School Safety

Emergency Planning and Preparedness

Designing a School Severe Weather Emergency Plan

Obtaining Emergency Weather Information

Because severe weather can occur with little, if any warning, minutes – even seconds – can mean the difference between life and death. A tornado has the ability to travel two to four miles on the ground in a five-minute period.

Schools, businesses and home must have an emergency plan prepared. If there is a severe storm warning occurring in your area, it is too late to start preparing a safety plan. As administrators, you must know what to do during severe weather. You must know how to and where to move students to safe locations within the school.

NOAA Weather Radio – The fastest, most accurate and reliable means of receiving critical weather (and emergency) information at your school is through a NOAA Weather Radio with a “tone alert” feature. NOAA weather radios are operated directly from National Weather Service offices and are part of the United States’ National Warning System. When the NWS issues a warning, a Specific Area Message Encoder (SAME) unit triggers a tone alert. This alert is immediately followed by warning information.

The NOAA weather radio tone alert feature is used to issue all weather warnings, as well as severe thunderstorm, flash flood and tornado watches. Ensure that everyone knows the difference between severe weather watches and warnings.

A severe weather **watch** means conditions are favorable for the development of a particular severe weather event. A watch is normally issued for several hours and indicates a need for planning, preparation and an increased awareness of changing weather conditions.

A severe weather **warning** means that a particular weather hazard is either imminent or occurring. A warning indicates the need to take immediate action to protect life and property.

If your school is not in a reliable NOAA weather radio listening area (because of interference from mountains or other sources), then the following are some suggested alternatives:

The Weather Channel
If your school has cable television access, The Weather Channel uses NWS products and broadcasts warnings immediately upon receipt from the NWS via a satellite link. They also display local radar pictures throughout the day.

Primary Emergency Alert System (EAS) Station
Monitor your primary (EAS) radio station. EAS operates on a cooperative agreement between broadcasters and federal, state and local government agencies. EAS is activated for tornado and flash flood warnings.

Local or Cable Television
Monitor your local or cable TV stations. Many stations have access to NWS products and will immediately post a watch or warning when issued.

The school's radio or television should be located in the main office or near the person(s) responsible for enacting the severe weather emergency plan. Main offices are good because there are generally a number of people around who could hear the alert and in an emergency the public address (PA) system is usually close. If your school is using a NOAA weather radio, the radio should be set at all times in "Alert" mode. Most radios automatically turn on when an alert sounds.

Listen for the type of watch or warning and for what areas or counties are affected. The person(s) monitoring must know what action needs to be taken based on the weather information. A map should be nearby for easy reference to counties and towns to locate storms and their movement in reference to your school. There is no need to take emergency action if the warning is not for your location. It should, however, heighten your awareness to the potential for severe weather in your school district, especially if the warning is for a county next to you and the storms are moving in your direction.

Getting the Message out to Students and Staff

Most schools use a public address (PA) system to talk directly to students and teachers. In some cases, electricity may be lost during a storm before your plan is activated. Therefore, it is critical to have a back-up alerting devise such as a compressed air horn or megaphone.

If your school has mobile classrooms or detached gymnasiums that are not part of a PA or intercom system, then special arrangements should be made to notify students and staff in these areas. Sending "runners" outside to mobile classrooms is not advisable because of the danger posed by lightning and the approaching storm. Wireless communication devices are an effective means for such communications. "Walkie-talkies" may be the least expensive.

Individuals with disabilities may require special attention. A staff member may need to be assigned to each person requiring special attention to see that the student moves to the appropriate place of safety. Students or staff that may not hear the warning must be taken into account.

To ensure appropriate action and understanding of your "call to action," you must exercise your plan.

Determining Severe Weather Safety Zones at School

This may be the most time-consuming and complex phase of designing your plan. Schools are so complex and diverse in design that is would be impossible to describe an exact plan that will apply to every school. It is recommended that this phase of the plan be accomplished with the help of an engineer or architect familiar with the school's design.

The greatest dangers from high winds are: roof failure, breaking glass and flying debris. The most dangerous locations are generally large rooms with big expansive roofs such as cafeterias, gymnasiums and auditoriums. The collapse of the room's load-bearing walls may lead to the failure of the entire roof. Roofs tend to rely on gravity to keep them attached. When strong winds act on a structure, pressure differences are created, causing outward pressure forces, acting to lift the roof. Rooms with large windows that may shatter from being struck by airborne missiles or from pressure stresses are extremely dangerous. While windows on the side of the school facing the storm are most susceptible, as the storm passes, any window could potentially shatter. Once winds enter a building, additional damage can create a domino effect. ***This is one of the reasons that it is no longer advised that windows be opened.*** Greater damage may occur from this action, and valuable time that should be used getting to safety is often lost.

Small, interior rooms, bathrooms and windowless, interior hallways that are away from exterior doors offer the best protection. Interior load-bearing walls (with short roof spans) provide better protection than temporary or non-load bearing walls and structures. If your school has more than one story, evacuate the upper level of your school. The lowest level is always the safest.

Schools designed for the "open classroom" concept often lack safe areas due to a lack of interior load-bearing walls, large spanning roofs, and the use of plenty of glass. You may not be able to find enough "ideal" space to protect your students and staff. It may be a matter of determining the lesser of evils. The following is a list beginning with the lowest probability of failure:

- Interior, lower level. Load-bearing walls (i.e. interior bathrooms or closets)
- Interior walls of upper level; exterior walls of lower level
- Exterior walls of upper level; roof
- Rooms with large roof spans; mobile classrooms
- Windows on exterior walls

Fortunately, the majority of tornadoes will not destroy well constructed buildings and damage in about 70% of cases should not go beyond the second bullet item listed above. Fill the safest areas first with students and continue until you have found space for everyone. Again, it is best to have an engineer or architect advise your school on the safest areas since schools are built with varied designs and purposes. The priorities listed above are based on broad generalities.

When to Activate Your Plan & When to Return to Normal Activities

When activating a plan, you need as much information as possible about the type of storms, expected impact, and time of impact on your school district to assess the risk. A plan may work best with phases of activation. For instance, outdoor activities will be the most susceptible to weather hazards, with lightning being the greatest threat.

As soon as thunder is heard (not when the rain begins), outdoor activities should be stopped. Outdoor activities should not be resumed until the storm has passed and thunder is no longer audible (approximately 5-10 minutes after thunder is last heard).

Tornado or Severe Thunderstorm Watch

In a severe weather watch, outdoor activities should be postponed. As a storm approaches, you may want to move students from the most susceptible areas such as mobile classrooms and gymnasiums as a precaution, even though a warning has yet to be issued. You may want to post a school official trained in spotting severe weather to watch the storm as it approaches. This person can then advise when to take special actions.

For severe weather spotter training, contact your nearest National Weather Service office or county emergency management agency.

Severe Thunderstorm Warning

If a severe thunderstorm warning is issued, all previously mentioned actions are warranted. In addition to strong damaging winds, severe thunderstorms may contain large hail and students should be moved out of areas with skylights. If your school has areas where large exterior windows may be exposed to a storm's winds, keep students out of these areas until the storm passes.

Tornado Warning

When a tornado warning is issued and you have determined that your school is in the path of this storm, an immediate and complete "call to action" is needed. If the storm has yet to reach your school, begin moving students and staff from unsafe areas and post a trained teacher or school employee to keep an eye on the storm's approach.

From your drills, you should know approximately how long it will take to move students into "tornado-safe areas." During the storm, ensure all students and staff are in designated areas. If winds begin to pick up outside the school (or if large hail is falling, or if you hear a roaring sound outside), have students and staff drop immediately into a kneeling position with heads to the floor and hands clasped behind their heads.

Winds may increase at the onset of the storm and may or may not drop off prior to the tornado. Rain may or may not occur. Large hail is a signal that you are near the part of the storm where the tornado would most likely occur. Once the storm has passed, students may return to classrooms. Stay alert for the potential of additional storms.

One complication could be activating a full emergency plan during class changes. The halls are generally crowded and students may not know where to go. It might be best to hold classes beyond regular dismissal time until the severe weather threat has passed. Likewise, at the end of the school day, students may need to be held from boarding buses until the danger has passed.

The school should have at least a couple of adults know how to shut off the main power (electricity) and gas (if applicable). After a tornado or severe thunderstorm, it may be necessary to shut off the gas and electric supply to the building.

Determining When to Delay Departure of Students

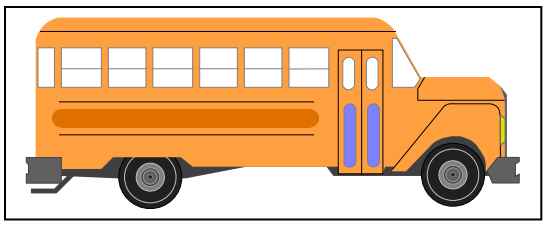
You should consider holding the departure of students to buses whenever watches or warnings are in effect. There are two primary considerations:

1. Upon departure, determine the amount of time it will take students to get safely home. Include time for the students to walk from their bus stop to their homes.
2. How much time do you have before the storms are expected to impact your district? Severe thunderstorms and tornado watches are often issued several hours in advance of thunderstorm development. Watches are generally issued for large areas, so it may be a couple of hours before the storms reach you. On the other hand, it may be a rapidly developing situation with less than an hour before the storm's impact.

If there is a possibility that students will be traveling during the storm, delay their departure until after the storm has passed. Buses provide no protection from severe storms, so you should provide adequate time for students to get home.

It is not advisable for parents to go to the school to pick up their children during severe weather. Children are far safer at the school with a severe weather plan in place than on the road when a storm strikes.

School Bus Driver Actions



All school bus drivers should be trained on how to handle severe weather situations. Two primary concerns are flash floods and tornadoes. Additional thought should be given to high wind situations (thunderstorm or other), unexpected heavy snow or ice, and extreme heat or cold.

Tornadoes

NEVER ATTEMPT TO OUTRUN A TORNADO! If a bus driver has reason to believe a tornado is approaching, the following steps should be taken.

- If you have time to get to a well-constructed building where you can unload students, do so as quickly as possible. Move them into the interior or basement of the building, away from windows and doors.

- If no safe building is available, look for a ditch or low-lying area (preferably without water) Make sure the bus is parked downwind from the location you have selected. Unload the students to the low-lying area and have them get into the "tornado safe position" with their hands clasped over their heads.

- (It was deemed no longer safe to shelter in highway underpasses.)

Flooding

NEVER ATTEMPT TO DRIVE THROUGH FLOOD WATERS! If your bus route takes you across small streams and creeks or along a river, you need to have either an alternate route to travel, or a contingency plan to return to the school if flood waters are encountered. Major river flooding and coastal flooding generally are well forecast with warnings issued early enough that schools and drivers can plan their strategy prior to placing students on buses.

Flash flooding (a sudden and dramatic rise in water levels that lead to flood conditions) does not lend much warning time (by definition). Drivers need to understand what to do and what not to do.

A shallow ponding of water on the roadway is usually not a problem, but as soon as the depth of the water comes into question, particularly in cases where the road may have been undermined, drivers should not enter. Do not enter underpasses that are filling with water. If the water appears to be flowing (moving across the road), do not enter the water.

Water levels can rise rapidly, and the force of that water against a vehicle can be amazingly powerful. If the driver is caught in an unavoidable situation, seek higher ground immediately. If the bus stalls and water is rising, abandon the bus and seek higher ground before the situation worsens.

Extreme Heat or Cold

Children awaiting the school bus in the morning, standing exposed to a cold wind without proper clothing for protection, may develop hypothermia. School bus drivers, as well as teachers, should be taught to recognize symptoms of hypothermia and frostbite. On hot, humid days, some children may have difficulty handling the heat. They may be boarding the bus from an athletic event or coming from a hot classroom. A child might be dehydrated and start to show signs of heat exhaustion. Drivers should be taught to recognize symptoms of heat stress.

Need for Periodic Drills and Severe Weather Safety Instruction

In order to have an effective severe weather emergency plan, you must have periodic severe weather drills and severe weather safety training. Drills not only teach students and instructors the actions they need to take, but will allow you to evaluate your plan's effectiveness.

Did everyone hear the message? Did they understand what to do? Were they able to get to the designated areas of safety in a reasonable amount of time? It is suggested that such drills are conducted in conjunction with a severe weather education and awareness program so that students and teachers understand the dangers of severe weather and better comprehend the actions that they are asked to take.

The Ohio Committee for Severe Weather Awareness holds two statewide severe weather campaigns annually. One is held in the spring (March) to educate the public about tornado and flood safety. The other is held in late fall (November) to educate about winter weather safety. These campaigns are coordinated through the state and county emergency management agencies, news media, and include a governor's resolution. Severe weather safety weeks would be the opportune time to conduct weather drills. You can contact your local National Weather Service office or county emergency management agency if you would like a speaker to come to your school and discuss severe weather safety.