P1.16 **ACTIVATING YOUR SCHOOL'S TORNADO EMERGENCY PLAN: ARE YOU READY FOR THE UNEXPECTED?**

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1. INTRODUCTION

Burling and Hyle (1997) surveyed natural disaster plans from school districts around the country. In areas affected by possible disasters from nuclear power plant accidents and earthquakes, the school disaster plans included what to do before, during, and after the disaster. Unfortunately, in areas where weather-related disasters like hurricanes and tornadoes threaten, little guidance is provided.

2. DESIGNING A PLAN

Creating an emergency plan for buildings where children spend a majority of their time is not a trivial exercise. Precious lives and the community's confidence depend on effective emergency procedures. An incomplete or incorrect plan can be as life threatening as having no plan.

When preparing your plan, seek expert advice from local emergency agencies, architects, engineers, parents, teachers, and the planning team of a neighboring school or school district. Your emergency plan should include how to alert people of an emergency, where people should go, the route to each shelter, how to help people with special needs, what to do after the emergency, how parents will be notified, roles and responsibilities of the emergency response team, the roster of emergency response team members, a list of emergency numbers, and a list of family reunion sites.

Consider having a master plan in a three ring binder to facilitate changes or updates to the plan. A copy of the master plan should be in the main school office, the district or superintendent's office, your local emergency manager's office, and your state's department of education with extra copies available upon request by parents and employees.

2.1 Identifying Shelter Areas

Historically, hallways have been used by schools as shelter areas when tornadoes threaten. Unfortunately, this practice has been used without evaluating their structural integrity. Hallways may be lined with glass along the top edge. Walls may be held in place only by the weight of the roof. If the roof is damaged or torn off, the walls have no support to keep them vertical. However, hallways do provide more protection than windowed classrooms.

The 3 May 1999 Oklahoma Tornado Outbreak provided evidence of how design features commonly used in schools respond to tornadic winds. In the authors' 2001 paper, improper construction techniques, poor-quality construction material, and inadequate connections between structural elements caused failures in residential and non-residential buildings (i.e., school buildings).

The shelters must be reviewed by a qualified engineer or architect for structral integrity. Additionally, the Warning Coordination Meteorologist of your local National Weather Service Office (NWS) and local emergency manager have been trained to identify safe areas within schools. Ask how much wind the "safe areas" can resist. New school facilities should be designed with engineered shelters (tested for high-wind resistance).

2.2 Moving to Shelter Areas

Moving to the designated shelter area becomes complicated if students are not in a classroom. Students could be in portable building, outdoors on the playground or athletic field, loading or unloading from buses, standing in the hallways between classes, in the gymnasium or cafeteria. Each scenario must be included in the emergency plan.

Students should avoid rooms with skylights and glass walls like media centers or school entryways. Relocate students from portable classrooms. Portable buildings not anchored to the ground are as dangerous as a mobile home. A Florida newspaper discovered that 62% of portable classrooms in Central Florida were not anchored to the ground correctly. Many were anchored with rusted bolts that would easily snap in high-wind conditions (Kunerth 1998).

Class periods may need to be extended in order to keep students grouped and ready to relocate to the assigned shelter. Students should focus their attention on the nearest teacher or school employee. Be prepared to act quickly and quietly. Keep the noise level down so everyone can hear instructions.

Teachers must have their attendance roll, emergency plan, flashlight, and first aid kit near the door at all times. These items should be picked up when exiting the classroom, closing the classroom door on the way out. Move students to designated shelter areas. Take roll and account for all students. Relay status of students present or missing to the School Emergency Director.

Disabled students and employees will need more help reaching shelter. Assign teachers or an older student to each person who will need extra assistance. Delayed arrival and departure times for buses may be warranted when severe weather approaches. Provide guidance for bus drivers and students caught out in the open or on field trips.

2.3 Emergency Response Team

The Emergency Response Team should include all

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school personnel and selected students. Remember to have back-up members identified in case someone is not in the building at the time of the emergency. The team assumes command and control until help arrives, manages available resources, provides an avenue for communications to higher management and to those involved in the incident. The team should be divided into subgroups with specific tasks like search and rescue or communications. Look within walking distance of the school for community resources (i.e., a hospital or medical personnel who live in the neighborhood).

The School Emergency Director acts as the incident commander and keeps track of all the subgroups, supplies, and contacts off-campus emergency personnel. The Emergency Coordinator is second in command and keeps a record of available supplies, any action taken by subgroups, a list of needed supplies or skilled volunteers (i.e., nurses or fork lift operators), and relays information to the School Emergency Director.

The Daily Weather Monitor keeps the entire school advised of changing weather conditions throughout the day. This monitoring is necessary to provide the longest possible lead-time to implement the emergency plan. The Transportation Director is in charge of organizing people to create an unimpeded path for emergency vehicles to reach the school, keep traffic flowing, and detour any unnecessary traffic. This person may also authorize the use of school buses to transport the injured if emergency vehicles are unavailable or move uninjured people to the family reunion center.

The Communications Director is in charge of handling the media. Create a media area equipped with electrical outlets. Organize a press conference quickly to give instructions on where the family reunion center is located so parents do not interfere with the rescue efforts. A fact sheet with the school's name, principal, school address, number of faculty, and number of students should be made available to the media at this first press conference. Schedule a time for a follow-up conference to provide updated information. The Information Officer collects the updated list of casualties and injuries, requests for supplies, and helps the Communications Director prepare for press conferences (Washington 2001).

The Director of 'Parents with Professional Skills' organizes and mobilizes parents who are doctors, nurses, machinists, electricians, plumbers, etc. These parents should be identified at the beginning of each school year, assigned to an emergency response unit, and should participate in any drills. The parent volunteer director organizes any adults arriving on-scene to help in the emergency.

Additional team leaders will be required for the search and rescue team, medical assistance team, hazardous materials team, security team, utilities team, family reunion coordinator, fire suppression team and any other support team needed (NWS 1996). For all of these external groups to work well together, the school and local emergency management office may need to schedule a mock emergency. Throughout the year these teams should be encouraged to attend CPR classes, spotter training seminars, fire extinguisher maintenance and handling, or hazardous materials classes. Additional preparation can be obtained by attending the Federal Emergency Management Agency's one-week course called "The Multi-Hazard Safety Program for Schools".

2.4 Being Self-Sufficient for 72 Hours

Depending on how widespread the emergency, the school may need to act independently for several hours or days. A set of school emergency supplies must be collected and replenished. These might include water, blankets, first aid materials, and flashlights with batteries. The Red Cross has compiled a list of supplies and has made it available on their website (http://www.redcross.org/). Remember to multiply the amounts to accommodate the number of people in the school building. If the building is undamaged, students may need to be housed overnight if parents are unable to collect them, or it may become a shelter for displaced families.

2.5 Parental Response

How parents respond to a school emergency is crucial. Students are drilled in emergency procedures and parents need to know how they should react. Calling the school or driving to the school can delay rescue efforts. Family reunion sites should be identified and listed in a registration packet or parental handbook. Possible sites could be an athletic field, the bus barn or another school nearby. Provide parents with a list of radio stations and television networks where specific information will be announced in the case one of the reunion sites is inaccessible.

Parents willing and able to offer assistance to the rescue effort should report to the parental volunteer coordinator. The coordinator will assign volunteers to emergency teams.

3. DRILLS

Emergencies occur at any time of the year and any time of the day. Remember to conduct drills at unexpected times. Do not practice your plan the same way every time. This will limit the ability of your school personnel and students to adapt quickly. Most schools hold tornado drills twice a year. These drills are generally conducted when students are in their homeroom class.

What happens if all the students are in the hallway during a class change? The noise level will be extremely high. How will you get students' attention and move them to shelter? They cannot run to their homeroom shelter. They would need to go to the nearest shelter area which may be right where they are standing. The students are not grouped in any particular manner. How do you account for everyone? How do you take attendance?

What happens if a portion of the building is damaged and their escape route is blocked? Do students and teachers know how to get around the debris or have an alternate route to their shelter?

4. DAILY WEATHER MONITORING

A major unknown in emergency planning is having enough warning to activate and implement the plan. When a plan requires 20 minutes to implement but only a

15 minute lead-time is given, you have a problem.

Every single school building should have a NOAA Weather Radio with tone-alert and battery back-up features. The radio should be located in a high traffic area (i.e., the main office) where someone can hear the alert whenever the building is occupied. A delay in receiving the warning or alert means a reduced lead-time. In locations where the weather radio signals are weak, a local television or radio station that broadcasts messages from the emergency alert system can be substituted.

The Daily Weather Monitor must recognize conditions that produce different types of weather phenomenon. Monitoring the weather requires knowledge of weather terminology. Know the difference between a watch and a warning. Know the criteria used by the NWS to decide what type of warning is issued. The Daily Weather Monitor should attend workshops to gain experience in terminology and data interpretation. Local NWS offices run a program called SKYWARN where community members can learn to spot severe weather.

5. ANNUAL REVIEW OF PLAN

Be sure your plan is an all-hazards plan that accounts for all natural and man-made disasters for your area. Contact your local emergency management director to find out which hazards are mostly likely to occur in your area.

Update the plan annually by checking phone numbers, new school personnel, changes in research pertaining to safety issues, and reassign emergency response team roles. Make necessary changes based on drill evaluations. Hold safety workshops for parents, teachers, substitute teachers, school volunteers, and students. Be sure to discuss the safety plan every year at the open house or back-to-school night. Consider translating the emergency plan into other languages (i.e., Spanish).

6. ACTIVATING THE PLAN

When the time arrives, the alert must be clear and unique. Do not use the fire alarm or any warning that sounds similar. Most emergencies require occupants to evacuate the building but for weather hazards people must remain inside. The call to action must indicate immediately to the building occupants which emergency procedure they must follow.

Move everyone to their shelter areas as quickly as possible. Teachers should guide students to the shelter areas. Once in the shelter the teachers should account for all students. In the case that the emergency occurs when students are not in class, the teacher should make a list of all students and personnel in their immediate vicinity. This list will be crucial if the shelter area is damaged with individuals buried underneath debris.

The School Emergency Director should continue to monitor the situation and update personnel in shelter areas as warranted. Listen for instructions such as “Take Cover”. Adults and older students should sit between younger students to help them stay calm. Younger students may respond well to singing or holding hands. Adults should reassure the students and remind them to stay in their “cover” position until the “all clear” signal is given.

Wait patiently for the all clear signal. In some cases, the strong winds or tornado may pass nearby and minor or no damage will occur to the school building. Students need to understand the dangers of leaving their protective position before the all clear is given. Caution must be taken not to give the “All Clear” signal too early. Remember, large thunderstorms can support multiple tornadoes.

7. RESPONSE AND RECOVERY

Once the danger has passed, assess the amount of damage to your immediate area. Quickly and briefly, notify the School Emergency Director of the damage sustained in your area. The best method for relaying information is for all the school personnel to have radios available when they move to the shelters. Communicating the extent of the damage will indicate to the School Emergency Director how much help you will need to uncover the injured from the debris.

Assess injuries and account for all students and personnel. Relay your injury report to the School Emergency Director. Request help from the medical or search and rescue team. Move uninjured students to the family reunion location. All uninjured students become the responsibility of the Reunion Area Leader who will help the students contact family members. The Reunion Area Leader will be in charge of releasing students to their parents. Detailed records will need to be kept of which students were released, when they were released, and the name of the person with whom the student left. These records will be necessary to remove students and school personnel from the missing persons list. Records of the number of injuries, casualties, and uninjured will be needed by the Communications Director and for any post-emergency reports to the school board.

The medical team will select a triage area where injured students are transported. First aid will be administered for minor injuries and students will be released to the reunion area. The medical team leader will provide ongoing information to the School Emergency Director to request off-campus medical support and needed supplies.

The maintenance crew must determine the need to shut off gas, water, and electricity if these pose a danger during the rescue efforts. Scout the outside of the building to determine if there are any dangers for people leaving or entering the building. Are there any downed powerlines or other hazards? Concentrate on removing debris between the school building, parking lot, and entrance gates that would interfere with emergency vehicle access to the school. Periodically, report the status of efforts to the School Emergency Director. The School Emergency Director will need to relay any potential dangers to responding city/county emergency workers including alternate routes to take to access the school.

Based on the reports from each of the shelter areas received by the School Emergency Director, the search and rescue team will mobilize to assist anyone trapped by debris. Assess the type of damage and determine whether or not special equipment will be needed to move

debris. Notify the School Emergency Director how many additional rescue workers are needed and what type of equipment is required.

Parent members of the emergency response team should make their way to the school quickly after the danger has passed. Find your team leader for instructions on how to help. All other parents should go to the reunion area to find their children. Park away from the school and off the route emergency vehicles will use and walk to the reunion area.

8. OUTDATED OR INCORRECT INFORMATION

The Internet is full of sample school emergency plans. In many cases, even the most thorough plans (40+ pages just on natural disasters) contain outdated or incorrect information. Be critical. If you are unsure about whether a procedure is safe or necessary, ask for expert advice. Your local emergency management director, fire chief, police chief, and NWS employee may be able to help you distinguish the good from the bad. Here are some examples of "BAD" information still included in emergency plans around the country.

8.1 Open Windows

Plan after plan available on the Internet instructed teachers to "Open the Classroom Windows" before moving students to shelter during a tornadic event. Having teachers open windows prior to exiting the classroom breaks a major rule of tornado safety. This must be removed from all school emergency plans **immediately.**

In other cases, the window issue is even more confusing. Teachers are instructed to "**open**" the windows. Two pages later, the same plan says "**close**" all windows. Then, in the very next sentence, it tells teachers to **"leave a window or door ajar** on the opposite side of the building - thus eliminating the low pressure that could cause the building to expand and explode".

8.2 Buses

One school's tornado safety plan for buses instructs the bus driver to:

1. pull out of traffic and park at the curb
2. students will drop in the aisles or under the seats for protection

Proper safety procedures for people in vehicles is to seek shelter in a sturdy building. If no building is available, get out of the car and lie face down in the nearest ditch. The 3 May 1999 tornadoes in Oklahoma left many cars, trucks, vans and semi-trucks damaged. Some had been lifted and dropped onto houses. Other vehicles were mangled and twisted around trees or power poles (FEMA 1999).

Another plan states "highway underpasses can provide protection". The driver is instructed to stop the bus downwind of the underpass. Then, move students up under the overpass structure.

Overpass. Underpass. No matter what you call it, it is a "DEATH TRAP". Many people died in the 3 May 1999 tornadoes because they sought shelter beneath overpasses. For a more in-depth explanation of the dangers of overpasses see the web site at http://www.srh.noaa.gov/oun/papers/overpass.html.

9. CONCLUSIONS

The Federal Emergency Management Agency has many helpful documents on their web site (http://www.fema.gov/) including a section for teachers and kids dealing with disasters, building safe rooms, emergency supply kit lists, and building shelters for large groups. Look in your local community for organizations and individuals who can help with the design, testing, and implementation of your school emergency plan.

Once you have created a solid plan, the following steps must be done annually. Review content for accuracy. Practice several times a year. Update the plan. Be sure to make changes based data collected during drills. Change the drill scenario. Remember to keep the plan as simple as possible.

10. REFERENCES AND RESOURCES

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