distribution system.

Associated Masterformat Sections: 26 05 26 / 26 05 33 / 26 05 13

100	See D50	
200	See D5020	
300	Inclusions: • Design-specified size, shape, spacing, location of raceways, boxes, enclosures, and the electrical equipment and end-devices served. • Approximate allowances for clearances required for all specified hangers, supports, and seismic control. • Access/code clearance requirements modeled.	

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350	Inclusions: • **Actual** size, shape, spacing, and location of raceways, boxes, enclosures, and the electrical equipment and end-devices served. • **Actual** size, shape, spacing, and location for supports and seismic control. • **Penetration elements** • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

D5020.90 / 21-04 50 20 90 / Ss 70 30 45 45
Electrical Service and Distribution Supplementary Components

Includes: Grounding and bonding, hanger and supports, raceways and boxes, cable trays, utility poles, vibration and seismic controls, identification, wiring connectors, and instrumentation and control to be included in electrical service and distribution systems elements above as appropriate.

Associated Masterformat Sections: 05 45 16 / 26 05 00 / 26 05 26 / 26 05 29 / 26 05 33 / 26 05 36 / 26 05 46 / 26 05 48 / 26 05 53 / 26 05 83 / 26 09 00

100	See D50	
200	See D5020	
300	Inclusions: • Design-specified size, shape, spacing, and location of raceways, boxes, enclosures, and the electrical equipment and end-devices served; • Approximate allowances for clearances required for all specified hangers, supports, and seismic control; • Access/code clearance requirements modeled.	
350	Inclusions: • **Actual** size, shape, spacing, and location of raceways, boxes, enclosures, and the electrical equipment and end-devices served; • **Actual** size, shape, spacing, and location for supports and seismic control; • **Penetration elements**. • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

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D5030 / 21-04 50 30 / Ss 70 30 45 45
General Purpose Electrical Power

Includes: General Purpose Electrical Power Supplementary Components as appropriate.

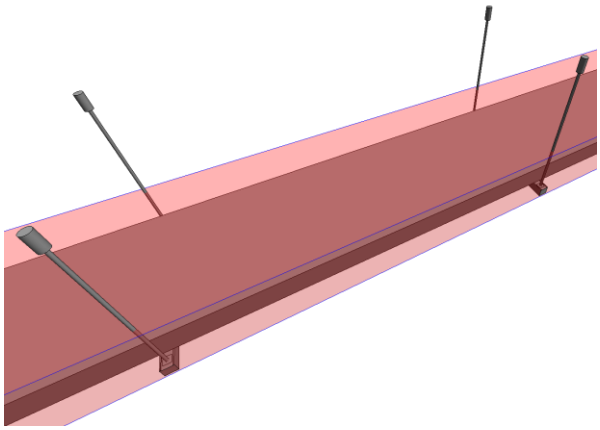
Associated Masterformat Sections: 01 86 26

100	See D50	
200	Inclusions: • Schematic layout with approximate size, shape, and location of equipment;	

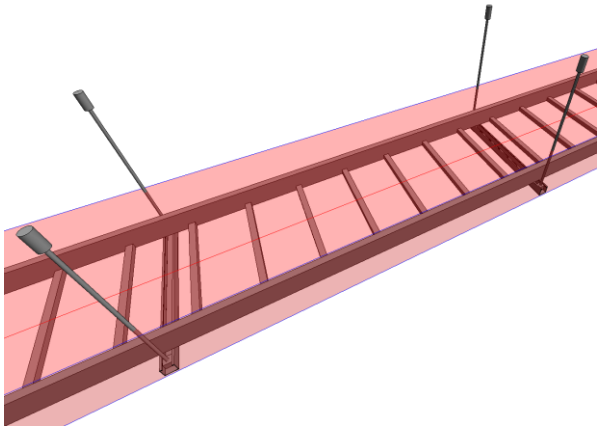
D5030.10 / 21-04 50 30 10 / Ss 70 30 45 45
Branch Wiring System

Includes: Raceways, ducts, cable trays, and wiring to deliver power from branch panelboards to the point of use.

Associated Masterformat Sections: 26 05 33 / 26 05 43 / 26 05 36 / 26 05 19

100	See D50	
200	See D5030	
300	Inclusions: • Design-specified size, shape, spacing, and location of raceways, boxes, and enclosures; • Approximate allowances for clearances required for all specified hangers, supports and seismic control; • Access/code clearance requirements modeled.	
350	Inclusions: • **Actual** size, shape, spacing, and location of raceways, boxes, enclosures; • **Actual** size, shape, spacing, and location for supports and seismic control; • **Penetration elements**. • **Actual** access/code clearance requirements modeled.	

Uniformat / Omniclass / Uniclass

400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

D5030.50 / 21-04 50 30 50 / Ss 70 30 45 45
Wiring Devices

Includes: Electrical devices at point of use including electrical outlets and switches.

Associated Masterformat Sections: 26 27 26

100	See D50	
200	See D5030	
300	Inclusions: • Design-specified size, shape, and location of outlet boxes and devices • Access/code clearance requirements modeled.	
350	Inclusions: • **Actual** size, shape, spacing, and location of outlet boxes and devices. • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

D5030.90 / 21-04 50 30 90 / Ss 70 30 45 45
General Purpose Electrical Power Supplementary Components

Includes: Grounding and bonding, hanger and supports, raceways and boxes, cable trays, vibration and seismic controls, identification, wiring connectors, and instrumentation and control to be included in general purpose electrical power elements above as appropriate.

Associated Masterformat Sections: 05 45 16 / 26 05 00 / 26 05 26 / 26 05 29 / 26 05 33 / 26 05 36 / 26 05 48 / 26 05 53 / 26 05 83 / 26 09 00

100	See D50	
200	See D5030	

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300	Inclusions: • Design-specified size, shape, and location of Supplementary Components • Access/code clearance requirements modeled.	
350	Inclusions: • **Actual** size, shape, spacing, and location of outlet boxes and devices. • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

D5040 / 21-04 50 40 / Ss 70 80
Lighting

Includes: Lighting Supplementary Components as appropriate.

Associated Masterformat Sections: 26 50 00 / 01 86 26

100	See D50	
200	Inclusions: • Schematic layout with approximate size, shape, and location of equipment;	

D5040.10 / 21-04 50 40 10 / Pr 70 70 47
Lighting Control

Includes: Clock and calendar, photoelectric switches, occupancy sensors, and light-leveling control devices.

Associated Masterformat Sections: 26 09 23 / 26 09 26 / 26 09 33 / 26 09 36 / 26 09 43 / 26 09 61

100	See D50	
200	See D5040	
300	Inclusions: • Design-specified size, shape, and location of enclosures, equipment, and devices; • Access/code clearance requirements modeled.	
350	Inclusions: • **Actual** size, shape, spacing, and location of enclosures, equipment, and control devices; • **Actual** size, shape, and location/connections of equipment and control devices. • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

Uniformat / Omniclass / Uniclass

D5040.20 / 21-04 50 40 20 / Ss 70 80 33 35
Branch Wiring for Lighting

Includes: Raceways, ducts, cable trays, and wiring beyond branch circuit panelboards to lighting fixtures.

Associated Masterformat Sections: 26 05 33 / 26 05 43 / 26 05 36 / 26 05 19 / 26 27 26

100	See D50	
200	See D5040	
300	Inclusions: • Design-specified size, shape, and location of raceways, boxes, and enclosures to fixture locations; • Approximate allowances for clearances required for all specified hangers, supports, and seismic control. • Access/code clearance requirements modeled.	
350	Inclusions: • **Actual** size, shape, spacing, and location of raceways, boxes, and enclosures to fixture locations; • **Actual** size, shape, spacing, and location for supports and seismic control; • **Penetration elements**. • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

D5040.50 / 21-04 50 40 50 / Ss 70 80
Lighting Fixtures

Includes: Luminaires, lighting equipment, ballasts, and accessories. Includes fluorescent, high intensity discharge, incandescent, mercury vapor, neon, and sodium vapor lighting.

Associated Masterformat Sections: 26 50 00 / 26 51 00 / 26 52 00 / 26 53 00 / 26 54 00 / 26 55 00 / 26 55 23 / 26 55 29 / 26 55 33 / 26 55 36 / 26 55 39 / 26 55 53 / 26 55 59 / 26 55 61 / 26 55 63 / 26 55 70

100	See D50	
200	See D5040	
300	Inclusions: • Design-specified size, shape, and location of lighting fixtures; • Approximate allowances for spacing and clearances required for all specified hangers, supports and seismic control; • Access/code clearance requirements modeled.	
350	Inclusions: • **Actual** size, shape, spacing, and location of lighting fixtures. • **Actual** size, shape, spacing, and location for supports and seismic control. • **Actual** access/code clearance requirements modeled.	

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400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

D5040.90 / 21-04 50 40 90 / Ss 70 80
Lighting Supplementary Components

See General Notes: Supplementary Components

D5080 / 21-04 50 80 / Ss 70
Miscellaneous Electrical Systems

Includes: Miscellaneous Electrical Systems Supplementary Components as appropriate.

100	See D50	
200	Inclusions: • Schematic layout with approximate size, shape, and location of equipment;	

D5080.10 / 21-04 50 80 10 / Ss 75 50 45 45
Lightning Protection

Includes: Wiring and equipment for lightning protection.

Associated Masterformat Sections: 26 41 00 / 01 86 26 / 26 41 13 / 26 41 16 / 26 41 19 / 26 41 23

100	See D50	
200	See D5080	
300	Inclusions: • Design-specified size, shape, and location of raceways, boxes, enclosures including the electrical equipment and end-devices served; • Approximate allowances for clearances required for all specified hangers, supports and seismic control; • Access/code clearance requirements modeled.	
350	Inclusions: • **Actual** size, shape, spacing, and location of raceways, boxes, enclosures including the electrical equipment, fixtures, and end-devices served • **Actual** size, shape, spacing, and location for supports and seismic control; • **Actual** size, shape, and location/connections of equipment and support structure/pads; • **Penetration elements** . • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

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D5080.40 / 21-04 50 80 40 / Ss 75 50 15
Cathodic Protection

D5080.70 / 21-04 50 80 70 / Pr 65 72 27 88
Transient Voltage Suppression

Includes: Devices to protect against voltage surges on electrical distribution systems.

Associated Masterformat Sections: 26 43 00

100	See D50	
200	See D5080	
300	Inclusions: • Design-specified size, shape, and location of equipment; • Approximate allowances for clearances required for all specified hangers, supports and seismic control; • Access/code clearance requirements modeled.	
350	Inclusions: • **Actual** size, shape, spacing, and location of the equipment; • **Actual** size, shape, spacing, and location for supports and seismic control. • **Actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

D5080.90 / 21-04 50 80 90 / Pr 65 72
Miscellaneous Electrical Systems Supplementary Components

See General Notes: Supplementary Components

D60 / 21-04 60 / Ss 75 10
Communications

Associated Masterformat Sections: 27 00 00 / 01 86 29

See Fundamental LOD Definitions

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D6010 / 21-04 60 10 / Ss 75 10 21 21
Data Communications

Includes: Communications Supplementary Components as appropriate.

Associated Masterformat Sections: 27 20 00 / 01 86 29

See Fundamental LOD Definitions

D6010.10 / 21-04 60 10 10 / Ss 75 10 21 21
Data Communications Network Equipment

Includes: Switching and routing equipment for data communications.

Associated Masterformat Sections: 27 21 00 / 27 21 13 / 27 21 16 / 27 21 29 / 27 21 33

100	See D50	
200	See D5010	
300	Inclusions: • design-specified size, shape, spacing, and location of equipment and associated components; • approximate allowances for clearances required for all specified supports and seismic control; • access/code clearance requirements modeled.	
350	Inclusions: • **actual** size, shape, spacing, and location of equipment and associated components; • **actual** size, shape, spacing, and location for supports and seismic control; • **actual** size, shape, and location/connections of equipment and support structure/pads. • **actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

D6010.20 / 21-04 60 10 20 / Pr 70 75 52
Data Communications Hardware

Includes: Computer equipment for data communications.

Associated Masterformat Sections: 27 22 00 / 07 22 13 / 07 22 16 / 07 22 19 / 07 22 23 / 07 22 26 / 07 22 29

100	See D50	
200	See D5010	
300	Inclusions: • design-specified size, shape, and location of equipment and associated components. • approximate allowances for clearances required for all specified supports and seismic control. • access/code clearance requirements modeled.	

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350	Inclusions: • **actual** size, shape, spacing, and location of equipment and associated components; • **actual** size, shape, spacing, and location for supports and seismic control; • **actual** size, shape, and location/connections of equipment and support structure/pads. • **actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

D6010.30 / 21-04 60 10 30 / Pr 70 75 15
Data Communications Peripheral Data Equipment

Includes: Additional equipment for data communications.

Associated Masterformat Sections: 27 24 00 / 27 24 13 / 27 24 26 / 27 24 19 / 27 24 23 / 27 24 26 / 27 24 29

100	See D50	
200	See D5010	
300	Inclusions: • design-specified size, shape, and location of equipment and associated components; • approximate allowances for clearances required for all specified supports and seismic control; • access/code clearance requirements modeled.	
350	Inclusions: • **actual** size, shape, spacing, and location of equipment and associated components; • **actual** size, shape, spacing, and location for supports and seismic control; • **actual** size, shape, and location/connections of equipment and support structure/pads. • **actual** access/code clearance requirements modeled.	
400	Inclusions: • Supplementary components added to the model required for fabrication and field installation.	

D6020 / 21-04 60 20 / Ss 75 10 21 88
Voice Communications

Includes: Communications Supplementary Components as appropriate.

Associated Masterformat Sections: 27 30 00 / 01 86 29

See Fundamental LOD Definitions

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D6030 / 21-04 60 30 / --
Audio-Video Communication

Includes: Communications Supplementary Components as appropriate.

Associated Masterformat Sections: 27 40 00 / 01 86 29

See Fundamental LOD Definitions

D6060 / 21-04 60 60 / Ss 75 70 54 15
Distributed Communications and Monitoring

Includes: Communications Supplementary Components as appropriate.

Associated Masterformat Sections: 27 50 00 / 01 86 29

See Fundamental LOD Definitions

D6090 / 21-04 60 90 / Ss 75 10
Communications Supplementary Components

See Fundamental LOD Definitions

D70 / 21-04 70 / Ss 75 40
Electronic Safety and Security

Associated Masterformat Sections: 28 00 00 / 01 86 33

See Fundamental LOD Definitions

D7010 / 21-04 70 10 / Ss 75 40
Access Control and Intrusion Detection

Includes: Electronic Safety and Security Supplementary Components as appropriate.

Associated Masterformat Sections: 28 10 00 / 01 86 33

See Fundamental LOD Definitions

D7030 / 21-04 70 30 / Ss 75 40 53
Electronic Surveillance

Includes: Equipment for detecting and controlling access by persons to a facility site, building, or within a building. Includes Electronic Safety and Security Supplementary Components as appropriate.

Associated Masterformat Sections: 28 20 00 / 01 86 33

See Fundamental LOD Definitions

Uniformat / Omniclass / Uniclass

D7050 / 21-04 70 50 / Ss 75 50
Detection and Alarm

Includes: Equipment for detecting hazardous conditions in a building or on a facility site and communicating an alarm signal. Includes alarm devices, detection devices, safety switches, and associated items. Includes Electronic Safety and Security Supplementary Components as appropriate.

Associated Masterformat Sections: 28 30 00 / 01 86 33

D7070 / 21-04 70 70 / Ss 75 70 54 15
Electronic Monitoring and Control

Includes: Electronic Safety and Security Supplementary Components as appropriate.

Associated Masterformat Sections: 28 46 00 / 01 86 33

D7090 / 21-04 70 90 / Ss 75 50
Electronic Safety and Security Supplementary Components

See General Notes: Supplementary Components

D80 / 21-04 80 / Ss 75 70
Integrated Automation

Associated Masterformat Sections: 25 00 00 / 01 86 23

See Fundamental LOD Definitions

D8010 / 21-04 80 10 / Ss 75 70
Integrated Automation Facility Controls

Includes: Hardware and/or software that allows the building automation system to monitor and control other facility equipment and systems. Includes Integrated Automation Supplementary Components as appropriate.

Associated Masterformat Sections: 25 50 00 / 01 86 23

See Fundamental LOD Definitions

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E / 21-05 00 00 / --
EQUIPMENT & FURNISHINGS

E10 / 21-05 10 00 / --
Equipment

Associated Masterformat Sections: 11 00 00 / 01 87 13

100	Inclusions • Diagrammatic or schematic model elements: • conceptual and/or schematic layout;	

E1010 / 21-05 10 10 / --
Vehicle and Pedestrian Equipment

Associated Masterformat Sections: 11 10 00

100	See E10	
200	Inclusions • Schematic layout with approximate size, shape, and location of equipment;	

E1010.10 / 21-05 10 10 10 / Ss 40 85 72 33
Vehicle Servicing Equipment

Includes: Equipment associated with vehicle service facilities.

Associated Masterformat Sections: 11 11 00 / 11 11 19 / 11 11 23 / 11 11 26

100	See E10	
200	See E1010	
300	Inclusions: • design-specified size, shape, spacing, and location of equipment and associated components; • Geometry of required clearances	
350	Inclusions • **actual** size, shape, spacing, and location of equipment and associated components; • **actual** size, shape, spacing, and location for supports and seismic control; • **actual** size, shape, and location of service connections and support structure/pads.	
400	Inclusions • Supplementary components required for fabrication and field installation.	

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E1010.30 / 21-05 10 10 30 / Ss 40 85 72 11
Interior Parking Control Equipment

Includes: Equipment associated with the control of movement of vehicle parking.

Associated Masterformat Sections: 11 12 00 / 11 12 13 / 11 12 16 / 11 12 23 / 11 12 26 / 11 12 33

[See E1010.10]

E1010.50 / 21-05 10 10 50 / Ss 80 50 60
Loading Dock Equipment

Includes: Equipment for the protection of service docks and for the loading and unloading of service vehicles.

Associated Masterformat Sections: 11 13 00 / 11 13 13 / 11 13 16 / 11 13 19.13 / 11 13 19.23 / 11 13 26

[See *E1010.10*]

E1010.70 / 21-05 10 10 70 / Ss 40 10
Interior Pedestrian Control Equipment

Includes: Equipment associated with the control of movement of pedestrians.

Associated Masterformat Sections: 11 14 00 / 11 14 13 / 11 14 16 / 11 14 26 / 11 14 43 / 11 14 53

[See E1010.10]

E1030 / 21-05 10 30 / Ss 40 20 15
Commercial Equipment

Associated Masterformat Sections: 11 20 00

[See E1010]

E1030.10 / 21-05 10 30 10 / Ss 40 20 15 71
Mercantile and Service Equipment

Includes: Equipment used in retail and service stores.

Associated Masterformat Sections: 11 21 00 / 11 21 13 / 11 21 23 / 11 21 33 / 11 21 43 / 11 21 53

[See E1010.10]

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E1030.20 / 21-05 10 30 20 / Pr 40 30 75 94
Vault Equipment

Includes: Equipment specifically designed for money or valuable material storage, including vault ventilators and specialized security equipment.

Associated Masterformat Sections: 11 16 00 / 11 16 13 / 11 16 16 / 11 16 23

[See *E1010.10*]

E1030.25 / 21-05 10 30 25 / Ss 40 20 15 71
Teller and Service Equipment

Includes: Equipment specifically designed for handling and transfer of money and other high-security items.

Associated Masterformat Sections: 11 17 00 / 11 17 13 / 11 17 16 / 11 17 23 / 11 17 33 / 11 17 36

[See E1010.10]

E1030.30 / 21-05 10 30 30 / Ss 40 20 15 71
Refrigerated Display Equipment

Includes: Display cases that include refrigeration.

Associated Masterformat Sections: 11 22 00

[See E1010.10]

E1030.35 / 21-05 10 30 35 / Ss 40 15 46 15
Commercial Laundry and Dry Cleaning Equipment

Includes: Equipment for commercial laundry and dry-cleaning operations including coin-operated equipment.

Associated Masterformat Sections: 11 23 00 / 11 23 13 / 11 23 16 / 11 23 19 / 11 23 23 / 11 23 26 / 11 23 33 / 11 23 43

[See *E1010.10*]

E1030.40 / 21-05 10 30 40 / --
Maintenance Equipment

Includes: Built-in and free-standing equipment for building maintenance.

Associated Masterformat Sections: 11 24 00 / 11 24 13 / 11 24 16 / 11 24 19 / 11 24 23.13

[See E1010.10]

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E1030.50 / 21-05 10 30 50 / Ss 40 45 37
Hospitality Equipment

Includes: Specialized equipment for the purpose of registering, admitting, and controlling rooms and other information at hotels, motels, hospitals, and other similar facilities.

Associated Masterformat Sections: 11 25 00 / 11 25 13

[See E1010.10]

E1030.55 / 21-05 10 30 55 / Ss 40 45 37 45
Unit Kitchens

Includes: Manufactured units incorporating plumbing fixtures, appliances, casework and countertops.

Associated Masterformat Sections: 11 26 00

[See E1010.10]

E1030.60 / 21-05 10 30 60 / Ss 40 25 75 21
Photographic Processing Equipment

Includes: Photographic film processing equipment and other products for darkroom use.

Associated Masterformat Sections: 11 27 00 / 11 27 13 / 11 27 16

[See E1010.10]

E1030.70 / 21-05 10 30 70 / Ss 40 15 58
Postal, Packaging and Shipping Equipment

Includes: Equipment for normal mailing, packaging, shipping, and delivery operations for professional, commercial, and institutional applications.

Associated Masterformat Sections: 11 29 00 / 11 29 23 / 11 29 33 / 11 29 55 / 11 28 23

[See E1010.10]

E1030.75 / 21-05 10 30 75 / Ss 40 15 58
Office Equipment

Includes: Computers, printers, copiers, drafting equipment, plotters, carto-stereographs, and other equipment used in offices.

Associated Masterformat Sections: 11 28 00 / 11 28 13 / 11 28 16 / 11 28 19 / 11 28 23

[See E1010.10]

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E1030.80 / 21-05 10 30 80 / Ss 40 15 25
Foodservice Equipment

Includes: Equipment used for liquid and solid food storage, preparation, display, serving, and clean-up in commercial and institutional kitchens and bars.

Associated Masterformat Sections: 11 40 00 / 11 41 00 / 11 41 13 / 11 41 23 / 11 41 26 / 11 41 33 / 11 42 00 / 11 43 00 / 11 41 13 / 11 41 16 / 11 44 00 / 11 44 13 / 11 44 16 / 11 46 00 / 11 46 13 / 11 46 16 / 11 46 19 / 11 47 00 / 11 48 00 / 11 48 13

[See E1010.10]

E1040 / 21-05 10 40 / --
Institutional Equipment

Associated Masterformat Sections: 11 50 00

[See E1010]

E1040.10 / 21-05 10 40 10 / Ss 40 25 26
Educational and Scientific Equipment

Includes: Equipment associated with libraries, education facilities, laboratories, planetariums, observatories, and museums.

Associated Masterformat Sections: 11 50 00 / 11 51 00 / 11 51 13 / 11 51 16 / 11 51 19 / 11 51 23 / 11 52 00 / 11 52 13 / 11 52 16 / 11 52 19 / 11 53 00 / 11 53 13 / 11 53 16 / 11 53 19 / 11 53 23 / 11 53 33 / 11 53 43 / 11 53 53 / 11 55 00 / 11 55 13 / 11 55 16 / 11 56 00 / 11 56 13 / 11 57 00 / 11 59 00 / 11 95 00 / 11 95 13

[See E1010.10]

E1040.20 / 21-05 10 40 20 / Ss 40 50 50
Healthcare Equipment

Includes: Specialized equipment for healthcare facilities for humans and animals. Includes film illuminators, fluoroscopes, hubbard tubs, radio isotopic equipment, and surgical equipment.

Associated Masterformat Sections: 11 70 00 / 05 45 23 / 11 71 00 / 11 72 00 / 11 73 00 / 11 74 00 / 11 75 00 / 11 76 00 / 11 77 00 / 11 78 00 / 11 78 13 / 11 78 16 / 11 78 19 / 11 79 00

[See E1010.10]

E1040.40 / 21-05 10 40 40 / Ss 40 25 71
Religious Equipment

Includes: Built-in and free-standing religious equipment, including baptistery and chancel fittings.

Associated Masterformat Sections: 11 91 00 / 11 91 13

[See E1010.10]

Uniformat / Omniclass / Uniclass

E1040.60 / 21-05 10 40 60 / Ss 25 38 20
Security Equipment

Includes: Equipment specifically designed for secure operations.

Associated Masterformat Sections: 11 18 00 / 11 18 13 / 11 18 16 / 11 18 23

[See E1010.10]

E1040.70 / 21-05 10 40 70 / Ss 40 20 65 22
Detention Equipment

Includes: Equipment specifically designed for detention facilities.

Associated Masterformat Sections: 11 19 00 / 01 87 13 / 11 19 13 / 11 19 16

[See E1010.10]

E1060 / 21-05 10 60 / Ss 40 45 70
Residential Equipment

Includes: Built-in and free-standing appliances and other components specifically for residential use.

Associated Masterformat Sections: 11 30 00

[See E1010]

E1060.10 / 21-05 10 60 10 / Pr 40 70 24
Residential Appliances

Associated Masterformat Sections: 11 31 00 / 11 31 13 / 11 31 23

[See E1010.10]

E1060.50 / 21-05 10 60 50 / Ss 35 10 40
Residential Stairs

Associated Masterformat Sections: 11 33 00

[See B1080]

E1060.70 / 21-05 10 60 70 / Pr 65 67 29 23
Residential Ceiling Fans

Associated Masterformat Sections: 11 34 00

[See E1010.10]

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E1070 / 21-05 10 70 / Ss 40 70
Entertainment and Recreational Equipment

Includes: Equipment for use in athletic, recreational, and therapeutic activities.

Associated Masterformat Sections:

[See E1010]

E1070.10 / 21-05 10 70 10 / Ss 40 25 20 90
Theater and Stage Equipment

Includes: Equipment for support of theatrical, instrumental, and voice programs. Includes cycloramas, entertainment ticket dispensers, scenery and flats, and tormentors.

Associated Masterformat Sections: 11 61 00 / 11 61 13 / 11 61 23 / 11 61 33 / 11 61 43

[See E1010.10]

E1070.20 / 21-05 10 70 20 / Ss 40 25 20
Musical Equipment

Includes: Musical instruments, including prefabricated and field assembled instruments.
Associated Masterformat Sections: 11 62 00 / 11 62 13 / 11 62 16 / 11 62 19
[See E1010.10]

E1070.50 / 21-05 10 70 50 / Ss 40 70 75
Athletic Equipment

Includes: Equipment for use in interior athletic and exercise activities.

Associated Masterformat Sections: 11 66 00 / 11 66 13 / 11 66 23 / 11 66 43 / 11 66 53
[See E1010.10]

E1070.60 / 21-05 10 70 60 / Ss 40 70
Recreational Equipment

Includes: Equipment for use in recreational activities. Includes curling rinks and pistol and rifle range equipment.

Associated Masterformat Sections: 11 67 00 / 11 67 13 / 11 67 23 / 11 67 33 / 11 67 43 / 11 67 53

[See *E1010.10*]

E1090 / 21-05 10 90 / Ss 40 15 35 35
Other Equipment

Associated Masterformat Sections: 11 90 00

[See E1010]

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E1090.10 / 21-05 10 90 10 / Ss 50 80
Solid Waste Handling Equipment

Includes: Equipment involving the collection, shredding, compaction, removal and incineration of trash and other solid waste

Associated Masterformat Sections: 11 82 00 / 01 87 13 / 11 82 13 / 11 82 19 / 11 82 23 / 11 82 26 / 11 82 29 / 11 82 33 / 11 82 36

[See E1010.10]

E1090.30 / 21-05 10 90 30 / Ss 40 30 02
Agricultural Equipment

Includes: Equipment related to land cultivating, raising crops, and feeding, breeding, and raising of livestock.

Associated Masterformat Sections: 11 92 00 / 11 92 13 / 11 92 16 / 11 92 19 / 11 92 23

[See E1010.10]

E1090.40 / 21-05 10 90 40 / Ss 40 30 02 37
Horticultural Equipment

Includes: Equipment related to cultivating flowers, fruits, vegetables, or ornamental plants.

Associated Masterformat Sections: 11 93 00 / 11 93 13 / 11 93 16 / 11 93 19 / 11 93 23 / 11 93 26 / 11 93 29 / 11 93 33 / 32 86 00

[See *E1010.10*]

E1090.60 / 21-05 10 90 60 / Ss 40 30 42
Decontamination Equipment

Includes: Equipment associated with decontamination operations.

Associated Masterformat Sections:

[See *E1010.10*]

E20 / 21-05 20 / Ss 40 45
Furnishings

Associated Masterformat Sections: 12 00 00 / 01 87 16

100	Inclusions • A schematic model element or symbol	

E2010 / 21-05 20 10 / Ss 40 45
Fixed Furnishings

Associated Masterformat Sections:

100	See E20	

Uniformat / Omniclass / Uniclass

200	Inclusions • Generic model elements with approximate size.	
300	Inclusions • Model element with as-designed dimensions	

E2010.10 / 21-05 20 10 10 / Ss 40 25 20 4
Fixed Art

Includes: Interior and exterior fixed art objects.

Associated Masterformat Sections: 12 10 00 / 12 11 00 / 12 12 00 / 12 12 23 / 12 12 26 / 12 14 00 / 12 17 00 / 12 19 00

See E2010

E2010.20 / 21-05 20 10 20 / Ss 25 50 45
Window Treatments

Includes: Interior window coverings and associated hardware and controls.

Associated Masterformat Sections: 12 20 00 / 12 21 00 / 12 22 00 / 12 23 00 / 12 24 00 / 12 25 00

[See E2010.10]

E2010.30 / 21-05 20 10 30 / Ss 40 15 35
Casework

Includes: Custom and manufactured stock design steel, wood, and laminate faced cabinets and other casework units. Includes countertops with integral sinks, fixtures and accessories.

Associated Masterformat Sections: 12 30 00 / 12 35 00 / 12 35 17 / 12 35 25 / 12 35 30 / 12 35 33 / 12 35 50 / 12 35 53 / 12 35 59 / 12 35 70 / 12 35 91 / 12 36 00

See E2010

E2010.70 / 21-05 20 10 70 / Pr 40 30 29
Fixed Multiple Seating

Includes: Fixed, and telescoping seating for theaters, auditoriums, lecture halls, stadiums, arenas, gymnasiums, religious buildings, restaurants, and other facilities where multiple seating is required.

Associated Masterformat Sections: 12 60 00 / 12 61 00 / 12 63 00 / 13 34 16.53 / 12 64 00 / 12 65 00 / 12 66 00 / 12 67 00 / 12 68 00

[See E2010]

Uniformat / Omniclass / Uniclass

E2010.90 / 21-05 20 10 90 / Pr 40 30
Other Fixed Furnishings

Includes: Fixed artificial plants, planters, and accessories.

Associated Masterformat Sections: 12 90 00 / 12 92 00 / 12 92 13 / 12 92 33 / 12 92 43
See E2010

E2050 / 21-05 20 50 / Pr 40 50
Movable Furnishings

Includes: Items of moveable furniture and furnishing accessories. Includes furniture for a variety of uses including classroom, dormitory, ecclesiastical, hotel and motel, laboratory, library, lounge, medical, office, restaurant, and residential.
Associated Masterformat Sections:
[See E2010]

E2050.10 / 21-05 20 50 10 / Ss 40 25 20 4
Movable Art

Includes: Interior and exterior moveable art objects such as paintings, and sculpture.
Associated Masterformat Sections: 12 10 00 / 12 14 00 / 12 19 0

[See E2010]

E2050.30 / 21-05 20 50 30 / Pr 40 50
Furniture

Includes: Movable interior furniture.
Associated Masterformat Sections: 12 50 00 / 12 51 00 / 12 52 00 / 12 52 23 / 12 52 70 / 12 53 00 / 12 54 00 / 12 54 13 / 12 54 16 / 12 55 00 / 12 56 00 / 12 56 33 / 12 56 39 / 12 56 43 / 12 56 51 / 12 56 52 / 12 56 53 / 12 56 70 / 12 57 00 / 12 57 13 / 12 57 16 / 12 58 00 / 12 59 00

[See E2010]

E2050.40 / 21-05 20 50 40 / Pr 40 50
Accessories

Includes: Interior furnishing accessories not attached to permanent construction.
Associated Masterformat Sections: 12 40 00 / 12 41 00 / 12 42 00 / 12 43 00 / 12 44 00 / 12 44 16 / 12 45 00 / 12 46 00 / 12 48 00

[See E2010]

Uniformat / Omniclass / Uniclass

E2050.60 / 21-05 20 50 60 / Pr 40 50 12
Movable Multiple Seating

Includes: Portable seating for auditoriums, lecture halls, stadiums, arenas, gymnasiums, religious buildings, restaurants, and other facilities where multiple seating is required.
Associated Masterformat Sections: 12 60 00 / 12 62 00 / 12 65 00 / 12 67 00 / 12 68 00

[See E2010]

E2050.90 / 21-05 20 50 90 / Pr 40 50
Other Movable Furnishings

Includes: Moveable artificial plants, and planters.
Associated Masterformat Sections: 12 90 00 / 12 92 00 / 12 92 13 / 12 92 33 / 12 92 43

[See E2010]

Uniformat / Omniclass / Uniclass

F / 21-06 00 00 / --
SPECIAL CONSTRUCTION & DEMOLITION

F10 / 21-06 10 / --
Special Construction

Associated Masterformat Sections: 01 88 13

F1010 / 21-06 10 10 / Ss 20 10 60
Integrated Construction

Associated Masterformat Sections:

See Fundamental LOD Definitions

F1020 / 21-06 10 20 / --
Special Structures

Associated Masterformat Sections: 13 30 00 / 01 88 13

See Fundamental LOD Definitions

F1020.40 / 21-06 10 20 40 / Ss 40 5
Special Structures: Metal Building Systems

Includes: Prefabricated buildings and structures assembled on temporary and permanent foundations.

Associated Masterformat Sections: 13 34 00 / 01 88 13 / 13 34 13 / 13 34 16 / 13 34 19 / 13 34 56

100	Inclusions: • Schematic layout	
200	Inclusions: • **Element envelope**	
300	Inclusions: • **Element envelope**	

F1030 / 21-06 10 30 / --
Special Function Construction

See Fundamental LOD Definitions

Uniformat / Omniclass / Uniclass

F1050 / 21-06 10 50 / --
Special Facility Components

See Fundamental LOD Definitions

F1060 / 21-06 10 60 / Ss 40 70 75
Athletic and Recreational Special Construction

Includes: Special construction for athletic and recreational activities that are directly related to the adjacent construction.

Associated Masterformat Sections: 13 28 00

See Fundamental LOD Definitions

F1080 / 21-06 10 80 / --
Special Instrumentation

Includes: Instrumentation for measuring and recording phenomena such as stresses in structures, solar and wind energy, and effects of earthquakes.

Associated Masterformat Sections: 13 50 00

See Fundamental LOD Definitions

F20 / 21-06 20 00 / Ss 15 30
Facility Remediation

Associated Masterformat Sections:

F2010 / 21-06 20 10 / Ss 15 30
Hazardous Materials Remediation

Includes: Remediation for abatement and removal and disposal of contaminated materials within structures.

Associated Masterformat Sections: 02 80 00

See Fundamental LOD Definitions

F30 / 21-06 30 00 / Ac 10 10 25
Demolition

Associated Masterformat Sections:

Uniformat / Omniclass / Uniclass

F3010 / 21-06 30 10 / Ac 10 10 25
Structure Demolition

Includes: Complete removal and disposal of structures.

Associated Masterformat Sections: 02 41 16

See Fundamental LOD Definitions

F3030 / 21-06 30 30 / Ac 10 10 25
Selective Demolition

Includes: Removal and disposal of parts of structures.

Associated Masterformat Sections: 02 41 19

See Fundamental LOD Definitions

F3050 / 21-06 30 50 / Ac 10 80
Structure Moving

Includes: Preparation and processes of relocating and raising structures.

Associated Masterformat Sections: 02 43 00

See Fundamental LOD Definitions

Uniformat / Omniclass / Uniclass

G / 21-07 00 00 / -- SITEWORK

Associated Masterformat Sections:

G10 / 21-07 10 00 / Ac 10
Site Preparation

Associated Masterformat Sections: 01 89 13

G1010 / 21-07 10 10 / Ac 10 30
Site Clearing

Includes: Removal of vegetation from the site, including stripping of sod and soil, and tree pruning for site clearing.
Associated Masterformat Sections: 31 10 00 / 31 11 00 / 31 13 00 / 31 14 00 / 31 14 13 / 31 14 16

G1020 / 21-07 10 20 / Ac 10 10 25
Site Elements Demolition

Includes: Removal of above and below grade site improvements.
Associated Masterformat Sections: 02 41 13

G1030 / 21-07 10 30 / --
Site Element Relocations

Includes: Relocation of utility systems.

G1050 / 21-07 10 50 / Ac 10 75 65
Site Remediation

Includes: Remediation of contaminated sites.
Associated Masterformat Sections: 02 50 00 / 01 89

G1070 / 21-07 10 70 / --
Site Earthwork

Includes: Moving earth to establish new contours and elevations.
Associated Masterformat Sections: 31 20 00 / 01 89 13

Uniformat / Omniclass / Uniclass

G1070.10 / 21-07 10 70 10 / --
Grading

Includes: Earthmoving to reshape contours.

Associated Masterformat Sections: 31 20 00 / 01 89 13

100	Inclusions: • Surface as a plane	
200	Inclusions: • Surface interpolation between identified control elevations (e.g., building floor levels, existing hardscape)	
300	Inclusions: • Complete surface definition	

G20 / 21-07 20 / --
Site Improvements

Associated Masterformat Sections: 01 89 16

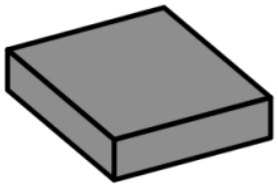
100	Inclusions: • Diagrammatic or schematic model elements.	

G2010 / 21-07 20 10 / Ss 30 14 05
Roadways

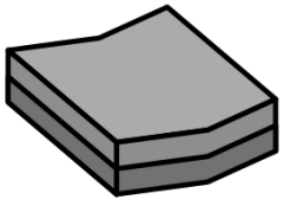
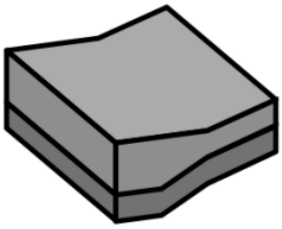
Includes: Pavement, curbs and gutters, appurtenances, lighting, and vehicle fare collection for roadways. May Include: Site earthwork.

Associated Masterformat Sections: 01 89 16

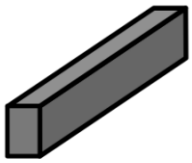
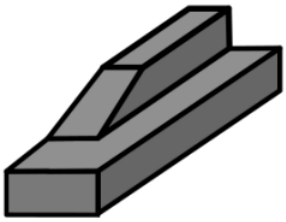
G2010.10
Roadway Pavement

100	See G20	
200	Inclusions: • Plan extent of pavement • **Nominal** thickness	 2

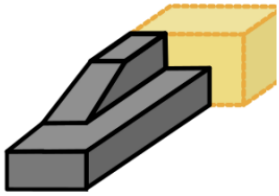
Uniformat / Omniclass / Uniclass

300	Inclusions: • Thickness of buildup • Grading information (points and edges) • 2D Pattern of joints	 2
350	Inclusions: • Grading information (points and edges) • Expansion joints • Path intersections • Curb ramps • Thickened edges	 2

G2010.20
Roadway Curbs and Gutters

100	See G20	
200	Inclusions: • Full plan extents	 2
300	Inclusions: • Profile of curb • Finish grade (top) • Curb cuts and tapers (e.g. for ramps)	 2

Uniformat / Omniclass / Uniclass

350	Inclusions: • Rough openings for storm drains or inlets	 2
400	Inclusions: • Chamfers and nosing • joints	

G2010.40
Roadway Appurtenances

See General Notes: Appurtenances

G2020 / 21-07 20 20 / Ss 40 85 72 11
Parking Lots

Includes: Pavement, curbs and gutters, appurtenances, lighting, and parking control equipment for parking lots.May Include: Site earthwork

Associated Masterformat Sections: 01 89 16

G2020.10 / 21-07 20 20 10 / Ss 30 14 05 6
Parking Lot Pavement

Includes: Prepared and compacted soil and granular layers placed prior to installation of parking lot pavement. Includes: Finished parking lot pavement of granular and asphaltic materials. Includes: Finished parking lot pavement with high bending resistance, usually of concrete. Includes: Blocks or tiles used for parking lot pavement. Unit pavers set in mastic, sand, or mortar.

Associated Masterformat Sections: 32 10 00 / 32 12 00 / 32 13 00 / 32 14 00 / 32 15 00

See G2010.10

G2020.20 / 21-07 20 20 20 / Ss 30 75 45
Parking Lot Curbs and Gutters

Includes: Construction at perimeter of parking lot pavement to separate pavement from adjacent surfaces, provide vehicular restraint, and facilitate drainage.

Associated Masterformat Sections: 32 16 13

See G2010.20

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G2020.40 / 21-07 20 20 40 / Ss 40 85 72
Parking Lot Appurtenances

Includes traffic signals, signage, striping.

Associated Masterformat Sections: 32 17 00 / 32 17 13 / 32 17 43 / 10 14 53 / 32 17 23

See General Notes: Appurtenances

G2030 / 21-07 20 30 / Ss 30 14
Pedestrian Plazas and Walkways

Includes: Pavement, curbs and gutters, appurtenances, lighting, and pedestrian control equipment for pedestrian plazas and walkways. Includes exterior steps and ramps. May Include: Site earthwork.

Associated Masterformat Sections: 01 89 16

For Pedestrian control equipment and other street or exterior furniture see E2010 / 21-05 20 10 Fixed Furnishings

For Handrails see C1090.10 / 21-03 10 90 10 Interior Railings and Handrails

For Site Earthwork and Grading see G1070 / 21-07 10 70 10 Grading

For Drainage see G3030 / 21-07-30-30

G2030.10
Pedestrian Pavement

See G2010.10

G2030.10.10
Decks and Pedestal Systems

Includes: Decks, Joists, Adjustable Pedestal Supports

Masterformat: 05 30 00 - Metal Decking, 06 15 00 - Wood Decking, 06 73 00 - Composite Decking

100		
200	Inclusions: • Full plan extents • Nominal depth	
300	Inclusions: • Geometry of surface elements, including slope. • Nominal thickness of support structure and/or pedestals, and grading information • Openings larger than 6” (or as noted)	
350	Inclusions: • Actual deck/paver profile including supports, connections, and attachment points. • Pedestal locations including perimeter, radius, and drain inlets per manufacturer.	

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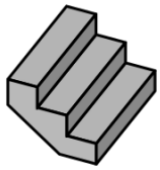
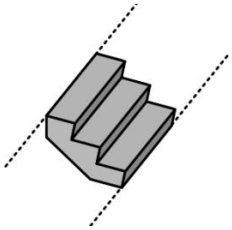
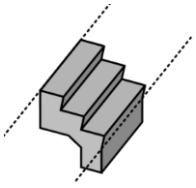
400	Inclusions: • Complete deck model with precise dimensions and material specifications for fabrication. • Accessories and fasteners.	

G2030.20
Pedestrian Pavement Curbs and Gutters

See G2010.20

G2030.30
Exterior Steps and Ramps

100	See G20	
200	Inclusions: • Full plan extents	 2
300	Inclusions: • Stair grades at top and bottom • Nosing	 2
350	Inclusions: • Thickened edges and/or footings	 2

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400	Inclusions: • Additional profile and nosing details • Dowels and reinforcement	

G2030.40
Pedestrian Pavement Appurtenances

See General Notes: Appurtenances

G2030.70
Plaza and Walkway Lighting

See G4050

G2030.80
Exterior Pedestrian Control Equipment

See Fundamental LOD Definitions

G2040 / 21-07 20 40 /
Airfields

Includes: Pavement, curbs and gutters, appurtenances, lighting, and airfield signally and control equipment for airfields. May Include: Site earthwork.

Associated Masterformat Sections: 01 89 16

G2050 / 21-07 20 50 / Ss 30 14
Athletic, Recreational, and Playfield Areas

Includes: Surfacing, fencing, equipment, grandstands and bleachers, and lighting for athletic, recreational, and playfield areas. May Include: Site earthwork.

Associated Masterformat Sections: 01 89 16

For Equipment and Play Structures, see sections 21-01 Substructure & 21-02 Shell.

100	See G20	
200	See G20	
300	Element modeling to include: • Overall size and geometry of all elements • Crossfalls & drainage slopes • Linemarking	

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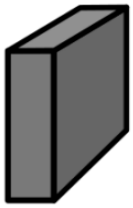
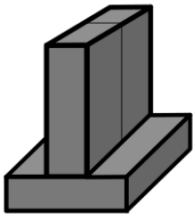
350	Element modeling to include: • Fall zones • Subsurface structure	

G2060 / 21-07 20 60 / --
Site Development

G2060.30 Retaining Walls

BIMForum Addition

100	See G20	
200	Inclusions: • Full plan extents	 2
300	Inclusions: • thickness of wall • Top of wall • depth may be approximate	 2
350	Inclusions: • All layers • Footing	 2

Uniformat / Omniclass / Uniclass

400	Inclusions: • Joints • Reinforcement	

G2060.40 Stairs

See G2030.30

G2080 / 21-07 20 80 / -- Landscaping

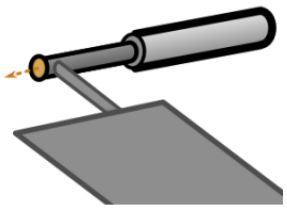
Includes: Trees, grass, and planting

Associated Masterformat Sections: 31 20 00 / 01 89 13

G2080.10 Planting Irrigation

100	See G20	
200	Inclusions: • Schematic layout with approximate size, shape, and location of mainline.	 2
300	Inclusions: • Mainline and point of connection (POC) • Major components (pumps, controllers, flow sensors, etc.) and all fittings (valves, sprinkler heads, etc) and other are shown, though may be diagrammatic and not fully sized on laterals • Major servicing and access clearance requirements are depicted • Concrete pads modeled at **nominal** thickness if applicable • Drip areas designated in plan	 2

Uniformat / Omniclass / Uniclass

350	Inclusions: • Mainline sleeving • Drip lines, may be delineated as massing/area element at specified elevation (in 3d model) • Lateral lines and sleeving are modeled as design-specified size and location	 2
400	Inclusions: • Modeled as **actual** construction elements • **Actual** size, shape, spacing, and location/connections of pipe, valves, fittings, and sleeves	

G2080.20 Turf and Grasses

Includes: Lawns and grasses including seeding and sodding.

For Grasses see G2080.40

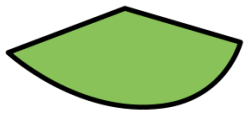
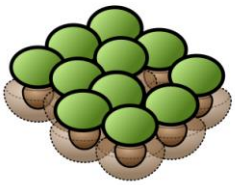
100	See G20	
200	Inclusions: • Turf and seeding areas are shown. Areas may be flat or not represented as 3D elements	
300	Inclusions: • All areas are separated by distinct species or mix • Areas or masses follow the grading surface	
350	Inclusions: • Root system is accounted for within the depth of the massing element.	
400		

G2080.30 Plants

G2080.30.10 Groundcovers and Smaller Shrubs.

100	See G20	

Uniformat / Omniclass / Uniclass

200	Inclusions: • Larger mass, zones, or areas. • May be a flat mass or mesh	 2
300	Inclusions: • All areas are separated by distinct species or mix • 3D form that drapes on grade (mass or individual plants)	 2
350	Inclusions: • Clear zones around trees • Individual plants may be shown, though exact location may not be precise. • Root or container element shown for smaller plants or included in thickness for massed areas	 2
400	Inclusions: • All individual plants are shown • Location is exact for install	 2

G2080.30.20. Trees and Large Shrubs.

100	See G20	

Uniformat / Omniclass / Uniclass

200	Inclusions: • Individual trees location is shown	 2
300	Inclusions: • 3D rootball or clear zone (as Noted for hole (at installation) - Canopy size at maturity (75-100% height or as noted)	 2
350	Inclusions: • Staking and/or guying • Canopy clearances at maturity	 2
400		

G2080.50
Planting Accessories

G2080.50.30
Natural Wood

200	Inclusions: • Plan extents	
300	Inclusions: • Rough depth and/or diameter	

Uniformat / Omniclass / Uniclass

350	Inclusions: • Setting bed or sub-base • Anchoring system	
400		

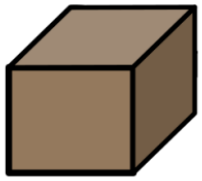
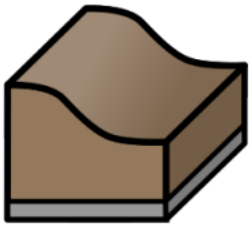
G2080.50.70
Concrete or Natural Stone

Includes: Decorative Boulders.

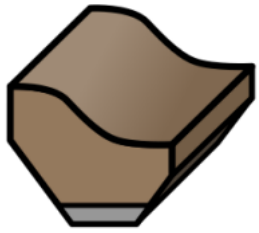
Masterformat: 04 41 00 Dry-Placed Stone, 32 15 00 Decorative Boulders and Aggregate Surfacing. G2080.80 Landscaping Activities

200	Inclusions: • 3D location	
300	Inclusions: • Height or portion above grade • General size (Radius or Diameter of space occupied)	
350	•	
400	Inclusions: • Actual boulder geometry	

G2080.80.10 Planting Soil (Planting Preparation)

100	See G20	
200	Inclusions: • Full plan extents • **Nominal** thickness of build up	 2
300	Inclusions: • Finish grade • **Actual** thickness of buildup, including varying bottom slope(s)	 2

Uniformat / Omniclass / Uniclass

350	• Inclusions: • Tapered edges	 2
400		

G2080.80.20 Existing Trees and Plant Protection

Includes: existing trees.

100	See G20	
200	Inclusions: • Existing trees, both to be removed and to retain • Model representation of planting size and extents may be approximate. • Tree protection zone/massing for existing trees	
300	Inclusions: • Location of existing root zone is delineated in plan in the model.	
350	Inclusions: • Tree protection element/fencing for existing trees is modeled at correct height and shape	
400		

G30 / 21-07 30 / Ss 55 20
Liquid and Gas Site Utilities

Associated Masterformat Sections: 01 89 19

100	Inclusions: • Diagrammatic or schematic elements;	

Uniformat / Omniclass / Uniclass

200	Inclusions: • Schematic layout of generic model elements with approximate size, shape, and location of elements;	

G3010 / 21-07 30 10 / Ss 55 70
Water Utilities

Includes: Water distribution for domestic consumption, fire fighting, and irrigation for a facility site and for multiple facilities. Includes trenching and backfilling. Includes Liquid and Gas Site Utilities Supplementary Components as appropriate.

Associated Masterformat Sections: 33 10 00

100	See G30	
200	See G30	

G3010.10 / 21-07 30 10 10 / Ss 55 70 38
Site Domestic Water Distribution

Includes: Supply wells, piping, equipment, storage tanks, and water ponds and reservoirs.

Associated Masterformat Sections: 01 89 19 / 33 21 00 / 33 11 00 / 33 12 00 / 33 12 13
33 12 16 / 33 12 19 / 33 12 23 / 33 12 33 / 33 13 00 / 33 16 00 / 33 47 19.13 / 33 47 13.13
33 47 16.13

100	See G30	
200	See G30	

G3010.30 / 21-07 30 10 30 / Ss 55 30 96
Site Fire Protection Water Distribution

Includes: Supply wells, piping, equipment, storage tanks, and water ponds and reservoirs.

Associated Masterformat Sections: 01 89 19 / 33 21 00 / 33 11 19 / 33 12 00 / 33 12 13 / 33 12 16 / 33 12 19 / 33 12 23 / 33 12 33 / 33 16 00 / 33 47 19.33 / 33 47 13.13 / 33 47 16.13

100	See G30	
200	See G30	

G3020 / 21-07 30 20 / --
Sanitary Sewerage Utilities

Includes: Sanitary sewerage for a facility site and for multiple facilities. Includes piping, septic tanks that serve multiple facilities, structures, and lagoons. Includes trenching and backfilling. Includes Liquid and Gas Site Utilities Supplementary Components as appropriate.

Associated Masterformat Sections: 33 30 00 / 01 89 19

100	See G30	
200	See G30	

Uniformat / Omniclass / Uniclass

G3020.20 / 21-07 30 20 20 / Ss 50 35 08 30
Sanitary Sewerage Piping

Associated Masterformat Sections: 33 31 00 / 33 33 00 / 33 34 00

100	See G30	
200	See G30	
300	Inclusions Design-specified elements	

G3020.50 / 21-07 30 20 50 / Ss 50 35 08
Sanitary Sewerage Structures

Associated Masterformat Sections: 33 39 00 / 33 39 13 / 33 39 23

100	See G30	
200	Inclusions: **Element envelopes**	
300	Inclusions: Design-specified elements	

G3030 / 21-07 30 30 / Ss 50 35 80
Storm Drainage Utilities

Includes: Storm drainage for surface or combination of surface and subsurface water for a facility site or for multiple facilities.Includes piping, culverts, water drains, drainage pumps, Subdrainage, and storm drainage ponds and reservoirs. Includes trenching and backfilling. Includes Liquid and Gas Site Utilities Supplementary Components as appropriate.

Associated Masterformat Sections: 01 89 19

100	See G30	
200	See G30	

G3030.40
Storm Water Drains

Includes: Area Drains, Trench Drains, Storm Water Treatment

Masterformat: 33 44 13 – Area Drains, 33 44 16 – Trench Drains, 33 44 19 – Storm Water Treatment

100		
200	Inclusions: • Schematic layout with size, shape and location of surface elements	
300	Inclusions: • Overall geometry of surface elements • Cleanouts (if applicable) • 2D patterns of grills	

Uniformat / Omniclass / Uniclass

350	Inclusions: • Overall under-surface geometry • 3D POC for drain piping	
400	Inclusions: • 3D modeled grills	

G3050 / 21-07 30 50 / Ss 70 30
Site Energy Distribution

Includes: Energy distribution for a facility site or multiple facilities. Includes hydronic heating, steam energy, and hydronic cooling distribution. Includes trenching and backfilling. Includes Liquid and Gas Site Utilities Supplementary Components as appropriate.

100	See G30	
200	See G30	

G3060 / 21-07 30 60 / --
Site Fuel Distribution

Includes: Gas, fuel-oil, gasoline, diesel fuel, and aviation fuel distribution for a facility site or multiple facilities. Includes trenching and backfilling. Includes Liquid and Gas Site Utilities Supplementary Components as appropriate.

100	See G30	
200	See G30	

G3090 / 21-07 30 90 / --
Liquid and Gas Site Utilities Supplementary Components

Includes: Common work results for utilities and instrumentation and control to be included in liquid and gas utility elements above as appropriate.

See General Notes: Supplementary Components

G40 / 21-07 40 / --
Electrical Site Improvements

Associated Masterformat Sections: 01 89 26

100	Inclusions: • Diagrammatic or schematic model elements: • conceptual and/or schematic layout;	

Uniformat / Omniclass / Uniclass

G4010 / 21-07 40 10 / --
Site Electric Distribution Systems

Description: Electrical wiring systems to distribute electrical power to on the Site. Includes Duct Banks, Pullboxes, vaults and transformers from the utility point of connection, to the building's main electric room.

Associated Masterformat Sections: 01 89 26

100	See G40	
200	Inclusions: • Schematic layout with approximate size, shape, and location of equipment;	
300	Inclusions: • Design-specified size, shape, spacing, and location of equipment and associated components; • Approximate allowances for clearances required for all specified supports and seismic control; • Access/code clearance requirements modeled.	
350	Inclusions: • **Actual** size, shape, spacing, and location of raceways, boxes, and enclosures. • **Actual** size, shape, spacing, and location for supports and seismic control. • **Actual** size, shape, and location/connections of equipment and support structure/pads. • **Actual** floor and wall **penetration elements** are modeled. • **Actual** access/code clearance requirements modeled.	

G4050 / 21-07 40 50 / Ss 70 80 25
Site Lighting

Description: Luminaires, lighting equipment, ballasts, and accessories. Includes fluorescent, high intensity discharge, incandescent, mercury vapor, neon, and sodium vapor lighting. Includes Pole Mount, Building Mount and on-grade fixtures for exterior lighting.

Associated Masterformat Sections: 26 56 29

100	See G40	
200	Inclusions: • Schematic layout with approximate size, shape, and location of equipment;	
300	Inclusions: • Design-specified size, shape, and location of lighting fixtures; • Approximate allowances for spacing and clearances required for all specified hangers, supports and seismic control; • Access/code clearance requirements modeled. • Poles	

Uniformat / Omniclass / Uniclass

G50 / 21-07 50 / Ss 75 10
Site Communications

100	Diagrammatic or schematic model elements: • conceptual and/or schematic layout; • design performance parameters as defined in the BEP to be associated with model elements as non-graphic information.	

G5010 / 21-07 50 10 / Ss 75 10
Site Communications Systems

Description: Conduit Systems for routing of Communication trunk systems.

Associated Masterformat Sections: 33 80 00

100	See G40	
200	See D6010.10	
300	See D6010.10	

G90 / 21-07 90 / --
Miscellaneous Site Construction

Associated Masterformat Sections: 01 89 29

G9010 / 21-07 90 10 / Ss 37 50 92
Tunnels

Includes: Vehicular, pedestrian, and service tunnels. Includes tunnel boring, bracing and jacking work, linings and casing, grouting support systems, boring machines, and control and spoil removal systems. Includes Tunnel Construction Related Activities as appropriate.

Associated Masterformat Sections: 31 70 00 / 01 89 29

See Fundamental LOD Definitions

USER GUIDE

Overview

Description

The *Level of Development (LOD) Specification* is a reference that enables practitioners in the AEC Industry to specify and articulate with a high degree of clarity the content and reliability of Building Information Models (BIMs) at various stages in the design and construction process.

The Specification is a detailed interpretation of the LOD schema developed by AIA Contract Documents for its *E201-2022 and E202-2022 BIM Exhibit for Sharing Models with Project Participants* defining and illustrating characteristics of model elements of different building systems at different Levels of Development, organized according to CSI Uniformat 2010[5]. Its intent is to help explain the LOD framework and standardize its use so that it becomes more useful as a communication tool.

For Level of Development Definitions See Fundamental LOD Definitions above.

BIM as a Communication Tool

The LOD schema addresses several issues that arise when a BIM is used as a communication or collaboration tool, i.e., when someone other than the author extracts information from it:

1) During the design process, building systems and components progress from a vague conceptual idea to a precise description. In the past, there has been no simple way to designate where a model element is along this path. The author knows, but others often don't.
2) It's easy to misinterpret the precision at which an element is modeled. Hand drawings range from pen strokes on a napkin to hard lines with dimensions called out, and the precision of the drawing can be inferred from its appearance. In a model though, a generic component placed approximately can look exactly the same as a specific component located precisely, so we need something besides appearance to tell the difference.
3) It is possible to infer or extract information from a BIM that the author doesn't intend – unconfirmed dimensions can be measured with precision, assembly information often exists before it's been finalized, etc. In the past, this issue has been sidestepped with all-encompassing disclaimers that basically say, "Since some of the information in the model is unreliable, you may not rely on any of it." The LOD framework allows model authors to clearly state the reliability of given model elements, so the concept becomes "Since some of the information in the model is unreliable, you may only rely on it for what I specifically say you can."
4) In a collaborative environment, where people other than the model author are depending on information from the model in order to move their own work forward, the design work plan takes on high importance – it is necessary for the model users to know when information will be available in order to plan their work. The LOD framework facilitates this.

The LOD Framework addresses these issues by providing an industry-developed standard to describe the state of development of various systems, assemblies, and components within a BIM. This standard enables consistency in communication and execution by facilitating the detailed definition of BIM milestones and deliverables.

LODs and Design Phase

The LODs are not defined by design phases. Rather, design phase completion, as well as any other milestone or deliverable, can be defined through the LOD language. There are several important reasons for this approach:

[5] UniFormat™ Numbers and Titles used in this publication are from UniFormat 2010™, published by CSI and Construction Specifications Canada (CSC), and are used with permission from CSI. For a more in-depth explanation of UniFormat™ and its use in the construction industry visit http://www.csinet.org or contact CSI, 110 South Union Street, Suite 100, Alexandria, VA 22314. (800) 689-2900.

1) There is currently no detailed standard for the design phases. Many architects have created in-house standards, but these differ from one firm to the next, and even within a single firm the requirements are sometimes adjusted to the needs of a project.
2) Building systems progress from concept to precise definition at different rates, so at any given time different elements will be at different points along this progression. At completion of the Schematic Design phase, for example, the model will include many elements at LOD 200, but will also include many at LOD 100, as well as some at 300, and possibly even 350 or 400.

LODs and Model Definition

There is no such thing as an "LOD ### model." As previously noted, project models at any stage of delivery will always contain elements and assemblies at various levels of development. As an example, it is not logical to require an "LOD 200 model" at the completion of the schematic design phase. Instead, the "100% SD Model" will contain modeled elements at various levels of development.

Intent

Not a Set of Requirements

The Specification is not a set of requirements as to what is modeled when or by whom. Rather it is a language by which users can define these requirements for their own firms or projects. This clear articulation allows model authors to define what their models can be relied on for, and allows downstream users to clearly understand the usability and the limitations of models they are receiving.

To accomplish the Specification's intent, its primary objectives are:

1) To help teams, including owners, to specify BIM deliverables and to get a clear picture of what will be included in a BIM deliverable
2) To help design managers explain to their teams the information and detail that needs to be provided at various points in the design process, and to track progress of their models
3) To allow downstream users to rely on specific information in models they receive from others.
4) To provide a standard that can be referenced by contracts and BIM execution plans.

Complements a BIM Execution Plan (BEP)

This Specification does not replace a project BEP, but rather is intended to be used in conjunction with such a plan, providing a means of defining models for specific information exchanges, milestones in a design work plan, and deliverables for specific functions.

Background

Evolution of the Level of Development (LOD) Definitions

AIA Effort

In 2008, the AIA published its first set of Level of Development definitions in AIA Document *E202™-2008 Building Information Modeling Protocol*. Due to the rapidly evolving nature of the use of BIM, the AIA evaluated the *E202–2008*, including the LOD definitions. The result is the updated and reconfigured Digital Practice documents, *AIA E203™–2013, Building Information Modeling and Digital Data Exhibit*, *AIA G201™–2013, Project Digital Data Protocol Form*, and *AIA G202™–2013, Project Building Information Modeling Protocol Form*, which are accompanied by a detailed guide document entitled *Guide and Instructions to the AIA Digital Practice Documents*. The AIA's updated Digital Practice documents include revised LOD definitions.

BIMForum Effort

In 2011 BIMForum initiated the development of the *LOD Specification* and formed a working group comprising contributors from both the design and construction sides of the major disciplines. To help further the standardization and consistent use of the LOD schema, and to increase its usefulness as a foundation for collaboration, the AIA licensed BIMForum to utilize its latest LOD definitions in this Specification. The BIMForum working group interpreted the AIA's basic LOD definitions for each building system, and then compiled examples to illustrate the interpretations. Because BIM is being put to an ever-increasing number of uses, the group decided that it was beyond the initial scope to address all of them. Instead, the definitions were developed to address model element geometry, with three of the most common uses in mind – quantity take-off, 3D coordination, and 3D control and planning. The group felt that in taking this approach the interpretations would be complete enough to support other uses.

In working with the AIA definitions the working group identified the need for an LOD that would define model elements sufficiently developed to enable detailed coordination between disciplines – e.g. clash avoidance/detection, layout, etc. The requirements for this level are higher than those for 300, but not as high as those for 400, thus it was designated LOD 350. The 2022 AIA Digital Practice documents include LOD 350.

The working group also decided that since the AIA's definition of LOD 500 related only to field verification and thus had no impact on modeling of elements the Specification would not develop interpretations for LOD 500.

In developing the system- and component-specific interpretations of the LODs the working group found it useful to define some fundamental interpretations, adding some color and shade to the AIA's definitions in order to guide the development of the specific interpretations.

The LOD definitions included in the LOD Specification versions 2013 through 2021 are the definitions from the AIA 2013 suite of Digital Practice documents plus the BIMForum's definition of LOD 350 and minus the definition of LOD 500, along with the BIMForum's fundamental interpretations.

2022 LOD Definition Update

In December of 2021 a collaborative effort was convened to incorporate lessons learned from almost a decade of practical application of the LOD framework into an updated set of LOD definitions. The following organizations were represented:

- AIA Contract Documents (ACD)
- American Association of State Highway Officials (AASHTO)
- American Institute of Architects (AIA)
- Canada's Integrated Project Delivery Alliance (IPDA)
- National BIM Standard (NBIMS)
- National Institute of Building Sciences (NIBS)

Basically, the group ratified the BIMForum interpretations and folded them into the new definitions, also simplifying and clarifying the language. As a result of this outcome the existing narrative and graphic interpretations of specific systems and components included in the 2013-2021 versions of the *LOD Spec* remain valid.

Some notable tweaks:

5. The sentence "Non-graphic information may also be attached to the Model Element" has been removed from all definitions. Since non-graphic information in any quantity and degree of accuracy can be attached to a model element of any LOD, the issue is addressed with a single over-arching statement in *AIA E201-2022*. This approach will be followed in future versions of the *LOD Spec*.
6. While the BIMForum 2013 interpretations assigned space-reservation volumes to LOD 200, the 2022 LOD 200 definition requires the element to show recognizable geometry. Thus space-reservation volumes are assigned to LOD 100.
7. The group developed a more succinct definition of LOD 500, making it clear that this LOD applies to existing elements rather than the "as-designed" elements addressed by LODs 100-400. The definition also requires that the accuracy of an LOD 500 element must be specified by some means other than LOD 100-400. The BIMForum recommends referring to USIBD's *Level of Accuracy (LOA) Specification*. Level of Development vs. Level of Detail

Using the Specification

Details

Order of Precedence

The body of this Specification expands on the Fundamental Definitions as they apply to specific building systems and sub-systems. In the event of any conflict, more specific expansions take precedence over less specific expansions and Fundamental Definitions, e.g. the expanded definitions for C1010 take precedence over those for C10, which in turn take precedence over the Fundamental Definitions.

LOD Definitions as Minimum Requirements

The LODs provide five snapshots of the progression of an element from conceptual to specified – there are many steps in this progression between the defined LODs. The LOD definitions, then, should be considered minimum requirements – i.e. an element has progressed to a given LOD only when all the requirements stated in the definition have been met.

LOD Definitions are Cumulative

For a given element each LOD definition includes the requirements of all previous LODs. Thus, for an element to qualify for LOD 300 it must meet all the requirements for 200 and 100 as well as those stated in the LOD 300 definition.

Model Element Author

This document does not prescribe who the author of a particular component at a given LOD should be – the sequence of responsibility for modeling various systems will vary from one project to another. To accommodate this variation this document defers to the concept of Model Element Author (MEA) as defined in the *AIA E203-2013*: "The Model Element Author is the entity (or individual) responsible for managing and coordinating the development of a specific Model Element to the LOD required for an identified Project milestone, regardless of who is responsible for providing the content in the Model Element." [6]

2D Supplementary Drawings

In current practice models are often supplemented with 2D information such as detail drawings. This Specification does not address this supplementation, but rather deals only with what is modeled in 3D and non-graphic information associated with the modeled elements.

Project-Specific Information

As mentioned in the Overview above, this Specification is intended to be used in conjunction with a project BEP. Many information needs will vary from project to project, even for identical elements. This kind of information is therefore not included in the LOD definitions specified here, but rather is left to be addressed in individual BEPs. The following are some notable examples.

Size Thresholds

In most projects, a determination is made to model certain elements only if they are over a specified size – e.g. conduit less than 1/2" (10 mm) diameter is not modeled. These size thresholds do not consistently correspond to certain LODs, and they vary from project to project. Thus, they are not specified in the LOD definitions but rather in the project's BEP, for example using the "Notes" cells in the Model Element Table of the *AIA G202-2013*.

Using the Specification with a BEP

Most BEPs include a section that details milestones as well as information exchanges – models to be produced to exchange specific information at specific points in a specific BIM use. In most cases, though, current practice is to accompany these models with the

[6] AIA Document *E203-2013 Building Information Modeling and Digital Data Exhibit,* Article 1.4.6. Copyright © American Institute of Architects 2013. All rights reserved. Definition quoted here by permission.

common “for reference only” disclaimer, diluting the effectiveness of the exchange. Referencing this Specification in the BEP and using it to concisely define the milestone and information exchange models brings many efficiencies to the process – among them:

Reliance
As noted above (see “BIM as a Communication Tool”), a major problem with allowing others to rely on a BIM is that it can contain information the author doesn’t intend. By defining a model through the LOD Specification the author can limit reliance to only what he/she specifically states.

Multiple uses
Much model information is common across several information exchanges. This Specification facilitates the definition of models that will support multiple exchanges.

Efficient sequencing
The development of models as the design and construction process progresses follows logical sequences – much information depending on the prior development of other information. The definition of milestones, information exchanges, and other deliverables through this Specification facilitates the orderly sequencing of models to align with efficient development of information.

Avoidance of over-modeling
The LOD Specification facilitates the application of a pull-planning process to the modeling effort, limiting the development of model elements and information to that which the team identifies as useful.

Note that the definition and sequencing of models usually cannot be set in stone when the BEP is first developed. In most cases the modeling plan must evolve as the project progresses.

Implementation of the Specification

Currently, two methods of implementation have been developed.

Rely on the Model Element Table
Project team refers to a Model Element Table such Article 3.3 of the AIA G202-2013 or Part II of this Specification for the LODs of model elements. In this method, all elements referred to in a given Model Element Table line item are assumed to be at the LOD stated there. E.g. if the table lists interior doors as LOD 200 for a given model, all interior doors within the model are assumed to be at LOD 200.

Include LOD Designations as Attributes of Individual Model Elements
All elements within the model are provided with two attributes – Current LOD (the actual LOD of the element) and Target LOD (the LOD specified for that element in the Model Element Table). Elements default to a Current LOD of 100 or 200 as appropriate, and this attribute is elevated as the element is more fully developed. This method offers more flexibility and reliability, allowing differentiation between individual elements within a single model element table line item. Several software offerings provide the functionality of highlighting elements of various LODs or elements whose Current LOD is less than the Target LOD.

ORGANIZATION OF THE SPECIFICATION

Part I: LOD Interpretations
Part I consists of narrative descriptions and illustrations of specific model elements at each LOD.

Part II: Model Element Table

The Model Element Table (Figure 1) is a workbook with a layout similar to that of the AIA *G204-2022* and can be referenced by the AIA suite of Digital Practice Documents

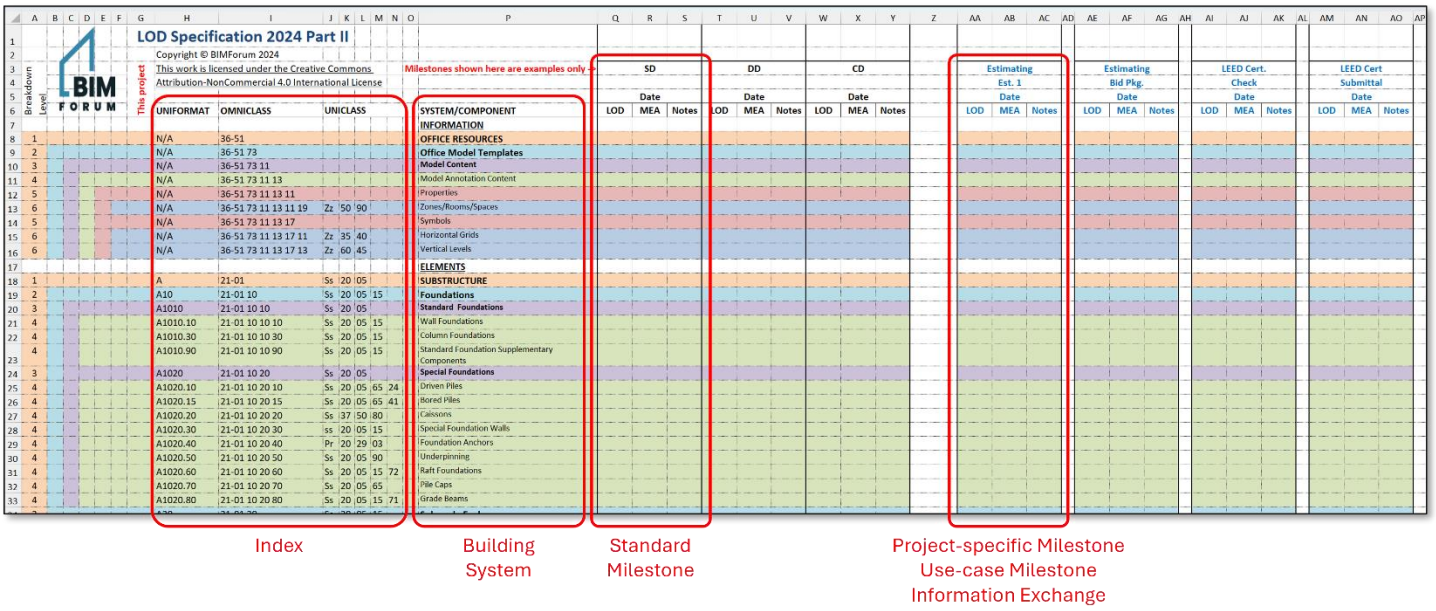


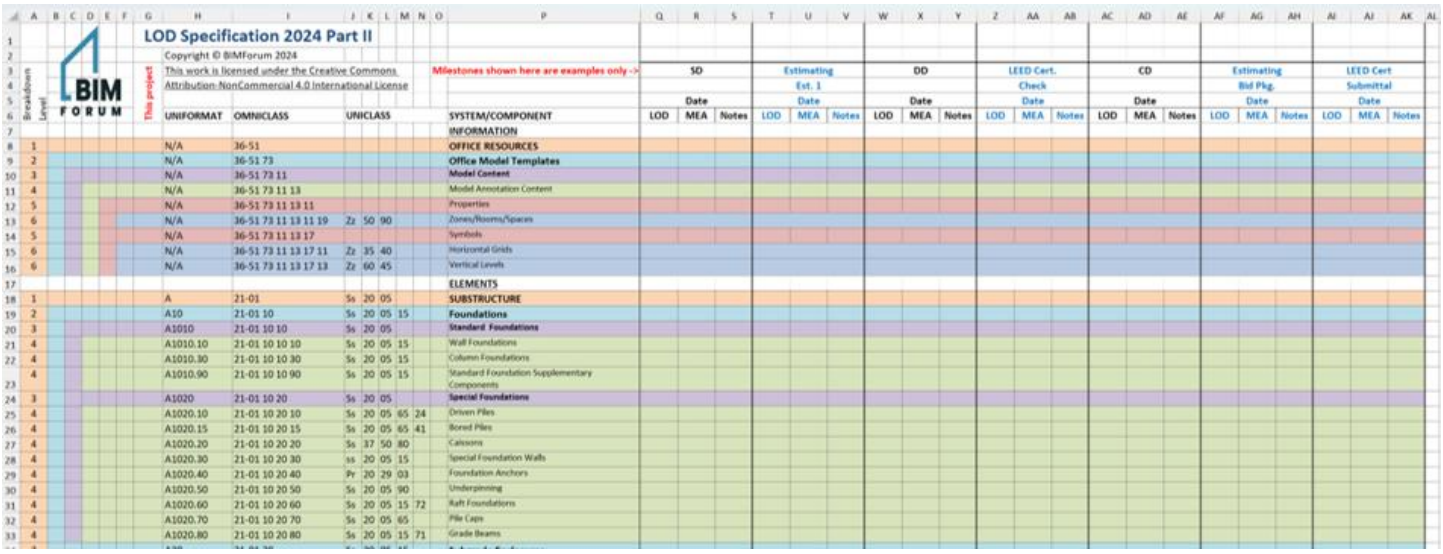
Figure 1 Model Element Table

Building Systems

The rows of the Model Element Table (Figure 1) are building elements listed in accordance with CSI Uniformat 2010, CSI Omniclass, and NBS Uniclass.

Milestones/Deliverables

The table includes columns for defining the LODs for various milestones within a project. Each milestone column has three sub-columns: Level of Development (LOD), Model Element Author (MEA), and Notes. Figure 1 shows standard milestones for the completion of the traditional design phases as well as examples of Project-Specific Milestones for interim reviews, specific deliverables, BIM-Use information exchanges, etc. Users are encouraged to modify and add to these milestones as necessary. Once the milestones for a project have been determined, they can be re-ordered into a logical sequence as shown in Figure 2.



LOD Specification 2024 Part II

Milestones shown here are examples only ->

Breakdown Level	UNIFORMAT	OMNICLASS	UNICLASS	SYSTEM/COMPONENT	SD LOD	SD Date MEA	SD Notes	Estimating Est. 1 LOD	Estimating Est. 1 Date MEA	Estimating Est. 1 Notes	DD LOD	DD Date MEA	DD Notes	LEED Cert. Check LOD	LEED Cert. Check Date MEA	LEED Cert. Check Notes	CD LOD	CD Date MEA	CD Notes	Estimating Bid Pkg. LOD	Estimating Bid Pkg. Date MEA	Estimating Bid Pkg. Notes	LEED Cert Submittal LOD	LEED Cert Submittal Date MEA	LEED Cert Submittal Notes
				INFORMATION																					
1	N/A	36-51		OFFICE RESOURCES																					
2	N/A	36-51 73		Office Model Templates																					
3	N/A	36-51 73 11		Model Content																					
4	N/A	36-51 73 11 13		Model Annotation Content																					
5	N/A	36-51 73 11 13 11		Properties																					
6	N/A	36-51 73 11 13 11 19	Zz 50 90	Zones/Rooms/Spaces																					
5	N/A	36-51 73 11 13 17		Symbols																					
6	N/A	36-51 73 11 13 17 11	Zz 35 40	Horizontal Grids																					
6	N/A	36-51 73 11 13 17 13	Zz 60 45	Vertical Levels																					
				ELEMENTS																					
1	A	21-01	Ss 20 05	SUBSTRUCTURE																					
2	A10	21-01 10	Ss 20 05 15	Foundations																					
3	A1010	21-01 10 10	Ss 20 05	Standard Foundations																					
4	A1010.10	21-01 10 10 10	Ss 20 05 15	Wall Foundations																					
4	A1010.30	21-01 10 10 30	Ss 20 05 15	Column Foundations																					
4	A1010.90	21-01 10 10 90	Ss 20 05 15	Standard Foundation Supplementary Components																					
3	A1020	21-01 10 20	Ss 20 05	Special Foundations																					
4	A1020.10	21-01 10 20 10	Ss 20 05 65 24	Driven Piles																					
4	A1020.15	21-01 10 20 15	Ss 20 05 65 41	Bored Piles																					
4	A1020.20	21-01 10 20 20	Ss 37 50 80	Caissons																					
4	A1020.30	21-01 10 20 30	ss 20 05 15	Special Foundation Walls																					
4	A1020.40	21-01 10 20 40	Pr 20 29 03	Foundation Anchors																					
4	A1020.50	21-01 10 20 50	Ss 20 05 90	Underpinning																					
4	A1020.60	21-01 10 20 60	Ss 20 05 15 72	Raft Foundations																					
4	A1020.70	21-01 10 20 70	Ss 20 05 65	Pile Caps																					
4	A1020.80	21-01 10 20 80	Ss 20 05 15 71	Grade Beams																					

Figure 2 Sequencing Milestones / Deliverables / Information Exchanges