U.S. Department of Homeland Security
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Washington, DC 20472

FEMA

FEB 5 2008

MEMORANDUM FOR: FEMA Regional Administrators
Regions I - X

ATTENTION: Disaster Assistance Division Directors

FROM: Carlos J. Castillo
Assistant Administrator
Disaster Assistance Directorate

SUBJECT: Disaster Assistance Policy DAP 9527.4
Construction Codes and Standards

The purpose of this memorandum is to announce the issuance of the attached final Disaster Assistance Policy DAP9527.4, *Construction Codes and Standards*. This policy provides guidance for determining eligible work based on State and local construction codes and standards as they apply to the repair and restoration of damaged facilities.

If you have any questions about this policy, please contact Deana Platt, Public Assistance Division, via email at Deana.Platt@dhs.gov, facsimile (202) 646-3304, or phone (202) 646-2797.

Attachment

FEMA
DISASTER ASSISTANCE POLICY

I. TITLE: Construction Codes and Standards

II. DATE: FEB 05 2008

III. PURPOSE:

This policy provides guidance for determining eligible work based on State and local construction codes and standards as they apply to the repair and restoration of damaged facilities.

IV. SCOPE AND AUDIENCE:

The policy is applicable to all major disasters declared on or after the date of publication of this policy. It is intended for personnel involved in the administration of the Public Assistance Program.

V. AUTHORITY:

Section 406(e) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. §5172, and 44 CFR §206.226(d).

VI. BACKGROUND:

A. The Stafford Act authorizes FEMA to fund the repair and restoration of eligible facilities damaged in a presidentially declared disaster. Section 406(e) of the Stafford Act requires that the cost of repair and restoration be "on the basis of the design of such facility as it existed immediately prior to the major disaster and in conformity with current applicable codes, specifications and standards (including floodplain management and hazard mitigation criteria required by the President or by the Coastal Barrier Resources Act (16 U.S.C. §3501 et seq.))…" (42 U.S.C. §5172(e)(1)).

B. 44 CFR §206.226(d) provides that for the costs of Federal, State, and local repair or replacement standards which change the predisaster construction of a facility to be eligible, the standards must:

1. Apply to the type of repair or restoration required (standards may be different for new construction and repair work);

2. Be appropriate to the predisaster use of the facility;

3. Be found reasonable, in writing, and formally adopted and implemented by the State or local government on or before the disaster declaration date, or be a legal Federal requirement applicable to the type of restoration;

4. Apply uniformly to all similar types of facilities within the jurisdiction of the owner of the facility; and

5. For any standard in effect at the time of a disaster, it must have been enforced during the time it was in effect.

C. The eligibility of standards requirements based on Executive Order 12699, Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction, are further explained in FEMA Disaster Assistance Policy DAP9527.1, *Seismic Safety – New Construction.*

VII. POLICY:

A. Definitions

1. Facility, as defined in 44 CFR §206.201(c), is "any publicly or privately owned building, works, system, or equipment, built or manufactured, or an improved and maintained natural feature. Land used for agricultural purposes is not a facility."

2. Standards, according to 44 CFR §206.221(i), are building requirements for the construction of facilities. Codes, specifications and standards are referred to as "codes" in this document.

3. Predisaster design, as defined in 44 CFR §206.201(h), is the size or capacity of a facility (as originally designed and constructed, or subsequently modified by changes or additions) at the time of the major disaster. It does not mean the facility *in-use* capacity at the time the major disaster occurred, but rather the most recent *design* capacity.

4. Predisaster Use: The use of the facility at the time of the disaster. If an eligible facility was being used for purposes other than those for which it was designed, eligible repairs or restoration for that facility are limited to the extent necessary to restore the immediate predisaster use of the facility, but not to a greater use or capacity than the predisaster design.

5. Upgrade: Work to predisaster design or construction that goes beyond repair.

B. General Provisions

1. Applicability

a. The five criteria under 44 CFR §206.226(d) apply to codes that change the predisaster construction of a facility. A code that mandates an upgrade in addition to repairs, changes the predisaster construction of a facility.

b. If FEMA determines that a code meets all five criteria, the work and associated costs, including any eligible upgrades triggered by the code, will be eligible for funding as a repair under section 406(e) of the Stafford Act.

c. If a code does not meet the five criteria, code-mandated upgrades will not be eligible, and funding will be limited to repairs necessary to bring the facility back to its predisaster design or construction. Similarly, if a code meets all five criteria, including a determination that the thresholds are reasonable, but the damages to the facility do not meet the threshold in the code, eligible funding will be limited to repairs necessary to restore the facility to its predisaster design or construction.

d. Code upgrades that are directly related to damaged elements and systems deemed ineligible pursuant to the five criteria and this policy, but which will enhance a facility's ability to resist similar damage in a future disaster, may be eligible under section 406 hazard mitigation (see FEMA Disaster Assistance Policy DAP9526.1, *Hazard Mitigation Funding under Section 406 of the Stafford Act*).

2. Code Thresholds

a. Codes may contain various types of thresholds, often referred to as "triggers," which, when reached, require that upgrade work be performed in conjunction with the repair of damaged elements. Examples of thresholds include:

i. When repair work exceeds a certain dollar cost or a certain percentage of the building's replacement cost (damage repair thresholds); or

ii. When the damage results in a loss of a certain portion of a building's structural capacity (capacity thresholds) as a result of a disaster.

b. A trigger may mandate different types of upgrades. For instance, a trigger may require that the entire structural system be upgraded or, in addition to upgrading the entire structural system, that non-structural systems (e.g., mechanical, electrical) be brought into

conformance with current codes for new construction.

c. FEMA will only pay for upgrade work within the same system (i.e., structural, electrical, mechanical) as the disaster-related damages. There must be a direct relationship between the upgrade work and the disaster damage, per 44 CFR §206.226(d)(1).

3. Section 406(e)(1) of the Stafford Act requires that FEMA-funded repair, restoration, or replacement of a facility be on the basis of the predisaster design, in conformity with current applicable codes, specifications, and standards. The Stafford Act does not require that FEMA provide funding to make an eligible facility meet current codes for new construction, only that FEMA must provide the assistance necessary for an applicant to undertake eligible repairs in a code-conforming manner using code-compliant methods and materials.

4. FEMA has the authority and responsibility under the Stafford Act and the regulations at 44 CFR part 206 to determine which repairs, code-mandated or otherwise, are eligible for assistance. FEMA does not generally fund code-mandated work if the code does not meet the five criteria, even though such work may be required in order to obtain a building, occupancy, environmental, or other permit.

C. Provisions of 44 CFR §206.226(d), the Five Criteria

1. Codes must apply to the type of repair or restoration required (codes for new construction and repair work are often different); in accordance with 44 CFR §206.226(d)(1).

a. Code provisions that require changes or upgrades to a facility must be based on a reasonable and technically supportable relationship to the elements damaged as a result of the disaster event.

b. If FEMA determines that a facility is eligible for replacement, funding will be based on the cost to construct the new facility according to the predisaster design of the facility, and in compliance with current codes for new construction.

c. If a facility, system or element is eligible only for repairs (structural or non-structural), funding will be limited to the repair of the disaster-related damage to the facility or element itself, and to eligible work that is reasonably related to repair of the damaged facility or element, based on codes applicable to repairs. Work to upgrade or change the configuration of systems that sustained disaster-related damages in conformance with certain code provisions will be evaluated for reasonableness on a case-by-case basis. This is true regardless of whether a building official requires the additional work, or the work is needed to obtain a building, occupancy, environmental, or other permit.

d. Code provisions that require upgrades to undamaged structural or non-structural elements or systems (e.g., mechanical, electrical) will generally not be eligible for FEMA funding. Such code provisions will be evaluated on a case-by-case basis, consistent with this policy, generally, and subsection VII(C)(1), specifically.

2. Codes must be appropriate to the predisaster use of the facility, as per 44 CFR §206.226(d)(2). Eligible work related to code upgrades, either for repair of damages or for new construction, will be based on the facility's predisaster design or actual use at the time of the disaster. In cases where a facility was being used for a lesser purpose than that for which it was designed, restoration will be eligible only to the extent necessary to restore the immediate predisaster use of the facility. When predisaster use is different from predisaster design, the eligible work will be based on predisaster design or use, whichever is the least costly.

3. Codes must be found reasonable, in writing, and formally adopted and implemented by the State or local government on or before the disaster declaration date or be a legal Federal requirement applicable to the type of restoration, under 44 CFR §206.226(d)(3).

a. "Be found reasonable." FEMA's authority requires it to accept only reasonable claims for Public Assistance grant funding. An examination of reasonableness may involve such factors as:

i. General reasonableness of the code and the threshold(s);

ii. Whether the thresholds relate to the type of repair or restoration required by the damage;

iii. Whether the codes and their thresholds are technically defensible from an engineering perspective; and

iv. Whether the method of quantifying the damage and the cost of the work is reasonable.

For instance, the inclusion of a very low threshold in a code that would warrant a very large upgrade or reconstruction may be deemed unreasonable. Generally, mandated upgrades to lateral force levels required for new building construction are not considered reasonable when applied to repair work.

b. "Formally adopted" requires that all the requisite steps and actions have been taken by the appropriate legislative body or regulatory authority within the jurisdiction; e.g.,

the State or local government. The adopted code must be formally incorporated into the building code or the local ordinance. Design standards, guidelines, policies, industry practices, or other non-mandatory provisions are not acceptable. The effective date of the code must be on or before the disaster declaration date, in accordance with 42 U.S.C. §5172(e)(1). A code will be considered implemented when approved by the appropriate legislative body of the jurisdiction and made a matter of public record as required by that body.

c. FEMA does not recognize codes adopted by private non-profit organizations when determining eligible work. FEMA also does not accept codes adopted by agencies or divisions of State or local governments that are not authorized to set codes or standards applicable to all similar type facilities within the broad governmental jurisdiction of the State or local government, consistent with 44 CFR §206.226(d)(4).

4. Codes must apply uniformly to all similar types of facilities within the jurisdiction of the owner of the facility, pursuant to 44 CFR §206.226(d)(4).

a. Code provisions should apply to all similar types and classifications of facilities regardless of the entity that owns the facility. This includes all facilities, whether private or public, eligible or ineligible for FEMA assistance, in the entire governmental jurisdiction or in a particular hazard zone within that jurisdiction.

b. The phrase "similar types and classifications of facilities" refers to the type of use (e.g., hospitals, schools, bridges), or type of structural system (e.g., un-reinforced masonry, welded steel moment frame).

c. In order for FEMA to find that a code and its thresholds are uniformly applied, the threshold provision(s) must generally be triggered by the repair or restoration of facilities damaged from any cause, as well as the renovation of buildings. Code upgrade thresholds triggered by disaster-specific (e.g., earthquake, flood) damages will be evaluated on a case-by-case basis to determine if they meet the five criteria of 44 CFR §206.226(d), specifically 44 CFR §206.226(d)(3) and 44 CFR §206.226(d)(5).

5. For any code in effect at the time of a disaster, it must have been enforced during the time it was in effect, in accordance with 44 CFR §206.226(d)(5).

a. To be eligible, codes must have been enforced prior to the disaster. In the event that there has been no opportunity to enforce the codes, the Regional Administrator is authorized to determine if the enforcement criterion has been substantially met.

b. This criterion also requires that a code be enforced in a manner that imposes the same requirements on all projects without regard to ownership (e.g., public or private) or the funding source for the mandated repairs and upgrades. The code cannot be subject to discretionary enforcement by building or permitting officials; it must provide for uniform accountability in the event of noncompliance. FEMA may require additional documentation prior to approving funding, in order to determine whether a code has been uniformly enforced.

c. Because documents to obligate FEMA funds are frequently prepared and approved soon after a disaster, grant awards may be made to a subgrantee based upon previous enforcement of a code by the local jurisdiction and in reliance on its continued enforcement. If, subsequent to an award, this criterion is violated by the local jurisdiction, no further funding of upgrades in compliance with the code will be provided to that facility or to other facilities within the local jurisdiction.

D. Special Considerations

1. The Americans with Disabilities Act (ADA) is an applicable Federal requirement. (See Recovery Division Policy 9525.5, *Americans with Disabilities Act (ADA) Access Requirements*.)

2. Historic

a. In the case of a building listed in, or determined by FEMA to be eligible for listing in the National Register of Historic Properties, 44 CFR §206.226(f)(3) provides that if an applicable standard requires repair in a certain manner, costs associated with that code will be eligible. This is an exception to the cap on funding which states that "eligible costs shall be limited to the less expensive of repairs or replacement," 44 CFR §206.226(f)(2). This exception allows repair costs to exceed replacement costs when there is a code that requires that the building be repaired and requires that the repair be performed in a certain manner.

b. State historic building codes generally encourage code officials to allow less intrusive alternatives to the requirements of the prevailing code. Most often, they do not establish standards that require or otherwise mandate that any particular work be performed. As a result, they usually fail to meet the five criteria. However, if a State historic building code were to establish standards that require or otherwise mandate that particular work be performed, it could be considered prescriptive and would be evaluated using the five criteria.

VIII. RESPONSIBLE OFFICE: Disaster Assistance Directorate (Public Assistance Division).

IX. SUPERSESSION: This policy supersedes all previous guidance on this subject including Response and Recovery Policy 9527.2, *Interim Policy on Construction Codes and Standards for the*

Nisqually Earthquake Disaster and Recovery Division Policy 9527.3, *Interim Policy on Construction Codes and Standards for the San Simeon Earthquake*.

X. REVIEW DATE: Three years from date of publication.

Carlos J. Castillo
Assistant Administrator
Disaster Assistance Directorate

Appendix A

CASE EXAMPLES

Following are case examples for the evaluation of codes using the five criteria.

Case 1: Road shoulders are damaged in a declared event. Repair to predisaster design includes back-filling, compaction and grading. The applicant states that pursuant to the local code, road repairs require construction of paved shoulders, drainage swales, and berms. Upon review of the code, FEMA determines that the code applies to new construction or the rehabilitation of an entire road, but not to the repair of discrete damaged portions of the road shoulders. This code, which would considerably improve and upgrade the predisaster design of the road shoulder, does not apply to the type of repair or restoration work required. The upgrades are thus not eligible for funding pursuant to 44 CFR §206.226(d)(1) and section VII(C)(1) of this policy.

Case 2: A building is damaged in a declared disaster and is eligible for restoration. The damaged building did not have a parking garage prior to the disaster. The applicant requests funding for the construction of a parking garage based on zoning code and other local ordinances. The parking improvements do not restore or replace damaged elements. Because the code provisions related to the parking improvements bear no relationship to the disaster repairs, they do not apply to the type of restoration required and are not eligible for funding in accordance with 44 CFR §206.226(d)(1) and section VII(C)(1) of this policy.

Case 3: A school damaged in a declared disaster is eligible for replacement. The school was constructed for use by 400 students, but had a predisaster student population of 600 students. FEMA assistance would not be available to expand the school to accommodate 600 students, in accordance with 44 CFR §206.201(h). However, if current codes required more square footage per student, the work associated with meeting that current code would be eligible for funding but would be based on the predisaster designed capacity of 400 students.

Case 4: A facility designed as a school was being used as a warehouse at the time of the disaster. Consistent with 44 CFR §206.226(d)(2) and section VII(C)(2) of this policy, it would be funded for repairs in accordance with codes applicable to a warehouse because code upgrades must be based on the predisaster use of the facility. In cases such as this where a facility was being used for a lesser purpose than that for which it was designed, eligible restoration is limited to that necessary to restore the immediate predisaster use of the facility.

Case 5: A facility was designed as a warehouse but was being used as a school at the time of a declared disaster. It was not redesigned as a school. The facility would be funded for repairs

in accordance with standards applicable to a warehouse rather than those applicable to the construction of a school, under 44 CFR §206.226(d)(2) and section VII(C)(2) of this policy. In this case, because the facility was never redesigned as a school, eligible work is based on the predisaster design of the facility. When predisaster use is different from predisaster design, the eligible work is based on predisaster design or use, whichever is the least costly.

Case 6: During a declared event, a culvert is washed out causing road damage. Restoring the predisaster design of the damaged road requires replacing the washed out culvert. The permit application to replace the culvert is denied by the state natural resources department, which recommends that a spanning bridge be constructed. There was no written and formally adopted standard that specifies an upgrade from culverts to spanning bridges. The decision of the state permitting official is discretionary and not based on a written, formally adopted, and implemented code. The upgrades are not eligible for funding, pursuant to 44 CFR §206.226(d)(3) and section VII(C)(3) of this policy.

Case 7: A State-owned building is damaged in a declared disaster and is eligible for restoration. A statewide code imposes seismic retrofit standards on all State-owned buildings. The code does not apply to privately owned buildings, although the local jurisdiction has authority over all facilities, both public and private. The State requests funds to upgrade the State-owned facility in compliance with the code. Because the code's upgrade requirements do not apply to all facilities within that jurisdiction, the code does not apply uniformly to all similar facilities, and upgrades are not eligible for funding in accordance with 44 CFR §206.226(d)(4) and section VII(C)(4) of this policy.

Case 8: A fire house, previously identified as one of 20 publicly owned "critical facilities" in a jurisdiction, is damaged in a disaster and is eligible for restoration. A local ordinance in the jurisdiction requires that all "critical facilities" damaged as the result of a natural disaster be upgraded to the standards applicable to new construction for essential facilities (which are considerably more stringent than for non-essential buildings). The 20 publicly owned facilities on the "critical facility" list are not similar with reference to their basic day-to-day function (they include an airport, police station, and library) and the ordinance applies only to selected buildings within a particular occupancy or use category. The ordinance does not apply uniformly to similar types of facilities within the jurisdiction. Funding for upgrades are not eligible pursuant to 44 CFR §206.226(d)(4) and section VII(C)(4) of this policy.

Case 9: Several mobile trailers were damaged as the result of a declared event. The Applicant states that local code requires that the repairs to its mobile trailers include upgrades to the foundation systems (new tie-downs). The Applicant claims that its undamaged trailers have the improved tie-down systems in compliance with the current code. An inspection of a sampling of trailers installed by the applicant prior to the earthquake reflects that none of them

has the requested tie-down anchorage system. Of the mobile trailers installed after the disaster, only two have the system. The code has not been enforced; therefore, the upgrades are not eligible for funding in accordance with 44 CFR §206.226(d)(5) and section VII(C)(5) of this policy.

Case 10: Two separate disasters damaged unreinforced masonry (URM) police stations located in California and Minnesota. Both buildings are eligible for repair to predisaster condition in conformity with current codes and standards. In both buildings, a number of the URM infill panels sustained insignificant damage; the eligible repair would consist of repointing the mortar in the areas where the cracks occurred. There was also moderate damage to infill panels in both buildings; the eligible repair includes repointing the mortar and removing and replacing damaged masonry bricks with new mortar and grout. Both of the buildings also suffered heavy damage to a number of the infill panels. Due to the severity of the damage, the infill walls need to be replaced. Reinforcement may or may not be necessary to meet the requirements of a code-compliant repair. The eligible repair scope would depend upon the seismic design category of the building (varies by location), the building occupancy category and the type of soil. In this example, replacement of the heavily damaged infill panels in the California building, based upon the location, occupancy category (essential facility), and soil type (liquefiable), calls for steel reinforcement in order to meet the minimum requirements for new construction and the upgrades would be an eligible repair cost. In contrast, the eligible repair costs for the damaged infill walls in the Minnesota facility would, based upon the location, occupancy category, and soil type (stiff soil), consist of removing and replacing the entire infill wall, without steel reinforcement. In these cases, each facility was repaired in a code-conforming manner using code-compliant methods and materials, in accordance with section 406(e)(1) of the Stafford Act and section VII(B)(3) of this policy.