An Investigation of Best Practices for Evacuating and Sheltering Individuals with Special Needs and Disabilities

National Clearinghouse for Educational Facilities

Background

At the request of the U.S. Department of Education's Office of Safe and Drug-Free Schools, the National Clearinghouse for Educational Facilities (NCEF) has conducted "a literature search and review to identify best practices in [school] building design for accommodating the evacuation and sheltering needs of individuals with special needs or disabilities."

The Department's request stems from Recommendation 2 of the June 2007 GAO report, *Emergency Management: Most School Districts Have Developed Emergency Management Plans, but Would Benefit from Additional Federal Guidance (GA0-07-609;* http://www.gao.gov/new.items/d07609.pdf), which states in part:

> To help school districts shelter or evacuate students with special needs and temporarily disabled students in an emergency, we recommend that the Secretary of Education, in collaboration with the Secretaries of DHS and HHS, examine and identify successful procedures for sheltering and removing such students from school buildings and share these procedures with school districts.

Methodology

NCEF's research included:

- A search of 13,000 abstracts in the NCEF database for subjects related to accessibility, special education accommodation, safety and security design, fire safety, and disaster preparedness; this included citations in the following NCEF resource lists:

  Preparedness for Disasters, Overview, http://www.ncef.org/rl/disaster.cfm
  Preparedness for Natural Disasters, http://www.ncef.org/rl/natural_disasters.cfm
  Preparedness for Terrorism, http://www.ncef.org/rl/terrorism.cfm

- A search of the ERIC website and the websites of over 20 state school safety centers.

- A review of the school emergency preparedness plans of the thirty-nine states that post them online, as cited in the NCEF resource list, *State and Local Emergency Planning Guides*, http://www.ncef.org/rl/statelocal_emergency.cfm

- A review of the numerous reports and guidelines for emergency preparedness planning for the special needs population in general, as published by the federal government and the disabilities community, including materials from and communications with the staffs of the U.S. Access Board, the consulting firm Adaptive Environments Inc., the U.S. Department of Education's Office of Special Education and Rehabilitative Services, and the National Institute on Disability and Rehabilitation Research (NIDRR).

- A search of the Internet using the keywords "school facilities," "school buildings," and "educational facilities" coupled with the keywords "emergency evacuation," "sheltering," "emergency egress," "disabilities," and similar terms.

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Findings

1. Evacuation. Little school design-related literature on emergency school evacuation exists, either for special needs children or for the general school population. But there is an explanation for this paucity of information.

Since 1990, public schools have been subject to Title II of the Americans with Disabilities Act (ADA), which requires schools built after January 26, 1992, to comply with the federal ADA Accessibility Guidelines. Schools built prior to this date are not required to comply, but they must "make each program, service, and activity, when viewed in its entirety," accessible by reassigning services to an accessible location; purchasing, redesigning, or relocating equipment; assigning personal aides; or making physical changes to facilities.

The ADA guidelines have become the de facto "best design practices" for making public schools accessible to individuals with special needs or disabilities. Officially known as the *Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines*, http://www.access-board.gov/ada-aba/final.pdf, they were last issued on July 23, 2004, by the U.S. Access Board and are enacted through state and local building codes via standard IBC/ANSI A1171-2003, *Accessible and Usable Buildings and Facilities* (unavailable online).

Eighteen years after passage of the ADA, it is accepted that disabled and special needs students are housed in ADA-compliant locations and can be readily evacuated in an emergency, either along an accessible route for those with mobility impairments, or with the help of others for those with mobility, sensory, or cognitive impairments.

A 1996 publication by the U.S. Department of Education's Office for Civil Rights, *ADA Compliance with the American with Disabilities Act: A Self-Evaluation Guide for Public Elementary and Secondary Schools*, includes a checklist to assess the accessibility (but not the evacuation) of existing schools. This publication, funded by NIDRR, is no longer publicly available, but printed copies may be obtained from the authors, Adaptive Environments, Inc., in Boston, and a PDF version is online at http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/14/cb/3c.pdf

On October 13-14, 2004, the Interagency Committee on Disability Research held a two-day workshop, *Emergency Evacuation of People with Physical Disabilities from Buildings*, in which conferees discussed evacuation experiences of the disabled in the World Trade Center disaster. They reviewed current evacuation products for stairs and called for more research on alternative evacuation devices. They did not discuss building design. In October 2005, the conference proceedings were published by NIDRR and posted online at http://www.icdr.us/documents/pwd-emergency-evac.pdf

Numerous publications and links related to accessible school design are included in the NCEF resource lists *Accessibility*, http://www.ncef.org/rl/accessibility.cfm, and *Special Education Accommodation*, http://www.ncef.org/rl/special_ed.cfm. As noted above, however, these sources contain virtually no information pertaining to evacuation.

There exists extensive, non-design-related information about disaster preparedness and emergency evacuation procedures for the disabled. The U.S. Department of Education's Office of Safe and Drug-Free Schools' *Practical Information on Crisis Planning: A Guide for Schools and Communities,* http://www.ed.gov/admins/lead/safety/emergencyplan/crisisplanning.pdf, addresses the evacuation of students with special needs and disabilities on pages 6-30 and 6-31 as follows:

Considerations of Special Needs Staff and Students

Be sure to give special consideration to the unique needs of staff and students with disabilities when developing the crisis plan. Evacuation and relocation procedures will need to address mental, physical, motor, developmental, and sensory limitations. For example, individuals who use wheelchairs or other auxiliary aids will not be able to traverse the front steps of a building without substantial assistance.

The following issues should be addressed:

● In some cases, individuals with disabilities may have limited mobility. In an evacuation there may not be enough time to move mobility impaired students and staff to traditional shelters. It is important to identify alternative, accessible, safe shelter locations and to communicate these locations to emergency responders.

● Individuals with hearing disabilities may not be able to communicate verbally, to read lips, or to hear fire alarms or other emergency signals. Consider providing basic sign language training to designated school staff.

● Visual impairments might impede reading signs or traversing unfamiliar or altered terrain — consider whether debris might obstruct the evacuation of such staff and students and necessitate alternative shelter locations.

● Debris may obstruct the evacuation of individuals with mobility impairments. Be sure to assign sufficient staff to assist these individuals during a crisis or consider identifying alternative shelter locations.

● Are staff trained to assist students with developmental disabilities? These students may become upset if routine patterns of activity are disrupted.

● Do any students or staff have special needs for medicines, power supplies, or medical devices that are not likely to be available in emergency shelters? Consider what alternative arrangements can be made to provide these necessities.

In addition to addressing these concerns, find out whether specific crises will require additional considerations for hazards, such as fire, severe weather, or earthquake. For example, mobility impairments might prevent some staff or students from being able to bend over to assume the protective position recommended during tornadoes. Also, during a fire, elevators will be unavailable to transport wheelchairs. As noted earlier, it is critical to identify safe and appropriate shelter areas inside school buildings that can be reached quickly and accommodate individuals with disabilities.

Another Department of Education publication addresses this subject:

- ERCM Express, Volume 2, Issue 1, 2006: *Integrating Students with Special Needs and Disabilities into Emergency Response and Crisis Management Planning*, http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/29/e2/ae.pdf

Other emergency evacuation information resources include:

- *Emergency Evacuation Preparedness: A Guide for People with Disabilities and Other Activity Limitations*, 2002, by June Isaacson Kailes, a disability policy consultant who maintains a frequently updated and highly regarded webpage titled *Disaster Resources for People with Disabilities and Emergency Managers*, http://www.jik.com/disaster.html

- The National Organization on Disabilities (NOD) webpage, *Disability and Emergency Preparedness Resources*, http://www.nod.org/index.cfm?fuseaction=page.viewPage&pageID=1430&nodeID=1&FeatureID=599&redirected=1&CFID=12825125&CFTOKEN=11205444

- Nobody Left Behind's webpage, *Resources*, http://www.nobodyleftbehind2.org, and its "Report on Exemplary and Best Practices and Emergency Response for People with Disabilities," http://www.nobodyleftbehind2.org/findings/pdfs/bestpractices_3-21-072.pdf, from the website "Nobody Left Behind: Disaster Preparedness for Persons with Mobility Impairments."

2. Shelter. Schools, or specific areas within them, are sometimes designed and used as shelters or "areas of refuge" to protect 1) school occupants during a crisis, most often tornados but sometimes during threatened or actual acts of violence; or 2) community members during or after a natural disaster, particularly hurricanes, but whenever a large or centrally located shelter is desired.

In some parts of the country, particularly tornado- and hurricane-prone areas, school multipurpose rooms, gymnasiums, or other spaces are reinforced to serve as emergency shelters by modifying roofs, walls, and openings to withstand high wind loads. Related building considerations may include provisions for the storage of water, food, blankets, clothing, and first aid materials, as well as for emergency power generation for lighting, HVAC, and food and medical refrigeration. Information on this subject is provided in Chapter 6, "Making Schools Safe Against Wind," in FEMA 424, *Design Guide for Improving School Safety in Earthquakes, Floods, and High Winds*, http://www.fema.gov/pdf/plan/prevent/rms/424/fema424_cvr-toc.pdf.

There is a wide range of information about the design of emergency shelters and areas of refuge for schools and other buildings. A Google search using the term "emergency shelter design," for instance, produces over 300 thousand hits. FEMA 361, *Design and Construction Guidance for Community Shelters*, http://www.fema.gov/plan/prevent/saferoom/fema361.shtm, includes a case study of a school used as a community shelter in Appendix D, but accessibility is not addressed.[1]

Shelter from explosive attack is addressed in Section 6.8, "Safe Rooms in Response to the Domestic Explosive Threat," of FEMA 428, *Primer to Design Safe School Projects in Case of Terrorists Attacks*, http://www.fema.gov/plan/prevent/rms/rmsp428. Other sections address safe room locations (6.9), fragment mitigating upgrades (6.10), structural upgrades (6.11), and protection from chemical, biological, and radiological (CBR) attack (6.1 – 6.7).

A publication by the U.S. Department of Justice's Disability Rights Section includes a discussion of accessible community shelters: *An ADA Guide for Local Governments: Making Community Emergency Preparedness and Response Programs Accessible to People with Disabilities* (undated), http://www.ada.gov/emergencyprep.htm

3. Communication. Related to both evacuation and sheltering is the subject of emergency communication; that is, alerting building occupants to danger and providing instructions about how to proceed. Schools traditionally have relied on fire alarms and public address systems to provide rapid notification in a crisis, but wireless communication — both voice or text — is playing an increasing role in crisis management. Text messaging among emergency responders and school staff can be particularly useful for conveying the necessarily more specific and detailed information about evacuating and sheltering disabled and special needs students.

Wireless communication technology is not within the realm of building design, although school buildings with steel structural systems can disrupt emergency radio and phone transmissions; where this occurs, electronic signal repeaters must be added within the buildings to correct the problem.

Emergency communication is discussed in the "Shelter-in-Place (SIP) Plans" and "Emergency Notification Strategies" sections of the July 2006 publication of the Federal Interagency Coordinating Council on Emergency Preparedness and Individuals with Disabilities, *Preparing the Workplace for Everyone*, http://www.dol.gov/odep/pubs/ep/preparing.htm

Recommendations

1. Evacuation. It is doubtful that school design improvements beyond current ADA requirements could make a substantive difference in the evacuation of disabled and special needs students. State building and fire regulations dating to the mid-nineteenth century require schools to have adequate means of egress, high degrees of fire resistance and structural integrity, and a low potential for smoke generation. The low-rise, spread-out nature of most schools provides for multiple egress routes and ready access and rescue by emergency responders. The incidence of serious fires and fire-related deaths in schools is extremely low.[2]

But schools are not indestructible, and their egress routes, accessible or not, may become blocked by smoke, fire, or building debris or darkened by a power outage. Students may panic and become unruly, making their evacuation by any route difficult.

> ***Recommendation 1. School emergency management plans should include procedures and training for evacuating all school occupants — including special needs and disabled students — in a variety of emergencies and building conditions and by a variety of routes.***

2. Shelter. As mentioned, a wide range of information exists about the design of emergency shelters and areas of refuge — for all people, disabled, special needs, or otherwise.

> ***Recommendation 2. Schools should continue to work with emergency planners and building designers to ensure that facilities are equipped to shelter a range of individuals with special needs.***

3. Communication. Emergency communication is a subject that might be further explored but, as noted, it is only a building issue when structural steel work impedes radio transmissions.

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[1] A supplement to FEMA 361 is FEMA 453, *Safe Rooms and Shelters: Protecting People Against Terrorist Attack*, http://www.fema.gov/plan/prevent/rms/rmsp453.shtm. Accessibility and special needs are briefly discussed in Sections 1.7.2, 1.7.3, and 1.7.4. Evacuation considerations for high-rise buildings are discussed in Section 1.9. None of the material is school-specific.

[2] According to *School Fires*, Topical Fire Research Series, Volume 8, Issue 1, U.S. Department of Homeland Security, Washington, D.C., August 2007, http://www.usfa.dhs.gov/downloads/pdf/tfrs/v8i1.pdf, for the three-year period 2003/2004/2005, the National Fire Incident Reporting System (NFIRS) database indicates that the yearly national fire loss for fires on non-adult school properties is estimated at $85 million. Such losses are the result of an estimated annual average of 14,700 fires that required a fire department response. Fires on school properties caused an average of approximately 100 injuries. No fatalities were reported to NFIRS during this three-year period. Forty percent of school-related fires occurred outdoors on school property. Trash fires accounted for 36% of outside fires, and fires in open fields or woods accounted for an additional 19%. Forty-three percent of fires on school properties, an estimated 6,300 fires, were fires within buildings. Slightly over half of these were confined to the object where the fire started, such as a small cooking fire (20%) or a fire confined to a trash can (28%). Six percent of fires on school properties were vehicle fires.

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