

# 2025 PBS Core Building Standards

This session is being recorded.

# **CBS A+E Training Series Ground Rules**

- Attendance will be taken automatically; there is no sign-in sheet
- GSA Participants who attend 95% of the session will be provided
   CLPs. Only full hour CLPS will be provided.
- If you join by phone, please email your name and the phone number you joined with so we can record your attendance. Address email to: ernesto.sarino@gsa.gov & benjamin.pisarcik@gsa.gov
- Everyone will be muted.

# **CBS A+E Training Series Ground Rules**

- Use Q & A to ask questions; questions will be taken at the end of each section and at the end of the training. Open the Q & A to review previously submitted questions you may up-vote.
- Approach each topic in a positive and constructive manner.
- Slides and recordings will be made available after the session internally on <u>InSite</u>.
- Slides will be added in a few days but recordings will take a few weeks.
- We are starting the meeting recording, please leave the meeting if you do not consent to being recorded.

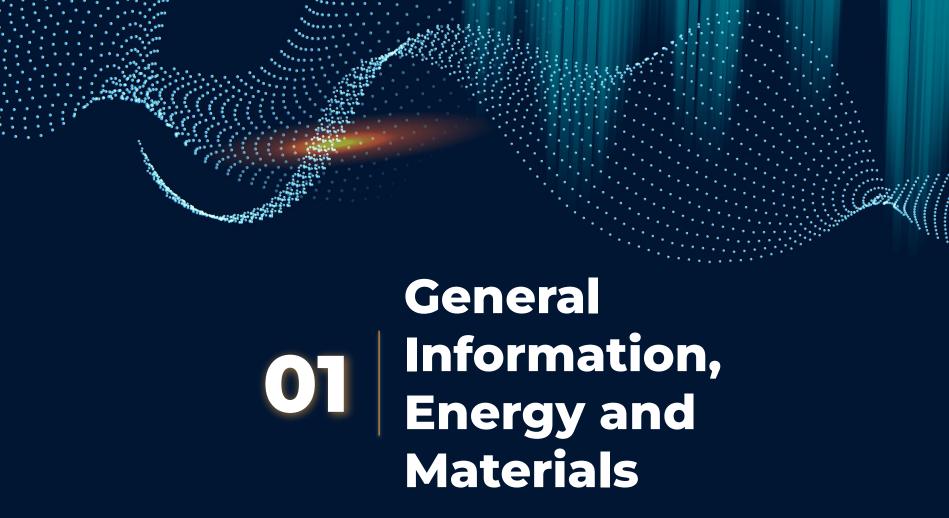
# 2025 PBS

# Core Building Standards (CBS)

This session is being recorded.

#### **Presenters**

- Natalie Huber and Chuck Hardy Why the CBS
- Lance Davis **General Information**
- Walter Tersch **Energy and Materials**
- Karen Handsfield and Brandon Hartz Community Planning and Landscape
- Tim Hansmann and Jason Danielson Architecture/Enclosure
- Chalese Smartt and Timothy Sisson Structure
- Bobby Wager Mechanical
- Ben Pisarcik Electrical
- Dave Frable Fire Protection
- Hani Rimawi Civil
- Lance Davis Specialty Spaces
- All Questions





### **General Information**

The Core Building Standards replace P100.

Projects that reached 50% construction as of 1/21/2025 can continue using P100.

Projects in design or < 50% construction must evaluate cost savings per OPD's Implementation Guide:

- 1. A/Es identify non-required scope
- A/Es prepare list of proposed changes and LCCA (Cost to evaluate must be a wash or a cost savings)
- 3. Design projects
  - a. Contracting Officers evaluate active solicitations
  - b. COs suspend work as needed to evaluate
- 4. Construction Projects
  - a. Engage relevant stakeholders
  - b. Work with CO on impacts and cost savings
  - Significant adverse financial, life safety, security, or critical operations may get an exemption

# **General Information**

- GSA is unable to waive Federal legal requirements
- CBS requires the use of most of the I Codes
- AHJ is the Chief Architect or designee
- Code interpretation decisions come from the AHJ
- Updated CBS Submittal Matrix is coming this month.
- IIJA and IRA projects have supplemental requirements
- Local and State codes should be considered but are not required except for impacts to off-site terrain and infrastructure:
  - Fire protection including vehicle access
  - Storm water
  - Erosion control
  - Sanitary sewer and storm drains
  - Services water, gas, electrical power, communications

## **Energy**

#### Out

- Electric Vehicle Charging Stations
- LEED and SITES certification
- Guiding Principles for Sustainable Federal Buildings
- Energy net-zero ready
- Mandatory HVAC and domestic water system electrification
- Renewables and other energy scope that goes beyond what is necessary to meet the CBS, unless documented to be life cycle cost effective

#### In

- Tenant-requested and tenant-funded LEED certification, with an RWA to cover any design or documentation work required only to advance a building certification
- A/E choice on how to qualify a new construction or major modernization building as applying "sustainable design principles"
- EISA 2007 statutory requirement to reduce onsite fossil fuel usage by 80%-90%, compared to CBECs 2003 baseline, for 5/1/2026 and later design starts

### **Energy**

#### Fossil fuel-using equipment is permitted.

- 5/1/2026 and later prospectus new construction and major modernization design starts in EISA-subject buildings must confirm they will not exceed the maximum allowable fossil fuel-generated energy consumption limits established in EISA 2007 section 433(a)(D)(i)(I) and 10 CFR 433 Subpart B (Reduction in Scope 1 Fossil Fuel-Generated Energy Consumption).
- Per 10 CFR 433.101, new federal buildings with construction beginning after April 7th, 2023 should exceed the ASHRAE 90.1-2019 baseline for that building type 30 percent where life cycle cost effective.
  - Any energy efficient technology that is life cycle cost effective should be considered if it complies with all other laws including the Buy American act.



### **Materials**

#### Out

- Decarbonization (whole-building life cycle assessment)
- Environmental product declarations for low embodied carbon (LEC) concrete and asphalt
- Mandatory construction & demolition (C&D) waste diversion
- Interior Performance Table with performance tiers

#### In

- LEC construction materials are allowed where a contractor voluntarily chooses to use them, and doing so costs the same or less as using "conventional" material.
- Projects using IRA section 60503 funding must still use GSA's IRA LEC Requirements to ensure legal compliance, as detailed in the next question.
- Any waste diversion is up to the project team's discretion if it is cost-neutral or cost-saving

### **Materials**

#### **RCRA**

- 6002: Procure applicable materials composed of the highest percentage of recovered materials practicable...
- 6966: "give priority to achieving greater use of recovered mineral component [e.g. recovered or diverted waste material or byproduct such as slag or fly ash] in cement or concrete projects..."

#### Farm Bill

 Use EPA's Comprehensive Procurement Guidelines to take a system approach to reducing life cycle material use and impacts.

Use USDA's BioPreferred program to specify biobased products.



# **Community Planning**

#### IN

Compliance with Local Codes (Section 1, 40 USC § 3312)

 Community planning context - zoning and land use, economic development, urban design, relevant history

#### Consultation with Local Officials (Section 1, 40 USC § 3312)

- Community Stakeholder Analysis
- Plans for community consultation

#### Public Use of Federal Buildings (Section 2, 40 USC § 3306)

- How design encourages:
  - Public access to and around building/site, connections to amenities and infrastructure
  - Public use Interior/exterior shared public use spaces

#### OUT

- Prescriptive and performance based requirements
- LEED

## Landscape

#### IN

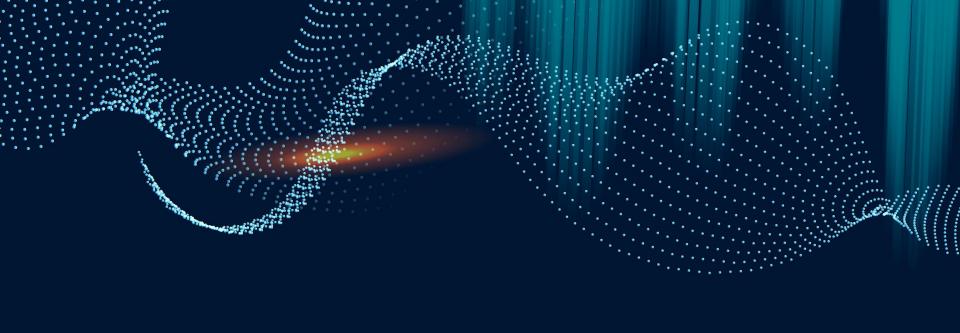
Compliance with all laws, statutes, and relevant Industry Standards is required:

- EISA Section 438 (Stormwater) \*moved to section 8 Civil
- Clean Water Act (NPDES and wetland permits)
- Endangered Species Act
- ANSI and ASTM standards

#### OUT

Prescriptive and performance based requirements:

- SITES certification requirement
- No potable water use for irrigation
- Plant species selection, pollinators, and soils
- Parking lot tree minimum
- Site material selection



# O3 Architecture and Building Enclosure

## **Architecture / Interiors**

Follow ICC Codes, ABAAS, etc. as stated in Section 1: General

#### ADDED: Promoting Beautiful Federal Civic Architecture Memorandum

- Not yet formally issued
- If follows previous, will apply to projects such as Courthouses and Agency Headquarters, all buildings in Washington D.C., other buildings over \$50 million but not infrastructure projects or Land Ports of Entry

#### **Cornerstone and Registry of Designers and Builders**

• Still a part of projects, just not formalized yet

#### **Vertical Transportation**

- IBC and NEII-1
- GSA Vertical Transportation SME is still Authority Having Jurisdiction (AHJ)

#### Restrooms

- Family/Single Occupancy Restrooms (are required per IBC 1109 in Assembly occupancies when over a certain number of fixtures)
- Baby Changing Facilities required by 40 USC § 3314

#### **Lactation Rooms**

• Requirements to follow 40 USC § 3318

#### **Bird Safe Building Design**

• Check with local ordinances

#### **Interior Construction Performance and Finishes, Acoustics**

- Biggest change; use of Best Practices
- Client Design Guides (Courts, CBP, HHS, etc.) have requirements that will still apply

# **Building Enclosures**

General: Follow ICC Codes, USCs, CFRs, Acts; as stated in Section 1: General

#### **Building Enclosure Commissioning (BECx)**

- ASTM E2813 & E2941
  - Enhanced Cx is default, Fundamental Cx for minor scope (e.g., membrane reroofing)

#### **Membrane Roofing Commissioning**

- ASTM D7877 & D8231
  - Electronic Leak Detection

#### **National Roofing Contractors Association (NRCA**

 Roofing and Waterproofing Manuals (GSA has lost access to both w MADCAD)

See your local or national BE SME for additional guidance, see BE Crosswalk

#### **BECx (AIR)**

- ASTM E779 & ASTM E1827 full building air leakage (Enhanced Cx)
- ASTM E783 & ASTM E1186 Air leakage and ASTM E283 (Enhanced Cx)

#### **BECx (WATER)**

- ASTM E1105 Water Penetration / Chamber
- AAMA 501.1 Dynamic Water / Airplane Engine (Enhanced Cx)
- AAMA 501.2 Diagnostic Water / Hose
- ASTM C1153 Locating Wet Roofing Insulation with IR

#### **BECx (Other)**

- ASTM E488 Anchors in Concrete
- ASTM E2359 Insulation & Wall Cladding Pull Tests
- ASTM C794 & ASTM C1193 Joint Sealants
- Visual and Performance mockup scope as deemed appropriate / risk mitigation

#### **BE-related Removal From Projects**

- LEED Ratings or equivalent
- Photovoltaic Panels as required by LEED\* (see below)
- Bird-safe glass (part of ICC for some local ordinances)

#### **BE-related Remains in Projects**

- PV Panels when a business case can be made
- Calcs and narratives, including:
  - Energy loads/models
  - EUI targets
  - Structural loads
  - Mechanical
  - Stormwater management
  - Drainage systems
  - Soil erosion and sediment control

#### **BE-related Remains in Projects (cont)**

- ISC Perimeter Security, Blast and Progressive Collapse still required.
   ASCE/SEI 59 as modified by GSA Facility Security Requirements for Explosive Devices Applicable to Facility Security Levels III & IV
- LCCAs required, including for building enclosures. See <u>10 CFR §436</u>,
   <u>Subpart A</u>, <u>Subpart B</u>, <u>Subpart C</u> and <u>NIST Handbook 135</u>

#### **Building Enclosure Design Life Requirements**

- BE Service Life tied to IBC 1604.5 Risk Categories
- Essential, Critical Action and Mission Critical facilities = Risk Category IV
- Office Buildings = Risk Category III

| Building Element Design Life (Years) |                                    |                                    |   |                      |                                      |                     |             |    |               |  |                |
|--------------------------------------|------------------------------------|------------------------------------|---|----------------------|--------------------------------------|---------------------|-------------|----|---------------|--|----------------|
|                                      |                                    | Structural<br>Elements             | Expensive                               |                      | Mechanical,<br>Electrical,           | Building Enclosures |             |    |               |  |                |
|                                      |                                    |                                    |   |                      |                                      |                     | Walls       |    | Fenestrations |  |                |
| Serviceability<br>Risk Category      | Building<br>Design Life<br>(Years) | and/or<br>inaccessible<br>elements | 200000000000000000000000000000000000000 | Major<br>Replaceable | Plumbing,<br>and Power<br>Generation | 720 20              | Replacement |    | Frame         | IGU + gasket &<br>seals<br>Replacement | Site Hardscape |
| IV                                   | 100                                | 100                                | 40                                      | 40                   | 40                                   | 40                  | 100         | 50 | 50            | 20                                     | 20             |
| III                                  | 75                                 | 75                                 | 40                                      | 40                   | 40                                   | 30                  | 75          | 40 | 40            | 20                                     | 20             |
| 11                                   | 60                                 | 60                                 | 40                                      | 40                   | 20                                   | 20                  | 50          | 25 | 30            | 15                                     | 20             |
| 1                                    | 40                                 | 40                                 | 40                                      | 40                   | 20                                   | 20                  | 40          | 20 | 30            | 15                                     | 20             |

Serviceability Risk Categories I. II. III. and IV are defined in the IBC. Table 1604.5 - Risk Category of Buildings and other Structures

Serviceability Risk Category IV shall also include buildings defined as: essential facilities, critical action facilities, mission critical facilities

Use a 40 year service life for life cycle cost assessment pursuant to 10 CFR 436, Methodology and Procedures for Life Cycle Cost Analyses.

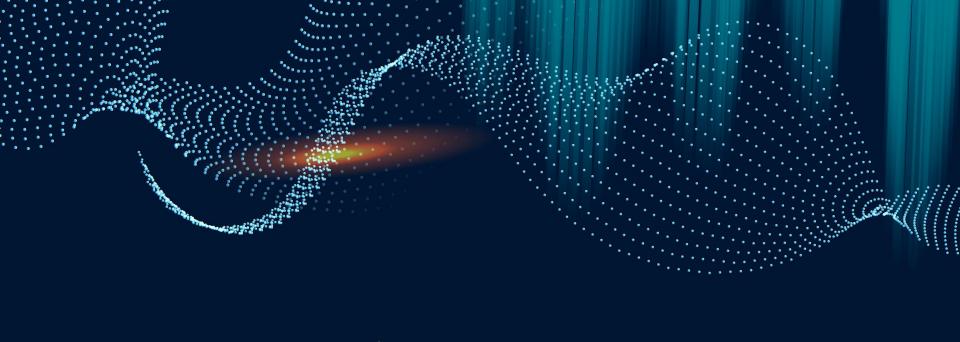
Mechanical equipment median service life values are to comply with ASHRAE Handbook - HVAC Applications.

The following CSI specification sections shall be provided to augment the above table:

- Section 01 81 10 (Section 01120) Facility Service Life Requirements
- Section 01 78 23 (Section 01830) Operation and Maintenance Data

#### **BE-related Risk Factors currently under review**

- Water Infiltration criteria above 6.24psf (50mph wind)
- Increased performance criteria for locations with higher wind speeds and associated risks
- Fenestration water leakage and field testing reduction criteria
- Under-slab moisture mitigation
- Air infiltration criteria above .40 cfm/sf
- Thermal bridging criteria
- Roofing membrane quality requirements
- Roofing service life longer than the equipment placed above it
- Triggers for including fall protection scope when doing re-roofs



04 Structure

# **Structural Engineering**

#### IN

Compliance with relevant industry Codes, Standards and Guidelines is required:

- The same codes and standards as referenced in P100
  - IBC, ASCE 7 and 41, RP 10, AISC Design Guide 11, ISO 2631-2:2003

Physical security countermeasures are required:

- The same standards/quidelines as referenced in P100
  - Interagency Security Committee Standard: Risk Management Process
  - GSA's Interpretation of the ISC Risk Management
     Process
  - GSA Alternate Path Analysis and Design Guidelines for Progressive Collapse Resistance
- Blast resistance and progressive collapse resistance is required

# **Structural Engineering**

#### IN

Agency Specific Design Guides and Standards:

 US Courts Design Guide, NASA Facilities Design Standard, USMS Publication 64, United States Land Port of Entry Design Standard

#### Still Required (see FAQs):

- 100 psf minimum live load for floors
- Pre-stressed concrete floor systems prohibited with a few exceptions
- Pre and post tensioned concrete floor systems prohibited with a few exceptions
- Floor vibration serviceability limits
- Third-party peer review of new and innovative methods and materials

# **Structural Engineering**

IN

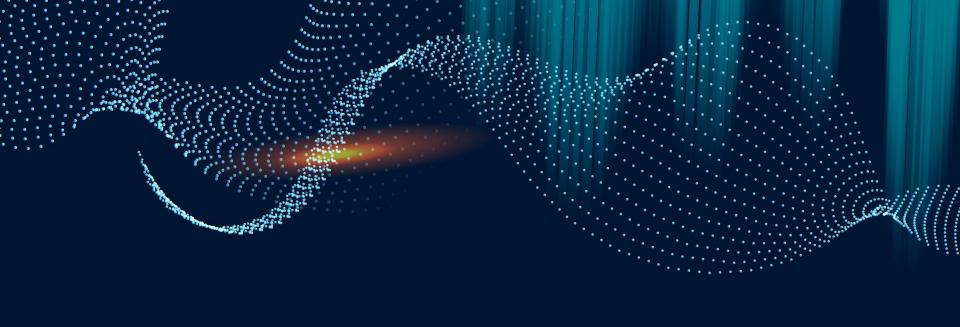
Still Required Cont...

- Delegated design requirements (see IBC chapter 1)
- Inspections and Certifications (see IBC chapter 1 and 17)

#### OUT

Compliance with codes, standards, industry best practices, and guidelines not listed in the CBS:

 If following an unlisted code or industry best practice is determined to be in the best interest of a project, it can be included in the SOW/POR.



# 05 Mechanical Engineering

# **Mechanical Engineering**

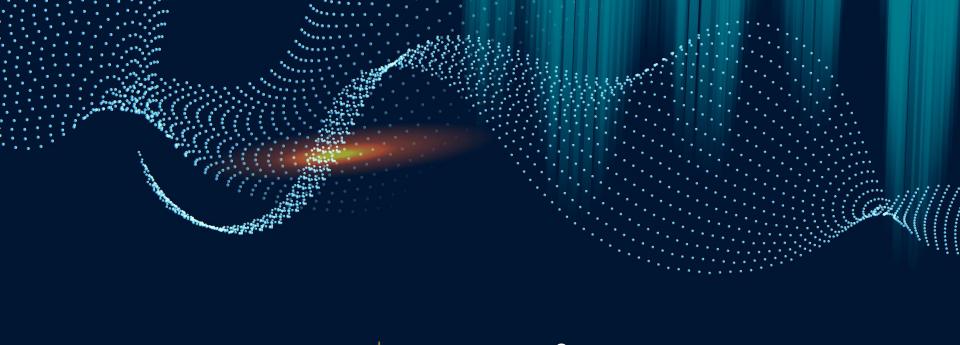
#### IN

Compliance with all relevant industry Codes, Standards and Guidelines is required:

- ASHRAE, ANSI, ASPE, SMACNA
- Federal Data Enhancement Act
  - Standards for Data Centers fall under the purview of GSA's IT Modernization Division, within OGP, as directed in this Act

#### OUT

Prescriptive performance based requirements such as equipment arrangements, specific material types and component specifications.



# 06 Electrical Engineering

| Section 6: ELECTRICAL ENGINEERING   |  |  |  |
|---|--|--|--|
| Name  | Notes  |  |  |
| ASHRAE Standards  | 90.1: Lighting power density, automatic lighting control, automatic receptacle control, transformer efficiencies, and electrical energy monitoring (advanced metering)   |  |  |
| IEEE (Institute of Electrical and Electronics Engineers)  | IEEE 1584, Guide for Performing Arc-Flash Hazard Calculations IEEE C2, National Electrical Safety Code   |  |  |
| UL (Underwriters Laboratories)  | UL96, Lightning Protection Components<br>UL96A, Installation of Lightning Protection Systems   |  |  |
| ANSI/IES (Illuminating Engineering Society)   | IES Lighting Library IES G-1, Guideline for Security Lighting for People, Property, and Critical Infrastructure IES RP-1, Lighting Offices Spaces IES RP-10, Lighting Common Applications IES RP-43, Recommended Practice for Lighting Exterior Applications   |  |  |
| Building Industry Consulting Services<br>International (BICSI) Telecommunications<br>Distribution Methods Manual (TDMM) | Standard for design and installation of information and communications technology  |  |  |
| NFPA (National Fire Protection<br>Association) Codes and Standards  | 70, National Electrical Code 70E, Standard for Electrical Safety in the Workplace 101, Life Safety Code (Emergency & Egress Lighting) 110, Standard for Emergency and Standby Power Systems 111, Standard on Stored Electrical Energy Emergency and Standby Power Systems 780, Standard for Installation of Lightning Protection Systems 855, Standard for the Installation of Stationary Energy Storage Systems |  |  |

### In - Included with the CBS

#### Lighting

- ASHRAE 90.1 for lighting control and power density
- The IES standards listed here can be accessed via MADCAD, GSA's Code and Standards Subscription

#### **Power**

 Metering & Automatic receptacle control in accordance with ASHRAE 90.1

#### **Arc Flash**

 Still required to be updated at the project level where a model already exists

#### **Communications**

 Mostly unchanged. The TDDM reference brings in a series of ANSI standards.

# Out - Not included in the CBS

#### Lighting

- The performance & prescriptive requirements including DLC listing
- Luna 1.0 for exterior luminaires

#### **Power**

- UL 1558 switchgear is no longer required for services
   1200 Amps or greater
- EVSE, new installations
   (chargers or infrastructure)
   are not authorized unless
   they are deemed mission
   critical by the tenant.
   Existing installations must be
   turned off unless they are
   mission critical. For more
   information see GSA Order
   PBS 5605.1B

# In - Included with the FAQs

#### Lighting

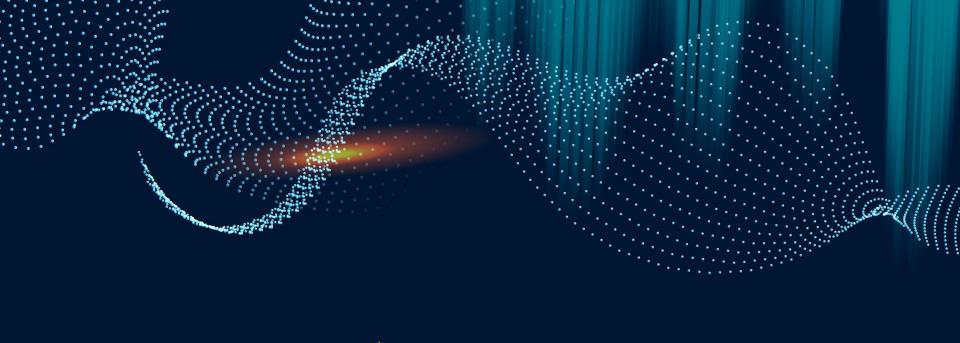
 Dark Sky Initiative and light trespass prevention - see RP-8 & RP-43

#### Renewables

 Renewables are acceptable assuming they are life cycle cost effective.

#### **Power**

- EPSS run time dependent upon tenant requirements or code minimums
- Spare capacity is reduced to 25% for both normal and emergency power (tenant specific requirements are still applicable)



# FireProtection

# **Fire Protection Requirements**

- Projects must meet referenced Core Building Standards as well as:
  - Agency developed Design Guides
  - o GSA Fire Protection Specifications
- GSA is self-insured, so a single loss from a fire could severely impact our ability to conduct nationwide operations. It could divert funds from other projects for emergency fire damage repair or replacement work.
  - o PBS must provide an acceptable level of safety, health, and general welfare to limit risk of death and injury, limit damage to property, and limit the impact to agency mission continuity from events that are expected to impact buildings (e.g., fires, weather, active shooter, etc.).
  - Project team should base their decisions on recognized performance-based design practices and best practices, while promoting innovative, flexible and responsible solutions that optimize expenditures.

## **Fire Protection Requirements**

- Therefore, each project manager must ensure:
  - o A qualified fire protection engineer is a full participant of the project team (aka project team fire protection engineer).
  - Project team's fire protection engineer engages with GSA fire protection engineer early in the project to develop cost-effective fire protection solutions based on best design practices to address fire and life safety risks for the specific project.
- Will reduce overall costs and risks for the life of the building.
- Will provide overall cost savings to the American taxpayer.

# **Major Topics Not Included in the CBS**

- Special Requirements for:
  - Occupant Evacuation Elevators
  - o Information Technology Equipment, Rooms, and Areas
  - Atriums
  - Residential Dwelling Units
  - Record Storage Facilities
  - Stationary Energy Storage Systems
  - Parking Structures
  - Modular Rooms

# A Few Major Topics Still Required

- A qualified fire protection engineer is required on the Project Team
- Issuance of a Certificate of Occupancy by GSA Fire Protection Program Office
- Portable fire extinguisher Installation Exceptions
- A redundant fire alarm control unit in the USMS Command and Control Center
- Other cost saving topics still being evaluated
  - o Installation of automatic sprinkler protection
  - o Installation of emergency voice communication systems
  - Not requiring the installation of smoke dampers in air distribution systems in certain locations
  - Not requiring enclosed elevator lobbies and hoistway opening protection in certain locations



# **Civil Engineering**

#### IN

Compliance with all relevant industry Codes Standards and Guidelines (including locality) is required:

- Floodplain Management review per EO 11988
  - Floodplain Management Desk Guide update (pending issuance)
- ASCE 24-24 Flood resistant design and construction
- ASCE 38-02 Subsurface utility investigation
- EISA Section 438 Stormwater Management (Law)
  - Including stormwater retention/reuse
- AASHTO Green Book Highway and street design

#### OUT

- Floodplain review based on E.O.s 14030 and 13690, including Federal Flood Risk Management Standards (FFRMS)
- Prescriptive performance based requirements:
  - Prohibition of coal tar sealant
  - Grading, drainage, utilities, site circulation, pavement and geologic hazard.



09 Speciality Spaces

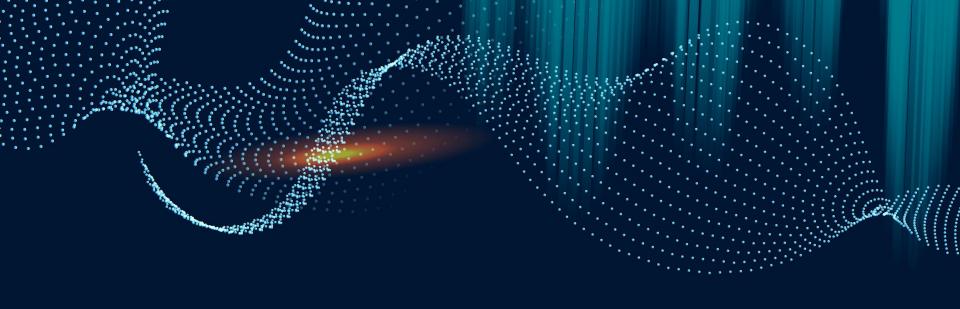
# **Specialty Spaces**

#### IN

- Applicable occupant agency specific design guides are listed in CBS Section 9: SPECIALTY SPACES.
  - GSA will only follow OMB-approved design guides for occupant federal agencies.
  - OMB approval is pending for the LPOE and NASA design guides.
  - The U.S. Courts Design Guide applies.
- Any occupant agency requirements that go beyond the CBS must be tenant-funded via RWAs.
- Specialty spaces like mailrooms, firing ranges, child care

#### OUT

- EVSE



# 10

# **Questions**Please use Q & A feature