

**A GUIDE TO DEVELOPING
A**

WEATHER EMERGENCY RESPONSE PLAN

**FOR ALL SITES WITHIN THE SAN ANGELO INDEPENDENT
SCHOOL DISTRICT**

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Safety, Security, and Compliance

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I. INTRODUCTION

A. Purpose of Guide

The purpose of this guide is to help school administrators and teachers design a Severe Weather Emergency Response Plan for their school. While not every possible scenario or solution is covered by this guide, it will provide enough information to serve as a starting point and a general outline of actions to take. Remember that safety is always our top priority in emergency situations concerning severe weather. The ultimate goal is to quickly inform teachers and students to the threat of severe weather and relocate them as quickly as possible to a secure place of shelter. Tornadoes and thunderstorms can occur with rapid onset, and perhaps little or no warning. Decisions must be made fast and actions taken immediately. One cannot wait for the storms to strike before planning what must be done to protect students and staff. Prepare now and develop a Severe Weather Emergency Response Plan for your site.

B. Who Will Develop Your Plan

Before you begin, it is recommended that you designate a staff member to serve as the “Severe Weather Coordinator” (SWC). A backup should also be identified should the SWC not be available. Such a person(s) should be a staff member familiar with the facility as well as the campus population, and also interested in weather. The SWC as well as the backup should be able to attend Storm Spotter Training, hosted by the National Weather Service, at no cost to the participants. The SWC and his/her backup should be responsible for developing the plan and working with the District Safety Specialist (DSS), and local staff to develop and implement the plan. For the Severe Weather Emergency Response Plan to work effectively, it must be drilled and practiced. *State Law now mandates that all public schools conduct a minimum of two tornado safety drills per year. Tornado safety instruction should be a part of these drills.* It is important to understand why certain actions are being taken, to know the weather terms that are being used, and to know what visual clues can signal you to potential dangers ahead.

II. SEVERE WEATHER THREATS IN TEXAS

Tornadoes are not the only threat from severe thunderstorms. “Straight-line” winds, hail, and lightning also pose their own dangers. Severe thunderstorms produce damaging winds 58 mph or greater, and/or hail $\frac{3}{4}$ of an inch in diameter or greater. In the most dangerous severe thunderstorms, the straight-line winds can exceed 100 mph. These winds not only uproot trees, but can cause significant structural damage to portable buildings, homes and even schools. These dangerous severe storms can also produce hail up to 3 inches in diameter falling at 100 mph.

All thunderstorms produce lightning and therefore are potentially life threatening. In most thunderstorms, lightning can arc from the thunderstorm clouds and strike an area 5 to 10 miles away. And in rare cases, lightning can arc up to 30 miles away from the thunderstorm.

No place is absolutely safe from lightning; however, some places are much safer than others. The safest location during lightning activity is an enclosed building. A safe building is one that is fully enclosed with a roof, walls and a floor, such as a home, school, office building or a shopping center. Even inside you should take precautions. Picnic shelters, dugouts, and other partially open structures are not safe. Enclosed buildings are safe because of wiring and plumbing. If lightning strikes these types of buildings, or an outside power pole, the electrical current from the flash will travel through the wiring or the plumbing into the ground. This is why you should stay away from showers and sinks, and electronic equipment such as TV's, radios, and computers. Phone use is the leading cause of indoor lightning injuries in the United States. Lightning can travel long distances in electrical and phone lines, particularly in rural areas. Stay away from windows and doors as these can provide a direct strike to enter a building. Do not lie on any concrete floor as it likely contains wire mesh or metal reinforcing bars. Avoid contact with concrete walls because they could contain similar construction materials.

When averaged over the past ten years, an average of 7 tornados touch down each year here in the Concho Valley. In addition, 30 thunderstorms containing dangerously high winds have been averaged each year here in the Concho Valley.

III. DESIGNING YOUR PLAN

A. How to Receive Emergency Weather Information

Because tornadoes and severe weather can occur with little, if any, warning, minutes and even seconds can mean saving lives. In just five minutes, a tornado may travel two to four miles on the ground. From the time the NWS issues a warning, to the time you receive that warning, critical minutes may have elapsed. You must be listening when the initial warning is announced to prevent an even greater amount of time elapsing. The fastest, most accurate and reliable means of receiving critical weather information at your school is through the National Oceanic and Atmospheric Administration (NOAA) All Hazards - Weather Radio. Any NOAA All Hazards - Weather Radio should be equipped with battery backup, a "tone alert" feature, and programmable capabilities (SAME-Specific Area Message Encoding). The NOAA All Hazards Radio is operated directly from the NWS Offices and is part of our country's National Warning System. The radio is an all hazards radio, which will alert for weather, technological, chemical and other man made hazards.

When the NWS issues a severe weather warning, the "tone alert" is instantly sounded followed by the warning information. The NWR "tone alert" is activated when weather warnings as well as severe thunderstorm, flash flood, and tornado watches are issued (see appendix A for Watch/Warning definitions). NWR broadcasts 24 hours a day, seven days a week with current weather and forecast information, and also provides special updates about sudden weather changes and potentially hazardous weather.

Your sources for emergency weather information should be located in the main office, near the person(s) responsible for enacting the plan. Main offices are good because generally there are people around who could hear the alert, and it is close to the public address (PA) system. The All Hazards Radio should be set at all times in “Alert” mode. Some radios will automatically turn on when an alert sounds, while others must be manually turned on. It is better to have the type that automatically turns on in case you are out of the room when the tone is activated. The All Hazards Radio cycles information every few minutes, so if you don’t get all the information the first time through, it will repeat shortly. While waiting for the cycle to repeat, warning information can also be gathered on the NWS web site www.srh.noaa.gov/sjt. Listen for three things: 1) the type of watch or warning, 2) where it is in effect, and 3) how long it’s in effect for. The person(s) monitoring must know what action they should take based on this information. It is suggested that you have a map nearby for easy reference to counties and towns to locate storms and their movement in reference to your location. However, keep in mind that even if the warning is not for the school’s immediate location, weather may change rapidly, and activation of the school’s plan may still be required. Any watch or warning issued in adjacent counties should heighten your awareness to the potential for severe weather that may affect your school, especially for example if the warning of a storms path is in a direction toward your area.

B. How will the School Administration Alert Teachers and Students to Take Action?

Our schools utilize public address (PA) systems, whether through stand alone systems or through phone systems to contact staff and students. In some cases electricity may be lost during a storm before you have activated your response plan. Therefore, it is critical to have a back-up device such as the established hand held District Radios, a “bull horn”, or cell phone. If your school has temporary buildings or detached gymnasiums, then you need to make sure they are connected to the PA system or phone system, and that it is working. Special arrangements should be made with these locations to make sure they are notified and activated first so that they can be brought into secure locations. It is not advised to send runners out to these exterior facilities if the storm is close. Your plan must also address before and after hour activities. Clear instructions about response procedures should be announced to guests prior to any after hour activity beginning. Handicapped or learning-disabled students may also require special attention. You may want to assign a teacher, aide or buddy to each student requiring special attention to make sure the student moves to the appropriate place of safety. Your emergency response plan should also provide for hearing impaired students, staff, and visitors. They may not be able to hear, or be in an area to hear announcements or warnings. To ensure appropriate response to your plans, drills should be held no less than twice a year. After the drills, meetings should be held to confirm with staff that plans and locations are appropriate (part H).

C. Tornado and High Wind Safety Zones in Your School:

This may be the most complex and time consuming phase of your plan. Our schools are diverse in design, making it impossible to develop a plan that will work for all sites. Due to this complexity, it is recommended that this phase of the plan be accomplished with the help of an engineer or architect familiar with the facility. General guidelines and concepts that should be discussed are:

1. Flying debris,
2. Breaking glass,
3. Facility structure, and
4. Roof failure

The most dangerous locations are generally rooms with large expansive roofs such as cafeterias, gymnasiums, and auditoriums. The collapse of the load-bearing wall may lead to the failure of the entire roof. Rooms with large windows that may shatter from being struck by airborne missiles or from severe winds are also considered extremely dangerous. While windows on the side of the approaching storm are most susceptible, as the storm passes, any windows could potentially shatter. This is one of the reasons that IT IS NO LONGER ADVISED THAT YOU OPEN WINDOWS! Greater damage may occur from this action, and valuable time that should be used getting to safety is lost. Small interior rooms and 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-bearing walls and structures. If your school has more than one story, it is recommended that you evacuate the upper level unless you are advised by the engineer or architect otherwise. The lowest level is always the safest.

You may not be able to find enough “ideal” space to occupy your whole student body, or it may be a matter of determining the lesser of the evils. Below is a list beginning with the MOST DANGEROUS AREAS: (The following list is based on broad generalities)

1. Areas with windows on exterior walls,
2. Rooms with large roof spans,
3. Temporary classrooms,
4. Exterior walls located on upper levels,
5. Interior walls located on upper levels,
6. Exterior walls on lower levels and interior glass,
7. Interior lower level, non-load bearing walls.

Fortunately, 70% of recorded tornado damage has been focused on portable classrooms, rooms with large roof spans, and window areas on exterior walls. With that, you may want to rank areas according to safety.

D. Activation Phases of Your Severe Weather Response Plan;

This portion of the response plan is a template of how notifications and responses should take place. Remember that situations could arise and expedite, change or prevent completion of portions of, or all of the expected process.

Activation of your Severe Weather Response Plan may work best for you and your staff in phases of activation.

1. Morning

A review of the daily NWS weather forecast will be made to determine the potential of severe weather developing during school hours. If the possibility exists, e-mails will be generated to district personnel as early as possible by designated district personnel advising of the possibility of developing conditions. Additionally notices will be placed on the web site as well as District Television Channel 4. If conditions are favorable for producing severe weather, site personnel should start the day by reviewing the NWS Hazardous Weather Outlook (see Appendix B) to understand the possible threats for your area that day. Redundant methods of communication should already be established and tested in case you lose electricity, or primary methods of communication go down.

2. Site Preparation

Once notification is received of weather status, the following should take place on your campus; Verify your NOAA weather radio is turned on and operating; available personnel should ensure that all safe areas are cleared and accessible for students and staff; emergency supplies should be checked for content and condition, and placed for easy access; a review by department heads, building leaders, or supervisors should be held with their staff to make sure everyone is prepared and aware of the conditions; make sure all District Emergency Hand Held Radios are charged and available; secure emergency contact lists for staff and emergency responders.

3. Severe Weather Watch is Issued

As you receive the notification of severe weather watch, begin preparing and updating teachers in temporary buildings, gymnasiums, and cafeterias of approaching weather. Depending on age of students, a review of response procedures should take place so they have it fresh in their minds. Designated staff should continue to monitor TV, radio, NWS Web site, and NOAA radio. Updates will be sent out via e-mails as to the changing status as reported by the NWS. If trained "Storm Spotters" are on staff, have them keep an eye on the storms as they approach. Remember that winds may pick-up at the onset of the storm and may or may not drop off prior to the storm, and that rain may or may not occur. Straight-line winds from severe thunderstorms can approach 110 mph and can cause as much damage as a moderate tornado. Large hail is normally a signal that you are near the part of the storm in which a tornado may develop. Once the storm has passed (winds, rain, and hail have subsided), it should be safe for students to return to their classrooms. Stay alert for the potential of reoccurring storms.

4. Severe Weather Warning is Issued

Once a warning is issued and storms approach you may want to move students from the areas most susceptible to damage or danger as a precautionary measure.

One special consideration would be the complication of activating your Severe Weather Response Plan during class changes, lunch, or recess when the halls are crowded and students may not know where to go. It may be best to hold class beyond your 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 (part E). You should have several staff members that know how and where to shut off the campus electricity and gas. After a tornado or severe thunderstorm, it may be necessary to shut off the gas and electricity supply to the building if damage has occurred to the school. The Auxiliary Emergency Response Plan will be activated to assist school personnel with communications, utilities, and recovery (Appendix A). If a tornado sighting has been announced in or around San Angelo, immediate implementation of your Severe Weather Response Plan is needed.

- a. Severe weather is announced to be 20-30 minutes away; shut down computers, gather personal belongings, and make sure everyone is accounted for, secure and lock all unnecessary exterior doors.
- b. Severe weather is announced to be 10-20 minutes away; an announcement needs to be made stating that all occupants will move to designated “Shelter-In-Place” areas, and have them attain the protective position. Required personnel will shut off emergency switches to the gas and electricity to the building, assigned personnel will lock and secure the main entrance.

5. Recovery Response

If your school is hit, a pre-designated safety team should assess the damage, including identifying electrical and gas hazards, and injuries. Then notify appropriate medical and law enforcement personnel, as well as the administration building.

E. When to Hold Departure of School Buses;

You will want to consider holding the departures of students to buses whenever watches are in effect. There are three primary considerations.

1. Upon departure, how long before ALL students have been deposited safely at home? Include time for students to walk from their bus stops to their home.
2. How much time do you have before the storms are expected to impact your site? Tornado watches are sometimes issued a couple of hours in advance of thunderstorm development. Watches are generally issued for large areas, so even once storms have developed; 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 for the storms to arrive. If you feel that severe weather is not imminent, communication with the Transportation Department may agree that buses may depart, but drivers need to be made aware of the severe weather threat level.*

3. If a warning is in effect for our area at dismissal time, delay departure of the buses. Escort students that have already been loaded onto the buses back into the school. **Buses provide little protection from severe storms.**

If a warning is in effect at dismissal time, a collaborated decision will be determined by all appropriate administrative personnel. Warnings are normally issued in time to respond appropriately before severe weather is expected to arrive but, on some occasions, it may be rapidly developing situations that within less than an hour the storms will arrive. Decisions will be based on information derived from any/all available sources. *It is always best to err on the side of caution.* Finally, it must be conveyed to parents that they should NOT pick up their children at school during severe weather. They should be aware of all precautions that are being taken to protect their children, and that the students are far safer at school with the Severe Weather Emergency Response Plan activated, than on the road when the storm strikes.

NOTE: It is suggested to detain parents in safe shelter locations that arrive at school to pick-up their children during severe weather warnings.

F. School Bus Actions

All School Bus Drivers should be trained on how to recognize and handle severe weather situations. Our local Emergency Manager and National Weather Service Office can assist in the development of Severe Weather Spotting and Reaction Training. Although tornadoes and flash flooding are our primary concern here, large hail and high winds also pose significant threats. Bus drivers should be able to react quickly and take charge of a severe weather situation.

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

1. If you have time to get to a designated tornado shelter or well-constructed building that you can unload students into, then certainly do it as fast as possible. In a building move them into the interior or basement away from windows and doors.
2. If no sturdy shelter is available, look for a ditch or low-lying area (preferably without water). Make sure the bus is parked well away (preferably downwind) from the location you have selected. Unload the students to the low-lying area and have them get into a crouching position with their hands over their heads.

G. Safety During Athletic Events

Protecting athletes and spectators once severe weather begins moving into the area is essentially impossible because there is so little time to act and because safe shelter is much more difficult to find. Suggesting that everyone go home when imminent weather is approaching is not acceptable because automobiles are not safe shelters under these conditions. Administrators, teachers, and coaches need to adopt a “zero tolerance” attitude towards lightning, which kills more people in America than tornadoes. If

lightning is detected within a five mile radius then the activity should be suspended until the threat has diminished. If thunder can be heard, then you can be struck by lightning. Utilization of the 30-30 rule will guarantee conditions are safe for resumption of play. Basically you can resume play 30 minutes after the last lightning is seen, or if 30 seconds elapsed between seeing the lightning and hearing the thunder. The single most effective response an athletic program can take is to monitor and obtain accurate, current weather information and shut down events when severe weather threatens.

For severe weather safety, athletic programs should;

1. Designate a chain of command for making the decision to remove individuals from an athletic site.
2. Designate an individual to monitor weather forecasts constantly when there is any threat of severe weather.
3. Athletes and coaches should know where the closest safe shelter is. If no safe shelter is nearby, individuals should find shelter in a ditch, ravine, or other place below ground level and stay as low as possible.
4. Tornado watch or severe thunderstorm watch: If a watch is issued either during a practice or a game, athletic activity can continue, as long as staff and athletes know how to get to a nearby safe shelter and a Weather Radio is being continually monitored.
5. Tornado warning, severe thunderstorm warning, thunder is heard, or lightning is seen: During either a practice or a game, the athletic activity should be suspended and all participants moved as rapidly as possible to a safe shelter.

Extreme weather conditions threaten the health of athletes, staff and spectators. Before any athletic season begins, procedures should be implemented for modifying or canceling practices and games under conditions of lightning, severe storms, tornado watches and warnings, extreme heat and extreme cold. There are no national standards for such policies.

H. Need for Periodic Drills and Tornado Safety Instruction:

In order to have an effective Severe Weather Emergency Response Plan, you must have periodic severe weather drills and severe weather safety training. In compliance with Senate Bill 11, each site must conduct these periodic drills throughout the school year. Drills not only teach students and their teachers the actions they need to take, but will allow you to evaluate your plans effectiveness. Did everyone hear the message, did everyone understand what to do, and were they able to get to their designated areas of safe shelter in a reasonable amount of time? It is suggested that you conduct such drills in conjunction with severe weather education and awareness programs so that the students and teachers understand the dangers of specific severe weather, and can better comprehend the responses required.

This year in Texas, the NWS will hold its annual statewide “Severe Weather Awareness Week” February 24th - March 1st before the official onset of the severe weather season. This campaign is coordinated through the state and local government emergency management agencies, the news media, and includes a proclamation from the governor. This may be an opportune time to fine tune your response plan. While tornadoes are advertised as a spring time event, it is not uncommon to have them develop at any time during the year.

IV. APPENDICIES

Appendix A AUXILARY STAFF'S SEVERE WEATHER ACTION PLAN

The district's auxiliary staff (i.e., Maintenance, Transportation, and Food Service) is committed to assisting any and all district sites in times of severe weather. Adequate timing is very important in guaranteeing that if help is required, they are able to get to you. If the suggested guidelines are followed as recommended in Chapter IV - part D of the Guide to Developing a Severe Weather Action Plan, then assistance can be selected and distributed effectively and appropriately.

“Plan A” – Sites have requested Assistance

Each site within the district will contact the Maintenance Department either by telephone or District Emergency Radio, and request assistance for impending weather. Staff will arrive to assist campus administration in any way necessary. Their main responsibilities will be to make sure that radio communications are maintained, and that utilities are shut-off if the situation requires it, and to assist with any repairs or restorations should the storm produce any damage to your site.

“Plan B” - No Telephone Communication

Once determined by the Maintenance Director that phone communication has been lost to any/all of our district sites, a determination will be made to mobilize and dispatch personnel to needed district sites. Because of the circumstances surrounding their arrival, they will not be able to shut-off utilities, but will be able to maintain radio communication between your site and the Maintenance Department in case repair or response is required by emergency responders.

“Plan C” – Flash Flooding

Due to the amount of rain that could be received during a severe storm, assistance will be required from our auxiliary departments. These personnel may or may not already be at your sites, depending on the severity of the storm and notifications received by the NWS. If auxiliary personnel have not already been dispatched to your site, the Maintenance Director in coordination with the District Administrative Staff will mobilize and dispatch personnel to any/all sites requiring assistance. Transportation will assist with buses to relocate students and staff to areas away from flooding.

Auxiliary Staff Responsibilities

- i. To assist with ensuring the safety of all students and staff during and after a severe weather incident.
- ii. To assist with controlling utilities as needed, depending on the storm's intensity.
- iii. To perform a walk-thru of their assigned campus and report back to Maintenance Dispatch of facility and personnel status.
- iv. To remain at assigned site until an “ALL CLEAR” is issued by appropriate authorities.

APPENDIX B:

NATIONAL WEATHER SERVICE PRODUCTS FOR HAZARDS

(What to listen for)

1. *WARNINGS*- The hazard (tornado, flash flood, etc) is imminent. The probability of occurrence is extremely high. Warnings are issued based on eyewitness reports of clear signatures from remote sensing devices such as radar and satellite. Lead-time for thunderstorm type events is generally 30 minutes or less. Lead-time for river floods can be 6 to 18 hours.
2. *WATCHES*- Meteorologists have determined that conditions appear right for the development of the hazard. Probability of occurrence is greater than 50% in the watch area. Watches generally cover larger areas than warnings. In the case of thunderstorms, less than 30% of the watch area may experience the hazard. Severe thunderstorm and tornado watches are usually issued 1 to 4 hours before the onset of the event. With flash floods, it can be 3 to 12 hours.
3. *ADVISORIES*- An advisory is issued for weather that is expected to be a disruption to the normal routine and an inconvenience, but it is not expected to be life-threatening. The time frame is similar to that of a warning.
4. *HAZARDOUS WEATHER OUTLOOKS*- The NWS Forecast Office issues the Hazardous Weather Outlooks each morning and whenever an update is warranted. The outlook will discuss if storms will develop, where and when they may develop, and how intense they may be with specific information on the types of threats expected (i.e. tornadoes, high winds, hail, lightning or heavy rain). Outlooks may also discuss possible heavy rain, flood events.

APPENDIX C:

SITE UTILITY MAP

APPENDIX D:

CAMPUS EMERGENCY CONTACT LIST

APPENDIX E:

TORNADO SAFETY PLAN CHECKLIST

Use the following checklist for the evaluation of design of a tornado safety plan for your school. The plan should be designed so that teachers and students anywhere on the school grounds can be quickly alerted and follow a preset plan of action to maximize safety.

1. Who is responsible for activating the plan? Is there a back-up?
2. What is/are the primary means of receiving tornado information? A Programmable (SAME) NOAA Weather Radio-All Hazards with an alert feature and battery backup is recommended. Additional Information will be received district wide by e-mail and Web and TV services.
3. What method do you employ to alert teachers and students? Is there a back-up that does not require electricity which may be lost as the storm approaches?
4. Make provisions for the following problem areas:
 - A. Students that are in mobile classrooms that may be far from the main building and that may be disconnected from an intercom system.
 - B. Students that may be in the cafeteria or gymnasium during the storm.
 - C. Learning-disabled students or any other students who may be in a position to not hear the warning or alert or be able to respond on their own accord. Assign a teacher to each student with special needs, ensuring that the student arrives at a place of safety.
 - D. Students who are outside, including after-school activities. Remember, if you are close enough to hear thunder, then you are close enough to be struck by lightning. Also, students who are outside are at risk from the dangers of large hail and severe thunderstorm winds.
 - E. Before and after school events.
5. Four main problems for schools in a tornado:
 - A. Forces caused by winds and the airflow around the building.
 - B. Forces caused by other objects (debris) impacting school walls.
 - C. Gas leaks and electrical hazards after the storm. Have someone knowledgeable in turning off gas and electricity at the school during school hours if appropriate.
 - D. “Wind Tunnel Effect” – When blown by tornado-strength winds, debris, (such as fragments of glass, wood, and metal) can cause serious injury when accelerated by relatively narrow hallways in schools.