

Department of Energy  
Office of Nuclear Safety and Environmental Policy  
Technical Position  
NSEP-TP-2007-1

***Technical Position on the Requirement in DOE O 420.1B to Use National Consensus Industry Standards and the Model Building Codes***

*Issue:*

All new construction required to follow the provisions of Department of Energy (DOE) Order 420.1B, *Facility Safety*, must comply with national consensus industry standards and the model building codes applicable for the state or region in which the facility is located. Certain individuals in the fire community requested clarification of whether the national consensus and building codes adopted by the state and region should be applied as modified by a state or region or as published by the national or international standards organizations.

*Background:*

DOE O 420.1B, 4.b states:

In complying with this Order, DOE and contractors must ensure that any work done is consistent with any other safety, design, or other analysis or requirements applicable to the affected facility. In particular, work must be performed in accordance with the integrated safety management requirements of 48 Code of Federal Regulations (CFR) 970.5223-1, *Integration of Environment, Safety, and Health into Work Planning and Execution*, and the quality assurance requirements of either Subpart A of 10 CFR Part 830, *Nuclear Safety Management*, or DOE O 414.1C, *Quality Assurance*, dated 6-17-05 or successor document, as applicable. **All new construction, as a minimum, must comply with national consensus industry standards and the model building codes applicable for the state or region, supplemented in a graded manner with additional safety requirements for the associated hazards in the facility that are not addressed by the codes.**

The last sentence of the paragraph above requires that new construction conform to both the national consensus industry standards and the model building codes for the state or region where the facility is being constructed. This provision was intended to require DOE and its contractors to follow national consensus standards and the model building codes selected by the state and local governments. However, the seismology, geography, floodplain topography, and weather of a particular region can affect how the requirements should be applied in a particular area. For example, designing for snow loads in Maine or Alaska would be different from snow loads considered for Florida. Similarly, seismology considerations are typically more significant in California than on the East Coast.

In model building codes (e.g., International Building Codes or IBC and National Fire Protection Association 5000), there is geographical information that states can incorporate into their own codes by reference. They also can modify these data to fit their needs as well as require other actions, such as the installation of a lightning

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protection system or a higher sprinkler density configuration. In addition, they can offer their opinion on certain provisions that they feel are inadequate, such use of a certain electrical code edition or the substitution of one code for another (e.g., choosing use of the Life Safety Code over Chapter 10 of the IBC). In general, DOE should defer to state decisions when they adapt a national template for new construction to better suit local circumstances. Consequently, DOE contractors should consider specific applications adopted by state and local governments for facilities in these jurisdictions. Specifically, these applications should be considered during contractor safety analyses and appropriately applied at subject facilities. Because many states and local regions may not have experience with the hazards and materials found at DOE sites, some of the modifications that states and regions have in place may be inappropriate for DOE high hazard facilities. Before a contractor modifies any codes and standards endorsed by the state or region which would reduce the level of safety for a DOE facility or activity, the contractor should seek and obtain DOE approval.

Contractors and DOE should also consider the application of state and regional modifications and enhancements that promote equipment and procedural compatibility by standardizing systems and processes so that DOE and local organizations can work seamlessly together. For example, some local fire codes require connections to be a specified size and thread. Should there be agreements for use of local fire services or an emergency where extra services are needed either at the DOE facilities or local non-DOE facilities, it would be important for all fire hoses and connections to be compatible either through consistent sizes or through a requirement to carry adaptor equipment to use the available systems. Consequently, state and regional modifications of codes and standards should be reviewed to determine what actions should be taken to ensure such compatibility.

Some modifications to codes and standards dictated by individual states and regions may be designed to eliminate conflicts among the applicable codes. For example, the state may delete an administrative section in a building code that conflicts with government provisions on relief. Contractors should consider adopting such modifications; however, contractors may not use modifications in state and regional provisions to override the DOE exemption process.

In addition to the general language on national consensus codes and standards and model building codes in DOE O 420.1B, 4.b (See Background), DOE O 420.1B Chapter II, *Fire Protection*, paragraph 3.a.3 also requires contractors to “meet or exceed applicable building codes for the region and National Fire Protection Association (NFPA) codes and standards...” Consequently contractors are required to apply both state and regionally identified codes and standards, as well as the NFPA requirements for fire protection. Furthermore, 10 CFR Part 851 specifically incorporates by reference both NFPA 70 and NFPA 70E. Consequently contractors must meet or obtain relief from DOE for the requirements of all of these codes and standards.

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*Position:*

The intent of Paragraph 4.b in DOE O 420.1B is as follows.

1. As stated in DOE O 420.1B contractors for new construction of DOE facilities must apply the national consensus industry standards and the building codes (model codes) that are identified by the state or region as issued by the standards organizations.
2. Contractors should consider modifications and exceptions to these codes and standards as dictated by the state or region and apply those changes to the extent that they enhance safety and/or define the appropriate application of the codes for the weather, topography, or other local considerations.
3. Contractors should review application of state and regional modifications to ensure compatibility of potentially shared equipment or systems.
4. Contractors may not adopt state or regional positions which would reduce safety, conflict with other DOE requirements, or increase risks at DOE facilities unless they have demonstrated a commensurate benefit to DOE and obtained DOE approval.
5. Contractors must request and obtain appropriate relief (e.g., exemptions or variances) consistent with the source of the DOE requirement in cases where modifications to a code or standard would result in a deviation from DOE requirements.
6. The NFPA standards define equivalency, modification, and alternative processes to provide flexibility in complying with those standards. As stated in DOE O 420.1B, the DOE Head of Field Element (Site Office Manager or Field Office Manager) fulfills the role and responsibilities of the NFPA authority having jurisdiction (AHJ) in evaluating and accepting NFPA equivalencies, modifications, and alternatives. Provided the selected equivalencies, modifications, and alternatives do not result in a deviation from any other DOE or applicable requirement, exemptions are not required.

Furthermore:

1. In cases where the requirements in codes and standards overlap, contractors should strive to employ the most conservative requirements of the codes and standards, thereby meeting all of them; but where the most conservative codes or standards are unnecessarily burdensome and do not provide commensurate improvements to safety, contractors should request relief from DOE.

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2. Similarly, where there is direct conflict between the applicable codes and standards such that at least one cannot be met, the contractor should request and obtain relief (through applicable DOE relief processes) from the requirements that will not be met.
3. Given the number of standards and potential state modifications the need for occasional exemptions from DOE is anticipated; however, exemptions should not be the norm. If DOE line identifies recurring issues or a systematic need for exemptions, they should identify those issues to the Office of Health, Safety and Security (HSS) for evaluation of the possible need for a revision to the directive.

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Date

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Chief Health, Safety and Security Officer