BUILDING INNOVATION
Conference

The New US National BIM Standard V4:

What Is It, And How Do I Use It?

Speakers

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Penn State

Chair, Planning Committee

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Vice Chair, Planning Committee

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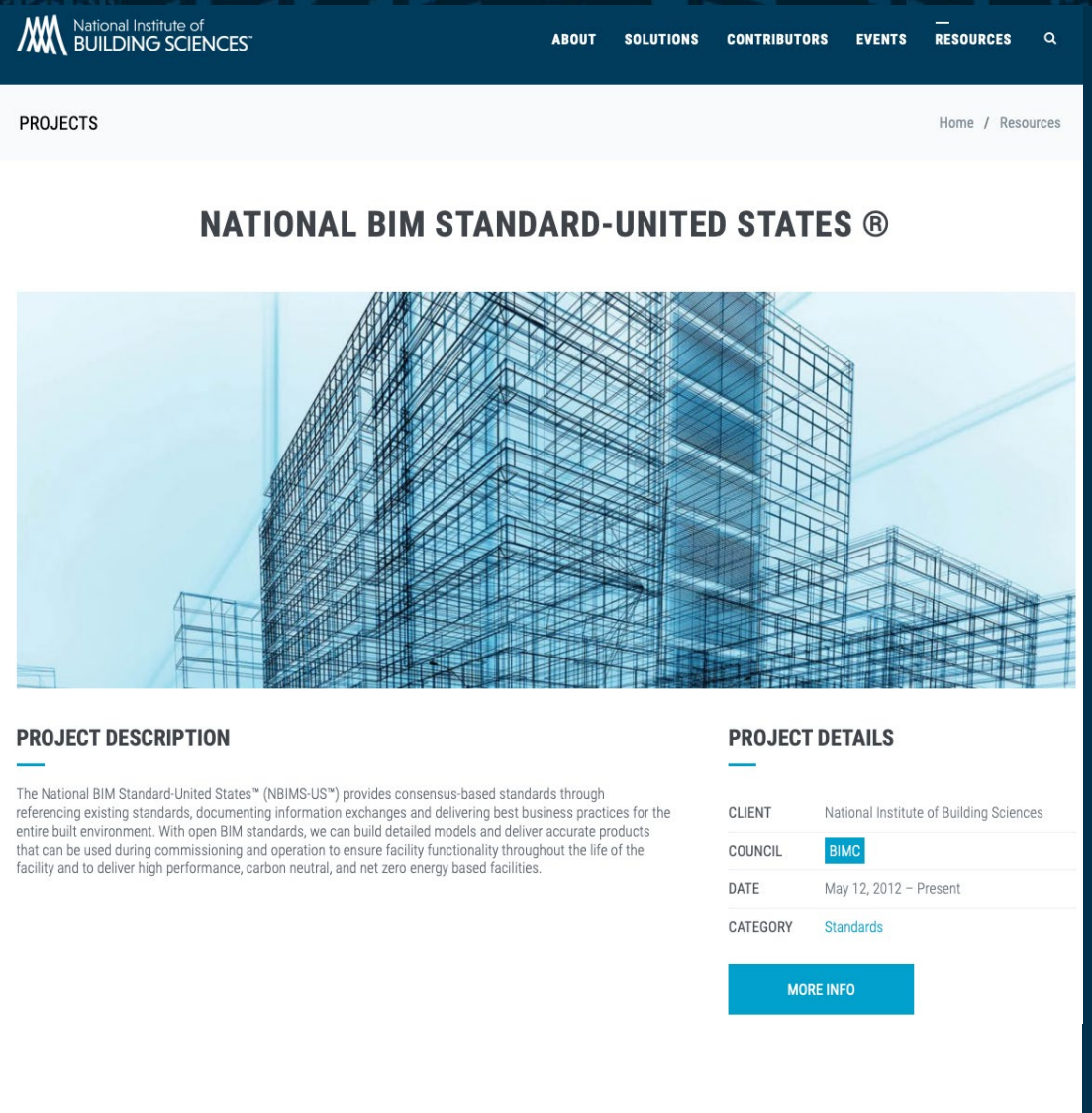
Co-Chair, COBie Workgroup

Managing structured information is paramount to project and organizational success.

U.S. National BIM Standard V4



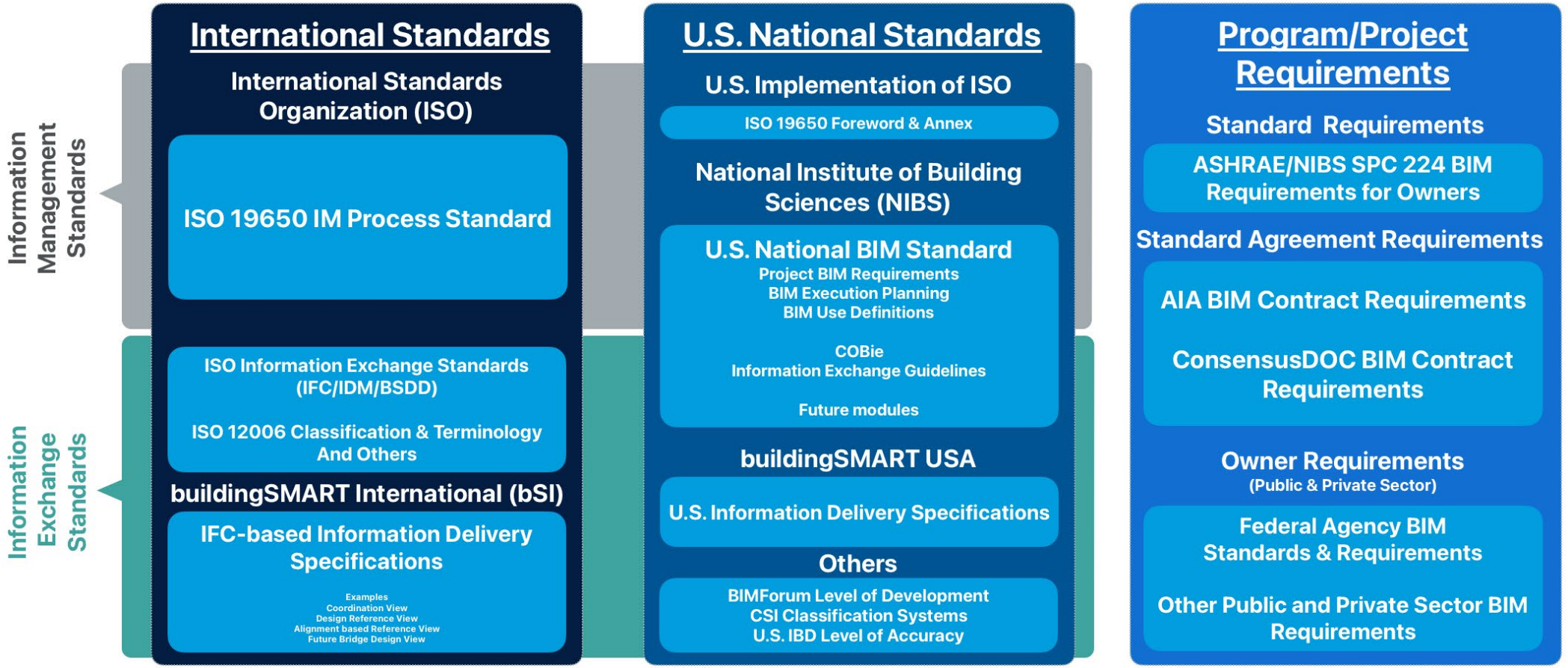
NBIMS Vision:

To develop a clear, industry-focused set of standards and guidelines that can be used by capital facility (buildings and infrastructure) owners and teams to define their information requirements, procure the services needed to successfully obtain quality information, and enable a project team to deliver a high-quality facility along with facility asset information.

Soft Launch – Today!

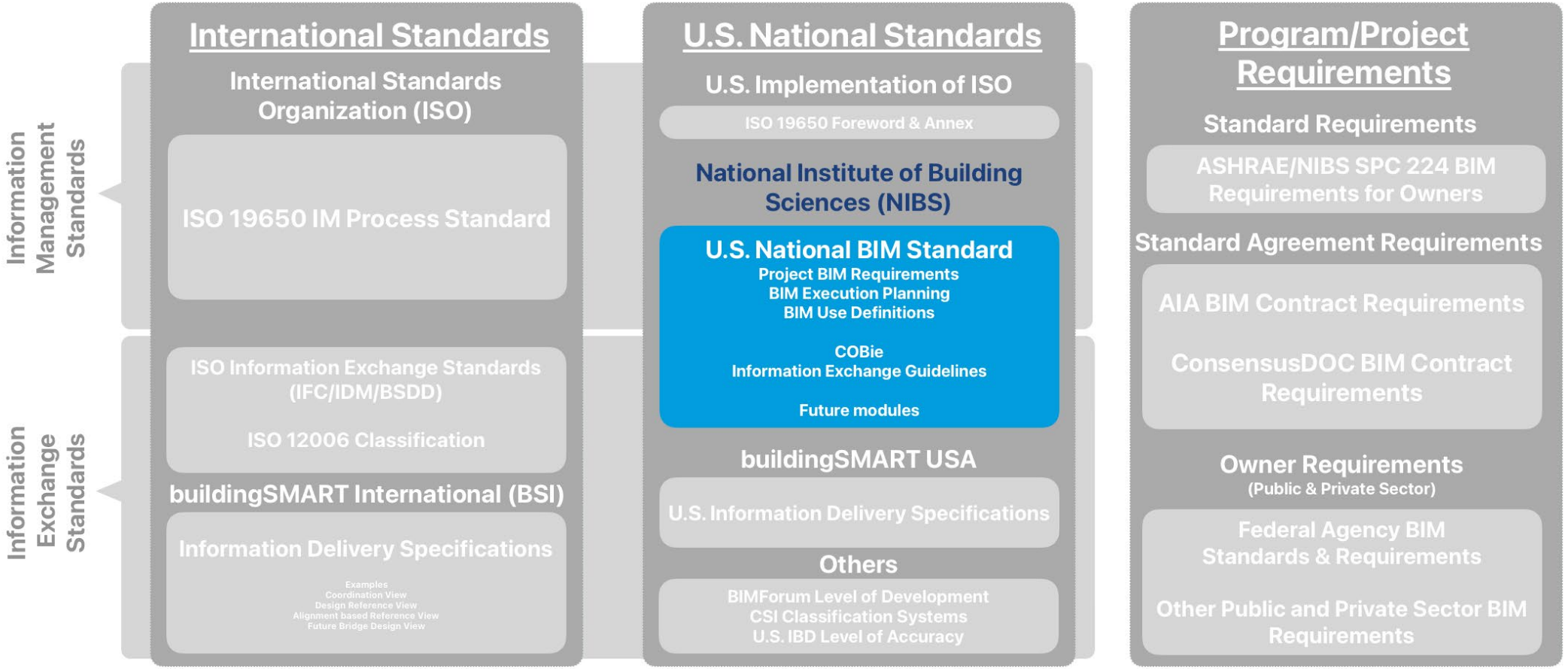
NBIMS-US™ Version 4 – Related Standards

U.S. BIM Standards and Guidelines Framework

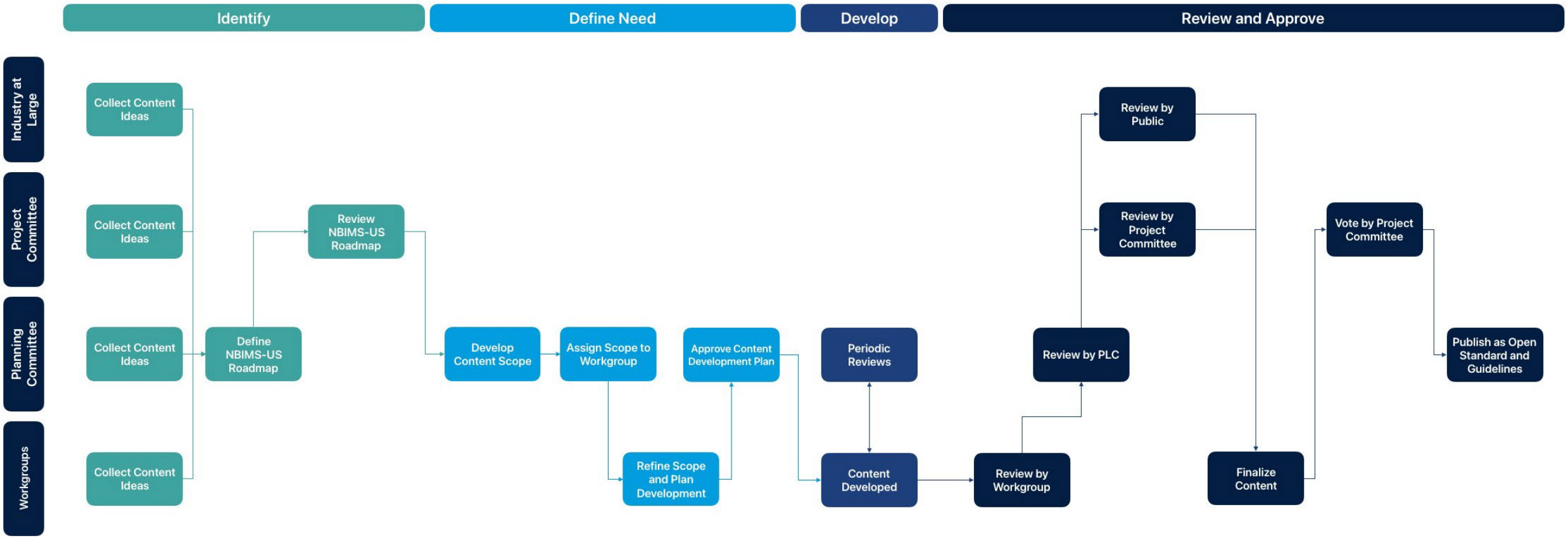


NBIMS-US™ Version 4 – Related Standards

U.S. BIM Standards and Guidelines Framework

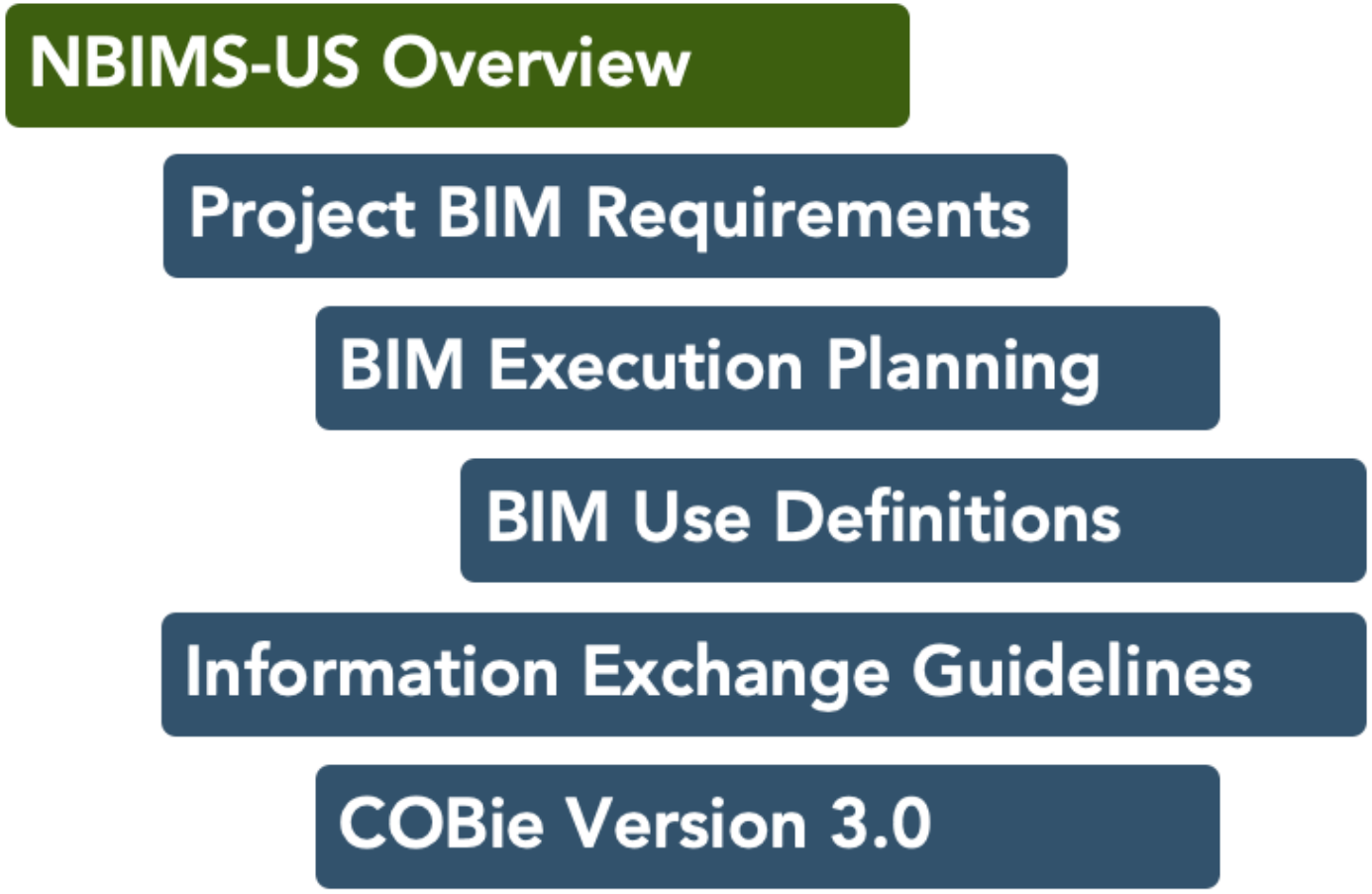


NBIMS-US Standards Development Process



NBIMS-US™ Version 4 - Modules

Interrelated Content Modules from Workgroups and the Planning Committee



*** Additional content areas will be developed in future versions.*

Content Types in NBIMS V4

Standards

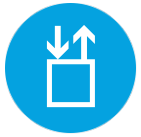
Criteria, specifications, and processes that can be referenced in project requirements and verified for compliance

Templates

Editable templates to facilitate compliance with standards

Guidelines

Guidance documents to support user implementation



Information Exchange Definitions

Exchange definitions in open data schemas to support digital collaboration and software vendor adoption

NBIMS-US Content Structure

NBIMS-US Overview

- Overview of NBIMS-US
- Scope
- Terms and Definitions

Project BIM Requirements

- Overview of PBRs
- Standard BIM Requirements
- Example BIM Requirements
- Guideline for PBRs

BIM Execution Planning

- Overview of BEP
- Standard BEP Content
- BEP Template
- BEP Guideline
- BEP Information Exchange

COBie Version 3.0

- Overview of COBie
- **COBie Standard Document**
- COBie Specification Requirements
- COBie Exchange Requirements
- COBie Spreadsheet Template

BIM Use Definitions

- Overview of BUDs
- Standard for Defining BIM Uses
- BIM Use Definitions Library
- BIM Use Case Template
- BUD Information Exchange

Information Standards

- User's Guide to IE Development
- IE Exchange Framework
- IE Resources, Tools, and Methods

NBIMS-US Overview

Goal

To provide an overview of NBIMS-US along with adoption strategies focused on the various users of NBIMS-US.

Core Content

- User's Guide to NBIMS
- Scope
- Terms and Definitions

Audience and Value

All Stakeholders:

- **Promotes understanding of the purpose and scope of the NBIMS**
- **Outlines the framework for categorizing content**
- **Provides an overview of the core content types**
- **Supports ease of navigation and directs stakeholders to appropriate content**
- **Consolidates terms and definitions into a single repository**

Project BIM Requirements

Project BIM Requirements

Goal

To define the elements of BIM requirements that the owner should include in the Owner's Project Requirements (OPR), along with examples and resources to support owner adoption.

Core Content

- Standard for Project BIM Requirements
- Template language for Project BIM Requirements
- Guideline for Project BIM Requirements
- Including how this standard relates to ISO 19650

Audience and Value

Owner:

- To support the owner's development of their Project BIM Requirements.
- To provide a comprehensive guide as to what should be included in Project BIM Requirements.

Proposer:

- To understand what to expect from an owner's project BIM Requirements.

Project Team:

- To create greater consistency across the industry.

Project BIM Requirements (Cont.)

Sample – Standard:

5 Project BIM Requirements

Each section of this Standard for Project BIM Requirements standard contains: 1) Title of the requirement, and 2) Definition of the requirement. The Standard is divided into three sections: Executive, Management, and Working/Technical.

5.1 Executive

5.1.1 Deliverables

5.1.1.1 Required Deliverables

The OPR shall require the delivery of all deliverables required by the Standard for Project BIM Requirements.

5.1.1.2 Quality Plan

If a Quality Plan is not being provided to the contractor, then the Owner's Project Requirements (OPR) shall define when the Quality Plan should be delivered and by which Delivery Team Member it should be delivered. See: Quality Plan

5.1.1.3 Security Plan Deliverable

If a Security Plan is not being provided to the contractor, then the Owner's Project Requirements (OPR) shall define when the Security Plan should be delivered and by which Delivery Team Member it should be delivered. See: Security

5.1.1.4 BIM Execution Plan (BEP) Deliverable

The OPR shall define when the BEP should be delivered and by which Delivery Team member it should be delivered by. See: BIM Execution Plan

5.1.1.5 Model Deliverable(s)

The OPR shall specify the deliverable format for each BIM Use. For each Model Deliverable the Owner shall provide a Model Requirement (See: Model Requirements) expectation.

Sample – Examples

1 Project BIM Requirements

Each section of this Standard for Project BIM Requirements standard contains: 1) Title of the requirement, and 2) example language (*Italics*). The template is divided into three sections: Executive, Management, and Working/Technical.

1.1 Executive

1.1.1 Deliverables

1.1.1.1 Required Deliverables

The [Appointed Party] is required to deliver the following deliverables:

- *Quality Plan*
- *Security Plan*
- *BIM Execution Plan*
- *Model Deliverable*
- *Data Deliverable*

The procedures and milestones for delivery of each required deliverable shall be specified in the BEP.

1.1.1.2 Quality Plan

The Quality Plan must be submitted by [X]. The Quality Plan shall be resubmitted for approval of any changes made, and shall be included with each major project milestone package.

1.1.1.3 Security Plan Deliverable

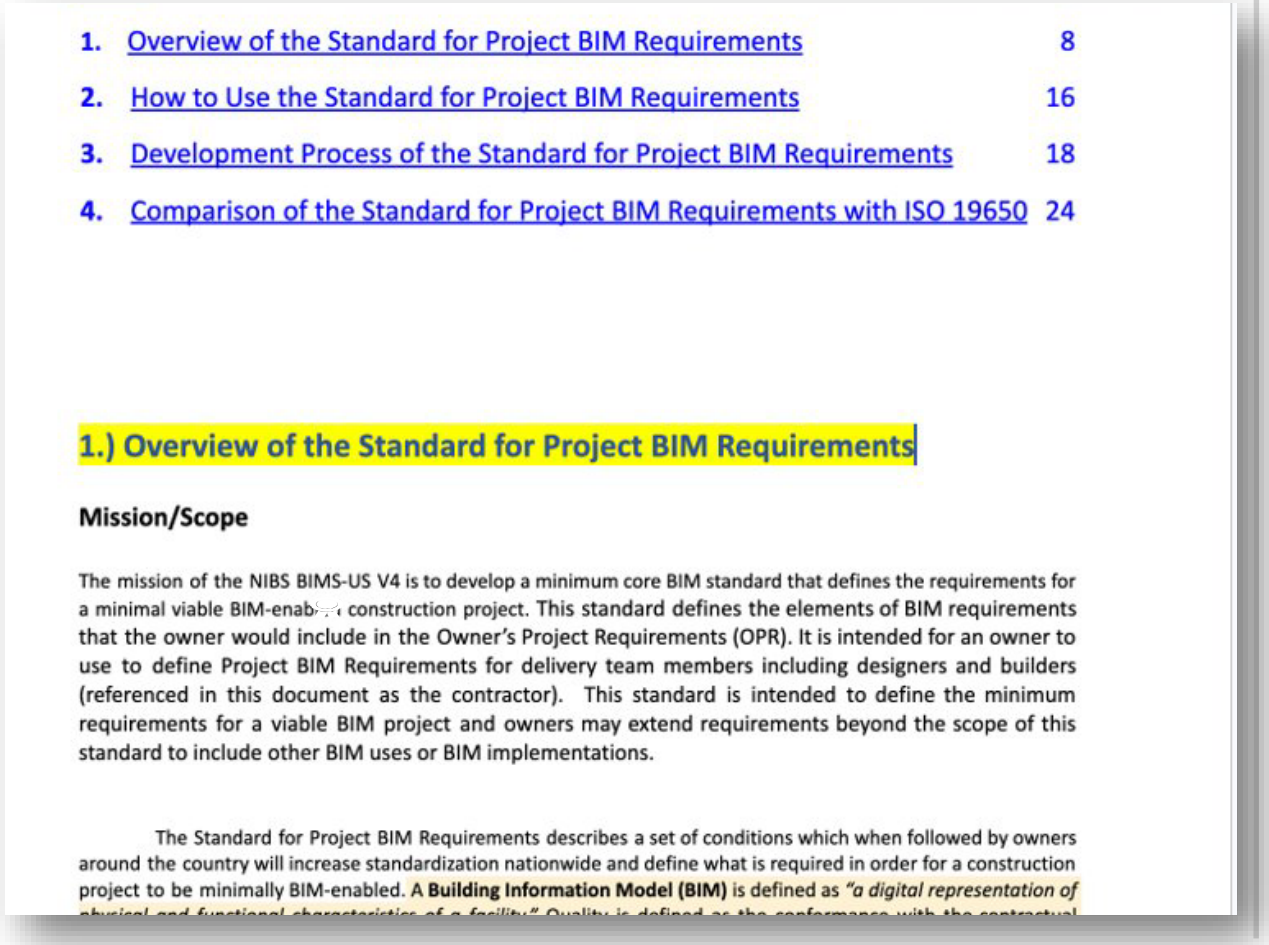
The Security Plan must be submitted by [X]. The Security Plan shall be resubmitted for approval of any changes made, and shall be included with each major project milestone package.

1.1.1.4 BIM Execution Plan (BEP) Deliverable

The BEP must be submitted by [X]. The BEP shall be resubmitted for approval of any changes made, and shall be included with each major project milestone package.

Project BIM Requirements (Cont.)

Sample – Guideline



1.) Overview of the Standard for Project BIM Requirements

Mission/Scope

The mission of the NIBS BIMS-US V4 is to develop a minimum core BIM standard that defines the requirements for a minimal viable BIM-enabled construction project. This standard defines the elements of BIM requirements that the owner would include in the Owner's Project Requirements (OPR). It is intended for an owner to use to define Project BIM Requirements for delivery team members including designers and builders (referenced in this document as the contractor). This standard is intended to define the minimum requirements for a viable BIM project and owners may extend requirements beyond the scope of this standard to include other BIM uses or BIM implementations.

The Standard for Project BIM Requirements describes a set of conditions which when followed by owners around the country will increase standardization nationwide and define what is required in order for a construction project to be minimally BIM-enabled. A **Building Information Model (BIM)** is defined as *"a digital representation of physical and functional characteristics of a facility."* Quality is defined as the conformance with the contractual

- Overview of the standard
- How to use
- How we developed this standard
- How this standard aligns with ISO 19650

ASHRAE-NIBS 224 Standard for the Application of BIM

Process:

- Define the BIM OPR
- Team Roles & Responsibilities
- Create BEP
- Manage Project Requirements & Deliverables

Infrastructure & Standards:

- Technology Infrastructure
- Standards
- File Structure
- Model Structure & Requirements

Execution:

- BIM Execution Plan
- BIM Uses
- BIM Deliverables

BIM Execution Planning

BIM Execution Planning (BEP)

Goal

To develop a comprehensive BEP Content Standard, Guide and Templates that can be used as a standard deliverable, with structured extensions or customizations by owners and delivery team members as needed.

Core Content

- Overview of BEP Module
- Standard BEP Content
- BEP Template
- Process Map Templates
- BEP Information Exchange

Audience and Value

Owner:

- To develop the Template BEP to distribute with RFP.
- To be able to review consistent Proposal BEPs.
- To clearly understand the BEP plan

Proposer:

- To plan BEP implementation and to comply with RFP.

Project Team:

- To plan the integrated project BEP.

BIM Execution Planning (Cont.)

Sample - Standard:

4 The Project BIM Execution Plan Development Process

A project BIM execution plan (BEP) is developed by a project team through a collaborating process at various stages within the project deliverable. As defined by ISO 19650-2 (2008), an owner (also known as the Appointing Party within the ISO standard) should define their BIM requirements and standards prior to the solicitation of delivery team members (known as Lead Appointed Parties or Appointed Parties within ISO 19650-2). Therefore, there can be three stages within the delivery process where information related to the BEP can or should be incorporated into the project-level BEP. These three stages include:

1. **RFP Template BEP from Owner (RFP BEP):** The Owner compiles initial requirements and communicates the requirements to the project team (lead appointed parties and appointed parties per ISO 19650-1) via a BEP, which includes the requirements on the project.
2. **Proposal BEP:** Each prospective party responding to a request for proposal will complete a proposal stage appointment BEP which includes information specific to their scope of work, incorporating appropriate items from the Owner Template BEP. The proposing party will need to identify any exceptions or exclusions from the initial Owner Template BEP if they exist.
3. **Project BEP:** Upon selection of project team members (lead appointed parties and appointed parties), each team member will collaborate with the entire team, including the owner, to develop a comprehensive Project BEP.

Table 10: Information Exchanges

Information Exchanges							
					Time of Entry (R=Required & O=Optional)		
Information Item	**Description**	**Sample Data**	**Field Name**	**Field Type**	**RFP BEP (by Owner)**	**Proposal BEP (by Proposer)**	**Project BEP (by Team)**
Information Exchange Table	A table that defines the level of development and level of information required for the content to be included in an	(a table)	**IE**	Array	R	R	R
Information Exchange Name	The name of the information exchange.	Design Model	IE.Name	Text	R	R	R
Milestone	The milestone that is associated with the information exchange.	Design phase	IE.Milestone	Text	R	R	R
Information sender	The responsible party for creating the information	Designer	IE.Author	Text	O	O	R
Information receiver(s)	The organization(s) to receive the file	Constructor	IE.Receiver	Text	O	O	R
One-time or frequency	How many should be shared	frequency	IE.Frequency	Text	O	O	R
Due Date or Initial Due Date	The date that the initial (if itterative) or final (if one time) submission is due.	1/1/22	IE.DueDate	Date	O	O	R
Information Location	The location for the information as a URL.	http://sample_data_location	IE.ModelFile	URL	O	O	R
Information Modeling Authoring Software	The software will be used to develop the information.	Revit	IE.ModelSoftware	Text	O	O	R
Native information source format	Native data source type, e.g., a specific file format.	.rvt, .dgn, .xls	IE.NativeFileFormat	Text	O	O	R
Information exchange format(s)	Information exchange format , e.g., IFC, other open formats, other proprietary formats.	.ifc, .xls, .pdf, .idsxml	IE.ExchangeFileFormat	Text	O	O	R
BIM Use	The BIM Use that develops the information exchange.	Author Design	IE.BIMUse	Text	R	R	R
Required by Contract	A binary variable to state whether a BIM Use is required by contract.	Yes	IE.ContractRequired	Text	O	O	R
Permitted Use	The future BIM Uses that can rely upon this information.	Coordinate Design	IE.PermittedUse	Text	O	O	R
Required Approvals	The approvals that are necessary for the information exchange.	Yes	IE.RequiredApprovals	Text	O	O	R
Required IE Delivery Procedure	The process to be completed to deliver the information exchange.	The files should be transmitted via xyz with email to abc upon transfer.	IE.DeliveryProcedure	Text	O	O	R
Open Information Exchange MVD	Model view definition for the information exchange, if there is an OpenBIM model view definition.	IFC 4 Design Transfer View by BuildingSMART International	**IE.MVD**	Text	O	O	O
Model Element Table	A table of the model element categories with defined information for each category.	(a table)	**IE.MET**	Array	O	O	R
Model Element Category	The catagorical number or value for the model elements, e.g.,	Omniclass Table 13	IE.MET.MECategory	Text	O	O	O

Sample - Guideline

BIM Execution Planning (Cont.)

Template - BEP:

National BIM Standard - U.S., Version 4 — **National Institute of Building Sciences**
BIM Execution Plan Template

INTRODUCTION

The ***NBIMS BIM Execution Plan (BEP) Template*** may be used to create project-specific BEPs adhering to the National BIM Standard. The content may be used to make an organization's BEP template or to review content from online commercially available BEP applications. A BEP has become a recognized contract deliverable. The BEP process and this documentation will help all project members achieve an efficient and effective BIM process for project delivery.

UPDATES to the BEP Process The NBIMS BEP is aligned to ISO 19650 and US project delivery. Various groups develop the BEP information. The ***Owner*** provides information on BIM projects in the Request for Proposal (RFP) phase. Owners providing this information in an RFP will better understand a team's capability to perform on a BIM project.

Proposers respond with a ***Project Proposal BEP***, and the selected ***Project Team*** develops the ***Project-Specific BEP***. The ***Project Specific BEP*** is updated as new team members begin work on the project. It is used throughout a project to review BIM performance.

Template Sections

Below are the information categories in the BEP Template. The tabs in this file are by category

Cover Page (Cover)	BIM Uses (Uses)
Project & BEP Summary (Summary)	Technological Infrastructure Needs (Software) (Info Sharing)
Reference Information (Ref Info)	Quality Management (Quality) (QM Strat)
BIM Contacts	IM Risk Register (Risk Reg)
Organizational Roles & Responsibilities (Roles)	Model Federation and Standards (Federation Strat)
Project Phases & Milestones (Schedule)	Information Exchanges (IE)
Project Goals (Goals)	Model Elemenent Table (MET Buildings) (MET Infrastructure)
Team Collaboration (Collab)	Picklist

References

National BIM Standard - United States	
NBIMS BIM Use Reference	
NBIMS BIM Execution Plan Standard Content Document	
BIMForum LOD Specification	https:// bimforum.org/resource
Construction Specification Institute (CSI) https://www.csiresources.org	

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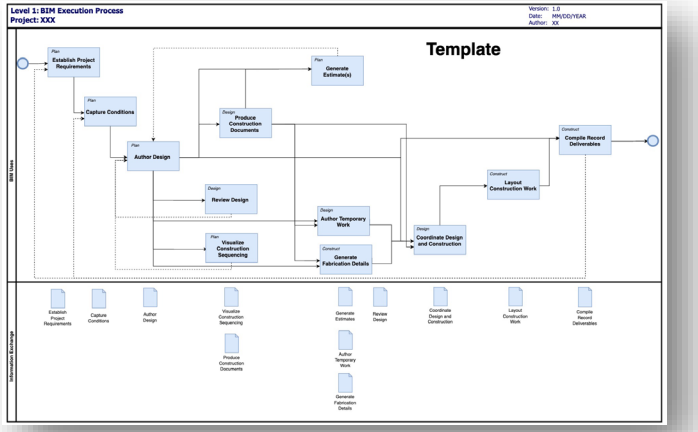
Template – Process Maps



IE – JSON Schema

BIM JSOn-1.md.json

```
{
    "title": "BEP v4 JSON Schema",
    "$schema": "http://json-schema.org/draft-04/schema#",
    "$id": "https://www.nibs.com/Schema/BEP /v4",
    "description": "",
    "type": "object",
    "required": [
        "Instruction",
            "ExcutiveSummary",
            "BEPMetadata",
            "ProjectReferenceInformation",
            "BIM Contacts",
            "OrganizationalRoles",
            "ProjectSchedule",
            "ProjectGoals",
            "BIMUses",
            "BIMUseProcess",
            "InformationExchanges",
            "TeamCollaboration",
            "QualityManagement",
            "ProjectInformationRequirements",
            "TechnologicalInfrastructureNeed",
            "ModelFederationAndStandards",
            "ProjectDeliveryStrategyContract",
            "IMRiskRegister",
            "Goals Template"
    ],
    "properties": {
        "BEPMetadata": {
            "type": "object",
            "description": "",
            "required": [
                "BEPURL",
                "BEPDataFormat",
                "BEPVersionLog",
                "ApprovalOrganization/Contact",
                "BEPStandardUsedforDevelopment",
                "Acknowledgements"
```

BIM Use Definitions

BIM Use Definitions

Goal

To develop the attributes for defining a BIM use, along with defining the commonly adopted BIM uses on projects.

Core Content

- User's Guide to BUDs
- Standard for Defining BIM Uses
- BIM Use Definitions Library

Audience and Value

Owner:

- To define the BIM Uses that provide value to the owner

Project Team:

- To plan for BIM Use Case adoption
- To plan the integration and progression of BIM use cases on a project

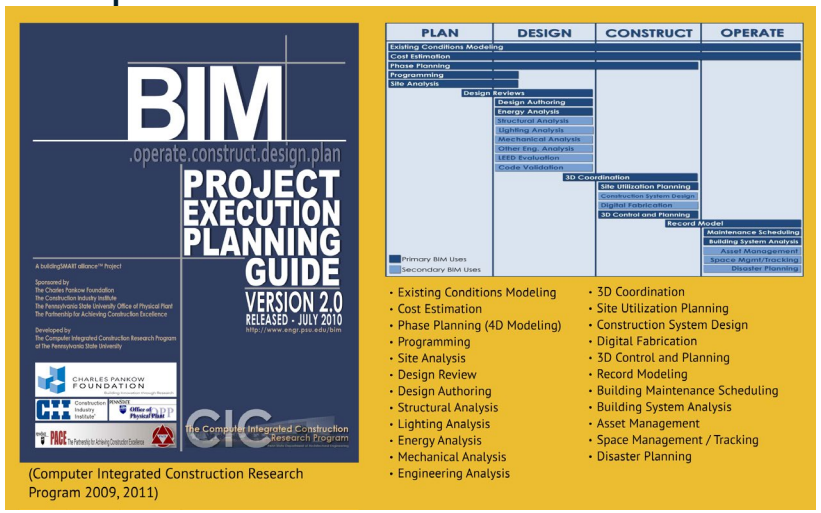
BIM Use Definitions

Background

Various iterations of BIM Uses over the last few decades

No consensus are what “qualifies” a BIM Uses.

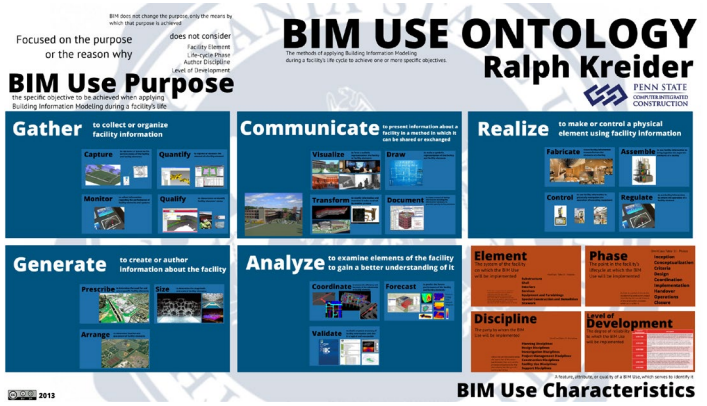
Multiple Versions within NBIMS 3.0



- Existing Conditions Modeling
- Cost Estimation
- Phase Planning (4D Modeling)
- Programming
- Site Analysis
- Design Review
- Design Authoring
- Structural Analysis
- Lighting Analysis
- Energy Analysis
- Mechanical Analysis
- Engineering Analysis
- 3D Coordination
- Site Utilization Planning
- Construction System Design
- Digital Fabrication
- 3D Control and Planning
- Record Modeling
- Building Maintenance Scheduling
- Building System Analysis
- Asset Management
- Space Management / Tracking
- Disaster Planning

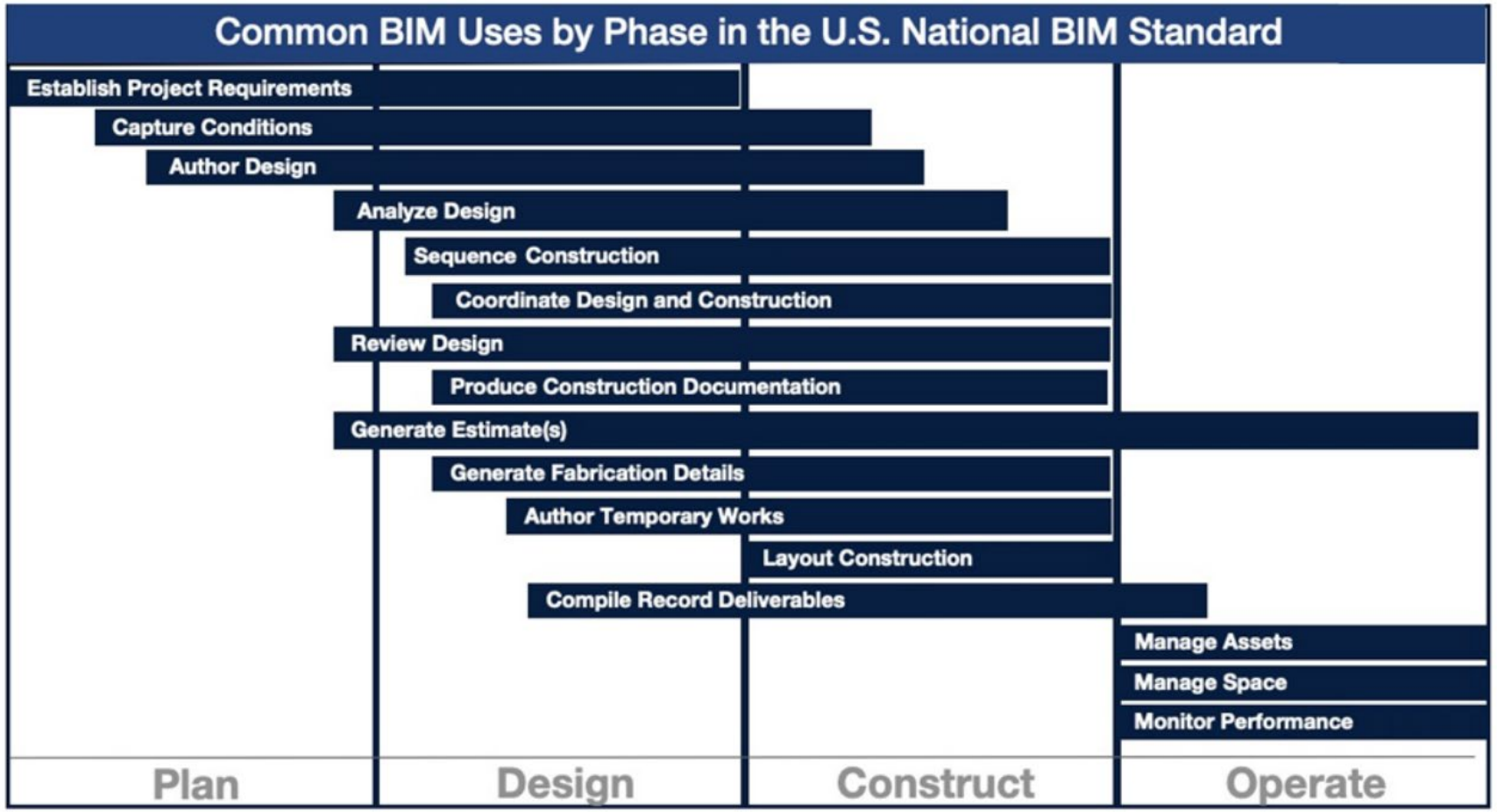
(Computer Integrated Construction Research Program 2009, 2011)

BIM Use Purpose	BIM Use Objective	Synonyms
01 **Gather**	**to collect or organize facility information**	administer, collect, manage, acquire
01 Capture	to represent or preserve the current status of the facility and facility elements	collect
02 Quantify	to express or measure the amount of a facility element	quantity takeoff
03 Monitor	to collect information regarding the performance of facility elements and systems	observe, measure
04 Qualify	to characterize or identify facility elements’ status	follow, track, identify
02 **Generate**	**to create or author information about the facility**	create, author, model
01 Prescribe	to determine the need for and select specific facility elements	program, specify
02 Arrange	to determine location and placement of facility elements	configure, lay out, locate, place
03 Size	to determine the magnitude and scale of facility elements	scale, engineer
03 **Analyze**	**to examine elements of the facility to gain a better understanding of it**	examine, evaluate
01 Coordinate	to ensure the efficiency and harmony of the relationship of facility elements	detect, avoid
02 Forecast	to predict the future performance of the facility and facility elements	simulate, predict
03 Validate	to check or prove accuracy of facility information and that is logical and reasonable	check, confirm
04 **Communicate**	**to present information about a facility in a method in which it can be shared or exchanged**	exchange
01 Visualize	to form a realistic representation of a facility or facility elements	review
02 Transform	to modify information and translate it to be received by another process	translate
03 Draw	to make a symbolic representation of the facility and facility elements	draft, annotate, detail
04 Document	to create a record of facility information including the information necessary to precisely specify facility elements	specify, submit, schedule, report.
05 **Realize**	**to make or control a physical element using facility information**	implement, perform, execute,
01 Fabricate	to use facility information to manufacture the elements of a facility	manufacture
02 Assemble	to use facility information to bring together the separate elements of a facility	prefabricate
03 Control	to use facility information to physically manipulate the operation of executing equipment	manipulate
04 Regulate	to use facility information to inform the operation of a facility element	direct



BIM Use Definitions (Cont.)

BIM Uses



BIM Use Definitions

Goal

Align BIM Uses and BIM Use attributes

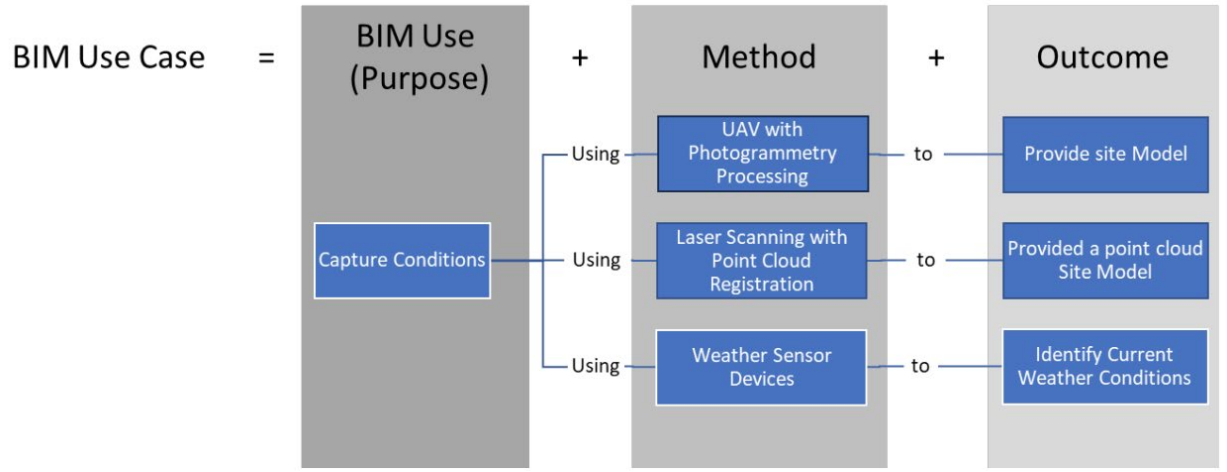
Methodology

- Workgroup made up of both Designers and Contractors; and both vertical and horizontal projects
- Detailed reviewed of BIM Use reference
- Evaluated BIM Uses
- Created a framework
- Consolidated the BIM Uses
- Reviewed by industry experts

BIM Use and BIM Use Case

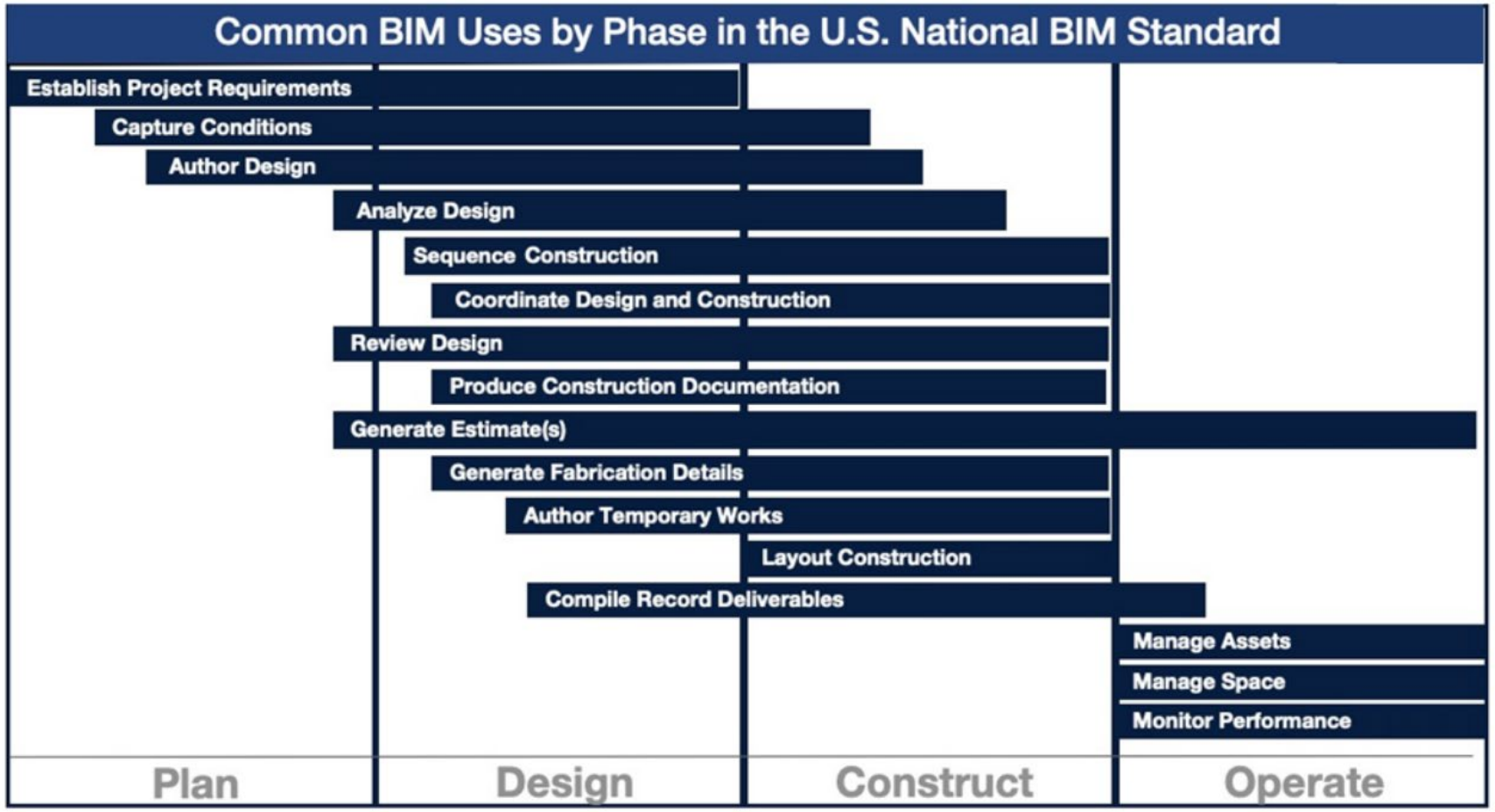
Owner:

- BIM Uses – the purpose for applying BIM
- BIM Use Case – The combination of a BIM Use, a specific method, and a specific outcome



BIM Use Definitions (Cont.)

BIM Uses



BIM Use Definitions (Cont.)

BIM Use Attributes

- Name
- Definition
- Related Terms
- Example BIM Use Cases (Methods and Outcomes)
- Potential Benefits
- Considerations/Commentary
- Inputs
- Outputs
- Predecessor BIM Use(s)
- Successor BIM Uses
- Competencies
- Methods/Tools

BIM Use Definitions (Cont.)

Example BIM Uses

1. Capture Conditions

Definition	Collect current information about the built environment to include in a model.
Related Terms	Existing Condition Modeling, Laser Scanning, Reality Capture, Integrated Surveying, Photogrammetry, Photo/Video Documentation,
BIM Use Case Examples (Methods and Outcomes)	Capture Conditions using: • Unmanned Aeiral Systems to create a photogrammetric model • Laser scanning to create a point cloud • total station data collection to create a GIS dataset • thermal camera to map energy leaks • GPR to create a sub-surface model • GIS to communicate existing condition data • existing condition models of terrain, infrastructure and assets to estab • photogrammetry to validate QA/QC Consistency Control • AI-enabled photogrammetry to establish installed quantities for payme
Potential Benefits	• Reduced risk of differing site / built environment asset conditions • Reduced reliance on field verification • Increased accuracy of record documentation • Reducing the potential exposure to unsafe conditions during data capt • Ability to verify record information against as-built conditions.
Considerations / Commentary	• What is the level of accuracy of the data supporting the conditions cap • Which systems (and what level of detail of those systems) is necessary support future steps within the asset lifecycle. • Verify tolerance and accuracy of data capture – different tool precision varies with device type and site conditions. • Data to be included within any record deliverable. Can be completed a design, construction, and operations
Inputs	• Record Data from appointing party such as drawings and models. • Survey data
Outputs	• Existing Conditions Model, Point Cloud Model, Asset schedules, Report Drawings, GIS Data
Predecessor BIM Uses	• Establish Project Requirements
Successor BIM Uses	• Author Design • Establish Project Requirements • Sequence Construction

2. Establish Project Requirements

Definition	Capture and monitor key project aspects and scope such as area, spatial, functi deliverable, code, end user, organizational, and other stakeholder requirement
Related Terms	Scoping Requirements, Identify Project Characteristics, Programming Requirem Criteria, Architectural Programing
BIM Use Case Examples (Methods and Outcomes)	Establish Project Requirements using: • Programmatic modeling to establish space requirements. • Parametric modeling tools to create space model templates for use in author
Potential Benefits	• Efficient and accurate assessment of design performance regarding spatial re the client. • Assess the Designer of Record's compliance with meeting program requirem space requirements - designed vs programmed, equipment requirements, m accessibility, code requirements, etc.
Considerations / Commentary	Consider client's BIM Knowledge and understand to the client's deliverable requ requirements should clearly identify format, data, and outcome requirements. Project Requirements is typically performed by client / designer during the early project. If possible, review available national and international standards and bo requirements from other similar organizations.
Inputs	• Reference Database Export • Subsurface Scanning (GPR and EM) • Above Surface Scanning (LiDar)
Outputs	• Program Requirements Documentation • Owner Project Requirements
Predecessor BIM Uses	• Capture Conditions • Compile Record Deliverables (Renewal/Renovation)
Successor BIM Uses	• Capture Conditions • Author Design

3. Author Design

Definition	Develop a design using BIM authoring software with 3D and attribute information for a built environment asset/site leveraging an object library of parametric elements.
Related Terms	Design Authoring, Design Authoring and Briefing, Modeling, Discipline Modeling, Model Generation, Generative/Parametric Modeling, Federated Design Model, Design to Maintain, Product Selection, Product Library,
BIM Use Case Examples (Methods and Outcomes)	Author Design using: • Parametric modeling to engineer the Structural Systems of a Bridge • Parametric modeling to configure the Mechanical Systems of a Hospital
Potential Benefits	• Advance additional BIM Uses as a prerequisite. • Improved ability to make changes and have those changes reflect throughout all aspects of the design through parametric modeling. • Improve ability to communicate and visualize design intent. • Improve collaboration between project stakeholders. • Improve control and quality control of design, cost, and schedule.
Considerations / Commentary	• Review all client BIM Requirements. • Project team members need to review model element breakdown and model progression specification to ensure requirements and expectations are met. • Model organization and element naming conventions to support subsequent BIM Uses. • Best practices for modeling, such as model breakdown, responsibilities, and level of development.
Inputs	• Owner Project Requirements • Existing Historical Drawings
Outputs	• Models • Structured Data (Files, Databases, etc.)
Predecessor BIM Uses	• Capture Conditions • Establish Project Requirements
Successor BIM Uses	• Review Design • Coordinate Design and Construction • Create Construction Documents • Author Estimate • Sequence Construction • Author Fabrication Details • Author Temporary Works

BIM Use Definitions (Cont.)

Goal

- BIM will continue to advance into new uses and Use Cases
- The standard is developed in such a way that it is extensible as additional Uses and Use Cases Mature.
- A Next Step is to provide details on each BIM Use Case

COBie v3

Overview and Updates Since v2.4

What is COBie?

- Construction to Operations Building information exchange
- Data format and process standard
- Assists project teams with capturing and delivering data related to the Maintainable Assets of a facility digitally
- Non-graphic data in a relational database (tables and fields)
- Delivered at handover (though "data drops" are common)

COBie v3 Data Tables

OVERALL TABLES	SPATIAL TABLES	ASSET TABLES	PROCESS TABLES	SUPPORT TABLES
Facility	Level	Type	Package	Document
Company	Zone	Component	Job	Resource
	SpaceType	System	Event	PickList
	Space	Attribute	Instruction	
	Coordinate		Risk	

COBie v3 Data Fields

- Some are always **required**
- Some are only required if they are **specified** in the contract
- Some **reference** fields on other tables
- Owners can specify any other **attributes** (data fields) they want

COBie v3 Formats

1

STEP Physical File

Traditional relational database

2

ifcXML

Model View Definition of IFC

3

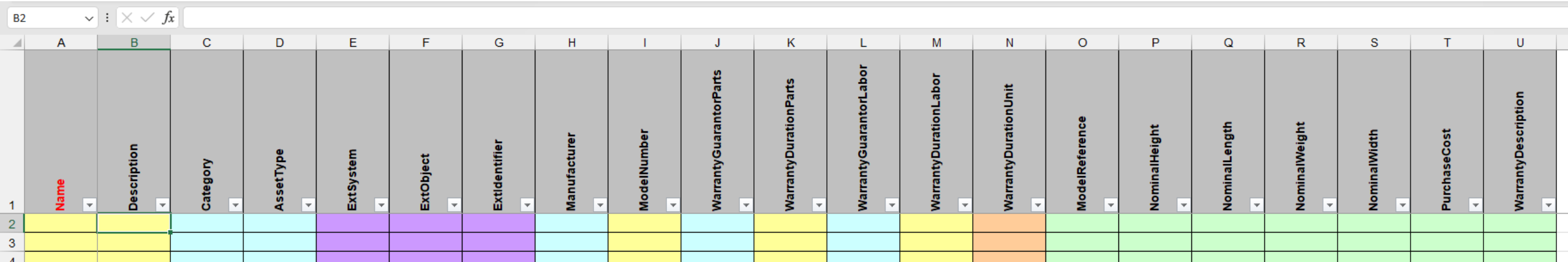
SpreadsheetML

Microsoft Excel

4

JSON

New for v3



COBie v3 Updates

Ease of Use
Modernization
Capabilities
Workflow

4 categories of improvements

COBie v3 Updates

Ease of Use

Modernization

Capabilities

Workflow

- More concise documentation
- Removal of data tables rarely used
- Renaming of data fields and headers to better understand their purpose
- Resorting of headers to better group them
- New “Title Block” section to have all pertinent deliverable information in one place

COBie v3 Updates

Ease of Use

Modernization

Capabilities

Workflow

- Removal of personally identifiable information data fields
- Replacing “Floor” data table with “Level” data table to accommodate infrastructure projects
- Support for JSON format for machine-to-machine exchanges

COBie v3 Updates

Ease of Use

Modernization

Capabilities

Workflow

- Adding new “PartOf“ data field on asset data tables to better understand relationships
- Adding data fields that accommodate classifying and geo-locating projects better
- Adding a new “SpaceType” data table to better organize spaces

COBie v3 Updates

Ease of Use

Modernization

Capabilities

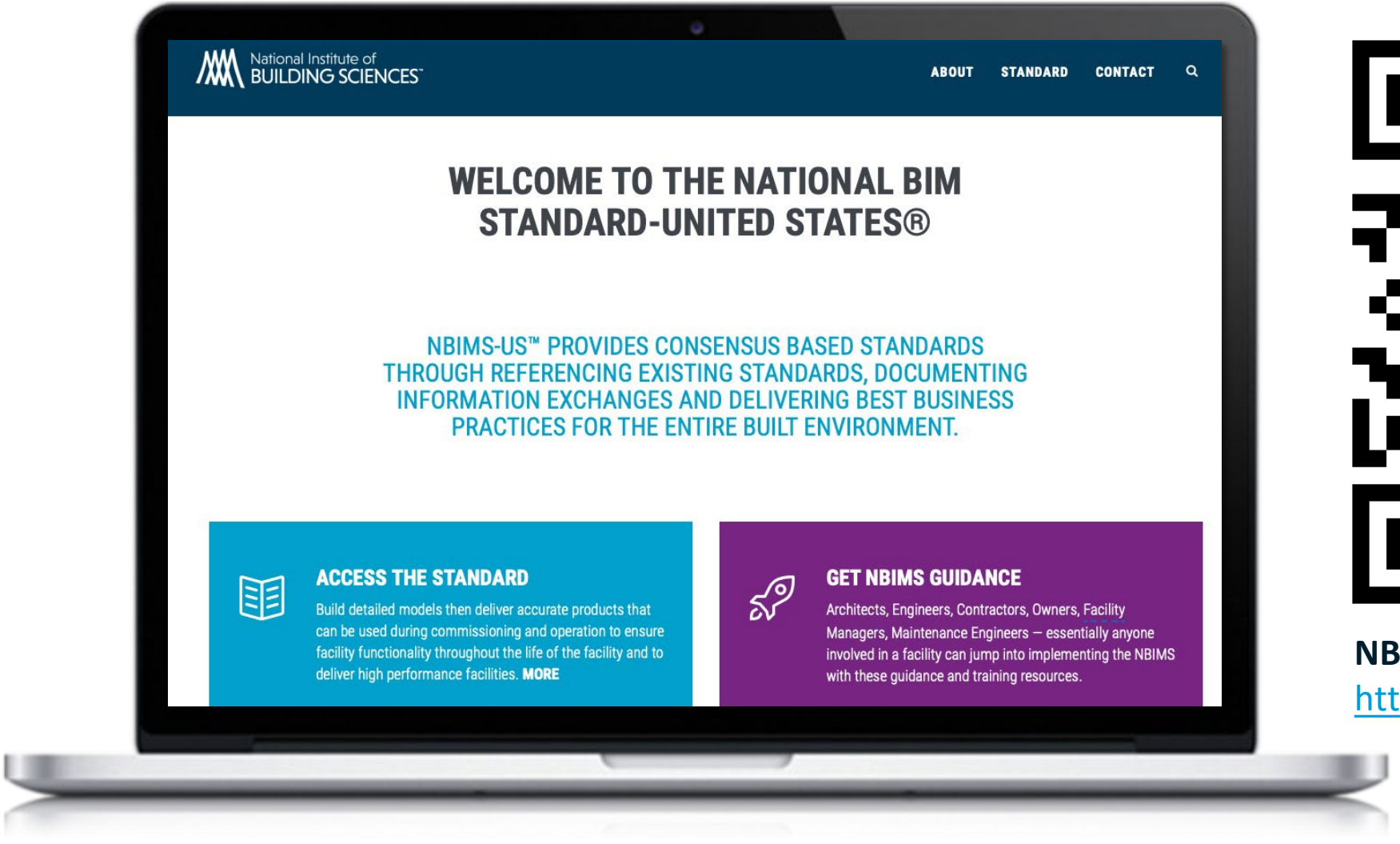
Workflow

- Adding data tables to better document the activities of a facility
  (especially useful for handover between owners)
- New “Package”, “Event”, and “Risk” data tables to go along with the existing “Job” data table

Other BIM Council & NBIMS-US Initiatives

- LOD Workgroup with BIM Forum
- CSI Omniclass Classification System
- BIM Capability Maturity Model
- Product Data Requirements
- 'Cyber-Security and Digital Delivery'
- Digital Twin Integration Sub-Committee

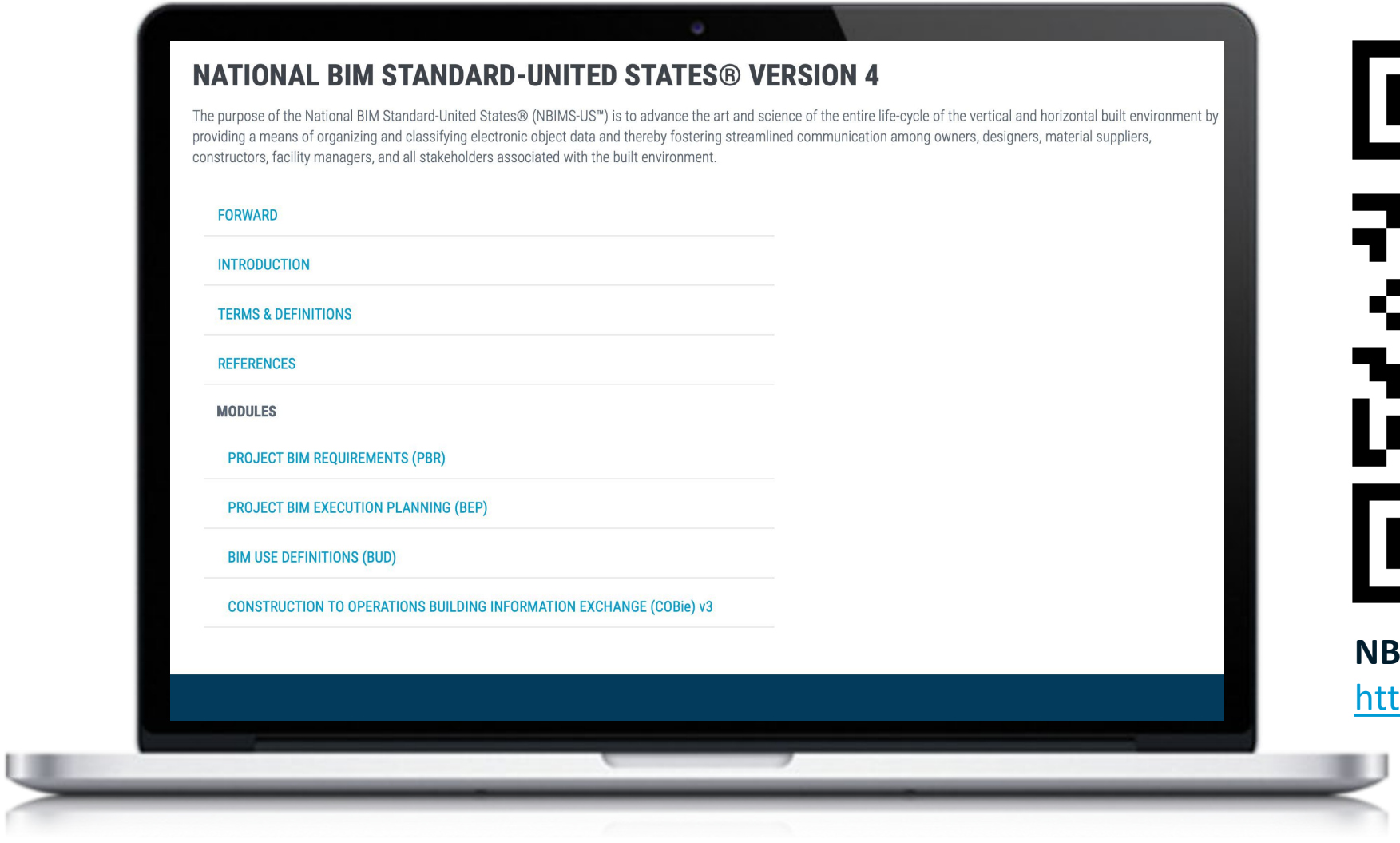
Call to Action: Explore NBIMS-US V4



NBIMS-US Version 4

https://www.nibs.org/nbims/

Call to Action: Explore NBIMS-US V4



NBIMS-US Version 4
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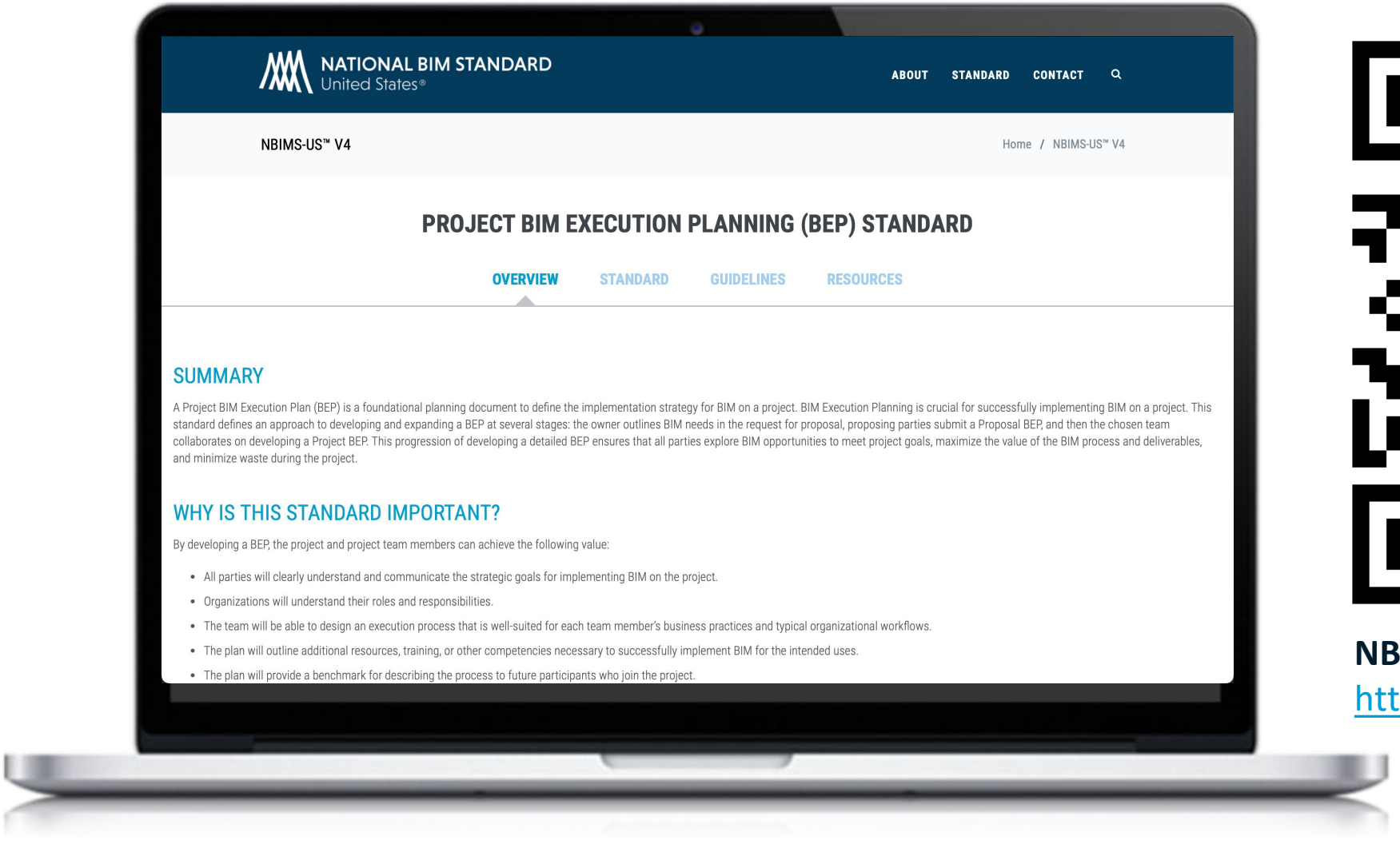
Call to Action: Explore NBIMS-US V4



NBIMS-US Version 4

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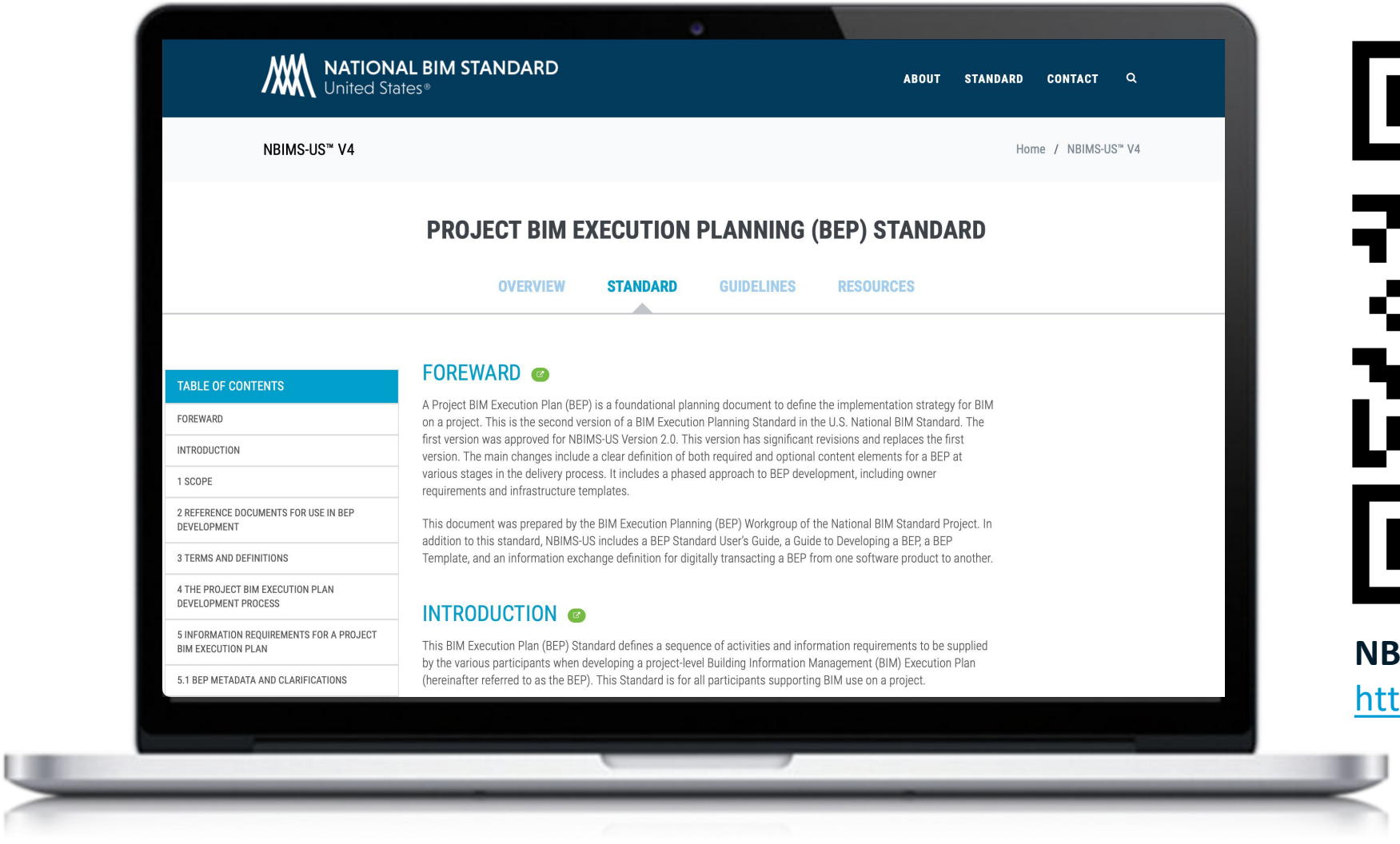

NBIMS-US Version 4
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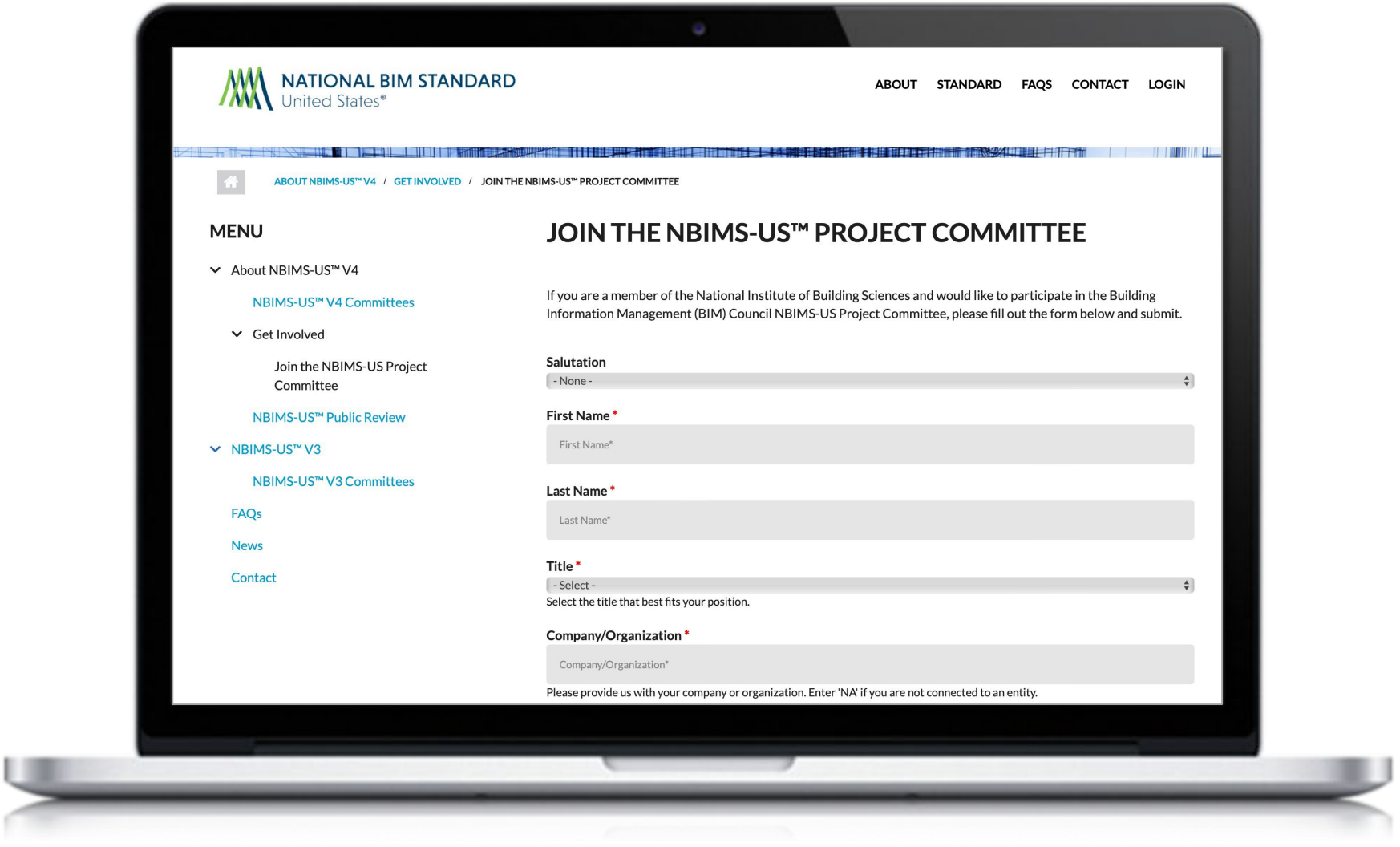
Call to Action: Volunteer for the Next Version



Thank you

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Thank you